



SGI® Foundation Software 2.8 Start  
Here

007-5641-009

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## Record of Revision

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002	June 2010 Updated to support the SGI Foundation Software 2 Service Pack 1 release.
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009	May 2013 Updated to support the SGI Foundation Software 2.8 release.



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## About This Guide

This guide provides information about the SGI® Foundation Software release.

The SGI Foundation Software release media includes the following in the `/docs` directory:

- A PDF version of this document, the *SGI Foundation Software Start Here*.
- A text file named `SGI-Foundation-Software-X.X-readme.txt`, which contains the release notes. The release notes contain the latest information about the software and documentation in this release.
- A text file named `SGI-Foundation-Software-X.X-rpms.txt`, which lists the RPMs included in this release.

## Online Support Services

SGI offers online support resources on the Supportfolio website, on the SGI Update Server, and on the SGI licensing server. The following list provides more information about these online resources.

- Supportfolio

Supportfolio is the SGI support website. You can log into Supportfolio on the following website:

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

After you log into Supportfolio, the following resources are available to you:

- Supportfolio SGI Knowledgebase

The SGI Knowledgebase available from Supportfolio has answers to common questions, problem resolutions, how-to documents, and many other useful articles for system administrators.

<https://support.sgi.com/kb/publisher.asp>

- Supportfolio Software Updates

You can check for updates to your purchased SGI software, and you can download or order CDs all in one convenient place. Supportfolio Software Updates provide one-stop shopping to check for and get new updates for your SGI software.

<https://support.sgi.com/software?cmd=order>

- SGI Customer Support Center

You can open calls to the SGI Customer Support Center online, keep track of all your cases, and receive automatic update information when your case is updated via the Supportfolio Problem Resolution Tools.

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

- SGI Update Server

Software release updates are available from the SGI Update Server. You can use your operating system's tools (for example, YaST, zypper, and yum) to update your system. Refer to the product release notes for more information about the SGI Update Server.

<https://update.sgi.com/>

- SGI Software License Server

You can order SGI software licenses conveniently via e-mail or online. When you send a blank e-mail to [license@sgi.com](mailto:license@sgi.com), SGI responds via e-mail, and sends you a template to fill out. SGI sends you your license quickly with complete instructions for license installation.

Alternatively, go online to the SGI Key-O-Matic.

<http://www.sgi.com/support/licensing/>

## Obtaining SGI Publications

You can obtain SGI documentation in the following ways:

- Visit the SGI Technical Publications Library at the following website:

<http://docs.sgi.com>

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` on a command line.

## Conventions

The following conventions are used throughout this document:

<b>Convention</b>	<b>Meaning</b>
<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.
<b>user input</b>	This bold, fixed-space font denotes literal items that the user enters in interactive sessions. (Output is shown in nonbold, fixed-space font.)

## 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 any 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.
- Send mail to the following address:  
SGI

Technical Publications  
46600 Landing Parkway  
Fremont, CA 94538

SGI values your comments and will respond to them promptly.

## SGI Foundation Software Installation

This chapter describes the contents of the SGI Foundation Software 2.8 release, how to install the release, and how to configure the release.

### Linux Kernel Crash Dump

In the event of a system crash running SLES11 SP2 or RHEL 6.3, the system uses the `kexec/kdump` crash dump utility. The `kexec/kdump` utility creates a Linux kernel crash dump at `/var/crash/timestamp/vmcore` if `kexec/kdump` is installed, enabled, and configured. In order to analyze a crash dump, you need the `debuginfo` packages installed. For more information, see the appropriate operating system documentation.

### Installing SGI Foundation Software

The following set of instructions is based on an install using the physical product media. For other installation methods, see the product release notes.

#### Installing on SUSE Linux Enterprise Server 11 SP2

For an overview of SLES11 SP2 installation, see the *SUSE Linux Enterprise Server 11 Installation Quick Start* (`installquick.pdf`). This document provides a quick overview of how to run through the default installation of SLES and walks you through a number of installation screens. For detailed installation instructions, see the *SUSE Linux Enterprise Server 11 Deployment Guide* (`deployment.pdf`).

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**Note:** Documentation for SUSE Linux Enterprise Server 11 SP2 is located on your install media in the `/docu/en` directory.

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There are a number of ways to install SGI Foundation Software 2.8 on top of the SUSE Linux Enterprise Server 11 Service Pack 2 (SLES 11 SP2) operating system. One method is to install it at the same time as you install SLES11 SP2. Another method is to install SGI Foundation Software 2.8 after SLES 11 SP2 has been completely installed. The two procedures are quite similar and are described in this section, as follows:

- "Installing SLES 11 SP2 and SGI Foundation Software 2.8 Together" on page 2
- "Installing SGI Foundation Software 2.8 on a Previously Installed SLES 11 SP2 System" on page 4

### Installing SLES 11 SP2 and SGI Foundation Software 2.8 Together

To install SUSE Linux Enterprise Server 11 Service Pack 1 (SLES 11 SP2) from the DVD media and SGI Foundation Software 2.8 as an add-on product, perform the following steps:

1. Insert the SLES 11 SP2 Installation DVD in the DVD drive and reboot your system.
2. Follow the steps in the *SUSE Linux Enterprise Server 11 Installation Quick Start*. When you get to the **Installation Mode** screen, as shown in Figure 1-1 on page 2, click the button next to **Include Add-On Products from Separate Media** and then click **Next** to continue.

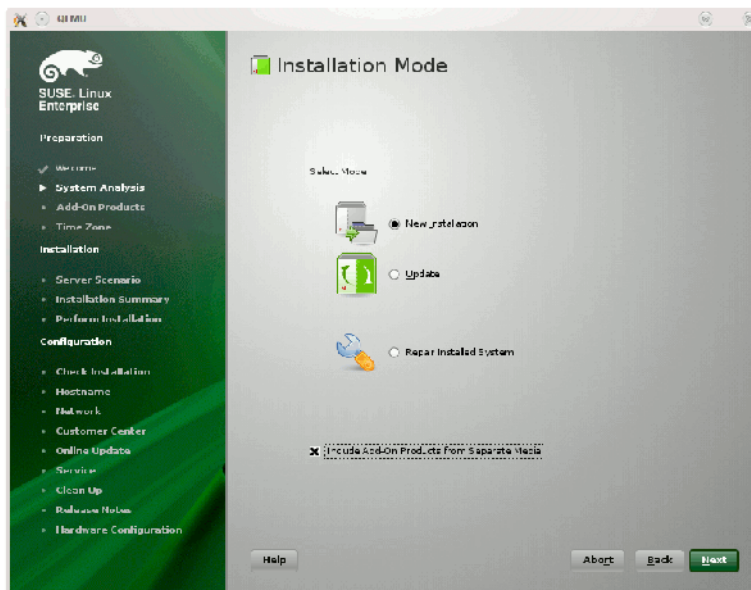


Figure 1-1 SLES11 Installation Mode Screen

3. From the **Media Type** screen, shown in Figure 1-2 on page 3, click the button to the left of **CD**.

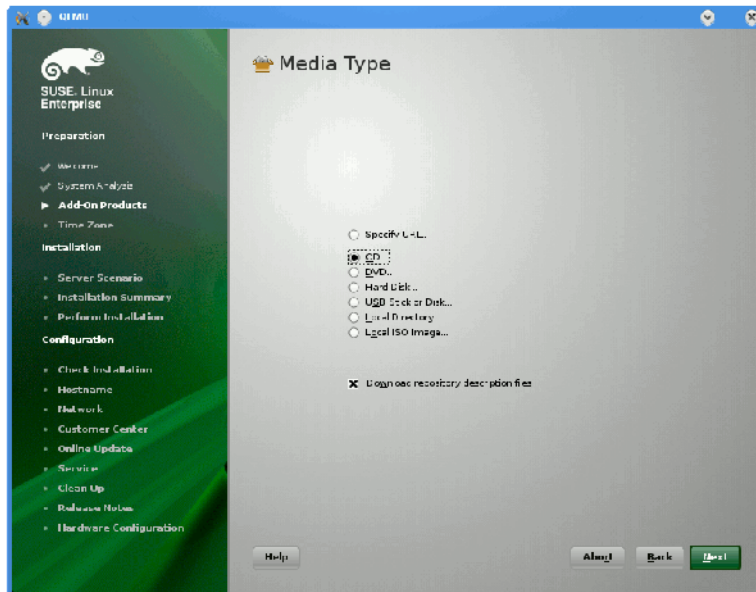


Figure 1-2 SLES11 Media Type Screen

4. The **Insert the add-on product CD** dialog box appears. Insert the SGI-Foundation-x86\_64 CD into the drive, click the **Continue** button, and click **Next** to proceed.
5. From the **Add-On Product Installation** screen, as shown in Figure 1-3 on page 4, click **SGI-Foundation-x86\_64 1-6 cd:///Directory**, click **Add**, and click **Next** to proceed
6. Follow the SLES11 SP2 instructions to complete the installation.

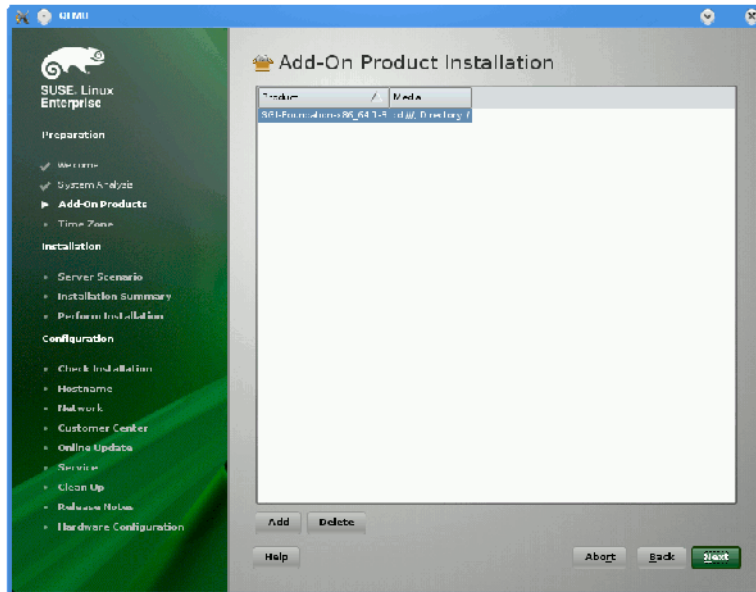


Figure 1-3 SLES11 SP2 Add-On Product Installation Screen Showing SGI Foundation

### Installing SGI Foundation Software 2.8 on a Previously Installed SLES 11 SP2 System

To install SGI Foundation Software 2.8 on a previously installed SLES 11 SP2 system, perform the following steps:

1. Start the graphical (`yast2`) version of the YaST install tool.
2. Under the **Software** section, choose **Add-On Products**.
3. From the **Add-On Product Installation** screen, press the **Add** button on the bottom left side.
4. The **Media Type** screen appears, as shown in Figure 1-2 on page 3. Insert the SGI-Foundation-x86\_64 CD into the drive, click **Continue**, and click **Next** to proceed.
5. Enter your SGI SupportFolio login and password. This enables you to set up an install source for software updates from SGI Foundation Software 2.8.



6. If you wish to simply install suggested defaults, click **Accept** in the screen that lists available patterns. The software installs.

## Installing on Red Hat Enterprise Linux 6.3

These instructions assume that you have a VGA display or that you are able to remotely display X11 graphics. If you do not have a VGA display, type the following command to connect from your workstation to the target server:

```
% ssh -X root@target-server
```

To install SGI Foundation Software 2.8 on Red Hat Enterprise Linux (RHEL 6), perform the following steps:

1. Make sure you have registered with the Red Hat Network (RHN). If you have not yet registered, run the following command:

```
% /usr/bin/rhn_register
```

2. Insert the product media and enter the following command to mount it:

```
% mount /dev/cdrom/mnt
```

3. Run the following command and follow the examples provided:

```
% /mnt/create-yum-config-file
```

Additional installation instructions are provided in the release notes file.

## Upgrading from Earlier Releases

For information on upgrading from to SLES 11 SP2, see the appropriate SUSE documentation.

For information about upgrading from a previous RHEL release to RHEL 6, see the appropriate Red Hat, Inc. documentation.

Upgrade instructions for the SGI Foundation Software 2.8 release are contained in the product release notes. The release notes reside in a file named *SGI-product-release-readme.txt* in the `/docs` directory on the product CD.



## SGI Foundation Software Overview

This chapter describes how to install, configure, and administer the SGI Foundation Software 2.8 release. It contains the following topics:

- "Software Introduction" on page 7
- "SGI Foundation Software CD Contents" on page 8
- "Accessing SGI Foundation Software Manuals" on page 9
- "Getting Updates" on page 9
- "Getting the Latest Firmware or Software for Your SGI Rackable or SGI ICE Series System" on page 10
- "Getting the Latest BIOS for Your SGI UV 2000, SGI UV 1000, or SGI UV 100 Series System" on page 10
- "License Information" on page 11
- "Topology API" on page 11
- "Check Feature Utility" on page 11

### Software Introduction

SGI provides two primary software packages to enable your SGI systems to run with improved performance and enhanced technical support features. These software packages are as follows:

- SGI Foundation Software

The SGI Foundation Software suite provides the core set of tools and utilities, as described in "SGI Foundation Software CD Contents" on page 8.

SGI supports the SGI Foundation Software 2.8 release on the SUSE Linux Enterprise Server 11 Service Pack 2 (SLES 11 SP2) base distribution, the Red Hat Enterprise Linux 6.4 (RHEL 6.4) base distribution, and the RHEL 6.3 distribution. It also runs on the Community ENTerprise Operating System (CentOS 6) base distribution. The SGI support team answers questions relating to any of these

products, but they do not provide technical support for the CentOS operating system.

The SGI Foundation Software 2.8 release supports X86-64 systems only.

- SGI Performance Suite

The SGI Performance Suite products provide additional performance enhancements, as described in the *SGI Performance Suite 1.6 Start Here*.

For information about SGI support for SGI hardware platforms and operating system configuration settings, see the following website:

<http://www.sgi.com/products/servers/>

## SGI Foundation Software CD Contents

The major contents of the SGI Foundation Software 2.8 CD are as follows:

- Device driver libraries
- LSI Logic LSIUtil (`lsiutil`) configuration utility
- Memory logging utility
- Open source Performance Co-Pilot
- SGI support tools
- SGI LK software licensing mechanism
- Environment modules
- SGI recommended system and boot-time configuration changes
- Check feature utility
- SGC - DVI graphics input capture

## Accessing SGI Foundation Software Manuals

The SGI Foundation Software manuals are installed in the following location on your SGI system:

```
/usr/share/doc/packages/sgi-foundation-2
```

The following shows the manuals in the directory:

```
figures      index.html  LX_UVConfigOps_AG  LX_XFS_AG  Start_Here_Fond_2
UVcontroller_UG  UV_Install_AG
```

Each manual directory contains a PDF and an HTML copy of the manual. For example, you can change to the `Start_Here_Fond_2` directory, list its contents, and retrieve the following information:

```
/usr/share/doc/packages/sgi-foundation-2 # ls
pdf sgi_html
```

You can also access the following local URL on your SGI system using the Mozilla Firefox browser, as follows:

```
# firefox -no-remote file:///usr/share/doc/packages/sgi-foundation-2/index.html
```

## Getting Updates

This section describes how to get software updates for the SGI Foundation Software 2.8 release.

Detailed instructions for downloading and installing SGI Foundation Software 2.8 updates are available from the SGI Foundation Software product pages on Supportfolio at the following website:

```
https://support.sgi.com/content\_request/194480/index.html.
```

---

**Note:** You must have a Supportfolio account to access this page and the SGI update server.

---

Customers that received SGI Foundation Software 2.8 pre-installed on their new SGI system can run the following command to add the proper update source for SGI Foundation Software 2.8:

```
$ /usr/sbin/sgi-foundation-update-source
```

This script prompts you for your Supportfolio login and then adds the proper SGI update source for the given architecture and base operating system.

## Getting the Latest Firmware or Software for Your SGI Rackable or SGI ICE Series System

For information on the basic input/output system (BIOS), Baseboard Management Controller (BMC) firmware, Intelligent Platform Management Interface (IPMI) control utility, Field Replaceable Unit/Sensor Data Record (FRUSDR) software, Hierarchical Storage Controller (HSC) software, LSI RAID firmware, Platform Manager cluster management software, InfiniBand drivers, INTEL MPI Runtime Environment Kit for Linux, and Java Runtime Environment (JRE), see the SGI XE Firmware/Software page on SGI Supportfolio at the following website:

[https://support.sgi.com/browse\\_request/firmware\\_diagnostic\\_software](https://support.sgi.com/browse_request/firmware_diagnostic_software)

For information about SGI ICE system firmware, see the *SGI Management Center for SGI ICE* or *SGI Management Center for SGI ICE X* available at the following website:

<http://docs.sgi.com>

## Getting the Latest BIOS for Your SGI UV 2000, SGI UV 1000, or SGI UV 100 Series System

Get the latest BIOS for your SGI UV 2000, SGI UV 1000, or SGI UV 100 series system at SGI Supportfolio at the following website:

<https://support.sgi.com>

For instructions for flashing compute blade BIOS, see the *SGI UV CMC Software User Guide*.

## License Information



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**Warning:** Remember to back up your license key files before you install SLES, RHEL, and/or SGI software products. A license key file is not included in these RPMs.

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You need to restore your original license key files after you complete your installation.

In terms of software licensing support, the operating system distributors do not ship any licensing code. Independent software vendors (ISVs) are responsible for obtaining and including software licensing components into their products. SGI products ship with SGI licensing software.

For more information, see the specific product release notes or the FAQ at the following website:

<http://www.sgi.com/support/licensing/faq.html>

If you encounter any license-related problems, contact your local support center at the following website:

<http://www.sgi.com/support/supportcenters.html>

## Topology API

The SGI topology application programming interface (API) allows a workload management system (WMS) to obtain topology information from SGI systems. For more information on the SGI topology API, see the `sgitopo(8)` and `topology(1)` man pages.

## Check Feature Utility

The check feature utility, `chkfeature(8)`, checks the contents of the `/etc/opt/sgi/features` directory and provides status. Without arguments, it

prints a list of all the files. To use the `chkfeature` command, you must first load the `chkfeature` module, as follows:

```
sys:~ # module load chkfeature

sys:~ # chkfeature
sgi-accelerate      status      on
sgi-array           status      on
sgi-cpuset          status      on
sgi-foundation      status      on
sgi-libbitmask      status      on
sgi-libcpuset       status      on
sgi-libnuma         status      on
sgi-lk              status      on
sgi-memacct         status      on
sgi-mpi             status      on
sgi-mpiplace        status      on
sgi-mpt             status      on
sgi-scotch          status      on
sgi-upc             status      on
```

To determine if a feature is active, type the following command:

```
sys:~ # chkfeature -a
sgi-accelerate      active      on
sgi-array           active      on
sgi-cpuset          active      on
sgi-foundation      active      on
sgi-libbitmask      active      on
sgi-libcpuset       active      on
sgi-libnuma         active      on
sgi-lk              active      off    Not applicable
sgi-memacct         active      on
sgi-mpi             active      on
sgi-mpiplace        active      off
sgi-mpt             active      off
sgi-scotch          active      off
sgi-upc             active      on
```



To determine the version level of a software module, type the following command:

```
sys:~ # chkfeature -v
sgi-accelerate      version          on      1.1.5 Build 707a141.sles11sp2-1210101905
sgi-array           version          on      sgi-arraysvcs 3.7
sgi-cpuset          version          on      2.0
sgi-foundation      version          on      2.2.7 Build 707a141.sles11sp2-1210101905
sgi-hel             version          on      1.0
sgi-libbitmask      version          on      2.0sgi sgi707a14.sles11sp2
sgi-libcpuset       version          on      1.0sgi sgi707a15.sles11sp2
sgi-lk              version          on      2.2
sgi-memacct         version          on      1.3
sgi-mpi             version          on      1.1.5 Build 707a141.sles11sp2-1210101905
sgi-mpiplace        version          on      1.02
sgi-mpt             version          on      2.07
sgi-react           version          on      1.1.5 Build 707a141.sles11sp2-1210101905
sgi-scotch          version          on      5.1.11
sgi-upc             version          on      1.1.5 Build 707a141.sles11sp2-1210101905
```

For more information, see the `chkfeature(8)` man page.



## Documentation Resources

This chapter includes the following topics:

- "SGI Documentation" on page 15
- "Red Hat Documentation" on page 18
- "SUSE Documentation" on page 19
- "Intel Documentation" on page 20

### SGI Documentation

Online and postscript versions of SGI documentation are available at the SGI Technical Publications Library at the following website:

<http://docs.sgi.com>

The following topics describe the SGI documentation:

- "SGI Performance Suite Software Manuals" on page 15
- "Additional SGI Software Manuals" on page 15
- "SGI Hardware Manuals" on page 18

### SGI Performance Suite Software Manuals

For information about manuals that support the SGI Performance Suite products, such as SGI<sup>®</sup> MPI, SGI<sup>®</sup> REACT<sup>™</sup>, SGI<sup>®</sup> UPC, and SGI<sup>®</sup> Accelerate<sup>™</sup>, see the *SGI Performance Suite X.X Start Here*.

### Additional SGI Software Manuals

The following documentation describes current SGI software products:

- *SGI Foundation Software X.X Start Here*

Provides information about the SGI Foundation Software X.X release that supports SGI differentiated server solutions.

- *SGI UV System Management Node Administrator Guide*

Describes the system management node (SMN) installation, configuration, and operation for SGI® UV™ 2000, SGI UV 1000, and SGI UV 100 systems.

- *SGI Management Center for SGI ICE*

Describes how to perform general system installation, configuration, and operations on the SGI ICE 8400 and SGI ICE 8200 systems.

For other SGI hardware platforms, see the *SGI Management Center (SMC) System Administrator Guide* and *SGI Management Center (SMC) Installation and Configuration*.

- *SGI ICE X Installation and Configuration Guide*

Describes the SGI® ICE™ X system installation and configuration process.

- *SGI ICE X Administration Guide*

Describes administrative tasks for SGI® ICE™ X systems.

- *SGI Management Center (SMC) Installation and Configuration*

This guide is intended for system administrators. It describes how to install and configure the SGI Management Center. A companion manual, the *SGI Management Center (SMC) System Administrator Guide*, describes general cluster administration.

For SGI ICE platforms, use one of the following manuals: the *SGI Management Center for SGI ICE* (for SGI ICE 8400 or SGI ICE 8200 systems) or the *SGI Management Center for SGI ICE X*.

- *SGI Management Center (SMC) System Administrator Guide*

This guides describes how to monitor and control a cluster using the SGI Management Center. A companion manual, the *SGI Management Center (SMC) Installation and Configuration Guide*, describes how to install and configure the SGI Management Center.

For SGI ICE platforms, use one of the following manuals: the *SGI Management Center for SGI ICE* (for SGI ICE 8400 or SGI ICE 8200 systems) or the *SGI Management Center for SGI ICE X*.

- *SGI Management Center Quick Start Guide*

The guide explains how to deploy your SGI Management Center software.

- *XFS for Linux Administration*

Describes XFS, an open-source, fast recovery, journaling filesystem that provides direct I/O support, space preallocation, access control lists, quotas, and other commercial file system features.

- *XVM Volume Manager Administrator Guide*

Describes the configuration and administration of XVM logical volumes using the XVM Volume Manager.

- *CXFS 7 Administration Guide for SGI InfiniteStorage*

Documents CXFS running on a storage area network (SAN). CXFS is clustered XFS, a parallel-access, shared, clustered filesystem for high-performance computing environments.

- *CXFS 7 Client-Only Guide for SGI InfiniteStorage*

Provides an overview of the installation and configuration procedures for CXFS client-only nodes running SGI CXFS clustered filesystems.

- *Guaranteed-Rate I/O Version 2 for Linux Guide*

Provides information about GRIO version 2, the second-generation guaranteed-rate I/O product from SGI.

- *High Availability Extension and SGI InfiniteStorage*

Provides information about creating resources for the high-availability (HA) SGI resource agents that SGI provides for use with the SUSE Linux Enterprise High Availability Extension (HAE) product.

- *DMF 6 Administrator Guide for SGI InfiniteStorage*

Describes how to administer the Data Migration Facility (DMF). DMF is a hierarchical storage management system for SGI environments. Its primary purpose is to preserve the economic value of storage media and stored data. This manual describes DMF components, features, and architecture; it focuses on the tasks of configuration and ongoing administrative duties.

- *SGI InfiniteStorage Appliance Manager User Guide*

Describes the operation of SGI InfiniteStorage Appliance Manager, which is a web-based interface that lets you configure, manage, and monitor a storage server.

- *SGI UV CMC Software User Guide*

Documents the chassis manager controller (CMC) command line interface (CLI) for the SGI UV 2000 , SGI UV 1000, and SGI UV 100 series systems.

## SGI Hardware Manuals

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 3-1** 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 2000", "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**.

## Red Hat Documentation

Documentation for Red Hat Enterprise Linux 6.4 (RHEL 6.4) or RHEL 6.3 is located in the `/usr/share/doc` directory. It contains package-specific documentation. If you

install the `zisosfs` module, additional documentation in the form of READMEs can be found in `/usr/share/doc/zisosfs-tools-1.x.x`.

On the RHEL6 DVD, `README-lang` and `RELEASE-NOTES-lang` files are found in the root directory.

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**Note:** Red Hat Enterprise Linux 6 (RHEL 6) documentation is available at the following website:

<http://www.redhat.com/docs/manuals/enterprise/RHEL-6-manual/index.html>

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The following documentation is available:

- *Release Notes for x86\_64 architecture*
- *Red Hat Enterprise Linux Deployment Guide*
- *Red Hat Enterprise Linux Installation Guide*
- *Red Hat Virtualization*

## SUSE Documentation

Documentation for SUSE Linux Enterprise Server 11 Service Pack 2 (SLES 11) is located on your system in the `/docu/en` directory.

SLES 11 package descriptions are available online at the following website:

<http://www.novell.com/products/linuxenterpriseserver/packages.html>

For SUSE documentation, see the following website:

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

The following SLES 11 documentation is available:

- *SUSE Linux Enterprise Server 11 Installation Quick Start*  
`art_sles_installquickstart.pdf`
- *SUSE Linux Enterprise Server 11 Deployment Guide*  
`book_sle_deployment.pdf`

- *SUSE Linux Enterprise Server 11 Administration Guide*  
book\_sle\_admin.pdf
- *SUSE Linux Enterprise Server SLES 11: Storage Administration Guide*  
stor\_admin.pdf

## Intel Documentation

The following topics describe the documentation available from Intel Corporation:

- "Intel Compiler Documentation" on page 20
- "Intel Processor Documentation" on page 20

## Intel Compiler Documentation

Documentation for the Intel compilers is located on your system in the `/docs` directory that resides within each compiler's installation directory. If you installed the Intel compilers, the following documentation is available:

- *Intel C++ Compiler User's Guide* (c\_ug\_lnx.pdf)
- *Intel Fortran Compiler User's Guide* (for\_ug\_lnx.pdf)
- *Intel Fortran Programmer's Reference* (for\_prg.pdf)
- *Intel Fortran Libraries Reference* (for\_lib.pdf)

## Intel Processor Documentation

Intel server processor information is available online at the following website:

<http://www.intel.com/support/processors/sb/CS-029807.htm>



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