



SGI® UV™ System Software Installation and Configuration Guide

007-5948-006

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New Features

This revision adds installation and configuration instructions for the Red Hat[®] Enterprise Linux[®] (RHEL) 7.1 operating system and the SLES[®] 12 operating system.

Information about SGI Foundation Software tools, such as the hardware event tracker and CPU frequency scaling, has moved to the following manual:

SGI Foundation Software (SFS) User Guide

Record of Revision

Version	Description
001	November 2013 Original publication.
002	May 2014 Revised to support the SGI Foundation Software 2.10 release.
003	June 2014 Revised to include information about how to configure Security-Enhanced Linux (SELinux).
004	November 2014 Revised to include information about how to install and configure the operating system software and the SGI Foundation Software on SGI UV 2000, SGI UV 1000, and SGI UV 100 computer systems. This revision adds some preliminary information about how to install and configure the operating system software and SGI Foundation Software on SGI UV 300 computers.
005	December 2014 Revised to include SGI UV 300 installation and configuration information.
006	May 2015 Revised to include information for the SGI Foundation Software 2.12 release, which includes support for RHEL 7.1 and SLES 12.

Contents

About This Guide	xi
Related Publications	xi
Obtaining Publications	xiii
Conventions	xiii
Reader Comments	xiv
1. Introduction	1
About Installing the Operating System Software, SGI Foundation Suite, and Optional Features	1
About Partitioned SGI UV Systems	2
About Installing the SGI Performance Suite	3
2. Installing the SGI UV System Software	5
About Installing SGI UV System Software	5
Gathering Installation Materials and Information	7
(Optional) Setting or Changing an Administrative Password on the Console	15
Setting or Changing the Password on an SGI UV 300 System	15
Setting or Changing the Password on an SGI UV 2000, SGI UV 1000, or SGI UV 100 System	18
(Conditional) Installing the System Software on the SMN	21
Installing the System Software on the Server	22
Installing the SGI UV System Software on an SGI UV 300 Server	23
Installing the SGI UV System Software on an SGI UV 2000, SGI UV 1000, or SGI UV 100 Server With an SMN	24
Installing the SGI UV System Software on an SGI UV 2000, SGI UV 1000, or SGI UV 100 Server Without an SMN	31
3. Installing a Red Hat Enterprise Linux (RHEL) 6 Platform	35
007-5948-006	vii

About Installing the RHEL Operating System on an SGI UV System	35
Installing the RHEL Operating System Software on an SGI UV Server or an SGI UV SMN	36
Initiating the Installation	36
Specifying the Network	37
(Conditional) Specifying Disk Partitions for an SGI UV SMN	39
Specifying Disk Partitions for an SGI UV Server	42
Completing the RHEL Installation	46
Installing the SGI Foundation Software on a RHEL Platform SGI UV Server or a RHEL Platform SMN	48
(Conditional) Installing the SMN Software on a RHEL Platform SMN (SGI UV 2000, SGI UV 1000, and SGI UV 100 Platforms Only)	51
4. Installing a Red Hat Enterprise Linux (RHEL) 7 Platform	53
About Installing the RHEL Operating System on an SGI UV System	53
Installing the RHEL Operating System Software on an SGI UV Server	54
Initiating the Installation and Partitioning the Disk	54
Configuring the Network and Rebooting	57
Completing the Installation	59
Installing the SGI Foundation Software on a RHEL 7-based SGI UV Server	61
5. Installing a SLES 11 Platform	65
About Installing the SLES Operating System on an SGI UV System or an SGI UV SMN	65
Installing the SLES Operating System Software on an SGI UV Server or an SGI UV SMN	66
Initiating the Installation	67
(Conditional) Specifying Disk Partitions for an SGI UV SMN	68
Specifying Disk Partitions for an SGI UV Server	72
Specifying the Network and Miscellaneous Settings	76
Completing the SLES Installation	80

Installing the SGI Foundation Software on a SLES Platform SGI UV Server or a SLES Platform SMN	81
Installing the SMN Software on a SLES Platform SMN (SGI UV 2000, SGI UV 1000, and SGI UV 100 Platforms Only)	82
6. Installing a SLES 12 Platform	85
About Installing the SLES Operating System and the SGI Foundation Software (SFS) on an SGI UV System	85
Installing the SLES Operating System Software on an SGI UV Server	86
Initiating the Installation	86
Specifying Disk Partitions for an SGI UV Server	87
Specifying the Network and Miscellaneous Settings	92
Installing the SGI Foundation Software on a SLES 12-based SGI UV Server	94
7. Additional Features	97
Remote Management Through the <code>ipmitool</code> Command (SGI UV 300 Systems Only)	97
Superpages	98
About Superpages	98
Examples	98
Saving Your Superpage Configuration	100
Configuring Security-Enhanced Linux (SELinux) (RHEL Platforms Only)	100
Index	103

About This Guide

SGI installs operating system software and the SGI Foundation software on all SGI UV™ 300, SGI UV 2000, SGI UV 1000, and SGI UV 100 systems before the systems leave the factory. The operating system software is either Red Hat® Enterprise Linux® (RHEL) or SLES®. In the event of a disaster or system failure, you can use the instructions in this manual to reinstall this software.

This guide does not support the following SGI UV systems:

- SGI UV 20 systems or SGI UV 10 systems.
- SGI® UV™ for SAP HANA® appliances. If you have an SGI UV for SAP HANA appliance, do not attempt the procedures in this manual. Please contact technical support if you need assistance with operating system procedures.

Related Publications

The SGI Foundation Software release notes and the SGI Performance Suite release notes contain information about the specific software packages provided in those products. The release notes also list SGI publications that provide information about the products. The release notes are available in the following locations:

- Online at Supportfolio. After you log into Supportfolio, you can access the release notes. The SGI Foundation Software release notes are posted to the following website:

https://support.sgi.com/content_request/194480/index.html

The SGI Performance Suite release notes are posted to the following website:

https://support.sgi.com/content_request/786853/index.html

Note: You must sign into Supportfolio, at <https://support.sgi.com/login>, in order for the preceding links to work.

- On the product media. The release notes reside in a text file in the `/docs` directory on the product media. For example, `/docs/SGI-MPI-1.x-readme.txt`.

- On the system. After installation, the release notes and other product documentation reside in the `/usr/share/doc/packages/product` directory.

The following additional documentation might be useful to you:

- *SGI Foundation Software (SFS) User Guide*, publication 007-6410-xxx.
Describes how to use the tools and utilities in SFS.
- *SGI UV RMC Software User Guide*, publication 007-6361-xxx.
Describes how to use the rack management controller (RMC) to monitor and manage SGI UV 300 systems.
- *SGI UV System Management Node Administrator Guide*, publication 007-5694-xxx
Describes how to install, configure, and administer the system management node (SMN) on SGI UV 2000, SGI UV 1000, and SGI UV 100 series systems.
- *SGI UV CMC Software User Guide*, publication 007-5636-xxx
Describes how to use the chassis management controller (CMC) to monitor and manage SGI UV 2000, SGI UV 1000, and SGI UV 100 systems.

The SGI Knowledgebase includes additional technical information. For example, the Knowledgebase includes a document that explains how to boot an SGI UV 1000 system using the iSCSI protocol and how to boot from a Fibre Channel Disk. Contact your SGI representative for this information.

SGI creates hardware manuals that are specific to each product line. The hardware documentation typically includes a system architecture overview and describes the major components. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

The following procedure explains how to retrieve a list of hardware manuals for your system.

Procedure 0-1 To retrieve hardware documentation

1. Type the following URL into the address bar of your browser:

`docs.sgi.com`

2. In the search box on the Techpubs Library, narrow your search as follows:
 - In the **search** field, type the model of your SGI system.

For example, type one of the following: "UV 300", "ICE X", Rackable.

Remember to enclose hardware model names in quotation marks (" ") if the hardware model name includes a space character.

- Check **Search only titles**.
- Check **Show only 1 hit/book**.
- Click **search**.

Obtaining Publications

You can obtain SGI documentation in the following ways:

- You can access the SGI Technical Publications Library at the following website:

<http://docs.sgi.com>

Various formats are available. This library contains the most recent and most comprehensive set of online books, release notes, man pages, and other information.

- You can view man pages by typing `man title` at a command line.

Conventions

The following conventions are used throughout this document:

Convention	Meaning
<code>command</code>	This fixed-space font denotes literal items such as commands, files, routines, path names, signals, messages, and programming language structures.
<i>variable</i>	Italic typeface denotes variable entries and words or concepts being defined.
user input	This bold, fixed-space font denotes literal items that the user enters in interactive sessions. (Output is shown in nonbold, fixed-space font.)

[]	Brackets enclose optional portions of a command or directive line.
...	Ellipses indicate that a preceding element can be repeated.
manpage(x)	Man page section identifiers appear in parentheses after man page names.
GUI	This font denotes the names of graphical user interface (GUI) elements such as windows, screens, dialog boxes, menus, toolbars, icons, buttons, boxes, fields, and lists.

Reader Comments

If you have comments about the technical accuracy, content, or organization of this publication, contact SGI. Be sure to include the title and document number of the publication with your comments. (Online, the document number is located in the front matter of the publication. In printed publications, the document number is located at the bottom of each page.)

You can contact SGI in either of the following ways:

- Send e-mail to the following address:
techpubs@sgi.com
- Contact your customer service representative and ask that an incident be filed in the SGI incident tracking system:
<http://www.sgi.com/support/supportcenters.html>

SGI values your comments and will respond to them promptly.

Introduction

This chapter contains the following topics

- "About Installing the Operating System Software, SGI Foundation Suite, and Optional Features" on page 1
- "About Partitioned SGI UV Systems" on page 2
- "About Installing the SGI Performance Suite" on page 3

About Installing the Operating System Software, SGI Foundation Suite, and Optional Features

This manual explains how to install the operating system software and SGI Foundation Software (SFS). You can reinstall this software to meet site requirements or you can reinstall in the event of a disaster or a system failure. SGI supports the following operating systems:

- SGI supports Red Hat Enterprise Linux (RHEL) 7.1 and SLES 12 on SGI UV servers.
- SGI supports RHEL 6.6 and SLES 11 SP3 on SGI UV servers and on SMNs.

After your SGI UV is configured with the operating system software and SFS, you can configure SFS according to your site's needs. For information about SFS components and features, see the following:

SGI Foundation Software (SFS) User Guide

Note: SGI recommends that you install new SFS packages as they become available. This pertains to SGI UV servers and to SMNs. Even if your SMNs are installed with the most recent, supported operating system distribution software available and you are no longer upgrading the operating systems, SGI still recommends that you install the latest versions of SFS on your SMNs.

The procedures in this guide were developed using the following hardware and software:

- An SGI UV 300 system. This system was the primary test system for this revision. The SGI UV 300 system includes a rack management controller (RMC). The SGI UV 300 system does not include a system management node (SMN). SGI tested the RHEL 7.1, RHEL 6.6, SLES 12, and SLES 11 SP3 installation procedures on this hardware platform.
- An SGI UV 2000 system with an SMN. This secondary test system represents all systems that typically include an SMN. Differences for other SGI UV system models are noted in the text, but noted differences are not comprehensive. Differences are noted for systems without an SMN.

SGI tested the RHEL 7.1, RHEL 6.6, SLES 11 SP3, and SLES 12 installation procedures on this hardware platform for previous revisions of this manual and did not retest these procedures for the current manual revision.

- As noted, the RHEL 7.1, RHEL 6.6, SLES 12, and SLES 11 SP3 operating systems were used during this documentation's development. Different operating system levels might behave somewhat differently on SGI hardware.
- The SGI Foundation Software 2.12 release. SGI requires that the SGI Foundation Software be installed on each SGI UV system. You can install the SGI Foundation Software on the SGI UV server and on the SMN after you install the operating system software.
- The System Management Node 1.11 release. If your SGI UV system includes a SMN, install the SMN software on this node.

About Partitioned SGI UV Systems

You can use the installation instructions in this manual to install RHEL or SLES as a single-system image on an entire SGI UV system. Alternatively, if your SGI UV system is divided into partitions, you can use these instructions to install RHEL or SLES on an individual partition. The installation procedure, including the disk partitioning instructions, is identical for both purposes. For information about partitioning, see the following:

SGI Foundation Software (SFS) User Guide

About Installing the SGI Performance Suite

The SGI Performance Suite is an optional package, but you need to install the SGI Performance Suite if you want to partition your SGI UV system or if you want to use superpages.

The SGI Performance Suite is also required if you want to use any of the following software:

- SGI Accelerate, which includes optimized software libraries and run-time performance tools.
- SGI MPI, which is SGI's high-performance message passing interface environment.
- SGI REACT, which is SGI's hard real-time performance solution.

For information about how to install the SGI Performance Suite software, see the SGI Performance Suite release notes. The release notes reside in a text file in the `/docs` directory on the product media. After installation, the release notes and other product documentation reside in the `/usr/share/doc/packages/product` directory.

Installing the SGI UV System Software

This chapter includes the following topics:

- "About Installing SGI UV System Software" on page 5
- "Gathering Installation Materials and Information" on page 7
- "(Optional) Setting or Changing an Administrative Password on the Console" on page 15
- "(Conditional) Installing the System Software on the SMN" on page 21
- "Installing the System Software on the Server" on page 22

About Installing SGI UV System Software

SGI installs operating system software, the SGI Foundation Software (SFS), and any additional customer-purchased software on all SGI UV systems before the systems leave the SGI manufacturing facility. The operating system can be one of the following:

- Red Hat Enterprise Linux (RHEL)
- SLES

If your site practices require you to reinstall the software, or if a disaster occurs at your site, you can use the procedures in this manual to reinstall all the factory-installed software. The procedures in this manual assume the following:

- You, the installer, are familiar with Linux operating systems, and you are familiar with the operating system software update process. The installation instructions describe how to register the operating system installation with the operating system software provider to ensure automatic updates. This manual assumes that your site wants to use the automatic updates. As an alternative, you can use physical media to apply updates.
- You want to reinstall the factory-installed software on the SGI UV server and, if present, on the SGI UV system management node (SMN). The SGI UV 300 does not include an SMN. The SGI UV 2000, SGI UV 1000, and other SGI UV models can include an SMN.

- Your SGI UV system is cabled correctly and attached to the network in accordance with your site practices.

There is a specific order in which you need to install software on an SGI UV system. This order is as follows:

1. Install the system software on the SMN, if present.

To install the software on an SGI UV SMN, install the software in this order:

- a. Operating system software, either RHEL 6 or SLES 11. SGI does not support RHEL 7 or SLES 12 on SMNs.
- b. SGI Foundation Software
- c. SGI SMN Software

2. Install the system software on the SGI UV server.

To install the software on an SGI UV server, install the software in this order:

- a. Operating system software, which can be RHEL 7, RHEL 6, SLES 12, or SLES 11.
- b. SGI Foundation Software
- c. (Optional) SGI Performance Suite software. This optional SGI product is required if you want to partition your SGI UV system.

If you need to install the system software on both an SGI UV server and on an SGI UV SMN, install the software on the SMN first. In other words, after you install the operating system software, the SGI Foundation Software, and the SMN software on the SMN, then you can install the system software on the SGI UV server.

The operating system installation procedure is nearly identical for both the SGI UV server and the SMN. Use the operating system installation procedures in this manual as a guide when you perform the operating system installations on both the SGI UV server and the SMN. Small differences related to the platforms are noted within the procedures.

Gathering Installation Materials and Information

The following procedure explains how to gather the information you need for the SGI UV server operating system installation session. If you gather the information you need in advance, you can complete the installation more quickly.

Procedure 2-1 To gather installation materials and information

1. Verify your environment.

Depending on your hardware, you might need additional equipment or specific network connections, as follows:

- For SGI UV 300 computer systems, make sure that your computing environment provides the following:
 - Physical access to the SGI UV 300 server. You need to insert disks into the DVD drive that is installed on the server.
 - A workstation or computer that has access to the rack management controller (RMC).
 - For SGI UV 2000, SGI UV 1000, and SGI UV 100 computer systems with an SMN, this documentation assumes that the SMN is a factory-installed SMN, which includes Java software. If your SMN hosts a custom installation, the procedures in this manual might fail. In addition, this documentation assumes that you can insert DVDs into the DVD drive on the SMN.
 - For SGI UV 2000, SGI UV 1000, and SGI UV 100 computer systems without an SMN, plan to attach a keyboard, monitor, and mouse directly to the Base I/O BMC on the SGI UV server. If you plan to install onto an SGI UV 2000 system, and you need this equipment, plan to procure an approved USB DVD drive from SGI. Contact your SGI representative and ask for the USB DVD drive with marketing code LSV-DVD-EXT.
2. Locate the software DVDs or CDs that SGI sent to you, or download and create DVDs or CDs.

This manual assumes that you have DVDs of the operating system and CDs of the SGI software.

You can obtain the operating system software in one of the following ways:

- In a media kit from SGI. SGI distributes DVD copies of the RHEL and SLES operating system releases.

- As a software download. You can download the RHEL and SLES releases from the Red Hat or SUSE websites and write the software to a DVD.

You can obtain the SGI software from the SGI Supportfolio website. To download the SGI software, complete the following steps:

- In a browser window, navigate to the following URL:

<https://support.sgi.com/login>

SupportFolio prompts you for your username and password.

- Download the SGI software that you need. If you install the operating system software, also plan to install the SGI Foundation Software.
- Write the ISO file to a CD or DVD. The instructions in this manual assume that you have hard media. Some procedures explain how to access the release software if you want to install from a network-resident ISO image, but the instructions are not comprehensive. If you wrote downloaded ISO images to your house network and you do not want to write them to hard media, plan to use your network tools to access the software when the procedures instruct you to insert a DVD or CD.

3. Plan the order in which to install the software.

If you need to install both the SGI UV server software and the SGI SMN software, plan to install the SMN software first. You can install the SGI UV server software after the SMN software installation is complete.

4. Gather the information that the installer requires.

The installation requires you to provide information about passwords, your public (or house) network, and so on. You can complete the installation more quickly if you gather this information before you begin. Obtain the system configuration information that was used when the SGI UV System was originally configured. The following list shows the information you need to collect:

- SGI UV server fully qualified domain name (FQDN)

- SGI UV server hostname _____
- SGI UV server IP address _____
- SGI UV server subnet mask _____

- Site DNS server IP addresses _____
 - Site search domain _____
 - Password for the SGI UV server's system administrator (root user) login

 - FQDN of your site's network time protocol (NTP) server

 - IP address of your primary name server _____
 - IP address of your secondary name server

 - Fully Qualified Domain Name (FQDN) of the following:
 - On SGI UV 300 systems, obtain the FQDN of the rack management controller (RMC).
 - On SGI UV 2000, SGI UV 1000, or SGI UV 100 systems without an SMN, obtain the FQDN of the chassis management controller (CMC).

On SGI UV 2000, SGI UV 1000, or SGI UV 100 systems with an SMN, you do not need to obtain the FQDN of the CMC.
 - For RHEL installations, do the following:
 - Verify your site's Red Hat Networks (RHN) registration status and your Customer Center registration status.
 - Obtain your RHN login.
 - Obtain your RHN password.
 - For SLES installations, do the following:
 - Determine the email address you want to use when you register with the SUSE Customer Center.
 - (Optional) Obtain the activation code for SLES components.
 - (Optional) Determine the system name or description.
5. (Conditional) Gather SMN information.

Perform this step only if your SGI UV system includes an SMN. SGI UV 300 systems do not include an SMN. SGI UV 2000, SGI UV 1000, and SGI UV 100 systems can include an SMN.

The following list shows the information you need to collect:

- SMN fully qualified domain name (FQDN)

- SMN hostname _____
- SMN IP address _____
- SMN subnet mask _____
- Password for the SMN's system administrator (root user) login

6. Familiarize yourself with the hardware components in the rack.

If you have an SGI UV 300 system, identify the chassis in the rack and the DVD drive on the chassis. Figure 2-1 on page 11 shows the location of the DVD drive, along with some other equipment, on the SGI UV 300 chassis.

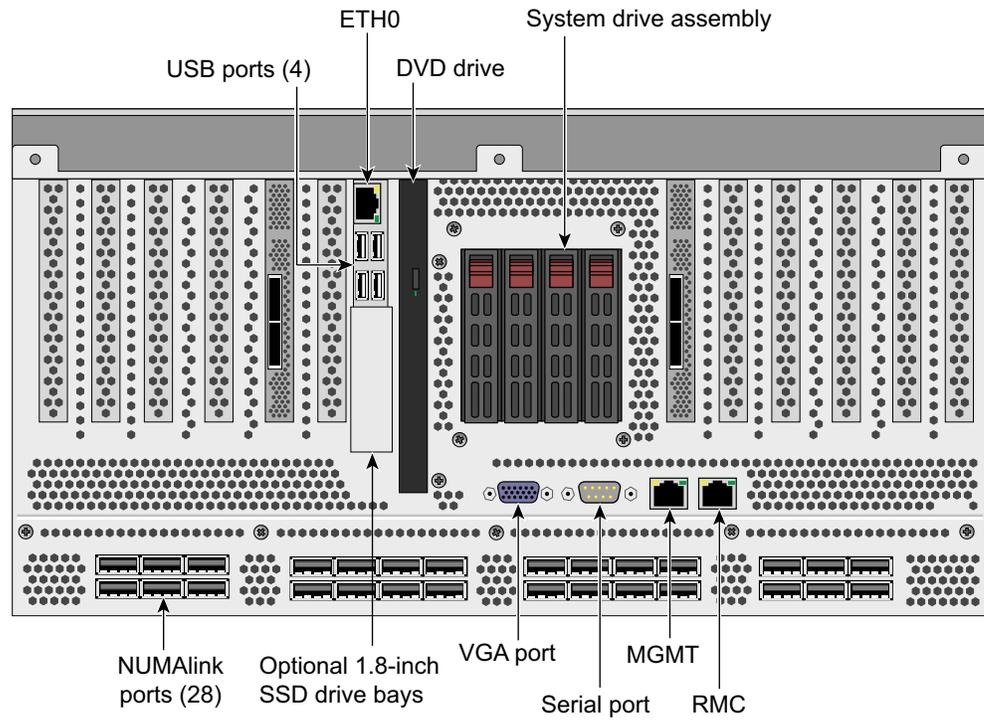


Figure 2-1 SGI UV 300 Chassis

If you have an SGI UV 2000, SGI UV 1000, or SGI UV 100 system, identify the System Management Node (SMN), if present.

Figure 2-2 and Figure 2-3 show the location of the SMN in an SGI UV 2000 system rack and in an SGI UV 1000 system rack. The SMN is located either in the top 1U slot between the individual rack units (IRUs) or at the top of the rack.

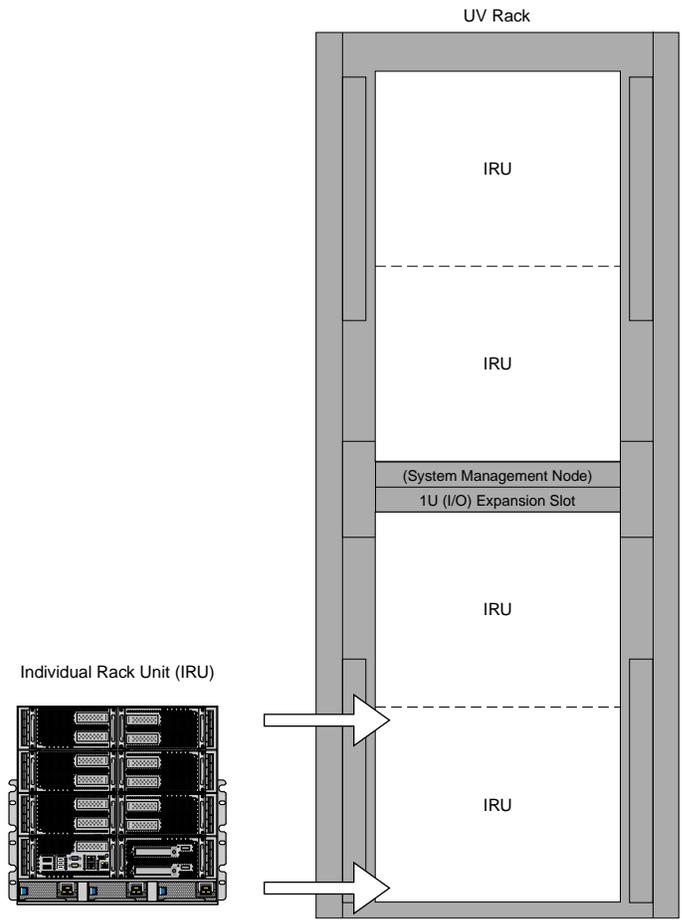


Figure 2-2 SGI UV 2000 System Rack

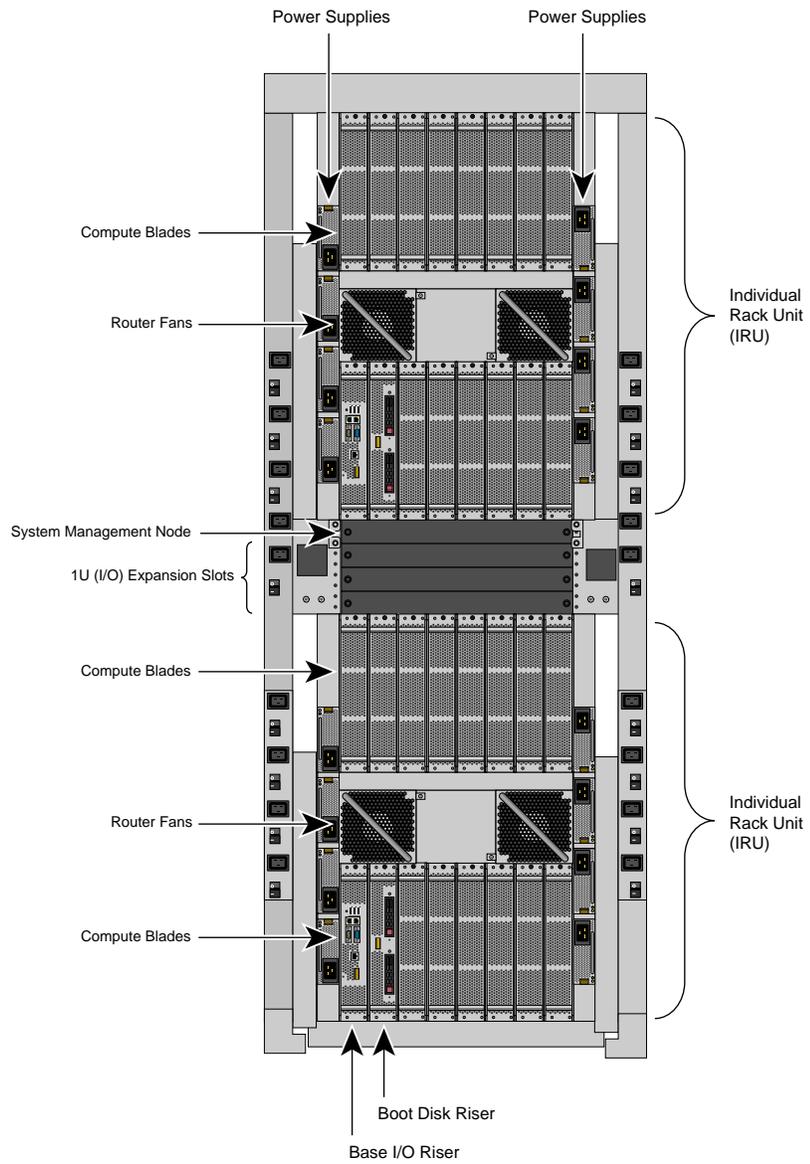


Figure 2-3 SGI UV 1000 System Rack

When you begin the installation, instructions direct you to insert the installation DVD into the SMN and press the power button. As Figure 2-4 on page 14 shows, the DVD drive is on the left of the SMN.

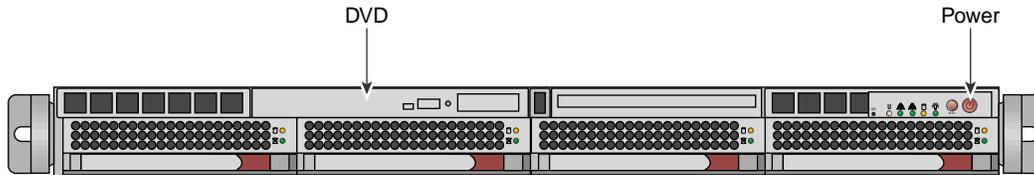


Figure 2-4 SMN Power Button and DVD Drive

7. (Conditional) Attach peripherals to the SMN.

Perform this step if your SGI UV system has an SMN.

Attach a keyboard, monitor, and mouse. The SMN includes USB ports into which you can plug the peripherals.

8. Proceed to one of the following:

- (Optional) To set an administrative password for the local console, proceed to the following:

"(Optional) Setting or Changing an Administrative Password on the Console" on page 15

SGI does not require that you set an administrative password, but you can do so if you are logged into a direct-attached, local console. After you set this password, you can proceed with the software installation.

- To install the operating system, the SGI Foundation Software, and the SMN software on an SMN, proceed to the following:

"(Conditional) Installing the System Software on the SMN" on page 21

- To install the operating system and SGI Foundation Software on an SGI UV server, proceed to the following:

"Installing the System Software on the Server" on page 22

(Optional) Setting or Changing an Administrative Password on the Console

The procedures in the following topics explain how to set or change the administrative password:

- "Setting or Changing the Password on an SGI UV 300 System" on page 15
- "Setting or Changing the Password on an SGI UV 2000, SGI UV 1000, or SGI UV 100 System" on page 18

Setting or Changing the Password on an SGI UV 300 System

The procedure in this topic explains how to set, or change, an administrative password on the console attached to an SGI UV 300 system. A password is not required.

To delete a console password, type the following command, which clears the EFI variables:

```
RMC> power -c reset
```

If you delete the password with the `power -c reset` command, you need to go back through the setup screens to set it again.

Procedure 2-2 To set or change an administrative password on the console

1. Log into the SGI UV 300 system as the root user.
2. (Conditional) Shut down the system.

Complete this step if the system is running at this time.

Type the following command:

```
# shutdown now
```

3. Log into the SGI UV 300's rack management controller (RMC) as the root user.
4. From the RMC, type the following command to reset the power:

```
RMC> power -s reset
```

5. Wait for the reset to complete and type the following command to start a console session on the base I/O BMC:

```
RMC> uvcon
```

6. On the console's **SGI UV 300 series BIOS** main menu, press F2.

This action selects **to enter setup and select boot options**.

Figure 2-5 on page 16 shows the SGI UV 300 series BIOS menu options.

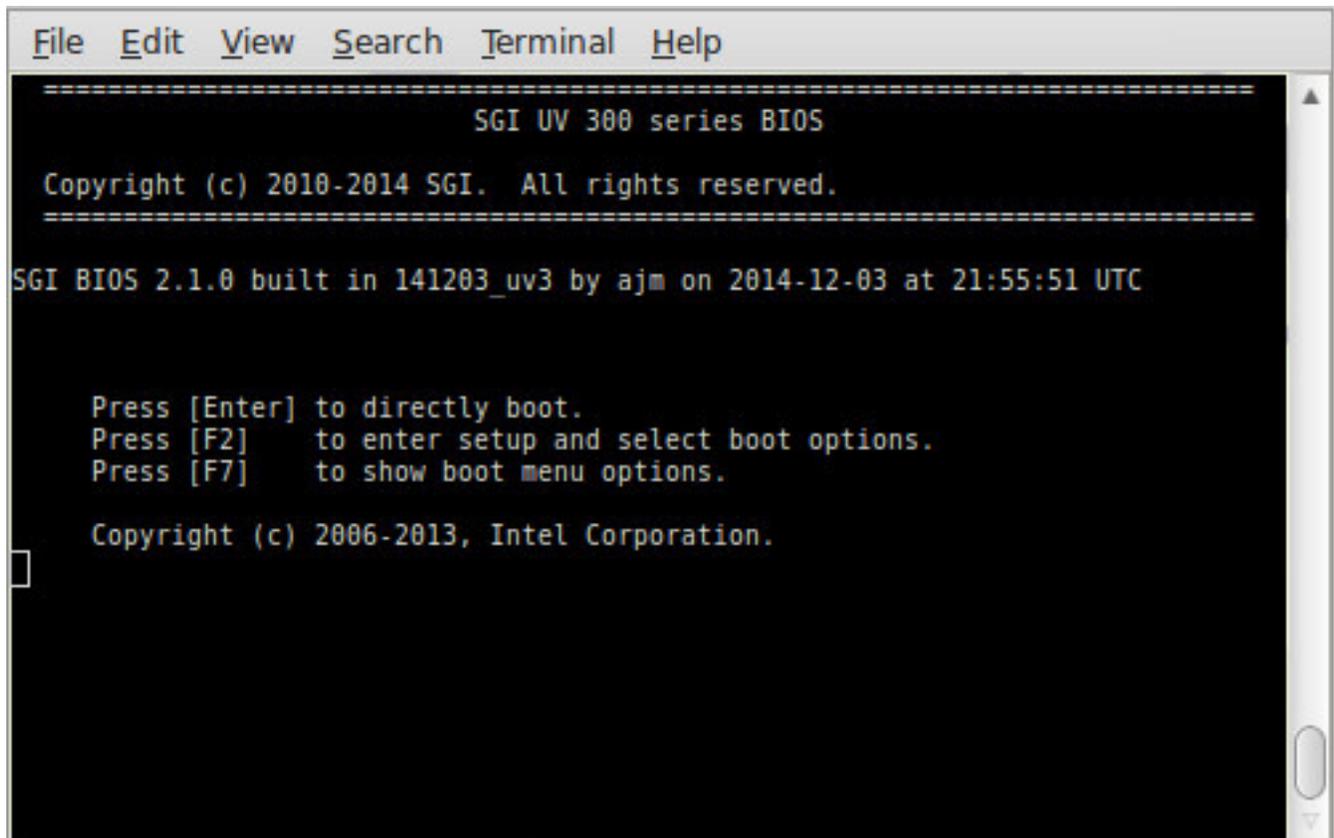


Figure 2-5 SGI UV 300 Boot Manager Screen

7. On the boot manager screen, select **Device Manager**, and press Enter.

Figure 2-6 on page 17 shows the device manager screen.

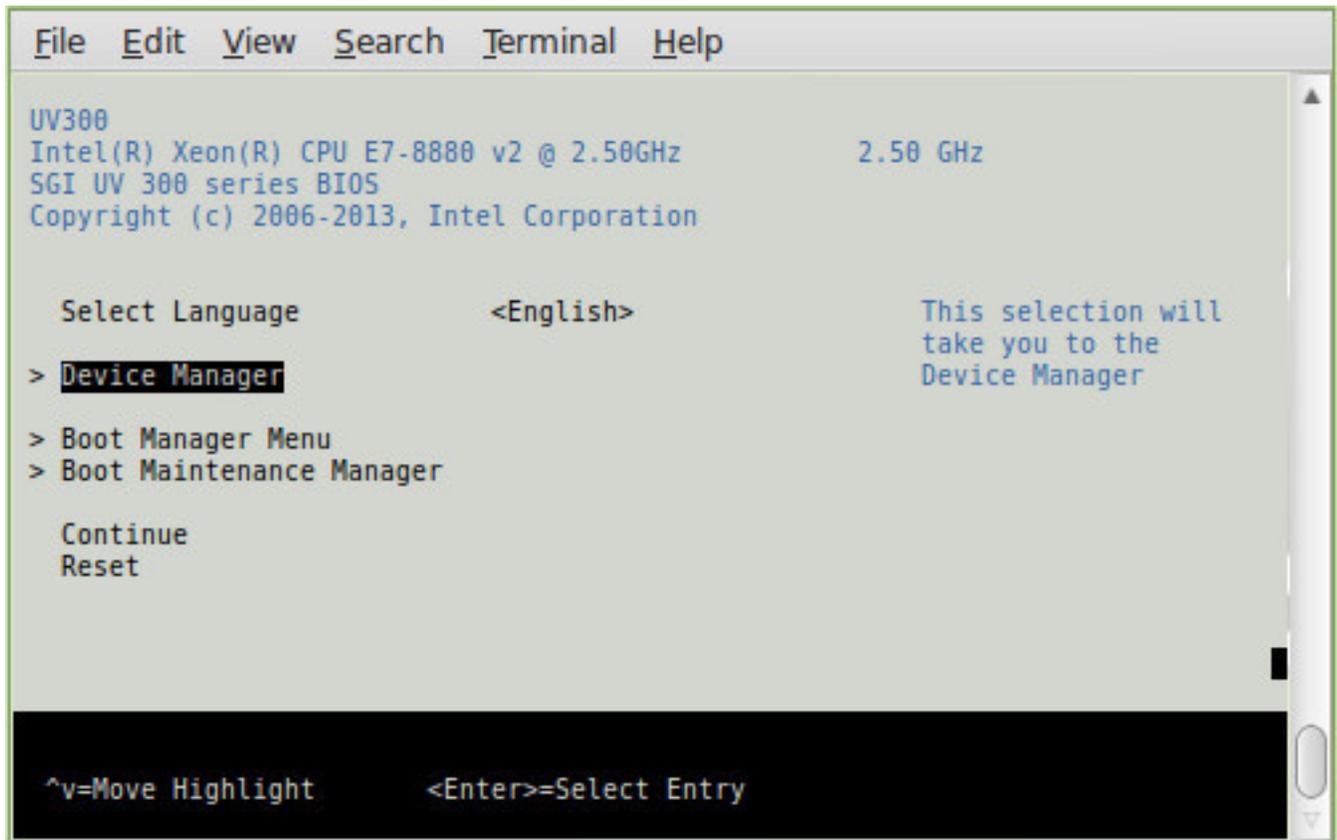


Figure 2-6 SGI UV 300 Device Manager Screen

8. On the **Device Manager** screen, select **Security**, and press Enter.

The following list shows how to navigate the device manager:

- F1 scrolls the help.
- Shift-6(^), v, or arrow keys highlight a selection.
- F9 resets system defaults.
- Enter selects.

- F10 saves.
 - Esc exits without saving.
 - Plus (+) and minus (-) keys change setting values.
 - To exit the console, press CTRL and the right bracket (]) together, and then press q. This sequence drops you to the RMC console.
9. On the **Security** screen, select the **Admin Password** option, and press Enter.
 10. In the **Please type in your new password** field, type the new administrative password, and press Enter.

The minimum password length is 6 characters and the maximum password length is 30 characters. The password is case sensitive.

The next time you boot the system, the system will prompt you to type the new password at the end of the boot sequence. The system issues this prompt before the Shell> prompt appears.
 11. Press F10 to save the change.
 12. Press Esc twice to return to the boot manager.
 13. To return to the RMC console, press CTRL and the right bracket (]) together, and then press q.
 14. Proceed to the following:

"Installing the System Software on the Server" on page 22

Setting or Changing the Password on an SGI UV 2000, SGI UV 1000, or SGI UV 100 System

The procedure in this topic explains how to set, or change, an administrative password on the console attached to an SGI UV 2000, SGI UV 1000, or SGI UV 100 system. A password is not required.

To delete a console password, type the following command, which clears the EFI variables:

```
system-cmc CMC:r001i01c> power -c reset
```

If you delete the password with the `power -c reset` command, you need to go back through the setup screens to set it again.

Procedure 2-3 To set or change an administrative password on the console

1. Log into the SGI UV system as the root user.
2. (Conditional) Shut down the system.

Complete this step if the system is running at this time.

Type the following command:

```
# shutdown now
```

3. Log into the SGI UV system's chassis management controller (CMC) as the root user.
4. From the CMC, type the following command to reset the power:

```
system-cmc CMC:r001i01c> power -s reset
```

5. Wait for the reset to complete and type the following command to start a console session on the base I/O BMC:

```
system-cmc CMC:r001i01c> uvcon
```

6. At the console's **Hit [Space] for Boot Menu** prompt, press the space bar.
7. On the boot manager screen, select **Device Manager**, and press Enter.

Figure 2-7 shows the boot manager screen.

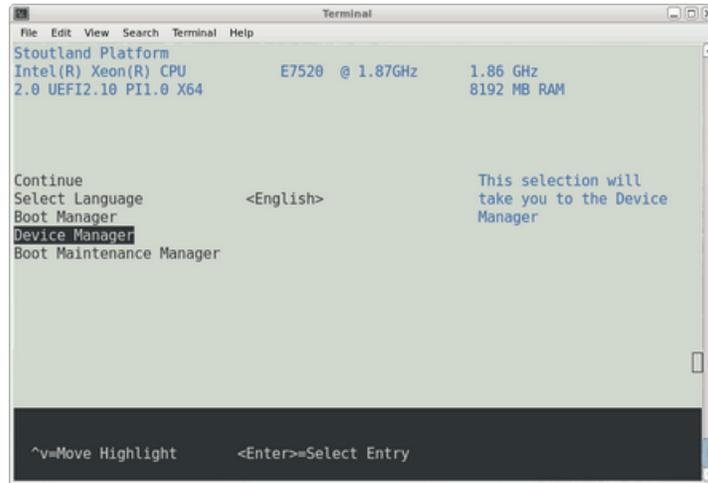


Figure 2-7 SGI UV 2000, SGI UV 1000, or SGI UV 100 Boot Manager Screen

8. On the **Device Manager** screen, select **Security**, and press Enter.
The following list shows how to navigate the device manager:
 - F1 scrolls the help.
 - Shift-6(^), v, or arrow keys highlight a selection.
 - F9 resets system defaults.
 - Enter selects.
 - F10 saves.
 - Esc exits without saving.
 - Plus (+) and minus (-) keys change setting values.
 - To exit the console, press CTRL and the right bracket (]) together, and then press q. This sequence drops you to the CMC console.
9. On the **Security** screen, select the **Admin Password** option, and press Enter.
10. In the **Please type in your new password** field, type the new administrative password, and press Enter.

The minimum password length is 6 characters and the maximum password length is 30 characters. The password is case sensitive.

The next time you boot the system, the system will prompt you to type the new password at the end of the boot sequence. The system issues this prompt before the `Shell>` prompt appears.

11. Press `F10` to save the change.
12. Press `ESC` twice to return to the boot manager.
13. To return to the CMC console, press `CTRL` and the right bracket (`)` together, and then press `q`.
14. Proceed to one of the following:
 - To install the operating system and SGI Foundation Software on an SMN, proceed to the following:
"(Conditional) Installing the System Software on the SMN" on page 21
 - To install the operating system and SGI Foundation Software on an SGI UV server, proceed to the following:
"Installing the System Software on the Server" on page 22

(Conditional) Installing the System Software on the SMN

Perform the procedure in this topic if you have an SGI UV 2000 system with an SMN or an SGI UV 1000 system with an SMN.

Perform all SMN software installations from the local console that is attached directly to the SMN. You cannot install software on the SMN from a remote console.

The following procedure explains how to enable local console access and points to the documentation that explains how to install the operating system software on the SMN.

Procedure 2-4 To enable access to the SMN from the local console and install the operating system software

1. Insert the operating system DVD into the DVD drive on the SMN.
2. Press `CTRL-ALT-F2` to get to `tty2`.
3. Log in as `root`.

4. Type `reboot`.
5. Start the installer.

This step differs, depending on the operating system you want to install, as follows:

- To install a RHEL SMN, on the **Welcome to Red Hat Enterprise Linux 6.X** screen, position the cursor at **Install or upgrade an existing system**, and press Enter.
 - To install a SLES SMN, on the SLES boot menu, select **Installation**.
6. Proceed to one of the following:
 - To install a RHEL 6 operating system, the SGI Foundation Software, and the SMN software on the SMN, proceed to the following:

Chapter 3, "Installing a Red Hat Enterprise Linux (RHEL) 6 Platform" on page 35
 - To install a SLES 11 operating system, the SGI Foundation Software, and the SMN software on the SMN, proceed to the following:

Chapter 5, "Installing a SLES 11 Platform" on page 65

Note: SGI support RHEL 6 and SLES 11 on SMNs. SGI does not support RHEL7 or SLES 12 on SMNs.

Installing the System Software on the Server

You can install the SGI UV server software by going through the SMN or by making a direct connection to the SGI UV server. Perform one of the following procedures to create an installation environment and to install the software on the SGI UV server:

- "Installing the SGI UV System Software on an SGI UV 300 Server" on page 23
- "Installing the SGI UV System Software on an SGI UV 2000, SGI UV 1000, or SGI UV 100 Server With an SMN" on page 24
- "Installing the SGI UV System Software on an SGI UV 2000, SGI UV 1000, or SGI UV 100 Server Without an SMN" on page 31

Installing the SGI UV System Software on an SGI UV 300 Server

Perform the procedure in this topic if you have an SGI UV 300 server.

Procedure 2-5 To install the SGI UV 300 server software

1. Log into the remote management console (RMC) as the root user.
2. From the RMC, power-on the server.
3. Put the DVD in to the DVD drive in the chassis.

If you are installing the software on a partitioned SGI UV 300 system, put the DVD into the drive in the chassis that includes the base I/O riser for your partition.

For information about partitioning, see the following:

SGI Foundation Software (SFS) User Guide

4. From the RMC, type the following command to perform a quick reset:

```
# power -s reset
```

The quick reset in this step sets the system to its smallest possible configuration. A later procedure includes a step to reset the whole system.

5. Wait for the system to reset.

The reset is complete when the **RMC>** prompt appears.

6. At the **RMC>** prompt, type the following command to open a console to the shell:

```
RMC> uvcon
```

7. At the **SGI UV 300 series BIOS** menu, press F2 to enter setup and select boot options.
8. Use the arrow keys to highlight **Boot Manager Menu**, and press Enter
9. Use the arrow keys to highlight **UEFI JMicron USB to ATA/ATAPI bridge ...**, and press Enter.
10. (Conditional — RHEL 7 or SLES 11 only) Select an installation activity, as follows:
 - For a RHEL 7 installation, use the arrow keys to navigate to the **Install Red Hat Enterprise Linux 7.1**, and press Enter.

- For a SLES 11 installation, on the **SUSE Linux Enterprise Server x** screen, press Enter to select **Installation** and start the SLES installation.
11. Proceed to one of the following:
- To install a RHEL 6 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 3, "Installing a Red Hat Enterprise Linux (RHEL) 6 Platform" on page 35
 - To install a RHEL 7 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 4, "Installing a Red Hat Enterprise Linux (RHEL) 7 Platform" on page 53
 - To install a SLES 11 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 5, "Installing a SLES 11 Platform" on page 65
 - To install a SLES 12 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 6, "Installing a SLES 12 Platform" on page 85

Installing the SGI UV System Software on an SGI UV 2000, SGI UV 1000, or SGI UV 100 Server With an SMN

Perform the procedure in this topic if you have an SGI UV server with an SMN.

The following procedure explains how to access the server and points to the documentation that explains how to install the operating system software on the server.

Procedure 2-6 To install the SGI UV server software through the SMN

1. Log into the SMN as the root user.
2. From the system management node (SMN), establish a secure network connection to the chassis management controller (CMC) of your SGI UV system.

For information about how to connect to the CMC, use one of the methods in the *SGI UV CMC Software User Guide*.

3. Open an `ssh` connection to the baseboard management controller (BMC).

This step differs depending on whether your goal is to install an operating system on an unpartitioned, single system image (SSI) SGI UV system or whether your goal is to install an operating system on a partition of an SGI UV system that is currently divided into partitions, as follows:

- To install onto an unpartitioned SSI, complete the following steps:

- On an SGI UV 2000 system, type the following command:

```
uv44-cmc CMC:r001i01c> ssh bmc0
```

- On an SGI UV 1000 system, type the following command:

```
uv44-cmc CMC:r001i01c> ssh bmc0i
```

- To install onto a partition, use the `ssh` command and specify the base I/O BMC name for the desired partition.

For information about how to select a partition, see the following:

SGI Foundation Software (SFS) User Guide

For example, to continue the example from the previous step, to connect to P001, type the following command:

```
uv44-cmc CMC:r001i01c> ssh r001i01b00
```

4. Retrieve the IP address of the BMC.

This step differs, depending on your platform, as follows:

- For SGI UV 2000 systems, type the following command to retrieve the IP address of `eth2` on the BMC:

```
r001i01b00> ifconfig eth2
```

For example, the following output shows that `128.162.246.190` is the IP address of `eth2`:

```
BMC:r001i01b00> ifconfig eth2
eth2      Link encap:Ethernet  HWaddr 08:00:69:16:82:2B
          inet addr:128.162.246.190  Bcast:128.162.246.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:69ff:fe16:822b/64  Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:21326174  errors:1250  dropped:2  overruns:0  frame:1248
```

```
TX packets:25887 errors:0 dropped:0 overruns:0 carrier:4
collisions:0 txqueuelen:1000
RX bytes:1733795498 (1.6 GiB) TX bytes:9314062 (8.8 MiB)
Interrupt:60 Base address:0x800 DMA chan:ff
```

- For SGI UV 1000 systems, type the following command to retrieve the IP address of eth1 on the BMC:

```
BMC:r001i01b00i> ifconfig eth1
```

For example, the following output shows that 172.20.255.254 is the IP address of eth1:

```
r001i01b00i> ifconfig eth1
eth1      Link encap:Ethernet  HWaddr 08:00:69:15:C0:57
          inet addr:172.20.255.254  Bcast:172.20.255.255  Mask:255.255.0.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:1508779 errors:204 dropped:28 overruns:0 frame:204
          TX packets:2262923 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:924130317 (881.3 MiB)  TX bytes:3017177156 (2.8 GiB)
          Interrupt:1
```

5. Note the IP address of eth2 on the BMC (for SGI UV 2000 systems) or eth1 on the BMC (for SGI UV 1000 systems).

Keep the IP address in a safe place. You need this IP address during the installation session and for future installation sessions.

6. On the desktop, click **Computer > Firefox**.
7. In the Firefox address bar, type the IP address of eth2 (on an SGI UV 2000 system) or eth1 (on an SGI UV 1000 system) on the BMC.

For example:

```
http://172.20.255.254
```

8. On the login screen, log into the system.

On an SGI UV 2000 system, type **admin** as the username, type **admin** as the password, and press Enter.

On an SGI UV 1000 system, type **root** as the username, type **superuser** as the password, and press Enter.

The system might issue a Java prompt at this point. Address any Java prompts that the system displays.

9. Launch the console.

This step differs depending on whether you want to install software on an SGI UV 2000 or an SGI UV 1000.

On an SGI UV 2000 system, on the **Dashboard** screen, click **Launch**.

On an SGI UV 1000 system, on the **Altix UV** screen, complete the following steps:

- Click **Remote Control**.
- Click **Console Redirection**.
- Click **Launch Console**.

10. (Conditional) Enable Firefox pop-ups.

Perform this step if Firefox displays a message about pop-ups.

Perform the following steps:

- Click **Preferences**.
- Click **Allow pop-ups for *ip_address***.
- Click **Launch** again.

11. On the **Opening jviewer.jnlp ...** screen, click **OK**.

12. On the **Warning — Security: The web site's certificate cannot be verified ...** screen, complete the following steps:

- Check **Always trust content from this publisher**.
- Click **Yes**.

13. On the **Warning — Security: The application's digital signature cannot be verified ...** screen, complete the following steps:

- Check **Always trust content from this publisher**.
- Click **Run**.

14. Launch the virtual media wizard.

This step differs on SGI UV 2000 and SGI UV 1000 systems.

On SGI UV 2000 systems, complete the following steps:

- In the top-most JViewer menu bar, click **Media > Virtual Media Wizard**
- Insert the operating system DVD into the DVD drive on the SMN, or if you are at a remote console, insert the DVD into your local desktop.
- On the **Virtual Media** pop-up, under **CD/DVD Media 1**, complete the following steps:
 - Select the device that corresponds to your DVD drive.

Your choice is `/dev/device`, where *device* depends on your system. For example, select `/dev/sr0`.
 - Click **Connect to CD/DVD**.
- On the **Information** pop-up, click **OK**.
- On the **Virtual Media** pop-up, click **Close**.

On SGI UV 1000 systems, complete the following steps:

- Insert the operating system DVD into the DVD drive on the SMN, or if you are at a remote console, insert the DVD into your local desktop.
- In the JViewer main menu, select **Device > Redirect CDROM**.
- On the **CD-ROM Selection** pop-up, select a drive.

For example, select `/dev/scd0`.
- Click **OK**.

15. In a terminal window, establish a secure connection to the SGI UV server.

For example:

```
ssh root@uv_server_name
```

16. Type the following command to shut down the system:

```
shutdown now
```

This command drops you into single-user mode. Wait for the root prompt (`#`) to appear.

17. In a terminal window, establish a secure connection to the CMC.

For example:

```
ssh root@cmc_name
```

18. (Conditional) Boot the system.

Perform this step if you want to install software onto an unpartitioned SGI UV system or if you want to install software on an SMN. Do not perform this step if you want to install an operating system on a single partition.

The CMC command you need to boot the system differs slightly, depending on whether you want to boot an SSI or whether you want to boot a partition. The formats are as follows:

- For an SSI, type the following command to boot the system as a single blade:

```
CMC:r001i01c> power -s reset
```

- For a specific partition, type the `power` command in the following format:

```
power -s reset number
```

For *number*, specify the partition number.

For example, to boot partitions 1 and 2, type the following commands:

```
CMC:r001i01c> power -s reset p1
```

```
CMC:r001i01c> power -s reset p2
```

19. Press the space bar after a message similar to the following appears in the JViewer window:

```
133,110,038,528 bytes of system memory tested OK  
Hit [Space] for Boot Menu...
```

If you miss the opportunity to press the space bar, and you arrive at the EFI shell, type `exit` to return to the boot manager.

20. Use the arrow keys to select **Boot Manager**, and press Enter.
21. On the **Boot Manager** screen, use the down-arrow key to select or highlight **EFI USB Device**, and press Enter.

Several minutes might elapse before the system begins to boot. A series of question mark characters might appear on the screen during the system boot. This is a known problem, and you can ignore it safely.

22. (Conditional) Configure the accelerated boot process. (RHEL platform SGI UV servers only)

Perform this step only if you inserted a RHEL DVD into the DVD drive on an SGI UV server. Failure to accelerate the boot process can result in boots that last twenty minutes or more on RHEL platforms. You do not need to perform this step on an SMN.

Complete the following steps:

- On the **Press any key for the boot menu ...** screen, press Enter.
- On the GNU GRUB menu, verify that **Red Hat Enterprise Linux ...** is selected, and type `e` to edit the Red Hat Enterprise Linux commands before booting.
- On the GNU GRUB menu, verify that **kernel / ...** is selected, and type `e` to edit the kernel.
- At the end of the **grub edit >** line that contains the default boot options, type a space character and then type the following additional boot option:
`ipmi_si.trydefaults=0`

Press Enter when you finish typing the additional boot option.

- On the GNU GRUB menu, type `b` to boot RHEL with the additional boot options.

23. Proceed to one of the following:

- To install a RHEL 6 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:

Chapter 3, "Installing a Red Hat Enterprise Linux (RHEL) 6 Platform" on page 35

- To install a RHEL 7 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:

Chapter 4, "Installing a Red Hat Enterprise Linux (RHEL) 7 Platform" on page 53

- To install a SLES 11 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 5, "Installing a SLES 11 Platform" on page 65
- To install a SLES 12 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 6, "Installing a SLES 12 Platform" on page 85

Installing the SGI UV System Software on an SGI UV 2000, SGI UV 1000, or SGI UV 100 Server Without an SMN

Perform the procedure in this topic if you have any of the following:

- SGI UV 2000 without an SMN
- SGI UV 1000 without an SMN
- SGI UV 100 without an SMN

Procedure 2-7 To install the SGI UV server software without an SMN

1. Notify users that they need to log off.

The software installation process includes a step to reboot the system. If any users are logged in at this time, their sessions end.

2. From a workstation, complete the following steps:
 - Log into the SGI UV server as the root user.
 - Open a terminal window to the SGI UV server.
 - Issue the following command to shut down the operating system:

```
# shutdown now
```

3. Complete the following steps to power off the SGI UV server:
 - In a terminal window, establish a secure connection to the CMC.

For example:

```
$ ssh root@cmc_name
```

Provide the root user's password when prompted.

- Type the following command to power off the computer system:

```
> power off
```

If you are installing the operating system on a partition, repeat this step through Procedure 2-7, step 10 on page 32, for each partition.

4. Attach a keyboard, a monitor, and a mouse directly to the SGI UV server.
5. Attach a DVD drive to the SGI UV server.
6. Insert the operating system DVD into the USB DVD drive on the SGI UV server.
7. Complete the following steps to power on the SGI UV server:
 - In a terminal window, establish a secure connection to the CMC.

For example:

```
$ ssh root@cmc_name
```

Provide the root user's password when prompted.

- Type the following command to power on the computer system:

```
> power on
```

8. Press the space bar after a message similar to the following appears:

```
133,110,038,528 bytes of system memory tested OK  
Hit [Space] for Boot Menu...
```

9. Use the arrow keys to select **Boot Manager**, and press Enter.
10. On the **Boot Manager** screen, use the down-arrow key to select or highlight **EFI USB Device**, and press Enter.

Several minutes might elapse before the system begins to boot. A series of question mark characters might appear on the screen during the system boot. This is a known problem, and you can ignore it safely.

11. (Conditional) Configure the accelerated boot process. (RHEL 6.5 platform SGI UV servers only)

Perform this step only if you inserted a RHEL 6.5 DVD into the DVD drive on an SGI UV server. Failure to accelerate the boot process can result in boots that last twenty minutes or more on RHEL 6.5 platforms. You do not need to perform this

step on an SMN. You do not need to perform this step if you are installing RHEL 6.6.

Complete the following steps:

- On the **Press any key for the boot menu ...** screen, press Enter.
- On the GNU GRUB menu, verify that **Red Hat Enterprise Linux ...** is selected, and type `e` to edit the Red Hat Enterprise Linux commands before booting.
- On the GNU GRUB menu, verify that **kernel / ...** is selected, and type `e` to edit the kernel.
- At the end of the **grub edit >** line that contains the default boot options, type a space character and then type the following additional boot option:
`ipmi_si.trydefaults=0`
Press Enter when you finish typing the additional boot option.
- On the GNU GRUB menu, type `b` to boot RHEL with the additional boot options.

12. Proceed to one of the following:

- To install a RHEL 6 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 3, "Installing a Red Hat Enterprise Linux (RHEL) 6 Platform" on page 35
- To install a RHEL 7 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 4, "Installing a Red Hat Enterprise Linux (RHEL) 7 Platform" on page 53
- To install a SLES 11 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 5, "Installing a SLES 11 Platform" on page 65
- To install a SLES 12 operating system and the SGI Foundation Software on an SGI UV server, proceed to the following:
Chapter 6, "Installing a SLES 12 Platform" on page 85

Installing a Red Hat Enterprise Linux (RHEL) 6 Platform

This chapter includes the following topics:

- "About Installing the RHEL Operating System on an SGI UV System" on page 35
- "Installing the RHEL Operating System Software on an SGI UV Server or an SGI UV SMN" on page 36
- "Installing the SGI Foundation Software on a RHEL Platform SGI UV Server or a RHEL Platform SMN" on page 48
- "(Conditional) Installing the SMN Software on a RHEL Platform SMN (SGI UV 2000, SGI UV 1000, and SGI UV 100 Platforms Only)" on page 51

About Installing the RHEL Operating System on an SGI UV System

This chapter explains how to install and configure the following software on an SGI[®] UV[™] server and on an SGI UV system management node (SMN):

- The RHEL operating system. The operating system installation instructions are nearly identical for the SGI UV server and the SMN. The instructions note differences where necessary.
- The SGI Foundation Software. The SGI Foundation Software installation instructions are nearly identical for the SGI UV server and the SMN. The instructions note differences where necessary.
- The SMN software. This is an SMN-specific package. SGI UV 2000, SGI UV 1000, and SGI UV 100 computers can have an SMN. The SGI UV 300 computers do not have SMNs.

Note: SGI supports only the RHEL 6 operating system on the SMN. If your SGI UV system includes an SMN, use the procedures in this chapter to install RHEL 6 as the operating system on the SMN and to install the latest SGI Foundation Software and SMN software.

The following additional documentation might be useful to you during this installation process:

- The *Red Hat Enterprise Linux 6 Installation Guide*. This guide is available at the following location:

http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/6/pdf/Installation_Guide/Red_Hat_Enterprise_Linux-6-Installation_Guide-en-US.pdf

- The SGI Foundation Software 2.X release notes file. After you log into Supportfolio, you can retrieve the release notes from the following location:

https://support.sgi.com/content_request/194480/index.html

- The SMN software release notes file. After you log into Supportfolio, you can retrieve the release notes from the following location:

https://support.sgi.com/content_request/738299/index.html

Installing the RHEL Operating System Software on an SGI UV Server or an SGI UV SMN

The following procedures explain how to install the RHEL operating system software:

- "Initiating the Installation" on page 36
- "Specifying the Network" on page 37
- "(Conditional) Specifying Disk Partitions for an SGI UV SMN" on page 39
- "Specifying Disk Partitions for an SGI UV Server" on page 42
- "Completing the RHEL Installation" on page 46

Initiating the Installation

The following procedure explains how to initiate the installation.

Procedure 3-1 To begin the software installation

1. Make sure you gathered the information that you need for this installation.

For more information, see the following:

"Gathering Installation Materials and Information" on page 7

2. On the **Disc Found** screen, tab to one of the following, and press Enter:
 - **Skip**. Select this option if you are using the standard DVD you received from SGI.
 - **OK**. Select this option if you downloaded the software and created your own DVD. This option checks the integrity of the disk.
3. On the **Red Hat Enterprise Linux 6** splash screen, click **Next**.
4. On the **What language would you like to use during the installation process?** screen, select your language, and click **Next**.
5. On the **Select the appropriate keyboard for the system** screen, select your keyboard, and click **Next**.
6. On the **What type of devices will your installation involve?** screen, select **Basic storage devices**, and click **Next**.
7. (Conditional) Select **Fresh Installation**, and select **Next**.

Perform this step if a screen with the following information appears: **At least one existing installation has been detected on your system. What would you like to do?**

8. On the **Please name this computer** screen, type the fully qualified domain name (FQDN) for the SMN, and click **Configure Network**.

If you are installing the operating system on a partition, make sure to use a different hostname for each partition you create. For example: `system-p1.uv.com`. After you complete the installation, if you need to address a partition, use the hostname or FQDN for the partition.

9. Proceed to the following:
"Specifying the Network" on page 37

Specifying the Network

The following procedure explains how to specify the networking information.

Procedure 3-2 To specify the network

1. On the **Network Connections** popup, select **System eth0**, and click **Edit**.

2. On the **Editing System eth0** popup, complete the following steps:
 - Select **Connect automatically** to start the network card.
 - Select the **IPv4 Settings** tab.
3. Complete the **IPv4 Settings** tab.

This step differs depending on whether you want to use dynamic or static addressing, as follows:

To specify dynamic addressing:	To specify static addressing:
<ol style="list-style-type: none">1. Make sure that Automatic (DHCP) is selected.2. Click Apply.3. On the Network Connections pop-up, click Close.	<ol style="list-style-type: none">1. In the Method: field, pull down Manual.2. In the Addresses pane, click Add, and complete the following steps:<ul style="list-style-type: none">• Type the IP address.• Type the netmask.• Type the IP address of the default gateway.3. In the DNS servers: field, type the IP address of one or more DNS servers. If you specify more than one, use a comma to separate each IP address.4. In the Search domains: field, type one or more search domains. If you specify more than one, use a comma to separate each domain.5. Click Apply.6. On the Network Connections pop-up, click Close.

4. On the **Please name this computer screen**, click **Next**.
5. On the **Please select the nearest city in your time zone** screen, select a city, and click **Next**.

6. On the **The root account is used for administering the system** screen, complete the following steps:
 - In the **Root Password** field, type the password you want to use for the root account.
 - In the **Confirm** field, type the root password again.
 - Click **Next**.
7. On the **Which type of installation would you like?** screen, select **Create Custom Layout**, and click **Next**.
8. Proceed to one of the following:
 - To configure disk partitions on an SMN, complete the following procedure:
"(Conditional) Specifying Disk Partitions for an SGI UV SMN" on page 39
 - To configure disk partitions on an SGI UV server, complete the following procedure:
"Specifying Disk Partitions for an SGI UV Server" on page 42

(Conditional) Specifying Disk Partitions for an SGI UV SMN

Perform the procedure in this topic if you need to configure an SGI UV SMN.

This topic includes information about disk partitioning for SGI UV system SMNs. The procedure in this topic explains how to configure the disk partitions and monitor a reboot.

For the SMN, your goal is to configure the disks according to Table 3-1 on page 39. Note that the system automatically creates an **Extended** partition.

Table 3-1 Disk Partitions for an SGI UV SMN

Size	Mount Point	File System
200 MB	/boot	ext4
250 GB (256,000 MB)	/	ext4

Size	Mount Point	File System
8 GB (8,192 MB)	swap	swap
rest of disk	/data1	ext4

The following procedure explains how to specify the disk partitions.

Procedure 3-3 To specify disk partitions

1. On the main disk partitioning screen, complete the following steps to clean the disk:
 - Select a disk device.
 - Click **Delete**.
 - On the **Confirm Delete** pop-up, click **Delete**.
 - Proceed to the next step after you have deleted all existing partitions.
2. On the main disk partitioning screen, click **Create**.
3. On the **Create Storage** pop-up, complete the following steps:
 - Click **Standard Partition**.
 - Click **Create**.
4. On the **Add Partitions** pop-up, complete the following steps:
 - In the **Mount Point** field, select **/boot** from the pull-down menu.
 - In the **File System Type** field, select **ext4** from the pull-down menu.
 - Verify that the default size is **200 MB**.
 - Verify that **Fixed size** is selected.
 - Verify that **Encrypt** is clear.

Note: Do not check **Encrypt**.

- Click **OK**.
5. On the main disk partitioning screen, click **Create**.

6. On the **Create Storage** pop-up, click **Create**.
7. On the **Add Partition** pop-up, complete the following steps:
 - In the **Mount Point** field, select / from the pull-down menu.
 - In the **File System Type** field, verify that **ext4** appears.
 - In the **Size** field, type **256000**, which is 250 GB.
 - Verify that **Fixed size** is selected.
 - Verify that **Encrypt** is clear.

Note: Do not check **Encrypt**.

- Click **OK**.
8. On the main disk partitioning screen, click **Create**.
9. On the **Create Storage** pop-up, click **Create**.
10. On the **Add Partition** pop-up, complete the following steps:
 - In the **File System Type** field, select **swap** from the pull-down menu.
 - In the **Size** field, type **8192**, which is 8 GB.
 - Verify that **Fixed size** is selected.
 - Verify that **Encrypt** is clear.

Note: Do not check **Encrypt**.

- Click **OK**.
11. On the main disk partitioning screen, click **Create**.
12. On the **Create Storage** pop-up, click **Create**.
13. On the **Add Partition** pop-up, complete the following steps:
 - In the **Mount Point** field, type **/data1**.
 - In the **File System Type** field, select **ext4** from the pull-down menu.

- In the **Additional Size Options** box, select **Fill to maximum allowable size**.
- Verify that **Encrypt** is clear.

Note: Do not check **Encrypt**.

- Click **OK**.
14. On the main disk partitioning screen, click **Next**.
 15. On the **Writing Storage Configuration to disk** pop-up, select **Write changes to disk**.
Wait for the disk formatting to complete.
 16. On the boot loader specifications page, complete the following steps:
 - Verify that the **Use boot loader password** box is clear.
 - In the **Boot loader operating system list** box, verify that **Red Hat Enterprise Linux ...** appears.
 - Click **Next**.
 17. Proceed to the following:
"Completing the RHEL Installation" on page 46

Specifying Disk Partitions for an SGI UV Server

Perform the procedure in this topic to configure the partitions for an SGI UV server.

This topic includes information about disk partitioning for SGI UV servers. The procedure in this topic explains how to configure the disk partitions and monitor a reboot.

For the SGI UV server, your goal is to configure the disks according to Table 3-2 on page 43

Table 3-2 Disk Partitions for an SGI UV Server

Size	Mount Point	File System
500 MB	/boot/efi	EFI System Partition
250 GB (256,000 MB)	/	ext4
8 GB (8,192 MB)	swap	swap
rest of disk	/data1	ext4

The following procedure explains how to specify the disk partitions.

Procedure 3-4 To specify disk partitions

1. On the **Please Select a Device** screen, which is the main disk partitioning screen, complete the following steps to clean the disk:
 - Select a disk device.
 - Click **Delete**.
 - On the **Confirm Delete** pop-up, click **Delete**.
 - Proceed to the next step after you have deleted all existing partitions.
2. On the **Please Select a Device** screen, which is the main disk partitioning screen, click **Create**.
3. On the **Create Storage** pop-up, complete the following steps:
 - Click **Standard Partition**.
 - Click **Create**.
4. On the **Add Partition** pop-up, complete the following steps:
 - In the **Mount Point** field, select **/boot/efi** from the pull-down menu.
 - Verify that **EFI System Partition** is selected.
 - In the **Size** field, type **500**, which is 500 MB.
 - Verify that **Fixed size** is selected.
 - Verify that **Encrypt** is clear.

Note: Do not check **Encrypt**.

- Click **OK**.
5. On the **Please Select a Device** screen, which is the main disk partitioning screen, click **Create**.
 6. On the **Create Storage** pop-up, complete the following steps:
 - Click **Standard Partition**.
 - Click **Create**.
 7. On the **Add Partition** pop-up, complete the following steps:
 - In the **Mount Point** field, select / from the pull-down menu.
 - In the **File System Type** field, verify that **ext4** appears.
 - In the **Size** field, type **256000**, which is 250 GB.
 - Verify that **Fixed size** is selected.
 - Verify that **Encrypt** is clear.

Note: Do not check **Encrypt**.

- Click **OK**.
8. On the **Please Select a Device** screen, which is the main disk partitioning screen, click **Create**.
 9. On the **Create Storage** pop-up, complete the following steps:
 - Click **Standard Partition**.
 - Click **Create**.
 10. On the **Add Partition** pop-up, complete the following steps:
 - In the **File System Type** field, select **swap** from the pull-down menu.
 - In the **Size** field, type **8192**, which is 8 GB.

- Verify that **Fixed size** is selected.
- Verify that **Encrypt** is clear.

Note: Do not check **Encrypt**.

- Click **OK**.
11. On the **Please Select a Device** screen, which is the main disk partitioning screen, click **Create**.
 12. On the **Create Storage** pop-up, complete the following steps:
 - Click **Standard Partition**.
 - Click **Create**.
 13. On the **Add Partition** pop-up, complete the following steps:
 - In the **Mount Point** field, type **/data1**.
 - In the **File System Type** field, select **ext4** from the pull-down menu.
 - In the **Additional Size Options** box, select **Fill to maximum allowable size**.
 - Verify that **Encrypt** is clear.

Note: Do not check **Encrypt**.

- Click **OK**.
14. On the **Please Select a Device** screen, which is the main disk partitioning screen, click **Next**.
 15. On the **Writing Storage Configuration to disk** pop-up, select **Write changes to disk**.
Wait for the disk formatting to complete.
 16. On the boot loader specifications page, complete the following steps:
 - Verify that the **Use boot loader password** box is clear.
 - In the **Boot loader operating system list** box, verify that **Red Hat Enterprise Linux /dev/sda2** appears.

- Click **Next**.
17. Proceed to the following:
"Completing the RHEL Installation" on page 46

Completing the RHEL Installation

The following procedure explains how to complete the installation.

Procedure 3-5 To complete the installation

1. On the **The default installation of Red Hat Enterprise Linux is a basic server install ...** page, complete the following steps:
 - Select **Desktop**.
 - Select **Next**.

Wait for the operating system installation to complete.

2. On the **Congratulations, your Red Hat Enterprise Linux installation is complete** page, click **Reboot**.
3. On the **Welcome** page, click **Forward**.
4. On the **License Information** page, complete the following steps:
 - Click **Yes, I agree to the License Agreement**.
 - Click **Forward**.
5. On the **Set Up Software Updates** page, decide whether to register now or whether to postpone registration.

If your SGI UV system is connected to the network correctly, you can register now. The following information explains how to proceed:

- If the screen contains a message that begins with **This assistant will guide you through the process of registering your system with Red Hat to receive software updates ...**, then the SGI UV system is connected correctly to the network. Complete the following steps:
 - Select **Yes, I'd like to register now**, and click **Forward**.

- On the **Choose Service** page, select **Red Hat Subscription Management**, and click **Forward**.
 - On the **Subscription Management Registration** page, click **Forward**.
 - On the second **Subscription Management Registration** page, complete the fields appropriately for your site, and click **Forward**.
 - On the third **Subscription Management Registration** page, click **Forward**.
 - If the screen includes a warning symbol and a message that begins with **The network connection on your system is not active ...**, then the SGI UV system is not connected correctly to the network. Complete the following steps:
 - Click **Forward**.
 - Continue on to the next step in this procedure.

You can restart the installer, correct your network network configuration, and connect to RHN later.
6. On the **Create User** page, complete the following steps to create an end-user account:
 - In the **Username** field, type the username.
 - In the **Full Name** field, type the user's full name.
 - In the **Password** field, type the user's password. Passwords must be at least eight characters long, contain at least one digit, and contain a mixture of uppercase and lowercase letters.
 - In the **Confirm Password** field, type the user's password again.
 - Click **Forward**.
 7. On the **Date and Time** screen, configure system clock settings that your site requires and click **Forward**.
 8. On the **Kdump** page, specify the following:
 - For the SGI UV server, specify 1280 MB, and click **Finish**.
 - For the SMN, specify 256 MB, and click **Finish**.
 9. On the **Changing Kdump ...** pop-up, click **Yes**.

10. On the **The system must now reboot ...** pop-up, click **OK** to confirm the reboot.
11. Proceed to the following:
"Installing the SGI Foundation Software on a RHEL Platform SGI UV Server or a RHEL Platform SMN" on page 48

Installing the SGI Foundation Software on a RHEL Platform SGI UV Server or a RHEL Platform SMN

The following procedure explains how to install the SGI Foundation Software on a RHEL SGI UV server or SMN. You can use the same procedure on both the SGI UV server and an SGI UV SMN.

Procedure 3-6 To install the SGI Foundation Software

1. Log into the SGI UV server or the SGI UV SMN as the root user.

The SGI Foundation Software installation procedure is the same for both the SGI UV server and the SGI UV SMN.

2. On the login page, complete the following steps:
 - Select **Other**.
 - In the **Username** field, type `root`.
 - In the **Password** field, type the root user's password.
 - Click **Log In**.
3. On the **You are currently trying to run as the root super user ...** pop-up, click **Close**.
4. Access the installation software.

Complete this step in one of the following ways:

- If a DVD drive is available, insert the *SGI Foundation Software X.X* CD into the DVD drive.

For example, an SGI UV 300 includes a DVD drive. You might have attached a DVD drive to an SGI UV 2000 or SGI UV 1000 computer system.
- On an SGI UV 2000 without a DVD drive, complete the following steps:

- In the top-most JViewer menu bar, click **Media > Virtual Media Wizard ...**
 - Insert the operating system DVD into the DVD drive on the SMN, or if you are at a remote console, insert the DVD into your local desktop.
 - On the **Virtual Media** pop-up, under **CD/DVD Media 1**, complete the following steps:
 - Select **/dev/sr0**.
 - Click **Connect to CD/DVD**.
 - On the **Information** pop-up, click **OK**.
 - On the **Virtual Media** pop-up, click **Close**.
 - On an SGI UV 1000 without a DVD drive, complete the following steps:
 - Insert the operating system DVD into the DVD drive on the SMN, or if you are at a remote console, insert the DVD into your local desktop.
 - In the JViewer main menu, select **Device > Redirect CDROM**.
 - On the **CD-ROM Selection** pop-up, select a drive.
For example, select **/dev/scd0**.
 - Click **OK**.
5. Click **Applications > System Tools > Terminal** to open a terminal window.
 6. Type the following command to create an installation directory for the files from the CD:

```
# mkdir -p /opt/sgi/Factory-Install/sgi-foundation-2.12/
```
 7. Type the following command to create a temporary mount directory:

```
# mkdir /var/sfs2.12
```
 8. Type the following command to mount the CD in read-only mode (-r), using a loop device:

```
# mount -t iso9660 -ro loop /dev/cdrom /var/sfs2.12
```

9. Type the following command to copy the files from the temporary mount directory to the installation directory:

```
# rsync -avHx /var/sfs2.12/ /opt/sgi/Factory-Install/sgi-foundation-2.12/
```

10. Type the following command to unmount the CD from the temporary directory:

```
# umount /var/sfs2.12
```

11. Type the following command to remove the temporary mount directory:

```
# rmdir /var/sfs2.12
```

12. Use a text editor to create file `/etc/yum.repos.d/foundation2.12-local.repo` with the following contents:

```
#####  
[foundation2.12-repo]  
name=SGI Foundation Software 2.12 - $basearch  
baseurl=file:///opt/sgi/Factory-Install/sgi-foundation-2.12/RPMS  
enabled=1  
gpgcheck=1  
gpgkey=file:///opt/sgi/Factory-Install/sgi-foundation-2.12/RPM-GPG-KEY-sgi  
#####
```

13. Type the following command to retrieve the list of software that you can install:

```
# yum grouplist | grep SGI
```

14. Type the following command to install the SGI Foundation Software group:

```
# yum groupinstall "SGI Foundation Software"
```

15. Type **y** at the following prompt to confirm the download size:

```
Is this ok [y/N]
```

16. Type **y** at the following prompt to accept the GPG license key:

```
Is this ok [y/N]
```

17. Open a terminal window on the booted system.

18. In the terminal window, type the following command to reboot the system:

```
# reboot
```

19. After the system reaches the EFI shell, in the RMC or CMC command window, type the following command to reset the full system:

```
# power reset
```

20. (Conditional) Install the SMN-specific software on the SMN.

Perform the following procedure to complete the SMN software installation:

"(Conditional) Installing the SMN Software on a RHEL Platform SMN (SGI UV 2000, SGI UV 1000, and SGI UV 100 Platforms Only)" on page 51

The SGI UV server installation is finished at this time.

(Conditional) Installing the SMN Software on a RHEL Platform SMN (SGI UV 2000, SGI UV 1000, and SGI UV 100 Platforms Only)

Perform the procedure in this topic if your SGI UV server has an SMN.

The SMN requires its own specific software, and you need to install the SMN software on the SMN after you install the SGI Foundation Software.

The following procedure explains how to install the SMN software on a RHEL SMN.

Procedure 3-7 To install the SMN software on a RHEL SMN

1. Insert the CD labeled *SGI System Management Node Software X.X* into the DVD drive on the SMN.
2. Type the following command to create an installation directory for the files from the CD:

```
# mkdir -p /opt/sgi/Factory-Install/sgi-smn-1.11/
```

3. Type the following command to create a temporary mount directory:

```
# mkdir /var/smn1.11
```

4. Type the following command to mount the CD in read-only mode (-r), using a loop device:

```
# mount -ro loop /dev/cdrom /var/smn1.11
```

5. Type the following command to copy the files from the temporary mount directory to the installation directory:

```
# rsync -avHx /var/smn1.11/ /opt/sgi/Factory-Install/sgi-smn-1.11/
```

6. Type the following command to unmount the CD from the temporary directory:

```
# umount /var/smn1.11
```

7. Type the following command to remove the temporary mount directory:

```
# rmdir /var/smn1.11
```

8. Use a text editor to create file `/etc/yum.repos.d/smn1.11-local.repo` with the following contents:

```
#####  
[smn1.11-repo]  
name=SGI SMN Software 1.11 - $basearch  
baseurl=file:///opt/sgi/Factory-Install/sgi-smn-1.11/RPMS  
enabled=1  
gpgcheck=1  
gpgkey=file:///opt/sgi/Factory-Install/sgi-smn-1.11/RPM-GPG-KEY-sgi  
#####
```

9. Type the following command to retrieve the list of software that you can install:

```
# yum grouplist | grep SGI
```

10. Type the following command to install the SGI SMN software group:

```
# yum --enablerepo=rhel-6-server-optional-rpms groupinstall "SGI Management Node Software"
```

11. Type the following command to reboot the system:

```
# reboot
```

12. Log into the system as the root user.

13. Type the following command to configure the SMN software:

```
# smnconfig -Aa -3
```

14. Type the following command to reboot:

```
# reboot
```

Installing a Red Hat Enterprise Linux (RHEL) 7 Platform

This chapter includes the following topics:

- "About Installing the RHEL Operating System on an SGI UV System" on page 53
- "Installing the RHEL Operating System Software on an SGI UV Server" on page 54
- "Installing the SGI Foundation Software on a RHEL 7-based SGI UV Server" on page 61

About Installing the RHEL Operating System on an SGI UV System

This chapter explains how to install and configure the following software on an SGI[®] UV[™] server:

- The RHEL 7.1 operating system.
- The SGI Foundation Software.

The following additional documentation might be useful to you during this installation process:

- The *Red Hat Enterprise Linux 7 Installation Guide*. This guide is available at the following location:

http://docs.redhat.com/docs/en-US/Red_Hat_Enterprise_Linux/7/pdf/Installation_Guide/Red_Hat_Enterprise_Linux-7-Installation_Guide-en-US.pdf

- The SGI Foundation Software 2.X release notes file. After you log into Supportfolio, you can retrieve the release notes from the following location:

https://support.sgi.com/content_request/194480/index.html

Note: If your SGI UV system includes a system management node (SMN), be aware that SGI does not support the RHEL 7 operating system on the SMN. SGI supports only the RHEL 6 operating system on the SMN, but SGI continues to update the SGI Foundation Software and the SMN software for use on RHEL 6-based SMNs. To install the system software on an SMN, use the procedures in the following chapter to install the RHEL 6 operating system, the latest SGI Foundation Software, and the latest SMN software:

Chapter 3, "Installing a Red Hat Enterprise Linux (RHEL) 6 Platform" on page 35

Installing the RHEL Operating System Software on an SGI UV Server

The following procedures explain how to install the RHEL operating system software:

- "Initiating the Installation and Partitioning the Disk" on page 54
- "Configuring the Network and Rebooting" on page 57
- "Completing the Installation" on page 59

Initiating the Installation and Partitioning the Disk

The following procedure explains how to initiate the installation.

Procedure 4-1 To begin the software installation

1. Make sure you gathered the information that you need for this installation.

For more information, see the following:

"Gathering Installation Materials and Information" on page 7

2. On the boot loader menu, complete the following steps:
 - Use the arrow keys to select **Install Red Hat Enterprise Linux 7.1**.
 - Press Enter.
3. Wait a few moments while the software loads.
4. On the splash screen, which asks **What language would you like to use during the installation process?**, complete the following steps:

- Select your language.
 - Click **Continue**.
5. On the **INSTALLATION SUMMARY** page, click **DATE & TIME**.
 6. On the **DATE & TIME** page, complete the following steps:
 - Select your time zone.
 - Select the date.
 - Click **Done**.
 7. On the **INSTALLATION SUMMARY** page, click **KEYBOARD**.
 8. On the **KEYBOARD LAYOUT** page, complete the following steps:
 - Select your keyboard layout.
 - Click **Done**.
 9. On the **INSTALLATION SUMMARY** page, click **SOFTWARE SELECTION**.
 10. On the **SOFTWARE SELECTION** page, complete the following steps:
 - Select **Server with GUI**.
 - Click **Done**.
 11. On the **INSTALLATION SUMMARY** page, complete the following steps:
 - Click **INSTALLATION DESTINATION**.
 - Click the disk under **Local Standard Disks**.
 - Under **Other Storage Options**, click **I will configure partitioning**.
 - Click **Done**.
 12. On the **MANUAL PARTITIONING** page, clean the disk.

The screen's left pane lists the operating system installations that currently reside on the disk. Your goal is to remove all operating system installations, data, and partitions that reside on the disk. You can remove one operating system at a time.

To remove one operating system, complete the following steps:

- Select the operating system's name.

- Click the minus sign (-) at the bottom of the left pane to delete the operating system.
 - On the **Are you sure ...** popup, complete the following steps:
 - Select **Delete all other**
 - Click **Delete it.**
 - Repeat the preceding steps, as needed, until all operating systems are removed.
13. In the left pane, select **Standard Partition** from the drop-down menu.
14. Create new mount points.

Your goal is to configure the disks according to Table 4-1 on page 56.

Table 4-1 Disk Partitions for an SGI UV Server

Size	Mount Point	File System
512 MB	/boot/efi	FAT16
250 GB (256,000 MB)	/	XFS
8 GB (8,192 MB)	swap	swap
rest of disk	/data1	XFS

Complete the following steps to create new mount points:

- In the left pane, click the plus sign (+) to add a new mount point.
- On the **ADD A NEW MOUNT POINT** popup, complete the following steps:
 - On the **Mount Point** drop-down menu, select **/boot/efi**.
 - On the **Desired Capacity** drop-down menu, type 512mb.
 - Click **Add mount point**.
- In the left pane, click the plus sign (+) to add a new mount point.
- On the **ADD A NEW MOUNT POINT** popup, complete the following steps:
 - On the **Mount Point** drop-down menu, select **/**.

- On the **Desired Capacity** drop-down menu, type 250gb.
 - Click **Add mount point**.
 - In the left pane, click the plus sign (+) to add a new mount point.
 - On the **ADD A NEW MOUNT POINT** popup, complete the following steps:
 - On the **Mount Point** drop-down menu, select **swap**.
 - On the **Desired Capacity** drop-down menu, type 8gb.
 - Click **Add mount point**.
 - In the left pane, click the plus sign (+) to add a new mount point.
 - On the **ADD A NEW MOUNT POINT** popup, complete the following steps:
 - In the **Mount Point** field, type /data1.
 - Leave the **Desired Capacity** field blank.
 - Click **Add mount point**.
 - Verify that the **Desired Capacity** field shows the rest of the disk.
 - Click **Done**.
15. On the **SUMMARY OF CHANGES** popup, click **Accept Changes**.
16. On the **KDUMP** page, complete the following steps:
- Click **Manual**.
 - In the **Memory to be Reserved (MB)** field, specify 1280 MB.
 - Click **Done**.
17. Proceed to the following:
- "Configuring the Network and Rebooting" on page 57

Configuring the Network and Rebooting

The following procedure explains how to specify your network and reboot.

Procedure 4-2 To configure the network and reboot

1. On the **INSTALLATION SUMMARY** page, click **NETWORK & HOST NAME**.
2. On the **NETWORK & HOST NAME** page, complete the following steps:
 - Select **Ethernet enp1s0f0**.
 - In the right pane, in the upper-right corner of the screen, find the **ON/OFF** switch, and click the blank box to set the **ON/OFF** switch to **ON**.
 - Click **Configure**.
 - On the **Editing enp1s0f0** popup, select **IPv4 Settings**.
 - Complete this step according to the following table:

To specify dynamic addressing:	To specify static addressing:
<ol style="list-style-type: none">1. In the Method: drop-down menu, select Automatic (DHCP).2. Click Apply.	<ol style="list-style-type: none">1. In the Method: drop-down menu, select Manual.2. In the Addresses pane, click Add, and complete the following steps:<ul style="list-style-type: none">• Type the IP address.• Type the netmask.• Type the IP address of the default gateway.
<ol style="list-style-type: none">3. On the Editing pop-up, click Save.	<ol style="list-style-type: none">3. In the DNS servers: field, type the IP address of one or more DNS servers. If you specify more than one, use a comma to separate each IP address.4. In the Search domains: field, type one or more search domains. If you specify more than one, use a comma to separate each domain.5. On the Editing pop-up, click Save.

3. On the **NETWORK & HOSTNAME** page, in the **Host name** field, complete the following steps:
 - Type the hostname of the SGI UV system.

- Click **Done**.
4. On the **INSTALLATION SUMMARY** page, click **Begin Installation**.
 5. On the **CONFIGURATION** page, click **ROOT PASSWORD**.
 6. On the **ROOT PASSWORD** page, complete the following steps:
 - In the **Root Password** field, type the password you want to use on this SGI UV system.
 - In the **Confirm** field, type the password again.
 - Click **Done**.

If the password is too weak, either specify a stronger password or click **Done** twice.
 7. On the **CONFIGURATION** page, complete the following steps:
 - Wait for the configuration to complete.
 - Click **Reboot** when the configuration completes.
 - Wait for the reboot to finish.
 8. Proceed to the following:

"Completing the Installation" on page 59

Completing the Installation

The following procedure explains how to complete the installation.

Procedure 4-3 To complete the installation

1. On the **INITIAL SETUP** screen, click **LICENSE INFORMATION**.
2. On the **LICENSE INFORMATION** screen, complete the following steps:
 - Click **I accept the license agreement**.
 - Click **Done**.
3. Click **FINISH CONFIGURATION**.
4. On the **Subscription Management Registration** page, click **Forward**.

5. On the second **Subscription Management Registration** page, complete the following steps:
 - Complete the fields appropriately for your site.
 - Click **Forward**.
6. On the **Welcome** page, complete the following steps:
 - Select your language.
 - Click **Next**.
7. On the **Input Sources** page, complete the following steps:
 - Select the language you use.
 - Click **Next**.
8. On the **Login** page, complete the following steps to create the local user account:
 - Complete all the fields on this page.
 - Click **Next**.
9. On the **Location** page, complete the following steps:
 - Select a location.
 - Click **Next**.
10. On the **Thank You** screen, click **Start using Red Hat Enterprise Linux Server**.
11. Click the user account name in the upper right corner of your screen, and select **Log Out** on the menu that appears.

This action logs out the local user, which is the account you created in this procedure.
12. Proceed to the following:

"Installing the SGI Foundation Software on a RHEL 7-based SGI UV Server" on page 61

Installing the SGI Foundation Software on a RHEL 7-based SGI UV Server

The following procedure explains how to install the SGI Foundation Software on a RHEL SGI UV server or SMN. You can use the same procedure on both the SGI UV server and an SGI UV SMN.

Procedure 4-4 To install the SGI Foundation Software

1. Log into the SGI UV server or the SGI UV SMN as the root user.

The SGI Foundation Software installation procedure is the same for both the SGI UV server and the SGI UV SMN.

2. On the login page, complete the following steps:

- Select **Not Listed?**.
- In the **Username** field, type `root`.
- In the **Password** field, type the root user's password.
- Click **Log In**.
- (Conditional) Initialize the root user account.

Complete these steps only if this is the first time you are logging in as the root user.

Complete the following steps:

- On the **Welcome** page, complete the following steps:

- Select your language.
- Click **Next**.

- On the **Input Sources** page, complete the following steps:

- Select the language you use.
- Click **Next**.

- On the **Thank You** screen, click **Start using Red Hat Enterprise Linux Server**.

3. Access the installation software.

Complete this step in one of the following ways:

- If a DVD drive is available, insert the *SGI Foundation Software X.X* CD into the DVD drive.

For example, an SGI UV 300 includes a DVD drive. You might have attached a DVD drive to an SGI UV 2000 or SGI UV 1000 computer system.

- On an SGI UV 2000 without a DVD drive, complete the following steps:
 - In the top-most JViewer menu bar, click **Media > Virtual Media Wizard ...**
 - Insert the operating system DVD into the DVD drive on the SMN, or if you are at a remote console, insert the DVD into your local desktop.
 - On the **Virtual Media** pop-up, under **CD/DVD Media 1**, complete the following steps:
 - Select **/dev/sr0**.
 - Click **Connect to CD/DVD**.
 - On the **Information** pop-up, click **OK**.
 - On the **Virtual Media** pop-up, click **Close**.
- On an SGI UV 1000 without a DVD drive, complete the following steps:
 - Insert the operating system DVD into the DVD drive on the SMN, or if you are at a remote console, insert the DVD into your local desktop.
 - In the JViewer main menu, select **Device > Redirect CDROM**.
 - On the **CD-ROM Selection** pop-up, select a drive.

For example, select **/dev/scd0**.
 - Click **OK**.

4. Click **Applications > System Tools > Terminal** to open a terminal window.
5. Type the following command to create an installation directory for the files from the CD:

```
# mkdir -p /opt/sgi/Factory-Install/sgi-foundation-2.12/
```

6. Type the following command to create a temporary mount directory:

```
# mkdir /var/sfs2.12
```

7. Type the following command to mount the CD in read-only mode (-r), using a loop device:

```
# mount -t iso9660 -ro loop /dev/cdrom /var/sfs2.12
```

8. Type the following command to copy the files from the temporary mount directory to the installation directory:

```
# rsync -avHx /var/sfs2.12/ /opt/sgi/Factory-Install/sgi-foundation-2.12/
```

9. Type the following command to unmount the CD from the temporary directory:

```
# umount /var/sfs2.12
```

10. Type the following command to remove the temporary mount directory:

```
# rmdir /var/sfs2.12
```

11. Use a text editor to create file /etc/yum.repos.d/foundation2.12-local.repo with the following contents:

```
#####
[foundation2.12-repo]
name=SGI Foundation Software 2.12 - $basearch
baseurl=file:///opt/sgi/Factory-Install/sgi-foundation-2.12/RPMS
enabled=1
gpgcheck=1
gpgkey=file:///opt/sgi/Factory-Install/sgi-foundation-2.12/RPM-GPG-KEY-sgi
#####
```

12. Type the following command to retrieve the list of software that you can install:

```
# yum grouplist | grep SGI
```

13. Type the following command to install the SGI Foundation Software group:

```
# yum groupinstall "SGI Foundation Software"
```

14. Type **y** at the following prompt to confirm the download size:

```
Is this ok [y/N]
```

15. Type **y** at the following prompt to accept the GPG license key:

```
Is this ok [y/N]
```

16. Open a terminal window on the booted system.
17. In the terminal window, type the following command to reboot the system:

```
# reboot
```
18. After the system reaches the EFI shell, in the RMC or CMC command window, type the following command to reset the full system:

```
# power reset
```

Installing a SLES 11 Platform

This chapter includes the following topics:

- "About Installing the SLES Operating System on an SGI UV System or an SGI UV SMN" on page 65
- "Installing the SLES Operating System Software on an SGI UV Server or an SGI UV SMN" on page 66
- "Installing the SGI Foundation Software on a SLES Platform SGI UV Server or a SLES Platform SMN" on page 81
- "Installing the SMN Software on a SLES Platform SMN (SGI UV 2000, SGI UV 1000, and SGI UV 100 Platforms Only)" on page 82

About Installing the SLES Operating System on an SGI UV System or an SGI UV SMN

This chapter explains how to install the following software on an SGI UV server and on an SGI UV system management node (SMN):

- The SLES operating system. The operating system installation instructions are nearly identical for the SGI UV server and the SMN. The instructions note differences where necessary.
- The SGI Foundation Software. The SGI Foundation Software installation instructions are nearly identical for the SGI UV server and the SMN. The instructions note differences where necessary.
- The SMN software. This is an SMN-specific package. SGI UV 2000 systems and SGI UV 1000 systems can have an SMN. The SGI UV 300 systems do not have SMNs.

Note: SGI supports only the SLES 11 operating system on the SMN. If your SGI UV system includes an SMN, use the procedures in this chapter to install SLES 11 as the operating system on the SMN and to install the latest SGI Foundation Software and SMN software.

The following additional documentation might be useful to you during this installation process:

- The *SLES 11 Installation Quick Start* and the *SLES 11 Deployment Guide*. These guides are available at the following location:

<https://www.suse.com/documentation/sles11/>

- The SGI Foundation Software 2.X release notes file. After you log into Supportfolio, you can retrieve the release notes from the following location:

https://support.sgi.com/content_request/194480/index.html

- The SMN software release notes file. After you log into Supportfolio, you can retrieve the release notes from the following location:

https://support.sgi.com/content_request/738299/index.html

Installing the SLES Operating System Software on an SGI UV Server or an SGI UV SMN

The following procedures explain how to install the SLES operating system software:

- "Initiating the Installation" on page 67
- "(Conditional) Specifying Disk Partitions for an SGI UV SMN" on page 68
- "Specifying Disk Partitions for an SGI UV Server" on page 72
- "Specifying the Network and Miscellaneous Settings" on page 76
- "Completing the SLES Installation" on page 80

Note: The mouse unit's behavior can be unpredictable during the following procedures:

- "Initiating the Installation" on page 67
- "Specifying Disk Partitions for an SGI UV Server" on page 72
- "(Conditional) Specifying Disk Partitions for an SGI UV SMN" on page 68

After the first boot, the mouse unit behaves as expected.

Initiating the Installation

The following procedure explains how to begin the installation.

Procedure 5-1 To begin the installation

1. Make sure you prepared for the installation and selected **Installation** on the boot loader screen.

For more information, see the following:

"Gathering Installation Materials and Information" on page 7

2. On the **Welcome** page, complete the following steps:
 - Select your language.
 - Select your keyboard layout.
 - Click **I agree to the license terms**.
 - Click **Next**.
3. On the **Media Check** page, complete the following steps:
 - (Conditional) Select **Start Check**.

Select this option if you want to troubleshoot a failed installation. If a previous installation failed, you can check this option, install the operating system software again, and observe the messages that the installer issues. It is possible that media problems prevented your previous installation from completing correctly.
 - Click **Next**.

If this is your first installation session, you can click **Next** safely.
4. On the **System Probing ...** screen, monitor the progress.
5. On the **Installation Mode** screen, accept the default of **New Installation**, and click **Next**.
6. On the **Clock and Time Zone** screen, complete the following steps:
 - Select your region.
 - Select your time zone.

- Check the box next to **Hardware Clock Set To UTC**.
 - Click **Next**.
7. On the **Server Base Scenario** screen, accept the default of **Physical Machine**, and click **Next**.
 8. Proceed to one of the following:
 - To configure disk partitions on an SMN, complete the following procedure:
"(Conditional) Specifying Disk Partitions for an SGI UV SMN" on page 68
 - To configure disk partitions on an SGI UV server, complete the following procedure:
"Specifying Disk Partitions for an SGI UV Server" on page 72

(Conditional) Specifying Disk Partitions for an SGI UV SMN

Perform the procedure in this topic if you need to configure an SGI UV SMN.

This topic includes information about disk partitioning for SGI UV system SMNs. The procedure in this topic explains how to configure the disk partitions and monitor a reboot.

For the SMN, your goal is to configure the disks according to Table 5-1 on page 68.

Table 5-1 Disk Partitions for an SGI UV SMN

Size	Mount Point	File System
200 MB	/boot	Ext3
250 GB (256,000 MB)	/	XFS
8192 MB	swap	swap
rest of disk	/data1	XFS

The following procedure explains how to specify the disk partitions.

Procedure 5-2 To configure the disk partitions

1. On the **Installation Settings** screen, click the **Partitioning** link.

2. On the **Preparing Hard Disk** screen, click **Custom Partitioning (for experts)**, and click **Next**.
3. On the **Expert Partitioner** screen, complete the following steps to clean the disk:
 - **Expand Hard Disks.**
 - Select the disk you want to use.
For example, select **sda**.
 - Click the **Expert ...** button on the lower right part of the screen, and select **Create New Partition Table**.
 - On the YaST2 pop-up with the message **Really create a new partition table ...**, click **Yes**.
 - Proceed to the next step after you have deleted all existing partitions.
4. On the **Expert Partitioner** screen, complete the following steps:
 - **Expand Hard Disks.**
 - Select the hard disks you want to use.
 - Click **Add**.
5. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the boot partition:
 - Under **New Partition Type**, select **Primary Partition**, and click **Next**.
 - Under **New Partition Size**, click **Custom Size**.
 - Specify 200 MB in the **Size** field.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select **Ext3**.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select **/boot**.
 - Select **Finish**.

6. On the **Expert Partitioner** screen, click **Add**.
7. On the **Add Partition on /dev/disk** screen, select **Primary Partition**, and click **Next**.
8. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the root partition:
 - Under **New Partition Size**, click **Custom Size**.
 - Specify 250 GB in the **Size** field.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select XFS.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select /.
 - Select **Finish**.
9. On the **Expert Partitioner** screen, click **Add**.
10. On the **Add Partition on /dev/disk** screen, select **Primary Partition**, and click **Next**.
11. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the swap partition:
 - Under **New Partition Size**, click **Custom Size**.
 - Specify 8 GB in the **Size** field.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select Swap.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select swap.
 - Select **Finish**.
12. On the **Expert Partitioner** screen, click **Add**.
13. On the **Add Partition on /dev/disk** screen, select **Primary Partition**, and click **Next**.

14. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the data partition:
 - Under **New Partition Size**, click **Maximum Size**.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select **XFS**.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, type `/data1`.
 - Select **Finish**.
15. On the **Expert Partitioner** screen, examine the disk partitions in the **Partitions** tab.
If the partitions match those in Table 5-2 on page 72, click **Accept**.
If the partitions are incorrect, correct the partition specifications.
16. On the **Installation Settings** screen, complete the following steps:
 - Click the **Expert** tab near the top of the page.
 - Scroll down to **Kdump**, and click the **Kdump** link.
 - In the **Kdump Memory** box, type one of the following values:
 - For the SGI UV server, type 512.
 - For the SMN, type 256.
 - Click **OK**.
17. On the **Installation Settings** screen, click **Install**.
18. On the **Confirm Package License: agfa-fonts** pop-up, click **I Agree**.
19. On the **Confirm Installation** pop-up, click **Install**.
20. Monitor the installation and be prepared to remove the installation software media before the boot.

The installation itself can take several minutes. At the end of the installation, the system boots. The installation software notifies you of this boot. If you can, remove the installation DVD before the system boots, as follows:

- If you are performing the installation at the console, remove the DVD.
- If you are performing the installation remotely, complete the following steps:
 - Click **Media > Virtual Media Wizard**.
 - Under **CD/DVD Media1**, select **Disconnect CD/DVD**.
 - Click **Close**.

If you fail to remove the installation DVD before the final boot, the machine boots from the DVD. In this case, remove the DVD after the boot; press **CTRL—ALT—DEL** to boot the machine again; and allow the machine to boot from the hard disk to finish the installation.

21. Proceed to the following:

"Specifying the Network and Miscellaneous Settings" on page 76

Specifying Disk Partitions for an SGI UV Server

Perform the procedure in this topic to configure the partitions for an SGI UV server.

This topic includes information about disk partitioning for SGI UV system servers. The procedure in this topic explains how to configure the disk partitions and monitor a reboot.

For the SGI UV server, your goal is to configure the disks according to Table 5-2.

Table 5-2 Disk Partitions for an SGI UV Server

Size	Mount Point	File System
500 MB	/boot/efi	FAT
250 GB	/	Ext3
8 GB	swap	Swap
rest of disk	/data1	Ext3

The following procedure explains how to specify the disk partitions.

Procedure 5-3 To configure the disk partitions

1. On the **Installation Settings** screen, click the **Partitioning** link.
2. On the **Preparing Hard Disk** screen, click **Custom Partitioning (for experts)**, and click **Next**.
3. On the **Expert Partitioner** screen, complete the following steps to clean the disk:
 - Expand **Hard Disks**.
 - Select the disk you want to use.
For example, select **sda**.
 - Click the **Expert ...** button on the lower right part of the screen, and select **Create New Partition Table**.
 - On the YaST2 pop-up with the message **Really create a new partition table ...**, click **Yes**.
 - Proceed to the next step after you have deleted all existing partitions.
4. On the **Expert Partitioner** screen, complete the following steps:
 - Expand **Hard Disks**.
 - Select the hard disks you want to use.
 - Click **Add**.
5. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the boot partition:
 - Under **New Partition Size**, click **Custom Size**.
 - Type 500 MB in the **Size** field.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select **FAT**.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select **/boot/efi**.

- Select **Finish**.
6. On the **Expert Partitioner** screen, click **Add**.
 7. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the root partition:
 - Under **New Partition Size**, click **Custom Size**.
 - Type 250 GB in the **Size** field.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select `ext3`.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select `/`.
 - Select **Finish**.
 8. On the **Expert Partitioner** screen, click **Add**.
 9. Complete the following steps on **Add Partition on /dev/disk** screen to configure the swap partition:
 - Under **New Partition Size**, click **Custom Size**.
 - Specify 8 GB in the **Size** field.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select `Swap`.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select `swap`.
 - Select **Finish**.
 10. On the **Expert Partitioner** screen, click **Add**.
 11. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the data partition:

- Under **New Partition Size**, click **Maximum Size**.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select **Ext3**.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, type `/data1`.
 - Select **Finish**.
12. On the **Expert Partitioner** screen, in the **Partitions** tab, examine the disk partitions.
If the partitions match those in Table 5-2 on page 72, click **Accept**.
If the partitions are incorrect, correct the partition specifications.
 13. On the **Installation Settings** screen, click **Install**.
 14. On the **Confirm Package License: agfa-fonts** pop-up, click **I Agree**.
 15. On the **Confirm Installation** pop-up, click **Install**.
 16. Monitor the installation and be prepared to remove the installation software media before the boot.

The installation itself can take several minutes. At the end of the installation, the system boots. The installation software notifies you of this boot. If you can, remove the installation DVD before the system boots, as follows:

- If you are performing the installation at the console, remove the DVD.
- If you are performing the installation remotely, complete the following steps:
 - Click **Media > Virtual Media Wizard**.
 - Under **CD/DVD Media1**, select **Disconnect CD/DVD**.
 - Click **Close**.

If you fail to remove the installation DVD before the final boot, the machine boots from the DVD. In this case, remove the DVD after the boot; press **CTRL—ALT—DEL** to boot the machine again; and allow the machine to boot from the hard disk to finish the installation.

17. Proceed to the following:

"Specifying the Network and Miscellaneous Settings" on page 76

Specifying the Network and Miscellaneous Settings

The following procedure explains how to specify the hostname, networking information, and other miscellaneous settings.

Procedure 5-4 To specify the hostname, networking, and miscellaneous settings

1. On the **Password for the System Administrator "root"** screen, complete the following steps:
 - In the **Password for root User** field, type the root user's password.
 - In the **Confirm password** field, retype the root user's password.
 - Type a few characters in the **Test Keyboard Layout** field. For example, if you specified a language that includes non-English characters and you include these characters in passwords, type these characters into this field. This is a plain text field, and you can assure yourself that the operating system recognizes these characters when you type them.
 - Click **Next**.
2. On the **Hostname and Domain Name** screen, complete the following steps:
 - Type the hostname.
 - Type the domain name.
 - Verify that **Change Hostname via DHCP** is set correctly.

To assign a static IP address, clear the checkbox to the left of the **Change Hostname via DHCP** label. A later step saves the hostname to the `/etc/hosts` file. Consult your network administrator if you have questions regarding the use of DHCP.

Note: This procedure explains how to configure a static address on a network card. This is an example. If you want a different network configuration, for example if you want to configure DHCP, ensure that the checkbox in this step is checked before you click **Next**. You can use this procedure as a guide and consult the SLES documentation for more specific steps.

- Select **Next**.
3. On the **Network Configuration** screen, proceed as follows:
 - For an SGI UV server configuration, complete the following steps:
 - Click the **Network Interfaces** link.
 - Proceed to the next step in this procedure, which is as follows:
Procedure 5-4, step 4 on page 77
 - For an SGI UV SMN, complete the following steps:
 - Click **Next**.
 - Jump to the following step in this procedure:
Procedure 5-4, step 9 on page 79
 4. On the **Network Settings** screen, highlight the network card you want to configure, and click **Edit**.
 5. On the **Network Card Setup** screen, specify dynamic or static addressing, as follows:

To specify dynamic addressing:	To specify static addressing:
1. Select the type of dynamic addressing that you want.	1. Verify that eth0 appears in the Configuration Name field, and click Statically assigned IP Address .
2. Click Next to accept the default of DHCP.	2. Configure the first NIC (eth0) for your house (public) network. On the Address tab, specify the following: <ul style="list-style-type: none">• The IP Address• The Subnet Mask• The Hostname
	3. Click Next .

6. On the **Network Settings** screen, complete the following steps:
 - Click the **Hostname/DNS** tab.
 - On the **Hostname/DNS** tab, specify the following:
 - The IP address for **Name Server 1**.
 - (Optional) The IP address for **Name Server 2**.
 - (Optional) The IP address for **Name Server 2**.
 - (Optional) In the **Domain Search** field, add additional domains.
 - Click the **Routing** tab.
 - On the **Routing** tab, type the **Default Gateway**, and click **OK**.
7. (Optional) Examine the **Network Configuration** screen, and supply additional network information as required by your site.

For example, you might want to change the following settings:

- Firewall settings. If you enable a firewall, make sure to enable the firewall only for the public NIC (**eth0**). The firewall is enabled by default.
- VNC Remote Administration. This setting enables remote administration and is disabled by default.

- By default, the SSH port is closed, and the menu displays **SSH port is blocked (open)**. Click **open** to open this port.
8. Click **Next** to advance from the **Network Configuration** screen.
Wait for the installer to save the network configuration.
 9. On the **Test Internet Connection** screen, click **Next**.
Wait for the internet connection test to complete.
 10. On the **Running Internet Connection** test screen, click **Next**.
 11. On the **Novell Customer Center Configuration** screen, complete the following steps:
 - Select **Configure Now (Recommended)**.
 - Verify that each of the following defaults under **Include for Convenience** are selected:
 - **Hardware Profile**
 - **Optional Information**
 - **Regularly Synchronize With the Customer Center**
 - Click **Next**.

For more information about how to register with Novell, see the following website:
www.novell.com
 12. On the **YaST2 Manual Interaction Required** pop-up, click **Continue**.
 13. On the **Novell Customer Center System Registration** screen, complete the fields, and click **Submit**.
 14. On the **Novell Customer Center Configuration** screen, click **Next**.
 15. On the **Network Services Configuration** screen, click **Next**.
 16. Proceed to the following:
"Completing the SLES Installation" on page 80

Completing the SLES Installation

The following procedure explains how to complete the SLES installation.

Procedure 5-5 To complete the SLES installation

1. On the **User Authentication Method** screen, select one of the authentication methods, and click **Next**.
2. On the **New Local User** screen, create at least one non-root user.

Complete the following steps:

- Complete the following fields:
 - **User's Full Name**
 - **Username**
 - **Password**
 - **Confirm Password**
 - (Optional) Click **User Management** to specify another non-root user.
 - Click **Next**.
3. On the **Release Notes** screen, click **Next**.
 4. (Conditional) Let the Yast2 popup time out.
Complete this step if this installation is for the SMN and if the system issues a popup here.
 5. On the **Hardware Configuration** screen, click **Next**.
 6. On the **Installation Completed** screen, click **Finish**.
 7. Proceed to the following:
"Installing the SGI Foundation Software on a SLES Platform SGI UV Server or a SLES Platform SMN" on page 81

Installing the SGI Foundation Software on a SLES Platform SGI UV Server or a SLES Platform SMN

The following procedure explains how to install the SGI Foundation Software on an SMN or on an SGI UV server that hosts the SLES operating system.

Procedure 5-6 To install the SGI Foundation Software on a SLES platform from the direct-attached console

1. Insert the CD labeled *SGI Foundation Software X.X* into the DVD drive on the SMN.
2. Log into the computer as the root user.
3. Click **Computer > YaST** to start the YaST interface.
4. Click **Software > Software Repositories** to start the SLES repository manager.
5. On the **Configured Software Repositories** screen, click **Add**.
6. On the **Media Type** screen, select **DVD**, and click **Next**.
7. On the **YaST** pop-up, click **Continue**.
8. (Conditional) On the **Import Untrusted GnuPG Key**, click **Import**.
Perform this step if this is the first time through this process and you need to confirm the security of the SGI digital key.
9. On the **Configured Software Repositories** screen, click **OK**.
10. On the **YaST Control Center** screen, click **Software Management**.
11. Select **View > Patterns**.
12. Scroll down to **SGI Foundation**.
13. Check the box to the left of **SGI Foundation Libraries, Software, and Drivers**, and click **Accept**.
14. On the **Changed Packages** pop-up, click **Continue**.
15. Insert CDs into the DVD drive as directed by the prompts on the **Perform Installation** screen.

If necessary, click **Eject** on the YaST2 pop-up to open the DVD drive. In the **YaST** pop-up, you might need to click **Retry** more than once to read a new disc. You

can ignore the graphic representation of the file system that appears in a new window during this step.

16. Close the YaST session.
17. Open a terminal window on the booted system.
18. In the terminal window, type the following command to reboot the system:

```
# reboot
```

19. After the system reaches the EFI shell, in the RMC or CMC command window, type the following command to reset the full system:

```
# power reset
```

20. (Conditional) Install the SMN-specific software on the SMN.

Perform the following procedure to complete the SMN software installation:

"Installing the SMN Software on a SLES Platform SMN (SGI UV 2000, SGI UV 1000, and SGI UV 100 Platforms Only)" on page 82

The SGI UV server installation is finished at this time.

Installing the SMN Software on a SLES Platform SMN (SGI UV 2000, SGI UV 1000, and SGI UV 100 Platforms Only)

The SMN requires its own specific software, and you need to install the SMN software on the SMN after you install the SGI Foundation Software.

The following procedure explains how to install the SMN software on a SLES platform SMN.

Procedure 5-7 To install the SMN software on a SLES platform SMN

1. Insert the CD labeled *SGI System Management Node Software X.X* into the DVD drive on the SMN.
2. Complete the following steps from "Installing the SGI Foundation Software on a SLES Platform SGI UV Server or a SLES Platform SMN" on page 81:
 - Procedure 5-6, step 2 on page 81
through

- Procedure 5-6, step 11 on page 81
3. Scroll down to **SGI SMN**.
 4. Check the box to the left of **SGI System Management Node Libraries, Software, and Drivers** and click **Accept**.
 5. Return to "Installing the SGI Foundation Software on a SLES Platform SGI UV Server or a SLES Platform SMN" on page 81, and complete the following steps:
 - Procedure 5-6, step 14 on page 81
through
 - Procedure 5-6, step 18 on page 82
 6. Log into the system as the root user.
 7. Type the following command to reboot the system:

```
# reboot
```
 8. Type the following command to configure the SMN software:

```
# smnconfig -Aa -3
```
 9. Type the following command to reboot the system:

```
# reboot
```


Installing a SLES 12 Platform

This chapter includes the following topics:

- "About Installing the SLES Operating System and the SGI Foundation Software (SFS) on an SGI UV System" on page 85
- "Installing the SLES Operating System Software on an SGI UV Server" on page 86
- "Installing the SGI Foundation Software on a SLES 12-based SGI UV Server" on page 94

About Installing the SLES Operating System and the SGI Foundation Software (SFS) on an SGI UV System

This chapter explains how to install the following software on an SGI UV server:

- The SLES 12 operating system.
- The SGI Foundation Software.

Note: SGI UV 2000 systems and SGI UV 1000 systems can have an SMN. The SGI UV 300 systems do not have SMNs.

SGI supports either SLES 12 or SLES 11 on the server, but SGI supports only SLES 11 on the SMN.

For information about how to install SLES 11 operating system and the SMN software on an SGI UV SMN, see the following:

Chapter 5, "Installing a SLES 11 Platform" on page 65

The following additional documentation might be useful to you during this installation process:

- The *Installation Quick Start* and the *Deployment Guide*. These guides are available at the following location:

<https://www.suse.com/documentation/sles-12/>

- The SGI Foundation Software 2.X release notes file. After you log into Supportfolio, you can retrieve the release notes from the following location:

https://support.sgi.com/content_request/194480/index.html

Note: If your SGI UV system includes a system management node (SMN), be aware that SGI does not support the SLES 12 operating system on the SMN. SGI supports only the SLES 11 operating system on the SMN, but SGI continues to update the SGI Foundation Software and the SMN software for use on SLES 11-based SMNs. To install the system software on an SMN, use the procedures in the following chapter to install the SLES 11 operating system, the latest SGI Foundation Software, and the latest SMN software:

Chapter 5, "Installing a SLES 11 Platform" on page 65

Installing the SLES Operating System Software on an SGI UV Server

The following procedures explain how to install the SLES operating system software:

- "Initiating the Installation" on page 86
- "Specifying Disk Partitions for an SGI UV Server" on page 87
- "Specifying the Network and Miscellaneous Settings" on page 92

Initiating the Installation

The following procedure explains how to begin the installation.

Procedure 6-1 To begin the installation

1. Make sure you have performed the preliminary procedures and satisfied all prerequisites.

For more information, see the following:

"Gathering Installation Materials and Information" on page 7

2. On the boot loader screen, select **Installation**.
3. On the **Language, Keyboard and License Agreement** page, complete the following steps:

- Use the pull-down menu to select your language.
 - Use the pull-down menu to select your keyboard layout.
 - Check **I Agree to the License Terms**.
 - Click **Next**.
4. On the **System Probing ...** screen, monitor the progress.
 5. On the **Registration** screen, complete the following steps:
 - Provide your site credentials.
 - Click **Next**.
 6. On the **Add On Product** screen, click **Next**.
 7. On the **Suggested Partitioning** screen, complete the following steps:
 - Click **Expert Partitioner**.
 - Click **Next**.
 8. Proceed to the following:

"Specifying Disk Partitions for an SGI UV Server" on page 87

Specifying Disk Partitions for an SGI UV Server

Perform the procedure in this topic to configure the partitions for an SGI UV server.

This topic includes information about disk partitioning for SGI UV system servers. The procedure in this topic explains how to configure the disk partitions and monitor a reboot.

For the SGI UV server, your goal is to configure the disks according to Table 6-1.

Table 6-1 Disk Partitions for an SGI UV Server

Size	Mount Point	File System
512 MB	/boot/efi	FAT16
250 GB (256,000 MB)	/	XFS

Size	Mount Point	File System
8 GB (8,192 MB)	swap	Swap
rest of disk	/data1	XFS

The following procedure explains how to specify the disk partitions.

Procedure 6-2 To configure the disk partitions

1. On the **Expert Partitioner** screen, complete the following steps to clean the disk:
 - Expand **Hard Disks**.
 - Select the disk you want to use.
For example, select **sda**.
 - On the **Expert ...** drop-down in the lower right part of the screen, select **Create New Partition Table**.
 - On the YaST2 pop-up with the message **Really create a new partition table ...**, click **Yes**.
 - Proceed to the next step after you have deleted all existing partitions.
2. On the **Expert Partitioner** screen, complete the following steps:
 - Expand **Hard Disks**.
 - Select the hard disks you want to use.
 - Click **Add**.
3. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the boot partition:
 - Under **New Partition Size**, click **Custom Size**.
 - Type 512 MB in the **Size** field.
 - Click **Next**.
 - Under the **Role** list, complete the following steps:
 - Select **Operating System**.
 - Click **Next**.

- Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select `FAT16`.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select `/boot/efi`.
 - Select **Finish**.
4. On the **Expert Partitioner** screen, click **Add**.
 5. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the root partition:
 - Under **New Partition Size**, click **Custom Size**.
 - Type 250 GB in the **Size** field.
 - Click **Next**.
 - Under the **Role** list, complete the following steps:
 - Select **Operating System**.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select `XFS`.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select `/`.
 - Select **Finish**.
 6. On the **Expert Partitioner** screen, click **Add**.
 7. Complete the following steps on **Add Partition on /dev/disk** screen to configure the swap partition:
 - Under **New Partition Size**, click **Custom Size**.
 - Specify 8 GB in the **Size** field.
 - Click **Next**.
 - Under the **Role** list, complete the following steps:

- Select **Swap**.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select `swap`.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, use the pull-down menu to select `swap`.
 - Select **Finish**.
8. On the **Expert Partitioner** screen, click **Add**.
 9. Complete the following steps on the **Add Partition on /dev/disk** screen to configure the data partition:
 - Under **New Partition Size**, click **Maximum Size**.
 - Click **Next**.
 - Under the **Role** list, complete the following steps:
 - Select **Data and ISV Applications**.
 - Click **Next**.
 - Under **Formatting Options**, select **Format partition**.
 - Under **File system**, use the pull-down menu to select `XFS`.
 - Under **Mounting Options**, select **Mount Partition**.
 - Under **Mount point**, type `/data1`.
 - Select **Finish**.
 10. On the **Expert Partitioner** screen, in the **Partitions** tab, examine the disk partitions.
If the partitions match those in Table 5-2 on page 72, click **Accept**.
If the partitions are incorrect, correct the partition specifications.
 11. On the **Suggested Partitioning** screen, click **Next**.
 12. On the **Clock and Time Zone** screen, complete the following steps:

- Select your region.
 - Select your time zone.
 - Check the box next to **Hardware Clock Set To UTC**.
 - Click **Next**.
13. On the **Create New User** screen, create at least one non-root user.
- Complete the following steps:
- Complete the following fields:
 - **User's Full Name**
 - **Username**
 - **Password**
 - **Confirm Password**
 - Click **Next**.
14. On the **Password for the System Administrator "root"** screen, complete the following steps:
- In the **Password for root User** field, type the root user's password.
 - In the **Confirm password** field, retype the root user's password.
 - Type a few characters in the **Test Keyboard Layout** field. For example, if you specified a language that includes non-English characters and you include these characters in passwords, type these characters into this field. This is a plain text field, and you can assure yourself that the operating system recognizes these characters when you type them.
 - Click **Next**.
15. On the **Installation Settings** screen, click **Install**.
16. On the **Confirm Installation** pop-up, click **Install**.
17. Monitor the installation and be prepared to remove the installation software media before the boot.

The installation itself can take several minutes. At the end of the installation, the system boots. The installation software notifies you of this boot. If you can, remove the installation DVD before the system boots.

If you fail to remove the installation DVD before the final boot, the machine boots from the DVD. In this case, complete the following steps:

- Remove the DVD after the boot.
- Press `CTRL—ALT—DEL` to boot the machine again.
- Allow the machine to boot from the hard disk to finish the installation.

18. Proceed to the following:

"Specifying the Network and Miscellaneous Settings" on page 92

Specifying the Network and Miscellaneous Settings

The following procedure explains how to specify the hostname, networking information, and other miscellaneous settings.

Procedure 6-3 To specify the hostname, networking, and miscellaneous settings

1. Log into the SGI UV server as the root user.
2. Click **Applications > System Tools > YaST**.
3. On the **Administrator Settings** screen, click **Network Settings**.
4. On the **Network Configuration** screen, click the **Network Interfaces** link.
5. On the **YaST2 — Network Settings** screen, highlight the network card you want to configure, and click **Edit**.
6. On the **Network Card Setup** screen, specify dynamic or static addressing, as follows:

To specify dynamic addressing:	To specify static addressing:
<ol style="list-style-type: none">1. Select the type of dynamic addressing that you want.2. Click Next to accept the default of DHCP.	<ol style="list-style-type: none">1. Verify that eth0 appears in the Configuration Name field, and click Statically assigned IP Address.2. Configure the first NIC (eth0) for your house (public) network. On the Address tab, specify the following:<ul style="list-style-type: none">• The IP Address• The Subnet Mask• The Hostname3. Click Next.

7. On the **Network Settings** screen, complete the following steps:

- Click the **Hostname/DNS** tab.
- Type the hostname.
- Type the domain name.
- Verify that **Change Hostname via DHCP** is set correctly.

To assign a static IP address, clear the checkbox to the left of the **Change Hostname via DHCP** label. A later step saves the hostname to the `/etc/hosts` file. Consult your network administrator if you have questions regarding the use of DHCP.

Note: This procedure explains how to configure a static address on a network card. This is an example. If you want a different network configuration, for example if you want to configure DHCP, ensure that the checkbox in this step is checked before you click **Next**. You can use this procedure as a guide and consult the SLES documentation for more specific steps.

- On the **Hostname/DNS** tab, specify the following:
 - The IP address for **Name Server 1**.

- (Optional) The IP address for **Name Server 2**.
 - (Optional) The IP address for **Name Server 2**.
 - (Optional) In the **Domain Search** field, add additional domains.
 - Click the **Routing** tab.
 - On the **Routing** tab, type the **Default Gateway**, and click **OK**.
8. Proceed to the following:
- "Installing the SGI Foundation Software on a SLES 12-based SGI UV Server" on page 94

Installing the SGI Foundation Software on a SLES 12-based SGI UV Server

The following procedure explains how to install the SGI Foundation Software on an SGI UV server that hosts the SLES operating system.

Procedure 6-4 To install the SGI Foundation Software on a SLES platform

1. Insert the CD labeled *SGI Foundation Software X.X* into the DVD drive on the RLC.
2. Log into the computer as the root user.
3. Click **Applications > System Tools > Computer > YaST** to start the YaST interface.
4. Under **Software**, click **Software Repositories** to start the SLES repository manager.
5. On the **Configured Software Repositories** screen, click **Add**.
6. On the **Add On Product** screen, select **DVD**, and click **Next**.
7. On the **YaST** pop-up, click **Continue**.
8. (Conditional) On the **Import Untrusted GnuPG Key**, click **Trust**.

Perform this step if this is the first time through this process and you need to confirm the security of the SGI digital key.
9. On the **Configured Software Repositories** screen, click **OK**.
10. On the **YaST Control Center** screen, click **Software Management**.
11. Select **View > Patterns**.

12. Scroll down to **SGI Foundation**.
13. Check the box to the left of **SGI Foundation Libraries, Software, and Drivers**, and click **Accept**.
14. On the **Changed Packages** pop-up, click **Continue**.
15. Insert CDs into the DVD drive as directed by the prompts on the **Perform Installation** screen.

If necessary, click **Eject** on the YaST2 pop-up to open the DVD drive. In the **YaST** pop-up, you might need to click **Retry** more than once to read a new disc. You can ignore the graphic representation of the file system that appears in a new window during this step.

16. On the **Installation Report** screen, click **Finish**.
17. Close the YaST session.
18. Open a terminal window on the booted system.
19. In the terminal window, type the following command to reboot the system:

```
# reboot
```
20. After the system reaches the EFI shell, in the RMC or CMC command window, type the following command to reset the full system:

```
# power reset
```


Additional Features

This chapter provides information about additional features. It covers the following topics:

- "Remote Management Through the `ipmitool` Command (SGI UV 300 Systems Only)" on page 97
- "Superpages" on page 98
- "Configuring Security-Enhanced Linux (SELinux) (RHEL Platforms Only)" on page 100

Remote Management Through the `ipmitool` Command (SGI UV 300 Systems Only)

From a remote console, you can use `ipmitool` commands to perform typical system operations.

In order for the `ipmitool` command to work, the remote console must be on the same local network as the SGI UV 300 system. The following shows the `ipmitool` command format:

```
ipmitool -I lanplus -H hostname -U ADMIN -P password command
```

The arguments to the command's parameters are as follows:

Parameter	Meaning
-----------	---------

<i>hostname</i>	The hostname of the SGI UV 300 system on your network.
<i>password</i>	The system's administrative password. The factory-shipped, default password is ADMIN.
<i>command</i>	One of the <code>ipmitool</code> commands.

There many IPMI commands. The commands that SGI supports for SGI UV 300 remote management are as follows:

- `power off`
- `power reset`

- `power on`

Superpages

Superpages is part of the SGI Performance Suite. The following topics describe superpages:

- "About Superpages" on page 98
- "Examples" on page 98
- "Saving Your Superpage Configuration" on page 100

About Superpages

Superpages allow you to map large areas of reserved memory into your application. `libssuperpages` is a library for allocating and mapping SGI UV superpages. For more information, see the `libsuperpages(3)` man page. If your SGI UV system is partitioned, you can define superpages within a partition.

Superpages are defined in an EFI firmware variable as a kernel boot option. When you enable superpages, you need to boot the system and then the SGI UV reserves the amount of specified memory to be used via superpages. The reserved memory is not available to the operating system for its regular activities. The SGI UV BIOS passes superpage addresses to the superpages driver as an Advanced Configuration and Power Interface (ACPI) device.

The `superpages` command allows you to test the functionality of an SGI UV system's superpages. The `superpages_define -w` command creates `superpages0`, which is an EFI variable that resides on the chassis management controller (CMC) and defines superpages. You must be a superuser (`root`) to run this command. After execution, to enable superpages, you need to reboot the system. The system BIOS then reserves the system memory for superpages rather than providing it to the operating system. For a usage statement, enter `superpages -h`.

Examples

The following examples show the `superpages_define` command:

- **Example 1.** The `superpages_define` command's `-L` option displays valid superpage sizes, as follows:

```
uv-sys:~ # superpages_define -L
Valid superpage sizes:
0x100000000 4G (4294967296)
0x400000000 16G (17179869184)
0x1000000000 64G (68719476736)
0x4000000000 256G (274877906944)
0x10000000000 1T (1099511627776)
```

- **Example 2.** The `superpages_define -c` command displays the available memory ranges for superpage allocation, as follows:

```
uv-sys:~ # superpages_define -c
available memory ranges for superpage allocation:
0x100000000-0x87fffffff 0x780000000 30G
0x1000000000-0x17feffffff          0x7ff000000 31G
available memory: 61G (63472M)
```

- **Example 3.** The following command shows the 4G areas of memory that can be used as superpages:

```
uv-sys:~ # superpages_define -p 4G

in /etc/superpages.conf format:
# for pagesize: 0x100000000 4G
size_4G 4G #node0 0x100000000:3 #node1 0x400000000:4 #node2 0x1000000000:4 #node 3 0x1400000000:3
# 14 4G superpages
```

- **Example 4.** The following command shows the 4G areas of memory that can be used as superpages, but it limits such areas to two per node:

```
uv-sys:~ # superpages_define -p 4G -n 2

in /etc/superpages.conf format:
# for pagesize: 0x100000000 4G
size_4G 4G #node0 0x100000000:2 #node1 0x400000000:2 #node2 0x1000000000:2 #node3 0x1400000000:2
# 8 4G superpages
```

- **Example 5.** After you are satisfied with your memory selection, type commands similar to the following to define superpages:

```
uv-sys:~ # superpages_define -p 4G -n 2 > /etc/superpages.conf
uv-sys:~ # superpages_define -w
```

When you reboot your SGI UV system, the specified areas are superpages.

Saving Your Superpage Configuration

If you reconfigure your system's superpages, the new configuration goes into effect after you reboot the system. To use the same configuration and avoid a reboot, you can save superpage configuration information to an EFI variable. The SGI UV system stores the EFI variable on the CMC, and you can use the `efiv` command to restore the configuration. The `superpages0` variable contains the addresses and lengths of all the superpages.

You can use the `efiv` command as follows:

- To display the superpage configuration, type the following command:

```
CMC> efiv -p part_num -l | grep superpage
```

For *part_num*, specify the partition number. For example, specify 0 on an unpartitioned system.

- To save the superpage configuration, type the following command:

```
CMC> efiv -p -s superpage0 2> /dev/null > superpage0
```

- To restore a superpage configuration, type the following command:

```
CMC> efiv -c superpage0
```

- To delete a superpage configuration, type the following command:

```
CMC> efiv -p part_num -d superpage0
```

For *part_num*, specify the partition number. For example, specify 0 on an unpartitioned system.

Configuring Security-Enhanced Linux (SELinux) (RHEL Platforms Only)

You can configure SELinux on an SGI UV computer that runs the Red Hat Enterprise Linux (RHEL) operating system. SELinux supports Multi-Level Security (MLS) and Multi-Category Security (MCS) modes. When you configure SELinux, you create an

MLS-compliant or MCS-compliant environment on an SGI UV computer system, and you enable SGI MPI programs to take full advantage of all the features that SGI Accelerate provides on SGI UV hardware. For more information about SELinux, see your RHEL documentation.

Note: If you are not interested in MLS or MCS, you do not need to configure SELinux. In this case, do not perform the procedure in this topic.

The SLES operating system does not support SELinux.

To obtain help output for the `sgi-selinux-configuration` command, type the command name, with no options. For example:

```
# sgi-selinux-configuration
sgi-selinux-configuration
Actions
-h|--help      Print usage
-s|--status    Return module(s) status
-i|--insert    Insert policy module
-r|--remove    Remove policy module
-l|--label     Label policy files
-R|--restart   Restart services affected by SGI policies

Select target policy modules (default is all)
-S|--services Perform operation on services
-D|--devices  Perform operation on devices
--bigpage
--gru
--mmtimer
--xpmem
--procset
--arraysvcs
```

The following procedure explains how to configure SELinux on an SGI UV computer system.

Procedure 7-1 To configure SELinux

1. Log in as root.

2. Type the following commands to load the SELinux software modules from the RHEL distribution:

```
# yum install policycoreutils-python
# yum install selinux-policy-mls
sgi_bigpage      1.0.0
sgi_gru 1.0.0
sgi_mmtimer      1.0.0
sgi_xpmem        1.0.0
sgi_procset      1.0.0
sgi_arraysvcs    1.0.0
```

3. Type the following command to ensure that the modules are loaded correctly:

```
# sgi-selinux-configuration -s
```

If the SELinux software modules are loaded correctly, the command returns a list of the loaded modules.

If the `sgi-selinux-configuration -s` command returns nothing, then the policy modules did not load correctly. Type the following command to load all SGI policies:

```
# sgi-selinux-configuration -i
```

4. Type the following command to apply security labels to the file system for all kernel modules and services:

```
# sgi-selinux-configuration -l
```

Note that the option to the preceding command is a lowercase L character.

5. Type the following command to restart services:

```
# sgi-selinux-configuration -R
```

6. (Conditional) Repeat the preceding steps on other partitions.

Perform the steps in this procedure again on all other partitions if your SGI UV computer is divided into partitions.

Index

C

- command
 - power reset, 15
- console
 - exiting, 18, 20
 - setting an administrative password, 15

E

- exit console, 18, 20

I

- install SLES 11 on the SMN, 66
- install SLES 12, 86
- install software
 - SGI UV server, 7
- installing RHEL on the SMN, 35

- installing SLES, 85
- installing SLES on the SMN, 65

N

- navigate the device manager, 17, 20

P

- power reset command, 15

S

- setting an administrative password on the console, 15
- SGI UV server installation, 7
- system management node (SMN), 66