

SGIconsole™ 1.1 Start Here

007-4356-002

CONTRIBUTORS

Written by Karen Johnson, Laraine MacKenzie, and Terry Schultz

Edited by Rick Thompson

Production by Glen Traefald

Engineering contributions by Jim Grisham, Paul Jackson, Jenny Leung, Ken McDonell, Scott Henry, and Rebecca Underwood

COPYRIGHT

© 2001 - 2002, Silicon Graphics, Inc. All rights reserved; provided portions may be copyright in third parties, as indicated elsewhere herein. No permission is granted to copy, distribute, or create derivative works from the contents of this electronic documentation in any manner, in whole or in part, without the prior written permission of Silicon Graphics, Inc.

LIMITED RIGHTS LEGEND

The electronic (software) version of this document was developed at private expense; if acquired under an agreement with the USA government or any contractor thereto, it is acquired as "commercial computer software" subject to the provisions of its applicable license agreement, as specified in (a) 48 CFR 12.212 of the FAR; or, if acquired for Department of Defense units, (b) 48 CFR 227-7202 of the DoD FAR Supplement; or sections succeeding thereto. Contractor/manufacturer is Silicon Graphics, Inc., 1600 Amphitheatre Pkwy 2E, Mountain View, CA 94043-1351.

TRADEMARKS AND ATTRIBUTIONS

Silicon Graphics, SGI, the SGI logo, IRIS, IRIX, Onyx2, and Origin are registered trademarks and IRISconsole, NUMAflex, Performance Co-Pilot, SGIconsole, and SGI ProPack for Linux are trademarks of Silicon Graphics, Inc.

Linux is a registered trademark of Linus Torvalds, used with permission by Silicon Graphics, Inc. Windows is a registered trademarks Microsoft Corporation. Red Hat is a registered trademark and RPM is a trademark of Red Hat, Inc. UNIX is a registered trademark of The Open Group in the U.S. and other countries, licensed exclusively through X/Open Company, Ltd.

Cover Design by Sarah Bolles, Sarah Bolles Design, and Dany Galgani, SGI Technical Publications.

New Features in This Manual

This rewrite of *SGIconsole 1.1 Start Here* supports the 1.1 release of SGIconsole.

Major Documentation Changes

This release adds the following information:

- "What Is SGIconsole", page 1
- "Using the PROM Command Monitor", page 11
- "Creating a KickStart floppy", page 13
- "Setting up and Using the Console Manager Client on Client Machines", page 28

Record of Revision

Version	Description
001	November 2001 Original Publication. Supports the SGIconsole 1.0 release.
002	August 2002 Supports the SGIconsole 1.1 release.

Contents

About This Guide	xi
Obtaining Publications	xi
Conventions	xi
Reader Comments	xii
1. Introduction	1
What Is SGIconsole	1
Why Use SGIconsole	1
Related Documentation	2
2. SGIconsole Software	3
Console Manager for SGIconsole	3
System Controller Software	4
Performance Co-Pilot (PCP)	4
System Controller Software	7
3. Getting Started	9
Setting Up SGIconsole	9
Upgrading from SGIconsole 1.0 to SGIconsole 1.1	10
Installing the SGIconsole 1.1 Upgrade	10
Configuring the SGIconsole 1.1 Upgrade	10
Setting Up SGIconsole Hardware	11
Using the PROM Command Monitor	11
Installing Red Hat 6.2 Base Linux	12
Installing the 6.2 Red Hat Base Linux	12
007-4356-002	vii

Contents

Creating a KickStart floppy	13
Configuring Red Hat 6.2 Base Linux	13
Installing SGIconsole 1.1	18
Configuring SGIconsole 1.1	20
Determining the Hardware Address of the L2 System Controller	24
Using SGIconsole	26
Changing the Appearance of your X terminal	28
Setting up and Using the Console Manager Client on Client Machines	28
Index	31

Figures

Figure 3-1	Network Configuration Screen	14
Figure 3-2	Configure TCP/IP Screen	15
Figure 3-3	Configure Timezones Screen	16
Figure 3-4	Authentication Configuration Screen	17
Figure 3-5	Services Screen	18
Figure 3-6	SGIconsole Main Window	27

About This Guide

This guide documents SGIconsole release 1.1.

SGIconsole is a combination of hardware and software that allows you to manage multiple servers running the IRIX operating system.

This guide contains the following chapters:

- Chapter 1, "Introduction", page 1
- Chapter 2, "SGIconsole Software", page 3
- Chapter 3, "Getting Started", page 9

Obtaining Publications

To obtain SGI documentation, go to the SGI Technical Publications Library at:

<http://techpubs.sgi.com>

You can view documentation online or order printed copies through the library.

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.
<code>manpage(x)</code>	Man page section identifiers appear in parentheses after man page names.

Reader Comments

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

You can contact us in any of the following ways:

- Send e-mail to the following address:

`techpubs@sgi.com`

- Use the Feedback option on the Technical Publications Library World Wide Web page:

`http://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:

Technical PublicationsSGI 1600 Amphitheatre Parkway, M/S 535, Mountain View,
California 94043-1351

- Send a fax to the attention of "Technical Publications" at +1 650 932 0801.

We value your comments and will respond to them promptly.

Introduction

This chapter introduces SGIconsole. The sections in this chapter include:

- "What Is SGIconsole", page 1
- "Why Use SGIconsole", page 1
- "Related Documentation", page 2

What Is SGIconsole

SGIconsole 1.1 is a combination of hardware and software that allows you to manage multiple SGI servers running the IRIX operating system. These servers include SGI servers, SGI partitioned systems and large, single-system-image servers, including legacy SGI servers.

SGIconsole consists of a slim, rackmountable SGI platform, a serial multiplexer or Ethernet hub, and a software suite including the Console Manager package and Performance Co-Pilot (PCP), which provides access to common remote management tools for hardware and software. It is intended to replace the SGI IRISconsole product.

SGIconsole 1.1 assumes your SGIconsole machine and your remote display for viewing and running SGIconsole applications are behind a secure firewall. SGIconsole 1.1 uses standard Linux security features.

Note: SGIconsole supports remote-displaying. For a list of supported SGIconsole clients and displays, see the SGIconsole release notes.

Why Use SGIconsole

SGIconsole provides a central server control environment that has the following features:

- Support for SGI clusters, partitioned systems, and large single-system-image servers
- Expandability to support additional servers

- Rackmountable, space-efficient platform
- Software applications and tools for installation and configuration, console functionality, and for monitoring and managing system-level performance
- Web-based user interface

Related Documentation

The following SGIconsole and related documents are available at <http://techpubs.sgi.com>:

- *SGIconsole Hardware Connectivity Guide*
- *Console Manager Administrator's Guide*
- *IRISconsole to SGIconsole Migration Guide*
- *Performance Co-Pilot (PCP) Programmer's Guide*
- *Performance Co-Pilot (PCP) User's and Administrator's Guide*
- *SGI L1 and L2 Controller Software User's Guide*
- *SGI Origin 3000 Series Owner's Guide*
- *SGI Origin 300 User's Guide*
- *SGI 1100 Server Owner's Guide*
- *SGI 1100 Server Quick Start Guide*
- *SGI 1100 Server Maintenance and Upgrade Guide*
- *EL Serial Port Installation Guide*
- *EL Serial Port Server Installation Guide Errata*

SGIconsole Software

SGIconsole includes the following software tools that enable you to monitor and manage multiple servers:

- "Console Manager for SGIconsole", page 3
- "Performance Co-Pilot (PCP)", page 4
- "System Controller Software", page 7

Console Manager for SGIconsole

Console Manager is a graphical user interface for the SGIconsole management and monitoring tool used to control multiple nodes. A *node* is an SGI server or graphic system. For detailed information about Console Manager, see the *Console Manager for SGIconsole Administrator's Guide*. The manual is provided on the SGIconsole software installation CD and is available at the SGI Technical Publications library at: <http://techpubs.sgi.com>.

Console Manager provide the following functions:

- Console window
- Power down, power up, and system reset
- Get, steal, spy system console and system controller console
- Console logging
- Node and task privileges for the Console user
- Continuous system connection without console window active
- Numerous connections to any one system
- Remote access
- Console security

Only the root user of Console Manager can add or delete other users, assign privilege, and run command line interfaces (CLIs). Console Manager runs only one `setuid` program called `runpriv`.

`tscm(1)` is a command line interface to SGIconsole. It provides an interactive menu-driven environment for performing console, logging, and power control operations on nodes configured in SGIconsole. For more information about `tscm(1)`, see *Console Manager for SGIconsole Administrator's Guide* and the `tscm(1)` man page.

System Controller Software

Please refer to <http://support.sgi.com> (SGI supportfolio web site) for the latest system controller software.

Performance Co-Pilot (PCP)

SGI Performance Co-Pilot (PCP) is a distributed toolkit that administrators can use to monitor and manage system-level performance of servers (such as system load, network load, disk hotspots, and capacity planning). The SGIconsole implementation of PCP uses existing PCP services on the managed servers to export performance data that is used by monitoring tools on the SGIconsole system. Note that IRIX servers must have PCP licenses in order for this toolkit to function.

Initial access to the PCP toolkit is accomplished through the SGIconsole GUI, which provides a Web-based interface for launching PCP tools. PCP tools monitor the following resource demands and performance metrics on the managed servers:

- Desktop gadget to monitor overall system activity across the following:
 - CPUs
 - Disks
 - Load average
 - Network interfaces
 - Memory usage
- Time-series (stripchart) monitoring of the following:
 - Summary statistics for an overview
 - Aggregate CPU utilization
 - Aggregate demand for disk bandwidth

- File system fullness
- Network throughput per interface
- NFS client and server call rates
- Virtual memory paging activity
- Aggregate system call rates
- Three-dimensional performance visualizations for the following:
 - Per processor CPU utilization
 - Per spindle disk activity
 - CPU and network activity
 - NUMAlink interconnect activity for SGI Origin 2000 series and SGI Origin 3000 series

PCP tools on the SGIconsole system can also be used to create customized performance monitoring and performance management services for the managed servers. The following list describes relevant tools:

<code>clustervis</code>	Three-dimensional bar charts of CPU utilization and network traffic for one or more nodes (hosts) in a cluster. The presentation provides a scalable overview of the performance of large clusters. For more information see the <code>clustervis(1)</code> man page.
<code>dkvis</code>	A three-dimensional bar chart showing activity in the disk subsystem. For more information see the <code>dkvis(1)</code> man page.
<code>mpvis</code>	A three-dimensional bar chart of multiprocessor CPU utilization. For more information see the <code>mpvis(1)</code> man page.
<code>oview</code>	Three-dimensional bar charts covering many aspects of system performance, including disk use, job load, memory, CPU activity, and network I/O. For more information see the <code>oview(1)</code> man page.
<code>pmchart</code>	Trends over time for arbitrarily selected performance metrics from one or more nodes, or from one of more

- performance metric domains. For more information see the `pmchart(1)` man page.
- `pmgcluster` An animated display based on the hardware configuration of multiple servers, showing the same types of information as that provided by the `pmgsys` utility. For more information see the `pmgcluster (1)` man page.
- `pmgsys` An animated display based on the hardware configuration of a server, showing CPU utilization, load average, memory utilization, network bandwidth demand, and disk activity. For more information see the `pmgsys (1)` man page.

For more detailed information on PCP, see the PCP documentation provided on the SGIconsole software CD or available online from the SGI Technical Publications Library at <http://techpubs.sgi.com>.

The PCP documents describe the IRIX version of the PCP product, which differs only slightly from the Linux version. Table 2-1 summarizes differences in file and directory pathnames between the IRIX and Linux operating systems.

Table 2-1 IRIX and Linux File/Directory Pathnames

File/Directory	IRIX	Linux
<code>rc/startup scripts</code>	<code>/etc/init.d</code>	<code>/etc/rc.d/init.d</code>
Private PCP binaries	<code>/usr/pcp/bin</code>	<code>/usr/share/pcp/bin</code>
Shared PCP files (shareable for diskless)	<code>/usr/pcp</code>	<code>/usr/share/pcp</code>
Directory of manual pages	<code>/usr/share/catman</code>	<code>/usr/man</code>
PCP logs	<code>/var/adm/pcplog</code>	<code>/var/log/pcp</code>
PCP documentation	<code>/var/pcp</code>	<code>/usr/doc/pcp-<i>Version</i></code>
GUI privileged commands	<code>/usr/sysadm/privbin</code>	<code>/usr/lib/sysadm/privbin</code>
GUI commands log	<code>/var/sysadm/salog</code>	<code>/var/lib/sysadm/salog</code>

File/Directory	IRIX	Linux
Directory for PCP demos and examples	<code>/var/pcp/demos</code>	<code>/usr/share/pcp/demos</code>
magic, as used by files (1)	<code>/etc/magic</code>	<code>/usr/share/magic</code>

System Controller Software

System controller software enables you to use an SGI Origin 3000 series server's L1 controllers and the hardware L2 controllers or SGI Origin 2000 system single module System Controller (MSC) or SGI Origin 2000 rackmount system multimodule System Controller (MMSC) to manage and monitor the server from a remote system console. For more information on system controllers, refer to the documentation listed in "Related Documentation", page 2.

Getting Started

This chapter guides you through the steps for setting up and configuring SGIconsole hardware and software. The sections in this chapter include:

- "Setting Up SGIconsole", page 9
- "Using SGIconsole", page 26

Setting Up SGIconsole

To set up and configure your SGIconsole 1.1 system, follow the procedures described in these subsections:

- "Setting Up SGIconsole Hardware", page 11
- "Using the PROM Command Monitor", page 11
- "Installing Red Hat 6.2 Base Linux", page 12
- "Configuring Red Hat 6.2 Base Linux", page 13
- "Installing SGIconsole 1.1", page 18
- "Configuring SGIconsole 1.1", page 20

Your SGIconsole machine probably arrived with the Red Hat 6.2 base Linux distribution and SGIconsole 1.1 software preinstalled. If so, then you will need to set up the hardware, configure Red Hat 6.2 Linux, and configure SGIconsole 1.1 software before starting to use SGIconsole.

Note: The SGIconsole reinstallation procedure is the same as the installation procedure after you have removed the SGIconsole rpms.

Note: If your SGIconsole machine has a blank disk, then you will need to go through all the procedures in the order described in this section.

Note: SGIconsole 1.1 assumes your SGIconsole machine and your remote display for viewing and running SGIconsole applications are behind a secure firewall. SGIconsole 1.1 uses standard Linux security features.

Upgrading from SGIconsole 1.0 to SGIconsole 1.1

This section contains procedures to follow if you are updating your system from SGIconsole 1.0 to SGIconsole 1.1.

Installing the SGIconsole 1.1 Upgrade

The installation part of an upgrade from SGIconsole 1.0 to 1.1 is the same as a clean install. Insert your SGIconsole 1.1 CD into your machine, follow the instructions in "Installing SGIconsole 1.1", page 18, then reboot your machine.

Configuring the SGIconsole 1.1 Upgrade

To configure SGIconsole 1.1 Upgrade, begin by logging in as root and running the SGIconsole startup script:

```
/usr/share/SGIconsole/bin/SGIconsole_startup
```

The `sgiconsole_startup(8)` man page provides more information on the startup script.

The SGIconsole startup script begins by displaying the following introduction, which lists the steps in configuring SGIconsole:

```
SGIconsole 1.1 Startup Process
```

```
This script will guide you through the steps to configure
SGIconsole 1.1 for use. This script should be run on an
SGIconsole system that has Red Hat 6.2 installed and
configured and has SGIconsole software installed.
```

```
This script will take you through the following steps
to configure the upgrade from 1.0 to 1.1:
```

```
1) Set init runlevel back to 3.
```

- 2) Enable connection to serial port.
- 3) Restart VACM services.
- 4) Compile and install EL-16 driver and firmware.
- 5) Improve system security.

Press the Enter key to be guided through the steps...

For information about these steps, see "Configuring SGIconsole 1.1", page 20.

Setting Up SGIconsole Hardware

To cable and configure SGIconsole hardware, read and follow the instructions in the *SGIconsole Hardware Connectivity Guide*. This guide is delivered with your SGIconsole system and is available online at <http://techpubs.sgi.com>.

Using the PROM Command Monitor

This section describes the command (PROM) monitor programs, which control the boot environment for all SGI workstations and servers. With the command monitor, you can boot and operate the CPU under controlled conditions, run the CPU in command monitor mode, and load programs (for example, the operating system kernel, `/unix`, or special debugging and execution versions of the kernel). For detailed information on the PROM monitor, see the `prom(1M)` man page and Chapter 9, "Using the Command (PROM) Monitor" in *IRIX Admin: System Configuration and Operation*.

For SGI servers, the installed PROM default variables are correct for use with SGIconsole. For SGI desktop systems, if no keyboard is plugged in when the system is powered on (or reboot on machines), then the PROM uses the first serial port for I/O.

You can force the correct behavior for all SGI desktop, servers, and visualization systems as follows:

1. Set the PROM variable `console` to `d`. This can be done two ways:
 - a. From the PROM monitor prompt, perform the following:

```
setenv console d
```
 - b. From the IRIX operating system, as root user perform the following:

```
nvrnm console d
```

2. Return the `alt console` line in `/etc/inittab` file to the originally installed value (if different) as follows:

```
t1:23:respawn:/sbin/suattr -C CAP_FOWNER,CAP_DEVICE_MGT,  
CAP_DAC_WRITE+ip -c "exec /sbin/getty ttyd1 console"
```

The `:23:` variable can be different on your machine if you have created more run levels for site purposes. The `alt console` variable for the `getty(1M)` process must be enabled on all stable run levels (not on single-user (s) or on the transition run levels: 0, 1, or 6. Single-user has a shell on the console. If you add another shell, configuring systems to run with SGIconsole will be more difficult.

Installing Red Hat 6.2 Base Linux

This section describes the following:

- "Installing the 6.2 Red Hat Base Linux ", page 12
- "Creating a KickStart floppy", page 13

Installing the 6.2 Red Hat Base Linux

Install Red Hat 6.2 base Linux on an SGIconsole system.

Your SGIconsole machine probably arrived with the Red Hat 6.2 base Linux distribution and SGIconsole 1.1 software preinstalled. If so, when you power up the system it will prompt you for information to configure Red Hat 6.2 Linux.

Note: If your system did **not** come preinstalled, you must create an SGI 1100 Red Hat KickStart floppy (see "Creating a KickStart floppy", page 13).

Note: If your system comes preinstalled, after configuring Red Hat 6.2 Linux, it is recommended that you create an SGI 1100 Red Hat KickStart floppy in case the system ever needs to be re-installed (see "Creating a KickStart floppy", page 13).

For instructions on configuring Red Hat 6.2 Linux for use with SGIconsole, go to "Configuring Red Hat 6.2 Base Linux", page 13.

If, when you power up the machine, it displays only a blank screen, then you need to install Red Hat 6.2 Linux:

1. Insert the KickStart floppy into the SGIconsole floppy drive. (You must create this KickStart floppy as described in "Creating a KickStart floppy", page 13).
2. Insert the Red Hat 6.2 CD into the SGIconsole CD-ROM drive.
3. Reboot SGIconsole. Red Hat 6.2 Linux will install automatically.
4. When the installation is complete, reboot the system.

At this point the system will come up running `sys-unconfig`. You will be prompted to configure Red Hat 6.2 Linux (refer to "Configuring Red Hat 6.2 Base Linux", page 13).

Creating a KickStart floppy

For convenience, a KickStart floppy image resides on the SGIconsole 1.1 CD under the `images` directory. To create a KickStart floppy, copy the image to a blank DOS-formatted floppy disk:

1. Insert and mount the SGIconsole 1.1 CD, using the following command:

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

2. Insert the blank, formatted floppy.
3. Copy the image from the CD to the floppy, using the following command:

```
dd if=/mnt/cdrom/images/SGIconsole1.1-RH6.2.img of=/dev/fd0
```

Configuring Red Hat 6.2 Base Linux

Your SGIconsole machine probably arrived with the Red Hat 6.2 base Linux distribution and SGIconsole 1.1 software pre-installed. If so, when you power up the system it will automatically prompt you for information to configure Red Hat 6.2 Linux for use with SGIconsole. Follow the steps in this section to configure Red Hat 6.2 Linux.

If, when you power up the system, it displays only a blank screen, you will need to install Red Hat 6.2 Linux (refer to "Installing Red Hat 6.2 Base Linux", page 12). When the installation is complete, reboot the system and continue with configuring Red Hat 6.2 Linux.

The system will boot up running the SGI ProPack 1.4 single processor kernel to the init level 3 (text mode, multiuser). You will be automatically prompted for the

following information to configure Red Hat 6.2 for use by SGIconsole. You will need to provide certain information such as host name, IP address, and so on. Have this information available before you start this procedure.

Note: If you are interrupted midway through this procedure, or if you want to rerun this configuration, enter the following command at the Linux prompt (as root):
`touch /.unconfigured` Then reboot the system and enter the configuration information at the prompts.

1. The first screen will display **Changing password for user root** after mounting local filesystems, then it will prompt you for a new UNIX password. Set the root password to improve the system's security behind your firewall.
2. After the password is entered and verified, the first prompt will ask if you want to set up networking, as shown in Figure 3-1. To allow SGIconsole to access the systems it will be monitoring and managing, select **Yes**.



Figure 3-1 Network Configuration Screen

3. The **Configure TCP/IP** screen will prompt you to assign an Internet Protocol (IP) address to the SGIconsole system so it can participate in your network, as well as

a netmask (for example, 255.255.255.0). If your network uses DNS, fill in the default gateway (IP) and primary nameserver.

After you have entered the information for each of these settings, click on **OK**.



Figure 3-2 Configure TCP/IP Screen

4. In the **Configure Timezones** screen, set your local time zone so the time stamps in various logs are correct. You can scroll through the listbox of time zones. After you have made your selection, click on **OK**.

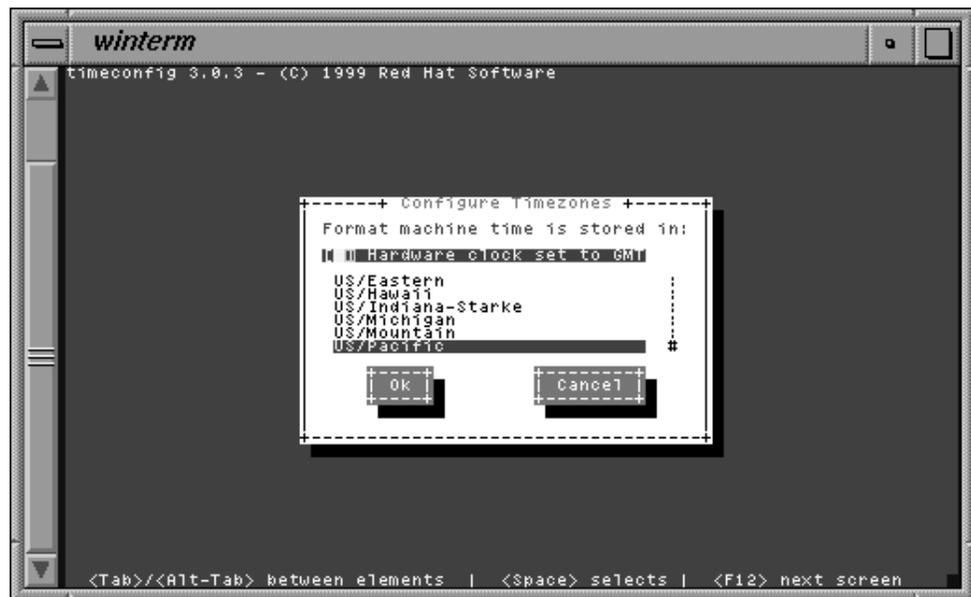


Figure 3-3 Configure Timezones Screen

5. In the **Authentication Configuration** screen, set authentication to control other users' access to the SGIconsole. For the **Authentication Type** option, select **Password File**. Select **Use Shadow Passwords** and **Enable MD5 Passwords**. After you have made your selections, click on **OK**.

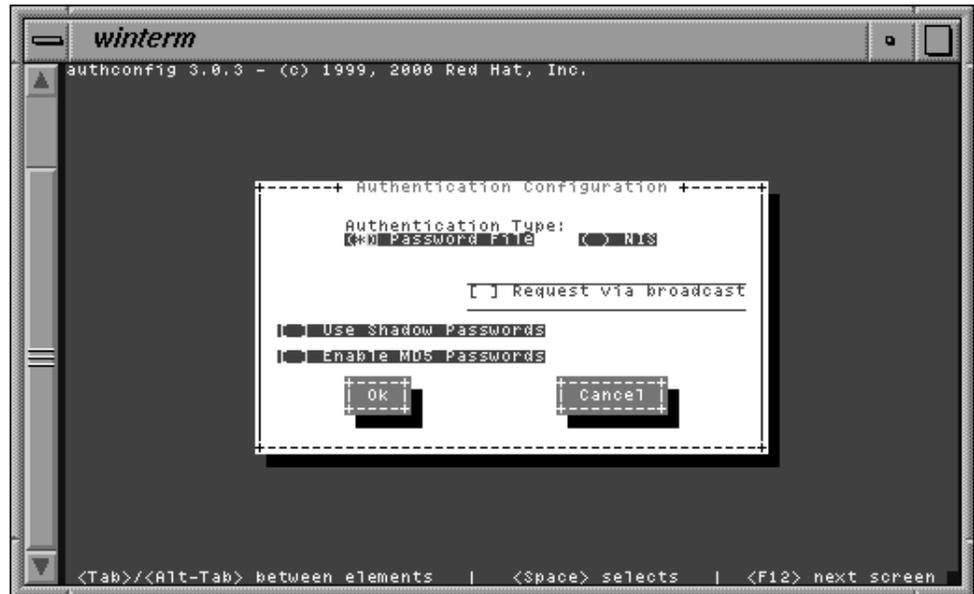


Figure 3-4 Authentication Configuration Screen

6. In the **Services** screen, use the default settings for services to be started automatically at SGIconsole boot-up. After you have reviewed the settings, click on **OK**.



Figure 3-5 Services Screen

7. At this point the display should show the standard login prompt. Log in as root with your new password. The configuration of Red Hat 6.2 for use with SGIconsole is complete.

Installing SGIconsole 1.1

If you are uncertain whether SGIconsole 1.1 has been preinstalled on your machine, **after** you have completed configuring Red Hat 6.2 you can run the following command to verify the software.

```
rpm -qa | egrep "SGIconsole|pcp|vacm|sysadm" | sort
```

If SGIconsole is already installed, the output from this command will list the SGIconsole, PCP, and SGIconsole software packages. Go to "Configuring SGIconsole 1.1", page 20, for instructions on configuring SGIconsole software for use.

If SGIconsole has not been installed, follow the instructions in this subsection to install SGIconsole 1.1.

To install SGIconsole 1.1 software, follow these steps:

1. Log in as `root`.
2. Mount the SGIconsole 1.1 CD by executing the `mount` command as you have configured it. A common example is `mount /dev/cdrom /mnt/cdrom`.
3. Change directories to the root directory for the mounted CD. A common root directory is `/mnt/cdrom`.
4. Execute the command `./INSTALL`.
5. The **Welcome** screen appears. Highlight **OK** and press `Enter`.
6. The **Package Group Selection** screen appears. This screen allows you to select the type of package you want to install. You select a package by using the up and down arrow keys and pressing the Space bar to select the one you want. When you select a package, RPMs for that package will be installed after you highlight **OK** and press `Enter`. (RPM is an acronym for Red Hat Package Manager. It is similar to the IRIX `inst` utility. The packages installed by RPM are called RPMs, and have a `.rpm` suffix.)
7. You may see the **Package Dependencies** screen, which tells you if SGIconsole requires additional packages beyond those you selected. Review the packages. If you want to install them (you should install them unless there is some important reason not to do so), highlight **OK** and press `Enter`.
8. The **Installation to Begin** screen appears. It tells you that a log of the installation will be placed in `/tmp/sgi-install.log`. Highlight **OK** and press `Enter`.
9. The installation begins. You will see the **Package Installation** screen, which tells you which packages are being installed and logs the time it takes to install them.
10. After the installation is complete, the **Complete** screen appears. Press `Enter`. You are returned to the root prompt.
11. Reboot your system in order to begin running the newly installed SGIconsole 1.1 kernel. You can reboot by typing `reboot` and pressing `Enter`.

Note: When you reboot the SGIconsole system, an EL-16 error will display because the EL-16 driver is not yet compiled. The `SGIconsole_startup` script (see "Configuring SGIconsole 1.1", page 20) will compile and install the driver for you when you execute the script.

At this point you have completed installing SGIconsole 1.1 software over Red Hat 6.2 Linux. Next, you will need to configure the SGIconsole software.

Configuring SGIconsole 1.1

To configure SGIconsole 1.1, begin by logging in as `root` and running the SGIconsole startup script:

```
/usr/share/SGIconsole/bin/SGIconsole_startup
```

The `sgiconsole_startup(8)` man page provides more information on the startup script.

- If you have not yet configured Red Hat 6.2 Linux for use by SGIconsole, the following error message will be displayed on the system:

```
Error: You cannot run this startup script because you have not
configured SGIconsole. To be guided through these steps, select
"y" which will reboot the system and run the configuration program.
```

```
Would you like to configure Linux for SGIconsole? [y/n]
```

Choose **y** to configure Linux immediately. (If you choose **n** the script will quit and you will not be able to configure SGIconsole software.) In this case, perform the following command as **root**

```
touch /.unconfigured
```

and then reboot the system.

- If you have already configured Red Hat 6.2 Linux for use with SGIconsole, then follow the startup script.

The SGIconsole startup script begins by displaying the following introduction, which lists the steps in configuring SGIconsole:

```
SGIconsole 1.1 Startup Process
```

```
This script will guide you through the steps
to configure SGIconsole 1.1 for use.
This script should be run on an SGIconsole system
that has Red Hat 6.2 installed and configured
and has SGIconsole software installed.
```

This script will take you through the following steps:

- 1) Define SGIconsole hostname.
- 2) Enable connection to serial port.
- 3) Configure eth1.
- 4) Start httpd.
- 5) Start VACM services.
- 6) Create console user 'root'.
- 7) Configure DHCP service for L2.
- 8) Configure DHCP for EL-16.
- 9) Configure EL-16.
- 10) Improve system security.

Press the Enter key to be guided through the steps...

Press Enter to be guided through the steps. The following list provides more information on the choices to be made.

1. Define SGIconsole hostname.

In order for SGIconsole software to communicate properly between the SGIconsole and the nodes you will be administering, you need to assign a hostname to the SGIconsole. For more information on hostnames, see the `hostname(1)` man page. This step places your input into the `/etc/sysconfig/network` file.

2. The startup script adds an entry to the `/etc/inittab` file to enable connection to a serial port on the SGIconsole server.

3. Configure eth1.

SGIconsole comes with two Ethernet interfaces on the motherboard. The configuration steps assume eth0 will be used for the public network, so you can access the SGIconsole from a remote system inside your firewall, and eth1 will be used for the private network, to connect the SGIconsole to the machines it administers. This step places your input into the `/etc/sysconfig/network-scripts/ifcfg-eth1` file.

You will be prompted to define the IP address for eth1, as well as the netmask, broadcast address, and network address. The L2 system controller is connected to the second ethernet port eth1.

The script will then attempt to bring up the eth1 interface that you just configured.

4. Because the SGIconsole main interface and PCP interface are web-based, the script enables the web server (`httpd`) on the SGIconsole. (**No input is needed.**)
5. The startup script starts the `vacm` and `vacm-mode` services. (**No input is needed.**)
6. To enable SGIconsole software to function properly, the startup script creates a console user `root` password file. (**No input is needed.**)
7. Configure DHCP service for L2.

If you have an SGI Origin 3000 series server or an SGI Onyx 3000 graphics system, you will need an L2 system controller to administer it using SGIconsole. This step sets up one or more L2 system controllers for use with SGIconsole, placing your input into the `/etc/dhcpd.conf` and the `/etc/hosts` files, and into the routing table. For more information on `dhcpd` and `route`, see the `dhcpd(8)` and `route(1M)` man pages.

You will be prompted to enter for each L2 system controller a hostname, Ethernet (MAC) address, and fixed IP address. To determine the hardware address of the L2 system controller, see "Determining the Hardware Address of the L2 System Controller", page 24.

8. Configure DHCP for EL-16.

If you have an SGI Origin 200 server, an SGI Origin 2000 series server, an SGI Origin 300 server, or SGI Origin 3000 series server, or a Silicon Graphics Onyx 300 or Onyx 3000 graphics system, you will need a Silicon Graphics Ethernet serial port server (EL-16) to administer it using SGIconsole. This step sets up one or more Silicon Graphics Ethernet serial port servers for use with SGIconsole, placing your input into the `/etc/dhcpd.conf` and `/etc/hosts` files, and into the routing table. For more information on `dhcpd` and `route`, see the `dhcpd(8)` and `route(1M)` man pages.

You will be prompted to enter for each Silicon Graphics Ethernet serial port server a hostname, Ethernet (MAC) address, and fixed IP address.

Note: At this point, the script will start up DHCP services on the private network `eth1`.

The following information describes the SGIconsole as a DHCP server with one or more L2 system controllers, SGIconsole as a DHCP server with a Silicon Graphics Ethernet serial port server (EL-16), or SGIconsole as a DHCP server with both L2 system controllers and a Silicon Graphics Ethernet serial port server.

- Configure SGIconsole as a DHCP server.

This step places your input into the `/etc/dhcpd.conf` file, which the startup script will create for you, and creates the `/var/state/dhcp/dhcpd.leases` file. For more information on `dhcpd`, see the `dhcpd(8)` man page.

DHCP can enable SGIconsole to be more flexible in the event of a power cycle, because the Silicon Graphics Ethernet serial port server (EL-16) will be able to reacquire its IP address from the SGIconsole. Alternately, using a static IP can allow SGIconsole to be more secure for those environments concerned about security. The startup script assumes you want to use DHCP; if you prefer to use a static IP, please follow the instructions in the `README.txt` file.

You will be prompted to enter the SGIconsole subnet address, netmask, broadcast address, and default lease time.

- See steps 7 and 8

9. Configure EL-16.

After the Silicon Graphics Ethernet serial port servers (EL-16) are configured to get their IP addresses via the SGIconsole using DHCP, you will be prompted to run a Silicon Graphics Ethernet serial port server configuration script. Input will be written to the `/etc/bootptab` and `/etc/inetd.conf` files.

You will be prompted to power cycle the Silicon Graphics Ethernet serial port servers so they can automatically download and install updated firmware from the SGIconsole.

10. Improve system security.

SGIconsole 1.1 startup script helps you improve security on your SGIconsole system. It removes the piranha RPMs, disable services via `checkconfig(8)`, and comments out entries in the `/etc/inetd.conf` file. These actions address common concerns but are not intended to eliminate all security risks. The SGIconsole system and the machine to which it displays windows, should be located behind a secure firewall.

When the script has completed successfully, ensure that the host where applications will be displayed has access control disabled. You may have to modify the proxy settings of your Web browser to access the Internet.

At this point SGIconsole software should be configured and ready to use (refer to "Using SGIconsole").

Determining the Hardware Address of the L2 System Controller

This section describes how the L2 system controllers come online after a system boots and how to set the `eth1` port on the SGI 1100 server to match when a DHCPD server is running on a subnet.

1. The L2 system controller is connected via a crossover cable to the second Ethernet port `eth1` on the SGI 1100 server. To ensure the L2 system controller is correctly installed, see the *SGIconsole Hardware Connectivity Guide*.

If the L2 system controllers are out on the network, and up and running, they should have created an IP address from their MAC address of the form 10.x.x.x.

2. To use `l2findeth1` command, you need to configure the SGI 1100 server to match. Make sure the `IPADDR`, `BROADCAST`, and `NETWORK` settings are correct. Using an editor such as `vi`, modify the `/etc/sysconfig/network-scripts/ifcfg-eth1` file as necessary:

```
DEVICE=eth1
BOOTPROTO=static
BROADCAST=10.255.255.255
IPADDR=10.2.2.1
NETMASK=255.0.0.0
NETWORK=10.0.0.0
ONBOOT=yes
```

3. Reboot the SGI 1100 server or stop and start your network using the following commands:

```
/etc/rc.d/init.d/network stop
```

and

```
/etc/rc.d/init.d/network start
```

4. To find the IP address of the L2 system controller, perform the following:

```
[root@console-dino /root]# /stand/sysco/bin/l2find eth1
```

Output similar to the following appears:

```
1 L2's discovered:
```

IP	SSN	NAME	RACK	FIRMWARE
10.17.177.24			000	1.2.0

- Use the `l2term` command to connect to the L2 and find the hardware address needed for the DHCP configuration step of `SGIconsole_startup` script, as follows:

```
[root@console-dino /etc]# /stand/sysco/bin/l2term --l2 10.17.177.24
```

Output similar to the following appears:

```
INFO: connection established to 10.17.177.24, to quit enter <ctrl-]> <q>

10.17.177.24-L2>
10.17.177.24-L2>! ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:69:11:B1:18 <-----needed
by SGIconsole_startup for /etc/dhcpd.conf.

        inet addr:10.17.177.24  Bcast:10.255.255.255  Mask:255.0.0.0
        UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
        RX packets:98 errors:0 dropped:0 overruns:0 frame:0
        TX packets:56 errors:56 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:100
        Base address:0xe00

lo        Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        UP LOOPBACK RUNNING  MTU:3924  Metric:1
        RX packets:63 errors:0 dropped:0 overruns:0 frame:0
        TX packets:63 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0

10.17.177.24-L2>
```

- Use the `HWaddr 08:00:69:11:B1:18` in `SGIconsole_startup` script.
- Once DHCP is configured and running after the `SGIconsole_startup` script has completed, the L2 system controllers need to be power cycled so they pick up their new addresses from the SGI 1100 server.

Using SGIconsole

The main SGIconsole window provides access to the ConsoleManager and PCP tools, and to documentation about these and other SGIconsole components.

To start using SGIconsole, enter the following URL into a Web browser on a local or remote machine to bring up the SGIconsole main Web page. Replace *SGIconsole-hostname* with the name of your SGIconsole host:

`http://SGIconsole-hostname`

The SGIconsole main window is shown in Figure 3-6.

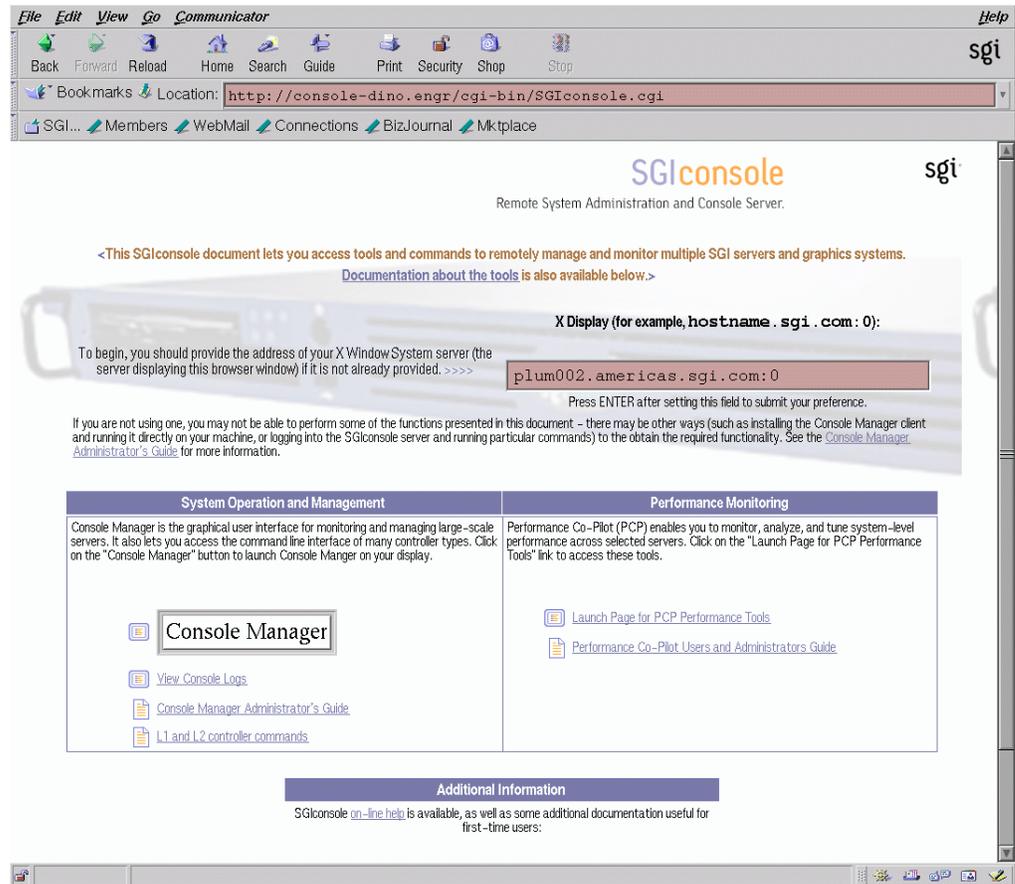


Figure 3-6 SGIconsole Main Window

To activate a specific tool or command, click on the (specific link or button). To access documentation, click on the specific title.

If there is no response to clicking on a link, check the following items:

- The access control of the display host may be disallowing application windows to display on your machine. To allow any host to display windows on your machine, enter the following command:

```
xhost +
```

To allow only the host that you specify to display windows on your machine, enter the following command:

```
xhost + hostname
```

- Your Web browser proxy setting may not be updated to access the Internet. Check your browser's proxy settings.
- You may not have set the "Name of host where tools will display" entry field to your local host. Check the entry field and ensure that the host name is correct.
- You may have iconified the browser or the application window from a previous access. Restore the browser or window to its normal size.

Changing the Appearance of your X terminal

X terminal windows are provided for the system console. You can change the appearance as follows:

- You can change it on the fly by `<ctrl> <right mouse>` to get the font-size menu.
- You can change it globally with X resources. Add the following to the `~/.Xresources` file:

```
XTerm*font:  
*-lucidatypewriter-medium-r-normal-*-10-*-100-100-*-*-*
```

- In other applications, where you can invoke `xterm` with the `-name name` option, you can specify it as follows:

```
remxterm*font:  
*-lucidatypewriter-medium-r-normal-*-10-*-100-100-*-*-iso8859-1
```

and then start the Xterminal as `xterm -name remxterm`.

Setting up and Using the Console Manager Client on Client Machines

This section describes the procedures for installing software to allow you to use Console Manager directly on your client machine.

1. Check that you have Java 1.1.8 installed on your machine.

For IRIX users, use the `showprods(1)` command to check that you have Java 1.1.8 installed as follows:

```
% showprods java_eoe\*
```

Output similar to the following appears:

I = Installed, R = Removed

Name	Date	Description
I java_eoe	12/01/2000	Java Execution Environment 3.2 (Sun JRE 1.1.8)
I java_eoe.man	12/01/2000	Java Runtime System Documentation
I java_eoe.man.base	12/01/2000	Java Runtime System Man Pages
I java_eoe.man.relnotes	12/01/2000	Java Runtime System Release Notes
I java_eoe.man.webdocs	12/01/2000	Java Documentation (HTML)
I java_eoe.sw	12/01/2000	Java Runtime System Software
I java_eoe.sw.base	12/01/2000	Java Runtime System Software (Required)
I java_eoe.sw.binaries	12/01/2000	Java o32 Runtime Software
I java_eoe.sw.native	12/01/2000	Java o32 Runtime Software (Native Threads)
I java_eoe.sw.opt	12/01/2000	Java Runtime System Software (Optional Internationalization Software)
I java_eoe.sw32	12/01/2000	Java n32 Runtime System Software
I java_eoe.sw32.binaries	12/01/2000	Java n32 Runtime Software
I java_eoe.sw32.native	12/01/2000	Java n32 Runtime Software (Native Threads)

—

For Red Hat Linux 6.2 users, check that you have IBM's Java 1.1.8 installed as follows:

```
% rpm -qa | grep IBMJava
```

Output similar to the following appears:

```
IBMJava118-JRE-1.1.8-3.0
```

For Windows 95, 98, NT 4.0 and NT 2000 users, open the **Add/Remove Software** control panel and check if Java Runtime Environment 1.1 appears in the list of programs installed.

If you have the JDK installed instead of the JRE, this is also suitable for running Console Manager.

2. If you do not have the required Java 1.1.8 distribution installed, get the distributions from the SGIconsole CD and install them. See the list below for locations:

IRIX	images/ConsoleManager-Client/java_eoe.tardist
Windows	images/ConsoleManager-Client/jre-1_1_8_009-win.exe
Linux	SGI/RPMS/IBMJava118-JRE-1.1.8-3.0.i386.rpm

For information on installing software packages on your Linux or IRIX system, see `rpm(1)` or `inst(1)`, respectively. For Windows users, all that is required is to run the executable file and follow the on-screen instructions.

3. Copy the following directory to anywhere in your system and read the enclosed README file for more instructions:

```
images/ConsoleManager-Client
```

4. To run Console Manager, open up a shell, `cd(1)` to the `ConsoleManager-Client` directory location (the location you copied it to in step 3), and type this command:

```
% cmgr
```

Note: Except for the prompt, this also applies to Windows users.

Index

C

- Console Manager
 - See "Console Manager graphical user interface", 3
- Console Manager graphical user interface
 - Console Manager GUI, 3

D

- Description, 1

F

- Functionality, 3

I

- Installing Red Hat 6.2 base Linux, 12

L

- L1 controller, 7
- L2 controller, 7

O

- Overview, 1

P

- PCP
 - See "Performance Co-Pilot ", 4
 - tools
 - clustervis, 5
 - dkvis, 5
 - mpvis, 5
 - oview, 5
 - pmchart, 5
 - pmgcluster, 5
 - pmgsys, 5
- Performance Co-Pilot , 4

S

- Security assumptions, 1
- Setting up SGIconsole, 9
- Setting up SGIconsole hardware, 11
- SGIconsole central server control environment, 1
- System controller software, 7

T

- Text-base interface
 - See "tscm text-based interface", 4
- tscm text-based interface, 4
- tscm(1) command
 - See "tscm text-based interface", 4