



Sun Installation Assistant for Windows and Linux User's Guide

Sun Blade 8000 Series
Server Modules

Sun Microsystems, Inc.
www.sun.com

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Preface

The *Sun Installation Assistant User's Guide* provides detailed information about installing supported operating systems on a Sun Blade™ 8000 Server Module.

This guide is written for system installers who are familiar with installing computer hardware, as well as for system administrators who are experienced with installing and configuring various operating systems.

For more information about related product documentation, technical support, or training, refer to these sections:

- [“Related Documentation” on page vi](#)
- [“Documentation, Support, and Training” on page vii](#)
- [“Sun Welcomes Your Comments” on page vii](#)

Related Documentation

The documents listed as online are available at the following web sites:

- For the Sun Blade 8000 Modular System;
<http://docs.sun.com/app/docs/blade8000>
- For the Sun Blade 8000 P Modular System;
<http://docs.sun.com/app/docs/coll/blade8000p>

Content	Title	Part Number	Format	Location
Late-breaking information	<i>Sun Blade 8000 Series Product Notes</i>	819-5651	PDF HTML	Web
Site Planning	<i>Sun Blade 8000 Series Site Planning Guide</i>	819-5648	PDF HTML	Web
New Installation <ul style="list-style-type: none">• Rackmounting• Hardware Setup• Cabling• Management Network• OS Installations	<i>Sun Blade 8000 Series Installation Guide</i>	819-5647	Printed PDF	Web
Configuring and Running the System <ul style="list-style-type: none">• Product Overview• OS Configurations• Service Procedures• ILOM System Management• I/O and Interconnectivity• Diagnostics• Fault Management• BIOS	<i>Sun Blade 8000 Series Online Information System</i>	819-5846	HTML	Web

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Sun Installation Assistant for Windows and Linux User's Guide *User's Guide*, part number 820-3357-10.

Introduction to the Sun Installation Assistant

This chapter introduces the Sun Installation Assistant (SIA) features and the device drivers it installs on the Sun Blade 8000 Series Server Modules. Topics discussed in this chapter include:

- [“About the Sun Installation Assistant” on page 1](#)
 - [“SIA Features and Benefits” on page 2](#)
 - [“SIA Media Availability and Updates” on page 3](#)
- [“Sun Blade 8000 Series Supported Windows Operating Systems” on page 3](#)
 - [“Windows 2003 Device Drivers Installed by SIA” on page 4](#)
- [“Sun Blade 8000 Series Supported Linux Operating Systems” on page 5](#)
 - [“Linux Device Drivers Installed by SIA” on page 5](#)

About the Sun Installation Assistant

The Sun Installation Assistant (SIA) is a tool that assists in the installation of supported Linux and Microsoft Windows operating systems (OS). With SIA, you can install the OS, the appropriate drivers, and if necessary, additional system software by simply booting the SIA media and following the prompts.

SIA does not automate the OS installation process. You still need to follow the installation procedures for your OS, but you do not have to inventory your system hardware, search out and download device drivers most recently supported by Sun, nor will you need to create a separate driver CD. SIA does that work for you.

For additional information about installing an operating system on Sun Blade 8000 Series Modules, see:

- The *Sun Blade 8000 Series Installation Guide* (819-5647), chapters 8 and 9 for more information.

The latest version of the *Sun Blade 8000 Series Installation Guide* is available for download in PDF format at the following URL:

<http://docs.sun.com/app/docs/coll/blade8000>

- The installation documentation for the supported operating system installation.

Note – If you prefer to perform the operating system installation without the assistance of the SIA tool, refer to the operating system installation chapters in the *Sun Blade 8000 Series Installation Guide* (819-5647).

SIA Features and Benefits

SIA provides the following features and benefits:

- Bootable media from either a local drive attached to the server, a remote redirected network drive, or a PXE network boot.
- Identification of your platform hardware and installed option cards.
- Identification of the operating system media and the supported device drivers that are required for your system.

Note that SIA does not provide the operating system software. The operating system software must be provided by the customer during the SIA installation.

- Installation (if required) of the most recent OS-level device driver(s) supported by Sun, and system software required for your system.

For a list of drivers installed by the Sun Installation Assistant, see “[Windows 2003 Device Drivers Installed by SIA](#)” on page 4 and “[Linux Device Drivers Installed by SIA](#)” on page 5.

- Intuitive error messages if an error or unexpected condition occurs during the installation.
- Event log file readily available, if required, at the /root directory of the newly installed server module.

SIA Media Availability and Updates

The Sun Installation Assistant CD/DVD ships with all new Sun Blade 8000 Series Modular Systems. In addition, a software image of the Sun Installation Assistant is available for download from the Sun Blade 8000 Modular System Download page at: <http://www.sun.com/servers/blades/downloads.jsp>

Updates to the SIA program can be obtained easily during the SIA installation by clicking the Updates button in the SIA graphical user interface.

Sun Blade 8000 Series Supported Windows Operating Systems

The Sun Blade 8000 Series Server Modules support the following English-only Microsoft Windows Server 2003 operating system distributions:

Server Module	Operating System
X8400, X8420, X8440	<ul style="list-style-type: none">• Microsoft Windows Server 2003 R2) Enterprise Edition (32-bit or 64-bit)• Microsoft Windows Server 2003 R2 Standard Edition (32-bit or 64-bit)• Microsoft Windows Server 2003 (SP1) Enterprise Edition (32-bit or 64-bit)• Microsoft Windows Server 2003 (SP1) Standard Edition (32-bit or 64-bit)
X8450	<ul style="list-style-type: none">• Microsoft Windows Server 2003 Enterprise Edition (SP1, SP2, or R2) (32 bit and 64 bit)• Microsoft Windows Server 2003 Standard Edition (SP1, SP2, or R2) (32 bit and 64 bit)• Microsoft Windows Server 2008 Standard Edition (32 bit and 64 bit)• Microsoft Windows Server 2008 Enterprise Edition (32 bit and 64 bit)

Note – All Sun Blade 8000 Series Server Modules running the Microsoft Windows Server 2003 operating systems require the installation of the device drivers listed in [TABLE 1-1](#) to properly operate.

Windows 2003 Device Drivers Installed by SIA

TABLE 1-1 identifies the Microsoft Windows 2003 operating system device drivers installed by the Sun Installation Assistant.

Note – The SIA eliminates the need to manually install the required Windows device drivers (listed in TABLE 1-1) after performing the Windows operating system installation.

Note – Device drivers are not required or installed by SIA for Windows 2008 operating system installations.

TABLE 1-1 Window Device Drivers Installed for Sun Blade 8000 Series Server Modules

32 and 64 Bit Device Drivers	Capabilities	Installed on ...
AMD CPU Device Driver	Enables full functionality and performance of the AMD CPU	All 8000 Server Modules*
AMI Virtual Floppy Device Driver	Enables support for redirected floppy images through KVM consoles.	All 8000 Server Modules
LSI SAS/SATA Device Driver	Enables support for the local hard disk drive (HDD)	All 8000 Server Modules
Intel Ethernet Device Driver	Enables support for the ExpressModule (EM) and Network Express Module (NEM) Ethernet adapters	All 8000 Server Modules
QLogic SAN Device Driver	Enables support on the EM for the Fibre Channel disk array	All 8000 Server Modules
Nvidia Chipset SMBus Device Driver	Enables support for the Nvidia Chipset SMBus	X8440 Server Modules
ATI Rage XL Graphics Device Driver	Enables support for hot-plug monitor detection	X8400 and X8420 Server Modules
ATI ES1000 Device Driver	Enables enhanced resolution capabilities for directly connected monitors.	X8440 Server Modules

Note – SIA does not install the Emulex SAN device drivers or the Mellanox Infiniband (IB) device drivers. If you have an Emulex Fibre Channel EM or NEM, or Mellanox IB EM installed in your Sun Blade 8000 Series Chassis and require those device drivers, refer to the *Sun Blade Modular Systems - I/O Modules* web site at: <http://www.sun.com/servers/blades/optioncards.jsp>

Sun Blade 8000 Series Supported Linux Operating Systems

The Sun Blade 8000 Series Server Modules support the following Linux operating system distributions:

Server Modules	Operating System
X8400, X8420, X8440	<ul style="list-style-type: none"> Red Hat Enterprise Linux v.4 Update 3 (or later) for X86 (32-bit and 64-bit) (RHEL4-U3) Red Hat Enterprise Linux v.5 (or later) for X86 (64-bit) (RHEL5) SUSE Linux Enterprise Server 9 Service Pack 3 for X86 (64-bit) (SLES9-SP3) SUSE Linux Enterprise Server 10 (or later) for X86 (64-bit) (SLES10) .
X8450	<ul style="list-style-type: none"> Red Hat Enterprise Advanced Server Linux v.4 Update 4 or later for x86 (32 bit and 64 bit) SUSE Linux Enterprise Server 9 with SP6 or later for X86 (64 bit) SUSE Linux Enterprise Server 10 with SP1 or later for x86 (64 bit)

Linux Device Drivers Installed by SIA

[TABLE 1-2](#) identifies the system device driver installed by SIA for SLES9-SP3.

TABLE 1-2 SLES9-SP3 Device Driver Installed by SIA

64-Bit Device Driver	Capabilities	Installed on ...
Emulex SAN Device Driver	Enables support for Emulex Fibre Channel EMs* and NEMs*.	All X8000 Series Server Modules running SLES9-SP3.
All 8000 Server Modules*: Applies to the X8400, X8420, and X8440 Server Modules EM*: Applies to the PCIe ExpressModule NEM*: Applies to the Network Express Module		

The required device drivers for RHELv.4 or v.5 and SLES10 are included in the Linux operating system distribution media.[TABLE 1-2](#)

What's Next

- To perform SIA installations from local or remote media, see [Chapter 2](#).
- To perform PXE SIA installations, see [Chapter 3](#).
- To troubleshoot an SIA installation, see [Chapter 4](#).

Local and Remote SIA Media Installations

This chapter explains how to install a Microsoft Windows or Linux operating system using the Sun Installation Assistant (SIA). The instructions in this chapter assume that you are using either local or remote boot media to run the installation programs.

The Sun Installation Assistant provides OS-level device drivers that are certified by Sun for Sun I/O option cards and other system hardware. Using the Sun Installation Assistant eliminates the need to obtain and prepare OS-level device drivers for installation prior to installing the operating system on a Sun Blade 8000 Series Server Module.

Note – For a complete list of system and OS-level device drivers that are provided and installed by SIA, see [“Windows 2003 Device Drivers Installed by SIA”](#) on page 4 and [“Linux Device Drivers Installed by SIA”](#) on page 5.

The Sun Installation Assistant CD/DVD is shipped with each Sun Blade 8000 Series Chassis. An ISO CD image of the Sun Installation Assistant is also available for download from the Sun Blade 8000 Modular System Download page at: <http://www.sun.com/servers/blades/downloads.jsp>

Topics in this chapter include:

- [“Console and Media Install Methods”](#) on page 8
 - [“Local and Remote Console Options”](#) on page 8
 - [“Local and Remote Media Options”](#) on page 9
- [“Install SIA and OS Using Local or Remote Media”](#) on page 10
 - [“How to Install SIA and OS Using Local or Remote Media”](#) on page 11

Console and Media Install Methods

Prior to starting the installation, you need to determine the installation method (console and media) that you will use to install the software (SIA and the operating system software). The following sections identify the local and remote consoles and media options that you can use to install software on a Sun Blade 8000 Series Server Module.

Local and Remote Console Options

To capture the installation, you can choose to set up a local console or remote console. Supported console options include the following.

- **Serial Console Using a Serial Port Connection.** This console option uses a serial port connection to capture the output and input of the installation.

To use this option, you must physically attach a *serial console* to the serial port located on the Server Module or the Chassis Monitoring Module (CMM). For details, see *Attach Local Serial Console to Server Module* or *Attach Serial Console to CMM* in the *Sun Blade 8000 Series Installation Guide* (819-5647).

- **Console Using a VGA Port Connection.** This console uses a VGA port connection to capture the output and input of the installation.

To use this option, you must attach the VGA console to the VGA analog port on the Server Module. You must also attach a keyboard and mouse to the USB connectors on the Server Module. For details, see *Attach Local VGA Monitor to Server Module* in the *Sun Blade 8000 Series Installation Guide* (819-5647).

- **Sun ILOM Remote Console (Remote KVMS).** The Sun ILOM Remote Console is a Java™ application that is launched from the ILOM web interface. For this console option, the text output device is the remote console that is running the Sun ILOM Remote Console application. The input devices are the remote keyboard and mouse.

To use this option, you must have network connectivity established to ILOM (Server Module SP or CMM). For more information about establishing network connectivity to ILOM, see Chapter 5 in the *Sun Blade 8000 Series Installation Guide*. For more information about how to use the Sun ILOM Remote Console, see Appendix A in the *Sun Blade 8000 Series Installation Guide* (819-5647).

- **Console via SSH or Telnet.** This option establishes console access through a secure shell (SSH) connection or Telnet connection to either the CMM or Server Module Service Processor (SP). This option is similar to the “console via serial port connection” except that it uses a SSH or Telnet connection to the serial port.

To use this option, you must have network connectivity established to the blade SP or CMM. For more information, see Chapter 5 in the *Sun Blade 8000 Series Installation Guide* (819-5647).

Local and Remote Media Options

You can use local or remote media to install software on a Sun Blade 8000 Series Server Module. Brief descriptions about the supported local and remote media options follow.

- **Local Attached Installation CD/DVD.** When you perform the installation using local media, you must attach a CD/DVD-ROM drive to the USB connector on the front panel of the Sun Blade Server Module.

For more information about how to attach a CD/DVD-ROM drive to a Sun Blade Server Module, see *Attach USB Devices to Server Module* in the *Sun Blade 8000 Series Installation Guide* (819-5647). For more information about how to perform the SIA installation from local media, see [“Install SIA and OS Using Local or Remote Media”](#) on page 10.

- **Remote Virtual Installation Media** (CD/DVD, ISO Image, or PXE Configuration File). When you perform the installation using remote virtual media, you must perform the installation from the Sun ILOM Remote Console.

For additional information about the Sun ILOM Remote Console, see Appendix A in the *Sun Blade 8000 Series Installation Guide* or see Chapter 12 in the *Sun Integrated Lights Out Manager User’s Guide*.

- **Remote Network Installation Media** (Linux installations only). When you perform the SIA installation over the network, you must specify the address of the SIA media using HTTP, NFS, or FTP.

Install SIA and OS Using Local or Remote Media

The SIA installation program provides a graphical user interface that guides you through the initial steps of identifying the system hardware, generating the operating system installation from customer-provided media, and completing the installation by installing the device drivers that are certified by Sun.

Before You Begin The following prerequisites must be met prior to booting SIA and the OS installation media.

- You must have the Sun-provided SIA distribution media (CD or ISO CD Image).
The SIA distribution media is shipped with each Sun Blade 8000 Series Chassis. The SIA ISO CD Image is also available for download at this URL:
<http://www.sun.com/servers/blades/downloads.jsp>.
- Established installation environment. You can install software to the Sun Blade Server Module from a local drive, virtual drive, or network shared location. For more information, see [“Console and Media Install Methods” on page 8](#).
- If you perform the installation from a Virtual CD-ROM location, some knowledge or experience is required with the Sun ILOM Remote Console. For additional information about the Sun ILOM Remote Console, see Appendix A in the *Sun Blade 8000 Series Installation Guide* or see Chapter 12 in the *Sun Integrated Lights Out Manager User’s Guide* (820-1188).
- You must have the customer-provided supported operating system distribution media (CD or ISO CD image). For a complete list of supported operating systems, see:
 - [“Sun Blade 8000 Series Supported Windows Operating Systems” on page 3](#)
 - [“Sun Blade 8000 Series Supported Linux Operating Systems” on page 5](#)
- For Microsoft Windows installations, you must have the product key information available during the SIA installation.

▼ How to Install SIA and OS Using Local or Remote Media

Follow these steps when booting the SIA and OS installation from local or remote media.

1. Do one of the following:

- **For SIA Distribution CD/DVD Media.** Insert the SIA CD/DVD into the (local or remote) CD/DVD-ROM drive.
- **For SIA ISO CD Image Media.** Ensure that the ISO CD image containing the SIA distribution files is readily available on a network-shared location or on a system hosting the Sun ILOM Remote Console.

For more information about using the Sun ILOM Remote Console, see Appendix A in the *Sun Blade 8000 Series Installation Guide*.

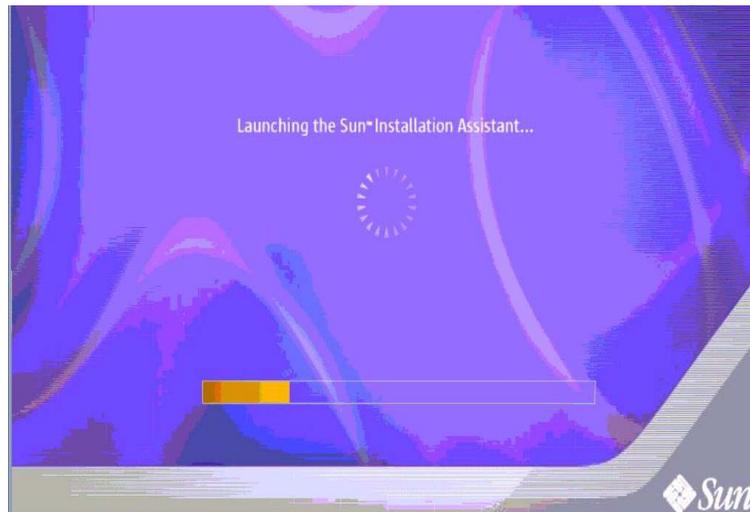
2. Reset the Sun Blade Server Module, for example:

- From the ILOM web interface, click Remote Control->Remote Power Control then select *Reset* to reboot the remote host server.

or

- Press the Power button (momentary, 1 second) on the front panel of the Server Module to turn off the Server Module, then press the Power button (momentary, 1 second) to turn on the Server Module.

The dialog for Launching the Sun Installation Assistant appears. A progress bar indicates the time remaining to launch the program.



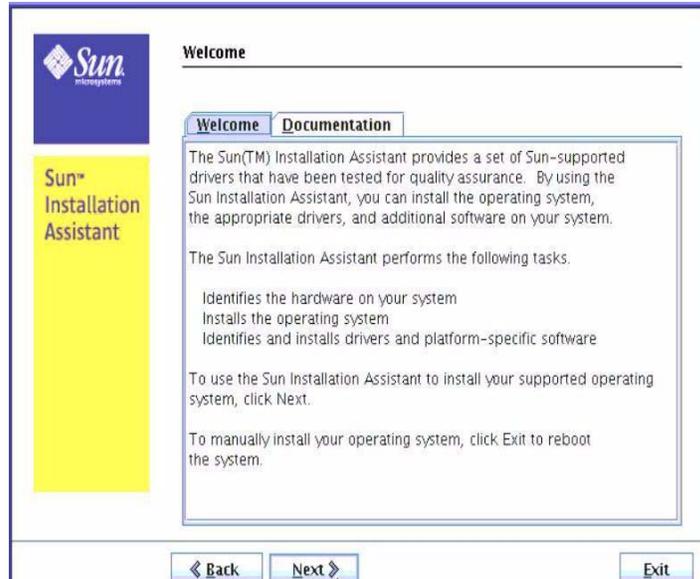
As soon as the SIA program launches, the Software License Agreement dialog appears.

3. In the Software License Agreement dialog, do the following:
 - a. Read the license agreement and scroll down to the bottom of the text window to activate the Accept radio button.

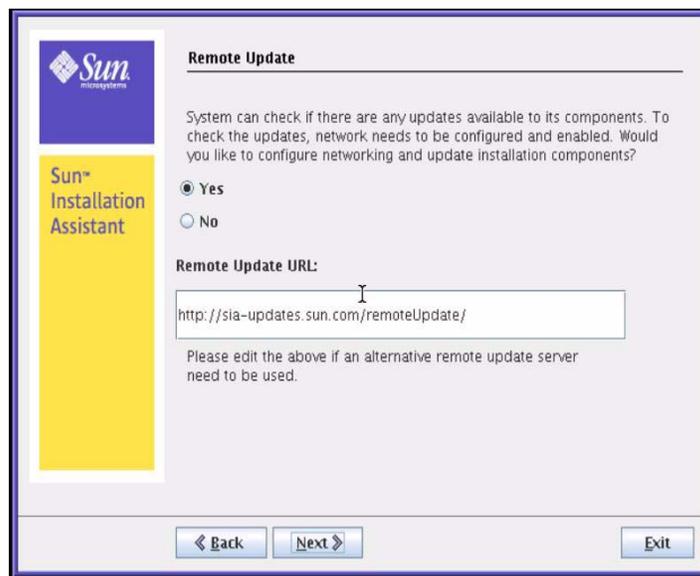


- b. Click Accept to accept the license agreement then click Next to continue.
The SIA Welcome dialog appears identifying the tasks that the Sun Installation Assistant performs.

4. In the SIA Welcome dialog, click Next to proceed with the installation.



The Remote Update dialog appears enabling you to download updates to the SIA program. These updates can include new device and system drivers, as well as fixes for other issues. You must have network connectivity established to the server to download updates.



5. In the Remote Update dialog you can choose to verify whether updates to the SIA program are available for download.

- To decline the remote update, click No then click Next and proceed to Step 6.

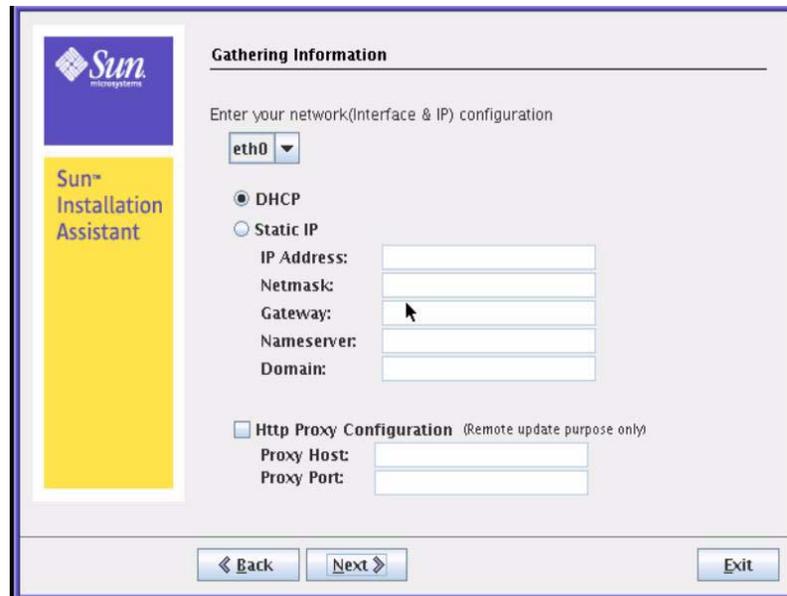
The Identifying System Hardware dialog appears (see Step 6).

or

- To perform a remote update for the SIA program, do the following:

a. Click Yes then click Next to proceed with the remote update.

The Gathering Information dialog appears.



b. In the Gathering Information dialog, specify the appropriate network configuration settings that will enable a network connection to the Sun SIA Update web site. For example:

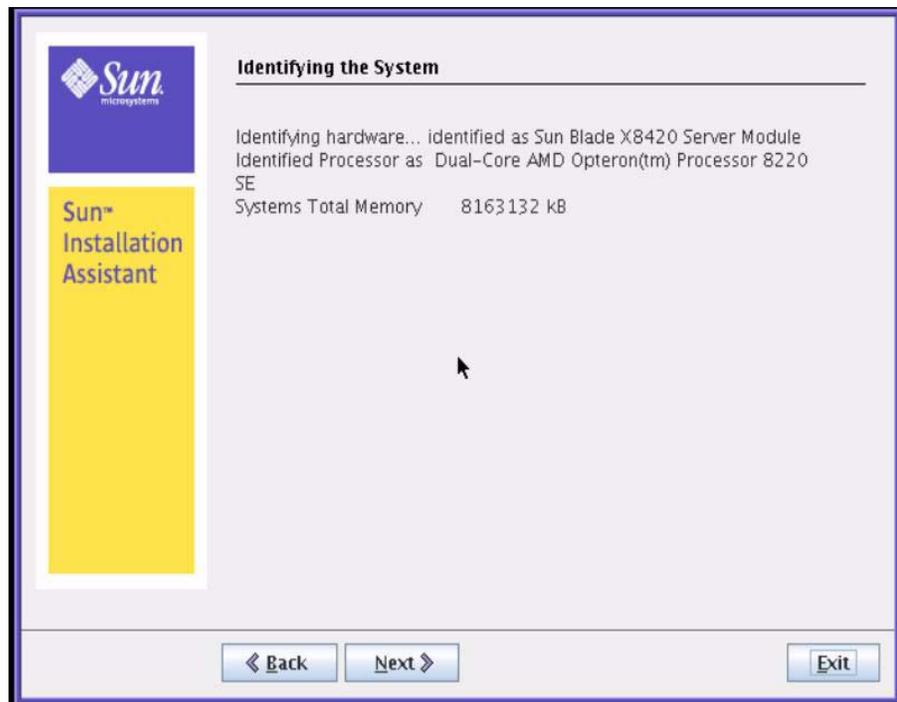
- i. Select the active network interface (for example: eth0)

This will be the network interface used to access the update image. If your server has multiple network cards, be sure to use the network-connected interface that allows access to the host where the update image files reside.

- ii. Select the configuration method (DHCP or Static).

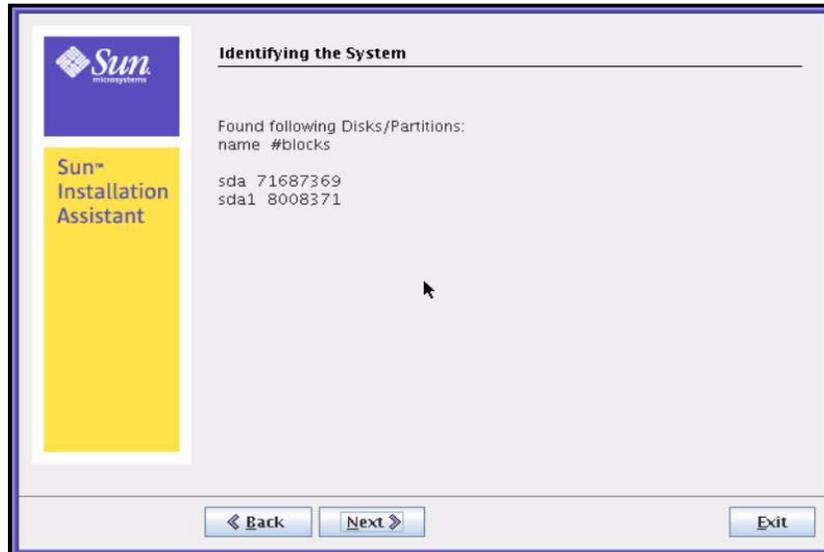
If static method is selected, provide the necessary information (for example, IP address, gateway, and so on)

- iii. **Provide proxy information if an HTTP proxy is needed to access an external site, for example:**
sia-updates.sun.com
 - iv. **Click Next to establish a connection to the Sun SIA Update web site.**
The remote update process checks for updates to the SIA program. If updates are available, the updated components display.
 - v. **Click Next after SIA completes the download process of the SIA program updates.**
The Identifying the System dialog appears.
 - vi. **Proceed to Step 6.**
6. **In the Identifying the System dialog, ensure that the appropriate hardware is installed and there is sufficient memory for your operating system, then click Next to proceed with the SIA installation.**

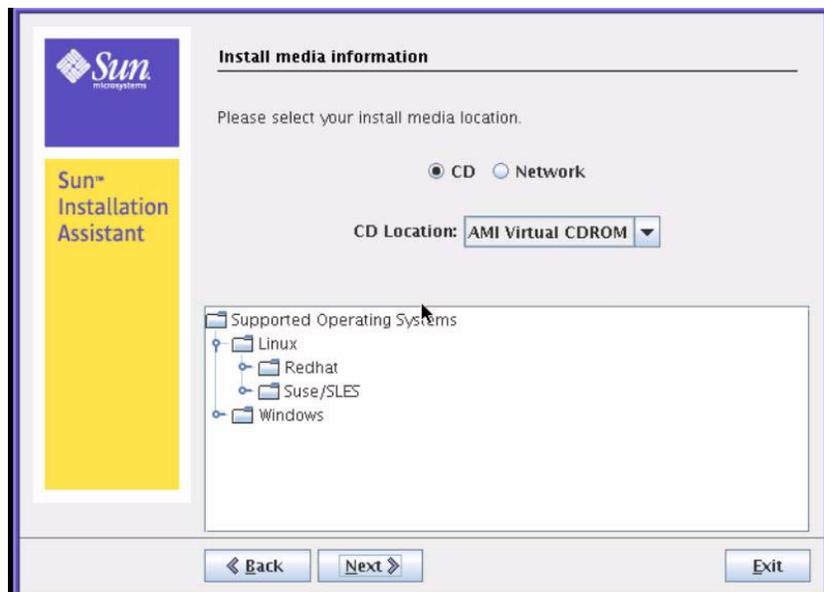


The Identifying the System - Disk Scan dialog appears identifying the devices and options installed on the server.

7. In the Identifying the System - Disk Scan dialog, click Next to proceed with the SIA installation.



The Install Media Information dialog appears enabling you to select the established installation method for installing the supported Windows or Linux operating system distribution (see Step 8).



8. To install the OS distribution media, specify one of the following OS install targets in the Install Media Information dialog.
 - To install the OS from a local attached CD drive, do the following:
 - a. Click CD.
 - b. Select CD Drive as the CD location.
 - c. Eject the SIA CD/DVD from the attached hard disk drive then insert the first disk of the operating system distribution into the attached hard disk drive.

Note – You must insert the OS media into the same CD drive that you used to boot the Sun Installation Assistant.\

- d. Click Next to identify the OS media.

The Identifying Distribution dialog appears.

- e. Proceed to Step 9.

- To install the OS from the Sun ILOM Remote Console (CD or ISO CD image), do the following:
 - a. Click CD.
 - b. Select AMI Virtual CDROM.
 - c. In the Sun ILOM Remote Console, specify the network location of the media that you chose in Step 1. For example,
 - If you booted the SIA CD/DVD from a network drive location, eject the SIA CD/DVD from the network drive, insert the first disk of the operating system into the network drive, and specify in the Sun ILOM Remote Console the location of the network drive.
 - If you booted from an SIA ISO CD Image, specify the location of the OS boot media ISO image in the Sun ILOM Remote Console.

Tip – If you are referring to this procedure from Chapter 3 (PXE file installation) and you have booted SIA from a PXE configuration file, you will need to use the Sun ILOM Remote Console to specify the location of the OS media (CD or ISO Image).

- d. Click Next to identify the OS media.

The Identifying Distribution dialog appears.

- e. Proceed to Step 9.

- To install OS from the network (Linux installations only), do the following:

a. Click Network.

b. In the address bar, specify the network address. For example:

```
<http:><nfs:><ftp:>  
//host.name/imagepath  
or  
//ip.address/imagepath
```

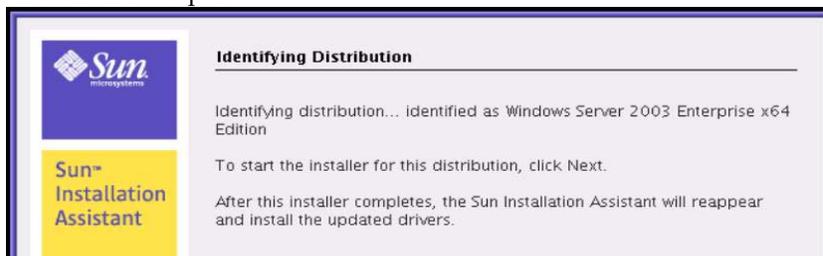
c. Click Next to identify the OS media.

The Identifying Distribution dialog appears.

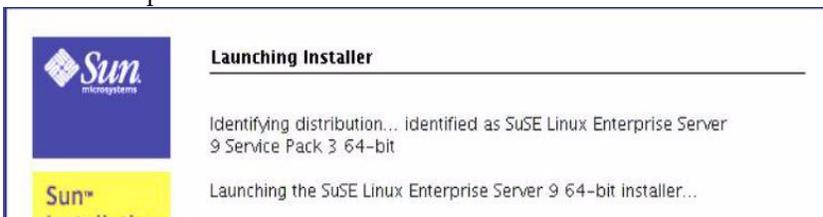
d. Proceed to Step 9.

9. In the Identifying Distribution dialog, review the information presented on the dialog then click Next to start the OS installer.

Windows example:



Linux example



Depending on the OS distribution detected by SIA, one of the following dialogs appears.

- Windows Product Key Information dialog appears for Windows installations, proceed to Step 10.
- Service Pack Information dialog appears for Linux SLES9-SP3 installations, proceed to Step 11.
- Installing Additional Software dialog appears for all Linux distributions other than SLES9-SP3, proceed to Step 12.

10. (Windows Installations Only) In the Product Key Information dialog, specify the required information then click Next to launch the operating system installation.

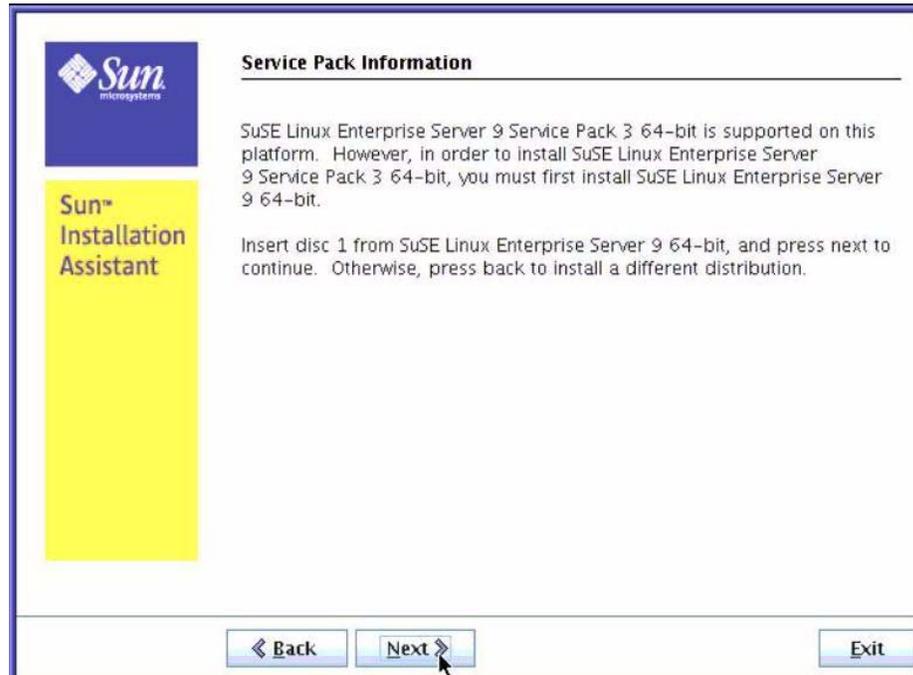
The screenshot shows the Sun Installation Assistant dialog box. On the left is a vertical yellow bar with the Sun logo and the text "Sun™ Installation Assistant". The main area has a title bar that says "Please fill in the following fields and click Next to start install." Below this are several input fields: "Product Key" with five boxes containing "XXXXXX"; "Timezone" with a dropdown menu set to "(GMT-05:00) Eastern Time (US & Canada)"; "Host Name" with "SunBlade" and "User Name" with "Valued Customer"; "Organization Name" with "Valued Company"; "Member of:" with radio buttons for "Workgroup" (selected) and "Domain", and corresponding text boxes; "Administrator Password" and "Confirm password" with masked characters; and "Windows Partition Size" with "30" GB, "Min 8GB and Max 67GB." At the bottom are "Back", "Next", and "Exit" buttons.

A status bar appears on the bottom of the Product Key dialog indicating the configuration status of the disk partitions and the installation of the required Windows OS-level device and system drivers.



The operating system preinstallation environment completes. The Installing Additional Software dialog appears. Proceed to Step 12.

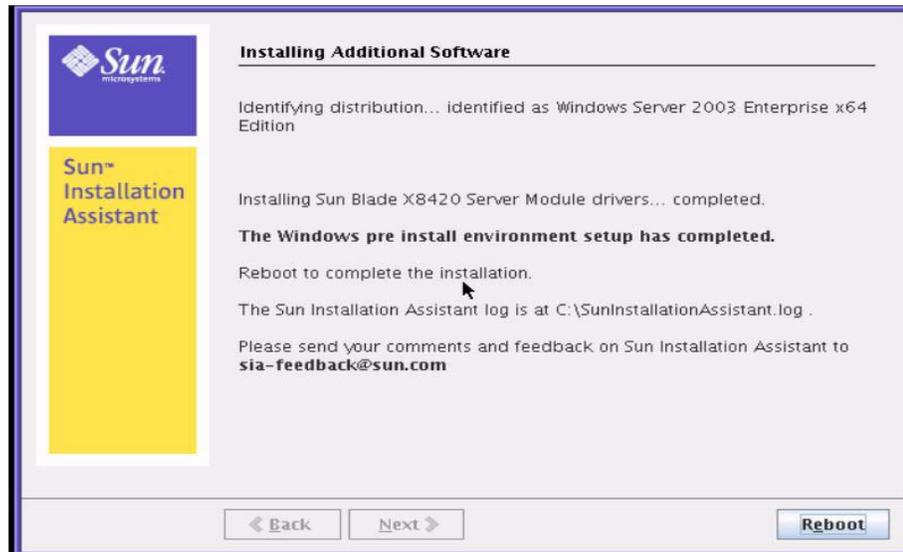
11. (SLES9-SP Installations Only) In the Service Pack 3 dialog follow the instructions on the dialog and click Next to continue with the SLES9 installation program.



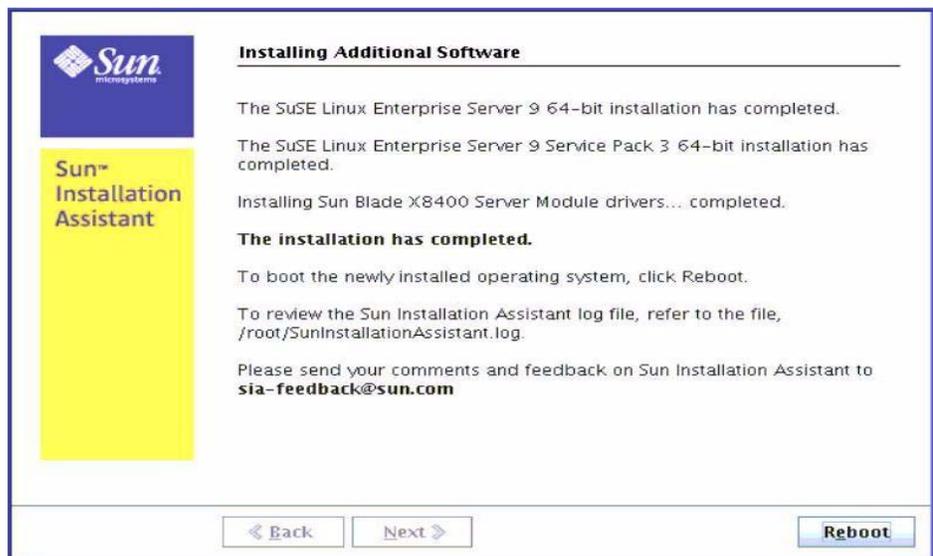
When the SLES9-SP3 preinstallation completes, the SIA Installing Additional Software dialog appears.

12. In the Installing Additional Software dialog, review the information presented and click Reboot to complete the SIA device driver installation.

Windows example:



Linux example:



13. Continue with the installation of the operating system.

14. After completing the OS installation, do the following:

- For Linux installations, you must configure the ACPI driver to support hot-plug operations.

For more information, see *Configure ACPI Driver for Hot-Plug Support* in the *Sun Blade 8000 Series Installation Guide* (819-5647).

- For Windows installations, you should:
 - Consider installing the ATI Rage XL Graphics video driver or the ATI ES1000 video driver. The ATI Rage XL Graphics driver (for X8400 and X8420 Server Modules) enables hot-plug monitor detection. The ATI ES1000 video driver (for X8440 Server Modules) enables enhanced resolution capabilities for directly connected monitors. SIA automatically copies these optional video drivers to the target hard drive (\driver\ATI (i.e. c:\drivers\)) but it does not automatically install them. You can install the optional video driver on your system by updating the driver software for this particular device in Windows Device Manager using standard Windows methods.
 - Download and install the Emulex SAN device drivers and the Mellanox IB device drivers if you have an Emulex Fibre Channel EM or NEM, or a Mellanox IB EM installed in your Sun Blade 8000 Series Chassis.

For more information about obtaining these drivers for installation, refer to the *Sun Blade Modular Systems - I/O Modules* web site at:
<http://www.sun.com/servers/blades/optioncards.jsp>

PXE-Based SIA Installations

This chapter explains how to boot the Sun Installation Assistant (SIA) from a Preboot Execution Environment (PXE).

SIA is a Linux-based program that you can boot from a Linux-based PXE server. When you boot SIA from a Linux-based PXE server, you can choose to install Linux or Microsoft Windows from local or remote media using the Sun Integrated Lights Out Manager (ILOM). In addition, when you boot SIA from a Linux-based PXE server, you can choose to run an unattended installation of SIA and a Linux OS from a customer-prepared PXE file.

Topics discussed in this chapter include:

- [“Boot SIA From PXE Server” on page 24](#)
 - [“Create SIA Configuration File for PXE Boot” on page 24](#)
 - [“How to Boot SIA PXE Configuration File From PXE Server” on page 25](#)
- [“Perform Unattended SIA and Linux PXE Installation” on page 27](#)
 - [“Steps for Setting Up an Unattended Installation” on page 28](#)
- [“Observe the Unattended Network Installation Progress” on page 32](#)
 - [“Set Up Passwords for Root and Virtual Access” on page 33](#)
 - [“Using a System Console” on page 34](#)
 - [“Establish Connection via VNC Viewer” on page 35](#)
 - [“Establish Connection via Serial Console” on page 35](#)

Boot SIA From PXE Server

To boot the Sun Installation Assistant from a PXE boot server, you must perform the following procedures:

- [“Create SIA Configuration File for PXE Boot” on page 24](#)
- [“How to Boot SIA PXE Configuration File From PXE Server” on page 25](#)

Note – The SIA program files are Linux-based and must be configured to boot from a Linux PXE server. However, the SIA program when booted from a Linux-based PXE server supports booting the Windows or Linux installation from physical media or an ISO CD Image using ILOM.

▼ Create SIA Configuration File for PXE Boot

1. **Preconfigure your network to support a Linux-based PXE server network installation.**

For more information, refer to the Linux distribution documentation.

2. **In the PXE Linux directory, create a new subdirectory for the SIA image(s).**

On a Linux system, for example, the following command line creates a subdirectory for suninstall images:

```
# mkdir /home/pxeboot/suninstall
```

3. **Insert the SIA CD/DVD into the hard drive of a Linux-based PXE server and mount the CD/DVD.**

4. **Copy the `vmlinuz` and `initrd` files from the SIA CD/DVD to the `suninstall` subdirectory that you created in Step 2.**

Use the correct path to the mounted CD image. This example uses `/mnt/cdrom`:

```
#cp /mnt/cdrom/boot/isolinux/vmlinuz/home/pxeboot/suninstall
#cp /mnt/cdrom/boot/isolinux/initrd.img/home/
pxeboot/suninstall
```

5. Use an editor to add the following SIA references to the `pxelinux.dg/default` file that is stored in the `/home/pxeboot` directory:

```
default suninstall
label suninstall
kernel suninstall/vmlinuz
append initrd=suninstall/initrd.img vga=0x314 ramdisk_size=
400000 root=/dev/ram netboot
```

Note – Type the append command line from `append initrd=` to `netboot` as one continuous string with no returns.

6. Save the file, then unmount and remove the SIA CD/DVD from the hard drive.
7. To boot the SIA PXE image from the PXE server, follow the steps presented in the following procedure [“How to Boot SIA PXE Configuration File From PXE Server”](#) on page 25.

▼ How to Boot SIA PXE Configuration File From PXE Server

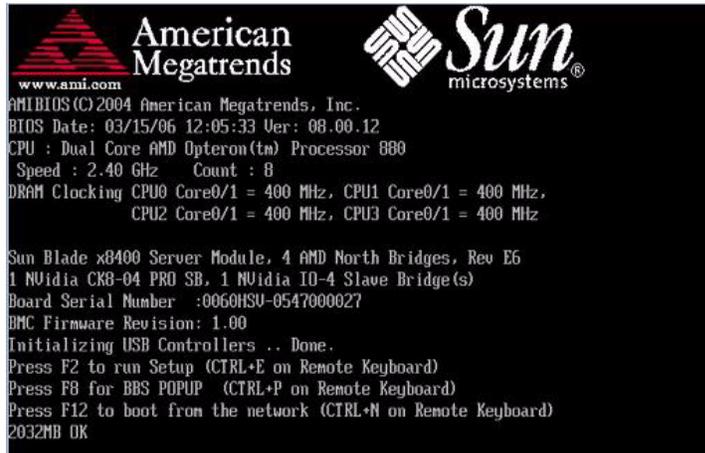
The following procedure explains the initial steps you must perform to boot SIA from a PXE Linux-based server. After SIA boots and the graphical user interface (GUI) appears, you can complete the SIA installation by following the procedure (starting at Step 3) in [“How to Install SIA and OS Using Local or Remote Media”](#) on page 11.

1. Ensure that the Sun Blade 8000 Server Module is configured on the same network as the PXE server, then reset the Sun Blade Server Module. For example:
 - From the IL OM Remote Console web interface, select `Reset` on the Remote Power Control tab.

or

 - Press the Power button (momentary, 1 second) on the front panel of the Server Module to turn off the Server Module, then press the Power button (momentary, 1 second) to turn on the server module.

The BIOS screen appears.



```
www.ami.com
American Megatrends
Sun Microsystems
AMIBIOS (C) 2004 American Megatrends, Inc.
BIOS Date: 03/15/06 12:05:33 Ver: 08.00.12
CPU : Dual Core AMD Opteron(tm) Processor 880
Speed : 2.40 GHz Count : 8
DRAM Clocking CPU0 Core0/1 = 400 MHz, CPU1 Core0/1 = 400 MHz,
CPU2 Core0/1 = 400 MHz, CPU3 Core0/1 = 400 MHz

Sun Blade x8400 Server Module, 4 AMD North Bridges, Rev E6
1 NVidia CK8-04 PRO SB, 1 NVidia IO-4 Slave Bridge(s)
Board Serial Number :0060HSU-0547000027
BMC Firmware Revision: 1.00
Initializing USB Controllers .. Done.
Press F2 to run Setup (CTRL+E on Remote Keyboard)
Press F8 for BBS POPUP (CTRL+P on Remote Keyboard)
Press F12 to boot from the network (CTRL+N on Remote Keyboard)
2032MB OK
```

Note – The next events occur very quickly; therefore, focused attention is needed for the following steps. Please watch carefully for these messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

2. After the system initializes, do one of the following to start a network boot:

- Press F12 to boot from the first network boot device found.
- Press F8 to display the boot menu and specify the network boot device.

Tip – On a Sun Blade 8000 Server Module, you can determine the PXE interface boot device by (1) matching the *PXE:Slot#* (listed on the Please Select Boot Device menu) with the physical labeled NEM or EM slot number on the chassis, and (2) matching the *F#* (listed on the Please Select Boot Device menu) with the physical labeled NIC port number on the NEM (0.0 to 9.1) or EM (0 or 1).

After the network boot device is specified, the system attempts to get the IP address from the DHCP PXE boot server. After the PXE server is found, the PXE boot prompt appears.

3. At the PXE boot prompt, press Enter or type: suninstall.

The SIA installation image downloads to the server and the dialog for “Launching the Sun Installation Assistant” appears.

4. For further instructions about how to continue the installation after booting SIA from a PXE server, follow the steps (beginning at Step 3) in the procedure “How to Install SIA and OS Using Local or Remote Media” on page 11.

Perform Unattended SIA and Linux PXE Installation

SIA v2.0.1 (and later versions) adds the ability to do an unattended installation. An SIA unattended installation does not require user interaction.

This section contains the following topics:

- [“Steps for Setting Up an Unattended Installation” on page 28](#)
- [“Step 1: Create SIA Unattended State File” on page 29](#)
- [“Step 2: Set Up PXE Image to Boot SIA” on page 30](#)
- [“Step 3: Set up Unattended Configuration File and PXE OS Install Image” on page 31](#)

Prerequisites for Unattended Linux Installations

The procedures presented in this section assume the following:

- You are familiar with RHEL or SLES Linux unattended installations.
- You have created a RHEL Kickstart file or SLES AutoYaST file prior to performing the procedures in this section.
- The Kickstart or AutoYaST file is accessible via a FTP, HTTP, or NFS server.
- The KickStart file or AutoYaST file should be preconfigured with the ACPI driver enabled to support hot plug operations. For more information, see [Post Linux Linux Installation Requirement for Hot-Plug in the Sun Blade 8000 Series Installation Guide](#).
- The KickStart file should be preconfigured to support the required 1024 X 768 display resolution.
 - **For RHEL4:** Use the following kernel argument: `resolution=1024x768` to set the proper resolution.
 - **For RHEL5:** Use the following kernel argument: `vesa` to set the required resolution to 1024 x 768.
- AutoYaST file must specify screen resolution settings for 1024 x 768. You can use kernel argument `vga=791` to set the required resolution.

Steps for Setting Up an Unattended Installation

The basic steps for setting up an unattended installation include:

- Step 1 -> Create an SIA unattended state file
- Step 2 -> Set up a PXE image to boot SIA
- Step 3 -> Set up an OS unattended configuration file and PXE install image

The details for performing these steps are discussed in these topics:

- [“Step 1: Create SIA Unattended State File” on page 29](#)
- [“Step 2: Set Up PXE Image to Boot SIA” on page 30](#)
- [“Step 3: Set up Unattended Configuration File and PXE OS Install Image” on page 31](#)

▼ Step 1: Create SIA Unattended State File

The SIA state file is a text file that directs the unattended Linux installation.

SIA State File Requirements

Consider these requirements when creating an SIA state file:

- To boot SIA from PXE, this file must identify the install method as either FTP, NFS, or HTTP.
- The install location must be specified as a boot argument in the configuration file (see Step 2c).
- The state file must not contain extraneous spaces or punctuation of any kind.
- The lines specified in the SIA state file must correspond to the steps you would see if you performed the interactive version of the SIA installation program (described in [“How to Install SIA and OS Using Local or Remote Media” on page 11](#)).

Sample SIA State File

A SIA state file looks like the following sample:

```
[STATE_BEGIN noname apit]
apit.unattended=true
apit.welcome.acceptlicense=true
apit.welcome.skipWelcome=true
apit.networking=true
apit.networkconfig.needNetwork=true
apit.networkconfig.useDHCP=true
apit.networkconfig.needProxy=false
apit.remoteupdate=true
apit.remoteupdateURL=http://sia-updates.sun.com/remoteUpdate
apit.httpProxy>//my http proxy here
apit.osid.installMethod=http, ftp or nfs
apit.osid.installLoc=PXE file URL
apit.osid.kickstart=configuration file URL
[STATE_DONE noname apit]
```

Depending on your installation requirements, you might need to customize the following lines in your SIA state file to meet your needs:

- For `apit.remoteUpdate <true/false>`
This option (`remoteUpdate`) checks for updates to the SIA program.
- For `apit.remoteupdateURL=`

To reach the SIA remote update site, you must include the URL for the Sun SIA Update web site. This line is not needed if `apit.remoteUpdate=false`. For example:

```
apit.remoteupdateURL=http://sia-updates.sun.com/remote update
```

Note that this line (`remoteupdateURL`) is not needed if `apit.remoteUpdate=false`.

- For `apit.httpProxy=`

Specify an HTTP proxy if it is required to reach the remote update site. This line is not needed if `apit.remoteUpdate=false` or if an HTTP proxy is not required to reach the remote update site.

- For `apit.osid.installMethod` specify either HTTP, FTP or NFS. For example:

```
apit.osid.installMethod=http
```

- For `apit.osid.installLoc` specify the URL to the PXE files for the OS to be installed. For example:

```
apit.osid.installLoc=http://path_to_install_image
```

- For `apit.osid.kickstart` specify the URL for the configuration file. For example:

```
apit.osid.kickstart=http://path_to_kickstart_file
```

▼ Step 2: Set Up PXE Image to Boot SIA

Follow these steps to set up a PXE image to boot SIA:

Tip – For additional information about setting up a PXE SIA image to boot, consult the `pxe-sample` target in the `/boot/isolinux/isolinux.cfg` file on the SIA CD/DVD.

1. Create a network install image of SIA.

For detailed information about how to create an SIA PXE configuration file, see [“Boot SIA From PXE Server”](#) on page 24.

2. Copy the following files from the SIA CD/DVD to your PXE server:

<pre>/boot/isolinux/vmlinuz (PXE boot kernel image) /boot/isolinux/initrd.img (initial ram disk)</pre>

3. Provide the following kernel boot arguments for the PXE boot target file:

```
/home/pxeboot/pxelinux.cfg/default. initrd=location of  
initrd.img  
vga=0x314  
ramdisk_size=440320  
root=/dev/ram0  
splash=silent  
siaurl=http:URL for state file
```

Note – `initrd=` must point to the location of the `initrd.img` on your PXE server that you copied from the SIA CD/DVD and `siaurl=` must point to the URL for the state file.

Tip – You can also boot the installer from the network and perform a manual (attended) installation by removing the `siaurl` argument from the PXE target.

▼ Step 3: Set up Unattended Configuration File and PXE OS Install Image

To set up an unattended configuration file and PXE install image of the OS, refer to the following OS documentation for creating an unattended configuration file and PXE install image, for example:

- Novell AutoYaST unattended installation documentation at <http://www.novell.com>
- Red Hat's KickStart unattended installation documentation at <http://www.redhat.com/docs>

Observe the Unattended Network Installation Progress

Observing an unattended network installation enables you view the progress of the installation, as well as any diagnostic messages that might appear if problems are encountered during the installation.

The four ways of observing an unattended network installation include:

- Viewing messages from a system console
- Viewing messages from a virtual console or secure shell connection
- Viewing messages from a virtual network computing (VNC) viewer
- Viewing messages from a serial console

If you plan to use a virtual console or VNC viewer to observe the unattended network installation, you must establish passwords for root and VNC.

Topics discussed in the section include:

- [“Set Up Passwords for Root and Virtual Access” on page 33](#)
- [“Using a System Console” on page 34](#)
- [“Using a Virtual Console or Secure Shell \(SSH\) Connection” on page 34](#)
- [“Using a VNC Viewer” on page 34](#)
- [“Establish Connection via VNC Viewer” on page 35](#)
- [“Establish Connection via Serial Console” on page 35](#)

Set Up Passwords for Root and Virtual Access

Passwords are provided as boot arguments to the installer, either manually when booting from CD or via PXE, or in the PXE boot target:

```
/home/pxeboot/pxelinux.cfg/default
```

You will need to set passwords to observe the installation using virtual console or virtual network computing (VNC).

Note – When booting from CD, watch for the `boot :` prompt, as it is displayed for only five seconds. Press any key when the `boot :` prompt is displayed to allow time enter the password arguments.

For maximum security, use the following password arguments at the CD boot: prompt:

- `rootpw=des-encrypted-password`

The `rootpw=des-encrypted-password` argument enables SSH remote access on a PXE boot without passing a plain text password across the network.

Create `des-encrypted-password` using the following perl script:

```
# perl -e 'print crypt("password", "42"). "\n"'
```

The string output is what to supply after the `rootpw=` argument.

- `vncauth=hex-string`

This argument enables a password for VNC access.

The remote VNC authorization file is eight binary bytes. You create those eight bytes with `vncpasswd`, and then convert them to a hex-string to be entered here.

Create the hex-string using the following commands:

```
# vncpasswd /tmp/vncauth
# od -t x1 /tmp/vncauth | awk '/0000000/ \
{print $2 $3 $4 $5 $6 $7 $8 $9}'
```

The string output is what to supply after the `vncauth=` argument.

- `ptextpass=password`

The `ptextpass=password` argument provides a way of passing a plain text password that is to be used for both the root password and the VNC password.

Using a System Console

Typically the system console displays a splash screen during an unattended network installation that prevents you from viewing the console messages. To dismiss the splash screen and view the console messages, press the Esc key.

Using a Virtual Console or Secure Shell (SSH) Connection

The installation interface runs a Linux kernel and provides virtual console access. To access the virtual console, press Ctrl-Alt-F2. You can also use Ctrl-Alt-F3 and Ctrl-Alt-F4 for additional console screens.

Prior to logging in to a virtual console, you must set a root password as a boot argument to the installer. For more information see [“Set Up Passwords for Root and Virtual Access” on page 33](#).

After you have established a connection to a virtual console, you can determine the VNC server IP address and view the standard log files. Alternatively, you can also establish a SSH connection via a serial console using the VNC IP address.

Using a VNC Viewer

When you perform an unattended network installation, virtual network computing (VNC) is enabled by default. If you perform an attended network installation you can enable VNC by adding `display=vnc` as a boot argument.

▼ Establish Connection via VNC Viewer

Follow these steps to establish a connection with a VNC viewer.

1. **Set a password as shown in "Setting Passwords for Root and VNC Access."**

2. **Press the Esc key shortly after the SIA splash screen appears.**

Console messages appear. After the VNC server has started, a message appears providing the IP address to connect using VNC.

3. **Connect to the VNC viewer using the IP address displayed in Step 2.**

For example:

```
# vncviewer IP_address:1.0
```

4. **When prompted, enter the password that you set in Step 1 and VNC will start.**

The installer interface appears when performing a manual installation. The content is not exactly the same, but it does show the same steps. The screens automatically move forward as the installation progresses. The VNC screens are active for input and you will disrupt the installation if you do anything in the VNC window.

▼ Establish Connection via Serial Console

Follow these steps to establish a connection via a serial console:

1. **Use the boot argument `console=ttyS0,9600` to have console output redirected to the serial console.**

This is helpful when debugging and you want to be able to scroll back to see messages. This will disable output to the real console.

2. **Set up the serial console through the serial port.**

For more information about using a serial console, see the *Sun Integrated Lights Out Manager User's Guide*. The default setup is for the service processor to be available via the serial port.

3. **Log in to the service processor and enter the following command to start the console:**

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

4. **Reboot the system.**

5. **Select the Network Boot option.**

6. Select your SIA target, then observe the progress of the unattended network installation.

After booting SIA, the serial console is sometimes left in a state where it is writing black text on a black background. If this occurs, reset your terminal to view the text.

For additional information about debugging an unattended network installation, see [“Debugging Unattended Installation Problems”](#) on page 38.

Troubleshooting SIA

This chapter provides information about the SIA error messages, SIA installation log file, as well as procedures for debugging an unattended network installation.

Topics in this sections include the following:

- [“Error Messages” on page 37](#)
- [“SIA Installation Log File” on page 38](#)
- [“Debugging Unattended Installation Problems” on page 38](#)

Error Messages

If the Sun Installation Assistant encounters an error or an unexpected condition, it will generate an error message. You might encounter a number of straightforward error messages such as the following:

```
You have inserted Disc 3 but the system requires Disc 2. Please insert Disc 2.
```

You might also attempt to use the Sun Installation Assistant with versions of Linux or Microsoft Windows that are not supported. In that case you might see error messages such as the following:

```
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.
```

In this case, 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 without SIA.

For a list of supported operating systems, see [“Sun Blade 8000 Series Supported Windows Operating Systems”](#) on page 3 and [“Sun Blade 8000 Series Supported Linux Operating Systems”](#) on page 5.

SIA Installation 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 `SunInstallationAssistant.log` (located at `/root` for Linux, or `C:\` for Windows).

Debugging Unattended Installation Problems

This section includes procedures for debugging common problems that might occur when setting up an unattended network installation:

- [“PXE Image Does Not Boot”](#) on page 38
- [“SIA Boot Starts, Then Stops”](#) on page 39
- [“VNC Password Does Not Get Set”](#) on page 40

▼ PXE Image Does Not Boot

If the PXE image does not boot, do the following:

1. **Check the DHCP and TFTP server areas and the integrity of the `initrd.img` and `vmlinuz` files.**
2. **Verify that the kernel boot arguments are correct by consulting the PXE-example configuration (`boot/isolinux/isolinux.cfg`) provided on the SIA CD.**

3. Verify that the URLs in the SIA state file, KickStart, or AutoYaST file are correct. To determine whether the URLs are correct:
 - a. Test the URL with the command `wget URL`.
 - b. Verify that the DNS is working or use IP addresses instead of host names.
 - c. Check the following table for URL errors that you might encounter:

Problem	What you will see
The state file URL (<i>siaurl</i>) is incorrect.	If the state file URL (<i>siaurl</i>) is incorrect, the installation appears to hang. Check the console for the following error message that appears after the VNC information: Unable to fetch unattended statefile: <i>URL</i>
The InstallLoc in the state file URL (<i>siaurl</i>) is incorrect.	The system reboots without an error message and the console displays messages such as the following message before rebooting: Can't MD5 ...
The KickStart entry in state file URL (<i>siaurl</i>) is incorrect.	The installation appears to hang and the console displays the following messages followed by a message specific to anaconda: apit-magic: run: /installer/..."
A parameter in the URL file is incorrect.	When connecting to VNC, you will see that the unattended network installation stopped and is waiting for input.

SIA Boot Starts, Then Stops

The `initrd.img` used by SIA is over 100 megabytes. The Solaris TFTP daemon is unable to support the size of the image.

If the SIA starts to boot, then stops with a blank screen and displays a timeout error message, switch to a TFTP server with a different operating system.

VNC Password Does Not Get Set

If the VNC password was not set, the following message displays on the console:

```
mv /dev/tty /dev/tty-node
ln -s /proc/self/fd/0 /dev/tty
echo password
/usr/X11R6/bin/vncpasswd.real /installer/vncpasswd
echo password
They don't match. Try again.
```

This issue is a timing problem. To resolve this problem, reboot the system and restart the installation.