



Console Manager for SGIconsole™
Administrator's Guide

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New Features Documented

This rewrite of *Console Manager for SGIconsole Administrator's Guide* supports the 2.1 release of SGIconsole.

Major Documentation Changes

This release adds information about the following:

- Added information about new manuals for the SGI Altix 3700Bx2 and Silicon Graphics Prism products in the Preface.
- Updated information in "SGIconsole Overview" on page 1.

Record of Revision

| Version | Description |
|----------------|---|
| 001 | November 2001 Original publication. |
| 002 | August 2002 Supports the SGIconsole 1.1 release. |
| 003 | July 2003 Supports the SGIconsole 2.0 release. |
| 004 | November 2004 Supports the SGIconsole 2.1 release. |

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About This Guide

This guide documents the Console Manager for SGIconsole software running on SGI systems.

The Console Manager software graphical interface allows you to control multiple SGI servers; SGI partitioned systems; and large, single-system image servers.

This manual contains the following chapters:

- Chapter 1, "Console Manager Features and Capabilities" on page 1
- Chapter 2, "Configuring Console Manager" on page 33
- Chapter 3, "Configuring Sites" on page 55
- Chapter 4, "Administering Your Site" on page 77
- Chapter 5, "Troubleshooting SGIconsole" on page 99
- Appendix A, "SGIconsole Log Files and Console Manager Execution Flow" on page 101

Related Publications

The following documents contain additional information that may be helpful:

- *SGIconsole Software CD Information Card*
This guide describes how to install the software from the CD if at some time you need to reinstall it.
- *SGIconsole 2.x Start Here*
Contains information about installing, configuring, and starting to use SGIconsole software.
- *IRISconsole to SGIconsole Migration Guide*
This guide compares the SGIconsole software to the IRISconsole software.

- *SGI Origin 3000 Series Owner's Guide*

This guide provides an overview, and describes how to set up and operate the SGI Origin 3000 series of servers.

- *SGI Origin 300 User's Guide*

This guide provides an overview, and describes how to set up and operate the SGI Origin 300 server.

- *SGI L1 and L2 Controller Software User's Guide*

This guide describes how to use the L1 and L2 controller commands at your system console to monitor and manage the following systems: SGI Origin 3000 series of servers, SGI Origin 300 series of servers, SGI Altix 3000 family of servers and superclusters, SGI Origin 300 systems with NUMalink, SGI Onyx 3000 series of graphics systems, and the SGI Onyx 300 series of graphics systems.

- *SGI Onyx 300 Graphics System User's Guide*

This guide provides an overview of the components that make up the SGI Onyx 300 graphics system and describes how to operate the system.

- *SGI Onyx 3000 Series Graphics System Hardware Owner's Guide*

This guide provides information on using and administering your SGI Onyx 3000 rackmount graphics system. Although there several different models in the SGI Onyx 3000 system family, this guide refers to the products generically as SGI Onyx 3000 series graphics systems.

- *SGI Altix 3000 Series Owner's Guide*

This guide provides an overview of the architecture and descriptions of the major components that compose the SGI Altix 3000 family of servers and superclusters. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

- *SGI Altix 350 System User's Guide*

Provides an overview of the Altix 350 system components, and it describes how to set up and operate this system.

- *SGI Altix 3700Bx2 User's Guide*

This guide provides an overview of the architecture and descriptions of the major components that compose the SGI Altix 3700Bx2 family of servers. It also provides the standard procedures for powering on and powering off the system, basic troubleshooting information, and important safety and regulatory specifications.

- *Silicon Graphics Prism Visualization System User's Guide*

Provides an overview of the Silicon Graphics Prism Visualization System components, and it describes how to set up and operate this system.

- *SGI Altix 350 Quick Start Guide*

Guides a knowledgeable user through the installation, setup, and simple configuration of most SGI Altix 350 systems.

- *SGIconsole Hardware Connectivity Guide*

This guide describes how to install the SGIconsole onto the SGI Origin 200, SGI Origin 2000, and SGI Origin 300, and SGI Origin 3000, SGI Altix 350, SGI Altix 3000, and Silicon Graphics Prism products.

- *Performance Co-Pilot ReadMe First*

Information on the system requirements, installation, and preparation of the Performance Co-Pilot software.

- *Performance Co-Pilot for IRIX User's and Administrator's Guide*

This guide describes the Performance Co-Pilot (PCP) software package of advanced performance tools for the SGI family of graphical workstations and servers. It documents the PCP features that are embedded in the IRIX operating system. It is a prequel to the Performance Co-Pilot for IRIX Advanced User's and Administrator's Guide.

- *Performance Co-Pilot for IRIX Advanced User's and Administrator's Guide*

This guide describes the planning, deployment, and use of PCP tools and services, demonstrating the advanced capabilities of PCP, and how to employ, customize, and extend them for identifying and solving various computing performance problems.

- *Performance Co-Pilot Programmer's Guide*

This guide describes how to write PCP extensions (Performance Metric Domain Agents, or PMDAs) using the PMAPI, for customizing and adapting PCP for the collection application performance data on operating system and application software components not addressed by the PCP base software.

- *Performance Co-Pilot for IA-64 Linux User's and Administrator's Guide*

This guide documents the the Performance Co-Pilot (PCP) software package running on IA-64 Linux systems. PCP provides a systems-level suite of tools that cooperate to deliver integrated performance monitoring and performance management services spanning the hardware platforms, operating systems, service layers, Database Management Systems (DBMSs), and user applications.

Obtaining Publications

You can obtain SGI documentation as follows:

- See the SGI Technical Publications Library at <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.

- If it is installed on your SGI system, you can use InfoSearch, an online tool that provides a more limited set of online books, release notes, and man pages. With an IRIX system, enter `infosearch` at a command line or select **Help > InfoSearch** from the Toolchest.
- On IRIX systems, you can view release notes by entering either `grelnotes` or `relnotes` at a command line.
- On Linux systems, you can view release notes on your system by accessing the `README.txt` file for the product. This is usually located in the `/usr/share/doc/productname` directory, although file locations may vary.
- 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. |
| 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. |

...

Ellipses indicate that a preceding element can be repeated.

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Console Manager Features and Capabilities

Console Manager is a graphical user interface for the SGIconsole remote management and console server used to monitor and control multiple nodes. A *node* can be a stand-alone server or a partitioned system. Each node is a managed host with a unique name and Internet Protocol (IP) address. SGI Origin 3000, SGI Altix 350, and SGI Altix 3000 systems can be partitioned to contain multiple nodes. You can manage and monitor up to 64 nodes with the Console Manger.

For an overview of SGIconsole, see "SGIconsole Overview" on page 1, and the *SGIconsole 2.x Start Here*.

This chapter introduces the operational features and capabilities of Console Manager software and contains the following sections:

- "SGIconsole Overview" on page 1
- "Getting Started with Console Manager" on page 4
- "Starting the Console Manager" on page 7
- "Console Manager Server Security Without Strong Security" on page 10
- "SGIconsole and Security Under OpenSSH" on page 7
- "Console Manager Graphical User Interface" on page 17
- "SGIconsole Hardware Configuration" on page 28
- "Command Line Interface to Console Manager" on page 29

SGIconsole Overview

SGIconsole, as shown in Figure 1-1 on page 3, lets you manage multiple SGI servers (including partitioned systems), and large, single-system image servers. For the list of systems supported by the SGIconsole, see the *SGIconsole Hardware Connectivity Guide*. SGIconsole 2.x consists of a software suite that includes the Console Manager, the system administration server (*sysadmd*), the VA cluster management server (*vacm*) package and Performance Co-Pilot. SGIconsole provides access to common remote management tools. It also employs the use of X Window system, the Apache web

server, OpenSSL (via `mod_ssl`) and OpenSSH for additional SGIconsole features, particularly in relation to security.

Note: SGIconsole 2.x is a software only product. It requires a hardware platform and may require a serial multiplexer or Ethernet hub. For a list of recommended hardware to use with SGIconsole, see the *SGIconsole Hardware Connectivity Guide*.

You can configure SGIconsole to use a network information services (NIS) password. See the SGIconsole software package `README` file for instructions on how to configure NIS on your SGIconsole machine.

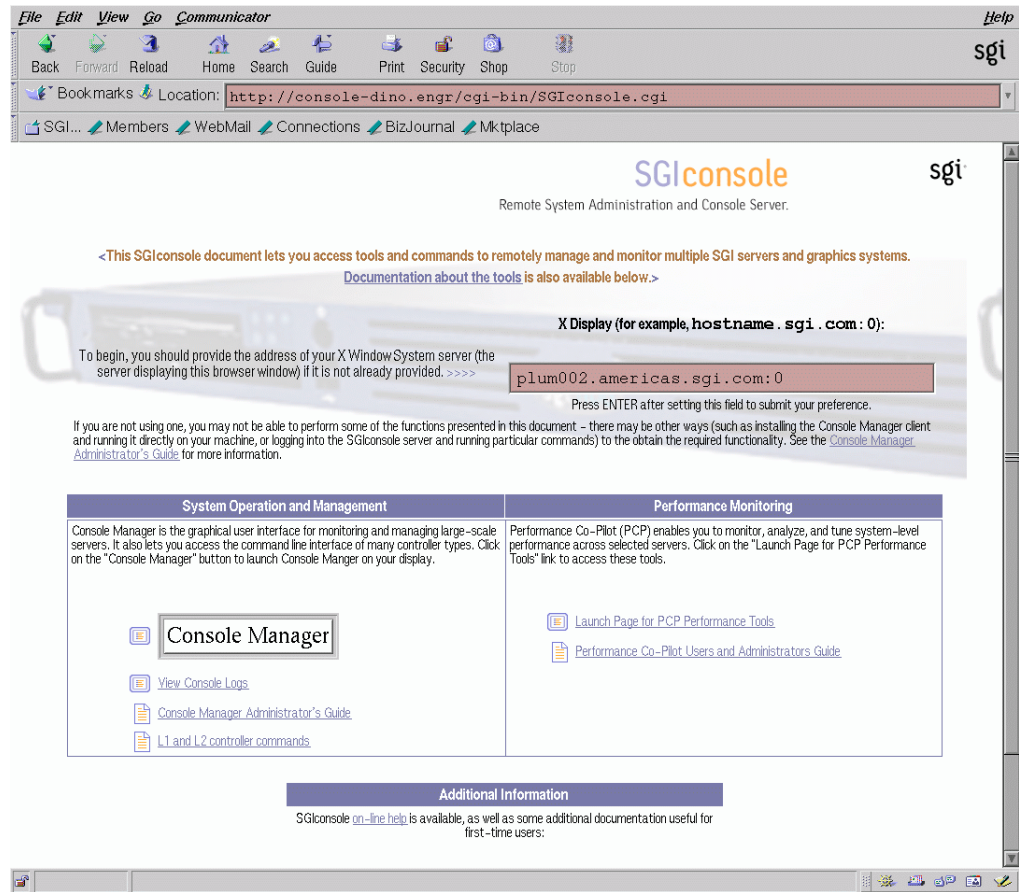


Figure 1-1 SGIconsole Web Interface

For location information and procedures for using the SGIconsole user interface to access SGIconsole software, see the *SGIconsole 2.x Start Here*.

For information on how to connect the machine that will run SGIconsole to the SGI servers and graphics systems, see the *SGIconsole Hardware Connectivity Guide*.

The SGIconsole startup script sets up dynamic host configuration protocol (DHCP) configuration for the L2 controller such that L2 controller is configured with same IP address. This IP address is specified by the user when startup script is run. Console

Manager assumes that the IP address of the L2 controller never changes and node configuration has to be changed if the IP address is changed.

If L2 controller is rebooted, or the network connection to the L2 controller otherwise interrupted, it may be necessary to close all console connections to the L2 controller and open new ones.

For more information on the SGIconsole startup script, see the *SGIconsole 2.x Start Here*.

You need to install Red Hat Linux and SGIconsole 2.x packages. The *SGIconsole 2.x Start Here* document describes the latest Linux and SGIconsole software requirements and shows how to install the software from the CD and reinstall it if necessary.

Note: The SGIconsole reinstallation procedure is the same as the installation procedure described in the *SGIconsole 2.x Start Here* manual, after you have removed the SGIconsole rpms.

For information on the L1 and L2 controller commands, see the *SGI L1 and L2 Controller Software User's Guide*.

For information on Performance Co-Pilot (PCP) see the following manuals:

- *Performance Co-Pilot ReadMe First*
- *Performance Co-Pilot for IRIX User's and Administrator's Guide*
- *Performance Co-Pilot Programmer's Guide*
- *Performance Co-Pilot for IRIX Advanced User's and Administrator's Guide*
- *Performance Co-Pilot for IA-64 Linux User's and Administrator's Guide*

Getting Started with Console Manager

This section contains information about getting Console Manager running on your system and covers the following topics:

- "Console Manager Requirements, Restrictions, and Workarounds" on page 5
- "Installing Console Manager" on page 5
- "Configuring Console Manager" on page 6

- "Default Terminal Type" on page 6
- "Configuring Xterm Connections for SGIconsole" on page 6
- "Systems Supported" on page 7

Console Manager Requirements, Restrictions, and Workarounds

This section contains links to information about Console Manager requirements, restrictions, and workarounds described throughout this manual as follows:

- For information on remote displays supported, see "Systems Supported" on page 7.
- The default terminal type for logging into SGI IRIX and Linux systems using SGIconsole is vt100. For more information, see "Default Terminal Type" on page 6.
- Make sure that xterm connections work properly for NIS user accounts when launched by SGI console by following the configuration instructions in "Configuring Xterm Connections for SGIconsole" on page 6.
- When you add new hardware to Console Manager, you must upgrade the system controller firmware of your SGI Origin 300, SGI Origin 3000, or SGI Altix 3000 series system with the latest firmware from the SGI Supportfolio website. The latest firmware images at the time SGIconsole shipped is provided on the CD in the RPM `snxsc_firmware-1.22.2-1.i386.rpm`. For more information, see "SGIconsole Hardware Configuration" on page 28.
- For information on requirements for running Console Manager on a client machine instead of on the SGI server machine, see "Requirements" on page 38.
- The minimum value of a UID assigned to a new user is 500 in Console Manager. For a workaround for NIS users and more information, see "Adding a Console User" on page 44.
- For the L1 and Multimode System (MMS) controller types, system and controller console logging should not be activated simultaneously. For more information, see "Enabling and Disabling Console Logging" on page 92.

Installing Console Manager

For information on installing the Console Manager for SGIconsole, see *SGIconsole 2.x Start Here*.

For information on starting Console Manager, see "Starting the Console Manager" on page 7, and "Starting the Console Manager GUI on the SGIconsole Server" on page 33.

For more information on SGIconsole, see "SGIconsole Overview" on page 1.

Configuring Console Manager

You can use Console Manager to configure your system to add nodes to your site. You can also use it to add users and groups of users. Console Manager automatically updates the `nodes`, `users`, and `groups` files located in the `/var/lib/SGIconsole` directory.

Note: You should **not** edit the directories under `/var/lib/SGIconsole/`. These configuration files are generated by Console Manager software. Any changes to these files might be lost during upgrades to future releases of SGIconsole.

Default Terminal Type

The default terminal type for logging into SGI systems using SGIconsole is `vt100` for both IRIX and Linux systems. On IRIX systems, `vt100` is the default terminal type when logging into `/dev/ttyd1`. The remote terminal type is the same as your local terminal type (as given in your `TERM` environment variable). The `TERM` value `iris-ansi` is converted to `iris-ansi-net` when sent to the host (see `rlogin(1C)`).

Configuring Xterm Connections for SGIconsole

If the `TERM` setting for an `xterm` connection launched from SGIconsole does not work correctly, make sure that the user account on the SGIconsole server has a `.telnetrc` file. If it does not, remove the account that caused the problem to occur and re-create the account again. For local users, the `.telnetrc` file resides in `/home/username`. For NIS users, the `.telnetrc` file resides in `/usr/people/username`.

For NIS users, SGIconsole may fail to automatically create the `.telnetrc` file. If this is the case, you need to manually create the file with these entries as follows:

```
# automatically generated by SGIconsole
# do not edit
localhost
    set crlf off
```

mode character

Systems Supported

Console Manager can be displayed on any workstation running an X Window System Server, including an SGI workstation or visualization server running IRIX system running 6.5 with `x_eoe` installed or a Linux system with `XFree86 4.2` or later installed.

Starting the Console Manager

You can invoke Console Manager from the SGIconsole webpage or from the command line on the server itself. The command that invokes the Console Manager GUI follows:

```
%/usr/bin/scmgr
```

For more information about starting Console Manager, see "Starting the Console Manager GUI on the SGIconsole Server" on page 33.

SGIconsole and Security Under OpenSSH

The most recent Red Hat Linux releases supports the OpenSSH suite of software that encrypts all traffic (including passwords) to effectively eliminate eavesdropping, connection hijacking, and other network-level attacks. Additionally, OpenSSH provides a myriad of secure tunneling capabilities, as well as a variety of authentication methods.

The `ssh` (SSH client) is a program for logging into a remote machine and for executing commands on a remote machine. It replaces `rlogin` and `rsh` and provides secure encrypted communications between two untrusted hosts over an insecure network. X11 connections and arbitrary TCP/IP ports can also be forwarded over the secure channel.

The OpenSSH suite of software provides encryption for services that SGIconsole provides to users as follows:

- Access to console services through the Console Manager client software.
- Access to console services using `tscm(1)`.

- Access to logging services through the Apache Web server.

This section describes how to secure these services using the OpenSSH suite of software and covers the following topics:

- "Secure Console Services" on page 8
- "Using the Console Manager Client Software for Secure Administration" on page 8
- "Secure Access to Nodes From the SGIconsole Server" on page 9
- "Access To SGIconsole Web Services via OpenSSL." on page 9
- "Console Manager Server Security Without Strong Security" on page 10
- "Logging Into SGIconsole" on page 12

Secure Console Services

In Red Hat Linux, `sshd(8)` is installed as part of the server installation and begins running when the system is booted. You can use the `ssh(1)` command on a workstation to initiate a connection to it. The `ssh(1)` command (or other Secure Shell facilities compatible with OpenSSH) needs to be started at the workstation to establish one endpoint of the secure connection; the other endpoint is at the `sshd(8)` daemon running on the SGIconsole server itself.

Once you have logged into the SGIconsole server using `ssh(1)`, you can start (or the system has automatically started for you) `tcsm(1)`, for accessing SGIconsole services through a text-based interface. Optionally, you can start `scmgr(1)` in order to access the Console Manager, which provides additional administrative functions over the text-based interface. If the main menu for SGIconsole appears upon login, you can start a shell (using the `sh` command) in order to start the Console Manager manually.

In order to use the text-based interface to SGIconsole securely, you need `ssh(1)` (or Secure Shell facilities compatible with OpenSSH) installed on your workstation. To use Console Manager securely, you need both an OpenSSH client and an X Window System server installed on your workstation.

Using the Console Manager Client Software for Secure Administration

If your workstation does not have an X Window System server, but does have a Java 1.4.1 Runtime Environment installed, you can install a copy of the Console Manager client software (`cmgr(1)`) and log into an SGIconsole server using that (with the help

of an OpenSSH client which you use to start a secure session with the SGIconsole server). From there, you can securely log in and administer an SGIconsole server.

To obtain console access securely, you need to use the OpenSSH client directly to log into the SGIconsole server and use the text-based user interface to open console sessions.

If you do not have OpenSSH installed on your workstation, you cannot use SGIconsole securely. But you can still log into an SGIconsole server using the Console Manager and a telnet client, but without the security of an encrypted network connection.

Secure Access to Nodes From the SGIconsole Server

The SGIconsole server itself uses `ssh(1)` in order to connect to nodes on the network in order to obtain system logs using the **View System Log** command of Console Manager. If OpenSSH is not prepared between the SGIconsole server itself and nodes from where logs may be obtained, SGIconsole will not be able to log in and obtain the required log data for view because SGIconsole assumes that it has access to nodes without the use of a password (instead, using RSA encryption keys to establish a secure connection and authenticate hosts for "passwordless" access).

In this case, the use of `ssh(1)` is mandatory, even if Console Manager has established an insecure connection to the SGIconsole server.

Access To SGIconsole Web Services via OpenSSL.

SGIconsole provides access to console logs recorded by the **Switch State of Console Logging** command of Console Manager (or the log function of the `scons` and `ccons` commands in the text-based user interface to SGIconsole) using a Web server. However, while SGIconsole does not actively involve itself with secure access to console logs, Red Hat Linux provides the Apache Web Server with `mod_ssl` installed and running by default, allowing browsers to connect to the server using the HTTPS protocol.

However, the Apache installation includes a self-generated certificate which browsers may complain about, because the authoritative host and domain name listed on the certificate would most probably not match the hostname and domain name of the SGIconsole server running Apache.

You can tell the browser to bypass this issue and log into the SGIconsole Web server anyway, or you can install your own RSA certificates for use with Apache. Please consult the Apache On-Line Manual (<http://manual/>) on how to do this (and search for entries relating to `mod_ssl` on Apache).

Console Manager Server Security Without Strong Security

The Console Manager Server includes security features that ensure that only authorized administrators can manage or monitor systems. The administrator for the Console Manager server is root. The Console Manager Server password for the root user should be the same as the UNIX password for the root user. Only the root user can create or delete other console users. Non-root users can perform all other Console Manager tasks.

Note: The Console Manager GUI does not encrypt its communication with the server. The transfer of passwords is visible to other users of your network. Do not use the Console Manager GUI to administer computers over the Internet.

When you invoke the Console Manager, the **Login in to Server** dialog box appears, as shown in Figure 1-2 on page 11.

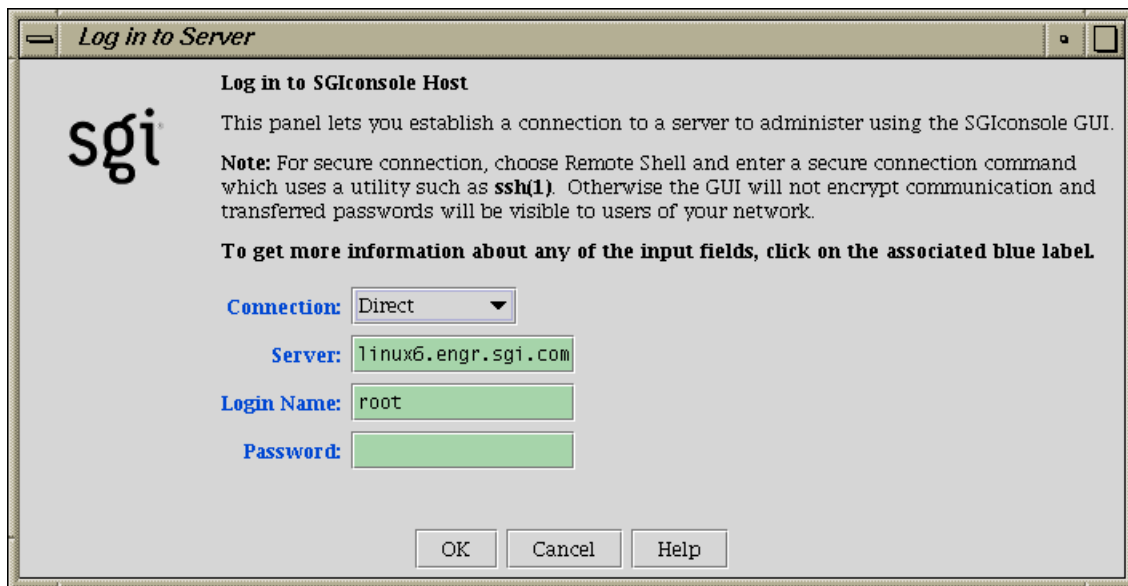


Figure 1-2 Log in to Server Dialog Box

The Console Manager security window allows you to establish a connection to a server to administer using the Console Manager GUI. To log in, perform the following steps:

1. From the **Connection** field pull-down menu, choose **Direct** connection. For a description of connection types, see "Starting the Console Manager GUI on the SGIconsole Server" on page 33.
2. In the **Server** field, type the name of the server running Console Manger.
3. In the **Login Name** field, type your login ID.
4. In the **Password** field, type your password.
5. Click the **Ok** button.

If you cannot connect to a node running Console Manager, an error message appears.

For information about using the Console Manager GUI to add a Console Manager user, see "Adding a Console User" on page 44.

For information about the Console Manager access control mechanism, see "Access Controls in Console Manager" on page 40.

Logging Into SGIconsole

This section describes the various ways you can log into SGIconsole and contains the following topics:

- "Using Console Manager With Strong Security" on page 12
- "Starting Console Manager Client Software" on page 14
- "Using the Text-Based User Interface" on page 15
- "Using SGIconsole Web Services Securely" on page 16

Using Console Manager With Strong Security

Procedure 1-1 Using Console Manager With Strong Security

To initiate a secure connection to Console Manager you need to have an OpenSSH client (`ssh(1)`) and an X Window System server installed on your workstation. If this software is available to you, perform the following procedure:

1. Log into the SGIconsole server via `ssh(1)` under your username (the same username you will use to log in via Console Manager), as follows:

```
# ssh -X -l username sgiconsoleserver
```

Note: To properly resolve any issues with authenticating hosts, it is recommended that you use fully-qualified domain names when logging into the SGIconsole server (*sgiconsoleserver*). The server name you enter as an argument to `ssh(1)` will be used to populate the `~/.ssh/known_hosts` file.

2. If you see the SGIconsole Main Menu, select the shell command (option 6), and run `scmgr(1)` when you obtain a shell prompt, as follows:

=====

Welcome to SGIconsole 2.1

To learn about the SGIconsole 2.1 release, its new features, changes, known problems, and workarounds, read this file:
 /usr/share/doc/SGIconsole-2.1/README

If configuring the system for the first time, refer to SGIconsole Start Here for guidance.

=====

Automatically starting SGIconsole (to get to a shell, enter 6 at the command line prompt).

SGIconsole 2.1 Main Menu

- | | |
|------------------------|-------------------------------|
| 1. scons [func] [node] | Connect to System Console |
| 2. ccons [func] [node] | Connect to Controller Console |
| 3. reset [node] | Hardware Reset |
| 4. nmi [node] | Generate NMI |
| 5. pwr [func] [node] | Power On or Off |
| 6. shell | Escape to Shell |
| 7. help [command] | Help |
| 8. quit | Quit |

```
SGIconsole> 6
[admin@krelly admin]$ scmgr -l $USER -s $HOSTNAME &
[admin@krelly admin]$ _
```

If you do not get the SGIconsole Main Menu, just start `scmgr(1)` as it appears here (`scmgr -l $USER -s $HOSTNAME &`). The Console Manager appears on your display.



Warning: As you use the Console Manager under a secure connection, the **Display** field of all dialog boxes should be set to something like `localhost:n`, where `n` is a value greater than 9. This indicates that the display is set to contact the X display proxy established by `sshd(1)`, not a real X display. Do not change the value of the **Display** field, otherwise, the Console Manager command will either send the results to an X server insecurely, or connection to an X server will fail.

Starting the Console Manager this way will ensure that all X client windows that appear on your workstation will be created via secure network connections from the SGIconsole server.

Starting Console Manager Client Software

If you have installed the Console Manager as a Java application on your workstation (as opposed to having an X Window System server running on your workstation), you can start the Console Manager directly and make a connection either directly or via a remote shell connection type. Using one or the other depends on the following:

- Whether or not you have OpenSSH client software installed on your workstation, or
- Whether or not you wish to connect using an encrypted network connection

In either case, starting Console Manager as a Java application is the same. To initiate a secure connection to Console Manager, perform the following steps:

1. Follow the instructions in "Installing and Running Console Manager" on page 37 in Chapter 2 to install the Console Manager client software on your client machine.
2. To run the Console Manager on the client machine, change to the `ConsoleManager-Client` directory as follows:

```
% cd ConsoleManager-Client
% ./cmgr -l username -s sgiconsoleserver -s &
```

where *username* and *sgiconsoleserver* are your login name and the SGIconsole server name, respectively.

Note: The use of the `-l` and `-s` options are indeed optional if you wish to make an insecure connection to the SGIconsole server. If you wish to use a secure connection, there is no need to use these options.

Under Windows, there is no need to use the ampersand (&) symbol in the command above, otherwise, the commands are identical.

3. The Console Manager login window appears, with the **Login Name** and **Server** fields filled in if you used the `-l` and `-s` options. You can perform one of the following:
 - a. Enter your password and click on the **OK** button, or
 - b. Select the Remote Shell connection type and enter the following in the **Remote Shell** field:

```
ssh -l username sgiconsoleserver
```

Note: If you do not have RSA public keys exchanged between your user account and the SGIconsole server account into which you are logging, Console Manager returns an error indicating that login has failed. Console Manager assumes that login can succeed without the use of a password.

Using the Text-Based User Interface

Users can log into an SGIconsole server using a terminal emulator. To log into the SGIconsole server using a text-based user interface, log into the server with your user account as required, as follows:

```
% telnet -e '' sgiconsoleserver
```

Login securely, as follows:

```
% ssh -l username sgiconsoleserver
```

The same issues that apply with starting Console Manager also apply to using the text-based user interface.

If you are logging in as root, you may need to start the text-based user interface manually, as follows:

```
# tscm
SGIconsole 2.1 Main Menu

1. scon [func] [node]           Connect to System Console
2. ccons [func] [node]        Connect to Controller Console
3. reset [node]                Hardware Reset
4. nmi [node]                  Generate NMI
5. pwr [func] [node]          Power On or Off
6. shell                       Escape to Shell
7. help [command]             Help
8. quit                        Quit

SGIconsole> _
```

Using SGIconsole Web Services Securely

In this version of SGIconsole, the only reason for logging into the SGIconsole web server securely using the the following URL is to display and download console logs using the **View Console Logs** link on the SGIconsole home page:

```
https://sgiconsoleserver
```

Apart from looking at console log data, SGIconsole can start the Console Manager and PCP tools from the Web site itself, but it is important to remember that regardless of whether you use HTTPS protocol to view the web site or not, tools started from the SGIconsole web Site will not make a secure connection to your X display. This is because the tools are started using the X display provided on the Web page, which point directly to a display managed by your local X server.

You cannot use the SGIconsole web site to start the Console Manager or PCP tools securely. While PCP tools do not transfer sensitive information across the network, Console Manager does, and the only way to protect Console Manager is to make a secure network connection to the SGIconsole server using a secure shell, as explained in this section.

Console Manager Graphical User Interface

The Console Manager graphical user interface (GUI) enables you to set up, administer, and monitor all the nodes in a site from a single point. A node can be an SGI server running the IRIX operating system.

The Console Manager GUI provides these advantages:

- You can click any blue text to get more information about that concept or input field. Online help is also provided with the **Help** button.
- The existence of nodes, users, and groups are shown visually.
- All inputs are checked for correct syntax before attempting to change the node configuration information. In every task, changes will not take effect until you click **OK**.
- Tasks take you step-by-step through configuration and management operations.

Note: You should **not** edit the directories under `/var/lib/SGIconsole/nodes`. These configuration files are generated by Console Manager software. Any changes to these files might be lost during upgrades to future releases of SGIconsole.

- The graphical tools can be run on any computer that supports both a supported Java2 runtime and an X Window System server.

Note: You can also access Console Manager using a command line interface called `tscm(1)`. For more information, see "Command Line Interface to Console Manager" on page 29.

Console Manager Overview

Figure 1-3 on page 18, shows the Console Manager main window. The menu bar shows the following pulldown menus:

- **File**
- **Tasks**
- **Help**

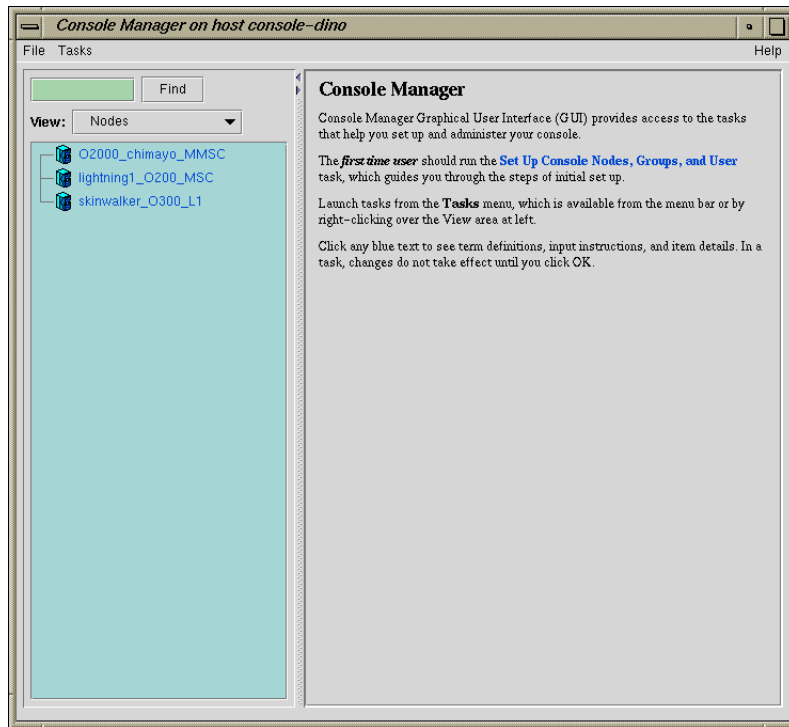


Figure 1-3 Console Manager Graphical User Interface

Figure 1-4 on page 19, shows the **File** pulldown menu.

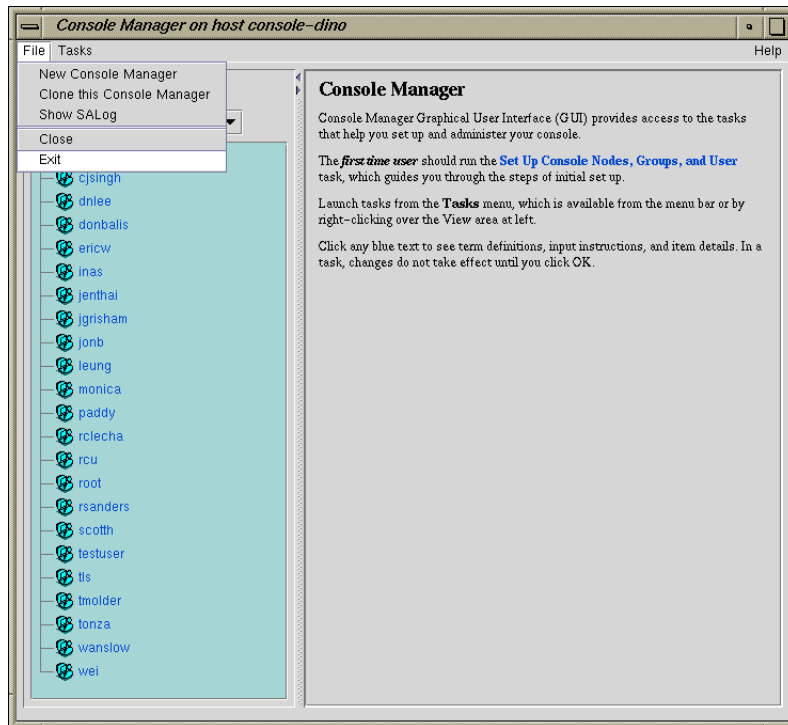


Figure 1-4 File Pulldown Menu

The File pulldown menu allows you to perform the following actions:

- **New Console Manager**
- **Clone this Console Manager**
- **Show SALog**
- **Close**
- **Exit**

Note: The **SALog** log shows what command are executed by the GUI and is used for debugging Console Manager software.

Figure 1-5 on page 20, shows the **Tasks** pulldown menu.

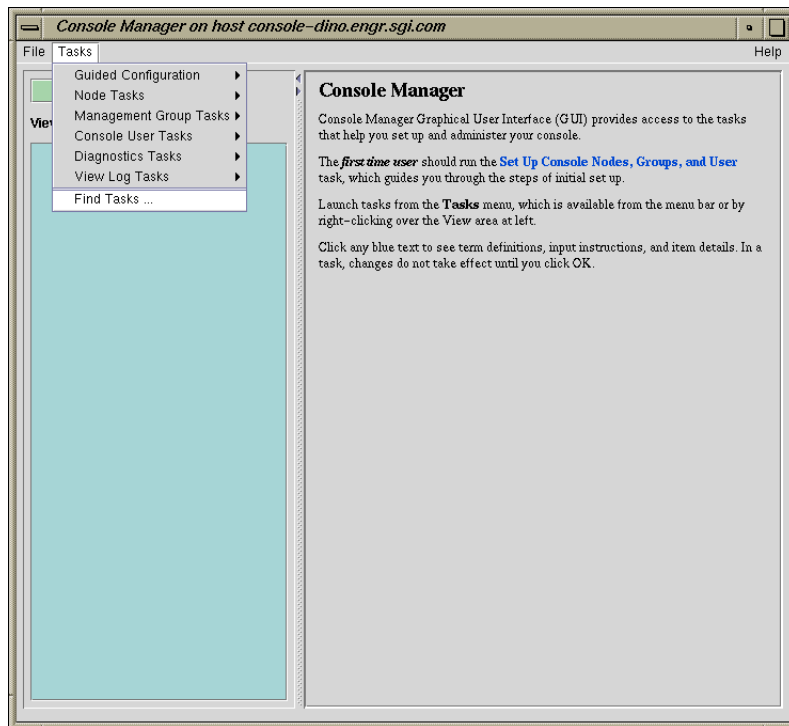


Figure 1-5 Tasks Pulldown Menu

The **Tasks** pulldown menu allows you to perform the following actions:

- **Guided Configuration**
- **Node Tasks**
- **Management Group Tasks**
- **Console User Tasks**
- **Diagnostics Tasks**
- **View Log Tasks**

- **Find Tasks**

For more information on the tasks accessed from the **Tasks** pulldown menu, see "Console Manager Tasks and Functions" on page 21.

Figure 1-6 on page 21, shows the **Help** pulldown menu.

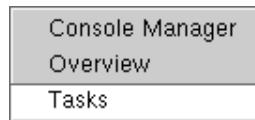


Figure 1-6 > Help Pulldown Menu

The **Help** pulldown menu allows you to get:

- Console Manager description
- Overview of Console Manager tasks
- Help for each Console Manager task

Console Manager Tasks and Functions

The Console Manager provides access to the tasks that help you set up and administer nodes at a site. The **Tasks** menu contains various pulldown menu tasks. For example, the **Console User Tasks** menu expands to **Add console user**, **Modify console user**, and **Delete console user**.

The Console Manager has the following tasks:

- **Guided Configuration**, which allows you to:
 - **Set up Console Nodes, Groups, and Users**
- **Node Tasks**, which allow you to:
 - **Add a Node**
 - **Modify a Node Configuration**
 - **Delete Nodes**

- **Get/Steal/Spy Console**
- **Reset/NMI/Power Up/Power Down**
- **Connect to a System Controller**

Note: If your connection type is L1 or MMSC, you can get either system console or the system controller console for a node at a time. For more information, see "Adding a Node" on page 58.

- **Switch State of Console Logging**
- **Delete Console Log Files**

For a view of the **Node Tasks** pulldown menu and more information on these tasks, see "Adding a Node" on page 58.

- **Management Group Tasks**, which allow you to:
 - **Add a Management Group**
 - **Modify a Management Group**
 - **Delete a Management Group**

For a view of the **Console Group Tasks** pulldown menu and more information on these tasks, see "Adding a Management Group" on page 70.

- **Console User Tasks**, which allow you to:
 - **Add a new Console User**
 - **Modify a Console User**
 - **Delete a Console User**
 - **Change a Console User Password**
 - **Add Console Users**

For a view of the **Console Users Tasks** pulldown menu and more information on these tasks, see "Adding a Console User" on page 44.

- **Diagnostics Tasks**, which allow you to:
 - **Reset Console Backend Software**

For a view of the **Diagnostics Tasks** pulldown menu and more information on these tasks, see "Restarting the Console Manager Daemon" on page 84.

- **View LogTasks**, which allow you to:
 - **View System Log**
 - **View System Controller Logs**

For a view of the **View Log Tasks** pulldown menu and more information on these tasks, see "Viewing System Logs" on page 86.

- **Find Tasks**, which lets you use keywords to search for a specific task.

Console Manager View

The **Console Manager View** panel provides the following capabilities:

- Shows the results when a task has been completed. For example, when the **Add node** task is done, you will see the new node show up in the **Console Manager View**.
- Allows you to select to view nodes configured at a site, the Console Manager users, or the Console management groups.
- Allows you to find and select items in the **View** panel.

The **Console Manager View** pulldown menu allows you to view the **Nodes**, **Users**, and **Management Groups** configured for SGIconsole.

From the **Console Manager View** panel, you can click on a node, user, or management group to display key information. When an item is selected, the panel on the right shows the detailed information of the item with a list of applicable tasks. Clicking on a task brings up the task window with the item selected.

Figure 1-7 on page 24, shows an example of the **Console Manager View** panel.

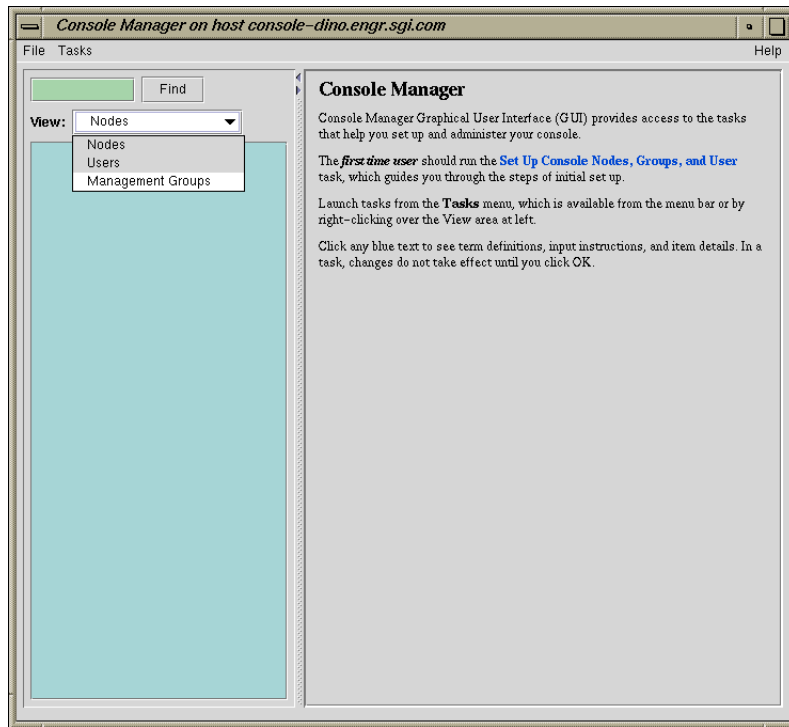


Figure 1-7 Console Manager View

Figure 1-8 on page 25, shows an example when a node in the **View** panel is selected.

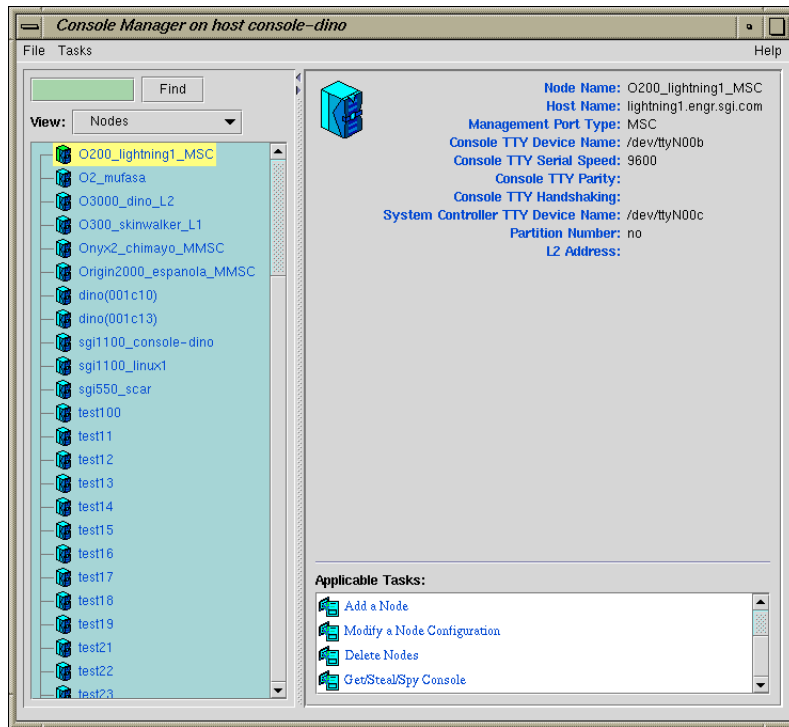


Figure 1-8 Detailed Console View for a Node

Figure 1-9 on page 26, shows an example when a user in the **View** panel is selected.

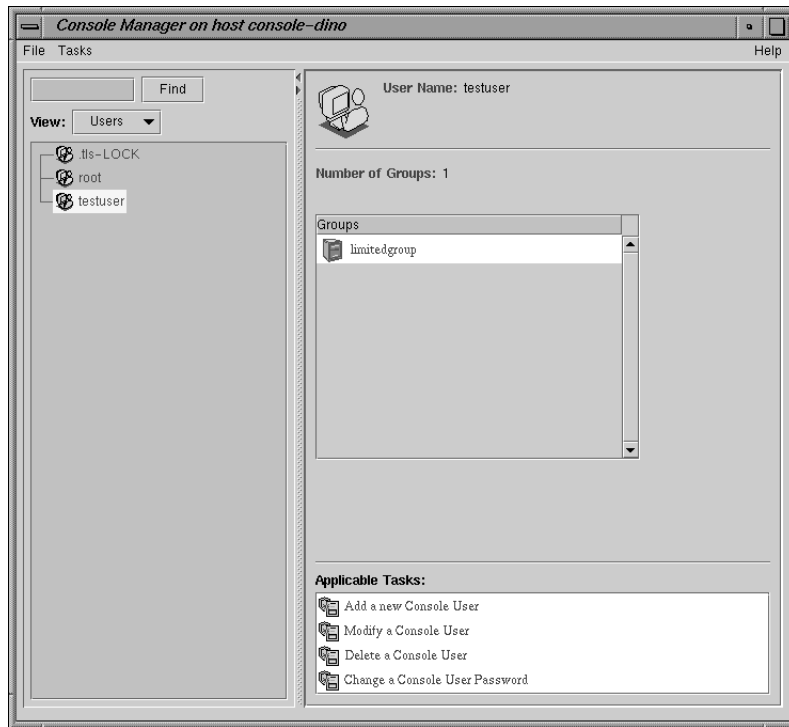


Figure 1-9 Detailed Console View for a User

Figure 1-10 on page 27, shows an example when a group in the **View** panel is selected.

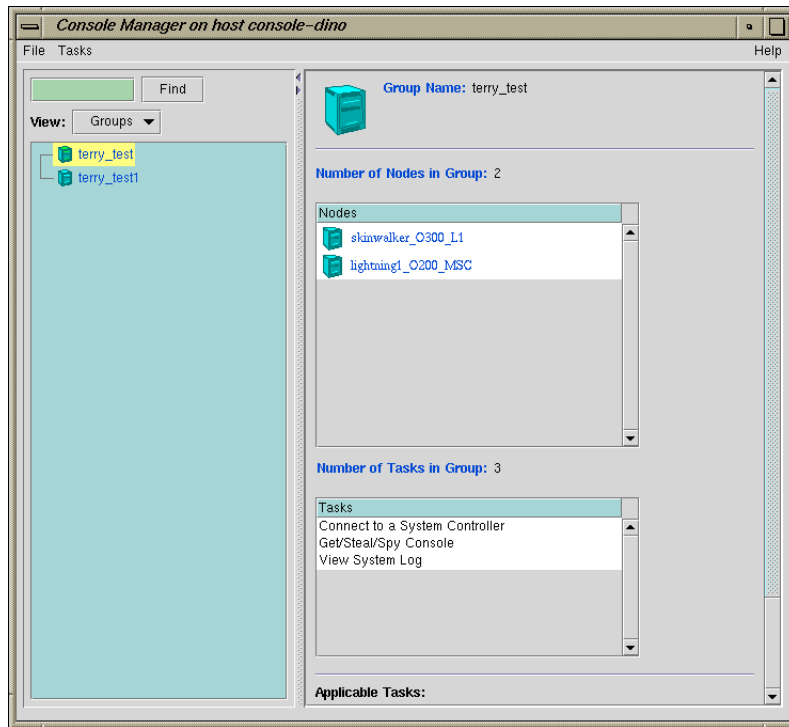


Figure 1-10 Detailed Console View for a Group

The **Find** button helps you to find node and user objects quickly. Figure 1-11 on page 28, shows an example of the **Find** button selected for **Nodes** and the **O2_mufasa** node name is entered in the **Find** button field to the left.

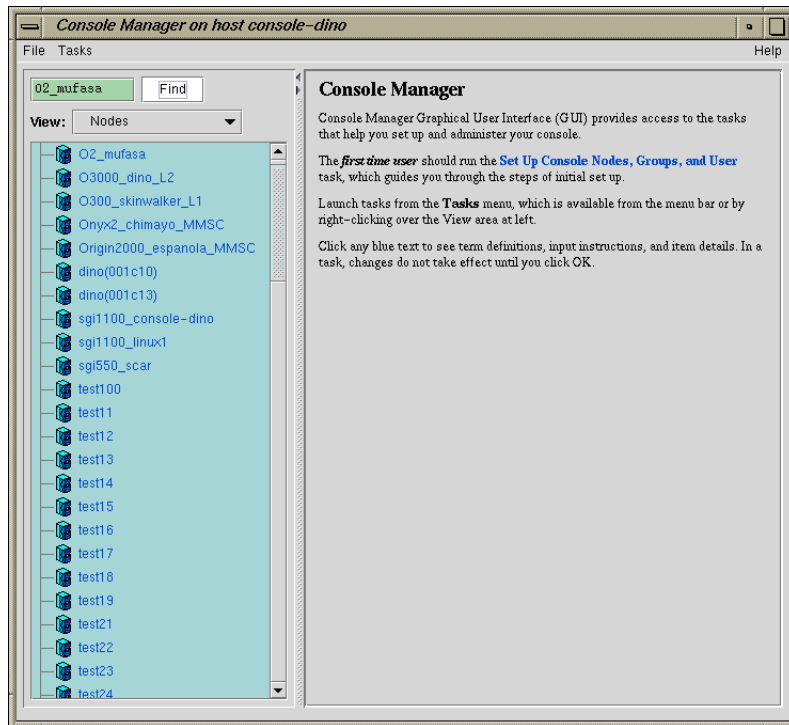


Figure 1-11 Find Button for Nodes and Users

SGIconsole Hardware Configuration

SGIconsole 2.x is a software only product. It requires a hardware platform and may require a serial multiplexer or Ethernet hub. For a list of recommended hardware to use with SGIconsole, see the *SGIconsole Hardware Connectivity Guide*.

Note: SGIconsole ships with the latest `snxsc_firmware` version available at release. If you later want to connect any new hardware to SGI console, you have to upgrade your `snxsc` firmware from the SGI Supportfolio website.

Command Line Interface to Console Manager

The `tscm(1)` command is a command line interface to Console Manager. It provides an interactive, menu-driven environment for performing console, logging, and power control operations on nodes configured in Console Manager.

SGIconsole automatically invokes the `tscm(1)` command when you successfully log into the SGIconsole server as follows:

```
% telnet -e '' sgiconsole_server
```

or, if the login service is reenabled, as follows:

```
% rlogin sgiconsole_server
```

Note: You can also start the command line interface (`tscm(1)`) under SSH by using the following command:

```
[root@ root]sgiconsole_machine# ssh sgiconsole_machine"
```

For non-root users, the `tscm(1)` interface starts automatically. For root users, at the shell prompt you can run `/usr/bin/tscm`.

For more information on secure console connections, see "SGIconsole and Security Under OpenSSH" on page 7.

Note: The `rlogin(1)` service is disabled by the `SGIconsole_startup` script by changing the `/etc/inetd.conf` file.

If you are logging into an SGIconsole server as root, `telnet` or `rlogin` leads you directly to a shell prompt. To run the text-based interface as root, simply enter:

```
[root@sgiconsole_server /root]# tscm
```

The following menu appears:

SGIconsole 2.1 Main Menu

| | |
|-------------------------------------|-------------------------------|
| 1. <code>scons [func] [node]</code> | Connect to System Console |
| 2. <code>ccons [func] [node]</code> | Connect to Controller Console |
| 3. <code>reset [node]</code> | Hardware Reset |
| 4. <code>nmi [node]</code> | Generate NMI |
| 5. <code>pwr [func] [node]</code> | Power On or Off |

- | | |
|-------------------|-----------------|
| 6. shell | Escape to Shell |
| 7. help [command] | Help |
| 8. quit | Quit |

When exiting from the Console Manager user interface, the `telnet(1)` or `rlogin(1)` session used to log into the SGIconsole server is closed automatically, logging you out of the system.

Commands can be entered as follows:

- An ordinal number representing a choice in the menu displayed, for example, 7 for help.
- The name of the command itself, in full, for example, `scons`
- The first letter of the command, for example, `r` for `reset`.

The `tscm(1)` command also supports limited recognition of command-line shortcuts as follows:

- You can specify a subcommand (`func`) along with the command on the command line without having the `tscm(1)` interface provide another menu, for example, `scons open`.
- You can specify the node argument of the command along with the command on the command line without having the `tscm(1)` interface provide another menu, for example, `pwr up eunice`.
- You can specify the first letter of every command word instead of specifying entire words on the command line, for example, `p u eunice`.
- If you use the first letter of command words, you can concatenate the letters together on the command line, for example, `pu eunice`

If you do not use these shortcuts, the `tscm(1)` command provides additional menus for the `scons` and `ccons` commands as follows:

```
SGIconsole> scons
```

```
SGIconsole 2.1 Console Menu
```

- | | |
|-----------------|-------------------------------------|
| 1. open [node] | Open a Console Connection |
| 2. view [node] | Open a Read-Only Console Connection |
| 3. steal [node] | Steal an Open Console Connection |
| 4. log [node] | Activate Console Logging |

- 5. nolog [node] De-activate Console Logging
- 6. return Return to Main Menu

The `tscm(1)` command also provides an additional menu for the `pwr` command as follows:

```
SGIconsole> pwr

SGIconsole 2.1 Power Menu

1. up [node]                      Power Up (On)
2. down [node]                    Power Down (Off)
3. return                         Return to Main Menu

Power>
```

The command entry specification for the sub-menus are the same as the main menu. The console menu is the same for the `scons` and `ccons` commands.

The shell command is the only command which does not follow these conventions. It has a special shortcut, `sh`.

There are additional special shortcuts to the `scons open` and `ccons open` commands. The following table shows these special shortcuts.

| Special Shortcut | Full command | Standard Shortcut |
|------------------|--------------|-------------------|
| s | scons open | so |
| c | ccons open | co |
| sh | shell | |

When specifying nodes, you can either specify nodes along with commands in the command line, or let the `tscm(1)` command produce a node menu as follows:

Please select from the list of available nodes, or the return option:

- 1. liz
- 2. surly
- 3. snort

- 4. grunt
- 5. return Return to Main Menu

Node>

The list of nodes produced in this menu is context sensitive to:

- The user running `tscm(1)`
- The command that is about to be applied

The `tscm(1)` command enforces the access controls that are configured by the root user using the Console Manager GUI. If you are not permitted to apply a particular command to a node, the node is not displayed in the node menu. Only the nodes for which you can execute a particular command are displayed.

If there is a long list of nodes displayed in the Node Menu, the menu is piped through the `more(1)` command to allow you to see the list of nodes without having to use a scrollable terminal. Press the space bar to see more nodes in the menu, or press `q` to stop listing the nodes and get to a `Node>` prompt to specify a node.

The `tscm(1)` command checks its commands and menu selections to ensure that a node specified is one that you can select. If you attempt to select a node that cannot be a target for a given command, one of the following messages appears:

Node> flip

```
Node "flip" is not selectable; the node is not defined.  
Node>
```

or

Node> liz

```
Node "liz" is not selectable;  
you do not have enough privileges  
to use the command on this node.  
Node>
```

The `tscm(1)` command relies on the SGIconsole server to report errors and other status messages. These messages are displayed by `tscm(1)` when an error condition or other status condition worthy of attention has been detected, but the messages are determined by the SGIconsole server itself, not by the `tscm(1)` command. Usually, these are the same messages that the Console Manager GUI would produce. Errors may appear because of connection failures to nodes or other connection issues that SGIconsole needs to alert you to.

Configuring Console Manager

This chapter describes various tasks you must perform to install and configure Console Manager software. It contains the following sections:

- "Installing Console Manager" on page 33
- "Starting the Console Manager GUI on the SGIconsole Server" on page 33
- "Quitting the Console Manager Graphical User Interface" on page 35
- "Installing and Configuring a Console Manager Client" on page 37
- "Access Controls in Console Manager" on page 40
- "Adding a Console User" on page 44
- "Adding Multiple Users" on page 47
- "Modifying a Console User" on page 49
- "Deleting a Console User" on page 51
- "Changing a Console User Password" on page 52

Installing Console Manager

For information on how to install the Console Manager and the rest of SGIconsole software, see *SGIconsole 2.x Start Here*.

Starting the Console Manager GUI on the SGIconsole Server

Procedure 2-1 Starting the Console Manager Graphical User Interface on the SGIconsole Server

To start the Console Manager GUI, follow these steps:

1. Make sure the SGIconsole machine, in which Console Manager resides, the servers and graphics systems supported by SGIconsole, and the SGI Ethernet serial port server are cabled as described in the *SGIconsole Hardware Connectivity Guide*.
2. Make sure all systems are powered on.

3. If you are running as root, to set your DISPLAY variable enter the following command:

```
export DISPLAY=hostname. engr.sgi.com:0.0
```

If you are **not** running as root, to set your DISPLAY variable enter the following command:

```
setenv DISPLAY hostname. engr.sgi.com:0.0
```

4. To start the Console Manager GUI, you can use the SGIconsole webpage interface or enter the following command in any window:

```
%/usr/bin/scmgr
```

A dialog box will appear prompting you to log in to an SGIconsole host. You can choose one of the following connection types:

- **Direct** creates a direct socket connection using the `tcpmux` TCP protocol.
- **Local** runs the server-side process on the local host instead of going over the network.
- **Remote Shell** connects to the server via a user-specified command shell, such as `rsh(1C)` or `ssh(1)`. For example:

```
ssh -l root servername
```

Note: For secure connection, choose **Remote Shell** and type a secure connection command using a utility such as `ssh(1)`. Otherwise, the Console Manager GUI will not encrypt communication and transferred passwords will be visible to users of the network.

To use `ssh(1)` security services, you must access Console Manager running the `scmgr` or `tscsm(1)` command under `ssh`. For more information, see "SGIconsole and Security Under OpenSSH" on page 7.

- **Proxy** connects to the server through a firewall via a proxy server.

The Console Manager GUI appears, as shown in Figure 2-1 on page 35.

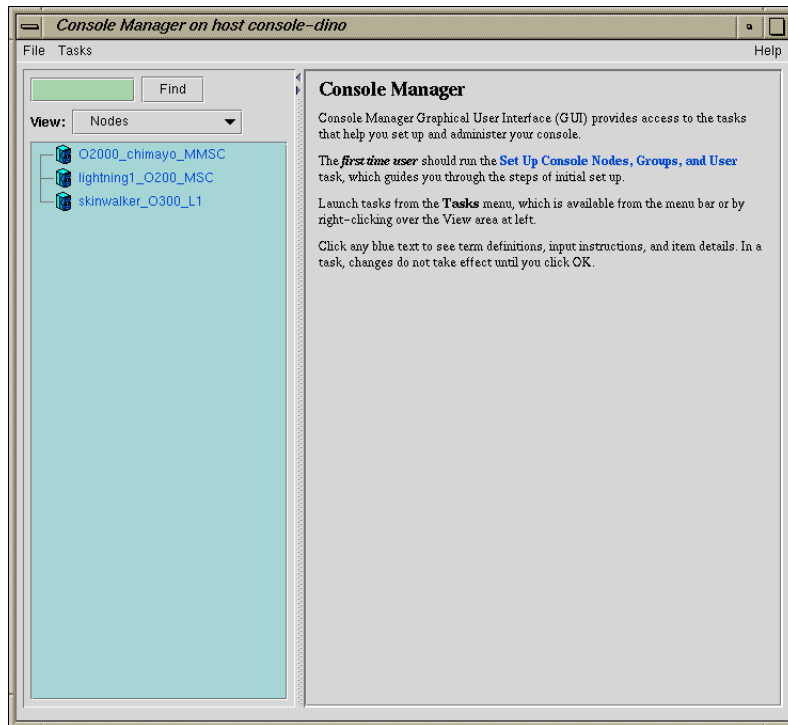


Figure 2-1 Console Manager GUI Main Window

Quitting the Console Manager Graphical User Interface

Procedure 2-2 Quitting the Console Manager Graphical User Interface

To quit the Console Manager GUI, perform these steps:

1. From the **File** pulldown menu, choose **Exit**, as shown in Figure 2-2 on page 36.

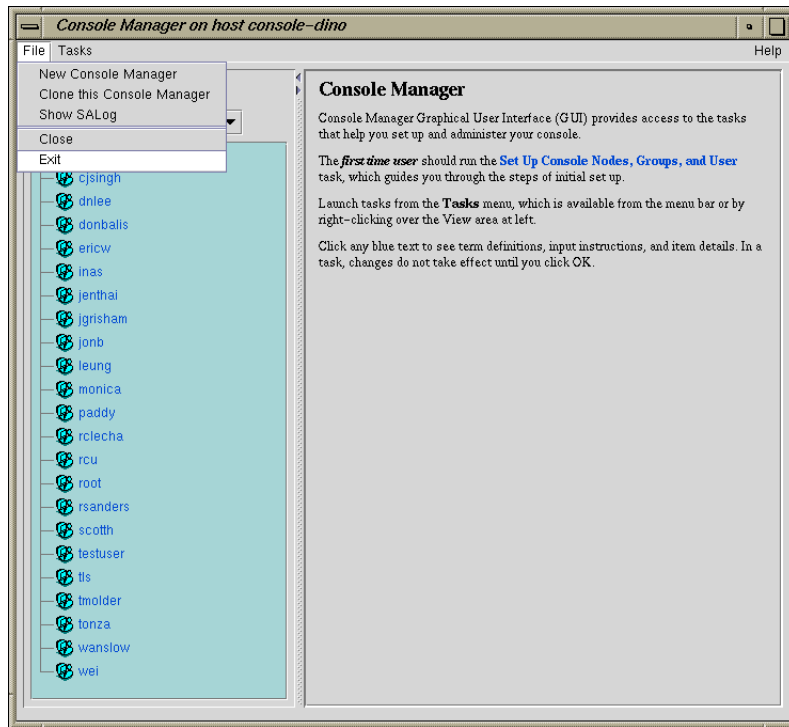


Figure 2-2 Quitting Console Manager

A confirmation message dialog box appears, as shown in Figure 2-3 on page 36.

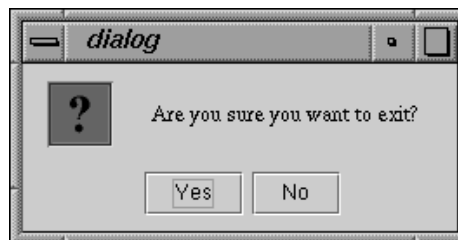


Figure 2-3 Software Control Confirmation Message Dialog Box

2. Click the **Yes** button.

Installing and Configuring a Console Manager Client

This section provides information on how to install and configure a Console Manager client for systems running the IRIX, Linux, or Windows operating system.

As with all Java applications, the performance of the Console Manager is affected by the performance of the machine you are running it on, as well as the implementation of the Java virtual machine used to run it.

If you run multiple invocations of Console Manager on the SGIconsole server, it can severely degrade performance of all SGIconsole services running on the server. This is because every user invocation of Console Manager requires many instances of `java(1)` or `jre(1)` running on the server. Running many instances of Java consumes system resources and can result in severely limiting the capacity of the server.

In addition, running Console Manager so that the display appears on a remote X server limits the graphics performance of the Console Manager because the network can become a bottleneck for sending display data to the remote X server.

Running a Console Manager client on machines other than the SGIconsole server itself, provides increased accessibility to the Console Manager GUI.

It is recommended that you run the Console Manager client on machines that are comparable in performance to the SGIconsole server itself, that are not heavily loaded with other processes, and that have ample memory resources.

This section covers the following topics:

- "Installing and Running Console Manager" on page 37
- "Running Console Manager Client on Windows" on page 39
- "Changing the MS-DOS Environment Size" on page 39

Installing and Running Console Manager

This section describes how to start the Console Manager GUI for SGIconsole on a client machine and covers the following topics:

- "`cmgr` Script and `CMGR.BAT` Batch File" on page 38

- "Requirements" on page 38
- "Running Console Manager Client on IRIX or Linux" on page 38

cmgr Script and CMGR.BAT Batch File

To start the Console Manager GUI for SGIconsole on a client machine instead of on the SGIconsole server machine, use the `cmgr` script for systems running IRIX or Linux and use the `CMGR.BAT` batch file for systems running Windows.

Requirements

To install the Console Manager client software, all that is necessary is that the `ConsoleManager-Client` directory on the SGIconsole CD be copied to anywhere on the filesystem of the client machine, as long as the directory structure inside the `ConsoleManager-Client` directory remains intact.

To use the Console Manager on a client machine, the client machine must be one of the following:

- An SGI workstation running IRIX 6.5 or later and Java2 1.4.1 for IRIX
- A Pentium-based PC running a recent Red Hat Linux release and Sun Microsystems' Java2 1.4.1 for Linux. See the current release of the *SGIconsole 2.x Start Here* for information about Red Hat Linux releases running on SGIconsole.
- A Pentium-based PC running Windows 98, 2000, or XP and Sun Microsystems' Java2 1.4.1 for Windows.

Java2 1.4.1 must also be installed on the client machine, either via the Java Runtime Environment (JRE) or the Java Development Kit (JDK). All JREs supported for use with SGIconsole are provided on the SGIconsole CD (the Sun Java2 1.4.1 RPM can be found in the directory `/SGI/RPMS` on this CD).

Running Console Manager Client on IRIX or Linux

To run the Console Manager on the client machine, enter the following:

```
% cd ConsoleManager-Client
% cmgr &
```

`ConsoleManager-Client` is the directory that has been copied from the SGIconsole CD to start the Java application.

Note: You must change directory to where the `cmgr` or `CMGR.BAT` scripts exist on your filesystem, otherwise `cmgr` will not be able to find the required Java jar archives.

Running Console Manager Client on Windows

To run the Console Manager using Windows Explorer, perform the following:

1. Locate the `CMGR.BAT` script on your filesystem
2. Perform this one-time setup, since the working directory needs to be set in the MS-DOS environment in order for `CMGR.BAT` to find the required Java jar files:
 - a. Right-click the **CMGR.BAT** icon and select **Properties** in the popup menu.
 - b. Select the **Program** tab.
 - c. Enter the same path in the **Working** field as it exists in the command line field, excluding `CMGR.BAT` at the end of the field.
 - d. Click on the **OK** button in the dialog box.
3. Double-click on the icon to run the script in a virtual MS-DOS session.

Note: For Windows 98 systems, it may be necessary to change the amount of environment memory assigned to MS-DOS sessions for `CMGR.BAT` to function properly (see "Changing the MS-DOS Environment Size" on page 39).

Changing the MS-DOS Environment Size

To change the MS-DOS environment size, perform the following steps:

1. Right-click the **CMGR.BAT** icon in Windows Explorer and select **Properties** in the popup menu.
2. Select the **Memory** tab.
3. Select the **Initial Environment** field's popup menu, and select a value of 1024 bytes or more.

If the `CMGR.BAT` file is in deeply nested directories, a larger amount of environment memory may need to be assigned.

If you do not see a **Memory** tab in the **Properties** window, then Windows manages this memory automatically.

Other properties can be set for `CMGR.BAT` as desired.

Access Controls in Console Manager

Access controls in `SGIconsole` prevent users from issuing unauthorized operations to the Console Manager server.

All Console Manager operations that can be operate on nodes can be protected using Console Manager's access control mechanism.

This section describes the following topics:

- "Setting up Access Controls" on page 40
- "Seeing the Effects of Access Controls to Nodes and Tasks" on page 42

Setting up Access Controls

Console Manager supports the concept of *groups*. A group is a list of nodes that a user can access and the list of tasks that a user can apply to any node in the list of nodes. A user can be a member of more than one group, thus providing access to a union of particular named sets of access controls.

If a user is not assigned to any group, the user has access to all nodes configured in Console Manager and can apply any task to any node.

There are some tasks that only a root console user can perform. These tasks are specifically for the administration of Console Manager. These tasks are as follows:

- **Add a Node**
- **Add a New Console User**
- **Modify a Console User**
- **Delete a Console User**

- **Add Console Users**
- **Add a Management Group**
- **Modify a Management Group**
- **Delete a Management Group**

The following task can be performed by either a root user or the owner of the user account:

- **Change a Console User Password**

Availability of all other tasks are governed by access controls.

Note: A Console Manager root user has access to all tasks. If you are the root user, you can never assign any access controls yourself.

To apply access controls to users, as Console Manager root user, you need to perform the following:

- Use the **Add a Node** task to create nodes, if they do not already exist.
- Use the **Add a Management Group** task to create a new management group.
- Use the **Add a New Console User** task to create new users, unless you want to apply access controls to existing users.
- Use the **Modify a Console User** task to associate the newly created groups with existing users.
- Use the **Set up Console Nodes, Groups, and Users** task to be guided through the steps.

The **Add a Management Group** task dialog is where new management groups are created (see "Adding a Management Group" on page 70).

Console Manager also provides controls to change existing group definitions, to delete groups, and to disassociate groups from existing users. Console Manager automatically keeps track of user and group associations. If a group is removed, the association of users with that group is also removed. The processes of changing groups and group assignments are easy to understand and execute. Everything required to administer groups is available using the following **Management Group** set of tasks:

- "Adding a Management Group" on page 70
- "Modifying A Management Group" on page 73
- "Deleting a Management Group" on page 75

Seeing the Effects of Access Controls to Nodes and Tasks

When you log in and access controls are in force, you may notice the following:

- The list of available nodes may be reduced in the **Nodes** view of the Console Manager window.
- The list of available tasks may be reduced in the **Applicable Tasks** list of the **Nodes** view of the Console Manager window.
- Some tasks may return dialog boxes that state the user does not have permissions to apply particular tasks to nodes.

Gaining Console Access without Using an X Server

This section describes how to get to a console from a Windows installation that does not have an X Window System server installed.

Microsoft Windows does not provide X Window System services without additional third party software. Normally, the X Window System is required for SGIconsole to be able to make a connection to your display using the `xterm(1)` client application whenever SGIconsole is instructed to open a console connection to a node.

If you do not have an X Window System server running on your system, you cannot use `xterm(1)` to connect to your display. However, you can still connect to a console managed by SGIconsole by using the Windows telnet application (`TELNET.EXE`) to log into the SGIconsole server directly to use the text-based interface to SGIconsole.

Procedure 2-3 Making a Telnet connection to the SGIconsole Server

In order to gain access to a console from within Windows, run the telnet application, and open a connection to the SGIconsole server using the **Remote System...** item in the **Connect** menu. The login prompt appears as follows:

```
Red Hat Linux release x.x (Zoot)
Kernel 2.2.16-4SGI_39 on an i686
login: _
```

After you login the following menu appears:

```
=====

Welcome to SGIconsole 2.1

To learn about the SGIconsole 2.1 release, its new features,
changes, known problems, and workarounds, read this file:
  /usr/doc/SGIconsole-2.1/README

If configuring the system for the first time, refer to
SGIconsole Start Here for guidance.
```

If `tscm(1)` is configured to start automatically on your system, the following text appears:

```
Automatically starting SGIconsole (to get to a shell,
enter 6 at the command line prompt).
```

The text-based console interface follows:

```
SGIconsole 2.1 Main Menu

1. scon [func] [node]      Connect to System Console
2. ccons [func] [node]    Connect to Controller Console
3. reset [node]           Hardware Reset
4. nmi [node]             Generate NMI
5. pwr [func] [node]      Power On or Off
6. shell                  Escape to Shell
7. help [command]        Help
8. quit                   Quit

SGIconsole>
```

You can use the `scon`s and `ccons` commands to obtain consoles to available nodes, which will appear within the telnet session.

For more information on using the `tscm` text-based interface to SGIconsole, see "Command Line Interface to Console Manager" on page 29 and the `tscm(1)` man page.

Adding a Console User

Procedure 2-4 Adding a Console User

This task allows you to create a console user. This task is only executable by the root console user. You must specify a user name.

If you are adding a new user that does not exist as a system user or NIS user, a password is required.

If you are adding a user that exists as a system user or NIS user, a password is optional.

Both the name and the password must not be longer than 8 characters.

SGIconsole access control is accomplished through groups. A user can belong to 0 to n groups. If no group is assigned, the user has access to all nodes and tasks.

To verify a user's privilege, click on the user on the tree view panel. Group tasks and user tasks (except to change a user password) are only executable by the root user. If a user attempts to execute a task for which they do not have privilege, a dialog box appears to inform the user they are not authorized to perform the task. A user can only view nodes on which the user has privilege to work.



Caution: When adding, modifying, or deleting users from Console Manager, the `UID_MIN` value is set to a value of 500 or greater in the `/etc/login.defs` configuration file on the SGIconsole machine.

When loading user accounts via network information service (NIS), a site may have users with UIDs below the `UID_MIN` of 500. Console Manager returns an error for these users.

To avoid this problem without changing the affected users' NIS accounts, perform the following:

- Add the users with UIDs causing errors manually after all NIS users have been added. These users, however, will have different UIDs in SGIconsole than on the rest of the network.
 - Manually change the `UID_MIN` and `GID_MIN` values in `/etc/login.defs` to be less than the lowest UID to be added for SGIconsole access. This can interfere with existing privileged accounts on the SGIconsole system.
-

To create a group, use the **Add a Management Group** task (see "Adding a Management Group" on page 70).

To add a Console user, follow these steps:

1. From the **Tasks** menu, choose the following, as shown in Figure 2-4 on page 45.

Console Users Tasks
 > **Add a new Console User**

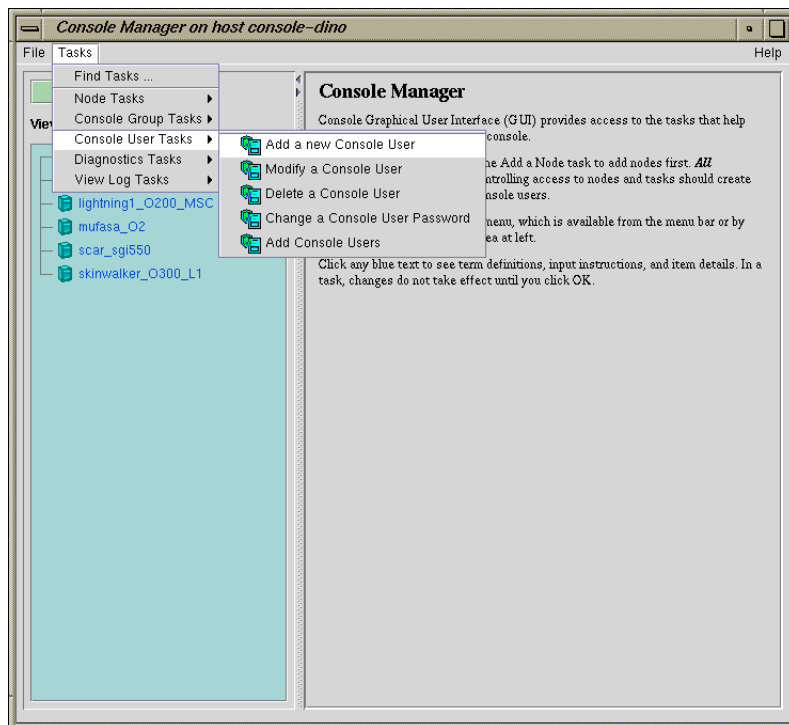


Figure 2-4 Add a new Console User Task

2. The **Add a new Console User** dialog box appears, as shown in Figure 2-5 on page 46.

Note: In every Console Manager task, you can click any blue text to see instructions on how to fill in a field.

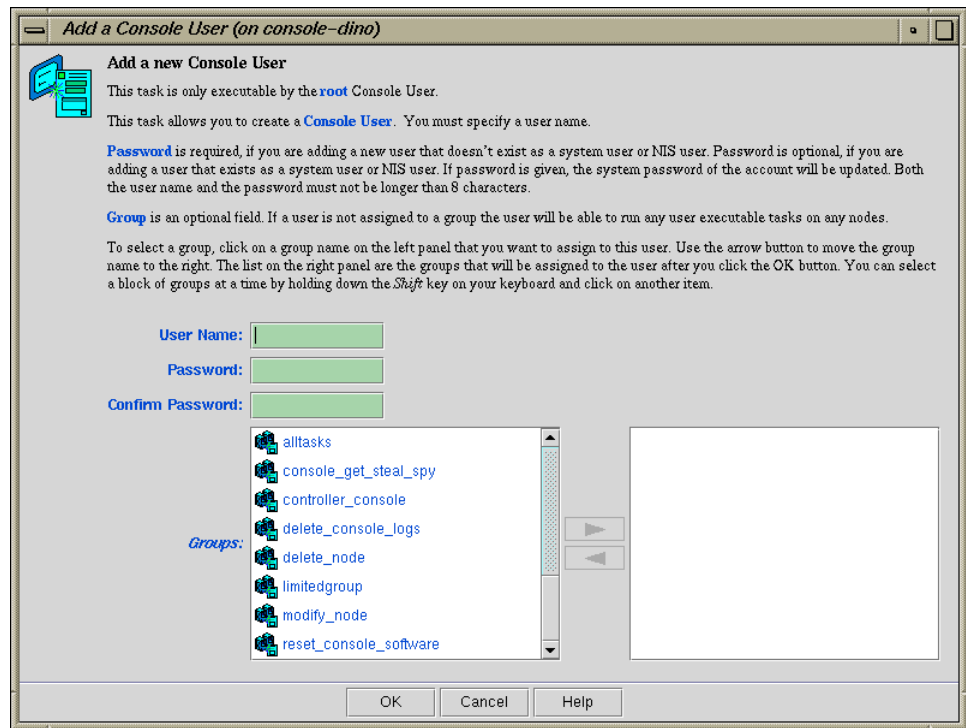


Figure 2-5 Add a new Console User Dialog Box

3. Enter the new user's login and password.
4. Click on the group names in the left field which you want to assign to this user. Use the arrow button to move the group name to the right field.

Note: You can select a block of groups at a time by holding down the Shift key on your keyboard and clicking on another item.

5. Click the **OK** button.

You will get an error message if the task fails.

The user icon entry appears on the **View** panel.

Adding Multiple Users

Procedure 2-5 Adding Multiple Users

This task allows you to add multiple users at the same time. This task is only executable by the root console user. The new users are modeled after the **Template User**. The list of new console users are listed in the console users file residing on either the SGIconsole server on some other machine accessible by the SGIconsole server.

1. From the **Tasks** menu, choose the following, as shown in Figure 2-4 on page 45.

Console Users Tasks
 > **Add Console Users**

2. The **Add Console Users** dialog box appears, as shown in Figure 2-6 on page 48.

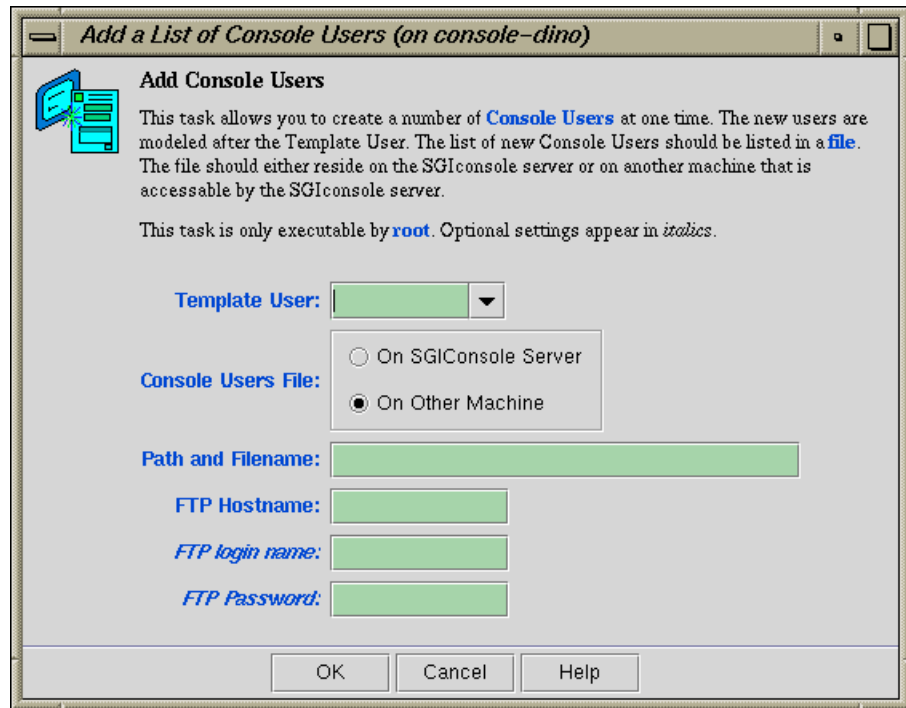


Figure 2-6 Add Console Users Dialog Box

3. In the **Template User** field, select the template account you wish to use.

The template user field specifies an existing account from which to copy group and password information within SGIconsole's user database. The group list and password are copied to all new accounts specified and accepted in the user list file. It is assumed that this "template" user account has already been created before importing user lists. The root account cannot be used as the template account.

4. In the **Console Users File** field, select **On SGIconsole server** or **On Other Machine**.

The file format for importing a list of users is a simple list of user names, each name on its own line. Comments are supported, as long as the # character appears as the first character of the line. Empty lines (or lines with only

white-space) are ignored. User names longer than 8 characters are not accepted (although it does not terminate processing of the file). An example is as follows:

```
# Sample import list file
jack
may
faith
zoe
```

The option to read user lists from a file on the SGIconsole server requires that the file exists on the filesystem of the SGIconsole server; specifying the FTP server, username and password is not required

5. In the **Path and Filename** field, enter the path and name of the file containing the user list.
6. In the **FTP Hostname** field, enter the FTP hostname.
7. In the **FTP login name** field, enter your login name.
8. In the **FTP Password** field, enter your password.
9. Click the **OK** button.

Modifying a Console User

Procedure 2-6 Modifying a Console User

This task allows you to modify a console user. This task is only executable by the root console user. You must specify the user name. You can use this task to change the groups to which a user belongs.

To modify a console user, follow these steps:

1. From the **Tasks** menu, choose the following:

Console Users Tasks
 > **Modify a Console User**

2. The **Modify a Console User** dialog box appears, as shown in Figure 2-7 on page 50.

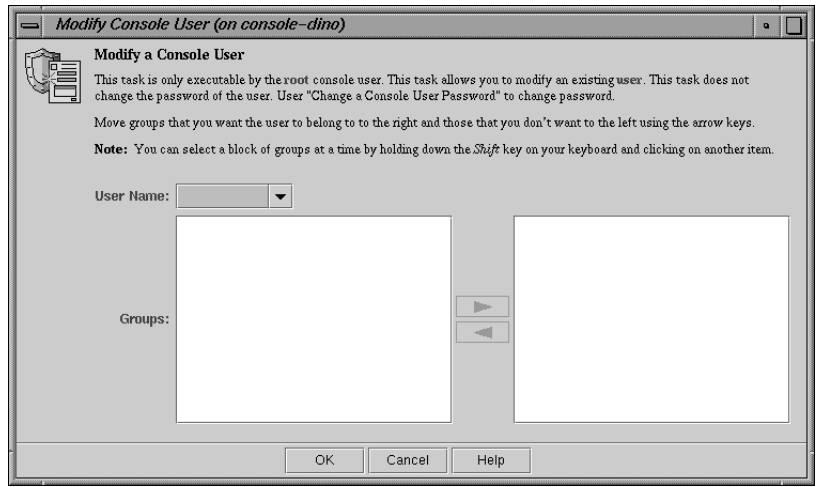


Figure 2-7 Modifying a Console User Dialog Box

3. Enter the user's login name
4. Click on the group names in the left field which you want to assign to this user. Use the arrow button to move the group name to the right field. Click on the group names in the right field from which you want to remove this user. Use the arrow button to move the group name to the left field.

Note: You can select a block of groups at a time by holding down the `Shift` key on your keyboard and clicking on another item.

If the user is **not** assigned to any group, the user has access to all Console Manager tasks (except for administration tasks that only the root user can perform) for every node defined in the system. This provides the same access rules as those originally provided in the SGIconsole 1.0 release.

Note: Removing all group memberships for a user effectively removes all access permissions on selected nodes and tasks for that user.

5. Click the **OK** button.
You will get an error message if the task fails.

Deleting a Console User

Procedure 2-7 Deleting a Console User

This task allows you to delete a user. The task is executable only by the root console user and you must specify the root password. This task only removes this user from the console user list. If you select **Also Delete User Account**, you also delete the user account.

To delete a Console Manager user, follow these steps:

1. From the **Tasks** menu, choose the following:

Console Users Tasks
 > **Delete a Console User**

2. The **Delete a Console User** dialog box appears, as shown in Figure 2-8 on page 51.

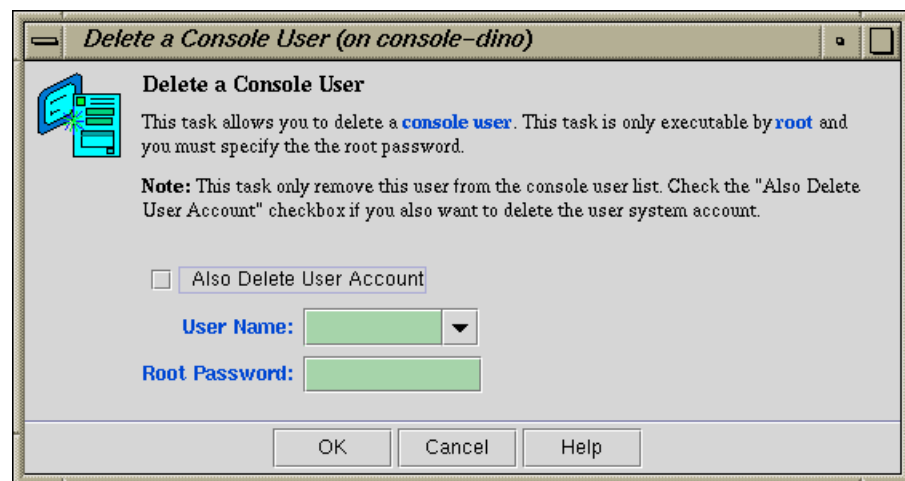


Figure 2-8 Delete a Console User Dialog Box

3. Enter the user name.
4. Click the **Also Delete User Account** button if you also want to remove the user account
5. Enter the root password.

6. Click the **OK** button.

You will get an error message if the task fails.

The user icon entry is removed from the **View** panel.

Changing a Console User Password

Procedure 2-8 Changing a Console User Password

This task allows you to change a console user password. It can be executed by any console user.

To change a console user password, follow these steps:

1. From the **Tasks** menu, choose the following:

Console Users Tasks

> Change a Console User Password

2. The **Change a Console User Password** dialog box appears, as shown in Figure 2-9 on page 53.



Figure 2-9 Change a Console User Password Dialog Box

3. Enter your user name, your current password, and your new password.
4. Click the **OK** button.

An error message appears if the task fails.

Configuring Sites

This chapter describes various tasks you must perform to complete the initial configuration your site. It contains the following sections:

- "Guided Configuration for Setting up Console Nodes, Groups, and Users" on page 55
- "Adding a Node" on page 58
- "Deleting Nodes" on page 67
- "Modifying a Node Configuration" on page 68
- "Adding a Management Group" on page 70
- "Modifying A Management Group" on page 73
- "Deleting a Management Group" on page 75

Guided Configuration for Setting up Console Nodes, Groups, and Users

This task leads you through the steps to create Console Manager nodes, groups, and users. All Console Manager tasks, including the tasks grouped together in this task, can be launched from Console Manager.

Note: In every Console Manager task, you can click any blue text to see instructions on how to fill in a field.

As you create components on your system, you can use the **Nodes**, **Users**, and **Groups** views in the Console Manager window for visual feedback of your progress (see "Console Manager View" on page 23).

To add nodes, groups, and users to Console Manager, follow these steps:

1. From the **Tasks** pulldown menu, choose the following, as shown in Figure 3-1 on page 56.

Guided Configuration > Set up Console Nodes, Groups, and Users

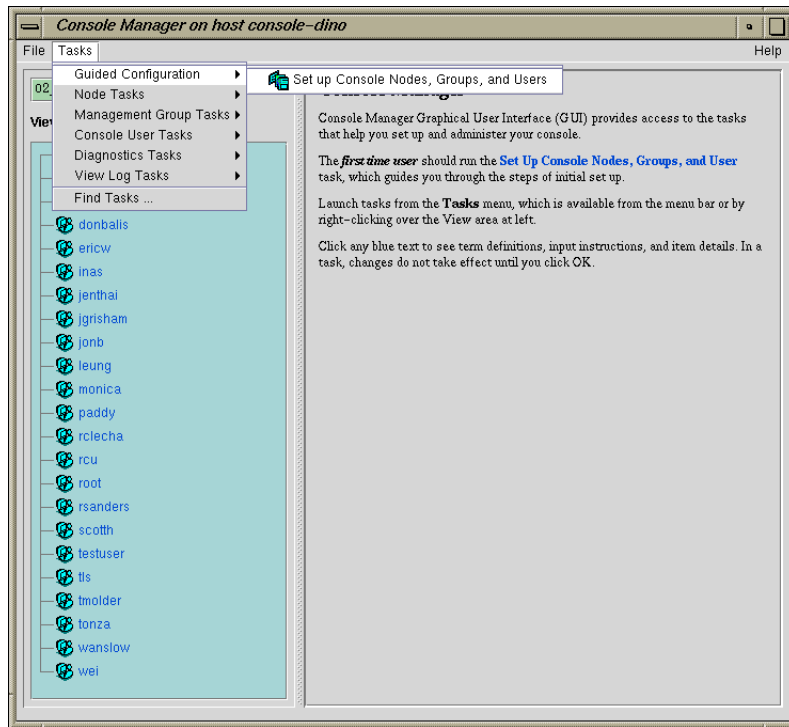


Figure 3-1 Guided Configuration for Setting up Nodes, Groups, and Users

The Set up Console Nodes, Groups, and Users dialog box appears, as shown in Figure 3-2 on page 57.

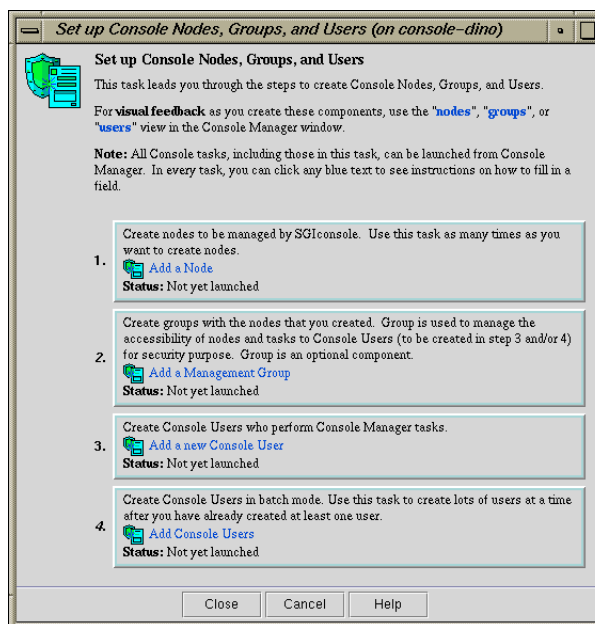


Figure 3-2 Set up Console Nodes, Groups, and Users Dialog Box

2. Perform the following steps:
 - a. Click on the **Add a Node** button. For information on this task, see "Adding a Node" on page 58.
 - b. Click on the **Add a Management Group** button. For information on this task, see "Adding a Management Group" on page 70.
 - c. Click on the **Add a new Console User** button. For information on this task, see "Adding a Console User" on page 44.
 - d. Click on the **Add Console Users** button. For information on this task, see "Adding Multiple Users" on page 47.

An error message appears if a task fails.

An icon entry appears on the **View** panel when adding users, groups, and nodes.

3. Click the **Close** button.

Adding a Node

Procedure 3-1 Adding a Node

This task lets you define a new node. The task is executable only by the root console user. After defining the node, you can use Console Manager to perform functions such as reset, power up, power down, get console, and spy console by running tasks from the **Node Tasks** pulldown menu.

The following tables shows which fields are required for various node types (see step 2 for more information on node types):

| Node Type | Fields Required |
|-----------------------------------|--|
| All Nodes | Node name, user name, hostname for this node |
| L2 | Partition number, L2 address, system controller password (optional), |
| L1 | System Controller TTY device name |
| MSC | System controller TTY device name, console TTY device name, system controller password (optional), Serial speed. |
| MMSC | System controller TTY device name, system controller password (optional). |
| No Management Port (Console Only) | No Management Port (Console Only) supports console connections to servers that are not from SGI. This management port type appears in the Nodes view as SCO (Serial Console Only). |

To add a node to Console Manager, follow these steps:

1. From the **Tasks** pulldown menu, choose the following, as shown in Figure 3-4 on page 60.

Node Tasks
> Add a Node

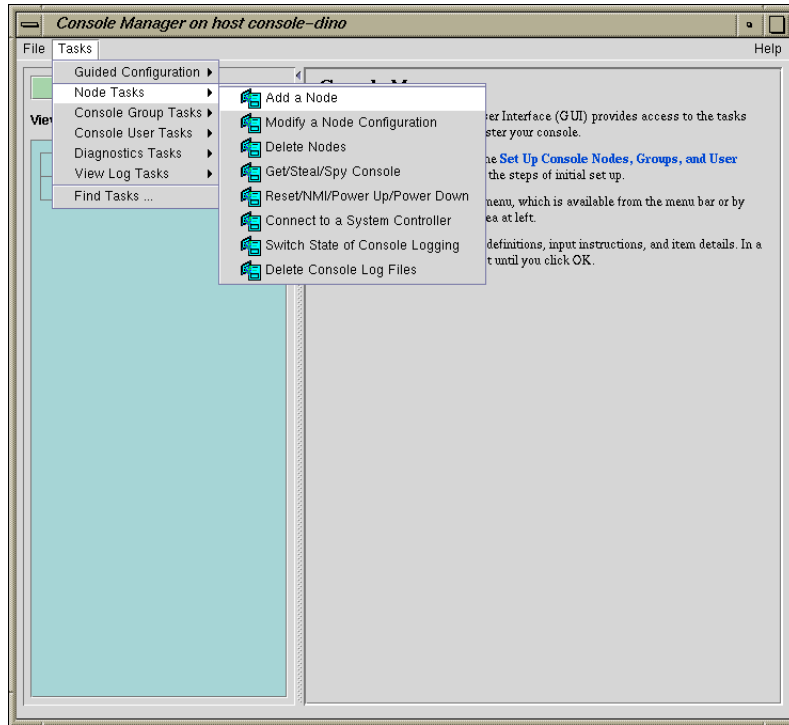


Figure 3-3 Node Tasks Pulldown Menu

The **Add a Node Dialog** dialog box appears, as shown in Figure 3-4 on page 60.

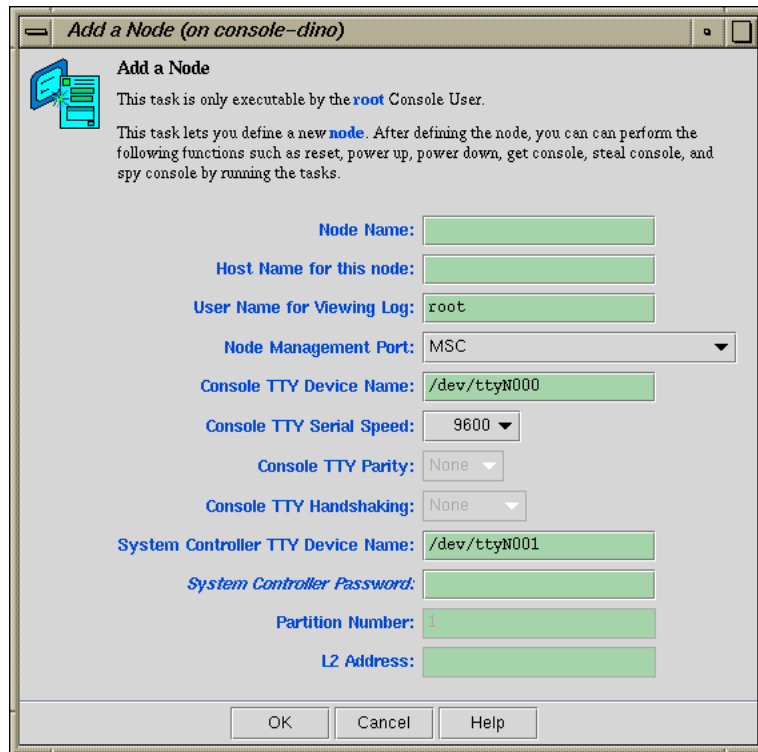


Figure 3-4 Add a Node Dialog Box

2. In the **Add a Node** dialog box fields, add the following information:
 - **Node Name:** The name you want to assign to this node, such as lightning1.
 - **Host Name for this node:** Hostname of the node you are defining, such as mynode.company.com.

The host name is for ssh(1) access to the node managed by the Console Manager. The host name provided should be a fully-qualified hostname (or whatever the hostname is recorded as in the SGIconsole user account's .ssh/known_hosts file if it already appears there). The hostname is used by other Console Manager tasks to implement other SGIconsole services.

- **User Name for Viewing Log:** Example: root user. This user name is used to log into the node to obtain the logs to display, such as the system logs (`syslog`) of the server and the system controller logs of the server.
- **Node Management Port:** From the **Node Management Port** pulldown menu (see Figure 3-5 on page 63) choose one of the following node types:

Note: When you select a type, the non—applicable fields are deactivated.

Note: Console Manager supports the following nodes: SGI Origin 200, SGI Origin 2000, Silicon Graphics Onyx2, SGI Origin 300, SGI Origin 3000, SGI Altix 350, SGI Altix 3000 family of servers and superclusters, Silicon Graphics Prism Visualization System, SGI Origin 300 with a NUMULink module and a Silicon Graphics Onyx 3000. Any node that does not support MMSC, MSC, L1, or L2 protocols will not work, with the exception of SCO (Serial Console Only) connections.

Console connections to servers that are not from SGI are supported by the **No Management Port (Console Only)** management port type.

- **02000 Single Module (MSC)** SGI Origin 2000 system with a single module System Controller (MSC).
- **02000 Rackmount Module (MMSC)** SGI Origin 2000 rackmount system with a multimodule System Controller (MMSC).
- **0200 (MSC)** SGI Origin 200 system with MSC.
- **03000 (L2)** SGI Origin 3000 system with rack-level L2 system controllers.
- **03000 (L2)** SGI Altix 3000 system with rack-level L2 system controllers.
- **0300 (L1)** SGI Origin 300 system with an L1 system controller or an SGI Origin 3200C system with an L1 system controller or an SGI Altix 350 system.
- No Management Port (Console only) supports connections to servers that provide access to consoles using the RS-232 serial interface. This management port type appears in the **Nodes** view as SCO (Serial Console Only).

Once a node using this port type is defined, accessing consoles is the same as accessing consoles for nodes of other management port types, except for the following:

- SCO does not support controller consoles and controller console logging, since it is assumed that there is no controller to contact.
- SCO provides support for serial communications using 8 data bits, 1 stop bit, under a wide selection of serial port speeds from 50 bps to 115200 bps (all selectable speeds common to Linux and IRIX). Parity and handshaking parameters for the serial port connection can also be specified.
- Power and reset functions are disabled under SCO, since this support requires a controller (in which case, another management port type will need to be used).
- SCO supports the terminal BREAK signal. The reception of the command used to issue this signal is recognized for both `telnet(1)` and non-telnet client connections (SGIconsole uses `telnet(1)` client connections to connect to consoles).

To use the SCO management port type, connect the device for which you want console access to an available port on your multiplexer and configure SGIconsole to use a serial port device (`/dev/ttyNxxx`) that corresponds to the port used on the multiplexer. You also need to provide the required serial port settings and other parameters, such as, node name and other corresponding network and identification information for the device.

Note: The names of EtherLite serial devices are determined at SGIconsole installation and configuration time via the `SGIconsole_startup` script (for more information see the *SGIconsole 2.x Start Here*). The unit ID assigned for a given EL-16 or 160 device determines what the `/dev/ttyIDxx` names actually are for that unit. This guide uses `N0` as the unit ID for illustrative purposes (since it was the unit ID assigned by default by earlier EtherLite drivers for earlier versions of SGIconsole).

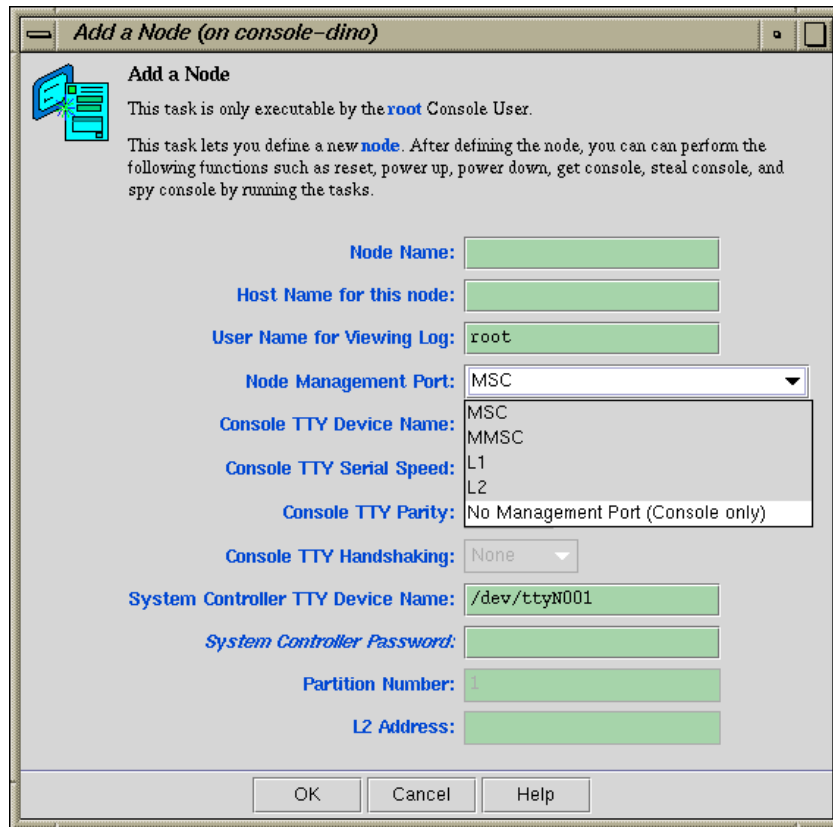


Figure 3-5 Node Management Port Pulldown Menu

- **Console TTY Device Name:** The device name of the port that is connected to the console port on the node, such as `/dev/ttyN011`, which would be port 12 on the EL-16 unit. This field is not applicable for L2 management port type.
- **Console TTY Serial Speed:** If you selected the **02000 Single Module (MSC)** or **0200 (MSC)** Management Port type from the pulldown menu, select one of the following baud rates: 300, 1200, 2400, 4800, 9600, 19200, 38400, or 57600, as shown in Figure 3-6 on page 64.

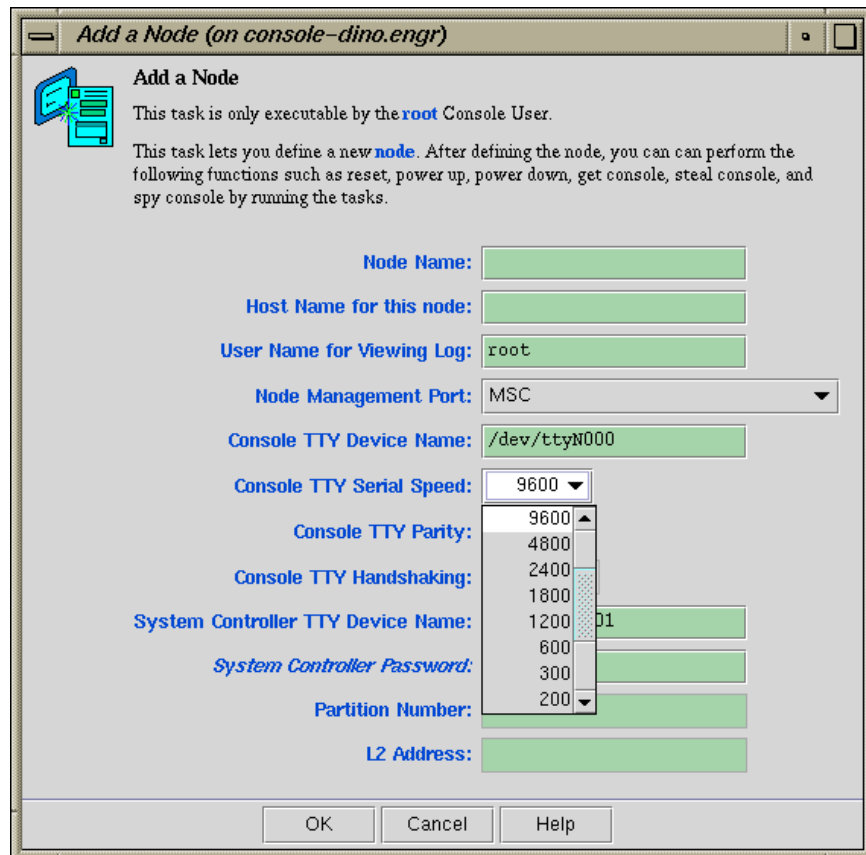


Figure 3-6 Console TTY Serial Speed Pulldown Menu

For MMSC and L2 Management Port types, this field is disabled.

- **Console TTY Parity:** For serial ports, the parity of the signal and the mode of handshaking (and speed) has to be set match the device. For L1, L2, MSC, MMSC connection types, this field is grey because the value is known by default. If you wanted to add an L2 management port type as a serial only node, you would set the parity and handshaking as follows:
 - Speed: 38400
 - Parity: None

- Handshakeing: RTSCTS
- **Console TTY Handshaking:** For serial ports, the parity of the signal and the mode of handshaking (and speed) has to be set match the device. For L1, L2, MSC, and MMSC connection types, this field is gray because the value is known by default. For more information, see the **Console TTY Serial Parity** field description.
- **System Controller TTY Device Name:** Name of the terminal port (TTY) on the EL-16 unit to which the system controller is connected, such as `/dev/ttyN012`. The other end of the cable connects to this node's system controller port, so the node can be controlled remotely by the other node.
- **System Controller Password:** The password for the system controller port, **not** the node's `root` password or PROM password. On some machines, the system administrator may not have set this password. If you wish to set or change the system controller port password, consult the hardware manual for your node.
- **Partition Number:** Uniquely defines a partition in a partitioned SGI Origin 3000 system or SGI Altix 350 or SGI Altix 3000 systems. Valid partition numbers range from 1 to 256. This is a required parameter for SGI Origin 3000 or SGI Altix 3000 systems with an L2 controller. If your system is not partitioned, enter zero in this field.
- **L2 Address:** L2 system controller Internet Protocol (IP) address of the private network or hostname. You can either enter a resolvable hostname, a fully qualified hostname, such as *name.sgi.com* or an IP address, such as *192.1.2.3*. This is a required parameter for SGI Origin 3000 and SGI Altix 3000 systems with an L2 controller.

Note: The SGIconsole startup script sets up dynamic host configuration protocol (DHCP) configuration for the L2 controller such that L2 controller is configured with same IP address. This IP address is specified by the user when startup script is run. Console Manager assumes that the IP address of the L2 controller never changes and node configuration has to be changed if the IP address is changed.

If L2 controller is rebooted, or the network connection to the L2 controller otherwise interrupted, it may be necessary to close all console connections to the L2 controller and open new ones. For more information on the SGIconsole startup script, see the *SGIconsole 2.x Start Here*.

You can use the `cfg` command from the `>L2` prompt to determine the address of an existing L2 controller. For information on connecting to the L2 controller from Console Manager, see "Connecting to the System Controller for a Node" on page 81.

For information on how to find the L2 address on a new L2 controller, see Procedure 3-2 on page 66.

Procedure 3-2 Determining the L2 Address of a New L2 Controller

To find the L2 address of a new L2 controller, perform the following:

1. To ensure you can always use the `l2find` command from the L3 controller, follow the instructions in "Configuring SGIconsole" in chapter 3 of the *SGIconsole 2.x Start Here* on how to configure `eth1`.
2. Use the `/stand/sysco/bin/l2term` command to connect to the L2 controller.
3. At the `>L2` prompt, enter an exclamation sign (!) to enter the Linux shell as follows:

```
sling-001-L2>!
```

4. From the Linux shell, use the `ifconfig eth1` command to find the MAC address for the L2 controller as follows:

```
eth1 Link encap:Ethernet HWaddr 08:00:69:11:A8:38
inet addr:128.162.243.107 Bcast:128.162.243.255 Mask:255.255.255.0
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:7595296 errors:0 dropped:0 overruns:0 frame:12
TX packets:1853383 errors:1853383 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:100
RX bytes:626933763 (597.8 Mb) TX bytes:139280989 (132.8 Mb)
Base address:0xe00
```

The MAC address in this example is `HWaddr 08:00:69:11:A8:38`.

5. From the Linux shell, enter `exit` to return to the L2 controller as follows:

```
sh-2.03# exit
exit
sling-001-L2>
```

6. From the >L2 prompt, use the `ip` command to set the IP address.
 7. Enter the IP address and MAC address for the L2 in the `/etc/dhcpd.conf` file on the SGIconsole system in case the L2 controller broadcasts for an address in the future (for example, after firmware upgrade.)
- Click the **OK** button.
- An error message appears if the task fails.
- An icon entry appears on the **View** panel.

Deleting Nodes

Procedure 3-3 Deleting a Node

This task allows you delete a node or group of nodes.

To remove a node from Console Manager, follow these steps:

1. From the **Tasks** pulldown menu, choose the following, as shown in Figure 3-4 on page 60.

Node Tasks
 > **Delete Nodes**

The **Delete Nodes** dialog box appears, as shown in Figure 3-7 on page 68.

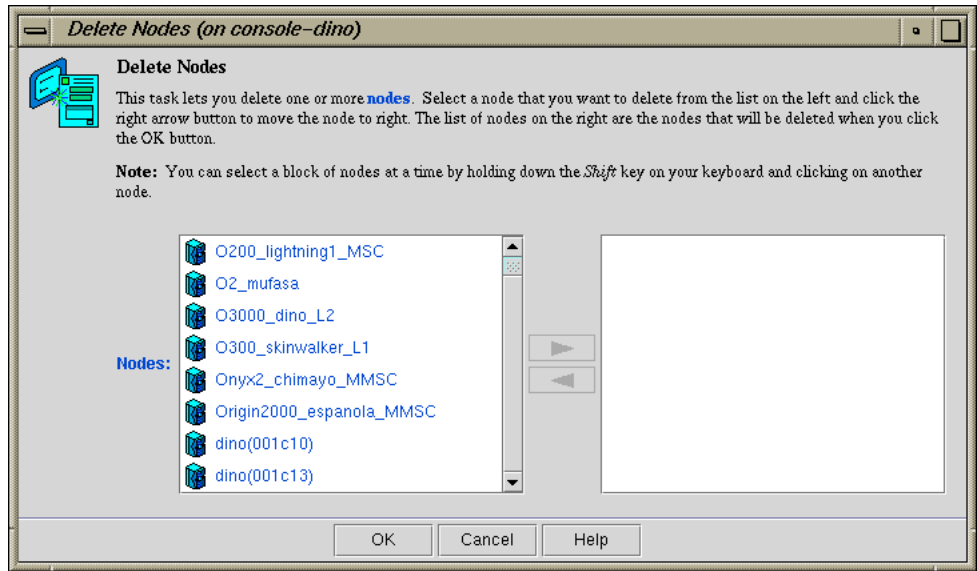


Figure 3-7 Delete Nodes Dialog Box

2. In the **Nodes** field, use the arrow to move the name of the nodes that you want to delete from the left to the right.
3. Click the **OK** button

An error message appears if the task fails.

The icon entry is removed from the **View** panel.

Modifying a Node Configuration

Procedure 3-4 Modifying a Node Configuration

This task lets you modify a node. You select the node to modify by clicking on the down arrow button on the Node Name tab.

To modify a Node configuration, follow these steps:

1. From the **Tasks** pulldown menu, choose the following:

Node Tasks
 > **Modify Node configuration**

The **Modify a Node Configuration** dialog box appears, as shown in Figure 3-8 on page 69.

Modify a Node Configuration

This task lets you modify a **node**. You should select the node to modify by clicking on the down arrow button of the Node Name widget. Once you selected the node, the fields below will be updated with values of the node. Note that the password field is not displayed with any value even if password exists.

Node Name:

Host Name for this node:

User Name for Viewing Log:

Node Management Port:

Console TTY Device Name:

Console TTY Serial Speed:

Console TTY Parity:

Console TTY Handshaking:

System Controller TTY Device Name:

System Controller Password:

Partition Number:

L2 Address:

OK Cancel Help

Figure 3-8 Modify a Node Configuration Dialog Box

2. In the **Modify a Node Configuration** dialog box fields, modify the fields as required. For an explanation of each field, see "Adding a Node" on page 58.
3. Click the **OK** button

If you attempt to modify a node in a way not allowed by the Console Manager, an error message appears.

Adding a Management Group

Procedure 3-5 Adding a Management Group

This task allows you to define a *management group*. A management group contains either a number of nodes or number of tasks that can be performed on the nodes. This task is only executable by the root console user. You must specify a unique group name. To add a management group to Console Manager, follow these steps:

1. From the **Tasks** pulldown menu, choose the following, as shown in Figure 3-9 on page 71.

Management Group Tasks
> Add a Management Group

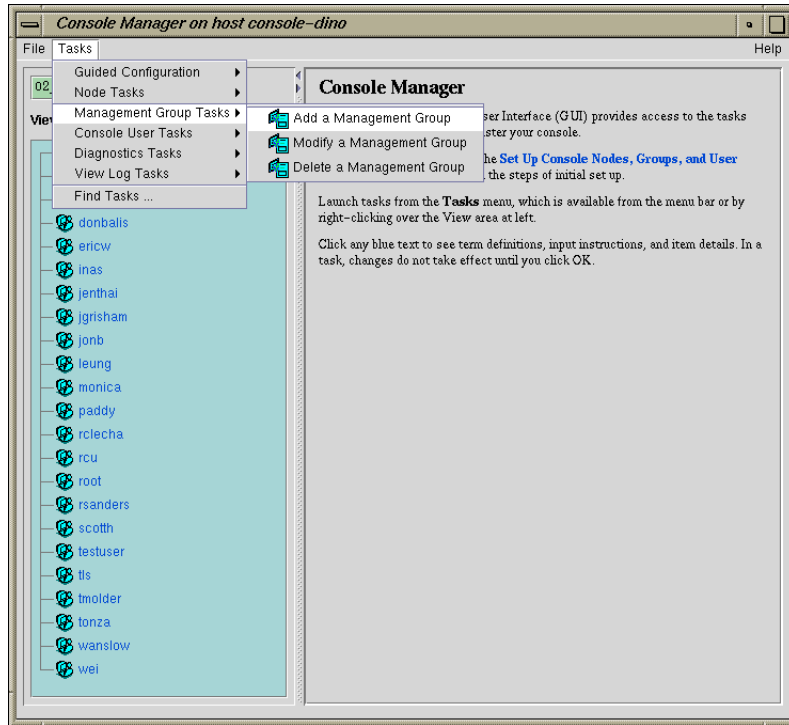


Figure 3-9 Add a Management Group Pulldown Menu

The **Add a Management Group** dialog box appears, as shown in Figure 3-10 on page 72.

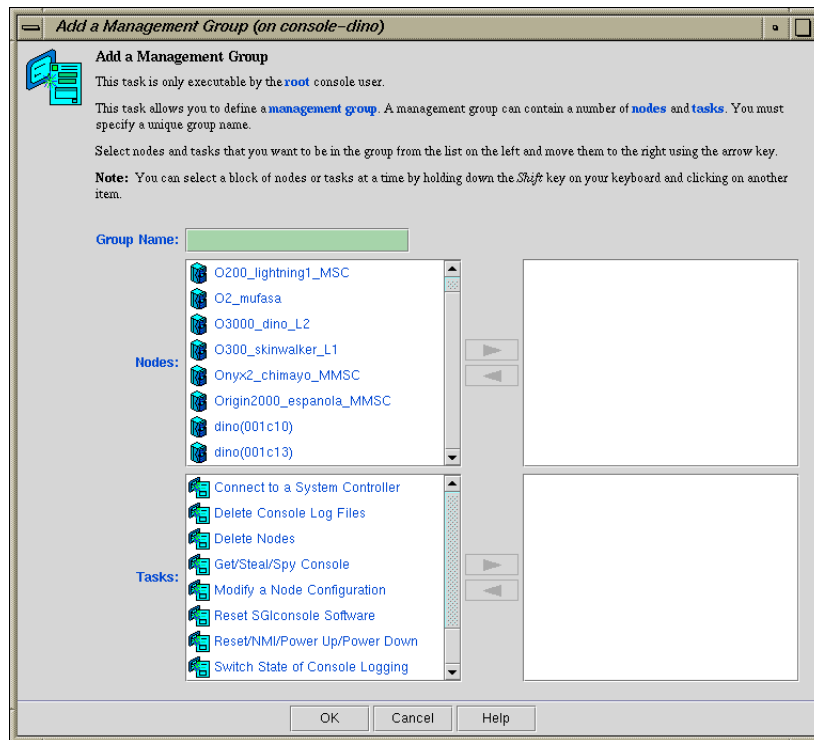


Figure 3-10 Adding a Management Group Dialog Box

2. In the **Group Name** field, enter a unique name for this group.
3. In the **Nodes** field, use the arrow to move the name of the nodes that you want to include in this management group from the left to the right.

Note: You can select a block of nodes or tasks at a time by holding down the **Shift** key on your keyboard and clicking on another item.

4. In the **Tasks** field, use the arrow to move the name of the tasks that you want to be able to perform on the nodes in the management group you are creating.
5. Click the **OK** button.

An icon entry appears on the **View** panel.

Modifying A Management Group

Procedure 3-6 Modifying a Management Group

This task allows you to modify an existing management group. This task is only executable by the root console user. You must specify the unique group name. To add a management group to Console Manager, follow these steps:

1. From the **Tasks** pulldown menu, choose the following:

Management Group Tasks
 > **Modify a Management Group**

The **Modify a Management Group** dialog box appears, as shown in Figure 3-11 on page 74.

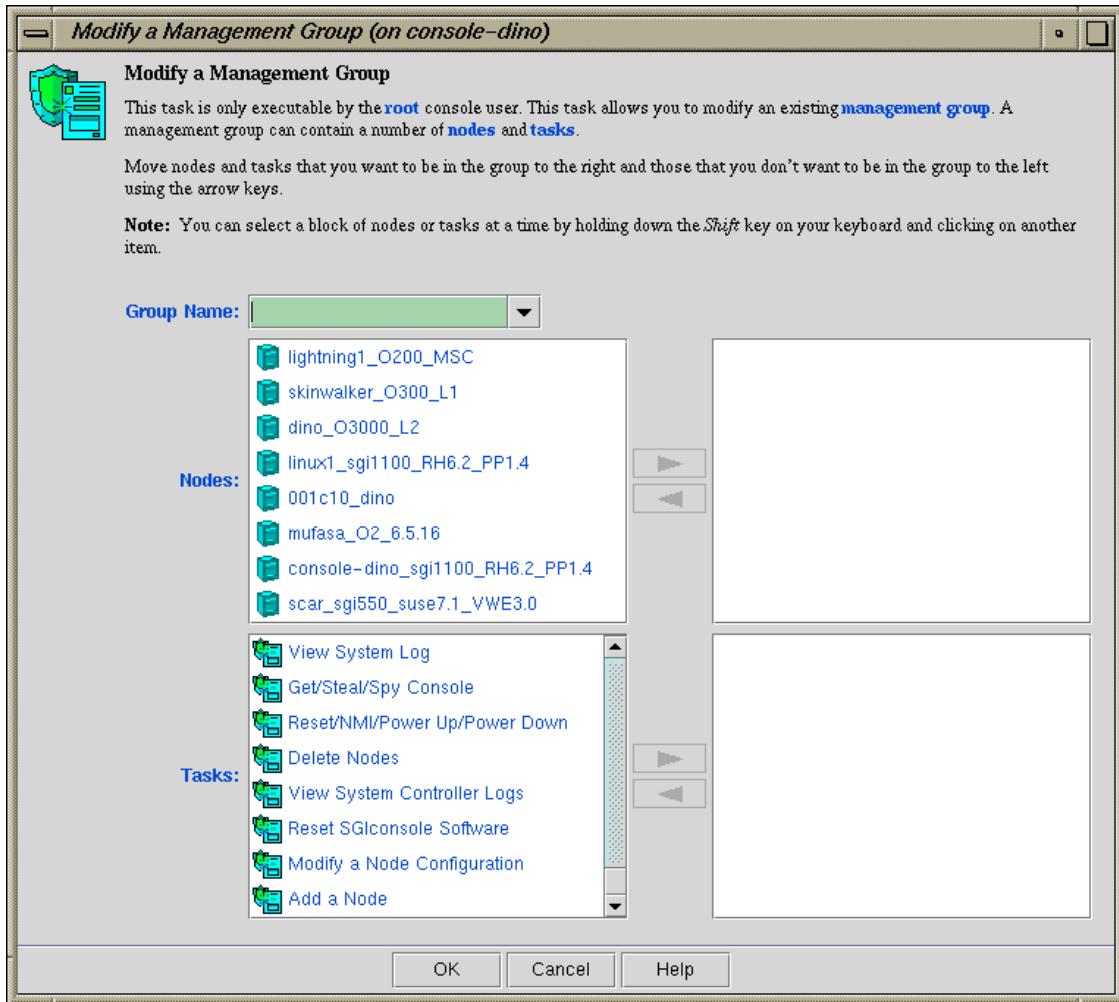


Figure 3-11 Modify a Management Group Dialog Box

2. In the **Group Name** field, enter a unique name for this group.
3. In the **Nodes** field, use the arrow to move the name of the nodes that you want to include in this management group from the left to the right.

4. In the **Tasks** field, use the arrow to move the name of the tasks that you want to be able to perform on the nodes in the management group you are creating.
5. Click the **OK** button.

An icon entry appears on the **View** panel.

Deleting a Management Group

This task allows you to delete an existing management group. This task is only executable by the root console user. You must specify the unique group name.

To delete a management group from Console Manager, follow these steps:

1. From the **Tasks** pulldown menu, choose the following:

Management Group Tasks
> **Delete a Management Group**

The **Delete a Management Group** dialog box appears, as shown in Figure 3-12 on page 75.

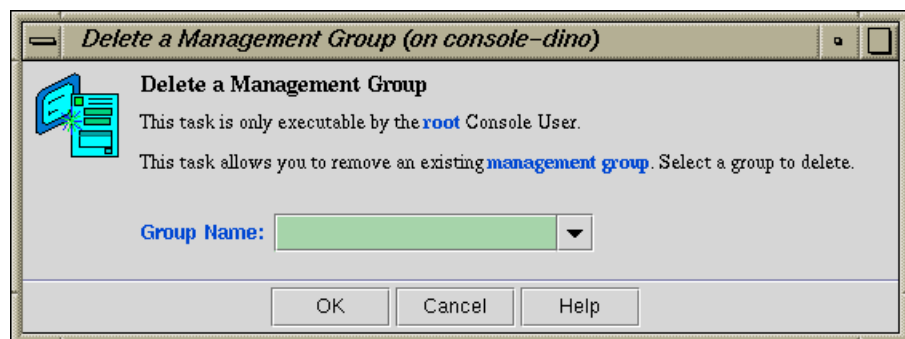


Figure 3-12 Delete a Management Group Dialog Box

2. In the **Group Name** field, enter the unique name for this group.

If you try to remove a group that includes a user that only belongs to the group you are attempting to remove, the operation fails and the following message appears:

```
Task failed.
```

```
Removal of this group would have made some users  
no longer belong to any groups.  
The operation has been aborted.
```

This prevents access restrictions on a user being mistakenly removed. To resolve this error, perform one of the following:

- Add another group to the group memberships of the affected user, using the **Modify a User** task, before deleting the group you want to remove.
- Remove the memberships to the group for any affected users, using the **Modify a User** task before attempting to delete the group.

Note: If the user is **not** assigned to any group, the user has access to all SGIconsole tasks (except for administration tasks that only the root user can perform) for every node defined in the system. This provides the same access rules as those originally provided in the SGIconsole 1.0 release.

3. Click the **OK** button.

An icon entry disappears from the **View** panel.

Administering Your Site

This chapter explains how to use Console Manager to administer the nodes that it controls.

The main Console Manager GUI, described in Chapter 3 of this manual, also allows you to power down, power up, reset a node, generate a non-maskable interrupt (NMI), change the properties of a node, view system logs for a specific node in a site, or connect to, spy, or steal the system console for a specific node. This chapter describes how you can use the Console Manager GUI to perform these administrative actions.

This chapter contains the following sections:

- "Getting, Stealing, or Spying a System Console" on page 77
- "Powering Down, Powering Up, Resetting, or Interrupting a Node" on page 79
- "Connecting to the System Controller for a Node" on page 81
- "Restarting the Console Manager Daemon" on page 84
- "Viewing System Logs" on page 86
- "Viewing and Deleting Console Logs" on page 90

Getting, Stealing, or Spying a System Console

Procedure 4-1 Connecting to a System Console

This task creates a console window for the node as follows:

- The **Get** option creates a read-write console window if there is no other read-write console in use for that node.
- The **Steal** option creates a read-write console window and converts any other read-write console in use to a read-only window.

Note: If there is a requirement to change the console type to satisfy the steal request on controllers that use only one serial line (the MMSC and L1 controllers, specifically), any read/write connections to the controller will be dropped instead of being converted to a read-only connection. The user having the read/write connection previously will not be warned or informed of the drop in console connectivity.

Active read-only and console logging sessions continue to operate, but will monitor the connection as directed by the console type switch.

The operations that cause SGIconsole to operate in this manner are as follows:

- Stealing a system console and the console type needs to be switched
- Stealing a controller console and the console type needs to be switched
- Starting a logging session on a system console and the console type needs to be switched
- Starting a logging session on a controller console and the console type needs to be switched

The tasks that are affected are as follows:

- **Get/Steal/Spy Console**
 - **Connect to a Controller Console**
 - **Switch State of Console Logging**
- The **Spy** option creates a read-only console window.
1. From the **Tasks** pulldown menu, choose the following, as shown in Figure 3-3 on page 59.

Node Tasks
 > **Get/Steal/Spy Console**

The **Get/Steal/Spy Console** dialog box appears, as shown in Figure 4-1 on page 79.

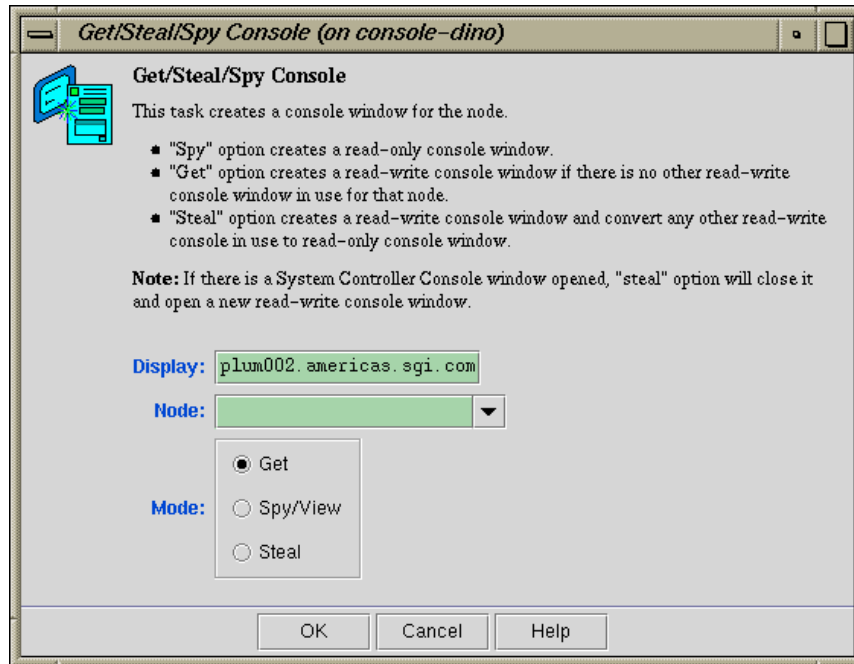


Figure 4-1 Get/Steal/Spy Console Dialog Box

2. In the **Display** field, type the name of your system where the console window should be displayed.
3. In the **Node** field, using the pull-down tab select the name of the server for which you want to get, steal, or spy the system console.
4. In the **Mode** field, select the **Get**, **Spy**, or **Steal** button.
5. Click the **OK** button.

Powering Down, Powering Up, Resetting, or Interrupting a Node

Procedure 4-2 Powering Down, Powering Up, Resetting, or Interrupting a Node

This task allows you to power down, power up, reset a node, or send a nonmaskable interrupt to a node.

To power down, power up, reset, or send a nonmaskable interrupt (NMI) to a node, follow these steps:

1. From the **Tasks** pulldown menu, choose the following:

Node Tasks
> **Reset/ NMI/ Power Up/ Power Down**

The **Reset/NMI/Power Up/Power Down** dialog box appears, as shown in Figure 4-2 on page 80.

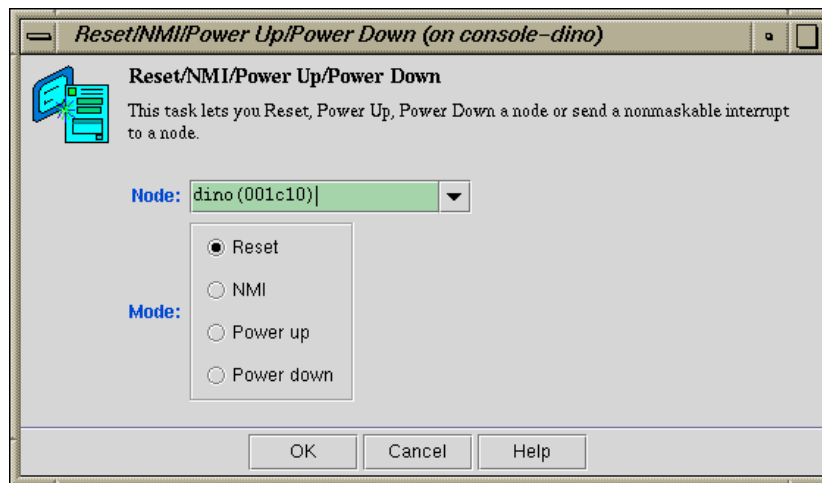


Figure 4-2 Reset/NMI/Power Up/Power Down Dialog Box

2. From the **Node** field pulldown tab, select the node to which you want to perform the operation.
3. Click the button to the right of the **Mode** field you wish to perform.
4. Click the **OK** button.

Connecting to the System Controller for a Node

Procedure 4-3 Connecting to the System Controller for a Node

This task lets you open a connection to the system controller of a node as follows:

- The **Get** option will succeed only if there are no other System Controllers or node Console windows open.
- The **Steal** option creates a read-write console window and converts any other read-write console in use to a read-only window.

Note: If there is a requirement to change the console type to satisfy the steal request on controllers that use only one serial line (the MMSC and L1 controllers, specifically), any read/write connections to the controller will be dropped instead of being converted to a read-only connection. The user having the read/write connection previously will not be warned or informed of the drop in console connectivity.

This is the same as stealing standard console connections.

1. From the **Tasks** pulldown menu, choose the following, as shown in Figure 4-3 on page 82.

Node Tasks
> Connect to a System Controller

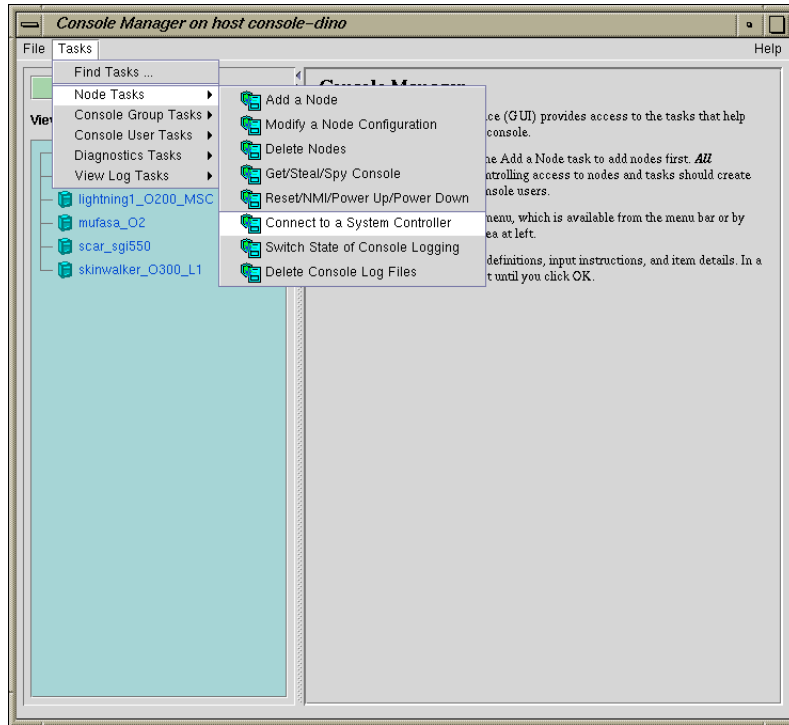


Figure 4-3 Connect to a System Controller

The **Connect to a System Controller** dialog box appears, as shown in Figure 4-4 on page 83.

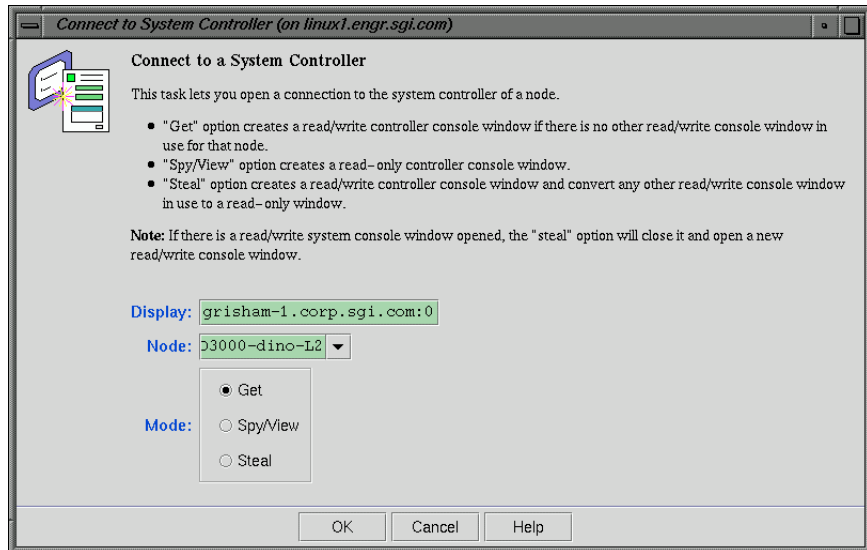


Figure 4-4 Connect to a System Controller Dialog Box

2. In the **Display** field, type in your display hostname as follows:
hostname.mycompany.com:0
3. From the **Node** field pulldown tab, choose the name of the node for which you want the system controller.
4. In the **Mode** field click the **Get** or **Steal** button or the **Spy/View** button.
5. Click the **OK** button.

A System Controller Console appears, as shown in Figure 4-5 on page 84.

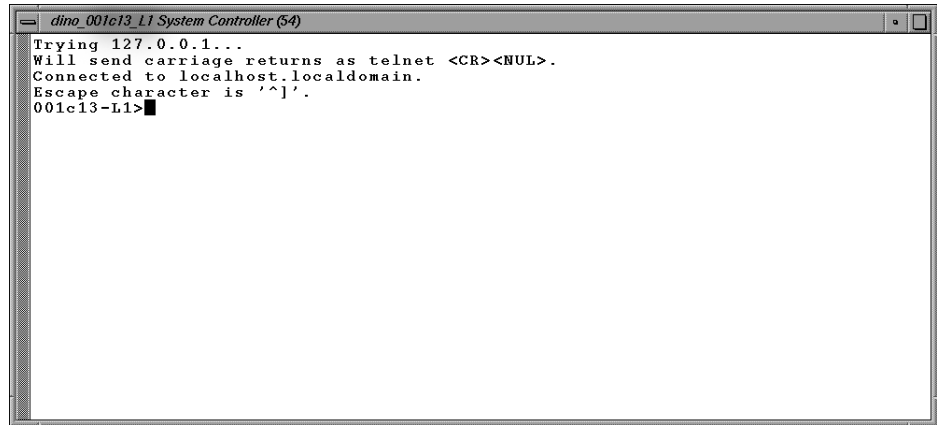


Figure 4-5 System Controller Console

Restarting the Console Manager Daemon

Procedure 4-4 Restarting the Console Manager Daemon

This task allows you to restart the Console Manager (*nexus*) daemon. Running this task will cause all opened console windows to disappear for all users. Restarting the Console Manager daemon is useful for resetting console and logging sessions that have malfunctioned and for when making new connections proves to be unreliable.

1. From the **Tasks** pulldown menu, choose the following, as shown in Figure 4-6 on page 85.

Diagnostics Tasks
> Reset SGIconsole Software

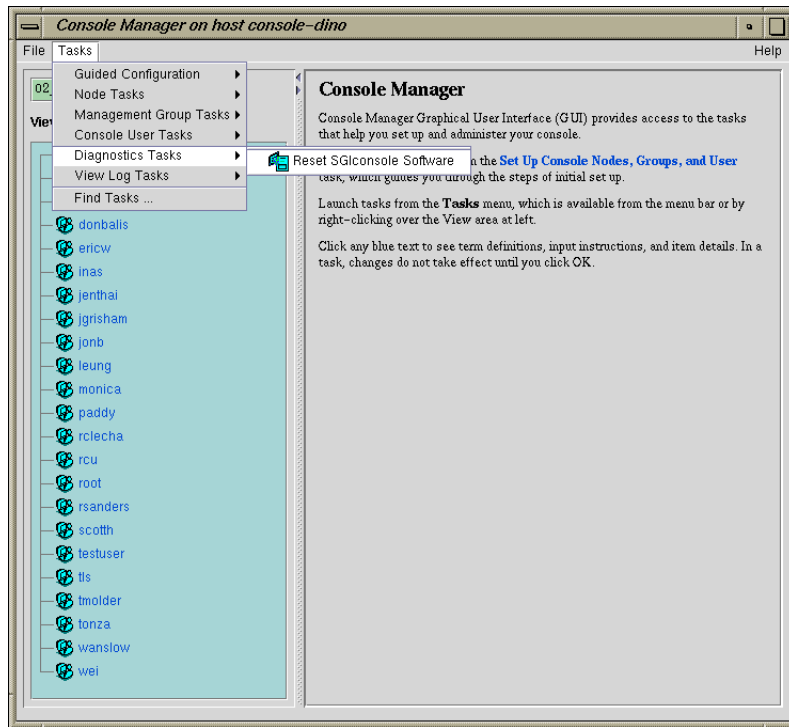


Figure 4-6 Resetting the Console Manager Daemon

The **Reset SGIconsole Software** dialog box appears, as shown in Figure 4-7 on page 86.

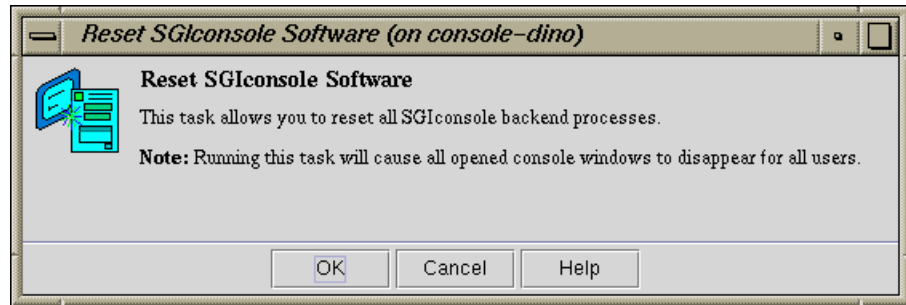


Figure 4-7 Reset SGIconsole Software Dialog Box

2. Click the **OK** button.

Viewing System Logs

Procedure 4-5 Setting up the `ssh(1)` to retrieve log information

To use `ssh(1)` to retrieve log information, you must perform the following procedure:

1. Install and run the `sshd(8)` daemon on the node from which system logs are to be obtained.
2. Use the `ssh-keygen(1)` command to set up RSA public and private encryption keys for the user account on the SGIconsole server and the root account of the node (server) containing the logs.
3. Exchange the public keys of both the node's user account as it appears in the **User Name for Viewing Log** field and the Console Manager user's account on the SGIconsole server by copying the contents of the `.ssh/id_*.pub` files into the `.ssh/authorized_keys` file of the accessing account, as follows:

```
sgicuser@sgiconsoleserver:~$ ssh/id_*.pub ---> nodeuser@nodename:~$ ssh/authorized_keys
nodeuser@nodename:~$ ssh/id_*.pub ---> sgicuser@sgiconsoleserver:~$ ssh/authorized_keys
```

where `sgicuser` is the user account on the SGIconsole server (the account which Console Manager has logged in with), and `nodeuser` is the user account assigned to the node in the **User Name for Viewing Log** field of the **Modify a Node** dialog box for that node. Usually, should be the username `root`.

Note: This installation assumes the Version 2 protocol, where `id_dsa.pub` or `is_rsa.pub` are possible public key files for an account. If Version 1 protocol is used, the file may be named `identity.pub` instead.

4. Log into the user's account on the SGIconsole server to ensure that the hostname of the node configured for SGIconsole is:
 - Recognised as a valid hostname as listed in the `.ssh/known_hosts` file
 - Allows the execution of the remote command `echo hello` as the user `root` without having to specify the password or the root account

Test the installation and operation of `ssh(1)`, as follows:

```
% ssh -X -l root node echo hello
```

If there is any interruption to the `ssh` command such as input required from the terminal, the **View System Log** command fails and produces a dialogue box indicating that the login failed.

Note: The same hostname provided for the node definition in SGIconsole must be used when specifying a host for `ssh` to log into. That is, the hostname recorded in the `.ssh/known_hosts` file for the SGIconsole user account and the hostname provided in the node's definition, must be the same.

Once the `ssh` command is able to connect, without interruption to the required node as root from the specified SGIconsole user account, the **View System Log** command will operate properly in `scmgr(1)`.

Procedure 4-6 Viewing System Logs

This task allows you to view system logs (`syslog`) of the servers and system controller logs of the servers.

To get the system log or system controller logs for a server, follow these steps:

1. From the **Tasks** pulldown menu, choose **View Log Tasks**, as shown in Figure 4-8 on page 88.

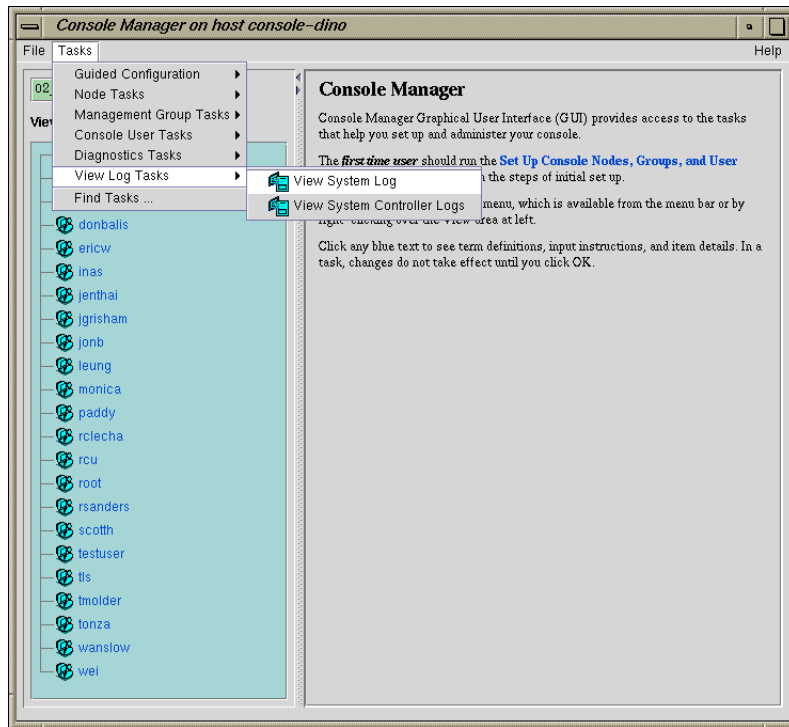


Figure 4-8 Getting the System Log

2. Choose **View System Log** or **View System Controller Logs**.

The **View System Log** Dialog Box (or **View System Controller Logs** Dialog Box) appears, as shown in Figure 4-9 on page 89.

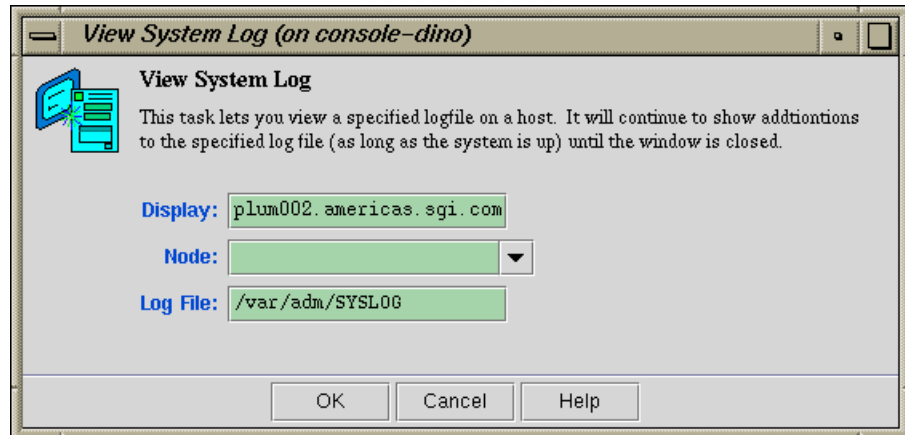


Figure 4-9 View System Log Dialog Box

3. In the **Display** field, type in your display hostname as follows:

hostname.mycompany.com:0

4. From the **Node** field pulldown tab, choose the name of the node for which you want the system log. The system log window appears, as shown in Figure 4-10 on page 89.

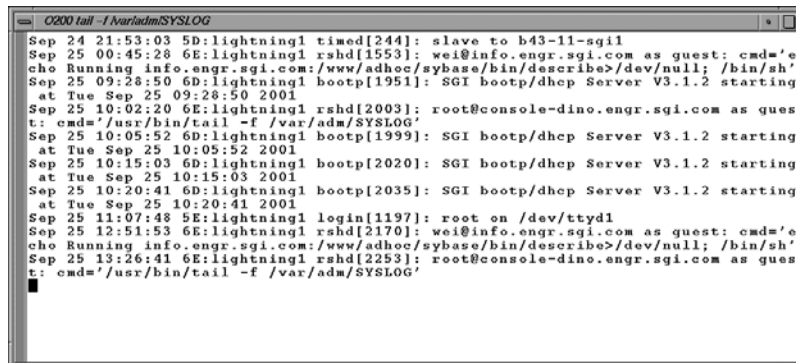


Figure 4-10 System Log

Note: If the log screen does **not** appear, make sure that you enter your complete display name as shown in Procedure 4-6 on page 87.

Note: Console users can only get the logs of one system controller for any node at a time.

Note: For SGI Origin 2000 rackmount servers (servers that use the multimodule System Controller (MMSM)), the system controller logs from the Module System Controllers (MSCs) in rack 1 (both upper and lower bays) are displayed.

Viewing and Deleting Console Logs

This section describes how to use console logging.

Console logging is available to users of either the SGIconsole Console Manager graphical user interface, or the SGIconsole text-based user interface (`tscm(1)`). Regardless of which user interface is used, console logging works the same way for all users.

Note: If the SGIconsole machine is rebooted or the SGI console **Reset** node task is run, console logging is disabled on all nodes. For information on how to automatically restart console logging, see "Restarting Console Logging After a System Reboot" on page 102.

This section describes the following topics:

- "Access Control to Console Logging Facilities" on page 91
- "Viewing Console Logs" on page 91
- "Console Log Rotation" on page 92
- "Enabling and Disabling Console Logging" on page 92
- "Deleting Console Log Files" on page 95

- "Initiating or Terminating Logging Using the tscm Command Line Interface" on page 97

Access Control to Console Logging Facilities

The access controls to allow or deny console logging initiation and termination are provided by the Console Manager GUI, under the tasks **Add Management Group**, **Modify Management Group**, and **Delete Management Group**. Use these tasks to deny or allow users to activate or deactivate console logging using the **Switch State of Console Logging** task. For more information, see "Access Controls in Console Manager" on page 40.

Viewing Console Logs

Console logs are located on the web server for SGIconsole. To access console logs for nodes that have logging enabled, launch a web browser and use the URL as follows to list the nodes for which logs are available.:

```
http://sgiconsoleserver/SGIconsole-logs/
```

You can also view Console logs from the SGIconsole webpage using the **View Console Log Files** button.

Note: Access control of the viewing log files mechanism is not supported, because the viewing is done through your web browser.

In previous SGIconsole releases, the **View Console Log** utility used the `rsh(1)` command to collect and display a log file from an operating system running on a node. In the SGIconsole 2.0 release, the **View Console Log** uses the `ssh(1)` command instead.

The logs are stored in an organizational structure and contain the raw data from a read-only console session to a node as follows:

```
<node>/<node>-<year>-<mt>-<dt>-<hrmn>-(system|controller).txt
```

Use your web browser to read or download the log files. The timestamp on the file name of the log is the time that console logging started for that particular logging session. The system or controller keyword in the file name of the log indicates the Console type initiated for that logging session.

Note: The logs may contain terminal maintenance data (control characters, escape sequences, and so on), recorded alongside human-readable text data as it has appeared in the output stream of the terminal. SGIconsole does not perform any filtering of console output data.

Console logging is off by default. To turn Console logging on, follow the steps in the **Switch State of Console Logging**.

Console Log Rotation

Console log rotation is automatically handled by SGIconsole. It is performed to maintain a level of free disk space on the SGIconsole server.

Logs are checked for rotation every 20 minutes, and are rotated when they exceed the size specified by the **Open new file after size reaching** setting in the Console Manager.

The oldest logs of all nodes are discarded when available disk space is inadequate. In order for this free-space-recovery process to operate successfully, logs need to be rotated so that log data does not appear in one file (per node) in the log repository. To ensure this happens, a **Open new file after size reaching** setting should always be specified when enabling console logging. A log rotation setting of 1MB is specified by default automatically.

Note: Logs may actually grow larger than that specified by the **Open new file after size reaching** setting, due to the sampling time used in checking for the size of the logs.

Enabling and Disabling Console Logging

Procedure 4-7 Switch State of Console Logging

This task allows you to perform the following:

- Enable or disable logging for a particular node
- Change logging type; start logging or stop logging for the system console or the controller console. You can select either **System Console Logging** or **Controller Console Logging**, or both.

- Rotate logs after the minimum log size rotation trigger has been reached

All users can view the console log files unless access controls have been applied, see "Access Control to Console Logging Facilities" on page 91.

Note: For the L1 and MMSC controller types, system and controller console logging should not be activated simultaneously.

The L1 and MMSC console connection functions will read from the same serial line, and therefore, will read/record the same console output coming from the controller.

If a read-only or read/write connection causes a console type switch, the console logging follows the switch, regardless of what SGIconsole has opened for console logging when logging started.

Making changes to your logging sessions will not affect other logging sessions that are active or inactive on a node. For example, if you have system console logging active for a node, and then you enable console logging, the system console logging will not be disabled (there is no need to specify system console logging again using the **System Console Logging** check-box).

To enable or disable console logging on a node, select the **Node** view in the Console Manager main window, and perform the following:

1. From the **Tasks** pulldown menu, choose the following, as shown in Figure 4-11 on page 94.

Node Tasks
>
Switch State of Console Logging

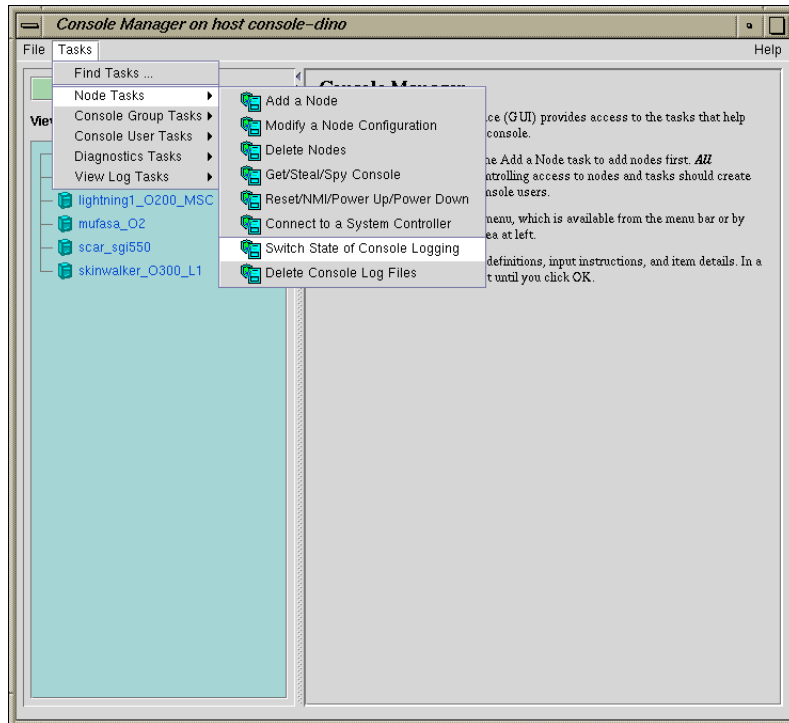


Figure 4-11 Switch State of Console Logging Menu

The **Switch State of Console Logging** dialog box appears, as shown in Figure 4-12 on page 95.

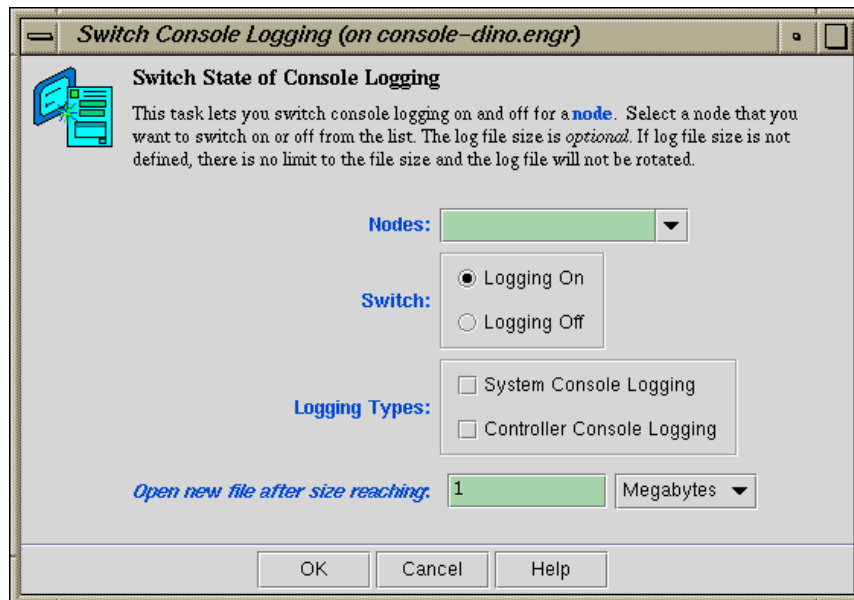


Figure 4-12 Switch State of Console Logging Dialog Box

2. In the Node field, select the node for which you want to enable or disable logging.
3. In the **Switch** field, click either the **Logging On** or **Logging Off** button.
4. In the **Logging Types** field, click either **System Console Logging** or **Controller Console Logging**, or both and a check mark appears.
5. In the **Open new file after size reaching** field, enter a size for the log files in either **Megabytes** or **Kilobytes**. The log file size is optional. If log size file is not defined, there is no limit to the file size.
6. Click the **OK** button.

Deleting Console Log Files

Procedure 4-8 Delete Console Log Files

This tasks allows you to delete one or more log files.

To delete Console logs, perform the following:

1. From the **Tasks** pulldown menu, choose the following:

Node Tasks

>

Delete Console Log Files

The **Delete Console Log Files** dialog box appears, as shown in Figure 4-13 on page 96.

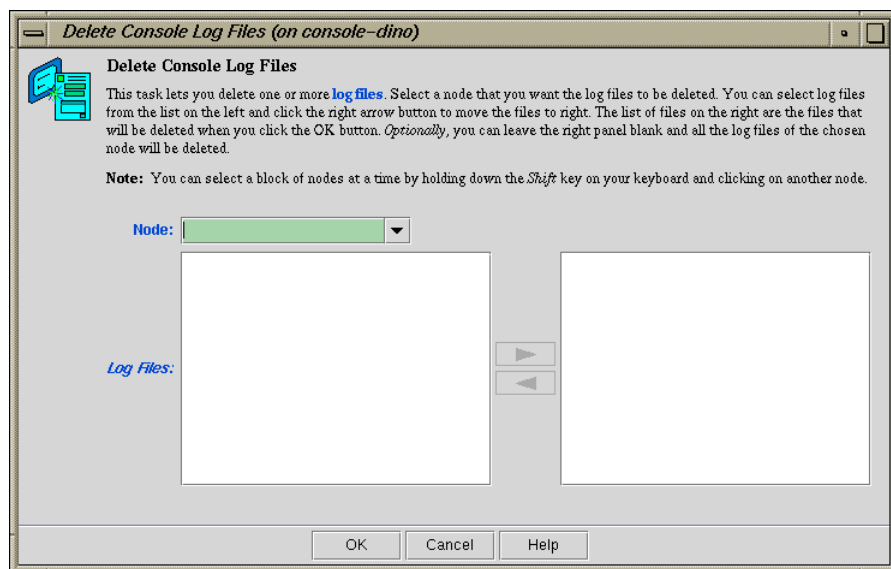


Figure 4-13 Delete Console Log Files Dialog Box

2. In the **Node** field, select the node for which you want the log files deleted. You can select a block of nodes at a time by holding down the **Shift** key on your keyboard and clicking on another node.
3. Select the log files to be deleted from the left and move the files to the right. The list of files on the right are the files that will be deleted when you click the **OK** button. Optionally, you can leave the right panel blank and all the log files of the chosen node will be deleted.

4. Click the **OK** button.

Initiating or Terminating Logging Using the `tscm` Command Line Interface

You enable or disable system or controller console logging using the `log` and `nolog` functions of the `scons` and `ccons` commands as follows:

- The `scons` command provides options for system consoles.
- The `ccons` command provides options for controller consoles.
- The `log` function enables console logging for the pertaining console type.
- The `nolog` function disables console logging for the pertaining console type.

For example, to enable a system console on node `brickette`, enter the command as follows:

```
SGIconsole> scons log brickette
```

SGIconsole responds with an appropriate message depending on the successful application of the command. When enabling logging sessions for a node, SGIconsole prompts you for a minimum log size to apply to the files created for logging:

```
Set minimum log size to [1048576 bytes]: _
```

You can press the `Return` or `Enter` key to accept the default, or enter a different log size, such as 163840 bytes, as follows:

```
Set minimum log size to [1048576 bytes]: 163840_
```

In KB (245760 bytes), as follows:

```
Set minimum log size to [1048576 bytes]: 240K_
```

In MB (2097152 bytes), as follows:

```
Set minimum log size to [1048576 bytes]: 2M_
```

Note: The log size values specified must be an integer. Real values are rejected without notification and cause the logging mechanism to accept the default instead.

For more information on `tscm(1)`, see "Command Line Interface to Console Manager" on page 29.

Troubleshooting SGIconsole

This chapter provides information about troubleshooting SGIconsole and covers the following topics:

- "Typical Node Failure Messages" on page 99
- "L2 System Controller Rebooting and Lost Network Connections" on page 100

Typical Node Failure Messages

When a node responds with the message "Command not deliverable; <reason>", the cause of the failures can be found in the VACM log located in the `/var/log/vacm.log` file.

Typical node failures are as follows:

- The node's controller is powered down (L1 or L2 management port types only)
- There is a serial communications problem with the controller for that node as follows:
 - The serial cable connecting SGIconsole to a node's controller has been removed or is not firmly seated in the serial port socket of the controller.
 - The SGIconsole configuration for the node does not specify the correct serial port device (`/dev/ttyNxxx`) to use. You must configure SGIconsole to use the serial port (`/dev/ttyNxxx`) that corresponds to the port used on the multiplexer supporting the device. For more information, see "Adding a Node" on page 58.
 - For SGI Origin 2000 series systems with a Multimodule System Controller (MMSC), the serial port settings are not at the defaults of 9600/8/1/N. In this case, the serial port settings need to be reset manually (using MMSC commands) or by resetting the MMSC (again using MMSC commands). Operating the MMSC with serial port settings other than the in-firmware defaults, is not supported by SGIconsole for reasons of operational stability.

L2 System Controller Rebooting and Lost Network Connections

If L2 controller is rebooted, or the network connection to the L2 controller otherwise interrupted, it may be necessary to close all console connections to the L2 controller and open new ones. For more information on the SGIconsole startup script, see the *SGIconsole 2.x Start Here*.

SGIconsole Log Files and Console Manager Execution Flow

This chapter describes the following topics:

- "SGIconsole Log Files" on page 101
- "Restarting Console Logging After a System Reboot" on page 102
- "Console Manager Execution Flow" on page 103

SGIconsole Log Files

The following log files provide useful information on SGIconsole operations:

| SGIconsole Log | Description |
|--|--|
| <code>/var/log/vacm.log</code> | Resides on the SGIconsole system and contains a log of VACM activity. |
| <code>/var/adm/SYSLOG</code> | Resides on every IRIX server and contains a log of messages written to the system console. |
| <code>/var/log/messages</code> | Resides on every SGI Altix 3000 Linux server and contains a log of messages written to the system console. |
| <code>/var/lib/sysadm/salog</code> | The Console Manager GUI log which contains all backend command and parameters executed by the console manager GUI. |
| <code>/var/www/html/SGIconsole_logs</code> <code>/proc/dgrp/config</code> and <code>/proc/dgrp/nodeinfo</code> | SGIconsole logs directory Use these files to determine the status of your EL-16 device. |
| <pre>[root@linux1 /tmp]# cat els00.log 09/19/01 09:03:16: EtherLite daemon running</pre> | |

```
09/19/01 09:03:16: Vendor ID: DigiIntl, Firmware Version: V7.6
Model Name: EL-16, IP Address: 192.12.1.20
09/19/01 09:03:16: Unit Online
```

Restarting Console Logging After a System Reboot

If the SGIconsole machine is rebooted or the SGI console **Reset** node task is run, console logging is disabled on all nodes. To start logging whenever `/etc/init.d/sgiconsole` is run, update the contents of the `/etc/sgiconsole.conf` file.

The `/etc/sgiconsole.conf` configuration file specifies startup-time actions that are performed when SGIconsole is started. Currentl, only the `log` action is supported.

You can start logging on either the system or controller console (or both, if the node supports it, particularly the MSC- and L2-type nodes) by adding entries to the `/etc/sgiconsole.conf` file similar to the following:

```
# This file contains configuration directives for SGIconsole,
# to be applied on startup.
#
# Currently recognised directives:
#     nogroupdbfix    - do not try to fix the groups database:
nogroupdbfix
#
#     log             - enable logging on a specified node:
##log  SYSTEM       <nodename>
##log  CONTROLLER   <nodename>
#
log    SYSTEM       blue
log    SYSTEM       green
log    CONTROLLER   blue
```

When the SGIconsole software is restarted, this configuration file allows the nodes blue and green to have their console logging restarted, automatically (as a new console log session).

Note: Console logs are activated as if the **Switch State of Console Logging** task has been applied to each node in turn. Thus, for nodes with controllers that only allow one console type to be logged at a time (MMSC and L1 controllers), the console type actually logged will be the type of the last entry specified for the node in the configuration file.

Console Manager Execution Flow

Each Console Manager task has the following flow of execution when a GUI task is executed, such as connecting to a node or getting a console port:

GUI task → privcmd CLI → VACM (nexxus) → VACM plugins → EL-16 driver (if present)

Key:

- privcmd = privileged command
- CLI = command line interface
- VACM = cluster manager software
- nexxus = Console Manager backend software (Console Manager daemon)
- VACM plugins = SGI software plugins to support various SGI servers.

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