

Embedded Support Partner User Guide

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What's New in this Document

Revision 006 makes the following changes to this document:

- It updates the document to correspond to the IRIX 6.5.13 version of ESP 2.0.
- It adds descriptions of new options (`Add new event to an existing class` and `Add new event to a new class`) to the “Adding Events” section in Chapter 4.
- It adds information about the `Action frequency time` parameter to the “Adding Events” and “Updating Events” sections in Chapter 4.
- It adds descriptions of the `xvm.mirror_degraded` and `xvm.mirror_reviving` PMIE rules to Table 4-4.
- It adds new event class and type descriptions to the “Default Event Classes” and “Default Event Types” sections in Chapter 9.
- It incorporates miscellaneous technical and editorial changes.

Introduction

The SGI product line ranges from desktop workstations to supercomputers, which makes it one of the broadest product lines in the industry. Supporting such a diverse product line creates many challenges.

Embedded Support Partner (ESP) was created to address some of these challenges by automatically detecting system conditions that indicate potential future problems and notifying the appropriate personnel. This enables SGI customers and support personnel to proactively support systems and resolve issues before they develop into actual failures.

ESP integrates monitoring, notifying, and reporting operations. It enables users to monitor one or more systems at a site from a local or remote connection. ESP provides the following functions:

- Monitoring system configuration, events, performance, availability, and services
- Providing proactive notification when specific conditions occur
- Generating reports about system activity (configuration changes, events, availability, etc.)
- Sending event information to SGI for statistical interpretation
- Providing usability enhancements (common interface, remote support, and system group management)

Figure 1-1 provides a functional diagram of ESP.

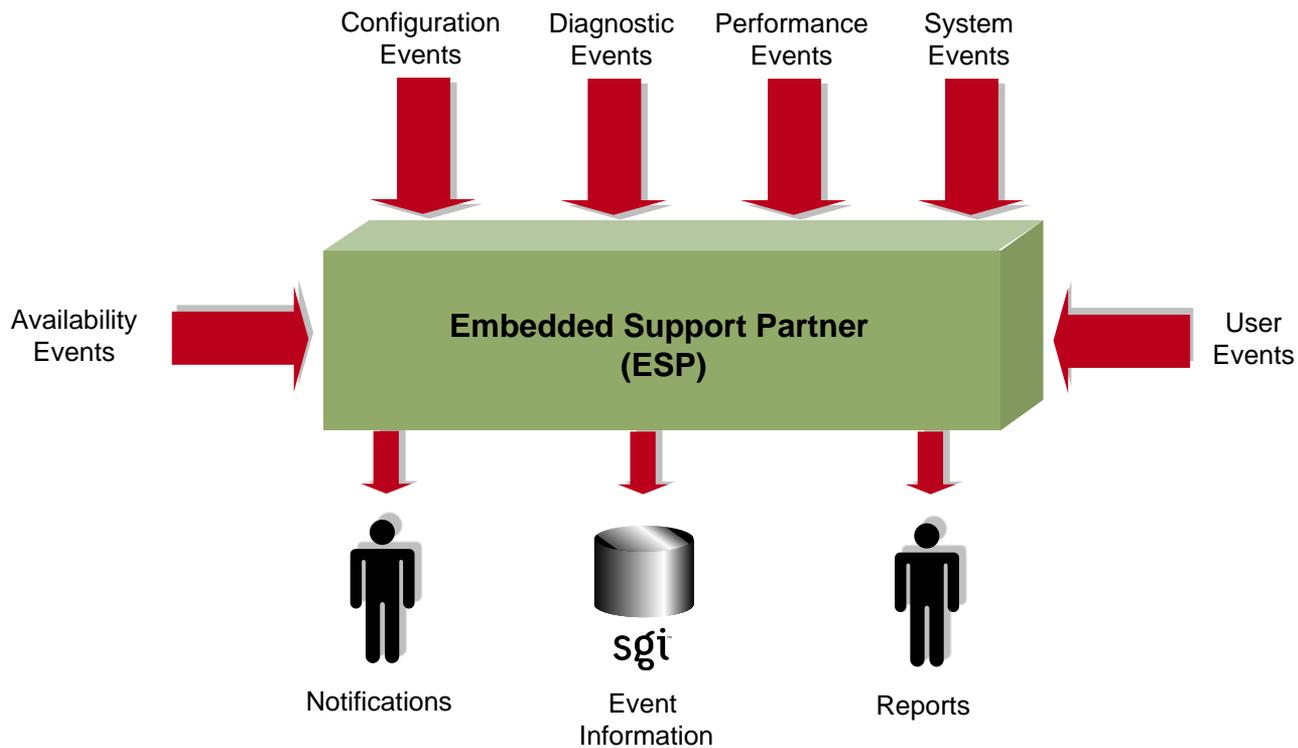


Figure 1-1 ESP Functional Diagram

This document describes ESP version 2.0, which is included in a patch that applies to IRIX 6.5.7 and IRIX 6.5.8 and is included in IRIX 6.5.9 and higher. (ESP automatically updates to version 2.0, if necessary.)

Distribution

The ESP software is distributed in two levels:

- Base package
- Extended package

Base Package

The base package includes the single system manager, which has the functionality necessary to:

- Configure ESP
- Monitor a single system for system and performance events, configuration changes, and availability
- Notify support personnel when specific events occur
- Generate basic reports

The features in the base package are included in the IRIX 6.5.5 and later releases at no extra cost. They are installed by default, and ESP begins monitoring the system as soon as the system is booted (if ESP is `chkconfig`'ed on). You can configure the base package to specify what types of events it should monitor and whom it should notify when events occur.

Note: ESP can also monitor events from diagnostic tests and perform actions based on these events. To use these optional features, install the diagnostics from the *Internal Support Tools 2.0* CD or a later release. The *Internal Support Tools* CDs are available only to SGI personnel.

Extended Package

The extended package includes the System Group Manager (SGM), which adds the capabilities to monitor multiple systems at a site. The system selected as the group manager runs the SGM, which manages all systems in the group.

The SGM provides functionality to uniformly manage multiple systems when more than one system is installed at a site. Specifically, it performs the following functions:

- System group event tracking
- System group configuration management
- System group availability monitoring
- Notification (based on the events that occur on systems in the group)
- Enhanced reporting for groups of systems, including:
 - Availability metrics (MTBI, availability, etc.) at a site level and individual system level
 - Site event reports

Any system within a system group can be designated the group manager (it is even possible to have more than one group manager). A system that is designated as the group manager monitors all systems in the group, including itself.

The features in the extended package are also included in the IRIX 6.5.5 and later releases, but these features are not enabled unless the customer acquires a license to use them. (A 90-day free trial license is included; full licenses are included in some service contracts or may be purchased separately.)

Figure 1-2 provides a block diagram of system group management.

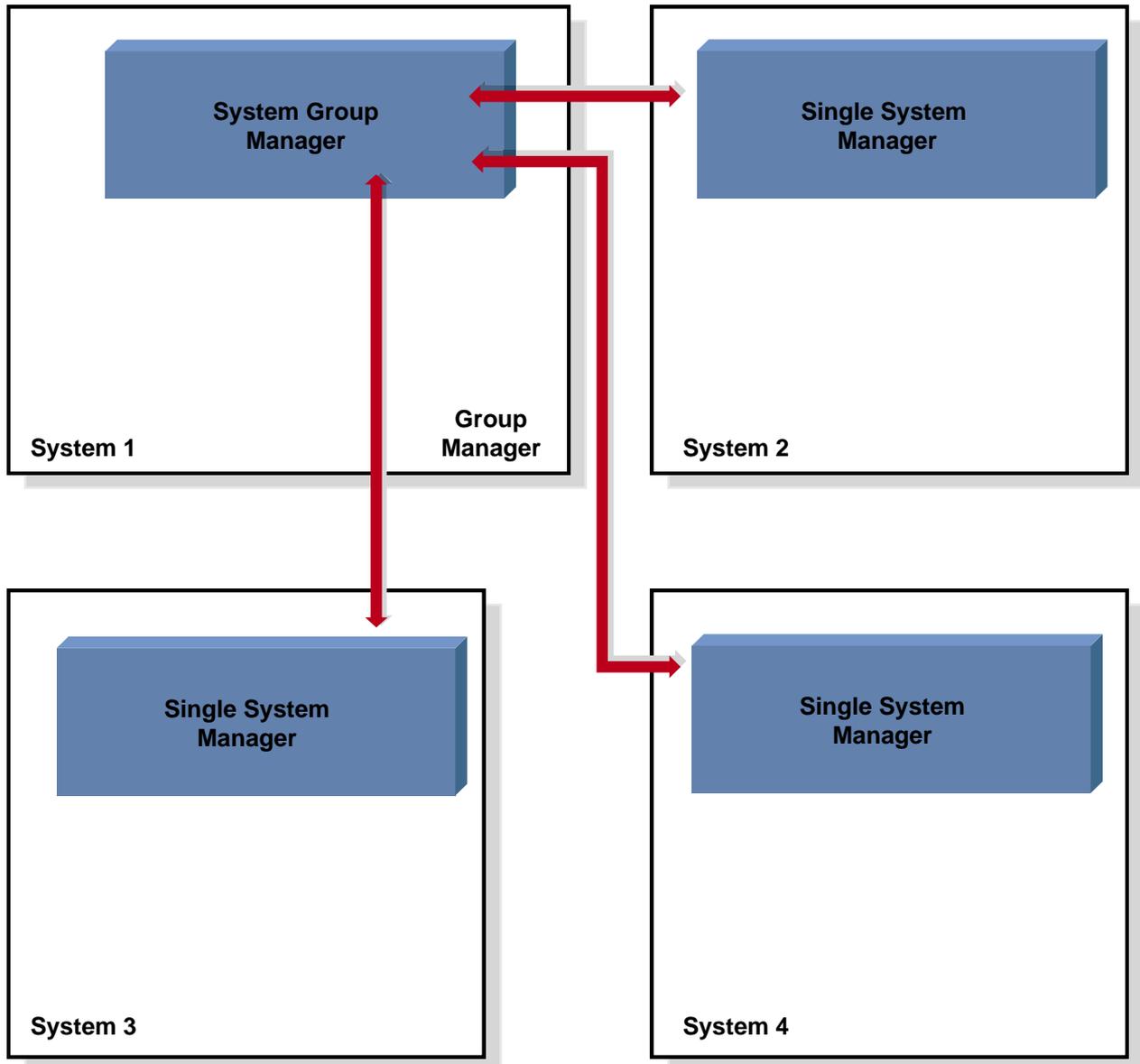


Figure 1-2 System Group Management Block Diagram

ESP Benefits

Table 1-1 lists the benefits that ESP provides for service personnel and customers.

Table 1-1 ESP Benefits

Component	Feature	Benefit to Service Provider	Benefit to Customer
Base Package (Single System Manager)	Single Web-based interface	Increases usability of support tools on a single system	Provides fast and effective service
	Broad and useful support functionality	Provides an integrated set of tools that work in a single framework while increasing support coverage	Provides consistent and wide coverage on systems
	Centralized event processing (single system)	Enables you to collect and display all information from one central location	Provides the entire set of circumstances in one place
	Centralized automated response and notification (single system)	Provides visibility to problems as they occur	Enables proactive support Provides a quick insight to problems
	Remote support	Provides a virtual seat into the site remotely	Provides an effective means of delivering service (which greatly increases system availability with accurate problem diagnosis)

Table 1-1 (continued) ESP Benefits

Component	Feature	Benefit to Service Provider	Benefit to Customer
Extended Package (System Group Manager)	Centralized event processing (group management)	Enables you to collect and display all information from one central location (which helps to determine causes of problems on systems within the site)	Provides the entire set of circumstances in one place
	Centralized support administration (group management)	Provides a single location from which all support activities can be performed for a group of systems	Eases administration and service tracking
	Centralized automated response and notification (group management)	Provides visibility to problems as they occur	Provides proactive support Provides a quick insight to problems
	Centralized site reporting	Provides accurate system and site data online	Enables extensive tracking of availability and system performance
	Centralized troubleshooting	Provides the ability to resolve problems from a central location	Provides an efficient mechanism to fix problems on-site

Table 1-1 (continued) ESP Benefits

Component	Feature	Benefit to Service Provider	Benefit to Customer
Performance Monitoring Tools	Proactive, automated performance analysis	Assists in diagnosis of system-level performance issues	Identifies performance hotspots and areas where system resource usage could be optimized for improved performance
	Extensible rule evaluation mechanism	Provides an easy method to add site- or system-specific rules to the default set	Enables use of additional software products to extend the range of monitored subsystems (for example, Cisco routers and Web servers)
	Local or remote service failure detection and quality-of-service monitoring	Automates detection of failed services for proactive support	Increases service availability and quality by automating service probing and checking

ESP Architecture

ESP is a modular system. Each module works independently on a specific function, and no functional overlap exists between the various modules. Some modules run as daemons and others run as stand-alone applications that are driven by events.

The daemon components of ESP are:

- Core software
 - System Support Database (SSDB): `espdbd`
 - System Event Manager (SEM): `eventmond`
- Monitoring software
 - Event monitor subsystem: `eventmond`

The stand-alone components of ESP are:

- Monitoring software
 - Availability monitor: `availmon`
 - Configuration monitor: `configmon`
- Notification software
 - `esnotify`
 - `espcall`
- Console software
 - Configurable Web server: `eshttpd`
 - Web-based interface
 - Report generator core
 - Report generator plugins
- Command line interface
 - Configuration tool: `esconfig`
 - Report tool: `esreport`

If you install the performance metrics inference engine application, `pmie`, which is included in the Performance Co-Pilot Execution Only Environment (`pcp_eeo` subsystem), ESP can receive notification of resource oversubscription, bandwidth saturation, and other adverse performance conditions.

If you install the *Internal Support Tools 2.0* CD or a later release, ESP can receive data from the following diagnostic software:

- IRIX based field diagnostics
- Field Stress Tool (FST)
- System Verification Program (SVP)

The *Internal Support Tools* CDs are available only to SGI support personnel (for example, System Support Engineers).

Figure 1-3 shows the ESP architecture when a Web-based interface is used. Figure 1-4 shows the ESP architecture when a command line interface is used. Descriptions of the components follow the figures.

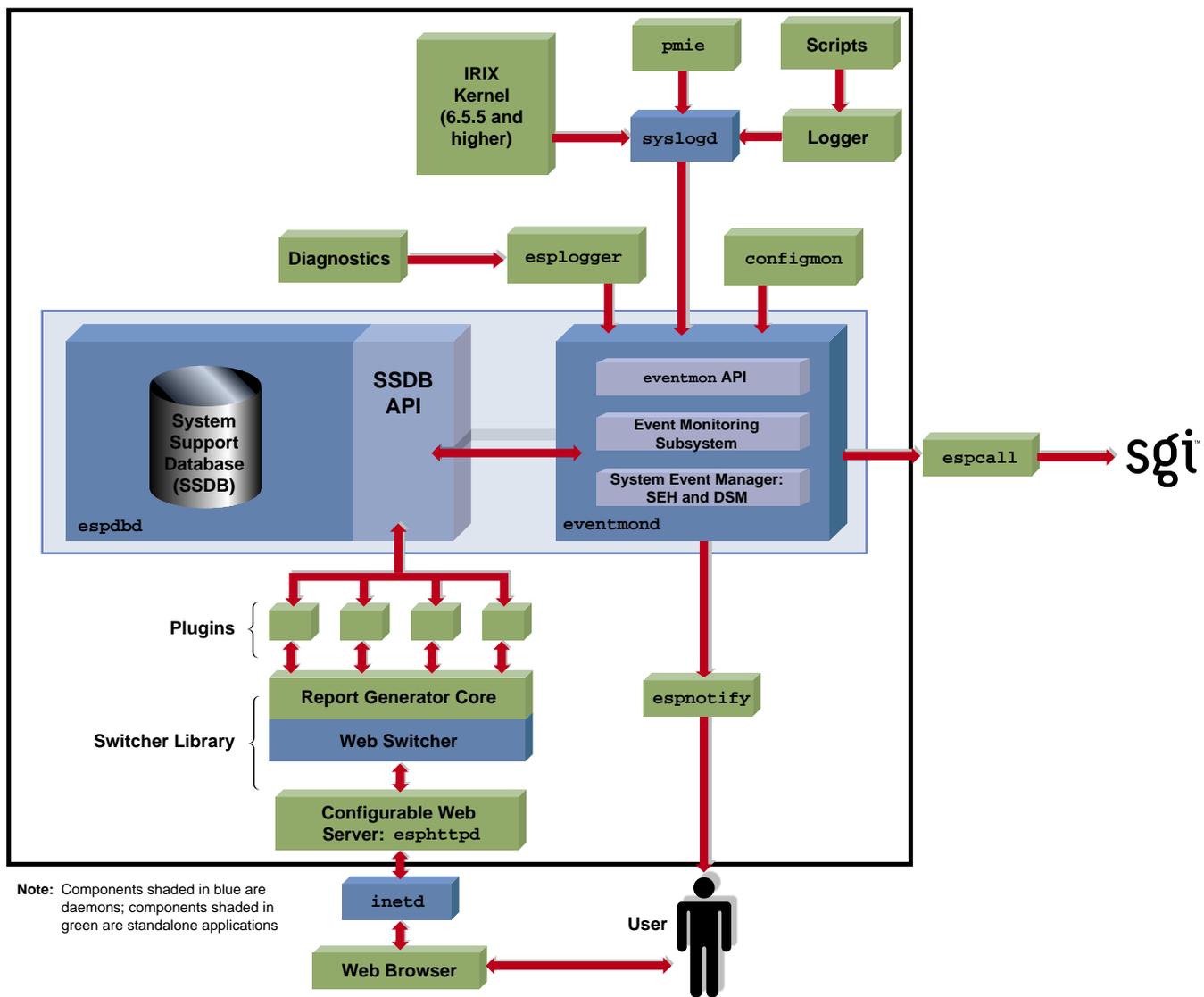


Figure 1-3 ESP Architecture (Using Web Browser)

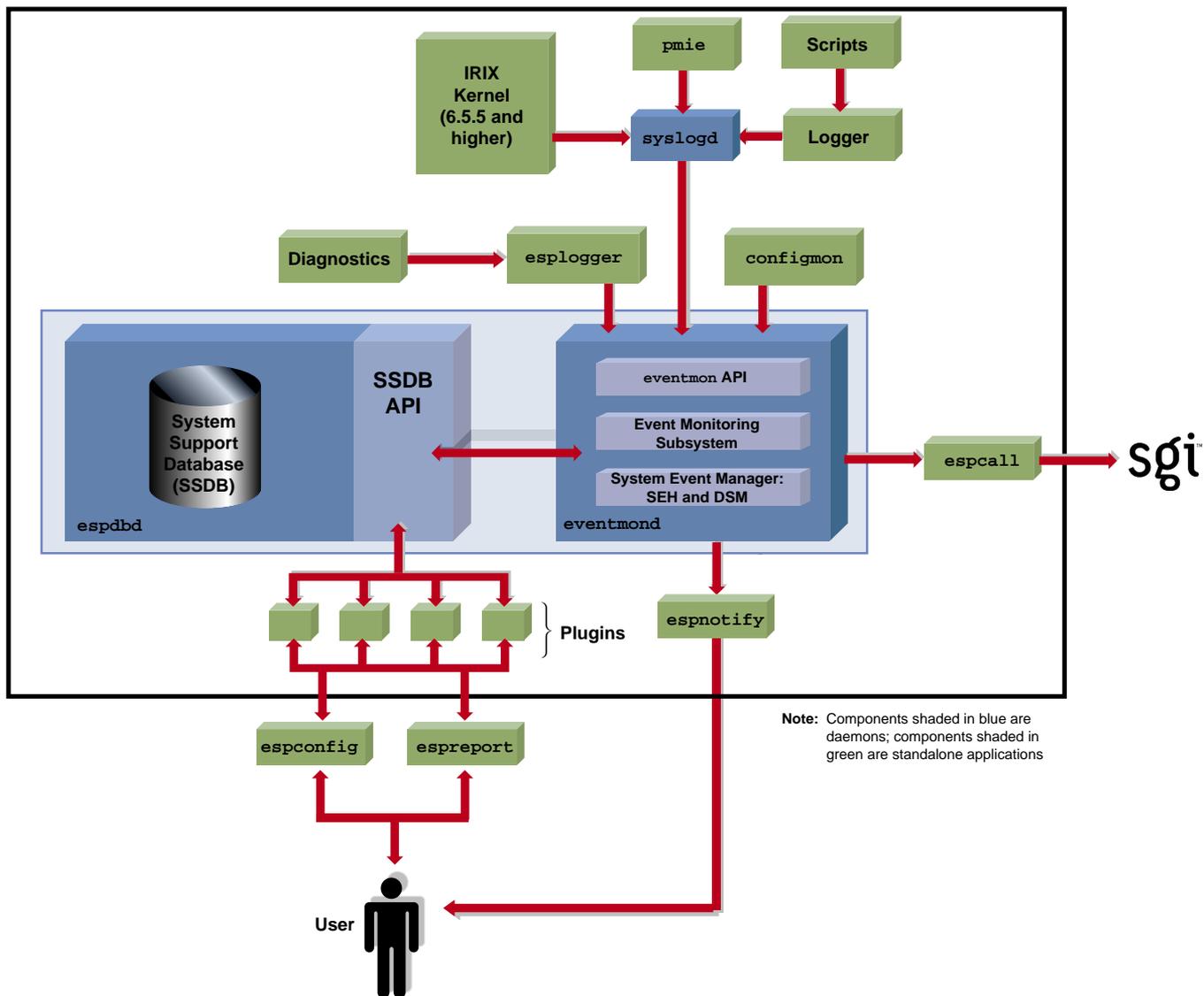


Figure 1-4 ESP Architecture (Using Command Line Interface)

Core Software

The core software includes the functionality that is necessary to process events, to determine the action to perform, and to store data about the system that ESP is monitoring.

The core software includes the following components:

- System Support Database (SSDB)
- System Event Manager (SEM)

System Support Database (SSDB)

The SSDB is the central repository for all system support data. It contains the following data types:

- System configuration data
- System event data
- System actions for system events
- System availability data
- Diagnostic test data
- Task configuration data

The SSDB includes a server that runs as a daemon, `espdbd`, which starts at boot time.

Note: ESP includes a utility (`esparchive`) that you can use to archive the current SSDB data, which reduces the amount of disk space that is used.

System Event Manager (SEM)

The SEM, which runs as threads of the `eventmond` daemon, is the control center of ESP. It includes the following components:

- A system event handler (SEH)
- A decision support module (DSM)

The SEH logs events into the SSDB (after validating and throttling/filtering) and passes the events to the DSM for processing.

The DSM is a rules-based event management subsystem. The main tasks of the DSM are:

- Parsing rule(s) for an event
- Initiating any necessary action(s) for an event
- Logging the actions that were performed in the SSDB

The DSM receives events from the SEH and then applies user-configurable rules to each event. If necessary, the DSM executes any actions that are assigned to the events.

Monitoring Software

A key function of ESP is monitoring the system. The ESP base package includes software that enables the following types of monitoring on a system:

- Configuration monitoring (with the `configmon` tool)
- Event monitoring (with the `eventmond` daemon)
- Availability monitoring (with the `availmon` tool)

Monitoring is performed by tools that run as stand-alone programs and communicate with the ESP control software.

Note: Performance monitoring is available through the `pmie` application, which is included in the Performance Co-Pilot Execution Only Environment (`pcp_eoe` subsystem). Refer to “Performance Monitoring Tools” on page 20 for more information.

Configuration Monitoring

The base package includes a configuration monitoring application, `configmon`. The `configmon` application monitors the system configuration by performing the following functions when configuration events occur:

- It determines the current software and hardware configuration of a system, gathering as much detail as possible (for example, serial numbers, board revision levels, installed software products, installed patches, installation dates, etc.).
- It verifies that the configuration data in the SSDB is up-to-date by comparing the current system configuration data with the configuration data in the SSDB.
- It updates the SSDB so that it is current (with information about the hardware or software that has changed).

- It provides data for various system configuration reports that the system administrator or field support personnel can use.

The `configmon` application runs at system start-up to gather updated configuration information.

Event Monitoring

ESP is an event-driven system. Events can come from various sources. Examples of events are:

- Configuration events
- Inferred performance events
- Availability events
- System critical events (from the kernel and various device drivers)
- Diagnostic events

The ESP base package includes an event monitoring subsystem to monitor important system events that are logged into `syslogd` by the kernel, drivers, and other system components. This subsystem is part of the `eventmond` daemon, which starts at boot time immediately after the `syslogd` daemon starts.

All events pass to the event monitoring subsystem from one of the following paths:

- `syslogd`
- `esplogger`
- `eventmon` API

The `eventmond` daemon monitors events from `syslogd`, and the `eventmon` API and uses the SEM to log the events in the SSDB. `syslogd` performs some event throttling/filtering. You can configure ESP to do more extensive event throttling/filtering, which reduces system resource overhead when `syslogd` logs a large number of duplicate events because of an error condition.

If the SSDB server is not running when `eventmond` attempts to log events, `eventmond` buffers the events until it can successfully log the events.

The `eventmon` API provides the mechanism that enables tasks to communicate with `eventmond`. The `eventmond` daemon receives information from external monitoring tasks

through API function calls that the tasks send or that `esplogger` sends to `eventmond`. Each command that is sent to `eventmond` returns a status code that indicates successful completion or the reason that a failure occurred.

Availability Monitoring

The base package also includes an availability monitoring application, `availmon`. The `availmon` application monitors machine uptime and differentiates between controlled shutdowns, system panics, power cycles, and power failures.

Availability monitoring is useful for high-availability systems, production systems, or other customer sites where monitoring availability information is important.

The `availmon` application runs at start-up to gather the availability data.

Notification Software

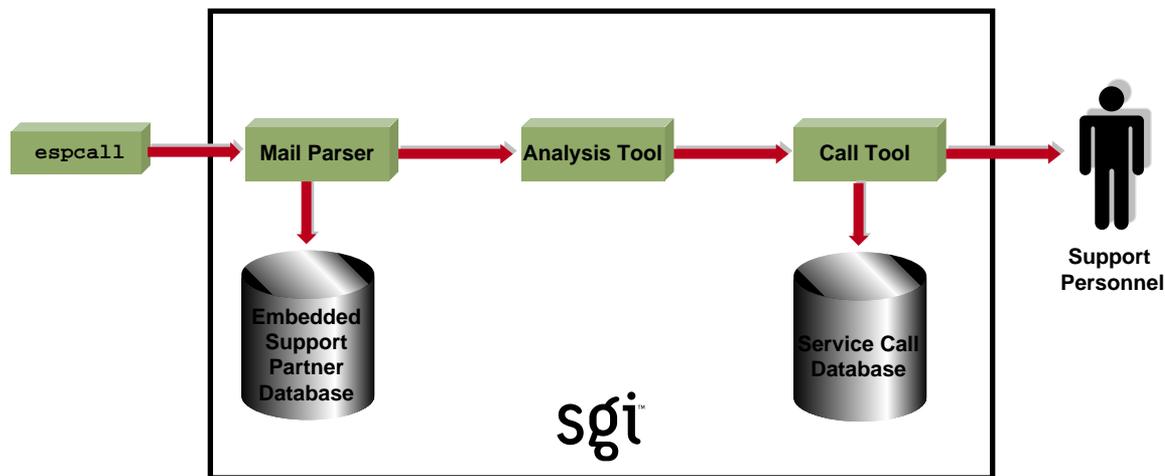
Notification is one of the actions that can be programmed to take place when a particular system event occurs. The notification software provides several types of notifiers, including dialog boxes on the local system, e-mail, paging, and diagnostic reports and other types of reports.

The `espnotify` tool provides the following notification capabilities for ESP:

- E-mail notifications
- GUI-based or console text notifications (with audio if the notification is on the local host)
- Program execution for notification
- Alphanumeric and chatty paging through the `Qpage` application

Typically, the Decision Support Module (DSM) invokes the `espnotify` tool in response to some event. However, you can run the `espnotify` tool as a stand-alone application, if necessary.

The `espcall` tool sends event information from a system to the main ESP database at SGI. Figure 1-5 shows how this information is processed.



- 1) espcall sends e-mail to SGI with information about the event.
- 2) A mail parser application running at SGI receives the e-mail and logs the data in the master ESP database.
- 3) An analysis tool analyzes a set of business rules for the event and determines if a service call should be opened.
- 4) If a call needs to be opened, the call is created in the service database and the appropriate support personnel are notified.

Figure 1-5 Sending Event Information to SGI

SGI uses the event information to provide faster and more accurate response to potential system problems. (Any customer can send event information to SGI; however, service calls are automatically opened only for customers whose service contracts include this option.)

Console Software

The ESP base package includes console software that enables you to interact with it from a Web browser. The console software uses the Configurable Web Server (`esphttpd`) to receive input from the user, send it to the ESP software running on the system, and return the results to the user. (`inetd` invokes `esphttpd` whenever a Web server connection is needed.)

The console software also includes a report generator core and a set of plugins to create various types of reports. These reports are based on the data that ESP tasks provide, such as `configmon`, `availmon`, etc.

In the base package, you can access the following types of reports:

- System, hardware, and software configuration reports (current and historical)
- System event reports
- Event action reports
- Local system metrics (MTBI, availability, etc.)
- ESP configuration

The extended package enables you to generate enhanced site-level reports and reports for any system on the site.

Web-based Interface

If you use a graphical Web browser (for example, Netscape Communicator) to access the Web server, the console software provides a graphical Web-based interface that supports the following functionality:

- Configuring the behavior of ESP
- Configuring the Web server
- Configuring system groups
- Configuring the behavior of tasks
- Setting up monitors and associated thresholds
- Setting up notifiers
- Generating reports for a single system or group of systems

- Accessing system consoles and system controllers
- Remotely controlling a system with the IRISconsole multiserver management system

To access the Web-based interface, enter the `launchESPpartner` command or double-click on the `Embedded_Support_Partner` icon (which is located on the `SupportTools` page of the icon catalog).

Command Line Interface

If you prefer to use a command line interface, the Command Line Application (CLA) software enables you to connect to ESP without using a Web server. This enables ESP to be used at a site where the Web server cannot be used for security reasons. It also enables ESP to be used over slower remote connections because only text is transferred across the connection.

There are two components to the CLA software:

- `espconfig`
- `espreport`

The `espconfig` command enables you to configure ESP.

The `espreport` command enables you to generate and view reports.

Note: You must use the root account or an account with root privileges to execute the `espconfig` and `espreport` commands.

External Tools

The following external tools can interface with the ESP framework to provide data about events that are external to ESP:

- Performance monitoring tools
- Diagnostic tools

These tools are not part of the ESP package and must be loaded separately.

Performance Monitoring Tools

The performance metrics inference engine application, `pmie`, which is included in the Performance Co-pilot Execution Only Environment (`pcp_eoe` subsystem) can interface with the ESP framework to provide ESP with performance monitoring events.

`pmie` is an inference engine for performance metrics: It evaluates a set of performance rules at specified time intervals. You can use a separate utility to customize and extend the rules and their attributes.

Refer to the *Performance Co-Pilot IRIX Base Software Administrator's Guide*, publication number 007-3964-001, for more information about `pmie` and the `pcp_eoe` subsystem.

Diagnostic Tools

The support tools included in the *Internal Support Tools 2.0* CD and later releases can also interface with the ESP framework. If you install the *Internal Support Tools 2.0* CD or a later release, ESP collects data from the following diagnostic tools described in Table 1-2.

Table 1-2 Diagnostic Tools That Send Events to ESP

Tool	Description
IRIX based diagnostics	<p>The IRIX based diagnostics test the following hardware components while IRIX is running on a system:</p> <ul style="list-style-type: none"> CPU hardware Ethernet hardware on the BaseIO boards Floating-point unit on the Node boards Graphics hardware (DIVO and InfiniteReality hardware) LINC DMA hardware on the Node, ATM, and HIPPI-S boards MediaIO boards Memory Networking hardware (ATM, BaseIO, HIPPI-S, and MENET boards) RAID array hardware Router boards, MetaRouter boards, and connecting cables
FST	<p>FST is an IRIX based application that simulates varying customer application loads on SGI Origin 200, Origin 2000, and Challenge servers; and Silicon Graphics Onyx and Onyx2 workstations to determine the functionality of these systems. It is a proactive tool that validates a system by running heavy loads on the system.</p>
SVP	<p>SVP is an IRIX based software tool that loads and runs a suite of test programs. SVP generates a set of files that report the results of this activity.</p>
ICRASH	<p>ICRASH is a system crash analysis tool that can greatly enhance your ability to analyze IRIX system core dumps. It contains many features that enable it to display information in a clear, easy-to-read manner about the events that precede a system crash.</p> <p>The <code>availmon</code> component of ESP uses data from ICRASH to determine the cause of any system interruptions that <code>availmon</code> detects. The <code>availmon</code> reports also include ICRASH data.</p> <p>Note: ICRASH is included as part of the operating system release; it is not included on the <i>Internal Support Tools</i> CD.</p>

You can run the tools from the command line or from their individual user interfaces. (User interfaces are available only for the field diagnostics and FST.)

The *Internal Support Tools* CDs are available only to SGI support personnel (for example, System Support Engineers).

Remote Support Capability

Remote support capability enables you to connect to the console software (with a Web browser) or directly to ESP (with the command line application) from a remote location. This capability enables you to control ESP from the remote location and provides SGI support personnel with a “virtual seat” on the system or systems on which they need to work.

Remote support capability is built into ESP. The only requirement is a communication channel (for example, a network connection) to the site.

Accessing ESP

This chapter describes how to use the command line interface and Web-based interface to access ESP on your systems. It also describes how to configure single system management and system group management for your systems.

All ESP components are installed on your system by default when you load an operating system release or patch that contains ESP. ESP begins monitoring your system when the system is booted. You can access ESP by using the command line interface or Web-based interface.

Using the Command Line Interface

The command line interface includes two commands: `espcfg` and `espreport`. The `espcfg` command configures ESP. The `espreport` command generates and displays ESP reports.

`espcfg` has the following command line options:

```
system# espcfg -help

Information Commands
-----
espcfg -help [ <prototype> ]
espcfg -spec
espcfg -version

Event Configuration
-----
espcfg -show evtype {-tid <type id>|-td <type desc>}
                    [-sgmclient <client alias>]
espcfg -list evtype [-cid <class id>|-cd <class desc>]
                    [-sgmclient <client alias>]
```

```
espconfig -add evtype -td <type desc>
    {-cid <class id>|-cd <class desc>}
    [-throttle <value>]
    [-enable|-disable]
    [-acfreq <action frequency value>]
    [-acid <action id>|-acd <action desc>]
espconfig -update evtype -tid <type id>
    [-sgmclient <client alias>]
    [-td <type desc>]
    [-throttle <value>]
    [-enable|-disable]
    [-acfreq <action frequency value>]
    [-acid <action id>|-acd <action desc>]
    [-noacid <action id>|-noacd <action desc>]
espconfig -delete evtype {-tid <type id>|-td <type desc>}
espconfig -update evclass -cid <class id> -cd <class desc>
espconfig -delete evclass {-cid <class id>|-cd <class desc>}
espconfig -list evclass
espconfig -delete events [-sysid <system id>|-host <host name>]
```

Event Action Configuration

```
-----
espconfig -show evaction {-acid <action id>|-acd <action desc>}
espconfig -list evaction
espconfig -add evaction -acd <action desc> -act <action string>
    [-enable|-disable]
    [-user <name>]
    [-tout <timeout value>]
    [-retry <count>]
    [-throttle <value>]
espconfig -update evaction {-acd <action desc>|
    -acid <action id> [-acd <new action desc>] }
    [-act <action string>]
    [-enable|-disable]
    [-user <name>]
    [-tout <timeout value>]
    [-retry <count>]
    [-throttle <value>]
```

Exporting and Importing Environment

```
-----
espconfig -load      eventprofile <profile name>
espconfig -add       eventprofile <profile name>
espconfig -merge     eventprofile <profile name>
espconfig -drop      eventprofile <profile name>
espconfig -save      eventprofile <profile name>
espconfig -save      espenv [global][ipaddr][user][all] [-to <file name>]
espconfig -load      espenv [global][ipaddr][user][all] -from <file name>
```

IP Address Configuration

```
-----
espconfig -enable   ipaddr <IP address> ... <IP address>
espconfig -disable  ipaddr <IP address> ... <IP address>
espconfig -delete   ipaddr <IP address> ... <IP address>
espconfig -list     ipaddr <IP address> ... <IP address> [-enabled|-disabled]
```

User and User Permission Configuration

```
-----
espconfig -add      user -name <user name> [-p <password>]
espconfig -delete   user -name <user name> [-p <password>]
espconfig -update   user -name <user name> [-p <new password>]
espconfig -list     user [-name <user name>]
espconfig -createadmin
espconfig -add      permdesc -perm <permission name> -desc <permission description>
espconfig -delete   permdesc -perm <permission name>
espconfig -list     permdesc [-perm <permission name> .. <permission name>]
espconfig -add      userperm [-name <user name>] -perm <permission name>
espconfig -delete   userperm [-name <user name>][-perm <permission name>]
espconfig -list     userperm [-name <user name>][-perm <permission name>]
```

ESP Archive Management

```
-----
espconfig -list     archive [<archive name> .. <archive name>]
espconfig -drop     archive <archive name>
```

ESP Customer Profile Configuration

```
-----
espconfig -create customer_profile
    -fname <first name>
    -lname <last name>
    -phone <phone number>
    -email <email address>
    [-street1 <street address (line 1)>]
    [-street2 <street address (line 2)>]
    [-street3 <street address (line 3)>]
    [-city <city name>]
    [-state <state or province>]
    [-post <postal/zip code>]
    -country <country>
    [-site_id <site id>]
espconfig -update customer_profile
    [-fname <first name>]
    [-lname <last name>]
    [-phone <phone number>]
    [-email <email address>]
    [-street1 <street address (line 1)>]
    [-street2 <street address (line 2)>]
    [-street3 <street address (line 3)>]
    [-city <city name>]
    [-state <state or province>]
    [-post <postal/zip code>]
    -country <country>
    [-site_id <site id>]
espconfig -show customer_profile
```

Global Configuration

```
-----
espconfig -enable call_logging [-text|-comp_encoded]
    [-from <email address>]
    [-email1 <email address>]
    [-email2 <email address>]
espconfig -enable {event_registration
    |event_throttling
    |event_actions
    |shutdown_reason}
espconfig -enable mail -from <email address>
```

```

espconfig -disable {call_logging
                  |event_registration
                  |event_throttling
                  |event_actions
                  |shutdown_reason}
espconfig -disable mail
espconfig -show call_logging
espconfig -show mail
espconfig -flushdb [-sysid <system id>|-host <host name>]
                  [config|all]
espconfig -reconstructdb

```

SGM Related Commands

```

-----
espconfig -show sgmclients
espconfig -show sgmservers
espconfig -show sgmevents <client alias>
espconfig -add sgmclient <client alias> <client hostname> <server alias>
                  [-p <password>]
espconfig -add sgmserver <server alias> <server hostname> <client alias>
                  [-p <password>]
espconfig -update sgmclient <client alias> <client hostname> <server alias>
                  [-p <password>]
espconfig -update sgmserver <server alias> <server hostname> <client alias>
                  [-p <password>]
espconfig -update sgmevents <client alias>
espconfig -update sgmlicense
espconfig -ping sgmclient <client alias>
espconfig -ping sgmserver <server alias>
espconfig -delete sgmclient <client alias>
espconfig -delete sgmserver <server alias>
espconfig -show_subscription sgmclient <client alias> [-r]
espconfig -subscribe <client alias> [-f <filename>]
                  [-c <event classes list>][-e <events list>]
espconfig -unsubscribe <client alias> [-a][-f <filename>]
                  [-c <event classes list>][-e <events list>]
espconfig -sgmconvert [-c][-f]

```

Refer to Chapter 3, “Setting Up the ESP Environment,” and Chapter 4, “Configuring ESP,” for more information about using the `espconfig` command.

espreport has the following command line options:

```
system# espreport -help
```

Information Commands

```
espreport -help [ <prototype> ]
espreport -spec
espreport -version
```

Report Commands

```
espreport availability [-sysid <system id>|-host <host name>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport action_taken [-sysid <system id>|-host <host name>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport events      [-sysid <system id>|-host <host name>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
                        [-tid <type id>  |-td <type desc>]
                        [-cid <class id> |-cd <class desc>]
espreport hwchanges   [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport swchanges   [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport logbook     [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport summary     [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport sysinfo     [all]
```

Refer to Chapter 5, “Viewing Reports,” for more information about using the `espreport` command.

Using the Web-based Interface

The Web-based interface provides a graphical interface that you can use to access ESP. You can access the Web-based interface two ways:

- By using the `Embedded_Support_Partner` icon
- By using the `launchESPartner` command

Table 2-1 lists error messages that might appear when you attempt to start the Web-based interface. It also lists the cause of each message and the actions you should perform to correct the problems that caused the error messages.

Table 2-1 ESP Startup Error Messages

Error Message	Cause	Solution
There was no response. The server could be down or is not responding.	The ESP Web server is not running on the system or the system is down.	Verify that the system is running. Reboot the system, if necessary. Verify that the ESP Web server (<code>esphttpd</code>) is running on the system. Restart the ESP Web server if it is not running. If the <code>esphttpd</code> server is not running, verify that ESP is <code>chkconfig</code> 'ed on.
Forbidden Request The current request was forbidden. Please check your permissions.	Your system does not have permission to access the ESP Web server.	Add your system to the "allow access" list or remove it from the "restrict access" list. (Refer to "Setting Up the Network Permissions" on page 50.)

Table 2-1 (continued) ESP Startup Error Messages

Error Message	Cause	Solution
<p>Forbidden Request</p> <p>The current request was forbidden. Please check your permissions.</p> <p>Unable to verify that the host name matches the address.</p> <p>This may be a transient problem or a botched name server setup.</p>	<p>Reverse DNS lookup failed because ESP was not able to verify that your system IP address and hostname matched.</p> <p>Reverse DNS lookup fails if an IP address is “faked” or if the DNS server used by the ESP Web server is not working correctly.</p>	<p>If the DNS server on the system is not working correctly, perform the following actions to disable reverse DNS lookup:</p> <ol style="list-style-type: none"> 1. Add the following line to the Web server configuration file (<code>/etc/esphttpd.conf</code>): <code>ReverseDNSLookup : off</code> 2. Enter the following command to kill the current Web server process: killall esphttpd 3. Restart the <code>esphttpd</code> process. <p>Warning: Disabling the reverse DNS lookup feature increases the possibility of security problems.</p>
Authorization failed. Retry?	The username and password that you entered are not valid.	<p>Enter a valid username and password. If you forget your username and password, enter espsconfig -update user -name <username>. ESP will prompt you for a new password.</p>

Using the Embedded_Support_Partner Icon

Perform the following procedure to use the Embedded_Support_Partner icon to start the ESP Web-based graphical interface:

1. Choose **Find -> Support Tools** in the Toolchest menu. (Refer to Figure 2-1.)



Figure 2-1 Toolchest Menu

The Icon Catalog application opens to the SupportTools category. (Refer to Figure 2-2.)



Figure 2-2 Icon Catalog

2. Double-click on the Embedded_Support_Partner icon.
Netscape displays the ESP opening page. (Refer to Figure 2-3.)



Figure 2-3 ESP Opening Page

3. Specify the system that you want to access:
 - To connect to the local system, click on the `login` button.
 - To connect to a remote system, enter the system name or IP address in the `hostname` box, and click on the `login` button.

4. Enter a username and password. (Refer to Figure 2-4.)

The default username is *administrator*; the default password is *partner*.

Note: Before you use ESP the first time, enter `espconfig -createadmin` to create the default user account (administrator).



Figure 2-4 Entering a Username and Password

The ESP main page appears. (Figure 2-5 shows the main page in single system manager mode. Figure 2-6 shows the main page in system group manager mode.) The main page shows the current system and ESP configuration information and provides buttons that link to the main ESP functions.

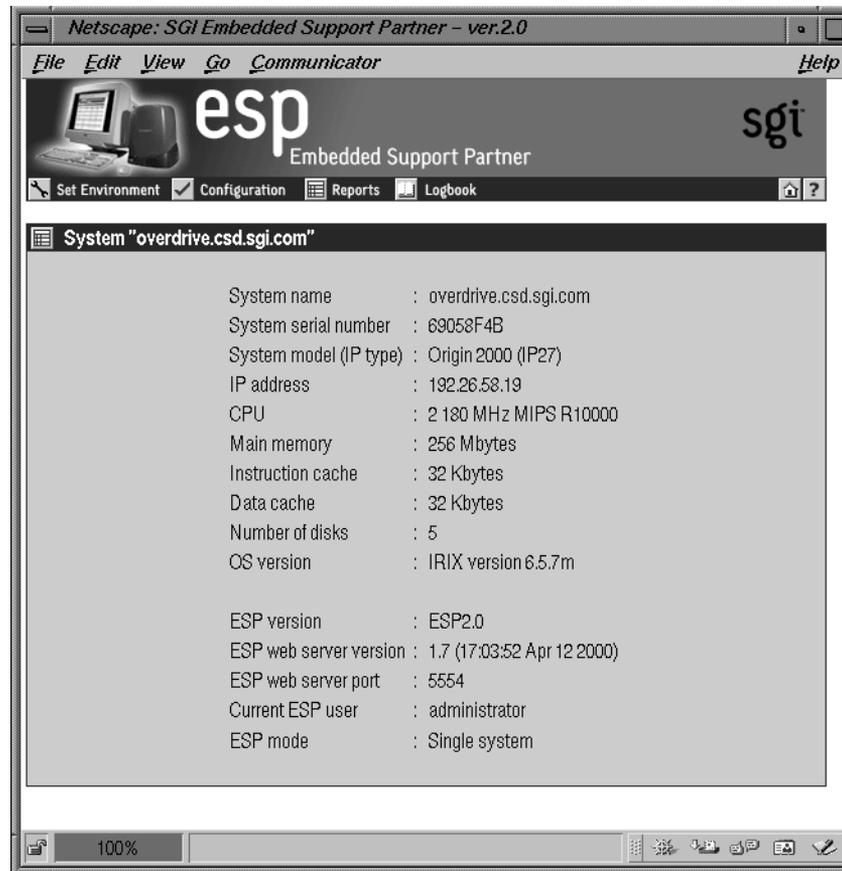


Figure 2-5 ESP Main Page (Single System Manager Mode)

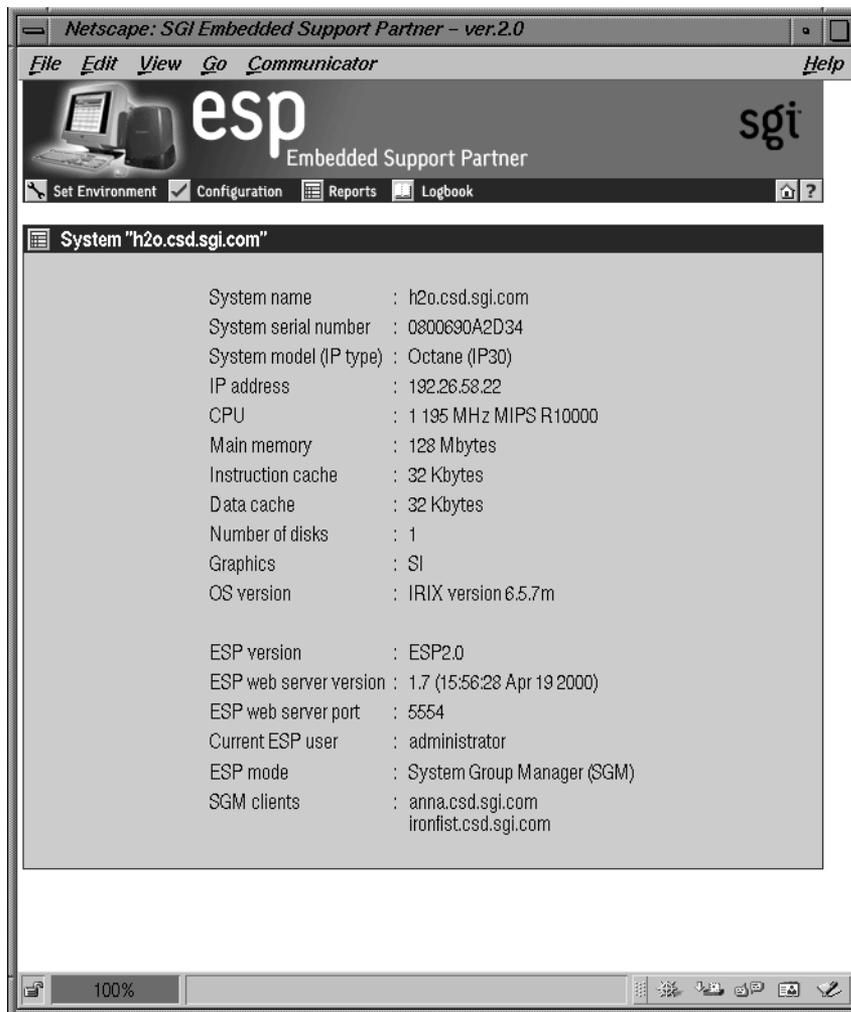


Figure 2-6 ESP Main Page (System Group Manager Mode)

Using the launchESPartner Command

Perform the following procedure to use the `launchESPartner` command to start the ESP Web-based graphical interface:

1. Enter the `launchESPartner` command.

Netscape displays the ESP opening page. (Refer to Figure 2-7.)



Figure 2-7 ESP Opening Page

2. Specify the system that you want to access:
 - To connect to the local host, click on the `login` button.
 - To connect to a remote system, enter the system name or IP address in the `hostname` box, and click on the `login` button.

3. Enter a username and password.

The default username is *administrator*; the default password is *partner*.

Note: Before you use ESP the first time, enter `espconfig -createadmin` to create the default user account (administrator).



Figure 2-8 Entering a Username and Password

The ESP main page appears. (Figure 2-9 shows the main page in single system manager mode. Figure 2-10 shows the main page in system group manager mode.) The main page shows the current system and ESP configuration information and provides buttons that link to the main ESP functions.

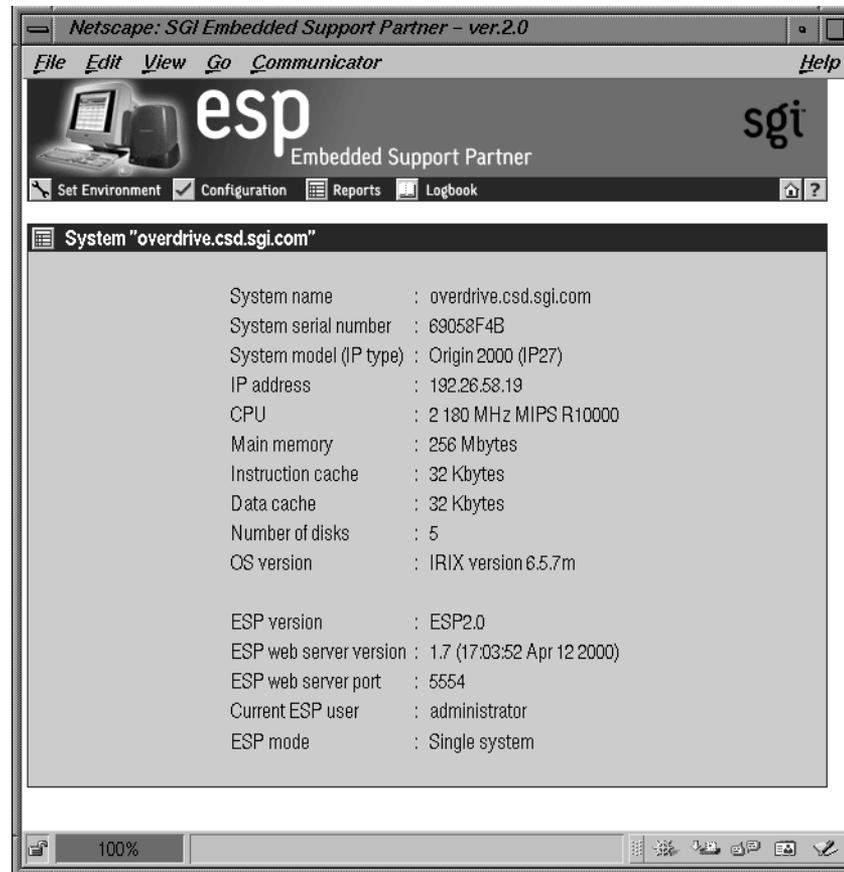


Figure 2-9 ESP Main Page (Single System Manager Mode)

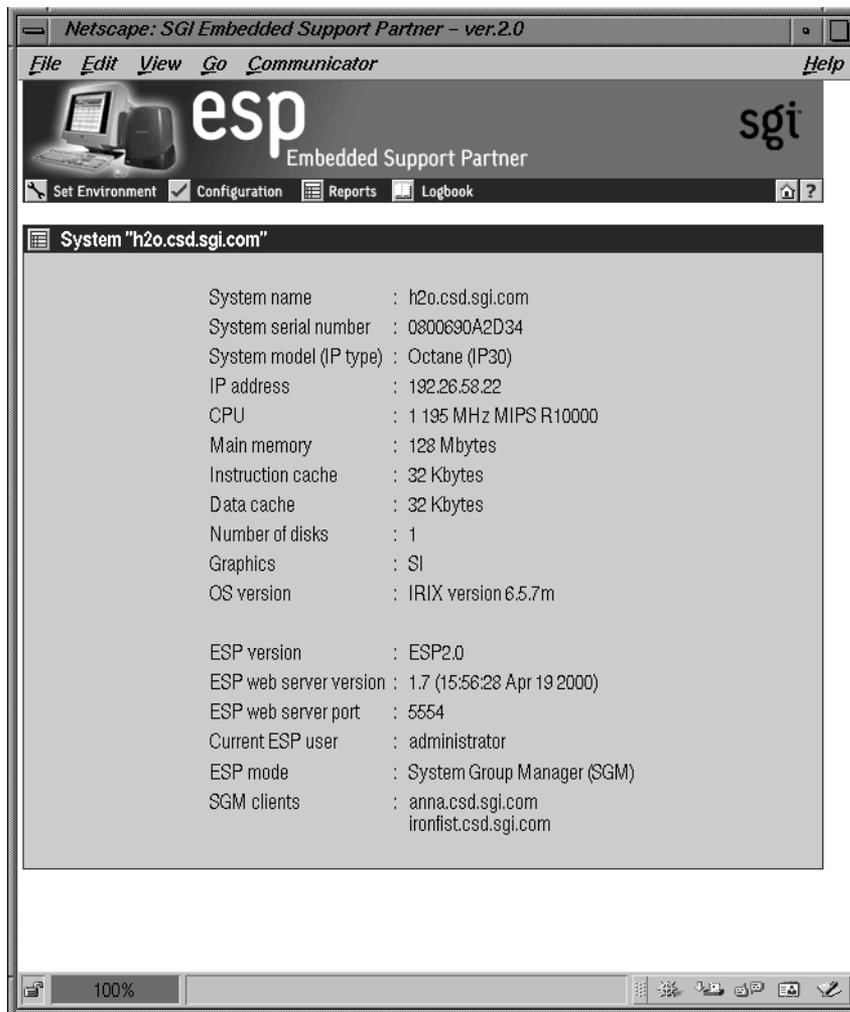


Figure 2-10 ESP Main Page (System Group Manager Mode)

Configuring Single System Management

Perform the following procedure the first time that you use single system manager mode to configure it:

1. Log into the system as root and enter `espsconfig -createadmin` to create the default user account (administrator).
2. Change the default password to prevent unauthorized access to your system. (Refer to “Updating a Password” on page 59.)
 - The default user name is `administrator`.
 - The default password is `partner`.
3. Set up any user accounts and permissions that you want on your system. (Refer to “Setting Up the User Permissions” on page 53.)
4. Set up the access lists to allow systems to connect to the Configurable Web Server that ESP uses. By default, the Configurable Web Server is configured to allow connections from the local host and refuse connections from all other IP addresses. (Refer to “Setting Up the Network Permissions” on page 50.)
5. Enter the customer profile information. (Refer to “Setting Up the Customer Profile” on page 46.)
6. Set up the global configuration parameters. (Refer to “Setting Up the Global Configuration Parameters” on page 71.)
7. If you want ESP to send pages, configure the paging parameters for your paging service provider and pager. (Refer to “Setting Up the Paging Parameters” on page 76.)
8. Modify and/or add actions. (Refer to “Configuring Actions” on page 151.)
9. Modify and/or add events. (Refer to “Configuring Events” on page 113.)

Configuring Group Management

All ESP components necessary for group management are installed on your system by default; however, you need a nodelocked license to enable the system group management (SGM) functionality.

A 90-day trial license is available. After the license expires, ESP no longer displays the interface components that perform SGM-related operations (except configuring a system as a client of another system). To obtain a permanent license, use Key-O-Matic on the SGI Web site (www.sgi.com), or contact your local SGI support office.

If you want one system to register events from other systems in a group and perform actions for those events, you must subscribe to those events on the remote systems. When the ESP software on a remote system registers subscribed events, it logs them in its database, performs any actions assigned to the events, and then forwards the events to the ESP software on the group manager system. Then, the ESP software on the group manager system registers the events, logs the events in its database, and performs any actions assigned to the events. This process creates a central repository of data on the group manager system, which enables you to access information about all of the systems in the group from a single interface.

Be aware of the following requirements as you configure group management:

- Although you can subscribe to any events that are recognized on group member systems, the systems forward only the events that have event registration enabled. (Globally disabling event registration on a group member system disables event forwarding for all events on that system. Disabling an individual event registration on a group member prevents the group member system from forwarding that event to the group manager system.)
- Event forwarding is an internal ESP action, so you must enable ESP actions on group member systems to forward events to the group manager system.
- Event forwarding is unaffected by the event throttling settings for a particular event on the group member systems. All subscribed events are delivered to the group manager and then throttled by using the settings stored on the group manager.
- On a group manager system, ESP stores event settings on a per-host basis. There are separate sets of events for each member of the group. Disabling global or individual event registration on the group manager does not propagate to the group members systems: if a group member attempts to deliver an event that is disabled on the group manager, the event is delivered to the group manager and then the event is

discarded. If you no longer need an event from a member system, you should unsubscribe the event rather than disable it on the group manager system. This reduces the overhead caused by unnecessary event delivery.

Perform the following procedure to configure group management:

1. Select the group of systems that you want to monitor. (These systems are called the “group members” or “SGM clients.”)

Each system in a group can be monitored by more than one group manager. Each group manager has an independent set of events that it monitors.

The SGM server and clients must be running the same version of ESP.

2. Select the system that you want to be the group manager. (This system is called the “group manager” or “SGM server.”)

The group manager system can also be a group member for another group manager. In that case, the other group manager treats the system as a single system.

3. Configure the ESP single system manager on each system in the group. (Refer to “Configuring Single System Management” on page 41.)

Note: Be sure to enable event registration on the group member system for all events that you want to subscribe.

4. Configure each group member-to-manager datalink.
 - Register the SGM server. (Refer to “Registering an SGM Server” on page 90.)
 - Register the SGM clients. (Refer to “Registering an SGM Client” on page 97.)
5. Subscribe to the events that you want to receive from the SGM Clients. (Refer to “Subscribing Events from SGM Clients” on page 147.)
6. Test each group member-to-manager link. (Refer to “Testing the SGM Server-to-Client Connections” on page 103.)

Setting Up the ESP Environment

This chapter describes how to set up the ESP environment on your system. The ESP environment includes the following components:

- Customer profile
- Network permissions
- User permissions
- Global configuration
- Paging parameters
- Database archives
- System Group Manager (SGM) parameters

You must set up the environmental components when you first configure ESP on a system. After that, modify specific parameters only when the corresponding environmental component changes (for example, if you change paging service providers, you must modify the paging parameters).

Setting Up the Customer Profile

Customer profiles provide contact information for a system/site. If the service contract for your site includes automatic call logging, ESP sends the name, telephone number, and e-mail address of the contact person to the call logging tool at SGI.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to set up the customer profile for a system:

1. Click on the `Set Environment` button.

By default, the interface displays the `Create Customer Profile` window. (Refer to Figure 3-1.)

The screenshot shows a Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The browser's menu bar includes "File", "Edit", "View", "Go", "Communicator", and "Help". The address bar contains "Back", "Forward", "Reload", "Home", "Search", "Guide", "Print", "Security", and "Stop". The main content area features the "esp Embedded Support Partner" logo and a navigation menu with options: "Set Environment", "Configuration" (checked), "Reports", "Logbook", "Customer Profile" (selected), "Network Permissions", "User Permissions", "Global Config", "Paging", "Archive", and "SGM".

The "Create Customer Profile" form is divided into two sections:

- Required:**
 - First Name:
 - Last Name:
 - Phone Number (include country and/or area code(s)):
 - E-mail Address:
 - Country:
- Optional:**
 - Site ID:
 - Street Address 1:
 - Street Address 2:
 - Street Address 3:
 - City:
 - State:
 - Postal Code (ZIP Code):

An "Add" button is located at the bottom of the form. The browser's status bar shows "100%" zoom and various system icons.

Figure 3-1 Update Customer Profile Window (Web-based Interface)

2. Update the customer profile parameters. (Table 3-1 describes the parameters.)

Table 3-1 Customer Profile Parameters

Parameter	Description
Required Parameters^a	
First Name	First name of the site contact person
Last Name	Last name of the site contact person
Phone Number	Phone number of the site contact person (include only numbers and dashes; for example: 1-715-123-4567)
E-mail Address	E-mail address of the site contact person (ESP sends a copy of any automated e-mail messages to this address)
Country	Country where the site is located
Optional Parameters^b	
Site ID	Identification number for the site
Street Address 1	Street address for the site
Street Address 2	
Street Address 3	
City	City where the site is located
State	State where the site is located
Postal Code (Zip Code)	Postal code or zip code of the site location

a. Information in the required fields is necessary to enable automatic call logging. If this information is not provided, automatic call logging is disabled.

b. Although these fields are optional, it is recommended that you provide this information

3. Click on the Add button.

Using the Command Line Interface

You can use the `espconfig` command to view, set up, or modify the customer profile from the command line interface:

- Use the following command syntax to view the current customer profile:

```
/usr/sbin/espconfig -show customer_profile
```

- Use the following command syntax to set up the initial customer profile:

```
/usr/sbin/espconfig -create customer_profile
-fname <first name>
-lname <last name>
-phone <phone>
-email <email>
[-street1 <street address line1>]
[-street2 <street address line2>]
[-street3 <street address line3>]
[-city <city>]
[-state <state/province>]
[-zip <postal code>]
[-country <country>]
[-site_id <site id>]
```

- Use the following command syntax to update an existing customer profile:

```
/usr/sbin/espconfig -update customer_profile
[-fname <first name>]
[-lname <last name>]
[-phone <phone>]
[-email <email>]
[-street1 <street address line1>]
[-street2 <street address line2>]
[-street3 <street address line3>]
[-city <city>]
[-state <state/province>]
[-post <postal code>]
[-country <country>]
[-site_id <site id>]
```

Setting Up the Network Permissions

Network permissions enable you to specify which systems can access the Web server that ESP uses. These permissions provide a layer of security to prevent unauthorized systems from accessing ESP data from your systems.

If you want to restrict access to ESP, you must set up a “restrict access” list and an “allow access” list. (If you do not set up a “restrict access” list, all IP addresses can connect to ESP regardless of the “allow access” list settings because the default configuration allows connections from all IP addresses if no “restrict access” list exists.)

The most secure configuration is to set the “restrict access” list to all hosts (*. *.*.*) and set the “allow access” list to the hosts that you want to have access to ESP. (For example, set the “allow access” list to 197.*.*.* and the “restrict access” list to *.*.*.* if you want only the systems that have IP addresses that begin with 197 to have access to ESP.)

Caution: All changes that you make to the “restrict access” and “allow access” lists immediately take effect. Ensure that you do not set up access lists that prevent your administration system from connecting to ESP.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to set up network permissions:

1. Click on the `Set Environment` button.
2. Click on the `Network Permissions` button.

The interface displays the `Network Permissions` window. (Refer to Figure 3-2.)

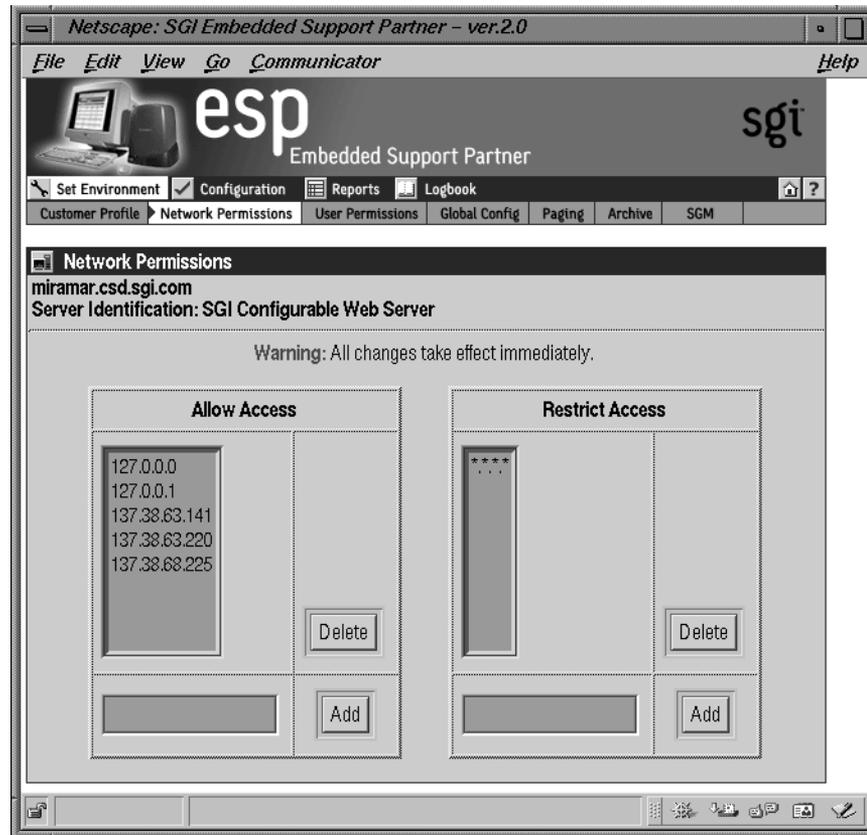


Figure 3-2 Network Permissions Window (Web-based Interface)

3. To modify the `Allow Access` list:

- To add an address, enter the IP address or IP address mask (using * as a wild card for one or more values in the address) in the box, and click on the `Add` button.
- To delete an address, click on the address in the `Allow Access` list, and click on the `Delete` button.

4. To modify the `Restrict Access` list:
 - To add an address, enter the IP address or IP address mask (using `*` as a wild card for one or more values in the address) in the box, and click on the `Add` button.
 - To delete an address, click on the address in the `Restrict Access` list, and click on the `Delete` button.

Using the Command Line Interface

You can use the `espsconfig` command to set up the network permissions from the command line interface:

Tip: Use an asterisk as a wild card character in any of the IP addresses that you enter for the `<ip address>` parameter (for example, `123.23.2.*`, `123.255.*.*`, and `*.*.*.*`).

- Use the following command syntax to enable IP addresses to access the ESP Web server:

```
/usr/sbin/espsconfig -enable ipaddr <ip address> ... <ip address>
```

You must specify at least one IP address. If you specify an IP address that is already enabled, it remains enabled. If you specify an IP address that is disabled, ESP moves it from the “restrict access” list to the “allow access” list to enable it for Web server access. If you specify a new IP address, ESP adds it to the “allow access” list to enable it for access to the Web server.

- Use the following command syntax to restrict IP addresses from accessing the ESP Web server:

```
/usr/sbin/espsconfig -disable ipaddr <ip address> ...<ip address>
```

You must specify at least one IP address. If you specify an IP address that is disabled, it remains disabled. If you specify an address that was enabled for Web server access, ESP moves it from the “allow access” list to the “restrict access” list to prevent it from accessing the Web server. If you specify a new IP address, ESP adds it to the “restrict access” list to prevent it from accessing the Web server.

- Use the following command syntax to delete IP addresses from the access lists on the system:

```
/usr/sbin/espsconfig -delete ipaddr <ip address> ...<ip address>
```

You must specify at least one IP address.

- Use the following command syntax to list the IP addresses that are contained in the access lists on the system and the current state of the IP addresses:

```
/usr/sbin/espconfig -list ipaddr <ip address>...<ip address>  
[-enabled | -disabled]
```

If you do not specify an IP address, this command lists all IP addresses in the access lists on the system. If you specify the `-enabled` option, this command lists only the IP addresses that are in the “allow access” list. If you specify the `-disabled` option, this command lists only the IP addresses that are included in the “restrict access” list.

Setting Up the User Permissions

User permissions provide an additional security layer by enabling you to create individual user accounts within ESP. Each user account can have access to different areas of ESP (for example, one account could have access only to availability reports and a second account could have access to all reports).

ESP contains one user account by default (login: `administrator`; password: `partner`). The administrator account has full access to all ESP features.

Note: This is no direct correlation between ESP user accounts and “normal” user accounts on a system.

Viewing the Current Users

You can view a list of all ESP user accounts that are currently available.

Using the Web-based Interface

1. Click on the `Set Environment` button.
2. Click on the `User Permissions` button.

The interface shows the list of current users. (Refer to Figure 3-3.)



Figure 3-3 Current User List (Web-based Interface)

Using the Command Line Interface

Use the following syntax of the `espconfig` command to view a list of current users:

```
/usr/sbin/espconfig -list user [-name <username>]
```

If you include the `-name` option, this command displays information about a specific user. If you do not include the `-name` option, this command lists all users.

Adding a User

Any user with the “Set Environment” permission can add new users and configure access permissions for them.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to add a user:

1. Click on the `Set Environment` button.
2. Click on the `User Permissions` button.
3. Click on the `Add User` button.

The interface displays the `Add User` window. (Refer to Figure 3-4.)



Figure 3-4 Add User Window (Web-based Interface)

4. Enter the login name for the user in the `User Name` field.
User names have the following restrictions:
 - User names are case sensitive; for example, `User` is different than `USer`.
 - User names cannot be more than 126 characters.
 - User names cannot include the following characters: `? & * " < > %`
5. Enter the password for the user in the `Password` field.
Passwords have the following restrictions:
 - Passwords are case sensitive; for example, `Password` is different than `PASsword`.
 - Passwords cannot be more than 126 characters.
 - Passwords cannot include the following characters: `? & * " < > % <SPACE> <Tab>`
6. Re-enter the password for the user in the `Verify Password` field. (You must enter the password twice to ensure that it is entered correctly.)
7. Set the permissions for the user. (Table 3-2 describes the permissions.)

Table 3-2 Available User Permissions

Permission	Description
Set Environment	Enables the user to perform all activities in the <code>Set Environment</code> section of the interface (set up customer profile, network permissions, user permissions, global configuration, paging parameters, archive settings, and SGM settings)
Configuration	Enables the user to perform all activities in the <code>Configuration</code> section of the interface (configure events, actions, performance monitoring, and system monitoring)
Events, Actions and Diagnostics Reports	Enables the user to view all event reports, action reports, and diagnostic reports
Availability Reports	Enables the user to view availability reports
HW and SW Reports	Enables the user to view hardware inventory reports, software inventory reports, and system reports
View Logs	Enables the user to view logbook entries
Create Log	Enables the user to create logbook entries

8. Click on the `Add User` button.

Using the Command Line Interface

Use the following syntax of the `espsconfig` command to add a new user:

```
/usr/sbin/espsconfig -add user -name <username> [-p <password>]
```

User names have the following restrictions:

- User names are case sensitive; for example, User is different than USer.
- User names cannot be more than 126 characters.
- User names cannot include the following characters: ? & * " < > %

Passwords have the following restrictions:

- Passwords are case sensitive; for example, Password is different than PAssword.
- Passwords cannot be more than 126 characters.
- Passwords cannot include the following characters: ? & * " < > % <SPACE> <Tab>

Updating a Password

Any user with the “Set Environment” permission can update user passwords. (You must know a user’s current password to update their password. If a user forgets their password, delete their current user account and create a new account with the same user name.)

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to update a user password:

1. Click on the `Set Environment` button.
2. Click on the `User Permissions` button.
3. Click on the `Update Password` button.

The interface displays the `Update Password for User` window. (Refer to Figure 3-5.)



Figure 3-5 Update Password Window (Web-based Interface)

4. Select the user whose password you want to update.
5. Click on the `Update Password` button.

The interface displays the `Add User` window. (Refer to Figure 3-4.)

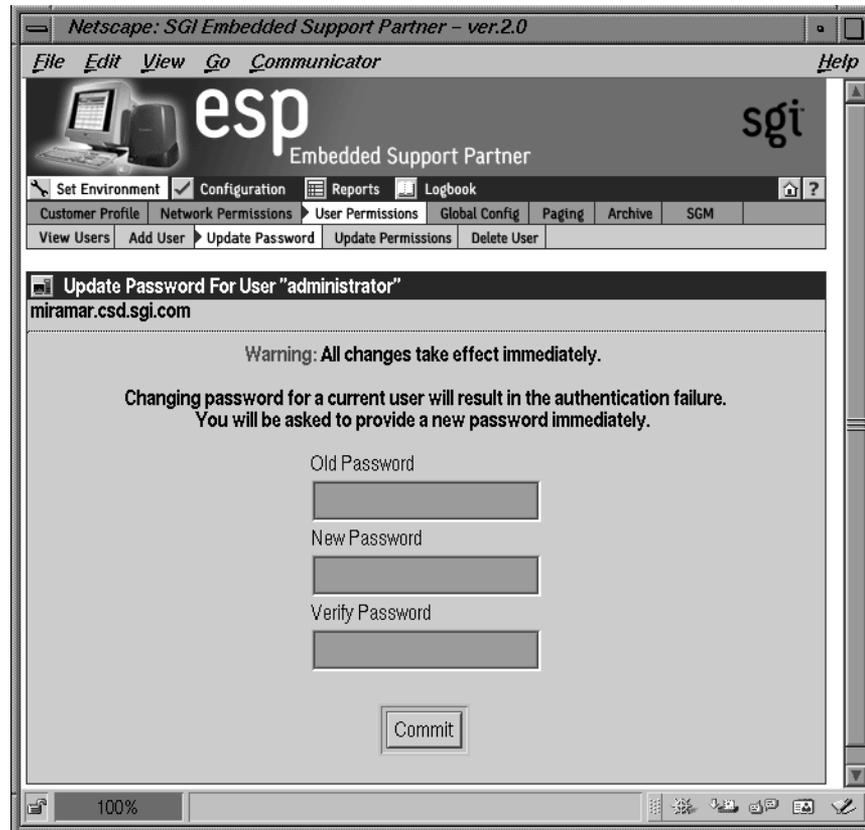


Figure 3-6 Update Password for User Window (Web-based Interface)

6. Enter the old password for the selected user in the `Old Password` field.
7. Enter the new password in the `New Password` field.

Passwords have the following restrictions:

- Passwords are case sensitive; for example, `Password` is different than `PASsword`.
- Passwords cannot be more than 126 characters.
- Passwords cannot include the following characters: `? & * " < > % <SPACE> <Tab>`

8. Re-enter the new password in the `Verify Password` field. (You must enter the password twice to ensure that it is entered correctly.)
9. Click on the `Commit` button.

Note: If you change the password for the account you are currently using, the interface displays an `Authorization Failed` message and prompts you for the new password.

Using the Command Line Interface

Use the following syntax of the `espcnfig` command to update a password:

```
/usr/sbin/espcnfig -update user -name <username> [-p <new_password>]
```

Passwords have the following restrictions:

- Passwords are case sensitive; for example, `Password` is different than `PAssword`.
- Passwords cannot be more than 126 characters.
- Passwords cannot include the following characters: `? & * " < > % <SPACE> <Tab>`

Updating Permissions for a User

Any user with “Set Environment” permission can update permissions for other users. (Updating permissions enables you to add or remove specific permissions for a user.)

Note: If a user attempts to access a feature for which he/she does not have permission, the interface displays an `Authorization Failed` message and ESP does not perform the requested operation.

Caution: Do not change the permissions for the administrator account. The administrator account is the main ESP account and should always have full permissions.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to update permissions for a user:

1. Click on the `Set Environment` button.
2. Click on the `User Permissions` button.
3. Click on the `Update Permissions` button.

The interface displays the `Update User's Permissions` window. (Refer to Figure 3-7.)



Figure 3-7 Update User's Permissions Window (Web-based Interface)

4. Select the user whose permissions you want to update.
5. Click on the `Update Permissions` button.

The interface updates the `Update User's Permissions` window. (Refer to Figure 3-8.)

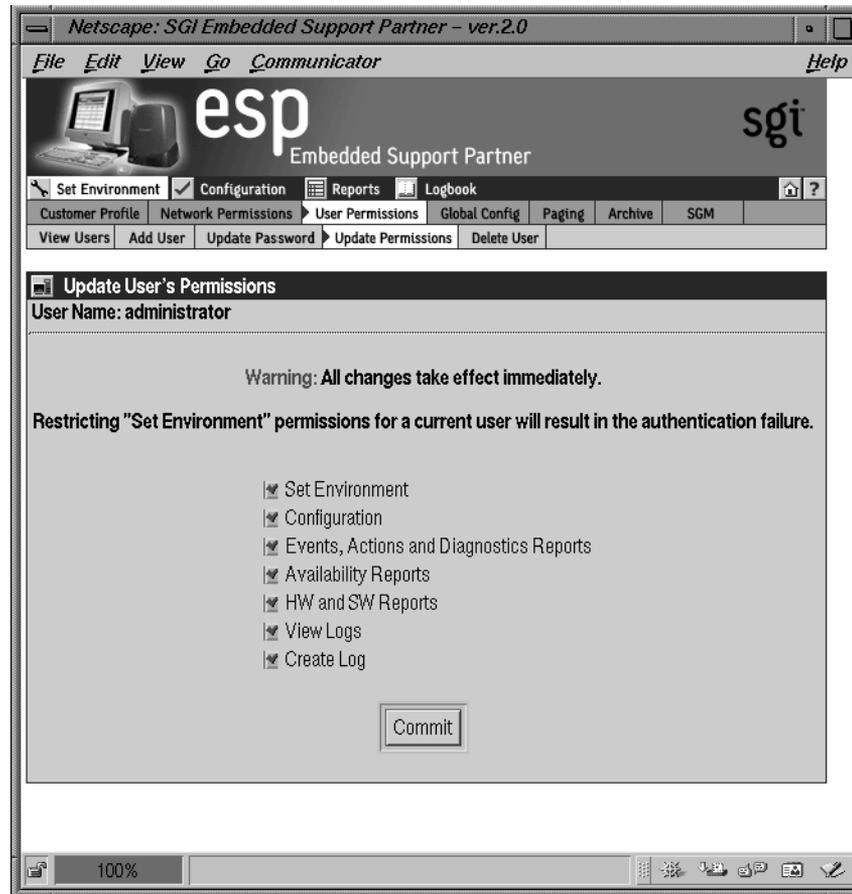


Figure 3-8 Updated Update User Permissions Window (Web-based Interface)

6. Select the permissions that you want the user to have. (Refer again to Table 3-2 on page 57 for descriptions of the permissions.)

Note: Restricting the “Set Environment” permission for the current user causes the interface to display an `Authorization Failed` message because the account no longer has access to the `Update Permissions` command.
7. Click on the `Commit` button.

Using the Command Line Interface

You can use the `espconfig` command to list the available permissions on a system and to list, add, or delete user permissions:

- Use the following command syntax to create the default user account and password:

```
/usr/sbin/espconfig -createadmin
```

- Use the following command syntax to list the permissions that are available on a system:

```
/usr/sbin/espconfig -list permdesc [-perm <permission name>..<permission name>]
```

If you do not specify a specific permission name, this command displays all permissions that are available on the system.

- Use the following command syntax to add a new type of permission to a system:

```
/usr/sbin/espconfig -add permdesc -perm <permission name> -desc <permission description>
```

- Use the following command syntax to delete a specific type of permission from a system:

```
/usr/sbin/espconfig -delete permdesc -perm <permission name>
```

- Use the following command syntax to list permissions for a user:

```
/usr/sbin/espconfig -list userperm [-name <user name>] [-perm <permission name>]
```

If you do not specify a user name, this command lists all users. If you do not specify a permission name, this command lists all permissions. If you do not specify a user name or permission name, this command lists all permissions for all users.

- Use the following command syntax to add new permissions for a user:

```
/usr/sbin/espconfig -add userperm [-name <user name>] -perm <permission name>
```

Table 3-3 lists the settings for the `<permission name>` parameter.

Table 3-3 Command Line Interface User Permission Settings

Permission	Setting
Set environment	ESPpermission:set_environment
Configuration	ESPpermission:configuration
Event registered, actions taken, and diagnostic results reports	ESPpermission:events_actions_diag_reports
Availability reports	ESPpermission:availability_reports
Hardware and software configuration reports	ESPpermission:hw_sw_reports
View logs	ESPpermission:logbook_view
Create log	ESPpermission:logbook

If you do not specify a user name, this command adds the permission to all users.

- Use the following command syntax to delete permissions from a user:

```
/usr/sbin/espcfg -delete userperm [-name <user name>] [-perm
<permission name>]
```

If you do not specify a user name, this command deletes the specified permission from all users. If you do not specify a permission name, this command deletes all permissions from the specified user. If you do not specify a permission name or user name, this command deletes all permissions from all users.

Deleting a User

Any user with the “Set Environment” permission can delete other ESP users. To ensure that security is not compromised, always delete users that no longer need access to ESP on a specific system.

Caution: Do not delete the administrator user account. All systems should have the administrator account.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to delete a user:

1. Click on the `Set Environment` button.
2. Click on the `User Permissions` button.
3. Click on the `Delete User` button.

The interface displays the `Delete User` window. (Refer to Figure 3-9.)



Figure 3-9 Delete User Window (Web-based Interface)

4. Select one or more user accounts to delete.
5. Click on the `Delete User` button.

The interface updates the `Delete User` window. (Refer to Figure 3-10.)

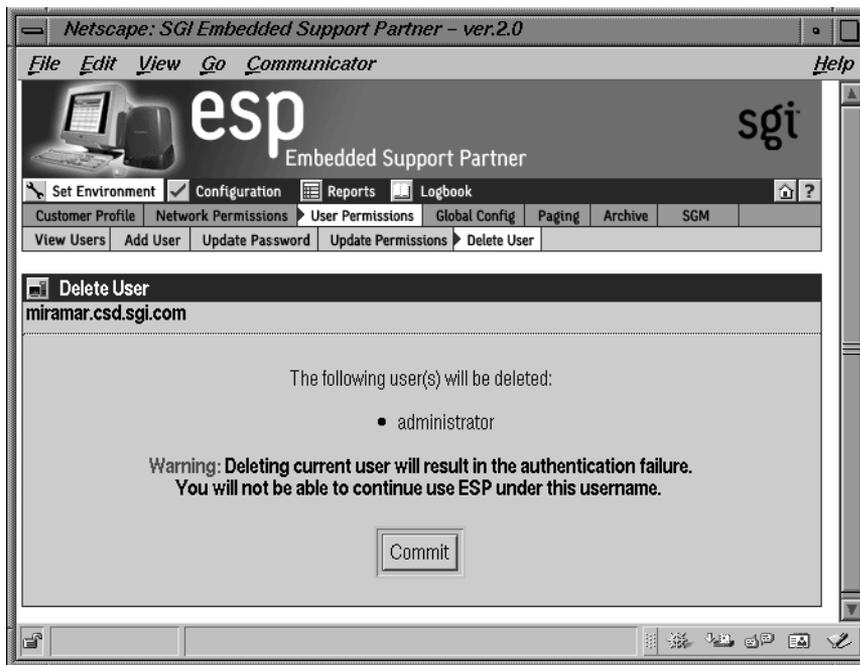


Figure 3-10 Updated Delete User Window (Web-based Interface)

6. Click on the `Commit` button.

Using the Command Line Interface

Use the following syntax of the `espcfg` command to delete a user:

```
espcfg -delete user -name <user name> [-p <user password>]
```

If you do not provide the password for the user account that you want to delete, this command prompts you for the password (but does not display the password on the screen).

Setting Up the Global Configuration Parameters

The global configuration parameters define global ESP behaviors and are divided into the following categories:

- Global event handling parameters, which determine if ESP should register events, throttle events, and perform any actions
- Global availability parameter, which determines if a reason must be supplied when the system is shutdown
- Global registration parameters, which determine if event information is returned to SGI, the format of the message that contains the event information, and any additional recipients of the message

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to set up the global configuration parameters:

1. Click on the `Set Environment` button.
2. Click on the `Global Config` button.

The interface displays the `Global Configuration` window. (Refer to Figure 3-11.)

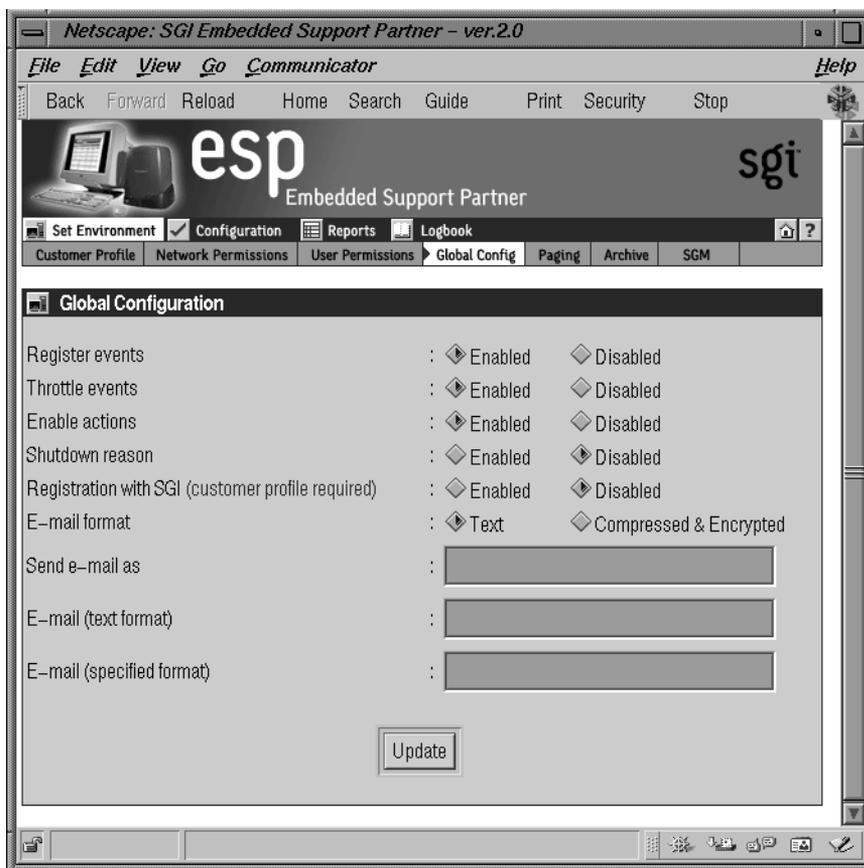


Figure 3-11 Global Configuration Window (Web-based Interface)

3. Set the parameters. (Table 3-4 describes the global configuration parameters.)

Table 3-4 Global Configuration Parameters

Parameter	Description
Register events	<p>Specifies whether or not ESP should register events in the ESP database</p> <p>Set this parameter to <code>Enabled</code> if you want to register event information in the ESP database on your system</p> <p>Set this parameter to <code>Disabled</code> if you do not want to register event information in the ESP database on your system (if you set this parameter to <code>Disabled</code>, it overrides the individual event settings)</p> <p>Recommendation: Always set this parameter to <code>Enabled</code> to capture all event information in the ESP database on your system</p>
Throttle events	<p>Specifies whether or not ESP should throttle events</p> <p>Set this parameter to <code>Enabled</code> to require that a specific number of events must occur before the event is registered in the ESP database on your system</p> <p>Set this parameter to <code>Disabled</code> to register every event in the ESP database</p> <p>Recommendation: Set this parameter to <code>Enabled</code> and configure the individual throttle values for each event</p>
Enable actions	<p>Specifies whether or not ESP should perform actions</p> <p>Set this parameter to <code>Enabled</code> to specify that ESP should perform any assigned actions in response to all events that occur</p> <p>Set this parameter to <code>Disabled</code> to specify that ESP should not perform actions for any events (if you set this parameter to <code>Disabled</code>, it overrides any action settings for individual events)</p> <p>Recommendation: Set this parameter to <code>Enabled</code> and assign the desired actions for each event</p>
Shutdown reason	<p>Specifies whether or not users will be prompted to enter a reason when they shut down the system</p> <p>Set this parameter to <code>Enabled</code> to prompt users for a reason whenever they shut down the system</p> <p>Set this parameter to <code>Disabled</code> to allow users to shut down the system without providing a reason</p> <p>Recommendation: Always set this parameter to <code>Enabled</code> to ensure that ESP generates accurate availability metrics</p>

Table 3-4 (continued) Global Configuration Parameters

Parameter	Description
Registration with SGI	<p>Specifies whether or not ESP should send data (system hardware and software information, event information, crash analysis reports, and system availability reports) to SGI at <code>esp@sgi.com</code> (under specific service contracts, SGI uses this data to open trouble tickets and respond to problems on your system before the problems affect system availability)</p> <p>Set this parameter to <code>Enabled</code> to have ESP send e-mail messages to SGI</p> <p>Set this parameter to <code>Disabled</code> to prevent ESP from sending e-mail messages to SGI</p> <p>Recommendation: Always set this parameter to <code>Enabled</code> so SGI can provide proactive support for your system (providing this information helps the call center provide quick and accurate responses to problems on your system)</p>
E-mail format	<p>Specifies the format for e-mail that ESP sends. ESP can send e-mail in plain text format or compressed and encrypted (uuencoded) format.</p> <p>If e-mail is sent in compressed and encrypted format, recipients should use the <code>amreceiver</code> program to decode the e-mail; refer to the <code>amreceiver</code> man page for more information.</p> <p>Recommendation: Set this parameter to <code>Compressed & Encrypted</code>.</p>
Send e-mail as	<p>Specifies the name that appears in the "From" portion of the e-mail header. This option affects e-mail messages sent by <code>espnotify</code>, <code>availmon</code>, and <code>espcall</code> (when registration with SGI is enabled).</p>
E-mail (text format)	<p>Specify e-mail addresses that should receive e-mail from ESP. ESP sends these addresses the same messages that it sends to <code>esp@sgi.com</code>. If the <code>Registration with SGI</code> parameter is disabled, ESP sends e-mail to these addresses only; it does not send e-mail to <code>esp@sgi.com</code>.</p> <p>The <code>E-mail (text format)</code> parameter specifies e-mail addresses that should receive the e-mail in plain text format.</p>
E-mail (specified format)	<p>The <code>E-mail (specified format)</code> parameter specifies e-mail addresses that should receive e-mail in the format specified by the <code>E-mail format</code> parameter.</p> <p>Each field can hold up to 255 characters; you should separate multiple e-mail addresses with spaces or commas.</p> <p>Recommendation: Enter e-mail addresses of local personnel that are interested in this information (for example, system administrators)</p>

4. Click on the `Update` button.

Using the Command Line Interface

You can use the `espconfig` command to update the global configuration parameters:

- Use the following command syntax to enable call logging (which sends event information to SGI to provide proactive support):

```
/usr/sbin/espconfig -enable call_logging [-text|-comp_encoded]
                                     [-email1 <email address>]
                                     [-email2 <email address>]
```

Note: You must set up a customer profile for call logging to work.

The `-text` option specifies that ESP should send the e-mail message in plain text format; the `-comp_encoded` option specifies that ESP should send the message in uuencoded format. The e-mail address lists can contain up to 255 characters of comma separated e-mail addresses.

- Use the following command syntax to enable event registration:

```
/usr/sbin/espconfig -enable event_registration
```

- Use the following command syntax to disable event registration:

```
/usr/sbin/espconfig -disable event_registration
```

- Use the following command syntax to enable event throttling:

```
/usr/sbin/espconfig -enable event_throttling
```

- Use the following command syntax to disable event throttling:

```
/usr/sbin/espconfig -disable event_throttling
```

- Use the following command syntax to enable actions:

```
/usr/sbin/espconfig -enable event_actions
```

- Use the following command syntax to disable actions:

```
/usr/sbin/espconfig -disable event_actions
```

- Use the following command syntax to prompt users for a description when they shut down the system:

```
/usr/sbin/espconfig -enable shutdown_reason
```

- Use the following command syntax to allow users to shut down the system without providing a reason:

```
/usr/sbin/espsconfig -disable shutdown_reason
```

Setting Up the Paging Parameters

QuickPage (QPage) is a third-party client/server application that ESP uses to send messages to an alphanumeric pager. QPage uses a modem to send an IXO/TAP-protocol message to a telephone number that is connected to a paging service. QPage is integrated in the ESP software suite, and its services are accessed through the `/usr/bin/espsnotify` application. (Refer to Figure 3-12.)

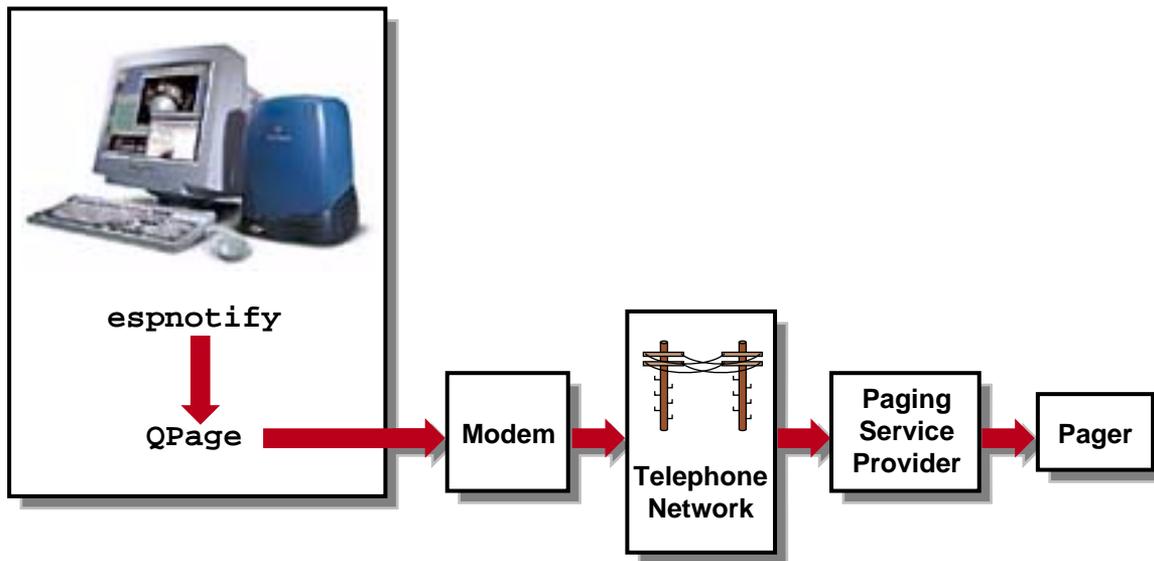


Figure 3-12 Process for Sending a Page

QPage is installed on your system by default and is `chkconfig`'ed off. Perform the following procedure to set it up and enable it:

1. Enter the following command to turn QPage on:

```
chkconfig quickpage on
```

2. Enter the following command to start the QPage server:

```
/etc/init.d/qpageserver start
```

Note: The QPage server is automatically restarted whenever you reboot the system.

3. Set up the following paging parameters:
 - Modem parameters that specify the modem that QPage should use to connect to the paging service provider.
 - Paging service provider parameters that provide information about the paging service provider and how to contact it.
 - Pager parameters that provide information about the pager to use.

The following sections describe how to set up these parameters.

Setting Up the Modem Parameters

A modem must be connected to the system that is running ESP so that the software can send pages when events occur. You must specify the device to which the modem is connected and specify the modem initialization command. (ESP has been tested with the U. S. Robotics Sportster fax modem with X2.)

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to set up the modem parameters:

1. Click on the `Set Environment` button.
2. Click on the `Paging` button.

By default, the interface displays the `Paging -> Modem Setup` window. (Refer to Figure 3-13.)

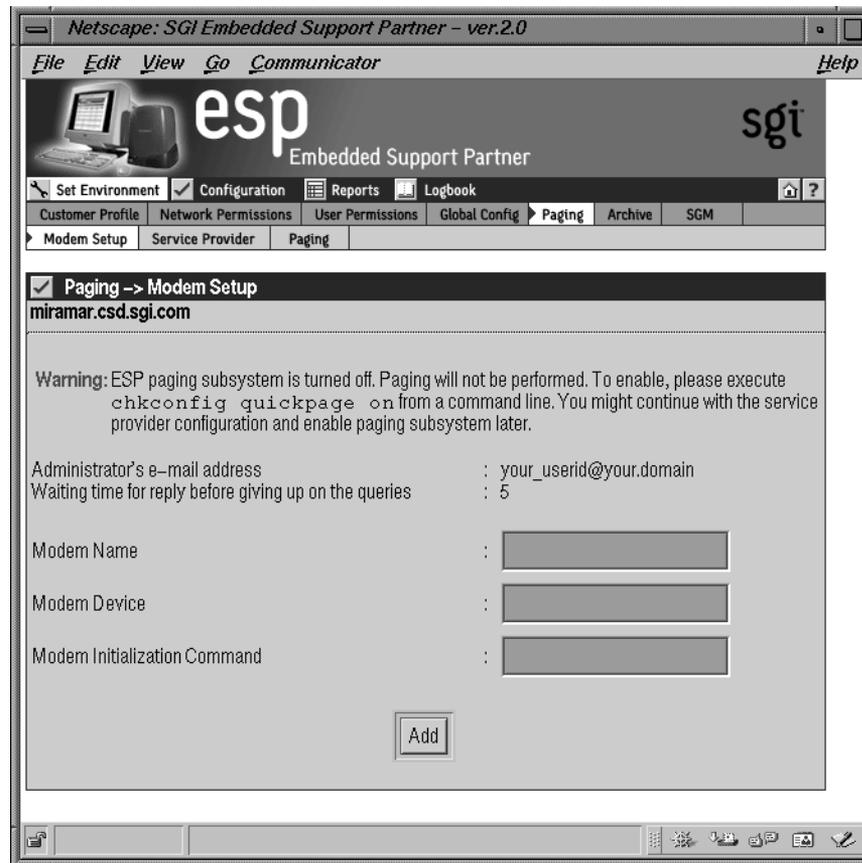


Figure 3-13 Modem Parameters Window (Web-based Interface)

3. Enter a modem name in the `Modem Name` field (do not include blank spaces).
4. Enter the device name to which the modem is connected in the `Modem Device` field. (Example: `/dev/ttyd`)
5. Enter the modem initialization command in the `Modem Initialization Command` field. (Example: `ATZ`)

Be aware of the following information when you configure the initialization command:

- The initialization command is specific to the modem that you are using. Refer to your modem user manual for specific details about the initialization command.
 - The initialization command can vary, based on requirements from your paging service provider. For example, many paging services require you to turn off error correction on your modem. (This can be done on the U. S. Robotics Sportster fax modem with X2 with the `&AO&K0&M0` initialization command.) Contact your paging service provider to determine any special requirements.
6. Click on the `Add` button.

The interface displays a confirmation window.

7. Click on the `Commit` button

Once you have a modem configured, you have the following options to modify the modem parameters when you click on the `Modem Setup` button:

- To update the modem, click on the `Update` button.
- To delete the modem, click on the `Delete` button. (Deleting a modem deletes all paging service providers and pagers assigned to it.)
- To add a new modem, click on the `Add` button.

Using the Command Line Interface

No command line interface commands are available to set up the modem parameters. To modify the modem parameters, you must manually edit the `/etc/qpage.cf` file and use the `/etc/init.d/qpageserver` script to start `QPage`.

Setting Up the Paging Service Provider Parameters

You need to provide ESP with information about the paging service that you use so it can properly contact your pager.

Using the Web-based Interface

1. Click on the `Set Environment` button.
2. Click on the `Paging` button.
3. Click on the `Service Provider` button.

The interface displays the `Paging -> Service Provider Setup` window. (Refer to Figure 3-14.)

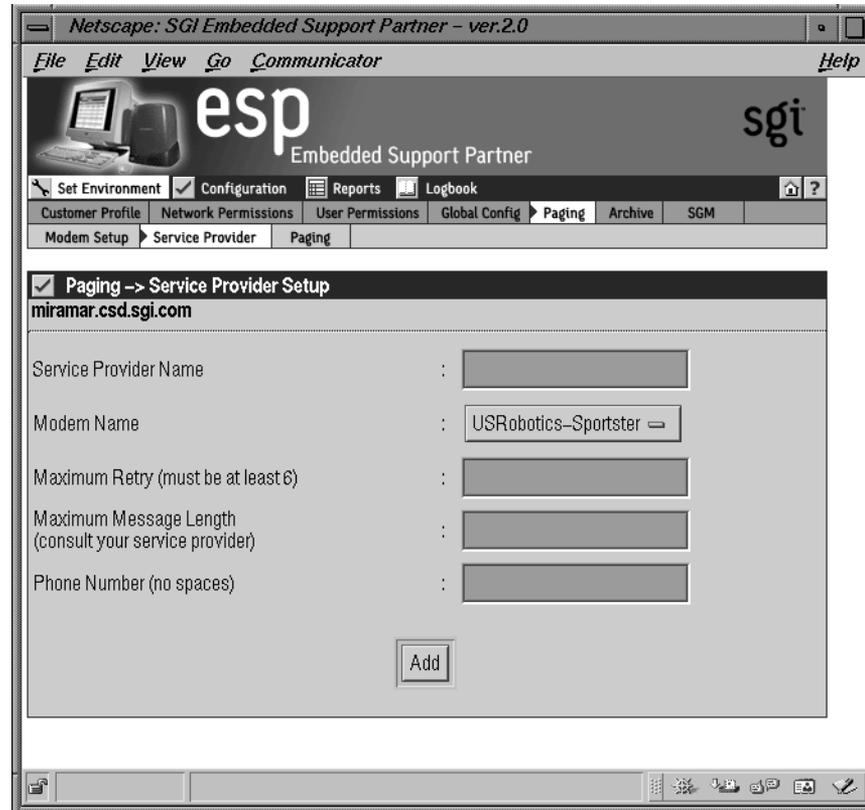


Figure 3-14 Paging Service Provider Pager (Web-based Interface)

4. Update the parameters. (Table 3-5 describes the parameters.)

Table 3-5 Paging Service Provider Parameters

Parameter	Description
Service Provider Name	Specifies the name of the service The interface displays this name on other pages to identify the paging service (Do not include blank spaces)
Modem Name	Specifies the modem to use Select the modem from the menu If the modem that you want to use is not in the menu, click on the Modem Setup button to add it
Maximum Retry (must be at least 6)	Specifies the number of times that ESP should attempt to contact this paging service
Maximum Message Length (consult your service provider)	Specifies the maximum number of characters that this service will accept Contact your paging service provider for this information
Phone number (no spaces)	Specifies the phone number that ESP should dial to contact the paging service (include only numbers and dashes; for example: 1-715-123-4567)

5. Click on the Add button.

The interface displays a confirmation window.

6. Click on the Commit button

Once you have a paging service provider configured, you have the following options to modify the parameters when you click on the Service Provider button:

- To update the paging service provider parameters, click on the check box next to the service provider name and then click on the Update button.
- To delete the paging service provider, click on the check box next to the service provider name and then click on the Delete button. (Deleting a paging service provider deletes all pagers assigned to it.)
- To add a new paging service provider, click on the Add button.

Using the Command Line Interface

No command line interface commands are available to set up the paging service provider parameters. To modify the paging service provider parameters, you must manually edit the `/etc/qpage.cf` file and use the `/etc/init.d/qpageserver` script to start QPage.

Setting Up the Paging Parameters

You also need to provide information about the pager that you want to use so ESP can properly contact it.

Using the Web-based Interface

1. Click on the `Set Environment` button.
2. Click on the `Paging` button.
3. Click on the `Paging` button.

The interface displays the `Paging -> Pager Setup` window. (Refer to Figure 3-15.)

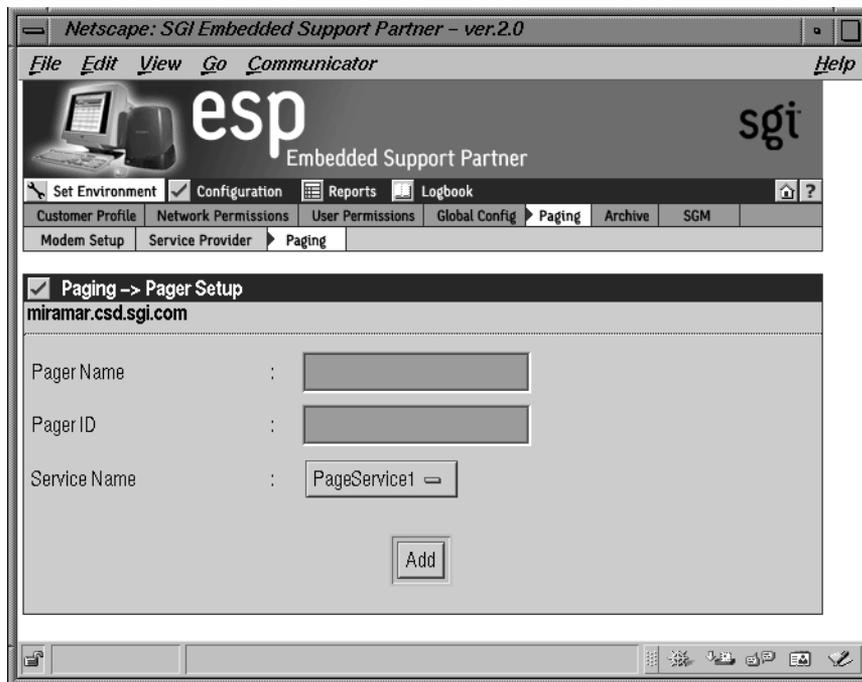


Figure 3-15 Pager Parameters Window (Web-based Interface)

4. Enter a unique name for the pager in the `Pager Name` field. (Do not include blank spaces.) ESP uses this name on other interface pages to identify the pager.
5. Enter the pager identification number in the `Pager ID` field.

Your paging service provider assigns a unique pager identification number to each individual pager. This number could differ from the telephone number that you dial to access the pager. Contact your paging service provider to determine the pager identification number of your pager.
6. Choose the paging service provider that you want to use from the list of available paging service providers. (If you do not see the provider that you want to use, click on the `Service Provider` button to add it.)
7. Click on the `Add` button.

The interface displays a confirmation window.
8. Click on the `Commit` button

Once you have a pager configured, you have the following options to modify the parameters when you click on the `Service Provider` button:

- To update the pager parameters, click on the check box next to the pager name and then click on the `Update` button.
- To delete the pager, click on the check box next to the pager name and then click on the `Delete` button.
- To add a new pager, click on the `Add` button.

Using the Command Line Interface

No command line interface commands are available to set up the pager parameters. To modify the pager parameters, you must manually edit the `/etc/qpage.cf` file and use the `/etc/init.d/qpageserver` script to start `QPage`.

Manipulating Database Archives

ESP logs data in a database on the system as it registers events and performs actions. You can archive the current database to reduce the amount of disk space used on the system.

Use the `esparchive` command at a UNIX prompt to archive the current database that ESP is using on a system. The `esparchive` command shuts down ESP momentarily, compresses the current database to save space, opens a new database to receive data from ESP, and restarts ESP. (You must use the root account to execute the `esparchive` command; this command archives the current database only if it is 10 MB or larger.)

You can use the Web-based interface and command line interface to delete database archives that you no longer need.

Warning: When you delete a database archive, the information in the database archive is permanently lost. You will not be able to view any system information that was stored in the database archive.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to delete a database archive:

1. Click on the `Set Environment` button.
2. Click on the `Archive` button.

The interface displays the `Delete Archive` window. (Refer to Figure 3-16.)

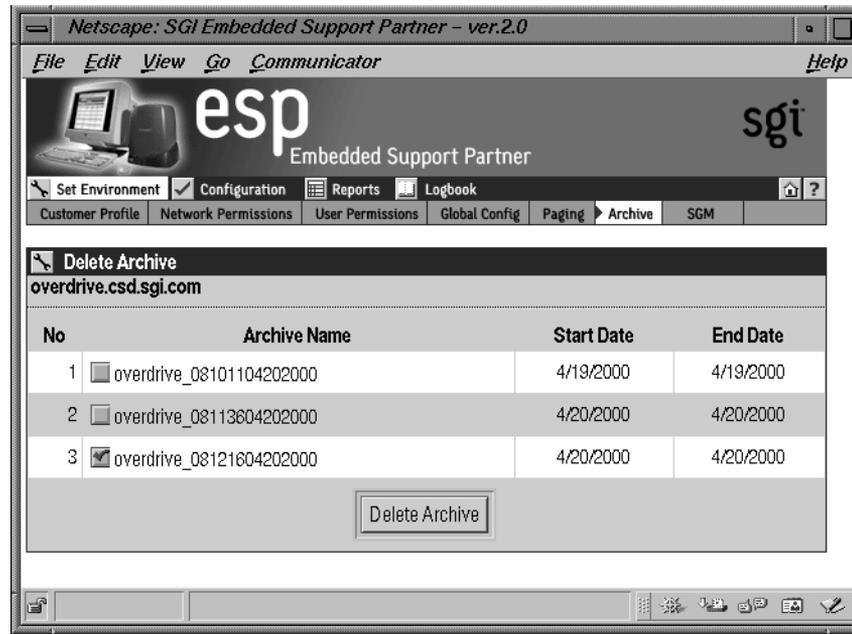


Figure 3-16 Delete Archive Window (Web-based Interface)

3. Click on the check box next the name of the database archive that you want to delete.
4. Click on the `Delete Archive` button.

The interface displays a verification screen. (Refer to Figure 3-17.)



Figure 3-17 Delete Archive Verification Screen

5. Click on the `Commit` button.

Using the Command Line Interface

You can use the `espconfig` command to view information about the available database archives and to delete a specific database archive:

- Use the following command syntax to view the available database archives:

```
/usr/sbin/espconfig -list archive [<archive name> ... <archive name>]
```

This command displays the name and date information for archives. If you specify one or more archive names, this command lists information about those archives. If you do not specify an archive name, this command displays information about all of the archives on the system.

- Use the following command syntax to delete a database archive:

```
/usr/sbin/espconfig -drop archive <archive name>
```

The `espconfig` command also enables you to initialize the ESP database on your system.

Warning: Initializing the ESP database on a system deletes all data for that system. If the system is a group manager, initializing the ESP database also deletes information about events on other systems in the group.

- Use the following command syntax to initialize the ESP database on your system to return it to the initial state:

```
/usr/sbin/espconfig -reconstructdb
```

- Use the following command syntax to “clean” the ESP database tables on your system:

```
/usr/sbin/espconfig -flushdb [-sysid <system id>|-host <hostname>]  
[config | all]
```

Use the `-sysid` option to select a system by system ID. Use the `-host` option to select a system by hostname. If you do not specify the `-sysid` or `-host` option, this command “cleans” the database tables on the local system.

If you do not specify the `config` or `all` option, this command “cleans” the ESP data tables on the selected system. If you specify the `config` option, this command “cleans” only the configuration tables for the local system. If you specify the `all` option, this command “cleans” the configuration tables and the ESP data tables on the selected system.

Setting Up the System Group Manager Parameters

The system group manager parameters enable you to configure one system (called a group manager or SGM server) to monitor events from other systems (called group members or SGM clients) at a site. To enable communication between these systems, you must configure the system group manager parameters on all of the systems in the group.

ESP on the SGM server uses RPC protocol to communicate with SGM clients.

Registering an SGM Server

On each group member system, you must register the SGM server system(s) to which the SGM client can send event information. You can register an SGM server on any system at a site.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to register an SGM server:

1. Log on to ESP on the SGM client system that you want to configure. (You must have "Set Environment" permission on the system.)
2. Click on the `Set Environment` button.
3. Click on the `SGM` button.

The interface displays the currently registered SGM servers and clients. (Refer to Figure 3-18. In this example, no servers or clients are registered.)

Note: If an SGM license is not installed on the system or if the SGM license for the system has expired, the interface displays only a list of registered SGM servers.



Figure 3-18 Register New Server Link

4. Click on the Register New Server link.

The interface displays the Register SGM Server window. (Refer to Figure 3-19.)



Figure 3-19 Register SGM Server Window

5. Enter the SGM server alias.

ESP uses the SGM server alias to identify the server to any clients. You use this alias to identify the SGM server on other interface pages. The alias does not have to be the actual system name. It must be 31 characters or less and may contain any characters, except spaces, single quotes, and double quotes.

6. Enter the SGM server hostname.

This parameter can be the actual hostname or an alias. This hostname must be recognized on the system that is running ESP. ESP resolves the specified name to a full hostname during the registration process.

7. Enter the SGM client alias.

ESP uses the SGM client alias to identify the SGM client. You use this alias to identify the SGM client on other interface pages. The alias does not have to be the actual system name. It must be 31 characters or less and may contain any characters, except spaces, single quotes, and double quotes.

8. Enter the communication password. (It must contain nine or more characters.)

ESP does not prompt you for this password again; however, you must enter the same password on the SGM server and the SGM clients. If you want to change a password, you must change it on the SGM server and related SGM clients.

Figure 3-20 shows the `Register SGM Server` window with example parameters.



Figure 3-20 Register SGM Server Window (with Example Parameters)

9. Click on the Register button.

If registration is successful, the interface displays the window shown in Figure 3-21.

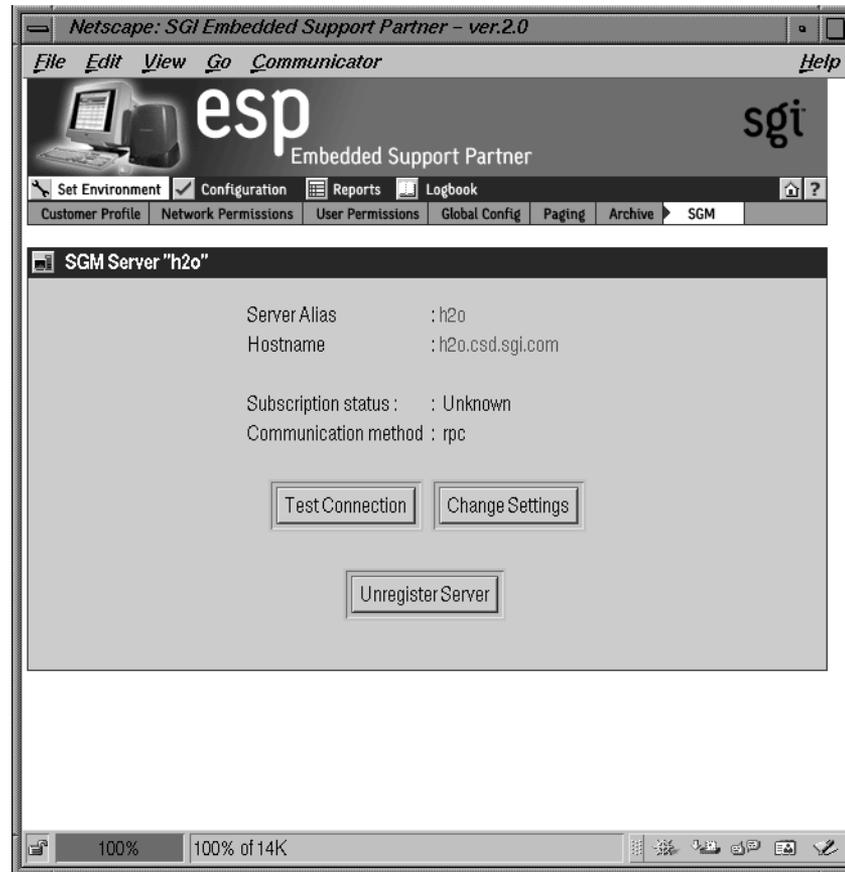


Figure 3-21 Successful SGM Server Registration Window

Using the Command Line Interface

You can use the `espconfig` command to register an SGM server.

- The following command syntax registers a server and prompts you for the communication password:

```
/usr/sbin/espconfig -add sgmserver <ServerAlias> <ServerHostname>  
<ClientAlias>
```

- The following command syntax registers a server without prompting you for a password:

```
/usr/sbin/espconfig -add sgmserver <ServerAlias> <ServerHostname>  
<ClientAlias> -p <password>
```

Use this command syntax in scripts.

Registering an SGM Client

On a group manager system, you must register the SGM client systems that the manager can access. You can register SGM clients only on systems that are running in system group manager mode.

Using the Web-based Interface

1. Log on to ESP on the group manager system. (You must have “Set Environment” permission on the system.)
2. Click on the `Set Environment` button.
3. Click on the `SGM` button.

The interface displays the currently registered SGM servers and clients and the `Register New Server` and `Register New Client` links. (Refer to Figure 3-22.)

Note: If an SGM license is not installed on the system or if the SGM license has expired, the interface displays only a list of registered SGM servers.

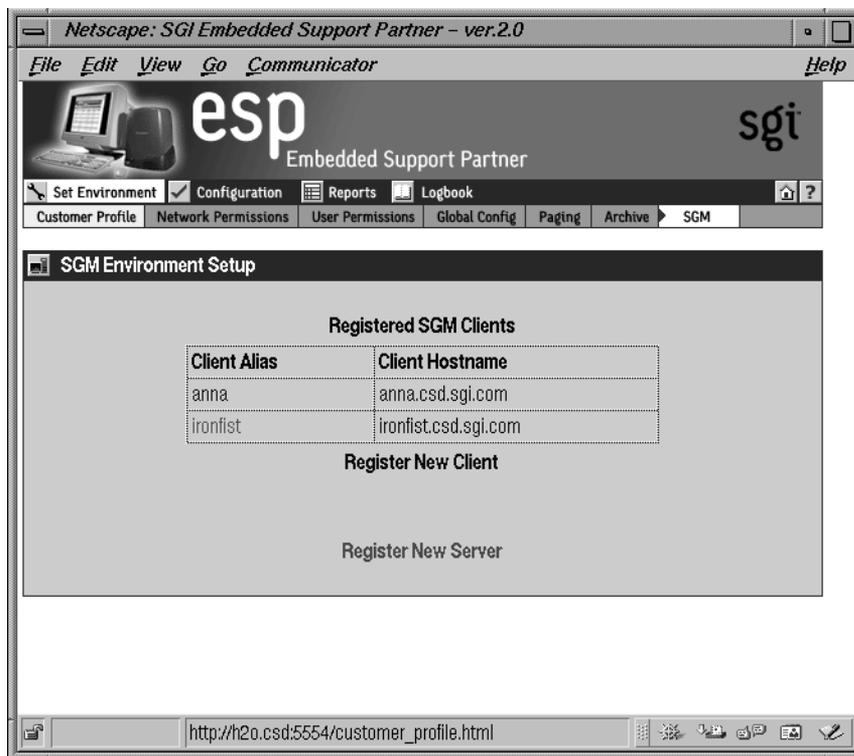


Figure 3-22 List of Registered Clients

4. Click on the `Register New Client` link.

Note: If the `Register New Client` link does not appear on the interface, you must install a group management license on the system.

The interface displays the `Register SGM Client` window. (Refer to Figure 3-23.)



Figure 3-23 Register SGM Client Window

5. Enter the SGM client alias.

ESP uses the SGM client alias to identify the SGM client. You use this alias to identify the SGM client on other interface pages. The alias does not have to be the actual system name. It must be 31 characters or less and may contain any characters, except spaces, single quotes, and double quotes.

6. Enter the SGM client hostname.

This parameter can be the actual hostname or an alias. This hostname must be recognized on the system that is running ESP. ESP resolves the specified name to a full hostname during the registration process.

7. Enter the SGM server alias.

ESP uses the SGM server alias to identify the server to any clients. You use this alias to identify the SGM server on other interface pages. The alias does not have to be the actual system name. It must be 31 characters or less and may contain any characters, except spaces, single quotes, and double quotes.

8. Enter the communication password. (It must contain nine or more characters.)

ESP does not prompt you for this password again; however, you must enter the same password on the SGM server and the SGM clients. If you want to change a password, you must change it on the SGM server and related SGM clients.

9. Click on the Register button.

If registration is successful, the interface displays the window shown in Figure 3-24.



Figure 3-24 Register SGM Client Window (with Example Parameters)



Figure 3-25 Successful SGM Client Registration Window

Using the Command Line Interface

You can use the `espsconfig` command to register an SGM client.

- The following command syntax registers a client and prompts you for the communication password:

```
/usr/sbin/espsconfig -add sgmclient <ClientAlias> <ClientHostname>  
<ServerAlias>
```

- The following command syntax registers a client without prompting you for a password:

```
/usr/sbin/espsconfig -add sgmclient <ClientAlias> <ClientHostname>  
<ServerAlias> -p <password>
```

Use this command syntax in scripts.

Testing the SGM Server-to-Client Connections

Once you configure an SGM server and related clients, you should test the connections between the systems to ensure that event information can be sent between the SGM clients and server. Be sure to test the connection in both directions (the server-to-client connection and the client-to-server connection).

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to test a server-to-client connection.

1. Log on to ESP on the SGM server.
2. Click on the `Set Environment` button.
3. Click on the `SGM` button.

The interface displays a list of registered SGM clients. (Refer to Figure 3-26.)

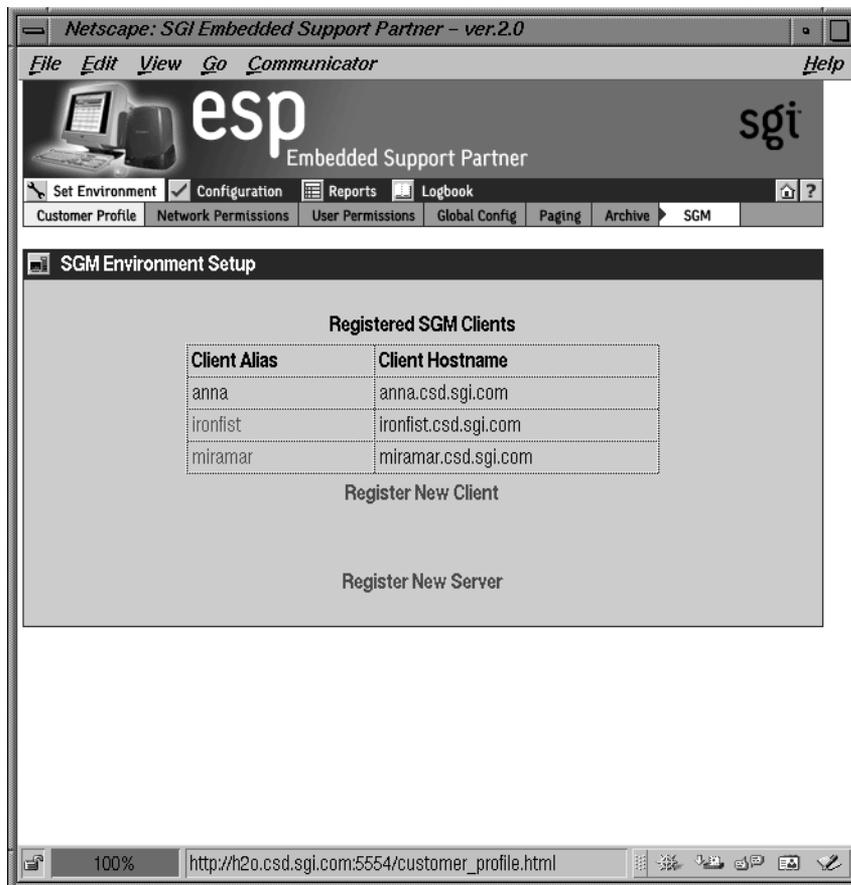


Figure 3-26 Registered SGM Clients

4. Click on the client to test.

The interface displays information about the selected client. (Refer to Figure 3-27.)



Figure 3-27 SGM Client Information Window

5. Click on the `Test Connection` button.

The interface displays the results from testing the connection. (Refer to Figure 3-28.)

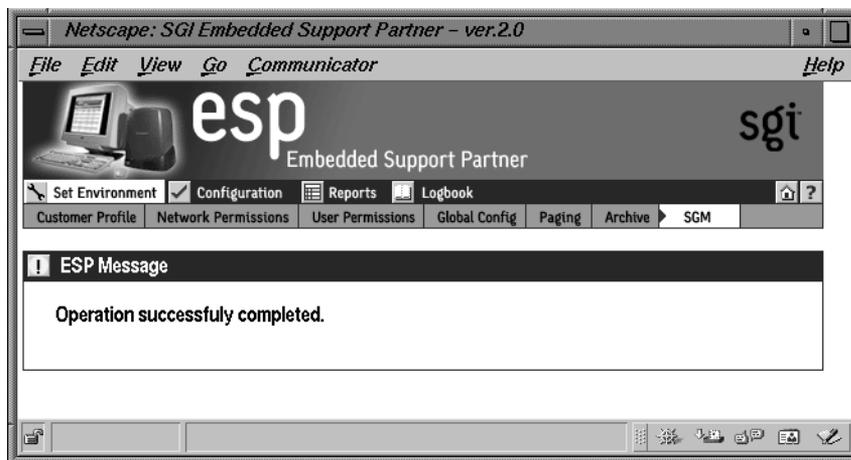


Figure 3-28 SGM Server-to-Client Connection Test Results

Perform the following procedure to use the Web-based interface to test a client-to-server connection:

1. Log on to ESP on the SGM client.
2. Click on the `Set Environment` button.
3. Click on the `SGM` button.

The interface displays a list of registered SGM servers. (Refer to Figure 3-29.)

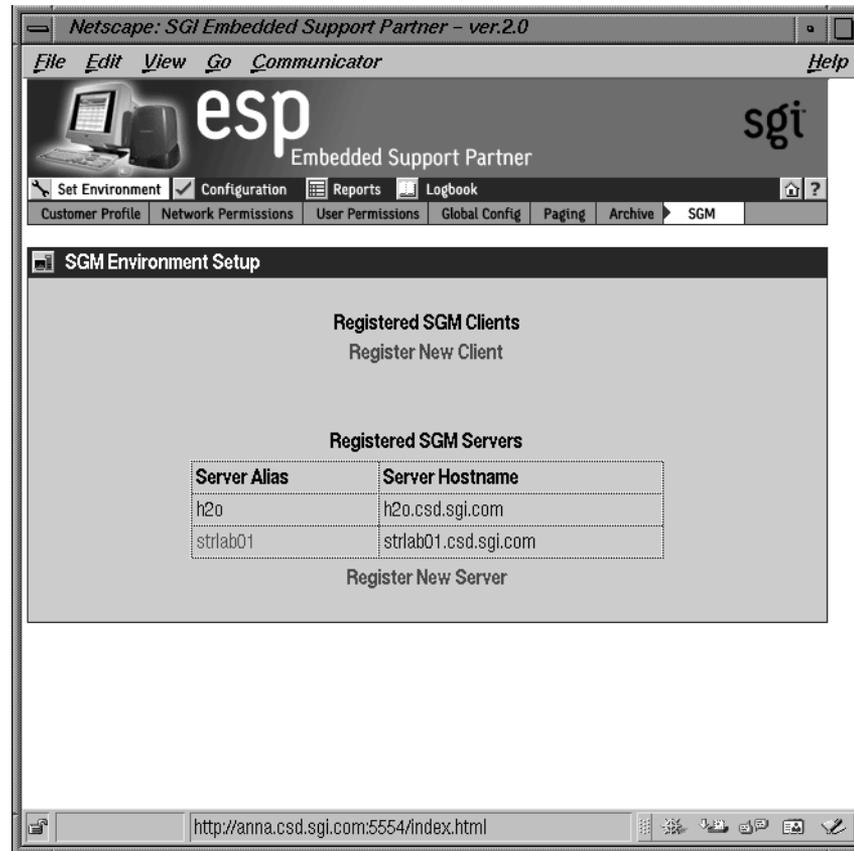


Figure 3-29 Registered SGM Servers

4. Click on the server to test.

The interface displays information about the selected server. (Refer to Figure 3-30.)



Figure 3-30 SGM Server Information Window

5. Click on the `Test Connection` button.

The interface displays the results from testing the connection. (Refer to Figure 3-31.)

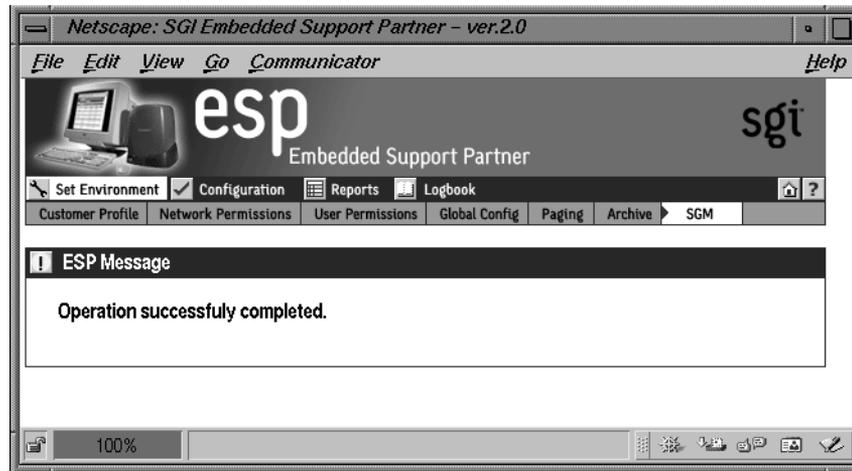


Figure 3-31 SGM Client-to-Server Connection Test Results

Using the Command Line Interface

You can use the `espcnfig` command to test the connections.

- Use the following command syntax to test a server-to-client connection:

```
/usr/sbin/espcnfig -ping sgmclient <ClientAlias>
```
- Use the following command syntax to test a client-to-server connection:

```
/usr/sbin/espcnfig -ping sgmserver <ServerAlias>
```

Other Command Line Interface Commands

There are several other system group management functions that you can perform with the `espcnfig` command.

- Use the following command syntax to view a list of all SGM clients registered on a group manager:

```
/usr/sbin/espcnfig -show sgmclients
```
- Use the following command syntax to view a list of all SGM servers registered on a group member:

```
/usr/sbin/espcnfig -show sgmservers
```

- Use the following command syntax to delete a group manager from a group member:

```
/usr/sbin/espsconfig -delete sgmsserver <server alias>
```

- Use the following command syntax to delete a group member from a group manager:

```
/usr/sbin/espsconfig -delete sgmclient <client alias>
```

- Use the following command syntax to refresh the SGM license installed on a system and display information about the license:

```
espsconfig -update sgmlicense
```

Tip: After you install or remove an SGM license, execute this command or restart ESP.

Importing and Exporting ESP Environments

You can use the `espsconfig` command to import and export ESP environments between systems. The `espsconfig` command transfers the following environmental information: global configuration parameters, user configuration parameters, and IP address “allow access” and “restrict access” lists. All changes are effective immediately.

- Use the following command syntax to save an ESP environment:

```
/usr/sbin/espsconfig -save espenv [global] [ipaddr] [user] [all] [-to  
<file name> ]
```

Use the `global`, `ipaddr`, and `user` options to specify the type of environment data to save. Use the `all` option to save all three types of data (global configuration, user configuration and IP address information). Use the `-to` option to specify the file that will hold the data.

- Use the following command syntax to load an ESP environment:

```
/usr/sbin/espsconfig -load espenv [global] [ipaddr] [user] [all] -from  
<file name>
```

Use the `global`, `ipaddr`, and `user` options to specify the type of environment data to load. Use the `all` option to load all three types of data (global configuration, user configuration and IP address information). Use the `-to` option to specify the file that contains the data to load.

Configuring ESP

This chapter describes how to configure the following components of ESP:

- Events
- Actions
- Performance monitoring
- System monitoring

Configuring Events

Events are conditions that ESP monitors. ESP includes many default events, and you can add custom events. Example events include parity errors, disk full conditions, and nonmaskable interrupts (NMI).

Events are organized into event classes, which enables you to quickly view and update similar events. Example event classes include availability, system configuration, and performance.

Note: Chapter 9, “Default Event Classes and Types,” contains lists of all event classes and event types that ESP includes by default.

To manage events on your system, use ESP to perform the following activities:

- Manage event profiles
- View existing event classes and events
- Add events
- Update existing events
- Update multiple events at the same time (batch update)

- Delete events
- Subscribe to events on other system (system group management mode only)

Managing Event Profiles

Event profiles provide an easy way to control which events are being monitored on your system. You can use event profiles to quickly load events that pertain to your system configuration and unload events that do not.

Event profiles are located in the `/var/esp/init/eventprofiles` directory. If you manually edit an event profile, you must save it with a `.esp` extension in this directory.

Note: In the following subsections, the term “ESP event list” refers to the events that are currently loaded in ESP on your system.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to use event profiles:

1. Click on the `Configuration` button.
2. Click on the `Events` button.
3. Click on the `Load Profile` button.

The interface displays the `Event Profile` window. (Refer to Figure 4-1.)

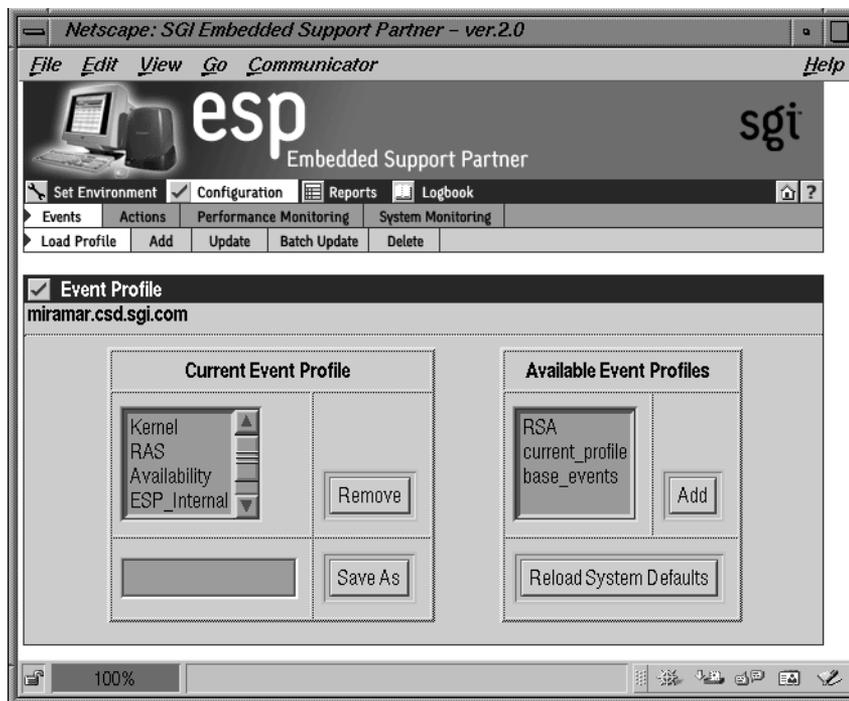


Figure 4-1 Event Profile Window

4. Use this window as follows:

- To remove a set of events from the current ESP event list, click on the profile in the Current Event Profile list, and then click on the Remove button.
- To save the current ESP event list in an event profile, enter the name of the profile, and then click on the Save As button.
- To add a set of events from an event profile file to the ESP event list, click on the profile in the Available Event Profiles list, and then click on the Add button.
- To reload the system defaults, click on the Reload System Defaults button.

Using the Command Line Interface

You can use the `espconfig` command to manage event profiles:

- Use the following command syntax to clear the current event list and assigned actions and to install the event profile that is stored in a file:

```
/usr/sbin/espconfig -load eventprofile <eventprofile name>
```

- Use the following command syntax to compare a file of event profile data with the events that are currently installed in ESP and to insert any events in the file that are not already installed:

```
/usr/sbin/espconfig -add eventprofile <eventprofile name>
```

- Use the following command to compare the events that are currently loaded in ESP with an event profile data file and update the events in ESP that are different in the event profile data file:

```
/usr/sbin/espconfig -merge eventprofile <eventprofile name>
```

Note: If the event is not already in the ESP event list, the event is added to the list with the parameters defined for the event.

- Use the following command syntax to remove all events that are in the specified event profile data file from the ESP event list:

```
/usr/sbin/espconfig -drop eventprofile <eventprofile name>
```

Note: If the event being dropped is part of another event profile, the event is not dropped.

- Use the following command syntax to save the current ESP event list and assigned actions in an event profile data file:

```
/usr/sbin/espconfig -save eventprofile <eventprofile name>
```

Viewing Event Classes and Events

You can use the `espconfig` command to view all events and event classes that are available on your system.

- Use the following command syntax to list the event classes that are loaded on your system.

```
/usr/sbin/espconfig -list evclass
```

The output lists the event class ID and event class description. (Refer to Chapter 9, “Default Event Classes and Types,” for a list of the default event classes.)

- Use the following command syntax to view the event types that are loaded on your system:

```
/usr/sbin/espconfig -list evtype {-cid <class id> | -cd <class description>}
```

Use the `-cid` option to show events with a specific class ID value. Use the `-cd` option to show events with a specific description. If you do not use the `-cid` or `-cd` option, this command lists all event types. (Refer to Chapter 9, “Default Event Classes and Types,” for a list of default events.)

- The following command syntax shows all information about an event:

```
/usr/sbin/espconfig -show evtype {-tid <type id> | -td <type description>}
```

Use the `-tid` option to show events with a specific type. Use the `-td` option to show events with a specific description. If the type description is not unique, the command displays all matching event types.

The following example shows output from this command:

```
karma# espconfig -show evtype -tid 4194470
begin : eventType
      class          : 7001
      type           : 4194470 #(0x4000a6)
      classDescription : "Irix"
      typeDescription : "unix / * CONFIG-ISSUE*"
      throttleValue  : 1
      actionFrequency : 0
      eventEnabled   : YES
end   : eventType
```

Adding Events

You can add your own events to ESP on your system to have it monitor and register events that are specific to your system.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to add an event:

1. Click on the Configuration button.
2. Click on the Add button.

The interface displays the Add Event window. (Refer to Figure 4-2.)

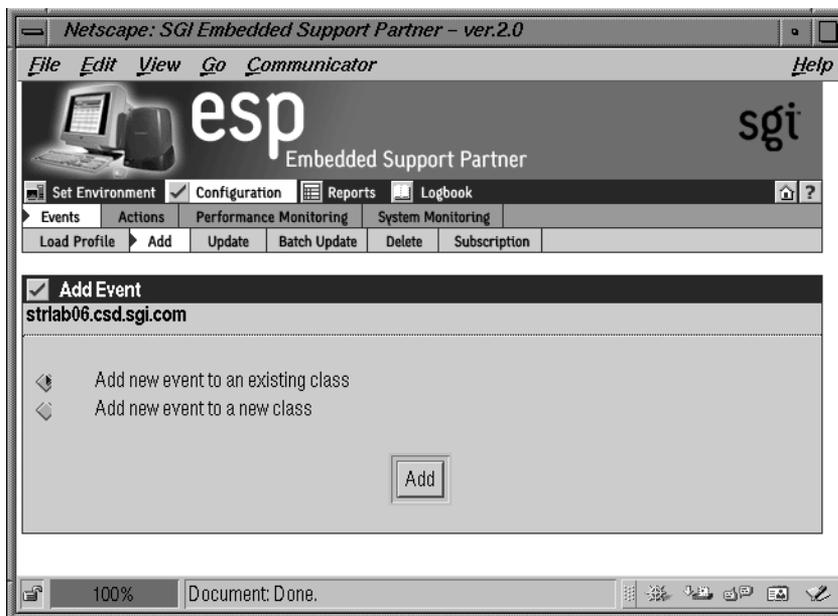


Figure 4-2 Add Event Window

Adding an Event to an Existing Event Class

Figure 4-3 shows the Add Event window when you choose the Add new event to an existing class option.

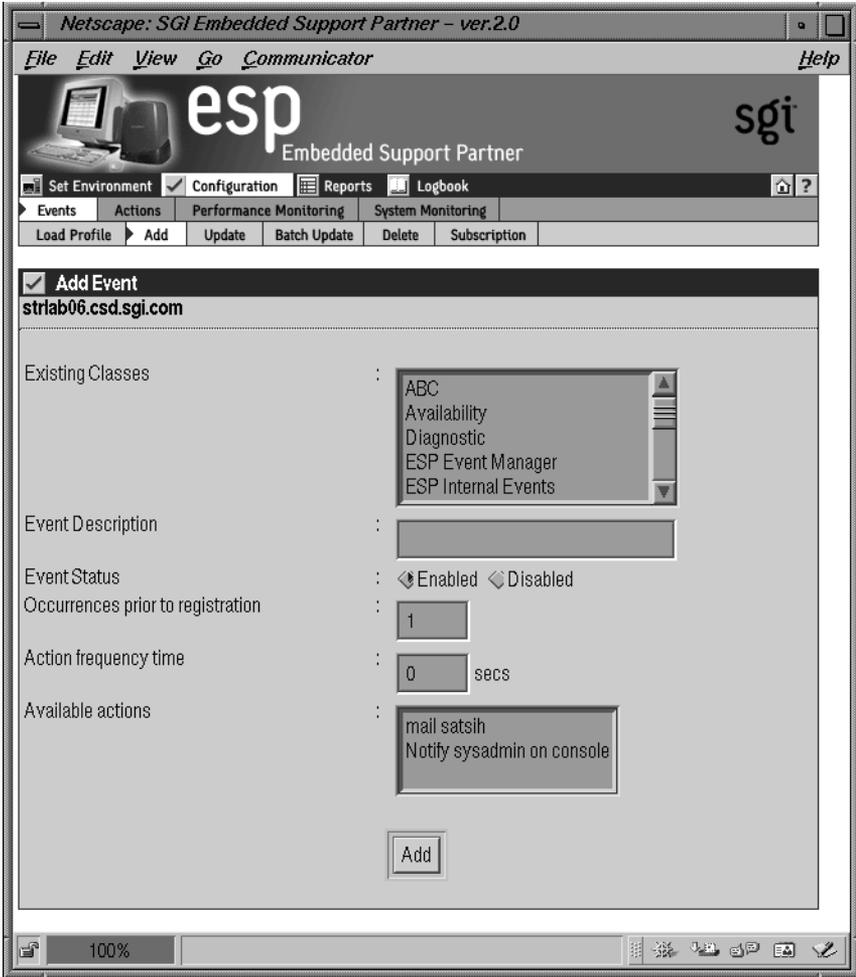


Figure 4-3 Add Event Window (Adding Event to Existing Class)

Perform the following procedure to use this window to add an event to an existing event class:

1. Choose the event class.
2. Enter a description of the event in the `Event Description` field. ESP displays this description on other pages of the interface to identify the event.
Note: The description cannot include the following characters: ' <
3. Specify a status for the event:
 - Click on `Enabled` to add the event to the database and to start monitoring it.
 - Click on `Disabled` to add the event to the database but not monitor it.
4. Specify the number of times that the event must occur before ESP registers it (and performs any assigned actions) in the `Occurrences prior to registration` field.
5. Specify the number of seconds that ESP should pause between multiple executions of an action in the `Action frequency time` field. (The default is 0, which disables the option.)

For example, if you set this parameter to 5 seconds and ESP registers an event every second, ESP executes the assigned action(s) every 5 seconds.

This parameter takes precedence when you set the `Before the action will be taken`, the event must be registered parameter for an assigned action to 1.

If you set this parameter to greater than 0 and set the `Before the action will be taken`, the event must be registered parameter for an assigned action to greater than 1, ESP repeats the assigned action(s) based on the condition that is satisfied first.

Note: The `Before the action will be taken`, the event must be registered parameter is located in the `Add Notification Action`, `Add An Action`, and `Update Action` windows.

6. Assign an action to the event. (If `Event Status` is set to `Enabled`, ESP performs this action when the event is registered.)

Figure 4-4 shows the `Add Event` window with example parameters.

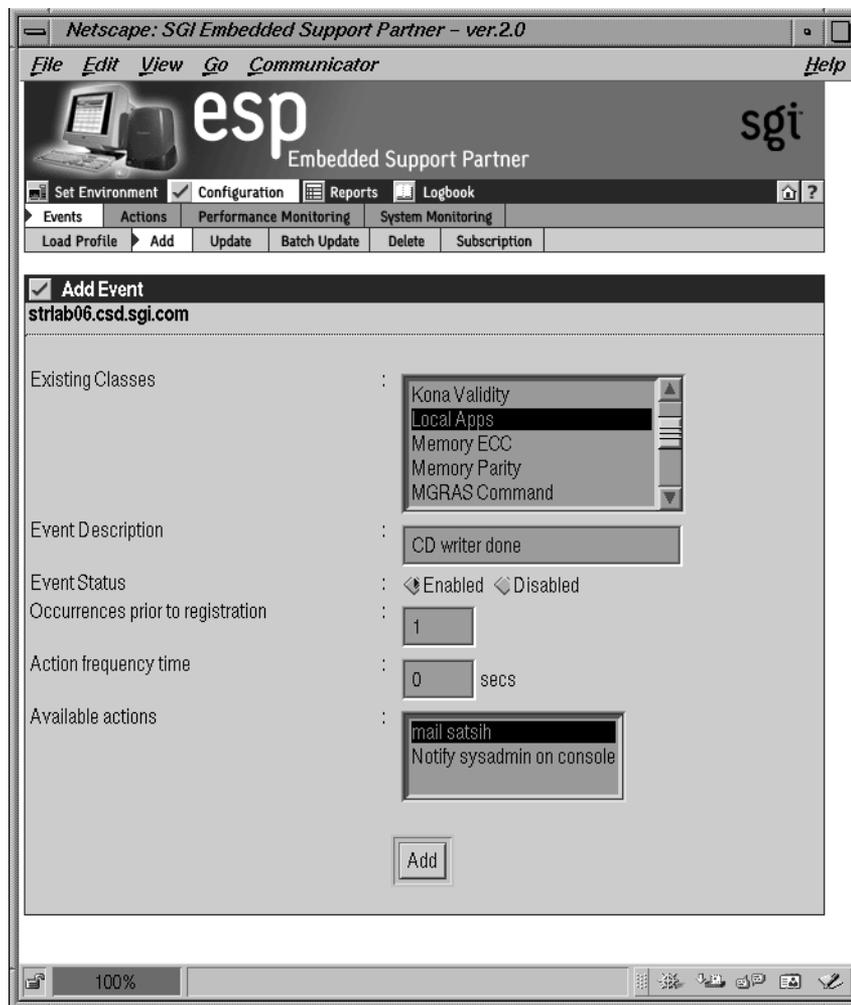


Figure 4-4 Add Event Window with Sample Parameters (Adding Event to Existing Class)

7. Click on the Add button.

The interface displays a verification message. (Refer to Figure 4-5.)

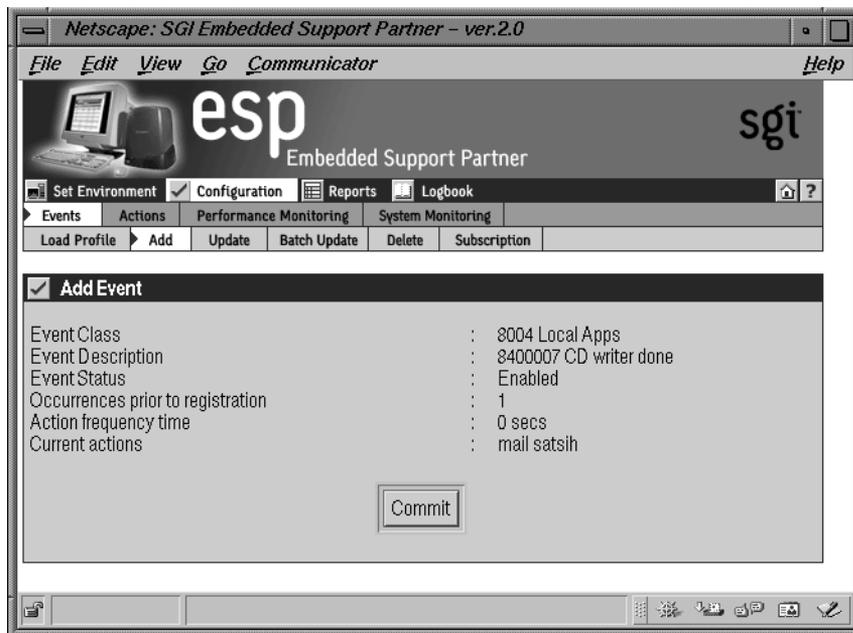


Figure 4-5 Verification Message for Adding an Event (Adding Event to Existing Class)

8. Click on the `Commit` button.

The interface displays information about the event that was added. (Refer to Figure 4-6.) If you need to update the event, click on the `Update` button.

Be sure to note the sequence number assigned to the event (located in the event description next to the event name). You need this number to register the event in ESP from an external application. (Refer to Chapter 8, “Logging Events from Applications and Scripts.”)

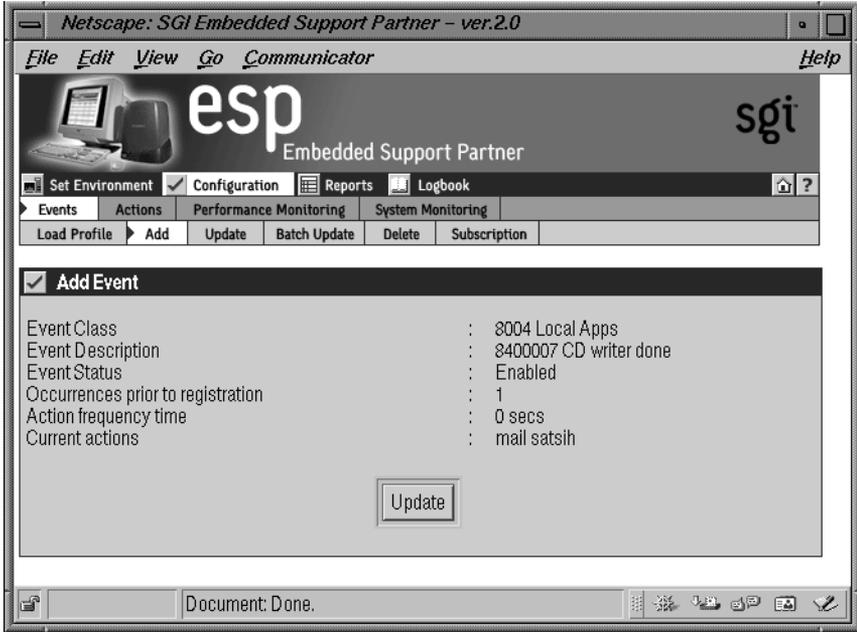


Figure 4-6 Confirmation Message for Adding an Event (Adding Event to Existing Class)

Adding an Event to a New Event Class

Figure 4-7 shows the Add Event window when you choose the Add new event to a new class option.



Figure 4-7 Add Event Window (Adding Event to New Class)

Perform the following procedure to use this window to add an event to a new event class:

1. Enter the name of the new event class in the `New Custom Class` field.
2. Enter a description of the event in the `Event Description` field. ESP displays this description on other pages of the interface to identify the event.
Note: The description cannot include the following characters: ' <
3. Specify a status for the event:
 - Click on `Enabled` to add the event to the database and to start monitoring it.
 - Click on `Disabled` to add the event to the database but not monitor it.
4. Specify the number of times that the event must occur before ESP registers it (and performs any assigned actions) in the `Occurrences prior to registration` field.
5. Specify the number of seconds that ESP should pause between multiple executions of an action in the `Action frequency time` field. (The default is 0, which disables the option.)

For example, if you set this parameter to 5 seconds and ESP registers an event every second, ESP executes the assigned action(s) every 5 seconds.

This parameter takes precedence when you set the `Before the action will be taken`, the event must be registered parameter for an assigned action to 1.

If you set this parameter to greater than 0 and set the `Before the action will be taken`, the event must be registered parameter for an assigned action to greater than 1, ESP repeats the assigned action(s) based on the condition that is satisfied first.

Note: The `Before the action will be taken`, the event must be registered parameter is located in the `Add Notification Action`, `Add An Action`, and `Update Action` windows.

6. Assign an action to the event. (If `Event Status` is set to `Enabled`, ESP performs this action when the event is registered.)

Figure 4-8 shows the `Add Event` window with example parameters.



Figure 4-8 Add Event Window with Example Parameters (Adding Event to New Class)

7. Click on the Add button.

The interface displays a verification message. (Refer to Figure 4-9.)

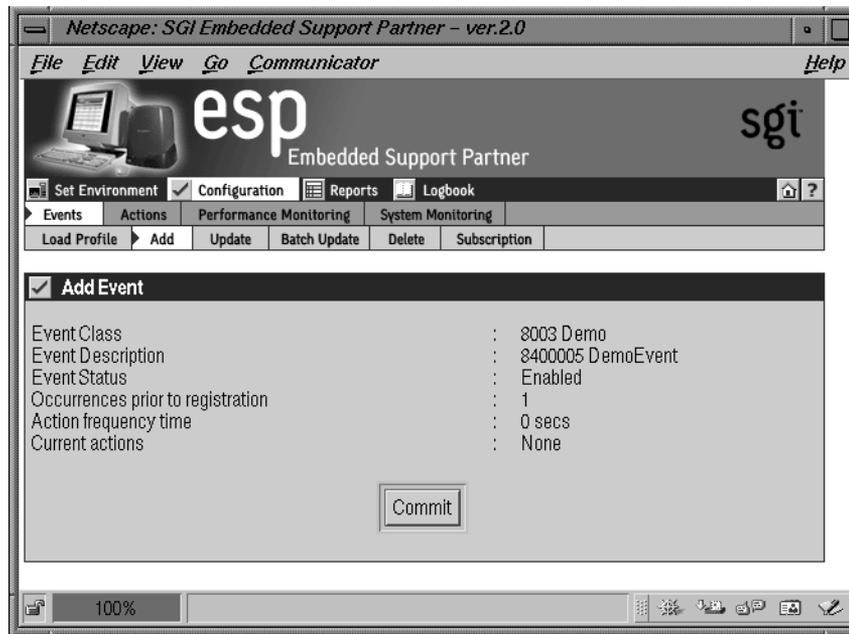


Figure 4-9 Verification Message for Adding an Event (Adding Event to New Class)

8. Click on the `Commit` button.

The interface displays information about the event that was added. (Refer to Figure 4-10.) If you need to update the event, click on the `Update` button.

Be sure to note the sequence number assigned to the event (located in the event description next to the event name). You need this number to register the event in ESP from an external application. (Refer to Chapter 8, “Logging Events from Applications and Scripts.”)

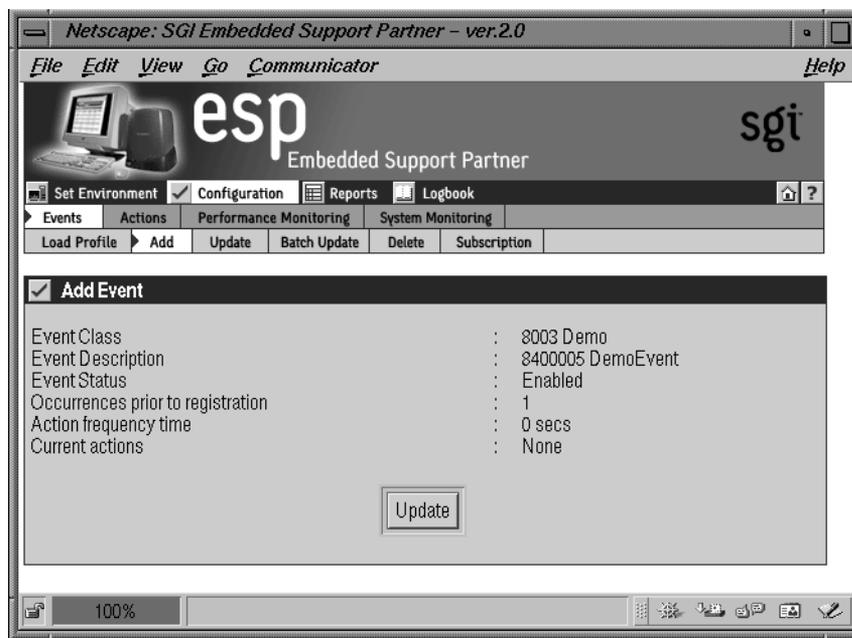


Figure 4-10 Confirmation Message for Adding an Event (Adding Event to New Class)

Using the Command Line Interface

Use the following `espsconfig` command syntax to add an event:

```
/usr/sbin/espsconfig -add evtype -td <type description>
  {-cid <class id> | -cd <class description>}
  [-throttle <throttle value>]
  [-enable | -disable]
  [-acfreq <action frequency value>]
  [-acid <action id> | -acd <action description>]
```

Use the `-td` option to specify the type description (a string enclosed in quotes that describes the event).

Use the `-cid` option to specify an existing event class ID, or use the `-cd` option to provide an existing or new class description (a string enclosed in quotes that describes the class). If the class does not exist, ESP creates a new class.

Use the `-throttle` option to specify the throttling value, which is the number of times the event must occur before ESP registers it. If you do not specify this option, the default value of 1 is used.

Use the `-enable` or `-disable` options to specify whether the event is enabled or disabled. You can specify only one of these options at a time. If you do not specify this option, the event is disabled by default.

Use the `-acid` option to assign an action to the event by specifying an existing action ID, or use the `-acd` option to assign an action to an event by specifying an action description (a string enclosed in quotes that describes the action). If you do not specify an action, no action is assigned to the event by default.

Updating Events

You can also update the parameters for existing events.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to update an event:

1. Click on the `Configuration` button.
2. Click on the `Events` button.
3. Click on the `Update` button.
4. If you are using ESP on a system group manager, the interface displays the `Update Event` window with a list of SGM clients. (Refer to Figure 4-11.) Select the system(s) on which you want to update the event, and click on the `Continue` button.

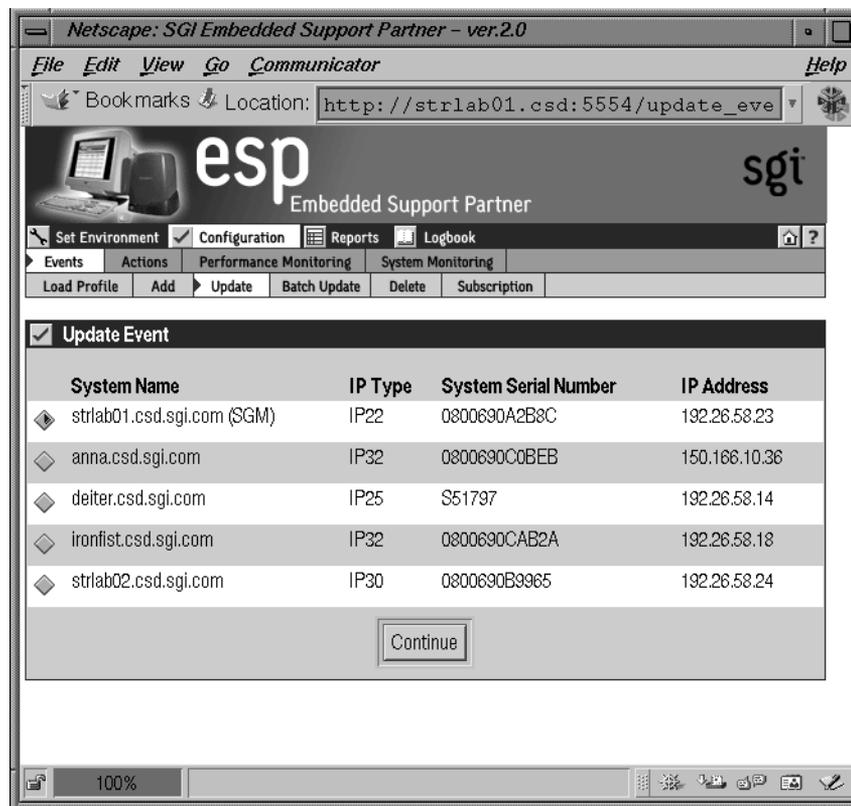


Figure 4-11 Update Event Window (with SGM Clients)

The interface displays the Update Event window. (Refer to Figure 4-12.)



Figure 4-12 Update Event Window

5. Click on the event class that contains the event that you want to update.
6. Click on the `Generate Report` button.

The interface displays a list of all events in the event class that you selected. (Refer to Figure 4-13.)

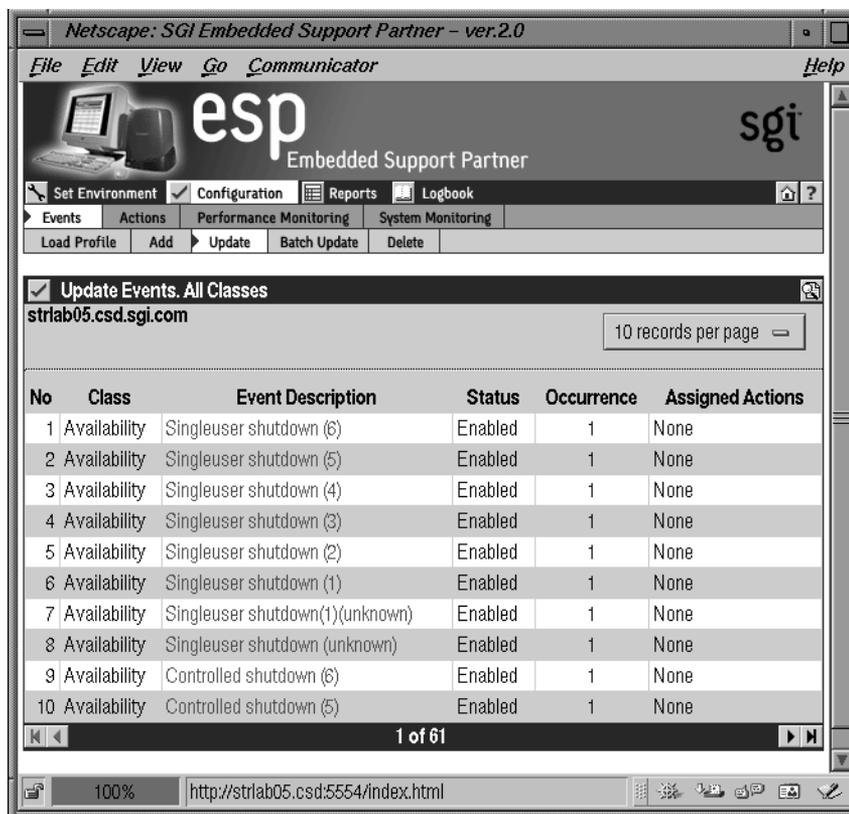


Figure 4-13 Event List for Updating an Event

7. Click on the description of the event that you want to update.

The interface displays the `Update Event` window with the information for the event that you selected. (Refer to Figure 4-14.)

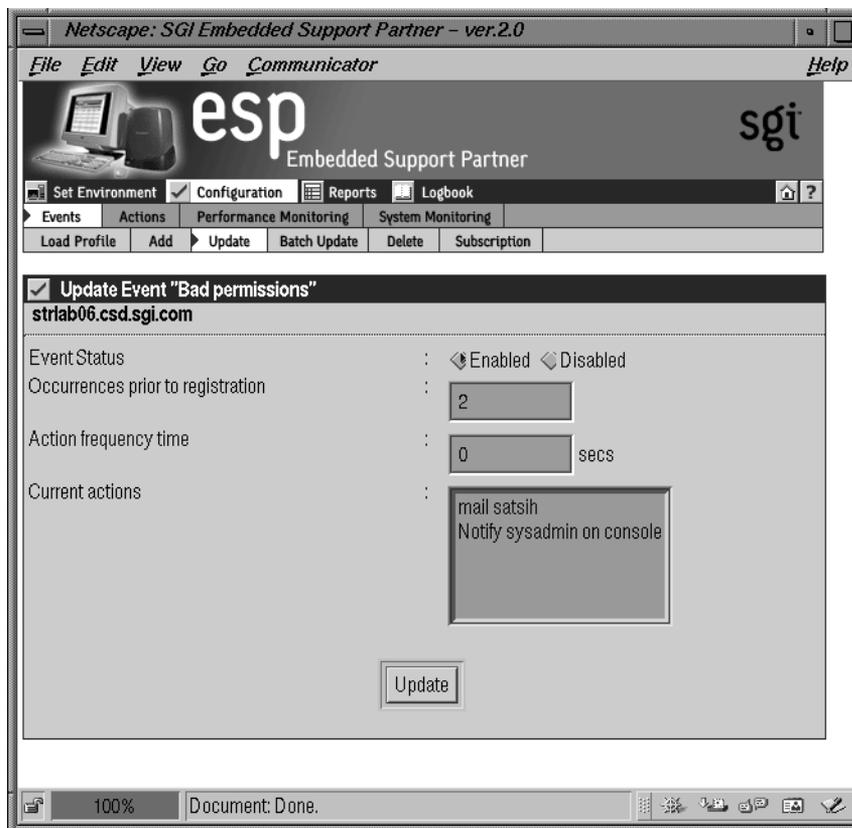


Figure 4-14 Update Event Window (with Event to Update)

8. Update the `Event Status` parameter:
 - Click on `Enabled` to add the event to the ESP event list on your system and start monitoring it.
 - Click on `Disabled` to add the event to the ESP event list on your system but not monitor it.
9. Update the `Occurrences prior to registration` parameter.
10. Update the `Action frequency time` parameter.
11. Update the `Current Actions` parameter.
12. Click on the `Update` button.

The interface displays a verification message that shows the changes that you selected. (Refer to Figure 4-15.)

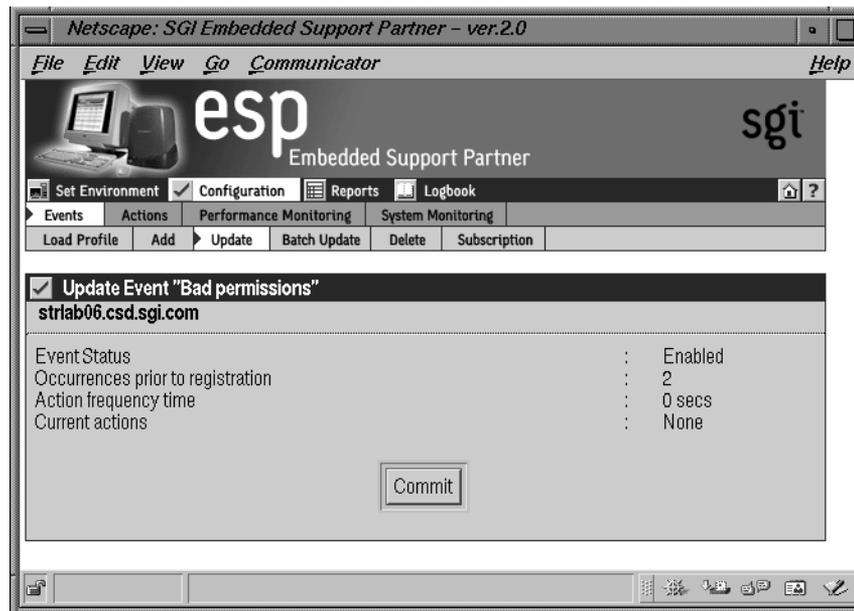


Figure 4-15 Verification Message for Updating an Event

13. Click on the `Commit` button.

The interface displays a confirmation message. (Refer to Figure 4-16.)

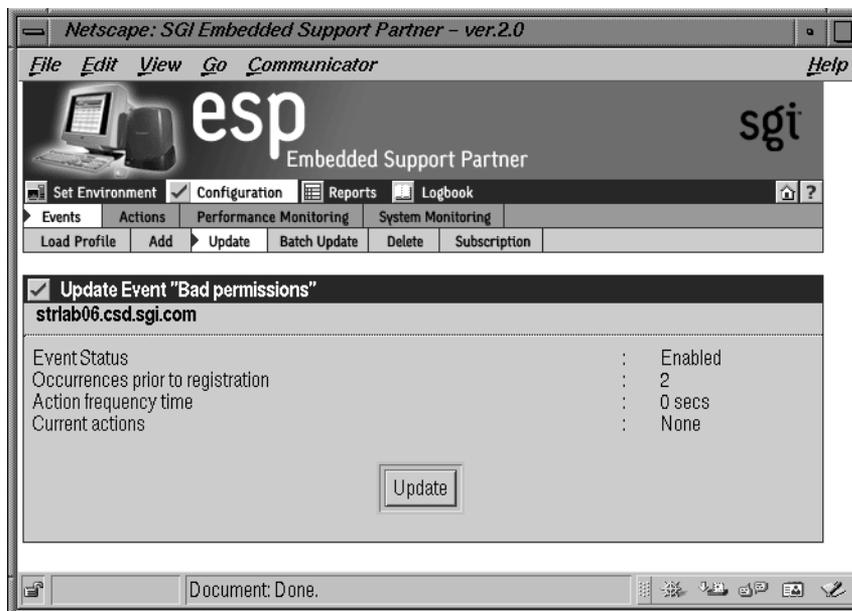


Figure 4-16 Confirmation Message for Updating an Event

Using the Command Line Interface

You can use the `espconfig` command to update event information:

- Use the following command syntax to update an event:

```
/usr/sbin/espconfig -update evtype -tid <type id>
    [-td <type description>]
    [-throttle <throttle value>]
    [-enable | -disable]
    [-acfreq <action frequency value>]
    [-acid <action id> | -acd <action description>]
    [-noacid <action id> | -noacd <action description>]
```

Use the `-tid` option to specify the event to update. (You must provide a unique event type ID.)

Use the `-td` option to update the event description. (You can only update custom event descriptions. You must provide a string enclosed in quotes.)

Use the `-throttle` option to update the throttling value, which specifies the number of times the event must occur before ESP registers it.

Use the `-enable` option to enable registration of the event, or use the `-disable` option to disable registration of the event.

Use the `-acid` and `-acd` options to assign actions to the event. (This command can add only one action at a time; if you want to assign more than one action to an event, you must enter the command multiple times.) Specify an action ID with the `-acid` option. Specify a string enclosed in quotes with the `-acd` option.

Use the `-noacid` and `-noacd` options to remove an action that is already assigned to the event. Specify an action ID with the `-noacid` option. Specify a string enclosed in quotes with the `-noacd` option.

- Use the following syntax to update a custom class description:

```
espconfig -update evclass -cid <class id> -cd <class description>
```

Use the `-cid` option to select the event class by class ID. Use the `-cd` option to specify a new class description (a string enclosed in quotes).

Updating Multiple Events at the Same Time (Batch Updating)

You can update multiple events at the same time by using the “batch update” feature. The “batch update” feature enables you to select more than one event at a time and apply parameter changes to all of the selected events.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to update multiple events at the same time:

1. Click on the `Configuration` button.
2. Click on the `Events` button.
3. Click on the `Batch Update` button.
4. If you are using ESP on a system group manager, the interface displays the `Update Event` window with a list of SGM clients. (Refer to Figure 4-11.) Select the system(s) on which you want to update events, and click on the `Continue` button.

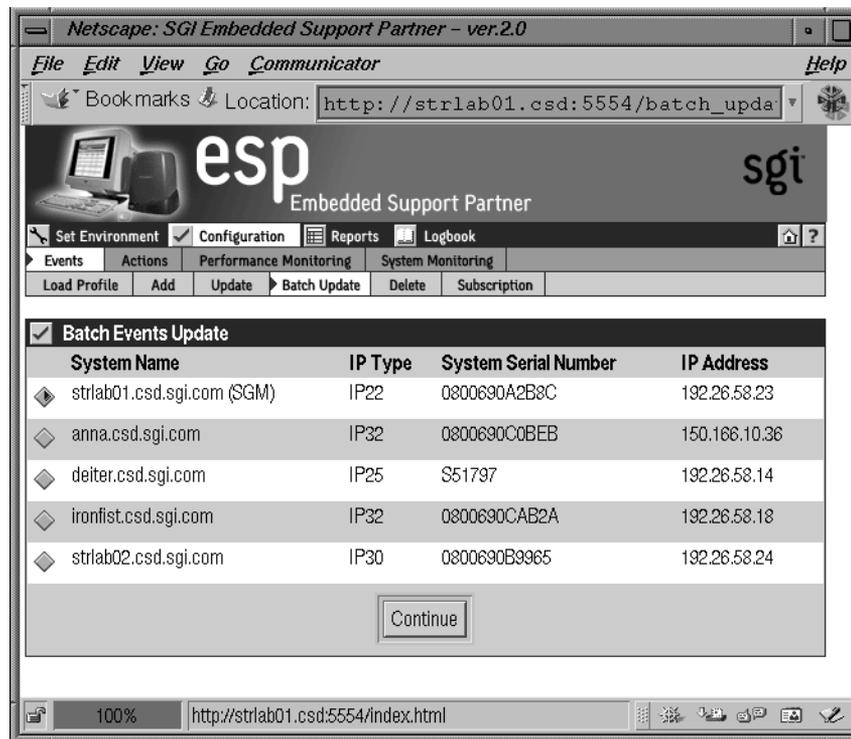


Figure 4-17 Batch Events Update Window (with SGM Clients)

The interface displays the Event Batch Update window. (Refer to Figure 4-18.)

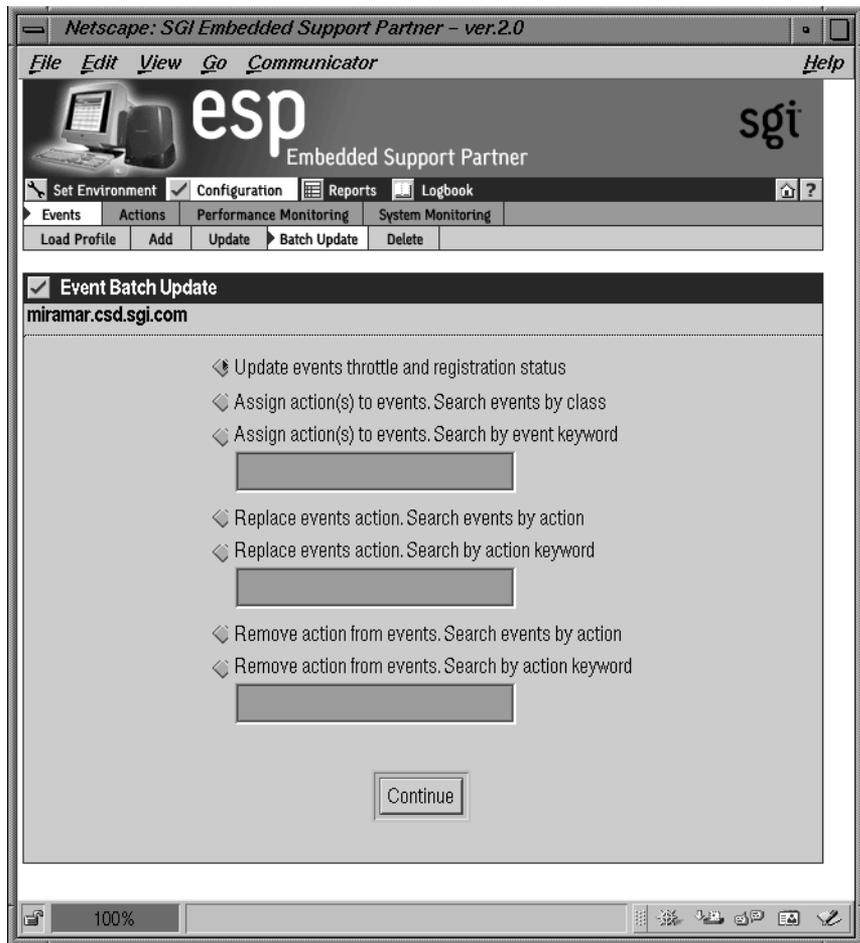


Figure 4-18 Event Batch Update Window

5. Click on the radio button next to the batch operation you want to perform.
(Table 4-1 describes the batch operations and the procedure to use each operation.)

Table 4-1 Batch Update Options

Option	Description
Update events throttle and registration status	Updates the event throttle and registration status for an entire class of events Perform the following procedure: <ol style="list-style-type: none"> 1. Click on the Continue button 2. Choose the class of events that you want to update 3. Click on the Update button 4. Update the Event Status, Occurrences prior to registration, and Action frequency time values 5. Click on the Update button 6. Click on the Commit button
Assign action(s) to events. Search events by class	Assigns an action to an entire class of events Perform the following procedure: <ol style="list-style-type: none"> 1. Click on the Continue button 2. Choose the class of events 3. Choose one or more actions 4. Click on the Assign Action button 5. Deselect the check mark for any events for which you do not want to assign the action 6. Click on the Commit button

Table 4-1 (continued) Batch Update Options

Option	Description
Assign action(s) to events. Search by event keyword	Assigns an action to events that match a specific keyword Perform the following procedure: <ol style="list-style-type: none"> 1. Enter the keyword in the box 2. Click on the <code>Continue</code> button 3. Select the events to which you want to assign the action 4. Click on the <code>Assign Action</code> button 5. Select one or more actions 6. Click on the <code>Assign Action</code> button 7. Deselect the check mark for any events for which you do not want to assign the action 8. Click on the <code>Commit</code> button
Replace events action. Search events by action	Replaces the assigned action for an event Perform the following procedure: <ol style="list-style-type: none"> 1. Click on the <code>Continue</code> button 2. Select the actions to replace 3. Click on the new action 4. Click on the <code>Replace Action</code> button
Replace events action. Search by action keyword	Replaces the assigned action for an event Perform the following procedure: <ol style="list-style-type: none"> 1. Enter the keyword in the box 2. Click on the <code>Continue</code> button 3. Click on the actions to replace 4. Click on the new action 5. Click on the <code>Replace Action</code> button

Table 4-1 (continued) Batch Update Options

Option	Description
Remove action from events. Search events by action	Removes an assigned action from an event Perform the following procedure: 1. Click on the <code>Continue</code> button 2. Select the action 3. Click on the <code>Remove Action</code> button 4. Deselect the check mark for any events for which you do not want to delete the action 5. Click on the <code>Commit</code> button.
Remove action from events. Search by action keyword	Removes an assigned action from an event (finds event-action combination by searching for an action) Perform the following procedure: 1. Enter the keyword in the box 2. Click on the <code>Continue</code> button 3. Select the action 4. Click on the <code>Remove Action</code> button 5. Deselect the check mark for any events for which you do not want to delete the action 6. Click on the <code>Commit</code> button

Using the Command Line Interface

Batch updating is not available from the command line interface.

Deleting Events

You can delete custom events that you added to ESP on your system.

Warning: Deleting an event removes all records that are associated with the event from the database. After you delete an event, you will not be able to retrieve information about any occurrences of the event on your system.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to delete an event:

1. Click on the `Configuration` button.
2. Click on the `Events` button.
3. Click on the `Delete` button.

The interface displays the `Delete User Events` window. (Refer to Figure 4-19.)



Figure 4-19 Delete User Events Window (Web-based Interface)

- Click on the description of the event that you want to delete, or click the name of event class to delete an entire class of events.

The interface displays a verification message. (Refer to Figure 4-20.)



Figure 4-20 Verification Message for Deleting an Event

- Click on the `Commit` button.

The interface displays a confirmation message. (Refer to Figure 4-21.)

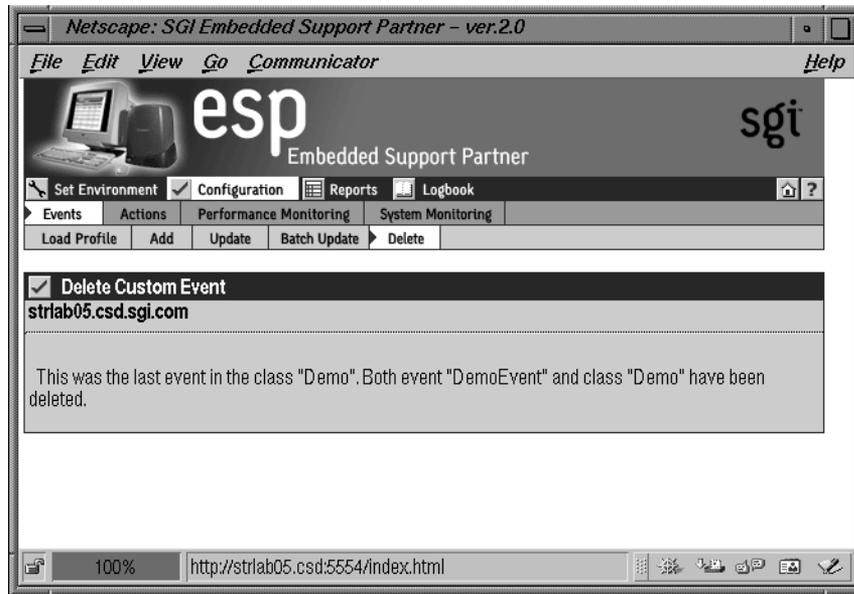


Figure 4-21 Confirmation Message for Deleting an Event

Using the Command Line Interface

You can use the `espcnfig` command to delete events and event classes:

- Use the following command syntax to delete an existing custom event:

```
/usr/sbin/espcnfig -delete evtype {-tid <type id> | -td <type
description>}
```

Use the `-tid` option to specify an event ID, or use the `-td` option to specify an event description (a string enclosed in quotes).

Note: If the event description is not unique, the command displays a table of matching events and event IDs. When this occurs, use an event ID from the table with the `-td` option to delete an event.

If the event to delete is the last event in a custom class, this command also deletes the event class.

- Use the following command syntax to delete an entire custom event class:

```
/usr/sbin/espconfig -delete evclass {-cid <class id>|-cd <class  
description>}
```

Use the `-cid` option to specify an event class ID, or use the `-cd` option to specify an event class description (a string enclosed in quotes).

Subscribing Events from SGM Clients

You can select which events an SGM client forwards to an SGM server by subscribing to events on the SGM client.

Note: Event subscription is only available in system group manager mode.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to subscribe to events:

1. Click on the `Configuration` button.
2. Click on the `Events` button.
3. Click on the `Subscription` button.

The interface displays the `SGM Event Subscription` window. (Refer to Figure 4-22.)



Figure 4-22 SGM Event Subscription Window

4. Click on the radio button next to the host for which you want to subscribe events.
5. Click on the `Continue` button.

The interface displays the `Event Subscription For SGM Client` window. (Refer to Figure 4-23.)

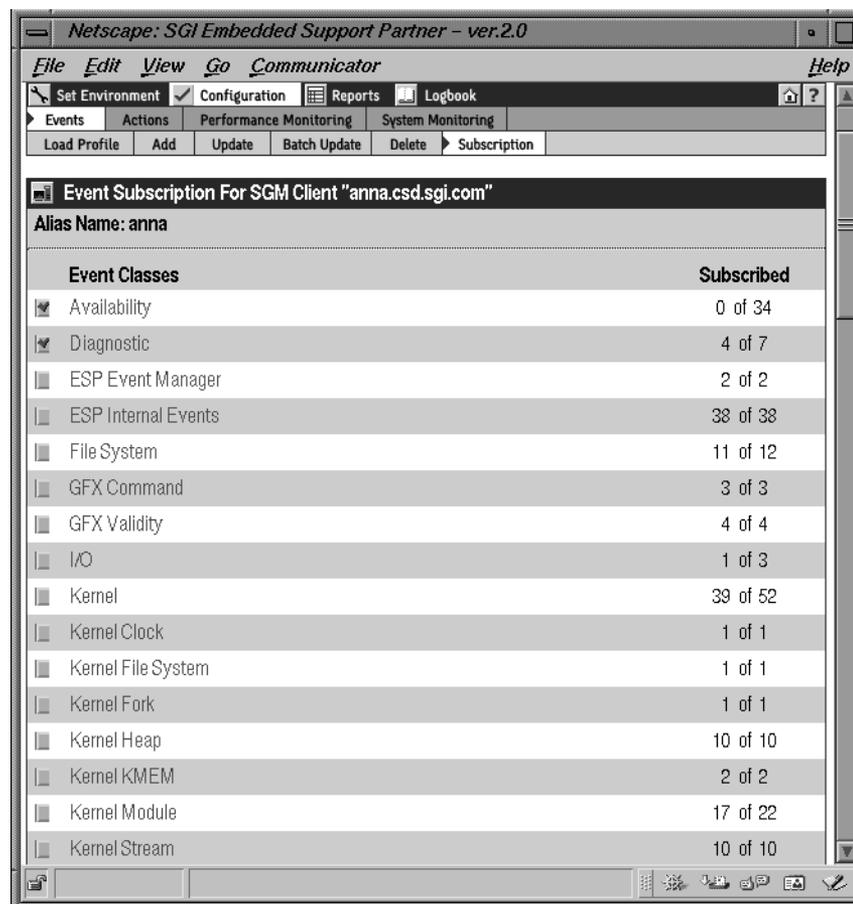


Figure 4-23 Event Subscription for SGM Client Window

This window displays all event classes available on the SGM client. Three buttons are available at the bottom of the window: `Subscribe`, `Unsubscribe`, and, `Refresh Event List`.

- Click on the `Subscribe` button to subscribe all events in a class. (ESP subscribes all events in the class that have event registration enabled on the SGM client.)
- Click on the `Unsubscribe` button to unsubscribe all events in a class. (ESP unsubscribes all events in the class.)
- Click on the `Refresh Event List` button to refresh the window.

Using the Command Line Interface

You can use the `espsconfig` command to subscribe and unsubscribe events:

- Use the following command syntax to subscribe to events or event classes on a group member (SGM client):

```
/usr/sbin/espsconfig -subscribe <client alias> [{-f <filename> | [-c <class list>] [-e <event list>]}]
```

Use the `-f` option to specify a file that contains a list of events and/or event classes to subscribe. (The file contents must use the same format at the `<class list>` and `<event list>` parameters.)

Use the `-c` option to provide a space-separated list of event class IDs to subscribe.

Use the `-e` option to provide a space-separated list of event IDs to subscribe.

- Use the following command syntax to unsubscribe event or event classes from a group member:

```
/usr/sbin/espsconfig -unsubscribe clientAlias [{-f <filename> | [-c <class list>][-e <event list>]}]
```

Use the `-f` option to specify a file that contains a list of events and/or event classes to unsubscribe. (The file contents must use the same format at the `<class list>` and `<event list>` parameters.)

Use the `-c` option to provide a space-separated list of event class IDs to unsubscribe.

Use the `-e` option to provide a space-separated list of event IDs to unsubscribe.

- Use the following command syntax to view a list of events subscribed for a group member:

```
/usr/sbin/espsconfig -show_subscription sgmclient <client alias> [-r]
```

Use the `-r` option to show the events that the specified group member can send to the group manager. In most cases, if ESP is properly configured, both lists are the same.

- Use the following command syntax to view a list of events currently installed on a specified client and to add the events to group manager database:

```
/usr/sbin/espcnfig -update sgmevents <client alias>
```

Configuring Actions

Actions are commands that ESP performs in response to events if you set up event/action assignments. An event/action assignment specifies the action that ESP should perform for a specific event when it registers a specific number of events. Example actions include sending an e-mail message and sending a page.

Use ESP to perform the following activities to manage actions on your system:

- View existing actions
- Add actions
- Update existing actions
- Disable actions

Viewing the Existing Actions

You can use the `espcnfig` command to view the existing actions.

- Use the following command syntax to list event actions. It lists the action IDs and action descriptions from the event action fields.

```
/usr/sbin/espcnfig -list evaction
```

- Use the following command syntax to view all parameters for an action:

```
/usr/sbin/espcnfig -show evaction {-acid <action id> | -acd <action description>}
```

This command shows the fields in the following format:

```
begin : eventAction
      actionId      : 4
      throttle      : 1
      action         : "/usr/bin/espsnotify -A \"%D\""
      retryCount    : 0
      timeout        : 10
      user           : "root"
```

```
        actionDescription : "Notify sysadmin on console"  
        disabled          : "NO"  
end      : eventAction
```

Use the `-acid` option to specify an action ID, or use the `-acd` option to specify an action description (a string enclosed in quotes).

Adding Actions

You can customize ESP by adding new actions.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to add actions:

1. Click on the `Configuration` button.
2. Click on the `Actions` button.

The interface displays the `Add An Action` window. (Refer to Figure 4-24.)



Figure 4-24 Add an Action Window

3. Specify how you want to create the action string:
 - To have ESP build a notification action string from menu options that you select, click on the radio button next to `Notification action`. (Use this option if you do not know the appropriate syntax of the `esnotify` command for the notification that you want to create.)
 - To manually enter the action string, click on the radio button next to `Other action`. (Use this option if you know the syntax of the `esnotify` command for the notification that you want to create or if you want to create an action that is not a notification.)

4. Click on the `Continue` button.

The interface updates the `Add An Action` window. The following subsections describe how to use this window.

Using the Notification Action Option

Figure 4-25 shows the `Add An Action` window when you choose the `Notification` Action option.

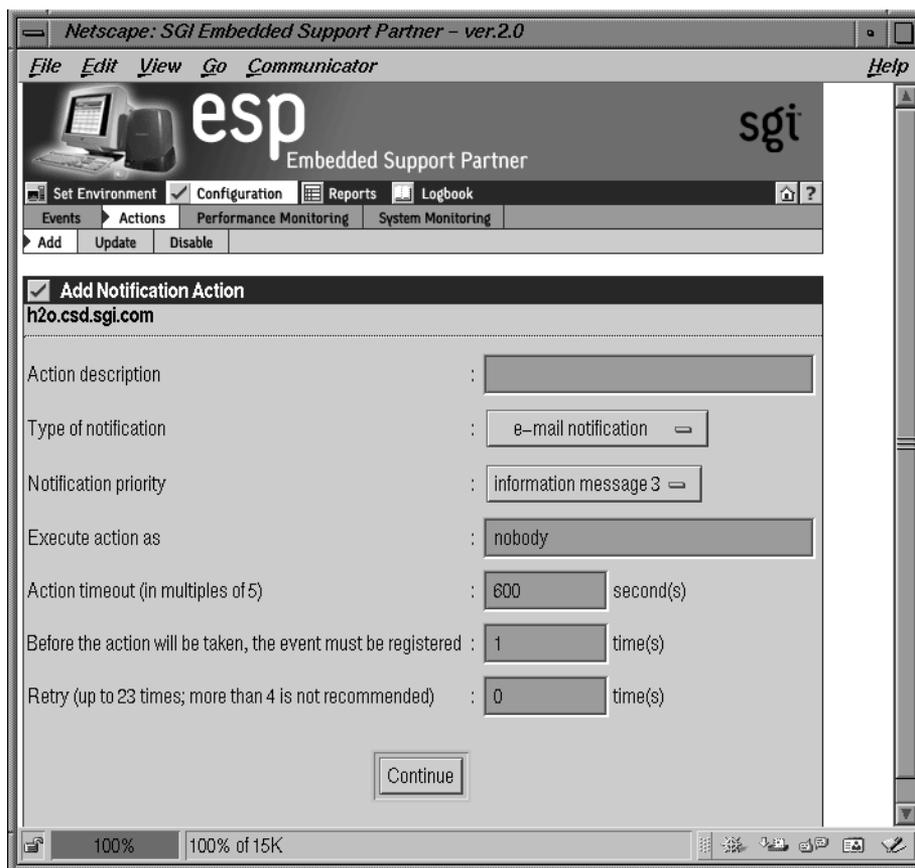


Figure 4-25 Add an Action Window (Using Notification Action Option)

Perform the following procedure to use this window to create an action:

1. Enter a description for the action. ESP displays this description on other pages of the interface.
2. Select the type of notification that you want to create (e-mail notification, page notification, system console notification, or GUI pop-up notification).
3. Select the priority of the notification.
4. Enter the user account that will execute the command. (The default is the `nobody` account.)
5. Enter the amount of time that ESP should wait for the action to execute (timeout value). If the action does complete within this period of time, ESP kills the action.
6. Enter the number of times that ESP should register an event before performing the action.
7. Enter the number of times that ESP should attempt to perform the action before stopping.
8. Click on the `Continue` button.
 - If you selected `e-mail notification`, ESP displays the window shown in Figure 4-26.
 - If you selected `pager notification`, ESP displays the window shown in Figure 4-27.
 - If you selected `notify on console`, ESP displays the window shown in Figure 4-28.
 - If you selected `GUI pop-up notification`, ESP displays the window shown in Figure 4-29.

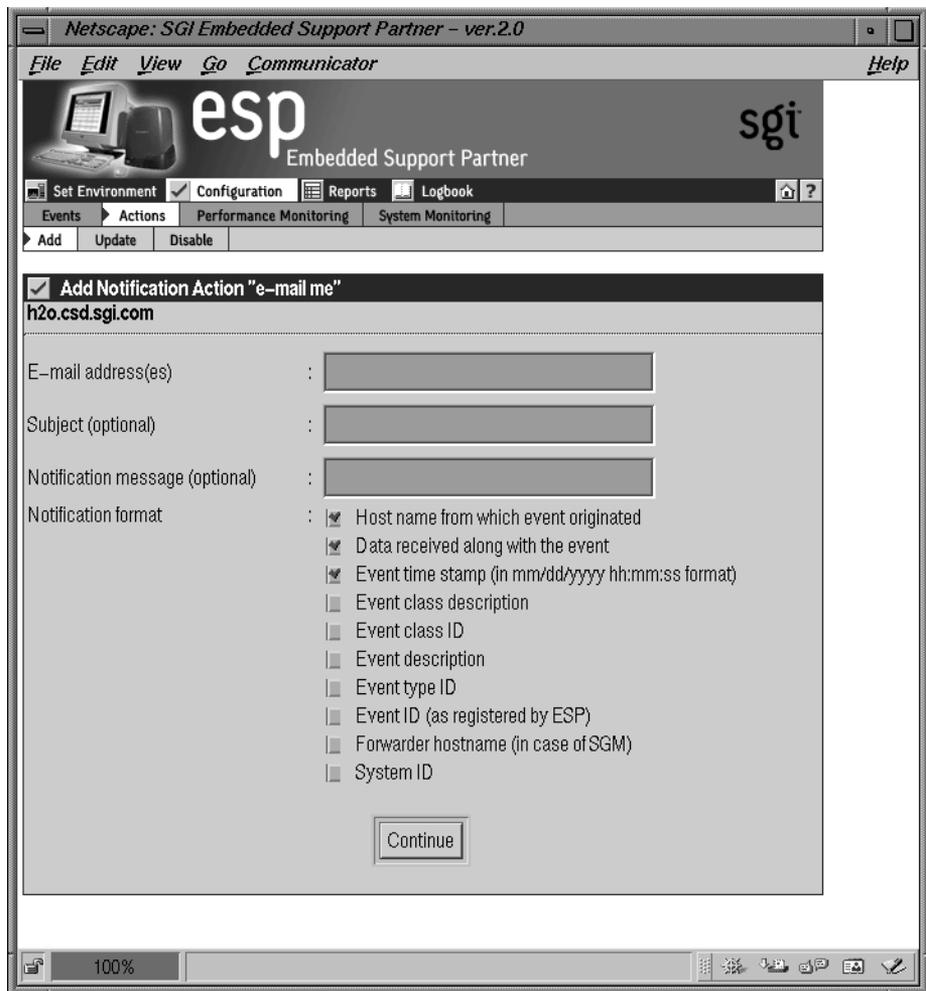


Figure 4-26 Add an Action Window (Using Notification Action and E-mail Options)

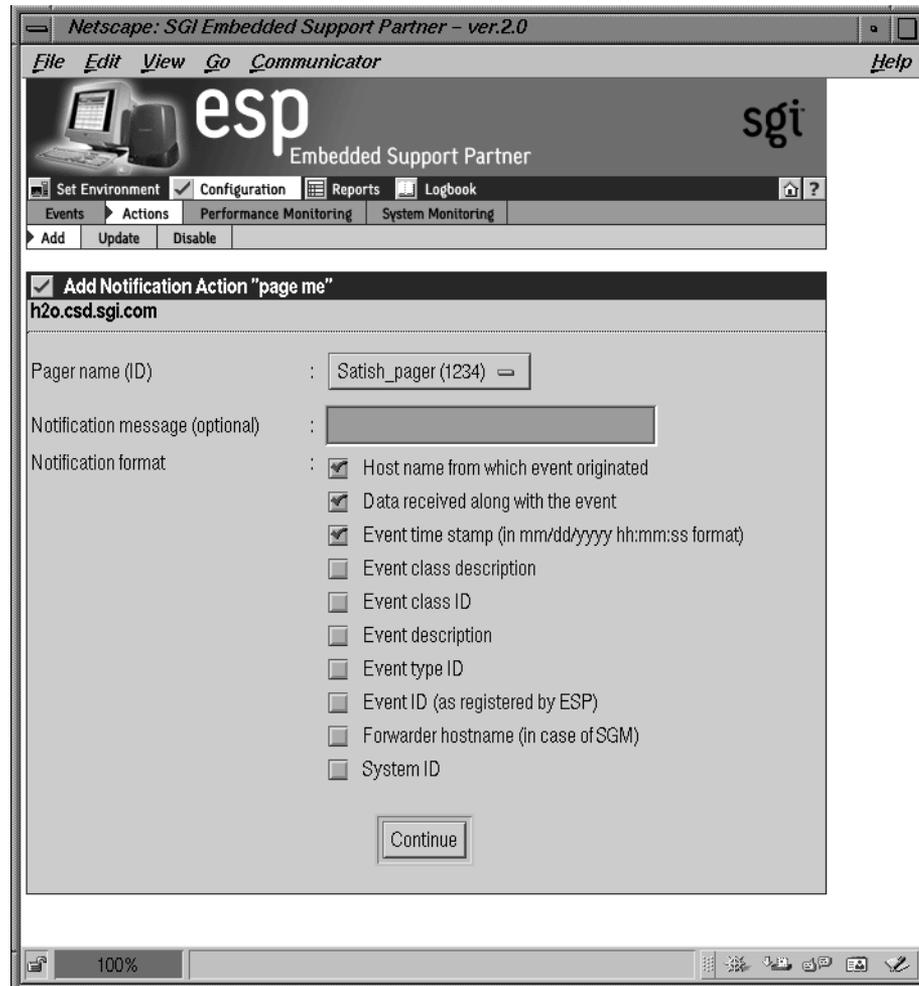


Figure 4-27 Add an Action Window (Using Notification Action and Pager Options)

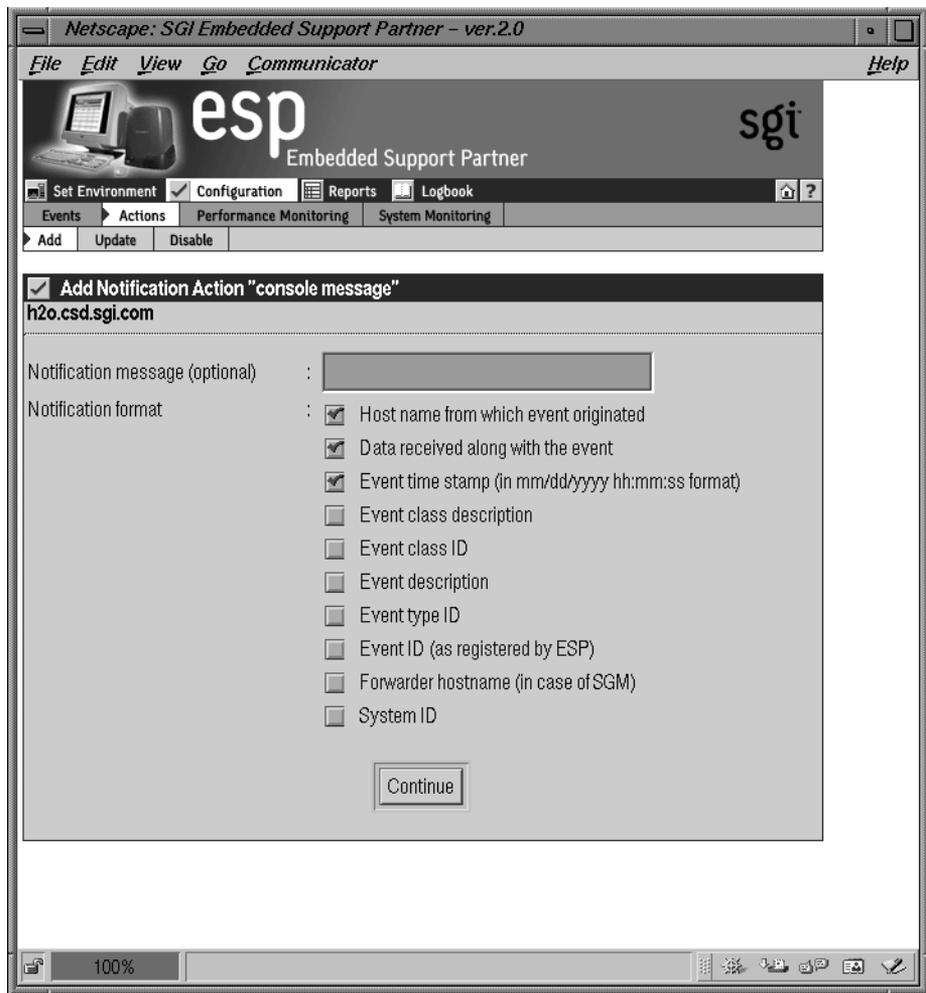


Figure 4-28 Add an Action Window (Using Notification Action and System Console Options)

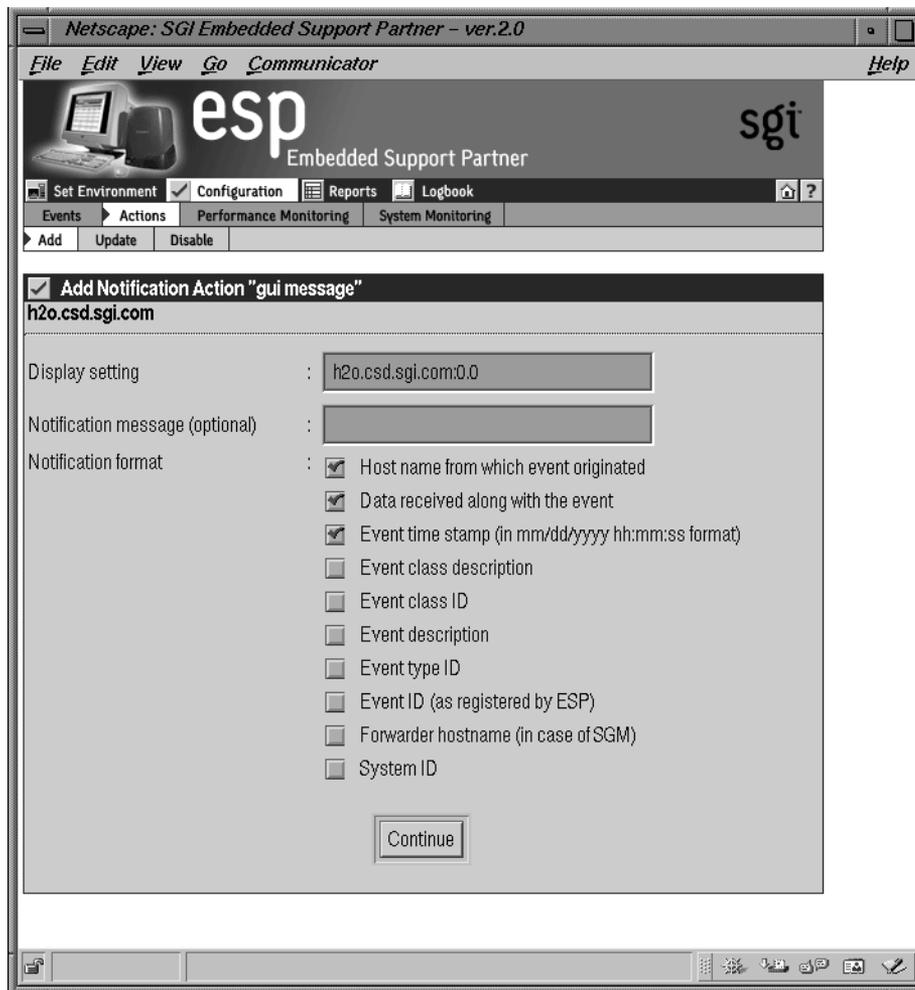


Figure 4-29 Add an Action Window (Using Notification Action and GUI Pop-up Options)

9. Set the parameters for the action.

Table 4-2 describes the parameters that are unique for each type of notification and the parameters that are common to all types of notifications.

Table 4-2 Notification Action Parameters

Notification Type	Parameter	Description
E-mail notification	E-mail address(es)	Specifies the e-mail address(es) that receive an e-mail notification Tip: Separate multiple e-mail addresses with a space, a comma, or a semicolon.
	Subject	Specifies the subject of the e-mail notification Tip: The message cannot include quotation marks (single or double).
Pager notification	Pager name (ID)	Specifies the pager to notify Note: You must set up the paging parameters before paging notification actions can occur. If <code>qpage</code> is not running or paging is not configured properly, ESP does not perform paging notification actions.
GUI pop-up notification	Display setting	Specifies the X Window System display to use
All	Notification message	Specifies a message to add to the end of the notification Tip: The message cannot include quotation marks (single or double).
	Notification format	Specifies event information to include in the notification

10. Click on the `Continue` button.

The interface displays a verification message. (Refer to Figure 4-30.)

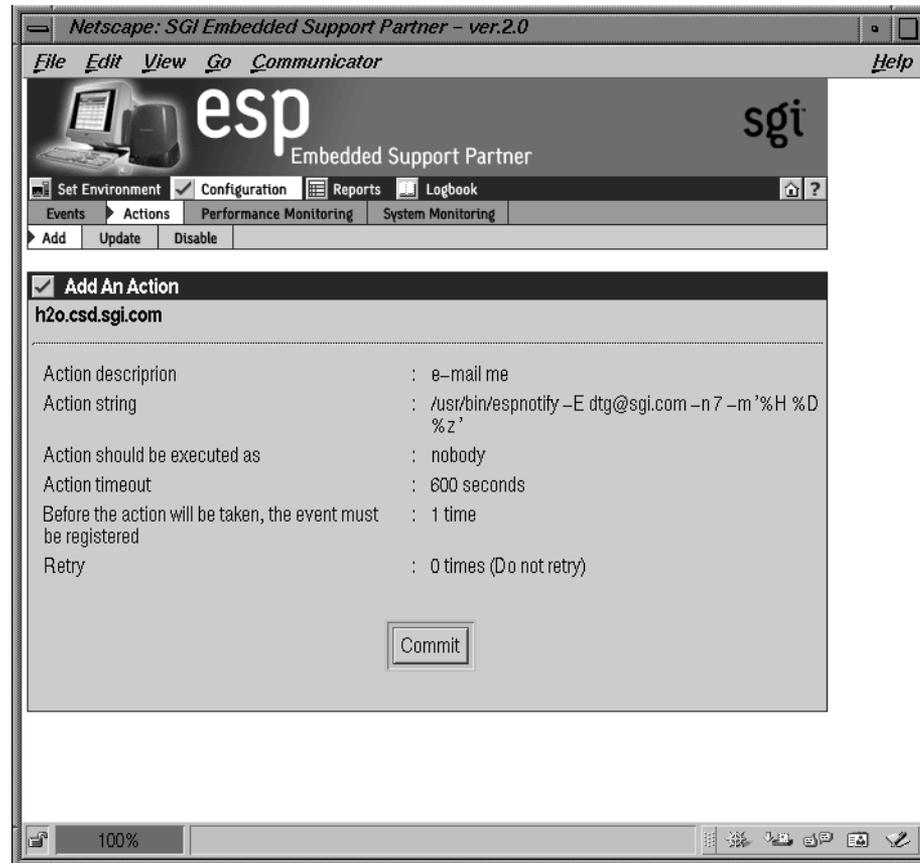


Figure 4-30 Verification Message for Adding an Action (Using Notification Action Option)

11. Click on the `Commit` button.

The interface displays a confirmation message. (Refer to Figure 4-31.) If you need to update the action parameters, click on the `Update` button.

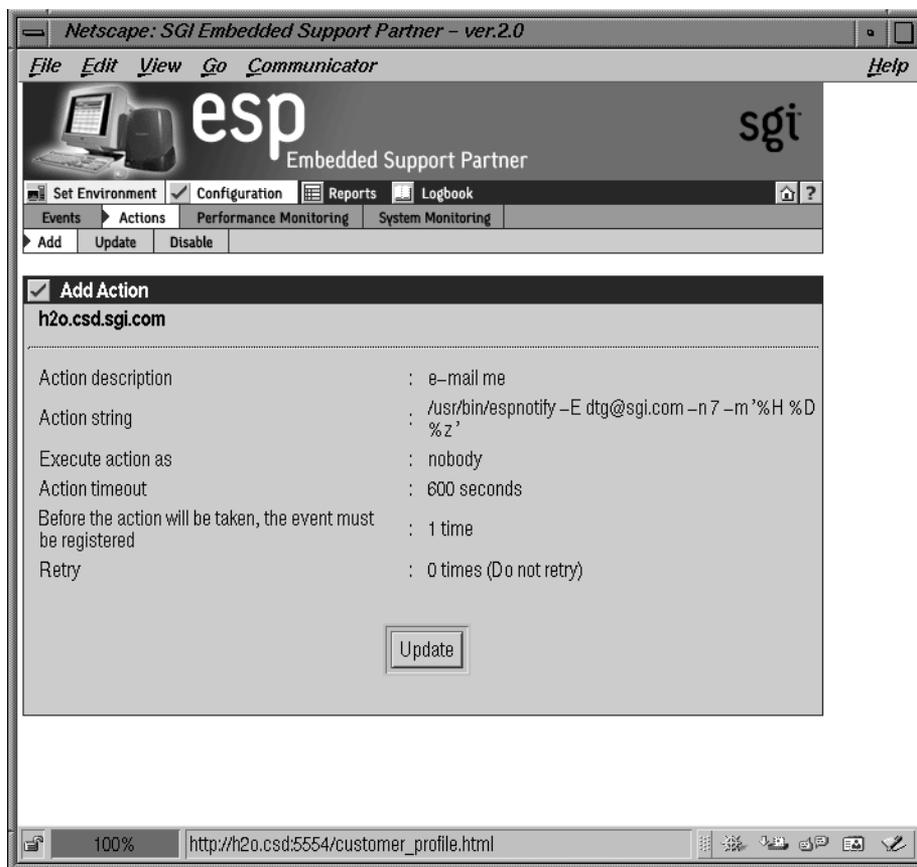


Figure 4-31 Confirmation Message for Adding an Action (Using Notification Action Option)

Using the Other Action Option

Figure 4-32 shows the Add An Action window when you choose the Other Action option.

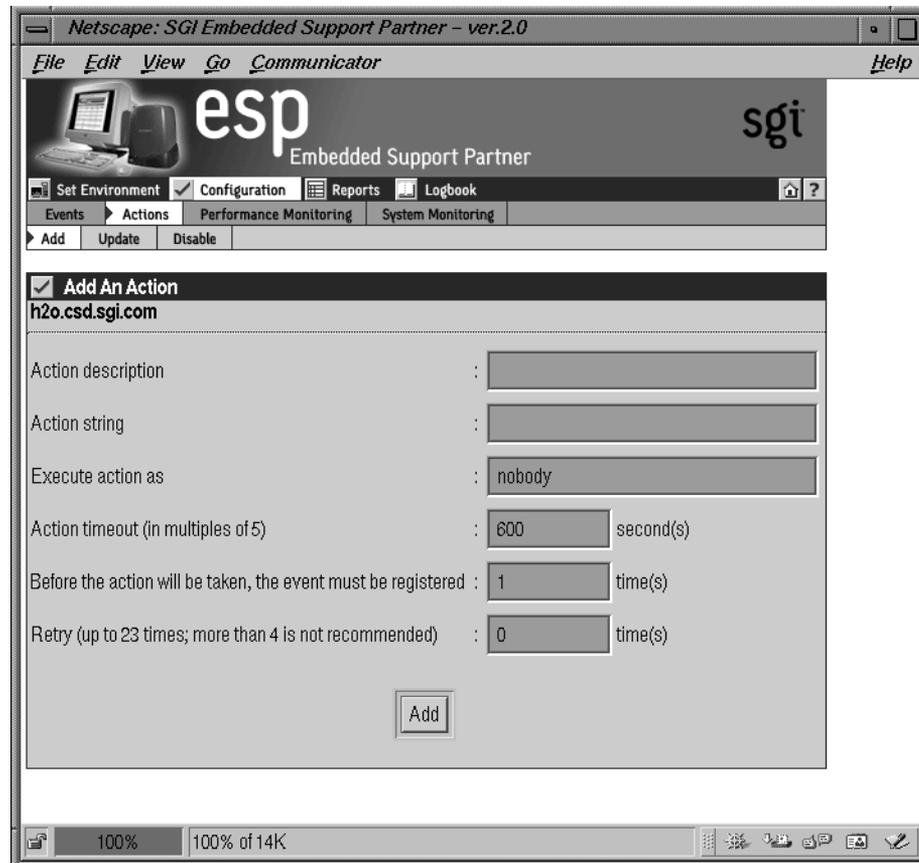


Figure 4-32 Add an Action Window (Using Other Action Option)

Perform the following procedure to use this window to create an action:

1. Enter a description for the action. ESP displays this description on other pages of the interface.
2. Enter a command to execute as a action. (For example, you could use the `espnotify` command to send an e-mail. Refer to Chapter 7, “Sending Notifications,” for more information about using the `espnotify` command to send notifications.)

Tip: When you use the `espnotify` command, you can include several variables in the `<message>` parameter. (Table 4-3 describes the variables.)

Table 4-3 `espnotify` Parameters

Variable	Description
<code>%C</code>	Event class
<code>%T</code>	Event type
<code>%D</code>	Event data
<code>%H</code>	Host where the event originated
<code>%S</code>	Time when the event occurred (in seconds since 00:00:00 UTC on January 1, 1970)
<code>%F</code>	Host that forwarded the event
<code>%I</code>	System ID
<code>%t</code>	Current time string
<code>%s</code>	Current time (in seconds since 00:00:00 UTC on January 1, 1970)
<code>%m</code>	Current minute of the hour
<code>%M</code>	Current month of the year
<code>%h</code>	Current hour of the day
<code>%y</code>	Current year
<code>%d</code>	Current day of the month

3. Enter the user account that will execute the command. (The default is the `nobody` account.)

4. Enter the amount of time that ESP should wait for the action to execute (timeout value). If the action does complete within this period of time, ESP kills the action.
5. Enter the number of times that ESP should register an event before performing the action.
6. Enter the number of times that ESP should attempt to perform the action before stopping.

Figure 4-33 shows the Add An Action window with example parameters.

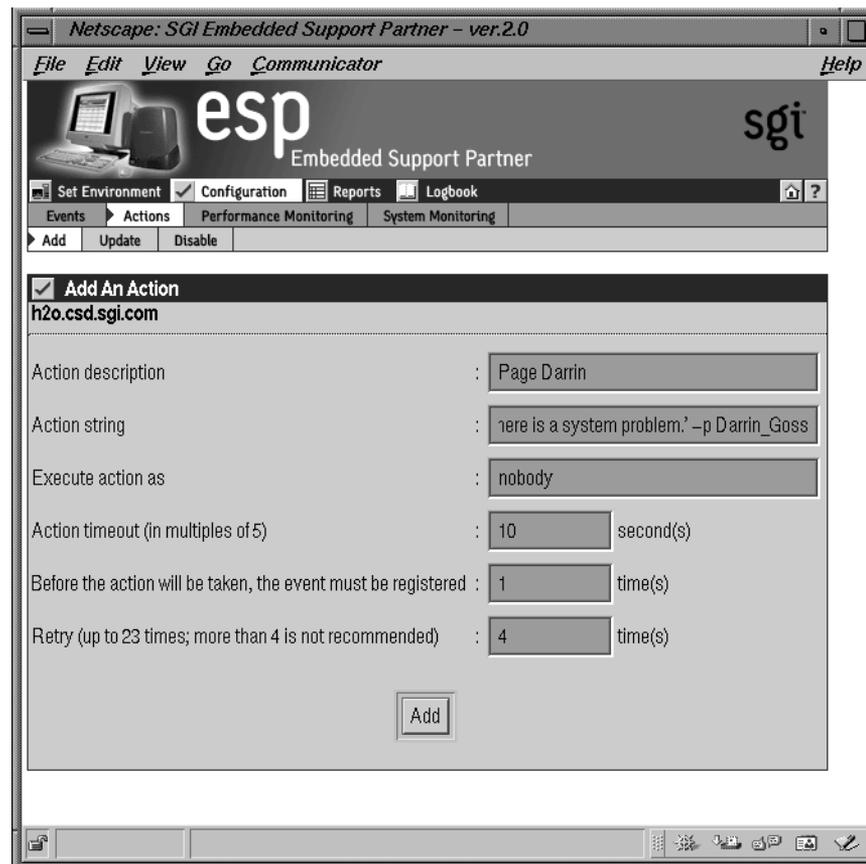


Figure 4-33 Example Parameters (Add an Action Window Using Other Action Option)

7. Click on the Add button.

The interface displays a verification page. (Refer to Figure 4-34.)

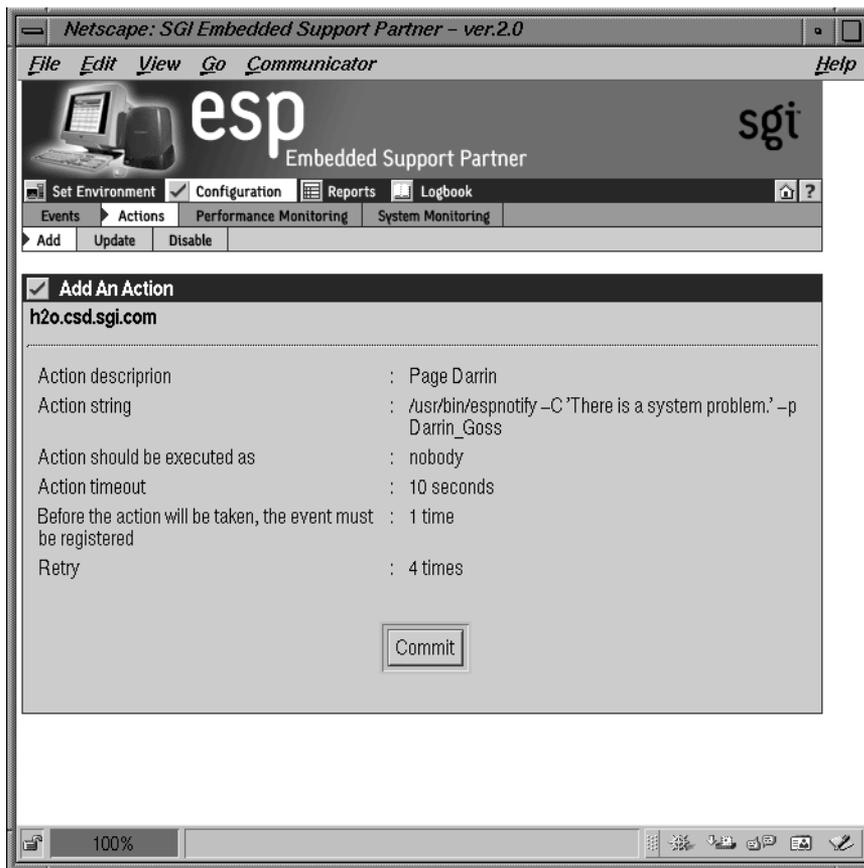


Figure 4-34 Verification Message for Adding an Action (Using Other Action Option)

8. Click on the `Commit` button.

The interface displays a confirmation message. (Refer to Figure 4-35.) If you need to update the action parameters, click on the `Update` button.

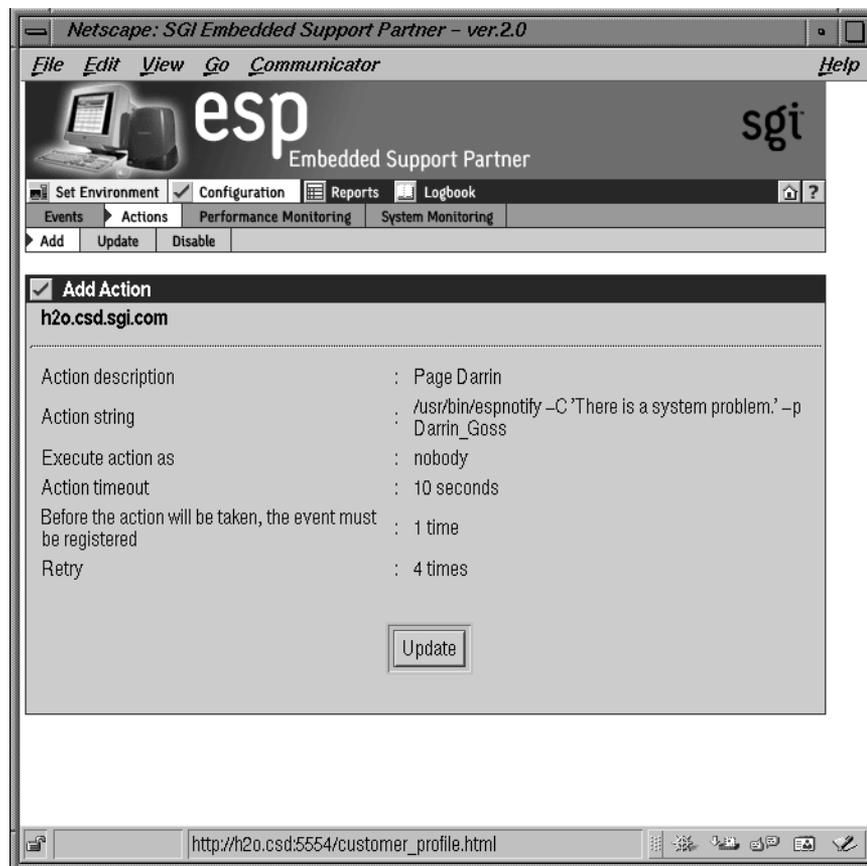


Figure 4-35 Confirmation Message for Adding an Action (Using Other Action Option)

Using the Command Line Interface

Use the following `espsconfig` command syntax to add an action:

```
/usr/sbin/espsconfig -add evaction -acd <action description>  
-act <action string>  
[-user <name>]  
[-retry <count>]  
[-tout <timeout value>]  
[-throttle <throttle value>]  
[-enable | -disable]
```

Use the `-acd` option to specify a description of the action (a string enclosed in quotes).

Use the `-act` option to specify the command (a string enclosed in quotes) that the action performs.

Use the `-user` option to specify the UNIX user that executes the action. If you do not specify a user, ESP uses the default user `nobody`.

Use the `-retry` option to specify the number of times that ESP should perform the action before stopping. If you do not specify a value, ESP uses the default value 0.

Use the `-tout` option to specify the amount of time (in seconds) that ESP should wait for the action to execute. If the action does not complete before the timeout period expires, ESP kills the action command. If you do not specify a value, ESP uses the default value 0.

Use the `-throttle` option to specify the throttling value for the action, which specifies the number of times an event must occur before ESP performs the action. If you do not specify a value, ESP uses the default value 1.

Use the `-enable` option to enable the action, or use the `-disable` option to disable the action.

Updating Actions

You can update actions to customize them for your site.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to update an action:

1. Click on the `Configuration` button.
2. Click on the `Actions` button.
3. Click on the `Update` button.

The interface displays the `Update Current Actions` window. (Refer to Figure 4-36.)

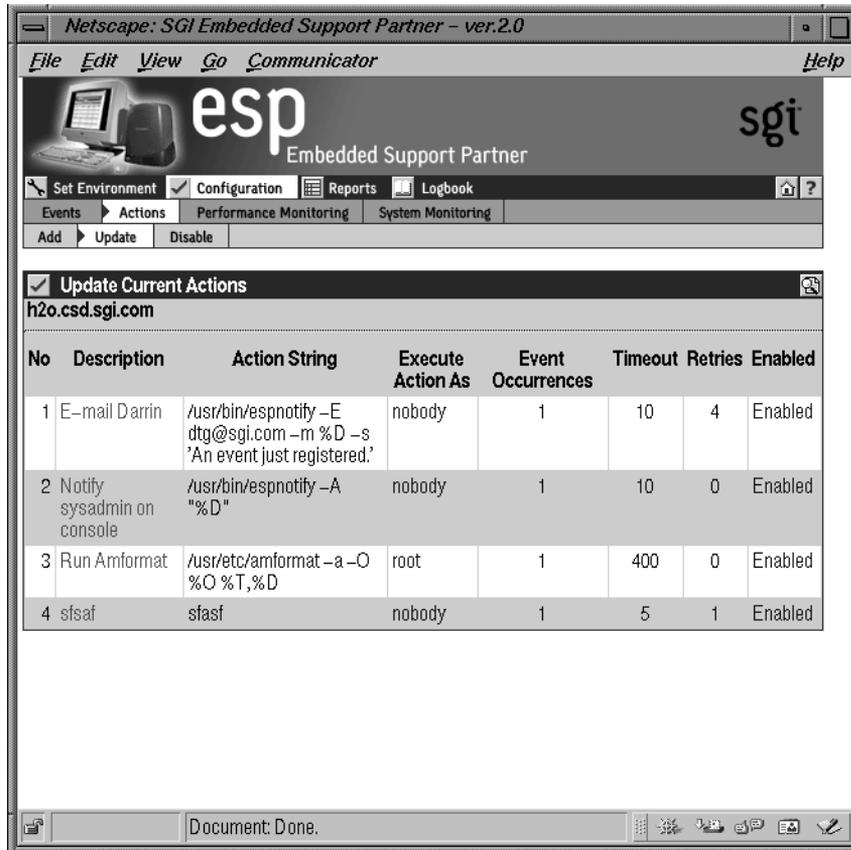


Figure 4-36 Update Current Actions Window

4. Click on the description of the action that you want to update.
The interface displays the Update Action window. (Refer to Figure 4-37.)

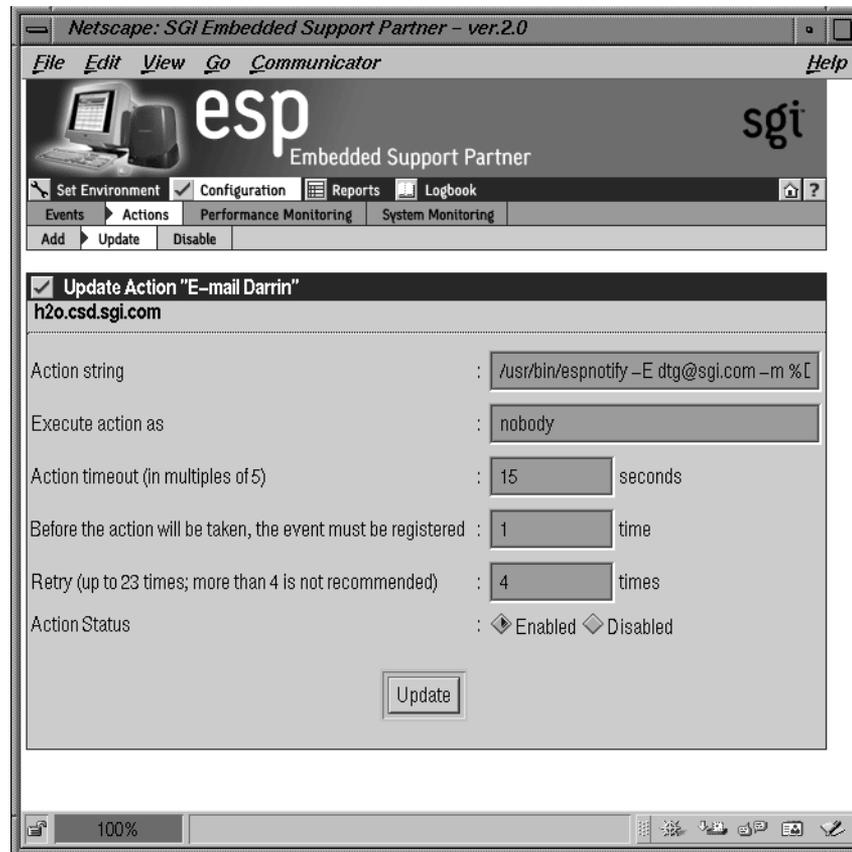


Figure 4-37 Update Action Window

5. Update the parameters.
6. Click on the `Update` button.

The interface displays a verification window. (Refer to Figure 4-38.)

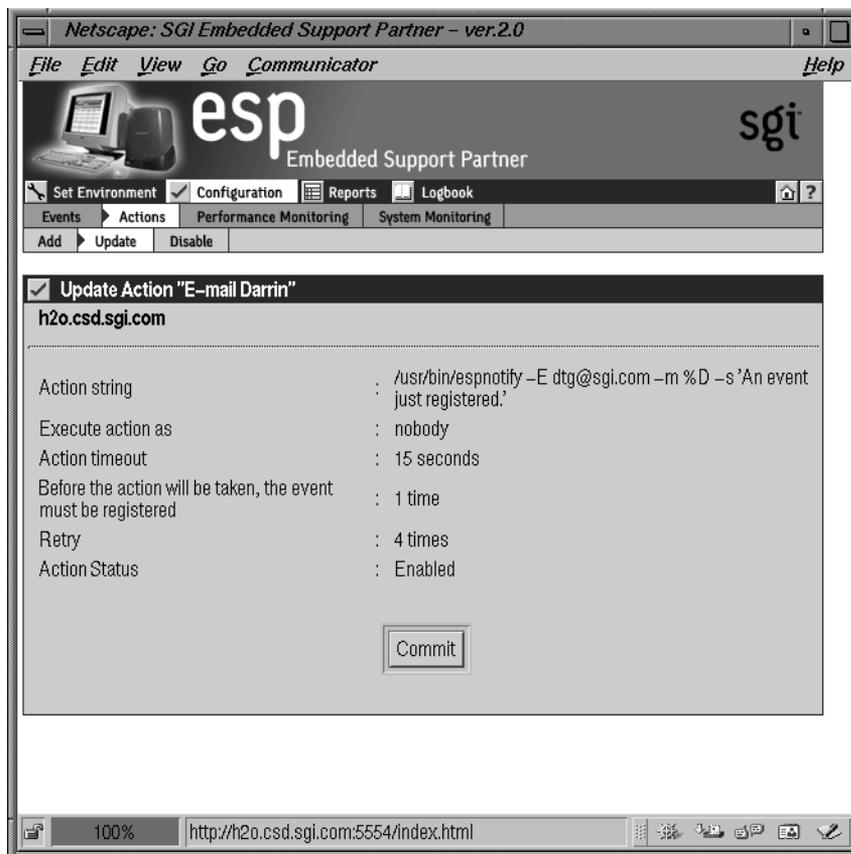


Figure 4-38 Verification Message for Updating an Action

7. Click on the `Commit` button.

The interface displays a confirmation message. (Refer to Figure 4-39.) If you need to update the parameters again, click on the `Update` button.

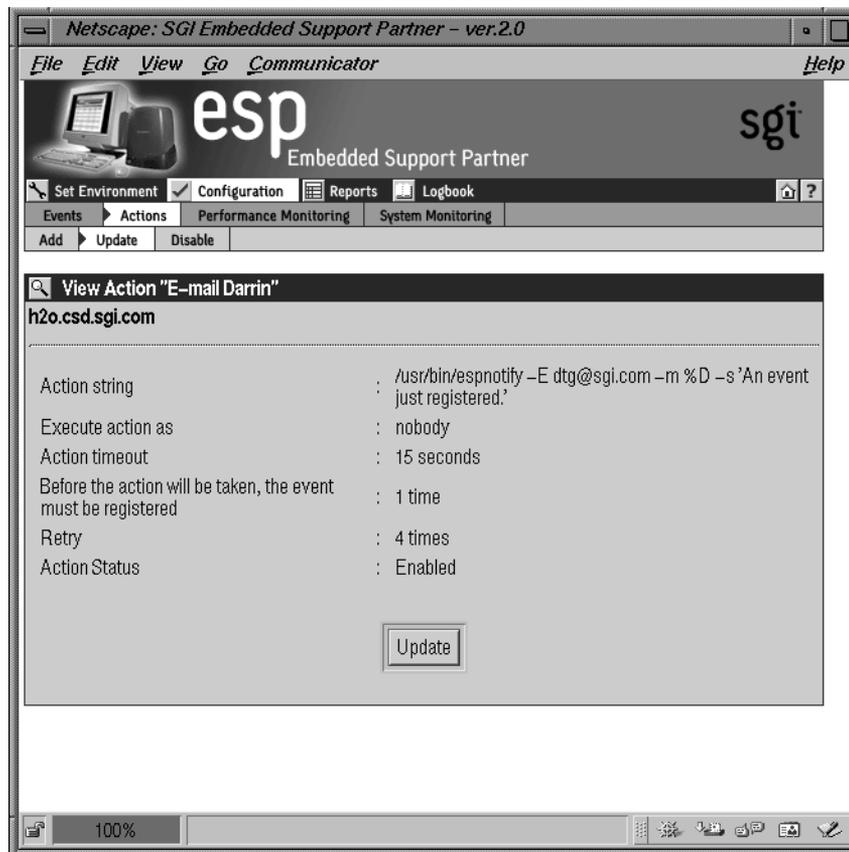


Figure 4-39 Confirmation Message for Updating an Action

Using the Command Line Interface

Use the following `espsconfig` command syntax to update an action:

```
/usr/sbin/espsconfig -update evaction
    {-acid <action id> [-acd <new action description>] |
    -acd <action description>}
    [-act <action string>]
    [-user <name>]
    [-retry <count>]
    [-tout <timeout value>]
    [-throttle <throttle value>]
    [-enable | -disable]
```

Use the `-acid` option to select an action by action ID. If you use the `-acd` option with the `-acid` option, this command updates the action description.

Use the `-acd` option to select an action by description (a string enclosed in quotes).

Note: If you do not specify any of the following options, ESP does not update the related action parameters.

Use the `-act` option to update the command (a string enclosed in quotes) that the action performs.

Use the `-user` option to update the UNIX user that executes the action.

Use the `-retry` option to update the number of times that ESP should perform the action before stopping.

Use the `-tout` option to update the amount of time (in seconds) that ESP should wait for the action to execute. If the action does not complete execution before the timeout period expires, ESP kills the action command.

Use the `-throttle` option to update the throttling value for the action, which specifies the number of times an event must occur before ESP performs the action.

Use the `-enable` option to enable the action, or use the `-disable` option to disable the action.

Disabling Actions

You can disable actions that you no longer need to use. When you disable an action, ESP does not execute it when the events to which it is assigned are registered. Disabling an action allows you to prevent a specific action from occurring without modifying the individual event-action assignments.

Note: ESP does not allow you to delete actions because deleting an action removes the historical data for the action from the ESP database.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to disable an action:

1. Click on the `Configuration` button.
2. Click on the `Actions` button.
3. Click on the `Disable` button.

The interface displays the `View Current Actions` window. (Refer to Figure 4-40.)

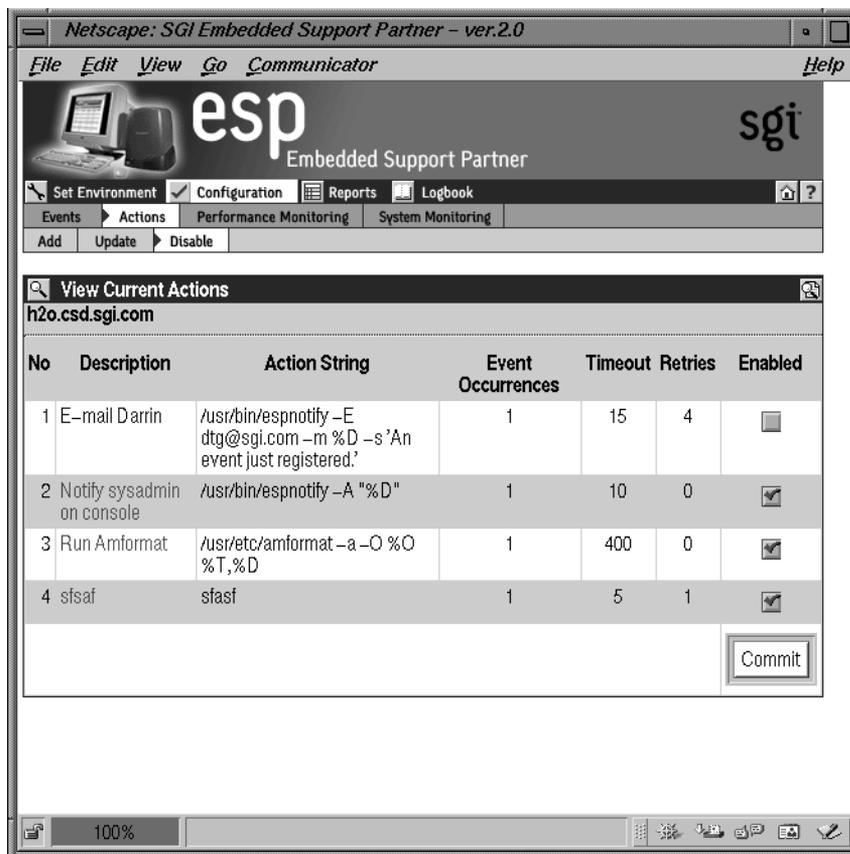


Figure 4-40 View Current Actions Window

4. Deselect the Enabled check mark.
5. Click on the Commit button.

Tip: To re-enable the action, perform the same procedure with the following difference: Set the Enabled check mark.

Using the Command Line Interface

Actions cannot be disabled from the command line interface.

Configuring Performance Monitoring

ESP monitors the performance of a system by evaluating a set of performance rules at specified time intervals.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to configure performance monitoring:

1. Click on the `Configuration` button.
2. Click on the `Performance Monitoring` button.

The interface displays the `Performance Monitoring` window.

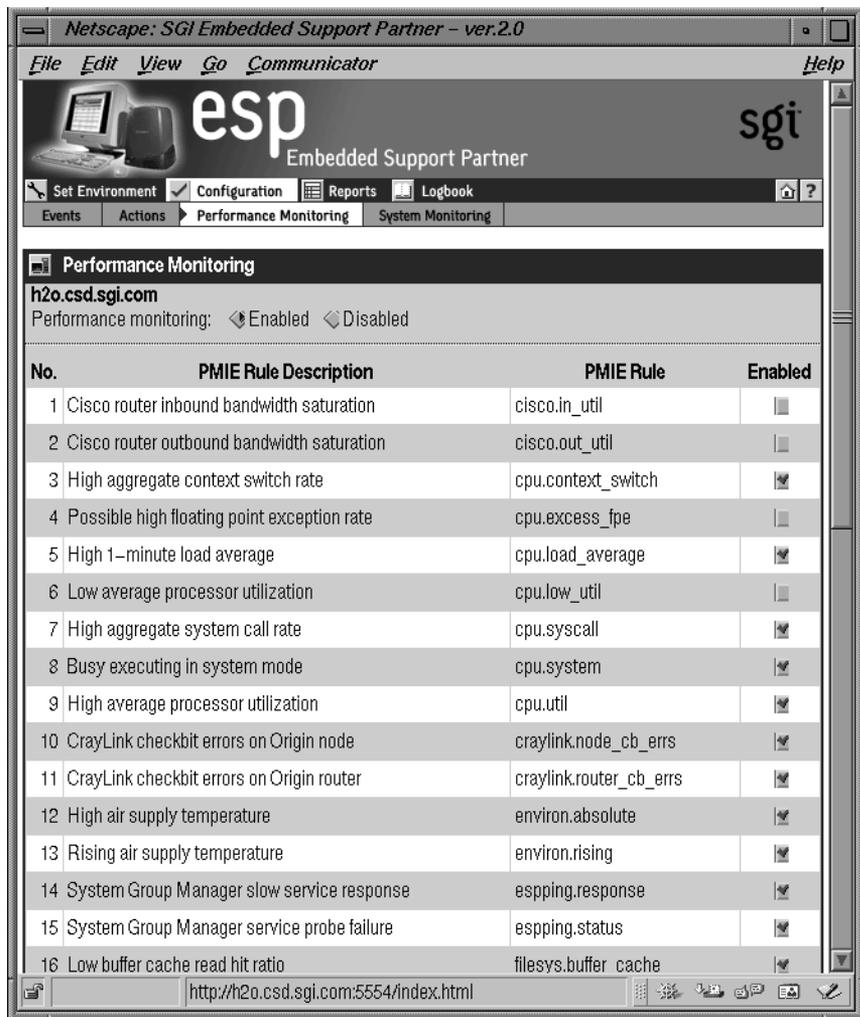


Figure 4-41 Performance Monitoring Window

3. Click on the `Enabled` radio button to enable performance monitoring or click on the `Disabled` radio button to disable performance monitoring.
4. Set the `Enabled` check mark for the PMIE rules that you want to enable.
5. Click on the `Update` button.

Table 4-4 describes the PMIE rules that are available and the performance issues that they detect. Refer to the *Performance Co-Pilot IRIX Base Software Administrator's Guide*, publication number 007-3964-001, for more information about PMIE rules.

Table 4-4 PMIE Rules

Rule	Description	Performance Issue
<code>cpu.context_switch</code>	High aggregate context switch rate	The average number of context switches per CPU per second exceeded a threshold value.
<code>cpu.excess_fpe</code>	Possible high floating-point exception rate	Processes generating large numbers of floating-point exceptions (FPEs) were detected. Typically, this occurs when heavy system time is coupled with low system call rates. (Exceptions are delivered through the kernel to the process, taking some system time, but no system calls are serviced for the application.)
<code>cpu.load_average</code>	High 1-minute load average	The current 1-minute load average exceeded a threshold value. The load average measures the number of processes that are running, executable, or soon to be executed (for example, processes in short term sleep).
<code>cpu.low_util</code>	Low average processor utilization	The average processor utilization across all CPUs was below a threshold percentage. This rule is effectively the opposite of <code>cpu.util</code> and is disabled by default; it is useful only in specialized environments where, for example, processing is batch-oriented and low processor utilization is indicative of poor use of system resources. In such a situation, you should enable the <code>cpu.low_util</code> rule and disable the <code>cpu.util</code> rule.
<code>cpu.syscall</code>	High aggregate system call rate	The average number of system calls per CPU per second exceeded a threshold value.

Table 4-4 (continued) PMIE Rules

Rule	Description	Performance Issue
cpu.system	Busy executing in system mode	The average utilization per CPU exceeded a threshold value, and the ratio of system time to busy time exceeded a threshold value.
cpu.util	High average processor utilization	The average processor utilization across all CPUs exceeded a threshold value.
craylink.node_cb_errs	CrayLink check-bit errors on Origin node	For some node, at least one check-bit error was observed on the node interface and/or the I/O interface.
craylink.router_cb_errs	CrayLink check-bit errors on Origin router	For some router port, at least one check-bit error was observed.
espping.response	System Group Manager slow service response	The amount of time required for a monitored service to complete exceeded a threshold value.
espping.status	System Group Manager service probe failure	A service that was being monitored by a group manager system failed or did not respond within a timeout period.
filesystem.buffer_cache	Low buffer cache read hit ratio	There is some filesystem read activity, and the read hit ratio in the buffer cache is below a threshold value. Note: It is possible for the read hit ratio to be negative (more physical reads than logical reads); this can be a result of: XLV striped volumes, where blocks span stripe boundaries; very large files, where the disk controller has to read blocks indirectly (multiple-block reads to find a single data block result); or file system read-ahead pre-fetching blocks that are not subsequently read.
filesystem.dnln_miss	High directory name cache miss rate	With at least a minimum number of directory name cache (DNLC) lookups being performed per second, a threshold percentage of lookups result in cache misses.
filesystem.filling	File system is filling up	The amount of data in the filesystem exceeded a threshold value, and the remaining space in the filesystem is filling at a rate that exceeded a threshold value.

Table 4-4 (continued) PMIE Rules

Rule	Description	Performance Issue
memory.exhausted	Severe demand for real memory	The rate at which the system is swapping modified pages out of main memory to the swap partitions exceeded a threshold value.
memory.swap_low	Low free swap space	The amount of swap space remaining reached a threshold value. Reduce the number and size of the running programs, or add more swap(1) space before it completely runs out.
network.buffer	Serious demand for network buffers	The rate at which processes tried to acquire network buffers and either failed or stalled waiting for a free buffer exceeded a threshold value.
network.tcp_drop_connects	High ratio of TCP connections dropped	There is some TCP connection activity, and the ratio of TCP-dropped connections to all closed connections exceeded a threshold value. High drop rates indicate either network congestion (check the packet retransmission rate) or an application like a Web browser that is prone to terminating TCP connections prematurely (perhaps due to sluggish response or user impatience).
network.tcp_retransmit	High number of TCP packet retransmissions	There is some network output activity (at least 100 TCP packets per second), and the average ratio of retransmitted TCP packets to output TCP packets exceeded a threshold value. High retransmission rates suggest network congestion or long latency between the end-points of the TCP connections.
per_cpu.context_switch	High per CPU context switch rate	The number of context switches per second for at least one CPU exceeded a threshold value. This rule applies only to multiprocessor systems. For single-processor systems, refer to the <code>cpu.context_switch</code> rule.

Table 4-4 (continued) PMIE Rules

Rule	Description	Performance Issue
per_cpu.many_util	High number of saturated processors	<p>The processor utilization for a minimum number of CPUs exceeded a threshold value.</p> <p>This rule applies only to multiprocessor systems that have more than min_cpu_count processors. For single-processor systems, refer to the cpu.util rule. For multiprocessor systems with less than min_cpu_count processors, refer to the per_cpu.some_util rule.</p>
per_cpu.some_util	High per CPU processor utilization	<p>The processor utilization for at least one CPU exceeded a threshold value.</p> <p>This rule applies only to multiprocessor systems with less than max_cpu_count processors. For single-processor systems, refer to the cpu.util rule. For multiprocessor systems with more than max_cpu_count processors, refer to the cpu.many_util rule.</p>
per_cpu.syscall	High per CPU system call rate	<p>The number of system calls per second for at least one CPU exceeded a threshold value.</p> <p>This rule applies only to multiprocessor systems. For single-processor systems, refer to the cpu.syscall rule.</p>
per_cpu.system	Some CPU busy executing in system mode	<p>At least one CPU was busy, and the ratio of system time to busy time exceeded a threshold value.</p> <p>This rule applies only to multiprocessor systems. For single-processor systems refer to the cpu.system rule.</p>
per_disk.util	High per spindle disk utilization	For at least one spindle, disk utilization exceeded a threshold value.
per_netif.collisions	High collision rate in packet sends	<p>The number of packets that are being sent across an interface and causing collisions exceeded a threshold value.</p> <p>Ethernet interfaces expect a certain number of packet collisions, but a high ratio of collisions to packet sends indicates a saturated network.</p>

Table 4-4 (continued) PMIE Rules

Rule	Description	Performance Issue
per_netif.errors	High network interface error rate	For at least one network interface, the error rate exceeded a threshold value.
per_netif.packets	High network interface packet transfers	<p>For at least one network interface, the average rate of packet transfers (in and/or out) exceeded a threshold value.</p> <p>This rule is disabled by default; the per_netif.util rule is more useful because it considers the reported bandwidth of each network interface. However, in some situations this value is zero; in that case, an absolute threshold-based rule like this one is more useful (for this reason it should be applied to some network interfaces, but not others; use the <i>interfaces</i> variable to filter this).</p>
per_netif.util	High network interface utilization	For at least one network interface, the average transfer rate (in and/or out) exceeded a threshold value.
rpc.bad_network	RPC network transmission failure	<p>The number of client remote procedure call (RPC) packets that timed out before the server responded exceeded a threshold value, and the number of timeouts is significantly more than the number of duplicate packets being received (which indicates lost packets).</p> <p>The networked file system (NFS) utilizes the RPC protocol for its client-server communication needs. This high failure rate when sending RPC packets may be due to faulty network hardware or inappropriately sized NFS packets (packets possibly too large).</p>

Table 4-4 (continued) PMIE Rules

Rule	Description	Performance Issue
rpc.slow_response	RPC server response is slow	The number of client remote procedure call (RPC) packets that timed out before the server responded exceeded a threshold value, and the number of timeouts is roughly equivalent to the number of duplicate packets being received. NFS utilizes the RPC protocol for its client-server communication needs. This high timeout rate while sending RPC packets may be caused by the NFS server processing and sending duplicate requests from the clients after the original requests timed out.
xvm.mirror_degraded	An xvm mirror is degraded	An xvm mirror has degraded.
xvm.mirror_reviving	An xvm mirror is reviving	An xvm mirror is reviving.

Using the Command Line Interface

Performance monitoring configuration is not available from the command line interface.

Configuring System Monitoring

You can configure ESP to monitor ICMP, DNS, X Window System server, RPCBIND, SMTP, NNTP, AUTOFS, and PMCD services on the local system or on other systems in a group.

ESP uses Performance Co-Pilot software tools to monitor the services and to register any events in the Embedded Support Partner database. (The events belong to the Performance class; possible events include `System Group Manager service probe failure` and `System Group Manager slow service response`.)

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to configure system monitoring in single system manager mode:

1. Click on the `Configuration` button.
2. Click on the `System Monitoring` button.

The interface displays the `System Monitoring` window. (Refer to Figure 4-42.)

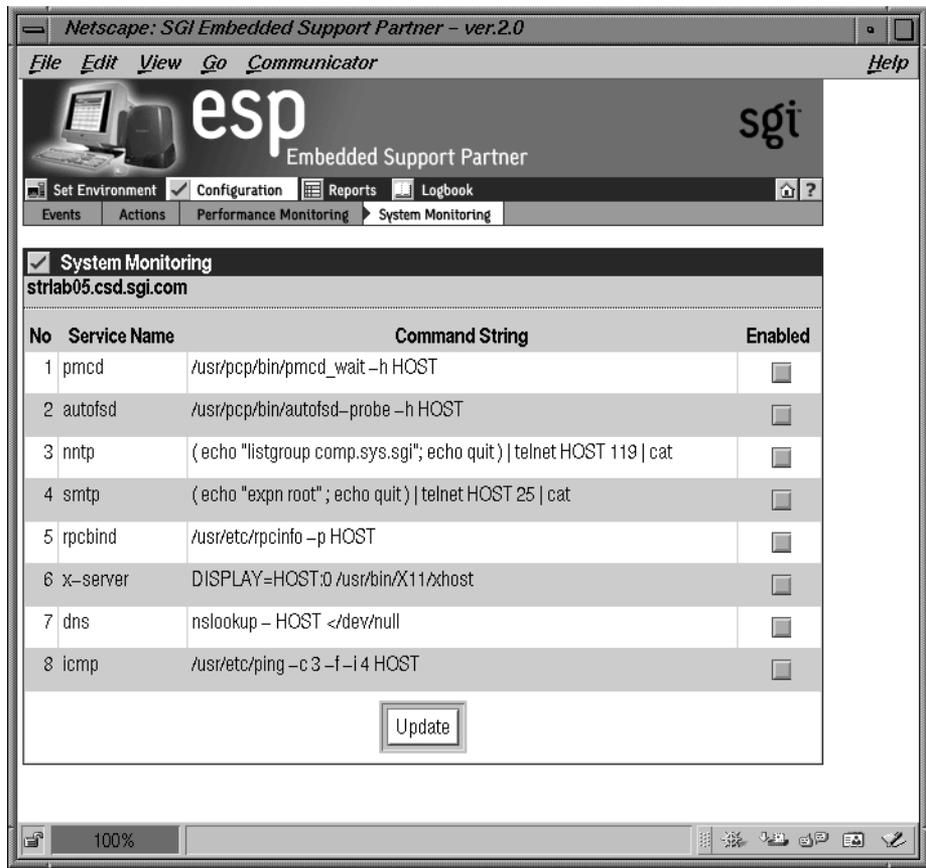


Figure 4-42 System Monitoring Window (Single System Manager Mode)

3. Click on the Enabled checkbox for each service that you want to monitor.
4. Click on the Update button.

The interface displays a verification screen. (Refer to Figure 4-43.)

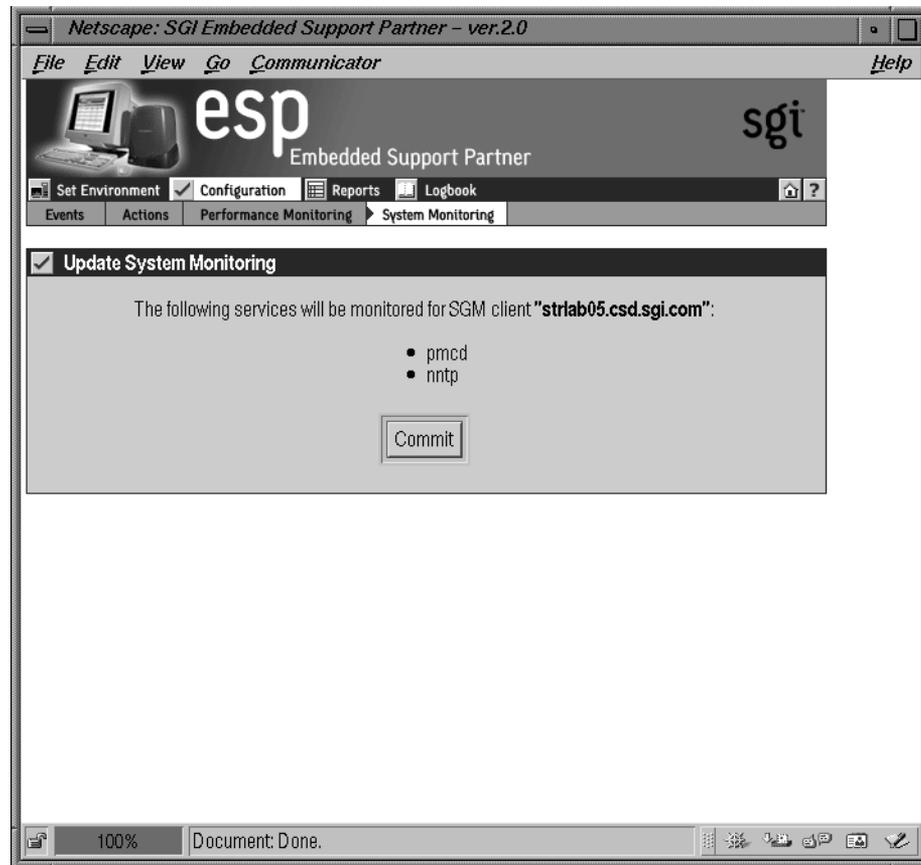


Figure 4-43 System Monitoring Change Verification Screen (Single System Manager Mode)

5. Click on the `Commit` button.

The interface displays an updated `System Monitoring` window. (Refer to Figure 4-44.)

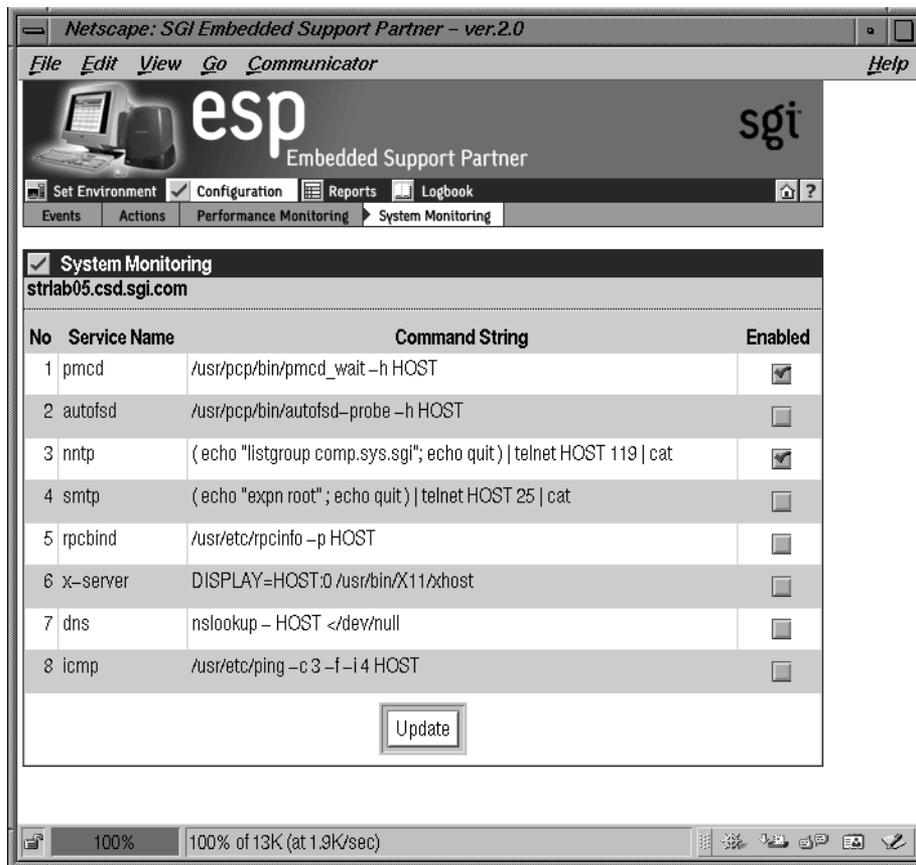


Figure 4-44 Updated System Monitoring Window (Single System Manager Mode)

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to configure system monitoring in system group manager mode:

1. Click on the Configuration button.
2. Click on the System Monitoring button.

The interface displays the System Monitoring window. (Refer to Figure 4-45.)

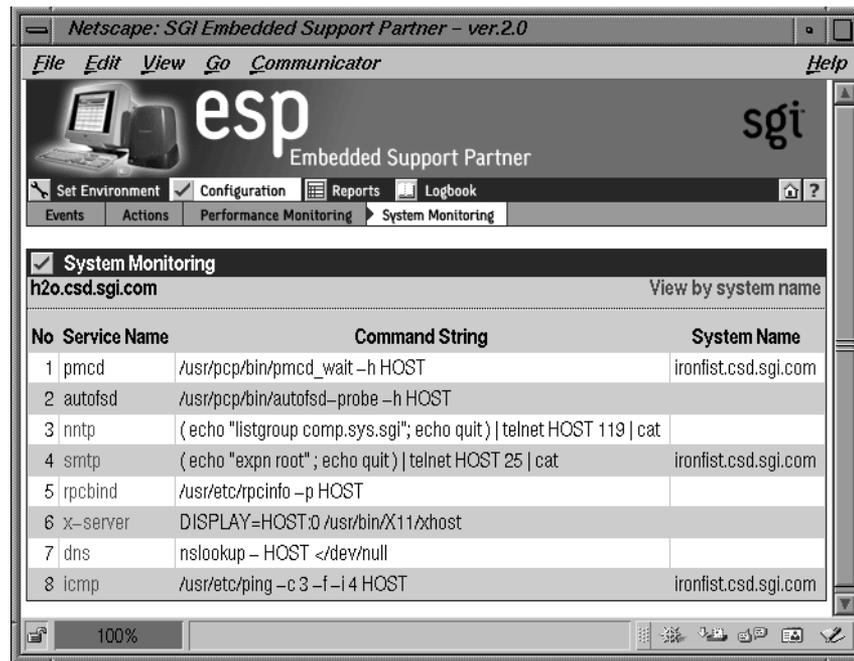


Figure 4-45 System Monitoring Window (System Group Manager Mode)

3. Click on the name of the service that you want to monitor.

The interface displays the Update System Monitoring window. (Refer to Figure 4-46.)



Figure 4-46 Update System Monitoring Window (System Group Manager Mode)

4. Click on the system(s) that you want to monitor.
5. Click on the `update` button.

The interface displays a verification screen. (Refer to Figure 4-47.)



Figure 4-47 System Monitoring Change Verification Screen (System Group Manager Mode)

6. Click on the `Commit` button.

The interface displays an updated `System Monitoring` window. (Refer to Figure 4-48.)

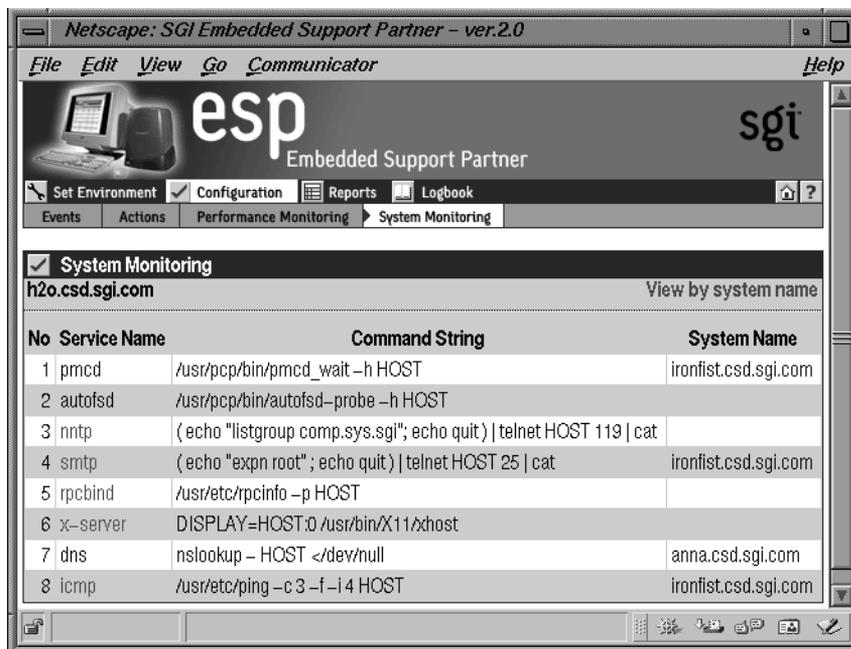


Figure 4-48 Updated System Monitoring Window (System Group Manager Mode)

Using the Command Line Interface

System monitoring configuration is not available from the command line interface.

Viewing Reports

This chapter describes how to generate and view the following reports:

- Events registered reports
- Actions taken reports
- Availability reports
- Diagnostic reports
- Hardware reports
- Software reports
- System reports

About Reports

ESP generates reports based on parameters that you specify through the Web-based interface or command line interface.

In single system manager mode, ESP generates reports from the data that is stored in the ESP database on the local system. In system group manager mode, ESP generates reports from the information that is stored in the ESP database on the group manager system.

Figure 5-1 shows an example report generated by the Web-based interface. Figure 5-2 shows an example report generated by the Web-based interface in printable format.



Figure 5-1 Example Report (Web-based Interface)

miramar.csd.sgi.com
All Events report 03/13/2000 to 04/12/2000

No.	Class	Event Description	First Occurrence	Last Occurrence	Event Count
1	System Configuration	Configmon init	04/05/2000 19:44:14	04/05/2000 19:44:14	1
2	System Configuration	Configuration Error	04/05/2000 19:44:20	04/05/2000 19:44:20	1
3	System Configuration	Sysinfo changed	04/05/2000 19:56:32	04/05/2000 19:56:32	1
4	System Configuration	Configuration Error	04/05/2000 19:56:35	04/05/2000 19:56:35	1
5	Availability	Controlled shutdown (1)	04/05/2000 19:56:35	04/05/2000 19:56:35	1
6	System Configuration	Sysinfo changed	04/05/2000 20:01:40	04/05/2000 20:01:40	1
7	System Configuration	Configuration Error	04/05/2000 20:01:43	04/05/2000 20:01:43	1
8	Availability	Controlled shutdown (1)	04/05/2000 20:01:43	04/05/2000 20:01:43	1
9	Availability	Controlled shutdown (1)	04/05/2000 20:14:56	04/05/2000 20:14:56	1
10	System Configuration	Sysinfo changed	04/05/2000 20:28:54	04/05/2000 20:28:54	1
11	System Configuration	Software installed	04/05/2000 20:28:54	04/05/2000 20:28:54	1
12	System Configuration	Hardware installed	04/12/2000 07:48:01	04/12/2000 07:48:01	1
13	System Configuration	Hardware de-installed	04/12/2000 07:48:01	04/12/2000 07:48:01	1
14	System	Software installed	04/12/2000	04/12/2000	1

Figure 5-2 Example Report (Web-based Interface Printable Format)

If you use the Web-based interface to generate and view reports, there are several controls that you can use to navigate the reports. (Refer to Table 5-1.)

Table 5-1 Report Navigation Controls

Control	Function
	Select the number of report entries (records) to show on a page
	Select the software application to view in a software inventory report
	Display the report in the printable format that shows an ASCII table with all report entries
	Expand all rows in the table to show subcomponents of each row
	Contract all rows in the table to show only the top-level components
	Contract the current row
	Expand the current row to show all subcomponents of the component shown in the row
	Go to the last page of report
	Go to the next page of the report
	Go to the previous page of the report
	Go to the first page of the report

Figure 5-3 shows an example report generated by the command line interface.

```
system# espreport events -from 04/01/2000 -to 04/12/2000

Event report for system 'strlab04.csd.sgi.com'
+-----+-----+-----+-----+-----+-----+
| ## | Class                | Type                | First      | Last       | # |
+-----+-----+-----+-----+-----+-----+
| 1. | ESP Internal Events  | esphttpd missing   | 04/07/2000 | 04/07/2000 | 1 |
|   |                      | library            | 10:59:56  | 10:59:56  |   |
+-----+-----+-----+-----+-----+-----+
| 2. | ESP Internal Events  | esphttpd missing   | 04/07/2000 | 04/07/2000 | 1 |
|   |                      | library            | 11:06:10  | 11:06:10  |   |
+-----+-----+-----+-----+-----+-----+
| 3. | ESP Internal Events  | esphttpd missing   | 04/07/2000 | 04/07/2000 | 1 |
|   |                      | library            | 11:06:25  | 11:06:25  |   |
+-----+-----+-----+-----+-----+-----+
| 4. | System Configuration | Software installed  | 04/07/2000 | 04/07/2000 | 1 |
|   |                      |                    | 20:00:11  | 20:00:11  |   |
+-----+-----+-----+-----+-----+-----+
```

Figure 5-3 Example Report (Command Line Interface)

Events Registered Reports

Event registered reports show all events that ESP has registered within a specific time period.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate an events registered report in single system manager mode:

1. Click on the `Reports` button.
2. Click on the `Events` button.

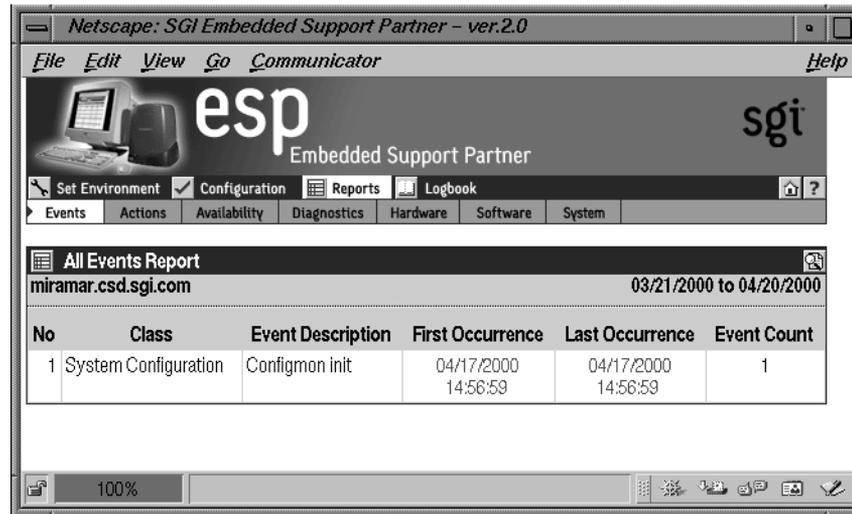
The interface displays the `Event Reports` window. (Refer to Figure 5-4.)



Figure 5-4 Event Reports Window (Single System Manager Mode)

3. Specify the range of dates for the report.
4. Select the event classes that the report should include.
5. Click on the `Generate Report` button.

Figure 5-5 shows an example event report.



The screenshot shows a Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The browser's menu bar includes "File", "Edit", "View", "Go", "Communicator", and "Help". The main content area displays the "esp Embedded Support Partner" logo and the "sgi" logo. Below the logo is a navigation bar with buttons for "Set Environment", "Configuration", "Reports", and "Logbook". A secondary navigation bar contains buttons for "Events", "Actions", "Availability", "Diagnostics", "Hardware", "Software", and "System". The "Reports" button is selected, displaying an "All Events Report" for "miramar.csd.sgi.com" covering the period "03/21/2000 to 04/20/2000". The report is presented as a table with the following data:

No	Class	Event Description	First Occurrence	Last Occurrence	Event Count
1	System Configuration	Configmon init	04/17/2000 14:56:59	04/17/2000 14:56:59	1

Figure 5-5 Example Events Registered Report (Single System Manager Mode)

Table 5-2 describes the information that the report contains.

Table 5-2 Events Registered Report Contents (Single System Manager Mode)

Column Heading	Description
No.	Index number within the table
Class	The class that contains the event Tip: Click on an event class to view a report of all occurrences of events in that class.
Event Description	Brief description of the event Tip: Click on an event description to view a report of all occurrences of that event.
First Occurrence	Date and time at which the event was first registered Tip: Click on the occurrence date to view the logbook entry for that date.
Last Occurrence	Date and time at which the event was last registered Tip: Click on the occurrence date to view the logbook entry for that date.
Event Count	Number of times that the event occurred

To “drill down” a report to find specific information about an event, perform the following procedure:

1. Click on the `Class` name.

The interface displays information about events from the class that were registered. (Refer to Figure 5-6.)

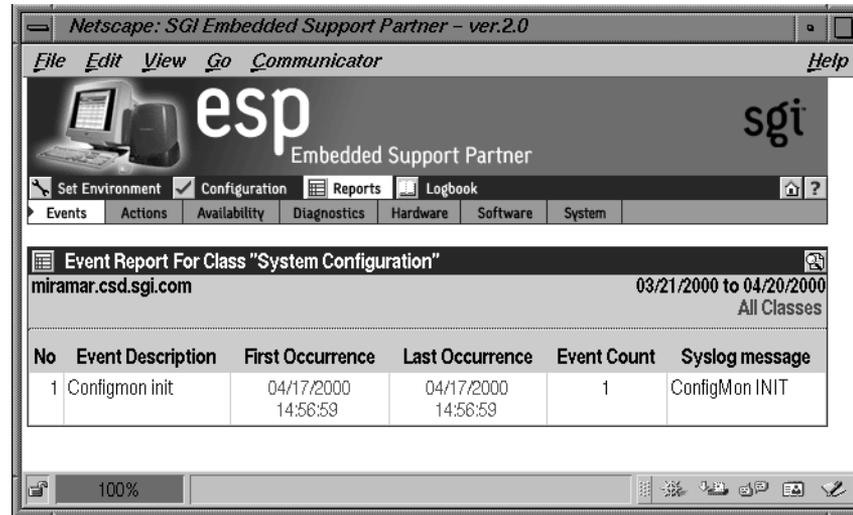


Figure 5-6 Events Registered in a Specify Class (Single System Manager Mode)

2. Click on the Event Description for the event.

The interface displays all occurrences of the event. (Refer to Figure 5-7.)

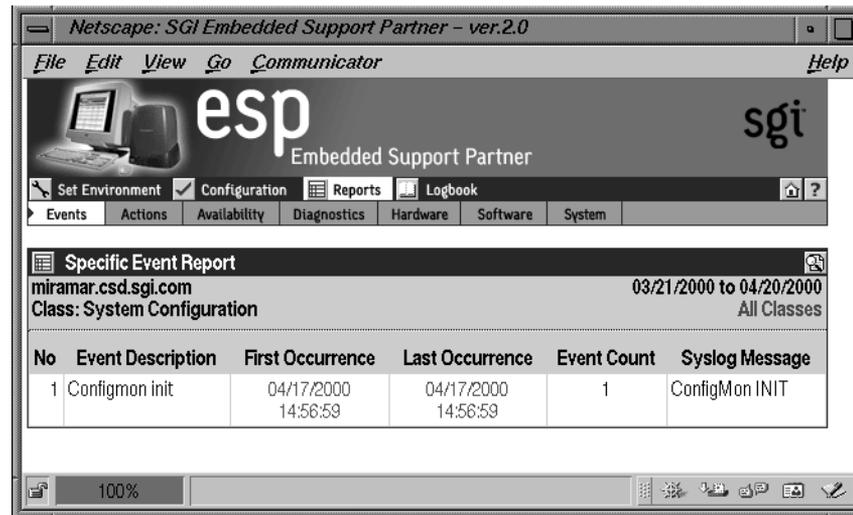


Figure 5-7 All Occurrences of a Specific Event (Single System Manager Mode)

- Click on the `Event Description` for the event.

The interface displays the parameters for the event. (Refer to Figure 5-8.)



Figure 5-8 Event Parameters (Single System Manager Mode)

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate an events registered report in system group manager mode:

- Click on the `Reports` button.
- Click on the `Events` button.

The interface displays the `Event Reports For System Group` window. (Refer to Figure 5-9.)



Figure 5-9 Event Reports for System Group Window (System Group Manager Mode)

3. Specify the range of dates for the report.
4. Select the systems to include in the report.
5. Click on the `Generate Report` button.

The interface displays the list of classes. (Refer to Figure 5-10.)



Figure 5-10 Event Reports Window with List of Classes (System Group Manager Mode)

6. Select the event classes to include in the report.
7. Click on the Generate Report button.

Figure 5-11 shows an example events registered report.

The screenshot shows a Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The browser displays the "esp Embedded Support Partner" website. A menu bar includes "File", "Edit", "View", "Go", "Communicator", and "Help". Below the menu bar are navigation buttons: "Set Environment", "Configuration", "Reports", and "Logbook". A secondary menu bar contains "Events", "Actions", "Availability", "Diagnostics", "Hardware", "Software", and "System". The main content area displays an "All Events Report" for the period "03/21/2000 to 04/20/2000". The report is presented as a table with the following data:

No	Class	Event Description	First Occurrence	Last Occurrence	Event Count	System Name
1	SCSI	SCSI ctrl init failed	04/19/2000 18:54:56	04/19/2000 18:54:56	1	ironfist.csd.sgi.com
2	System Configuration	Software de-installed	04/19/2000 19:09:48	04/19/2000 19:09:48	1	ironfist.csd.sgi.com
3	System Configuration	Configmon init	04/19/2000 19:19:16	04/19/2000 19:19:16	1	ironfist.csd.sgi.com
4	System Configuration	Configmon init	04/19/2000 19:40:51	04/19/2000 19:40:51	1	ironfist.csd.sgi.com

The browser status bar at the bottom shows "100%" zoom and the URL "http://h2o.csd:5554/index.html".

Figure 5-11 Example Events Registered Report (System Group Manager Mode)

Table 5-3 describes the information that the report contains.

Table 5-3 Events Registered Report Contents (System Group Manager Mode)

Column Heading	Description
No.	Index number within the table
Class	The class that contains the event Tip: Click on an event class to view a report of all occurrences of events in that class.
Event Description	Brief description of the event Tip: Click on an event description to view a report of all occurrences of that event.
First Occurrence	Date and time at which the event was first registered Tip: Click on the occurrence date to view the logbook entry for that date.
Last Occurrence	Date and time at which the event was last registered Tip: Click on the occurrence date to view the logbook entry for that date.
Event Count	Number of times that the event occurred
System Name	Client system on which the event occurred

To “drill down” a report to find specific information about an event, perform the following procedure:

1. Click on the `Class` name.

The interface displays information about events from the class that were registered. (Refer to Figure 5-12.)

No	Event Description	First Occurrence	Last Occurrence	Event Count	Syslog message	System Name
1	Configmon init	04/19/2000 19:19:16	04/19/2000 19:19:16	1	ConfigMon INIT	h20.csd.sgi.com

Figure 5-12 Events Registered in a Specify Class (System Group Manager Mode)

2. Click on the `Event Description` for the event.

The interface displays all occurrences of the event. (Refer to Figure 5-13.)

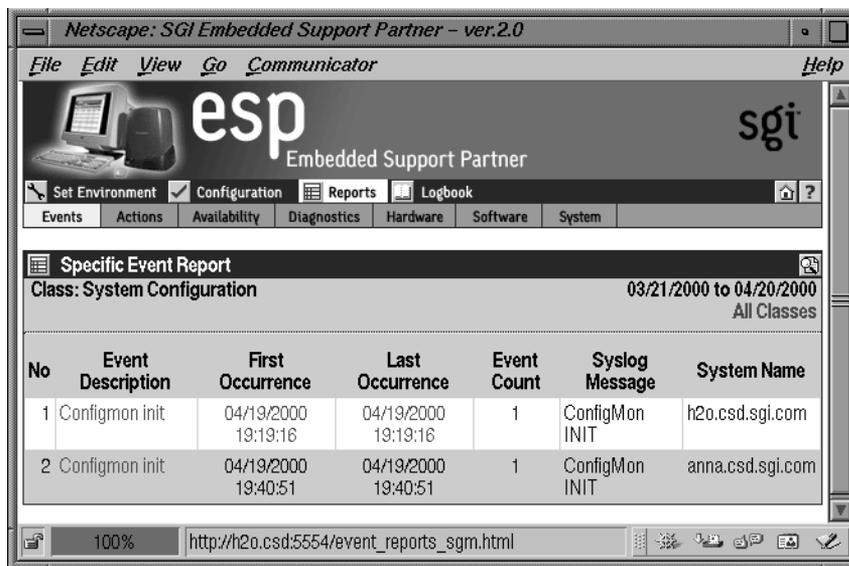


Figure 5-13 All Occurrences of a Specific Event (System Group Manager Mode)

3. Click on the `Event Description` for the event.

The interface displays the parameters for the event. (Refer to Figure 5-14.)



Figure 5-14 Event Parameters (System Group Manager Mode)

Using the Command Line Interface

Use the following syntax of the `espreport` command to view an events registered report:

```
/usr/sbin/espreport events [-sysid <system id> | -host <hostname>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
                        [-tid <type id> | -td <type desc>]
```

On group manager systems, use the `-sysid` or `-host` options to select a specific system to include in the report. If you do not specify a system, the report contains events from the local host.

Note: Enter `/usr/sbin/espreport sysinfo all` to determine the `<system id>` value.

Use the `-from` and `-to` options to select the range of dates for the report. If you do not specify a range of dates, the report, the report contains all events that have been registered.

Use the `-tid` and `-td` options to select a specific event type. If you do not specify an event type, the report includes all events.

Actions Taken Reports

Actions taken reports show all actions that ESP performed within a specific time period.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate an actions taken report in single system manager mode.

1. Click on the `Reports` button.
2. Click on the `Actions` button.

The interface displays the `Action Reports` window. (Refer to Figure 5-15.)

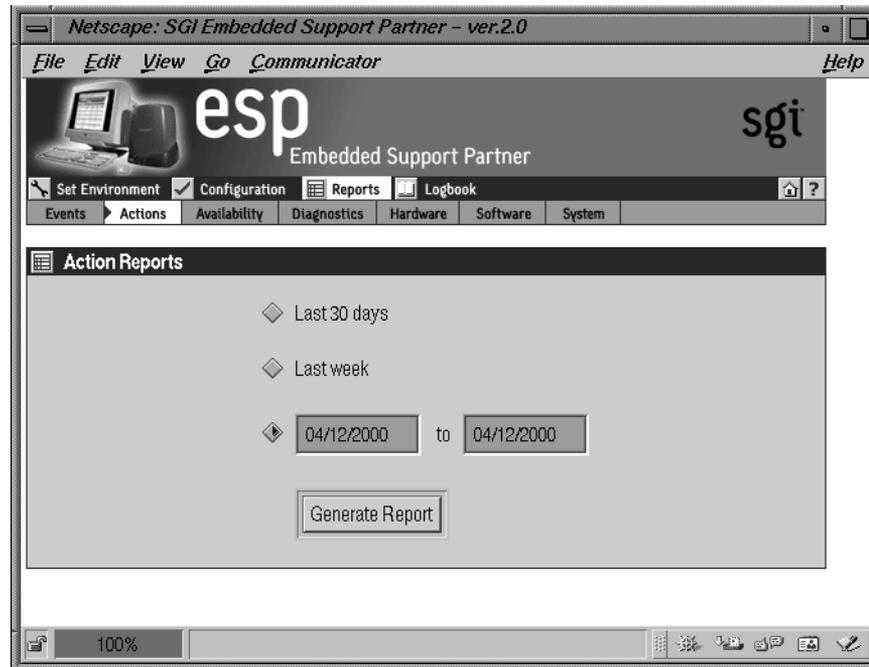


Figure 5-15 Action Reports Window (Single System Manager Mode)

3. Specify the range of dates for the report.
4. Click on the Generate Report button.

Figure 5-16 shows an example actions taken report.

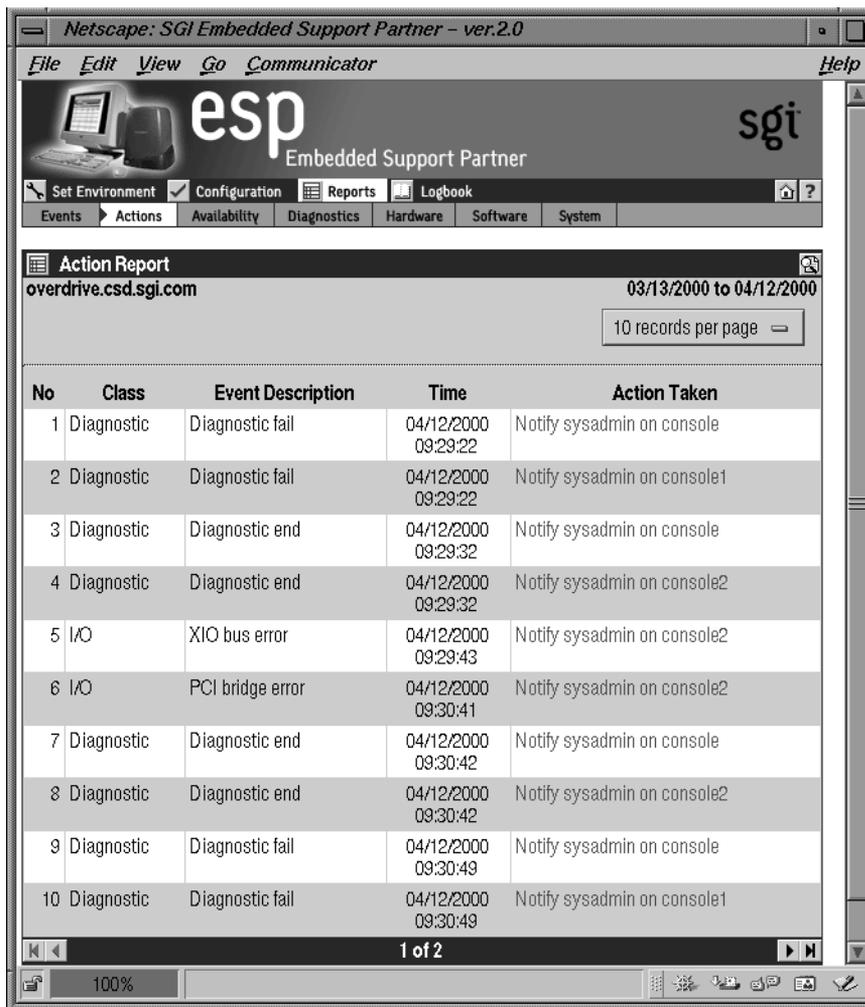


Figure 5-16 Example Actions Taken Report (Single System Manager Mode)

Table 5-4 describes the information that the report contains.

Table 5-4 Actions Taken Report Contents (Single System Manager Mode)

Column	Description
No.	Index number in the table
Class	Class of the event to which the action is assigned
Event Description	Description of the event to which the action is assigned
Time	Time and date at that the action was taken
Action Taken	Description of the command that the action performed Tip: Click on an action to view the parameter settings for the action.

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate an actions taken report in system group manager mode.

1. Click on the `Reports` button.
2. Click on the `Actions` button.

The interface displays the `Actions Report For System Group` window. (Refer to Figure 5-17.)

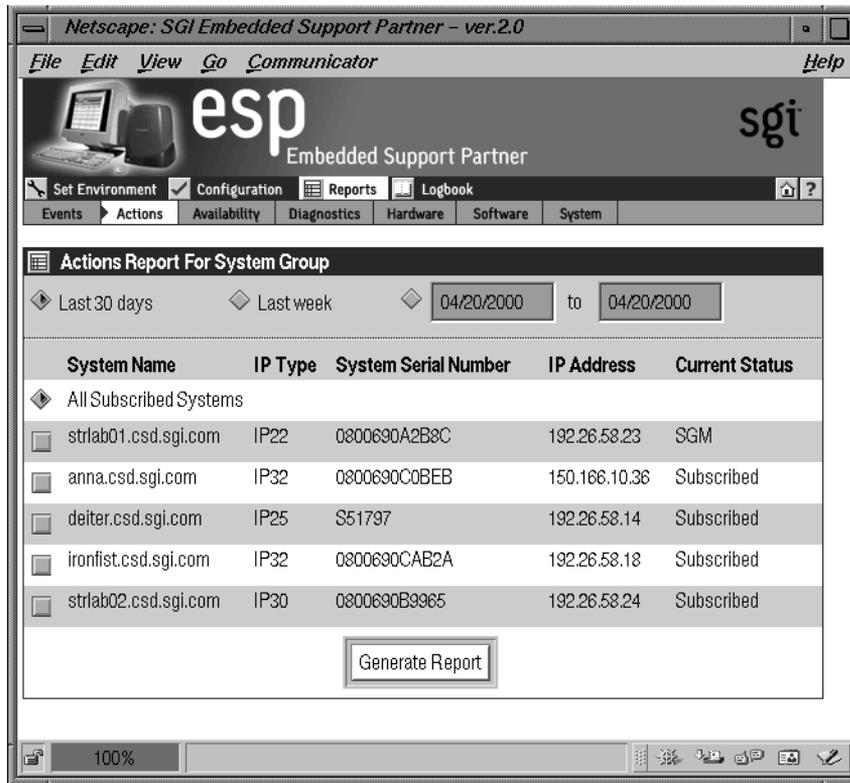


Figure 5-17 Actions Report for System Group Window (System Group Manager Mode)

3. Specify the range of dates for the report.
4. Select the systems to include in the report.
5. Click on the `Generate Report` button.

Figure 5-18 shows an example actions taken report.

Action Report 03/21/2000 to 04/20/2000
10 records per page

No	Class	Event Description	Time	Action Taken	System Name
1	Diagnostic	Diagnostic start	04/14/2000 17:57:12	Notify sysadmin on console	strlab01.csd.sgi.com
2	Diagnostic	Diagnostic start	04/14/2000 17:59:58	Notify sysadmin on console	strlab01.csd.sgi.com
3	Diagnostic	Diagnostic start	04/14/2000 18:01:17	Notify sysadmin on console	strlab01.csd.sgi.com
4	Diagnostic	Diagnostic start	04/14/2000 18:01:17	Notify sysadmin on console	strlab01.csd.sgi.com
5	Diagnostic	Diagnostic start	04/14/2000 18:01:18	Notify sysadmin on console	strlab01.csd.sgi.com
6	Diagnostic	Diagnostic start	04/14/2000 18:01:18	Notify sysadmin on console	strlab01.csd.sgi.com
7	Diagnostic	Diagnostic start	04/14/2000 18:03:42	Notify sysadmin on console	strlab01.csd.sgi.com
8	Diagnostic	Diagnostic start	04/14/2000 18:03:42	Notify sysadmin on console	strlab01.csd.sgi.com
9	Diagnostic	Diagnostic start	04/14/2000 18:03:51	Notify sysadmin on console	strlab01.csd.sgi.com
10	Diagnostic	Diagnostic start	04/14/2000 18:08:55	Notify sysadmin on console	strlab01.csd.sgi.com

1 of 2

100% http://strlab01.csd:5554/event_reports_sgm.html

Figure 5-18 Example Actions Taken Report (System Group Manager Mode)

Table 5-5 describes the information that the report contains.

Table 5-5 Actions Taken Report Contents (System Group Manager Mode)

Column	Description
No.	Index number in the table
Class	Class of the event to which the action is assigned
Event Description	Description of the event to which the action is assigned
Time	Time and date at that the action was taken
Action Taken	Description of the command that the action performed Tip: Click on an action to view the parameter settings for the action.
System Name	Client system on which the action was taken

Using the Command Line Interface

Use the following syntax of the `esreport` command to view an actions taken report:

```
/usr/sbin/esreport action_taken
                        [-sysid <system id> | -host <hostname>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
```

Use the `-sysid` or `-host` options to select a specific system to include in the report. If you do not specify a system, the report contains actions from the local host.

Note: Enter `/usr/sbin/esreport sysinfo all` to determine the `<system id>` value.

Use the `-from` and `-to` options to select the range of dates for the report. If you do not specify a range of dates, the report displays all actions that have been taken.

Availability Reports

Availability reports provide statistics about system availability from a specified time period.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate availability reports in single system manager mode:

1. Click on the `Reports` button.
2. Click on the `Availability` button.

The interface displays the `Availability Reports` window. (Refer to Figure 5-19.)



Figure 5-19 Availability Reports Window (Single System Mode)

3. Specify the range of dates for the report.
4. Click on the `Generate Report` button.

Figure 5-20 shows an example availability report.

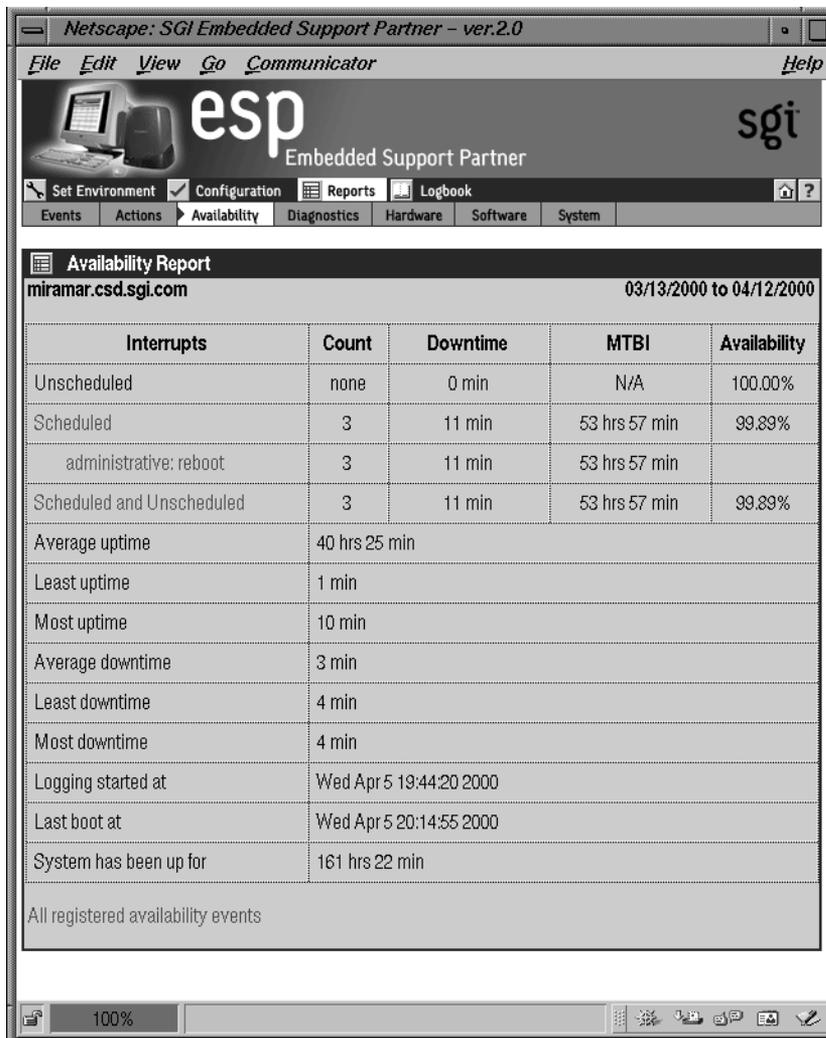


Figure 5-20 Example Availability Report (Single System Manager Mode)

Table 5-6 describes the contents of the report.

Table 5-6 Single System Availability Report Contents (Single System Manager Mode)

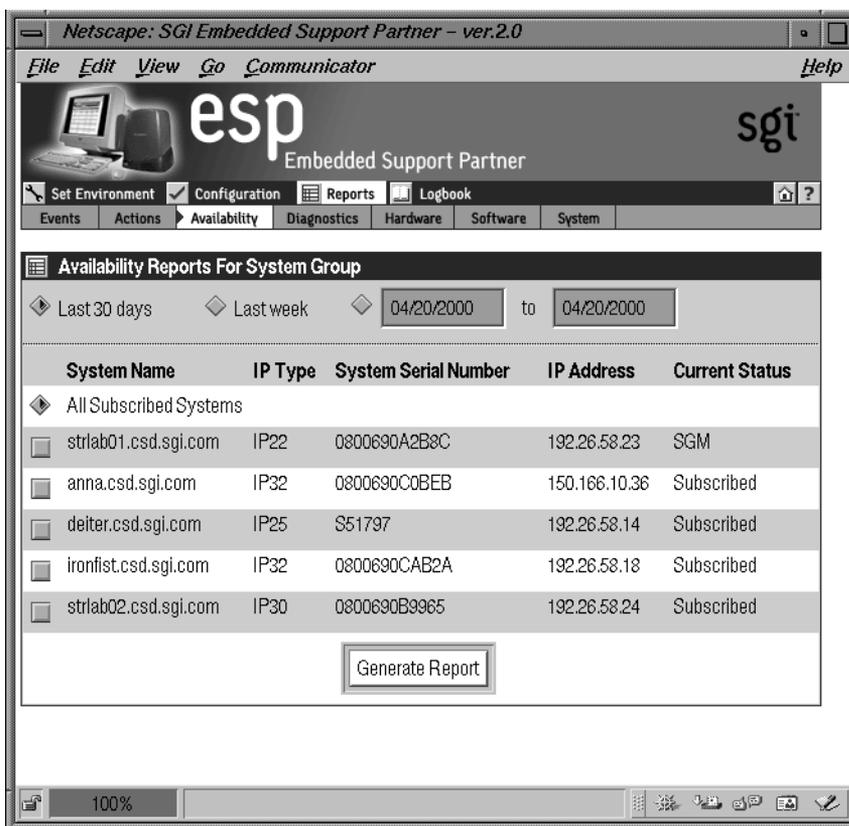
Row	Description
Unscheduled	Information about any unscheduled downtime events: count, downtime due to the event (in minutes), mean time between interrupts (in minutes), and availability percentage
Scheduled	Information about scheduled downtime events: count, downtime caused by the service action (in minutes), mean time between interrupts (in minutes), and availability percentage Tip: Click on the link to view a report of all scheduled availability events that ESP registered during the time period.
Scheduled and Unscheduled	Information about the total downtime for scheduled and unscheduled downtime: count, downtime (in minutes) caused by the action, mean time between interrupts (in minutes), and availability percentage Tip: Click on the link to view a report of all scheduled and unscheduled availability events that ESP registered during the time period.
Average uptime	Average uptime between availability events
Least uptime	Shortest uptime between availability events
Most uptime	Longest uptime between availability events
Average downtime	Average downtime
Least downtime	Shortest downtime
Most downtime	Longest downtime
Logging started at	Date and time that ESP began monitoring availability events
Last boot at	Date and time of last system boot
System has been up for	Length of time that system has been powered up since last system boot
All registered availability events	Link to a table of all availability events that ESP registered during the specified time period

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate availability reports in system group manager mode:

1. Click on the Reports button.
2. Click on the Availability button.

The interface displays the Availability Reports For System Group window. (Refer to Figure 5-21.)



The screenshot shows a Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The browser's menu bar includes File, Edit, View, Go, Communicator, and Help. The main content area displays the "esp Embedded Support Partner" logo and a navigation menu with buttons for Set Environment, Configuration, Reports, and Logbook. Below this is a sub-menu with buttons for Events, Actions, Availability, Diagnostics, Hardware, Software, and System. The "Availability Reports For System Group" window is open, showing a date range selector set to "Last 30 days" and "04/20/2000" to "04/20/2000". Below the selector is a table with the following data:

System Name	IP Type	System Serial Number	IP Address	Current Status
All Subscribed Systems				
<input type="checkbox"/> strlab01.csd.sgi.com	IP22	0800690A2B8C	192.26.58.23	SGM
<input type="checkbox"/> anna.csd.sgi.com	IP32	0800690C0BEB	150.166.10.36	Subscribed
<input type="checkbox"/> deiter.csd.sgi.com	IP25	S51797	192.26.58.14	Subscribed
<input type="checkbox"/> ironfist.csd.sgi.com	IP32	0800690CAB2A	192.26.58.18	Subscribed
<input type="checkbox"/> strlab02.csd.sgi.com	IP30	0800690B9965	192.26.58.24	Subscribed

Below the table is a "Generate Report" button. The browser's status bar at the bottom shows a zoom level of 100% and various navigation icons.

Figure 5-21 Availability Reports for System Group Window (System Group Manager Mode)

3. Specify the range of dates for the report.
4. Select the systems to include in the report.
5. Click on the `Generate Report` button.

The interface displays the `Availability Report: Summary` window, which shows availability statistics for all clients of the group manager. (Refer to Figure 5-22.)

The screenshot shows a Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The browser's menu bar includes "File", "Edit", "View", "Go", "Communicator", and "Help". The main content area features the "esp Embedded Support Partner" logo and a navigation bar with buttons for "Set Environment", "Configuration", "Reports", and "Logbook". Below this is a tabbed interface with "Events", "Actions", "Availability", "Diagnostics", "Hardware", "Software", and "System". The "Availability" tab is active, displaying a table titled "Availability Report: Summary" for a "Group of 5 hosts" from "03/21/2000 to 04/20/2000".

Serial Number	Hostname	Unscheduled		Scheduled		Total	
S51797	deliter.csd.sgi.com	0	100.00%	0	100.00%	0	100.00%
0800690A2B8C	strlab01.csd.sgi.com	0	100.00%	0	100.00%	0	100.00%
0800690B3965	strlab02.csd.sgi.com	0	100.00%	0	100.00%	0	100.00%
0800690C0BEB	anna.csd.sgi.com	0	100.00%	0	100.00%	0	100.00%
0800690CAB2A	ironfist.csd.sgi.com	0	100.00%	0	100.00%	0	100.00%
	All hosts	0	100.00%	0	100.00%	0	100.00%

Figure 5-22 Availability Report: Summary Window (System Group Manager Mode)

6. Click on a hostname to view an availability report for a specific host. (Click on **All Hosts** to view a detailed availability report for the entire group.)

Figure 5-23 shows an example availability report for a specific host.

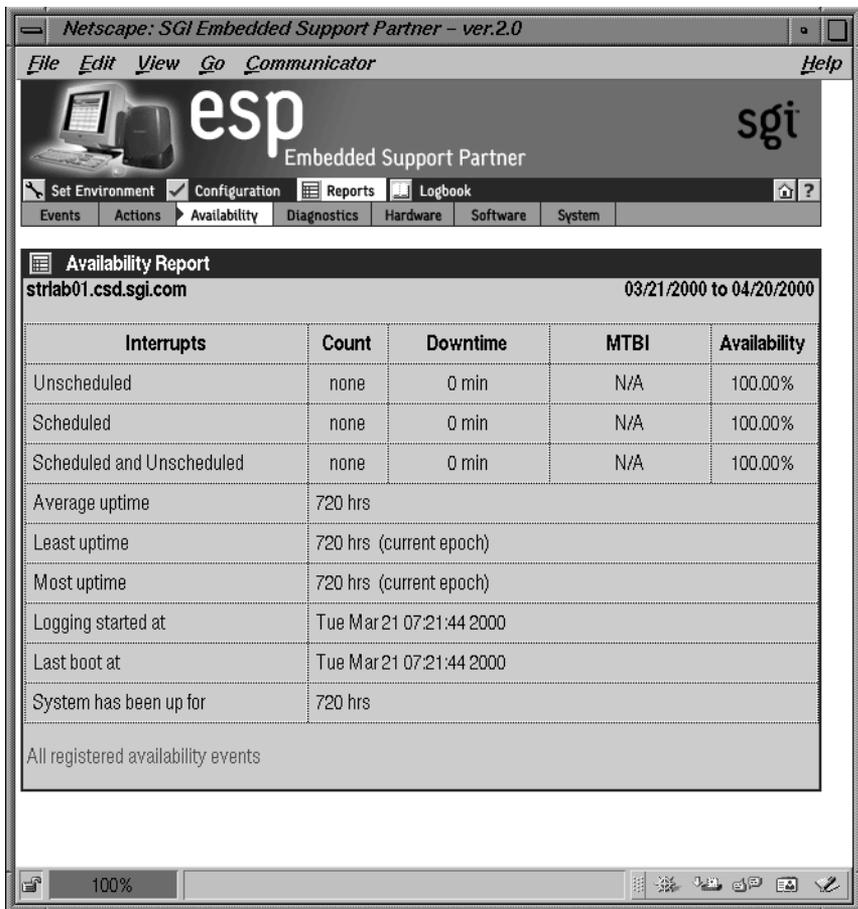


Figure 5-23 Example Availability Report for a Specific Host (System Group Manager Mode)

Table 5-7 describes the contents of the report.

Table 5-7 Single System Availability Report Contents (System Group Manager Mode)

Row	Description
Unscheduled	Information about any unscheduled downtime events: count, downtime due to the event (in minutes), mean time between interrupts (in minutes), and availability percentage
Scheduled	Information about scheduled downtime events: count, downtime caused by the service action (in minutes), mean time between interrupts (in minutes), and availability percentage Tip: Click on the link to view a report of all scheduled availability events that ESP registered during the time period.
Scheduled and Unscheduled	Information about the total downtime for scheduled and unscheduled downtime: count, downtime (in minutes) caused by the action, mean time between interrupts (in minutes), and availability percentage Tip: Click on the link to view a report of all scheduled and unscheduled availability events that ESP registered during the time period.
Average uptime	Average uptime between availability events
Least uptime	Shortest uptime between availability events
Most uptime	Longest uptime between availability events
Average downtime	Average downtime
Least downtime	Shortest downtime
Most downtime	Longest downtime
Logging started at	Date and time that ESP began monitoring availability events
Last boot at	Date and time of last system boot
System has been up for	Length of time that system has been powered up since last system boot
All registered availability events	Link to a table of all availability events that ESP registered during the specified time period

Using the Command Line Interface

Use the following syntax of the `espreport` command to view an availability report:

```
/usr/sbin/espreport availability  
                    [-sysid <system id>|-host <hostname>]  
                    [-from mm/dd/yyyy] [-to mm/dd/yyyy]
```

Use the `-sysid` or `-host` options to select a specific system to include in the report. If you do not specify a system, the report contains availability information from the local host.

Use the `-from` and `-to` options to select the range of dates for the report. If you do not specify a range of dates, the report contains all information up to the current date.

Diagnostic Result Reports

If you use the diagnostics that are included in the *Internal Support Tools 2.0* or later releases, ESP generates diagnostic results reports.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate a diagnostic results report in single system manager mode:

1. Click on the `Reports` button.
2. Click on the `Diagnostics` button.

The interface displays the `Diagnostic Results` window. (Refer to Figure 5-24.)

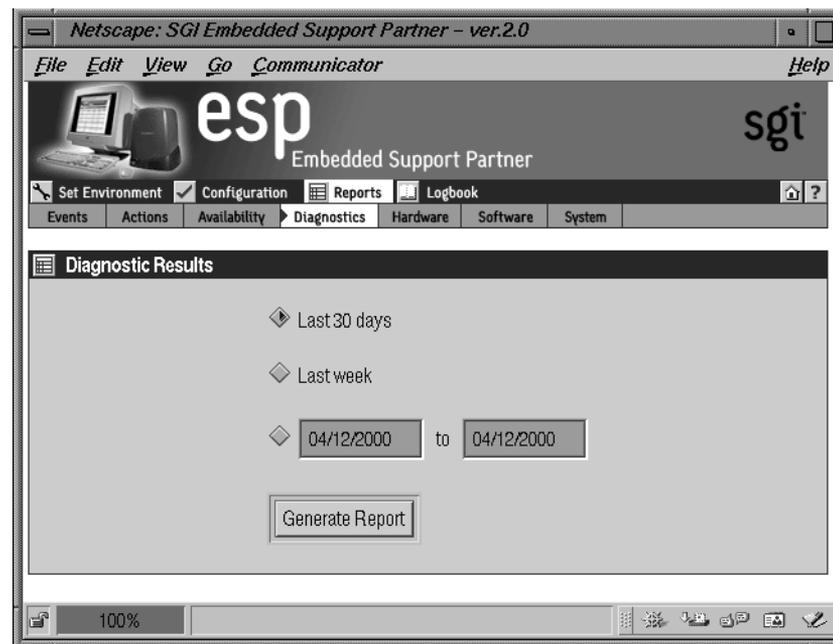


Figure 5-24 Diagnostic Results Window (Single System Manager Mode)

3. Specify the range of dates for the report.
4. If you are using system group manager mode, select the systems to include in the report.
5. Click on the `Generate Report` button.

Figure 5-25 shows an example diagnostic results report.

The screenshot shows a Netscape browser window with the title 'Netscape: SGI Embedded Support Partner - ver.2.0'. The browser's address bar shows 'overdrive.csd.sgi.com'. The main content area displays a 'Diagnostic Results' report for the date range '03/13/2000 to 04/12/2000'. The report lists 10 diagnostic tests, all of which passed. The tests include SVP, memory, CPU Instruction, TORPEDO, floating point single and double precision, and scsi thrasher. The report is displayed in a table format with columns for 'No', 'Diagnostic Name', 'Diagnostic Result', and 'Diagnostic Result Time'. The browser's status bar shows '100%' zoom and '1 of 2' pages.

No	Diagnostic Name	Diagnostic Result	Diagnostic Result Time
1	SVP (S)	Passed	04/12/2000 09:59:29
2	memory	Passed	04/12/2000 09:59:30
3	CPU Instruction	Passed	04/12/2000 09:59:31
4	memory	Passed	04/12/2000 09:59:34
5	CPU Instruction	Passed	04/12/2000 09:59:35
6	TORPEDO	Passed	04/12/2000 09:59:36
7	Floating point single precision	Passed	04/12/2000 09:59:37
8	Floating point double precision	Passed	04/12/2000 09:59:38
9	scsi thrasher	Passed	04/12/2000 09:59:39
10	SVP (S)	Passed	04/12/2000 09:57:58

Figure 5-25 Example Diagnostic Results Report (Single System Manager Mode)

Table 5-8 describes the contents of the report.

Table 5-8 Diagnostic Results Report Contents (Single System Manager Mode)

Column Heading	Description
No.	Index number within the table
Diagnostic Name	Name of the diagnostic When one or more tests run as a group under one program (for example, SVP), the total number of tests run is shown in parentheses next to the diagnostic name; for example: SVP (86) indicates that 86 tests ran under SVP
Diagnostic Result	Result of the diagnostic: PASS, FAIL, or COMPLETE PASS indicates that the diagnostic completed successfully FAIL indicates that the diagnostic failed COMPLETE indicates that multiple tests ran and one or more of them failed and the others passed
Diagnostic Result Time	Time at which the diagnostic completed testing When multiple tests run under one diagnostic (for example, SVP), this column indicates the time at which all tests completed

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate a diagnostic results report in system group manager mode:

1. Click on the `Reports` button.
2. Click on the `Diagnostics` button.

The interface displays the `Diagnostic Results` window. (Refer to Figure 5-26.)

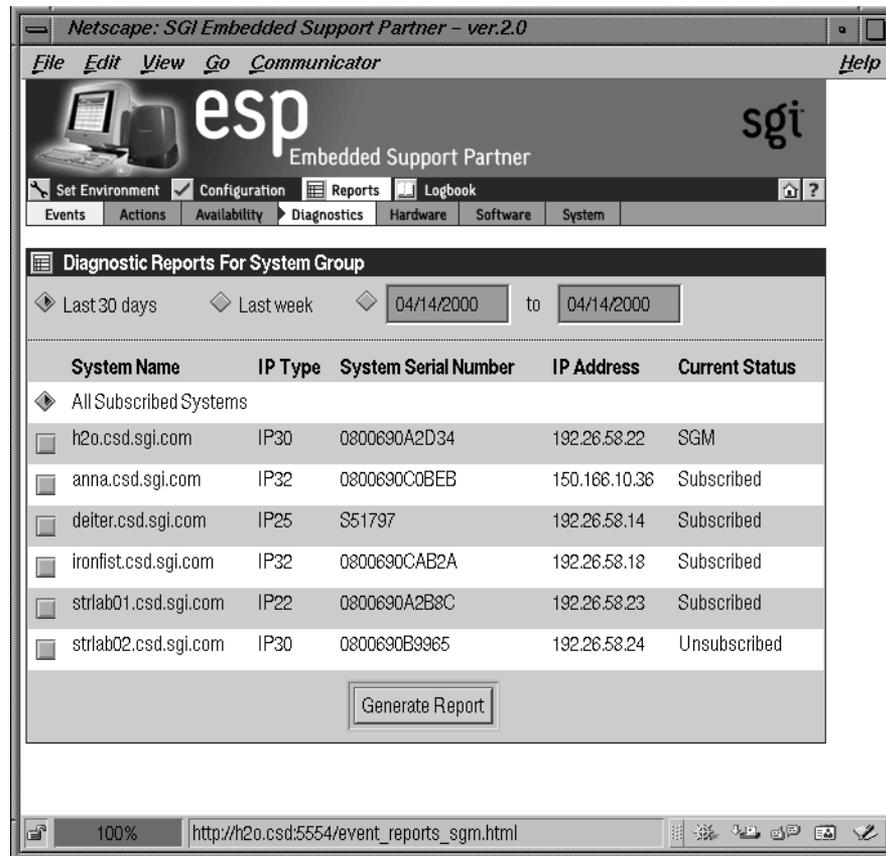


Figure 5-26 Diagnostic Results Window (System Group Manager Mode)

3. Specify the range of dates for the report.
4. Specify the systems to include in the report.
5. Click on the `Generate Report` button.

Figure 5-27 shows an example diagnostic results report.

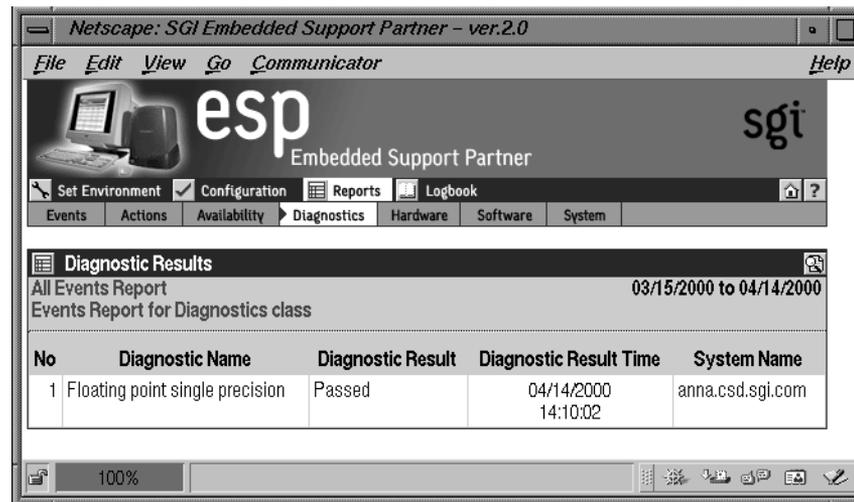


Figure 5-27 Example Diagnostic Results Report (System Group Manager Mode)

Table 5-9 describes the contents of the report.

Table 5-9 Diagnostic Results Report Contents (System Group Manager Mode)

Column Heading	Description
No.	Index number within the table
Diagnostic Name	Name of the diagnostic When one or more tests run as a group under one program (for example, SVP), the total number of tests run is shown in parentheses next to the diagnostic name; for example: SVP (86) indicates that 86 tests ran under SVP
Diagnostic Result	Result of the diagnostic: PASS, FAIL, or COMPLETE PASS indicates that the diagnostic completed successfully FAIL indicates that the diagnostic failed COMPLETE indicates that multiple tests ran and one or more of them failed and the others passed

Table 5-9 (continued) Diagnostic Results Report Contents (System Group Manager Mode)

Column Heading	Description
Diagnostic Result Time	Time at which the diagnostic completed testing When multiple tests run under one diagnostic (for example, SVP), this column indicates the time at which all tests completed
System Name	Client system on which the action was taken

Using the Command Line Interface

Diagnostic reports are not available from the command line interface.

Hardware Reports

There are two types of hardware reports:

- Hardware inventory reports
- Hardware changes reports

Hardware Inventory Reports

Hardware inventory reports show all hardware installed in a system at a specific date and time.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate a hardware inventory report in single system manager mode:

1. Click on the `Reports` button.
2. Click on the `Hardware` button.

The interface displays the `Hardware Inventory Report` window. (Refer to Figure 5-28.)

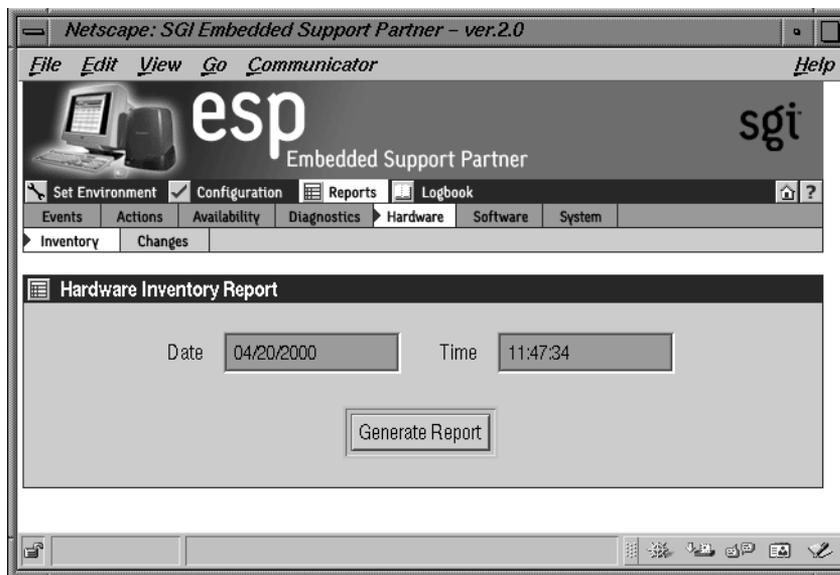


Figure 5-28 Hardware Inventory Report Window (Single System Manager Mode)

3. Specify the date and time of the hardware inventory that you want to view.
4. Click on the `Generate Report` button.

Figure 5-29 shows an example hardware inventory report. Figure 5-30 shows the hardware inventory report with all rows expanded.

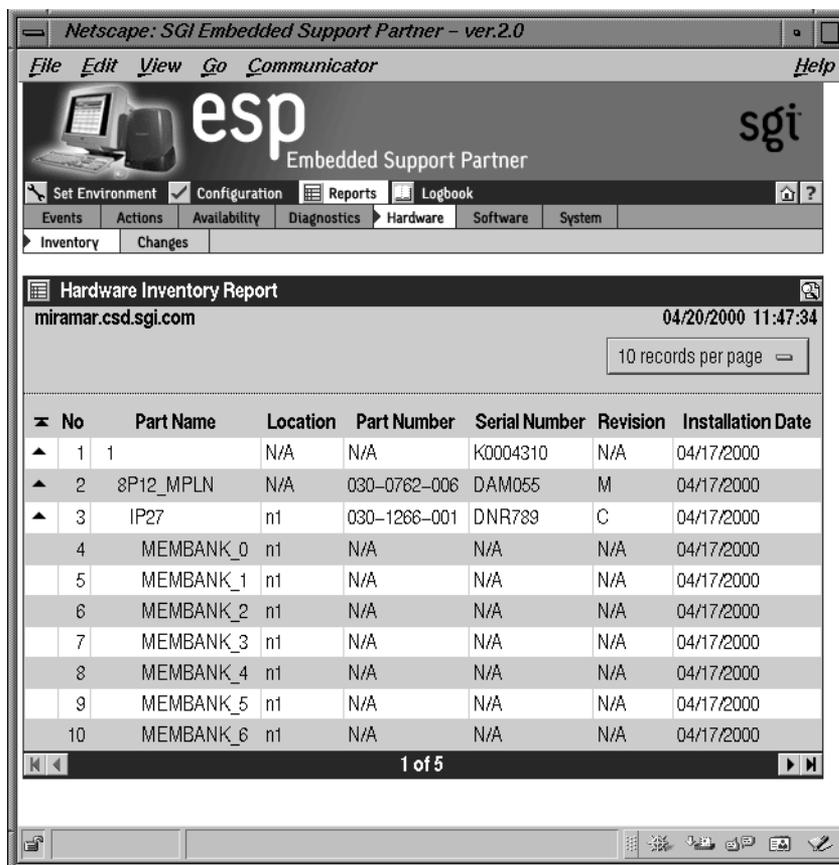
Hardware Inventory Report
miramar.csd.sgi.com 04/20/2000 11:47:34
10 records per page

No	Part Name	Location	Part Number	Serial Number	Revision	Installation Date
1	1	N/A	N/A	K0004310	N/A	04/17/2000
2	8P12_MPLN	N/A	030-0762-006	DAM055	M	04/17/2000

1 of 5

Document: Done.

Figure 5-29 Example Hardware Inventory Report (Single System Manager Mode)



Netscape: SGI Embedded Support Partner - ver.2.0

File Edit View Go Communicator Help

esp
Embedded Support Partner

sg

Set Environment Configuration Reports Logbook

Events Actions Availability Diagnostics Hardware Software System

Inventory Changes

Hardware Inventory Report

miramar.csd.sgi.com 04/20/2000 11:47:34

10 records per page

No	Part Name	Location	Part Number	Serial Number	Revision	Installation Date
1	1	N/A	N/A	K0004310	N/A	04/17/2000
2	8P12_MPLN	N/A	030-0762-006	DAM055	M	04/17/2000
3	IP27	n1	030-1266-001	DNR789	C	04/17/2000
4	MEMBANK_0	n1	N/A	N/A	N/A	04/17/2000
5	MEMBANK_1	n1	N/A	N/A	N/A	04/17/2000
6	MEMBANK_2	n1	N/A	N/A	N/A	04/17/2000
7	MEMBANK_3	n1	N/A	N/A	N/A	04/17/2000
8	MEMBANK_4	n1	N/A	N/A	N/A	04/17/2000
9	MEMBANK_5	n1	N/A	N/A	N/A	04/17/2000
10	MEMBANK_6	n1	N/A	N/A	N/A	04/17/2000

1 of 5

Figure 5-30 Example Hardware Inventory Report with Rows Expanded (Single System Manager Mode)

Table 5-10 describes the contents of the report.

Table 5-10 Hardware Inventory Report Contents

Column Heading	Description
No.	Index number within the table
Part Name	Name of the part
Location	Location where the part is installed
Part Number	Part number for the part
Serial Number	Serial number of the part
Revision	Revision level of the part
Installation Date	Date that the part was installed

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate a hardware inventory report in system group manager mode:

1. Click on the `Reports` button.
2. Click on the `Hardware` button.

The interface displays the `Hardware Inventory Reports for System Group` window. (Refer to Figure 5-31.)



Figure 5-31 Hardware Inventory Reports for System Group Window (System Group Manager Mode)

3. Specify the date and time of the hardware inventory that you want to view.
4. Specify the system for the hardware inventory that you want to view.
5. Click on the `Generate Report` button.

Figure 5-32 shows an example hardware inventory report. Figure 5-33 shows the hardware inventory report with all rows expanded.

Netscape: SGI Embedded Support Partner - ver.2.0

File Edit View Go Communicator Help

esp Embedded Support Partner sgi

Set Environment Configuration Reports Logbook

Events Actions Availability Diagnostics Hardware Software System

Inventory Changes

Hardware Inventory Report

anna.csd.sgi.com 04/20/2000 11:57:35

No	Part Name	Location	Part Number	Serial Number	Revision	Installation Date
1	MOTHERBOARD	N/A	N/A	N/A	N/A	04/19/2000
2	MAIN_MEMORY_128MB	N/A	N/A	N/A	N/A	04/19/2000
3	R5000	N/A	N/A	N/A	N/A	04/19/2000
4	SCSI_CTLR_0	N/A	N/A	N/A	N/A	04/19/2000
5	SCSI_CTLR_1	N/A	N/A	N/A	N/A	04/19/2000

100%

Figure 5-32 Example Hardware Inventory Report (System Group Manager Mode)

Netscape: SGI Embedded Support Partner - ver.2.0

File Edit View Go Communicator Help

esp
Embedded Support Partner
sgl

Set Environment Configuration Reports Logbook

Events Actions Availability Diagnostics Hardware Software System

Inventory Changes

Hardware Inventory Report
anna.csd.sgi.com 04/20/2000 11:57:35

No	Part Name	Location	Part Number	Serial Number	Revision	Installation Date
1	MOTHERBOARD	N/A	N/A	N/A	N/A	04/19/2000
2	MAIN_MEMORY_128MB	N/A	N/A	N/A	N/A	04/19/2000
3	R5000	N/A	N/A	N/A	N/A	04/19/2000
4	SCSI_CTLR_0	N/A	N/A	N/A	N/A	04/19/2000
5	DRIVE_1	N/A	IBM DCHS04Y	6809038CRAMSG29L	3030	04/19/2000
6	DRIVE_2	N/A	IBM DCAS-32160W	F255541073H8034	S62A	04/19/2000
7	CDROM_4	N/A	N/A	N/A	N/A	04/19/2000
8	SCSI_CTLR_1	N/A	N/A	N/A	N/A	04/19/2000

Figure 5-33 Example Hardware Inventory Report with Rows Expanded (System Group Manager Mode)

Table 5-11 describes the contents of the report.

Table 5-11 Hardware Inventory Report Contents (System Group Manager Mode)

Column Heading	Description
No.	Index number within the table
Part Name	Name of the part
Location	Location where the part is installed
Part Number	Part number for the part
Serial Number	Serial number of the part
Revision	Revision level of the part
Installation Date	Date that the part was installed

Using the Command Line Interface

Enter the following command to view a hardware inventory report:

```
configmon -h
```

Hardware Changes Reports

Hardware changes reports show all hardware that has been installed or deinstalled with a specified time period.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate a hardware changes report from single system manager mode:

1. Click on the `Reports` button.
2. Click on the `Hardware` button.
3. Click on the `Changes` button.

The interface displays the `History of Hardware` window. (Refer to Figure 5-34.)

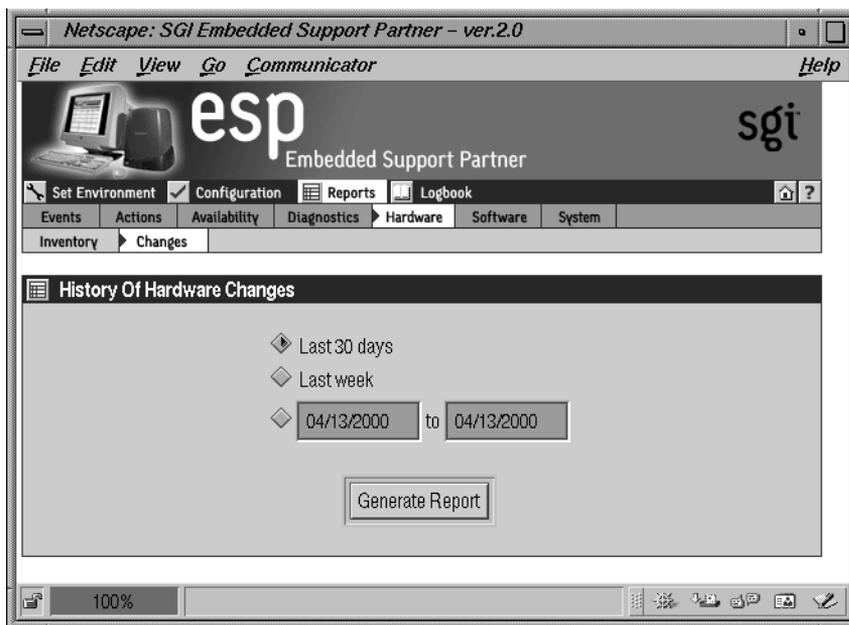


Figure 5-34 History of Hardware Changes Window (Single System Manager Mode)

4. Specify the range of dates for the report.
5. Click on the `Generate Report` button.

Figure 5-35 shows an example hardware changes report.

The screenshot shows a Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The browser's address bar shows "overdrive.csd.sgi.com" and the date range "03/14/2000 to 04/13/2000". The main content area displays a table titled "History of Hardware Changes". The table has the following columns: No, Part Name, Location, Serial Number, Part Number, Revision, Install Date/Time, and Removal Date/Time. The table contains three rows of data:

No	Part Name	Location	Serial Number	Part Number	Revision	Install Date/Time	Removal Date/Time
1	SCSI_CTLR_2	N/A	N/A	N/A	N/A	04/13/2000 11:56:08	--
2	DRIVE_2	N/A	184801456210	QUANTUM XP34550W	LXY4	04/13/2000 11:56:08	--
3	DRIVE_1	N/A	184802155548	QUANTUM XP34550W	LXY7	04/13/2000 11:56:08	--

Figure 5-35 Example Hardware Changes Report (Single System Manager Mode)

Table 5-12 describes the contents of the report.

Table 5-12 Hardware Changes Report Contents (Single System Manager Mode)

Column Heading	Description
No.	Index number in the table
Part Name	Name of the part
Location	Location of the part
Serial Number	Serial number of the part
Part Number	Part number of the part
Revision	Revision level of the part
Install Date/Time	Date and time that the part was installed in the location
Removal Date/Time	Date and time that the part was removed from the location

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate a hardware changes report from system group manager mode:

1. Click on the `Reports` button.
2. Click on the `Hardware` button.
3. Click on the `Changes` button.

The interface displays the `Hardware Changes Report For System` window. (Refer to Figure 5-36.)

The screenshot shows the SGI Embedded Support Partner (ESP) web interface. The browser title is "Netscape: SGI Embedded Support Partner - ver.2.0". The interface includes a menu bar with "File", "Edit", "View", "Go", "Communicator", and "Help". Below the menu bar is the "esp Embedded Support Partner" logo and the "sgi" logo. A navigation pane on the left contains "Set Environment", "Configuration", "Reports", and "Logbook". The "Reports" section is expanded, showing "Events", "Actions", "Availability", "Diagnostics", "Hardware", "Software", and "System". The "Hardware" section is further expanded to show "Inventory" and "Changes".

The main content area displays "Hardware Changes Reports For System Group". It includes a date range selector set to "Last 30 days" and "04/20/2000" to "04/20/2000". Below this is a table with the following columns: "System Name", "IP Type", "System Serial Number", "IP Address", and "Current Status".

System Name	IP Type	System Serial Number	IP Address	Current Status
All Subscribed Systems				
h20.csd.sgi.com	IP30	0800690A2D34	192.26.58.22	SGM
anna.csd.sgi.com	IP32	0800690C0BEB	150.166.10.36	Subscribed
miramar.csd.sgi.com	IP27	K0004310	150.166.5.88	Subscribed
ironfist.csd.sgi.com	IP32	0800690CAB2A	192.26.58.18	Subscribed
deiter.csd.sgi.com	IP25	S51797	192.26.58.14	Unsubscribed
strlab01.csd.sgi.com	IP22	0800690A2B8C	192.26.58.23	Unsubscribed
strlab02.csd.sgi.com	IP30	0800690B9965	192.26.58.24	Unsubscribed

Below the table is a "Generate Report" button. The browser status bar shows "100%" zoom and various system icons.

Figure 5-36 Hardware Changes Reports for System Group Window (System Group Manager Mode)

4. Specify the range of dates for the report.
5. Click on the Generate Report button.

Figure 5-37 shows an example hardware changes report.

The screenshot shows the Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The interface includes a menu bar (File, Edit, View, Go, Communicator, Help) and a toolbar with buttons for "Set Environment", "Configuration", "Reports", and "Logbook". Below the toolbar are tabs for "Events", "Actions", "Availability", "Diagnostics", "Hardware", "Software", and "System". The "Hardware" tab is selected, and a sub-tab "Changes" is active. The main content area displays the "History of Hardware Changes" report for the date range "03/21/2000 to 04/20/2000" with "10 records per page".

No	system	Part Name	Location	Serial Number	Part Number	Revision	Install Date/Time	Removal Date/Time
1	miramar.csd.sgi.com	MEMBANK_0	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17
2	miramar.csd.sgi.com	MEMBANK_1	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17
3	miramar.csd.sgi.com	MEMBANK_2	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17
4	miramar.csd.sgi.com	MEMBANK_3	n2	N/A	N/A <td N/A	04/17/2000 14:56:59	04/20/2000 12:42:17	
5	miramar.csd.sgi.com	MEMBANK_4	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17
6	miramar.csd.sgi.com	MEMBANK_5	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17
7	miramar.csd.sgi.com	MEMBANK_6	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17
8	miramar.csd.sgi.com	MEMBANK_7	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17
9	miramar.csd.sgi.com	R10000	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17
10	miramar.csd.sgi.com	R10000	n2	N/A	N/A	N/A	04/17/2000 14:56:59	04/20/2000 12:42:17

The bottom of the report shows "1 of 2" pages and navigation arrows.

Figure 5-37 Example Hardware Changes Report (Single Group Manager Mode)

Table 5-13 describes the contents of the report.

Table 5-13 Hardware Changes Report Contents (System Group Manager Mode)

Column Heading	Description
No.	Index number in the table
Part Name	Name of the part
Location	Location of the part
Serial Number	Serial number of the part
Part Number	Part number of the part
Revision	Revision level of the part
System Name	System on which the part is located
Install Date/Time	Date and time that the part was installed in the location
Remove Date/Time	Date and time the part was removed from the location

Using the Command Line Interface

Use the following syntax of the `espreport` command to view a hardware changes report:

```
/usr/sbin/espreport hwchanges [-from <mm/dd/yyyy>] [-to <mm/dd/yyyy>]
```

Use the `-from` and `-to` options to specify a range of dates. If you do not use these options, the report includes all available data.

Software Reports

There are two types of software reports:

- System inventory reports
- System changes reports

Software Inventory Reports

Software inventory reports show all software installed on a system at a specific date and time.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate a software inventory report from single system manager mode:

1. Click on the `Reports` button.
2. Click on the `Software` button.
3. Click on the `Inventory` button.

The interface displays the `Software Inventory Report` window. (Refer to Figure 5-38.)



Figure 5-38 Software Inventory Report Window (Single System Manager Mode)

4. Specify the date and time of the software inventory that you want to view.
5. Click on the `Generate Report` button.

Figure 5-39 shows an example software inventory report.



Figure 5-39 Example Software Inventory Report (Single System Manager Mode)

Table 5-14 describes the contents of the report.

Table 5-14 Software Inventory Report Contents (Single System Manager Mode)

Column Heading	Description
No.	Index number within the table
Software Name	Name of the software application
Version	Version number of the software application
Installation Date	Date on which the software application was installed
Software Description	Brief description of the software

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate a software inventory report from system group manager mode:

1. Click on the `Reports` button.
2. Click on the `Software` button.
3. Click on the `Inventory` button.

The interface displays the `Software Inventory Reports for System Group` window. (Refer to Figure 5-40.)

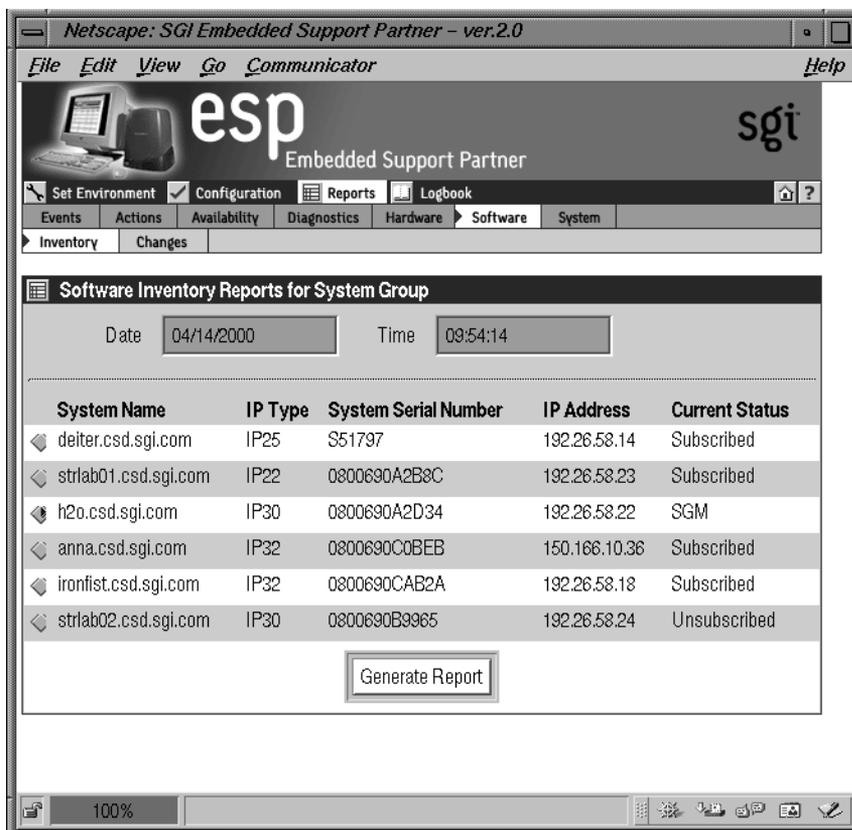


Figure 5-40 Software Inventory Reports for System Group Window (System Group Manager Mode)

4. Specify the date and time of the software inventory that you want to view.
5. Click on the `Generate Report` button.

Figure 5-41 shows an example software inventory report.

The screenshot shows a Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The browser's address bar shows "h2o.csd.sgi.com" and the time is "04/14/2000 09:54:14". The page displays a "Software Inventory Report" with a table of installed software. The table has the following data:

No	Software Name	Version	Installation Date	Software Description
1	4Dwm	1275868020	09/13/1999	Desktop Window Manager, 6.5.6m
2	CaseVision	1024068010	09/13/1999	CASEVision Environment, Version 2.6.5
3	InPerson	1274627333	09/13/1999	InPerson Desktop Conferencing, 2.2.1
4	PeoplePages	1274627333	09/13/1999	PeoplePages - The Indigo Magic Phonebook, 1.2.1
5	Register	1275868020	09/13/1999	On-Line Registration, 2.1
6	SpeedShop	1274551410	09/13/1999	Developer Magic: SpeedShop 1.3
7	ViewKit_dev	1275868020	09/13/1999	ViewKit Development Environment, Version 1.5.3
8	ViewKit_eoe	1275868020	09/13/1999	ViewKit Execution Environment, Version 1.5.3
9	ViewKit_noship	1275868020	09/13/1999	ViewKit NOSHIP files, Version 1.5.3 and 2.1.0
10	Welcome	1275865120	09/13/1999	Customer Welcome, August 99

The browser window also shows a navigation menu with options like "Set Environment", "Configuration", "Reports", and "Logbook". The "Software" menu is currently selected, and the "Inventory" sub-menu is active. The page footer indicates "1 of 13" records.

Figure 5-41 Example Software Inventory Report (System Group Manager Mode)

Table 5-15 describes the contents of the report.

Table 5-15 Software Inventory Report Contents (System Group Manager Mode)

Column Heading	Description
No.	Index number within the table
Software Name	Name of the software application
Version	Version number of the software application
Installation Date	Date on which the software application was installed
Software Description	Brief description of the software

Using the Command Line Interface

Enter the following command to view a software inventory report:

```
configmon -s
```

Software Changes Reports

Software changes reports show all software that has been added to or removed from a system within a specific time period.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate a software changes report from single system manager mode:

1. Click on the `Reports` button.
2. Click on the `Software` button.
3. Click on the `Changes` button.

The interface displays the `History of Software Changes` window. (Refer to Figure 5-42.)



Figure 5-42 History of Software Changes Window (Single System Manager Mode)

4. Specify the range of dates for the report.
5. Click on the `Generate Report` button.

Figure 5-43 shows an example software changes report.

No	Software Name	Software Version	Installation Date	Removal Date/Time	Description
1	patchSG0003895.eoe_man	1279999948	04/12/2000	--	IRIX Execution Environment Man Pages
2	patchSG0003895.eoe_man	1279999946	04/12/2000	04/12/2000	IRIX Execution Environment Man Pages
3	patchSG0003895.eoe_man.base	1279999948	04/12/2000	--	Basic IRIX Man Pages
4	patchSG0003895.eoe_man.base	1279999946	04/12/2000	04/12/2000	Basic IRIX Man Pages
5	patchSG0003895.eoe_sw	1279999948	04/12/2000	--	IRIX Execution Environment Software
6	patchSG0003895.eoe_sw	1279999946	04/12/2000	04/12/2000	IRIX Execution Environment Software
7	patchSG0003895.eoe_sw.base	1279999948	04/12/2000	--	IRIX Base Execution Environment
8	patchSG0003895.eoe_sw.base	1279999946	04/12/2000	04/12/2000	IRIX Base Execution Environment
9	patchSG0003895.eoe_sw64	0	04/12/2000	--	patchSG0003895.eoe_sw64 (no description)
10	patchSG0003895.eoe_sw64.dso	0	04/12/2000	--	IRIX 64bit DSO Libraries

Figure 5-43 Example Software Changes Report (Single System Manager Mode)

Table 5-16 describes the contents of the report.

Table 5-16 Software Changes Report Contents (Single System Manager Mode)

Column Heading	Description
No.	Index number in the table
Software Name	Name of the software application
Software Version	Version number of the software application
Installation Date	Date that the software application was installed on the system
Removal Date/Time	Date that the software application was removed from the system
Description	Description of the software application

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate a software changes report from system group manager mode:

1. Click on the `Reports` button.
2. Click on the `Software` button.
3. Click on the `Changes` button.

The interface displays the `History of Software Changes For System Group` window. (Refer to Figure 5-44.)



Figure 5-44 Software Changes for System Group Window (System Group Manager Mode)

4. Specify the range of dates for the report.
5. Select the system to include in the report.
6. Click on the `Generate Report` button.

Figure 5-45 shows an example software changes report.

History of Software Changes
strlab01.csd.sgi.com 03/21/2000 to 04/20/2000
10 records per page

No	Software Name	Software Version	Installation Date	Removal Date/Time	Description
1	c++_dev.books	1274567300	01/27/2000	--	C++ IRIS InSight Books
2	c++_dev.books.C++_PG	1274567300	01/27/2000	--	C++ Programming Guide
3	c++_dev.books.STL_PG	1274567300	01/27/2000	--	Standard Template Library Programmer's Guide
4	c++_dev.books.Tools.h++_RG	1274567300	01/27/2000	--	Tools.h++ Class Reference
5	c++_dev.books.Tools.h++_UG	1274567300	01/27/2000	--	Tools.h++ User's Guide
6	c++_dev.hdr	1274567300	01/27/2000	--	C++ Headers
7	c++_dev.hdr.lib	1274567300	01/27/2000	--	C++ Library Headers
8	c++_dev.hdr.librw	1274567300	01/27/2000	--	C++ Rogue Wave Tools.h++ Library Headers
9	c++_dev.man	1274567300	01/27/2000	--	C++ Manual Pages
10	c++_dev.man.c++	1274567300	01/27/2000	--	C++ Compiler Man Pages

1 of 34

Figure 5-45 Example Software Changes Report (System Group Manager Mode)

Table 5-17 describes the contents of the report.

Table 5-17 Software Changes Report Contents (System Group Manager Mode)

Column Heading	Description
No.	Index number in the table
Software Name	Name of the software application
Software Version	Version number of the software application
Installation Date	Date that the software application was installed on the system
Removal Date/Time	Date that the software application was removed from the system
Description	Description of the software application

Using the Command Line Interface

Use the following syntax of the `espreport` command to view a software changes report:

```
/usr/sbin/espreport swchanges [-from <mm/dd/yyyy>] [-to <mm/dd/yyyy>]
```

Use the `-from` and `-to` options to specify a range of dates. If you do not use these options, the report includes all available data.

System Reports

There are two types of system reports:

- System inventory reports
- System changes reports

System Inventory Reports

System inventory reports show the current system and ESP information.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to generate a system inventory report:

1. Click on the `Reports` button.
2. Click on the `System` button.
3. Click on the `Inventory` button.

The interface displays the `System` window. (Figure 5-46 shows an example system inventory report in single system manager mode. Figure 5-47 shows an example system inventory report in system group manager mode.)

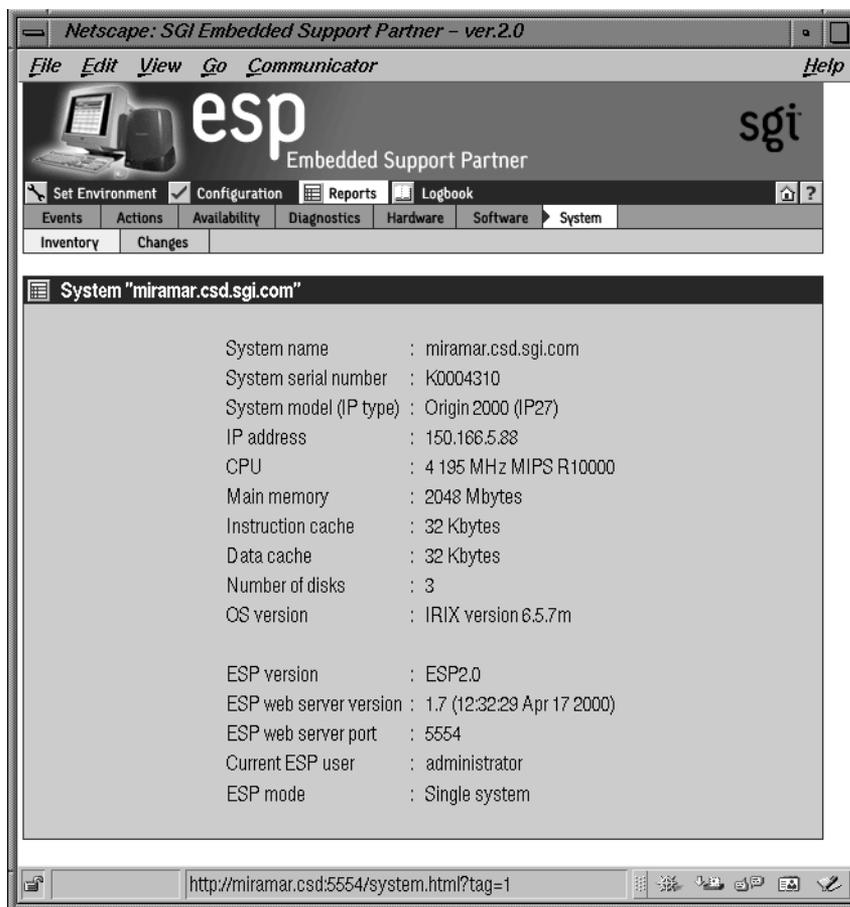


Figure 5-46 Example System Inventory Report (Single System Manager Mode)

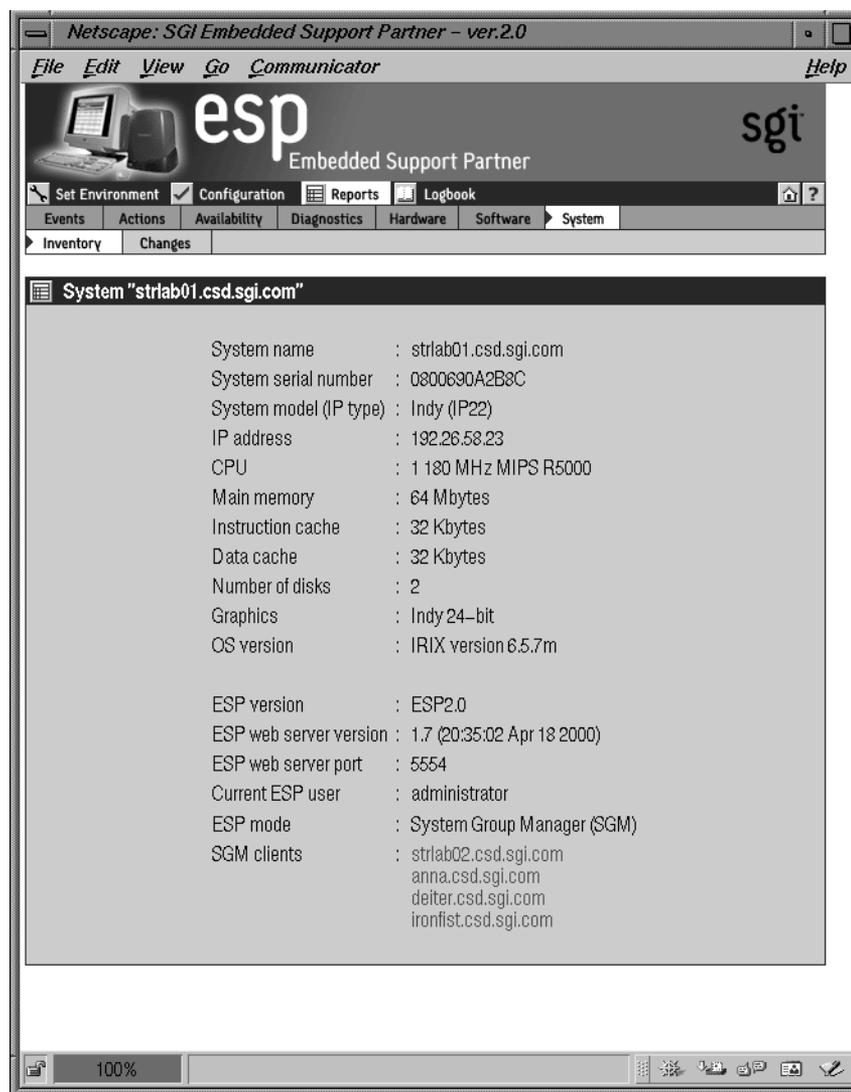


Figure 5-47 Example System Inventory Report (System Group Manager Mode)

Using the Command Line Interface

Use the following syntax of the `espreport` command to generate a system information report:

```
/usr/sbin/espreport sysinfo [all]
```

If you specify the `all` option, the command displays the system name, serial number, type, IP address, and system ID. If you do not specify the `all` option, this command displays only the system serial number.

Use the following syntax of the `espreport` command to view a summary report that includes system information, events, hardware and software changes, logbook information, availability overview, and local system disk usage:

```
/usr/sbin/espreport summary [-from <mm/dd/yyyy>] [-to <mm/dd/yyyy>]
```

Use the `-from` and `-to` options to specify a range of dates. If you do not use these options, the report includes all available data.

System Changes Reports

System change reports show any system changes (system name, IP address, etc.) that occur within a specific time period.

Using the Web-based Interface (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to generate a system inventory report from single system manager mode:

1. Click on the `Reports` button.
2. Click on the `System` button.
3. Click on the `Changes` button.

The interface displays the `History of System Changes` window. (Refer to Figure 5-48.)

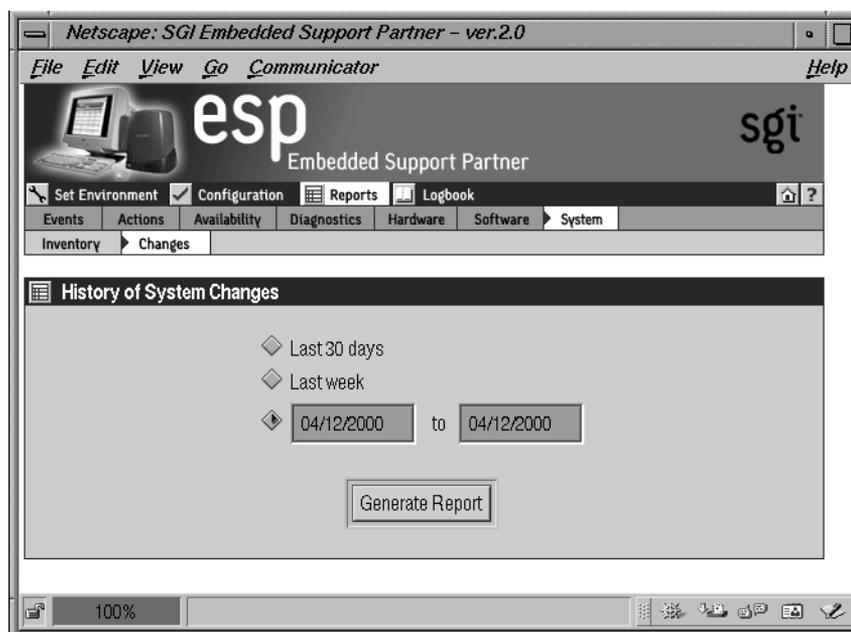


Figure 5-48 History of System Changes Window (Single System Manager Mode)

4. Specify the range of dates for the report.
5. Click on the `Generate Report` button.

Figure 5-49 shows an example system changes report.

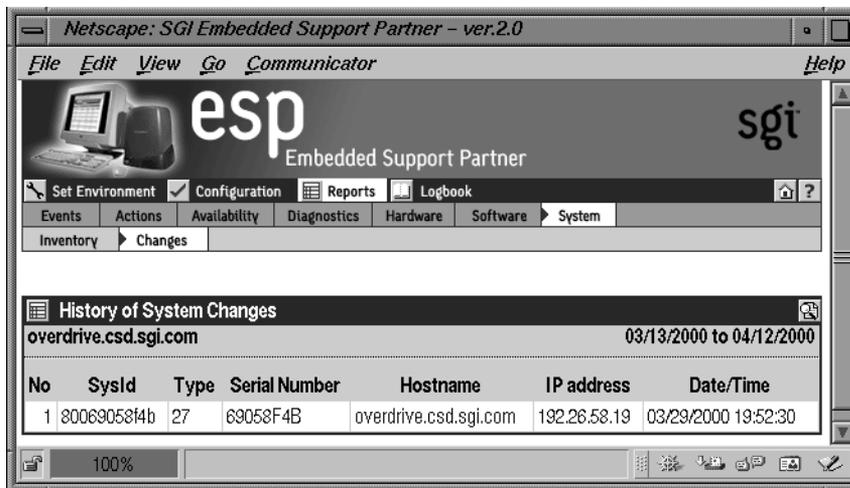


Figure 5-49 Example System Changes Report (Single System Manager Mode)

Table 5-18 describes the contents of the report.

Table 5-18 System Changes Report Contents (Single System Manager Mode)

Column Name	Description
SysId	System identification number
System type	Processor that the system uses
System serial number	Serial number of the system
Hostname	Hostname of the system
IP address	IP address of the system
Date/Time	Date and time of the change

Using the Web-based Interface (System Group Manager Mode)

Perform the following procedure to use the Web-based interface to generate a system inventory report from system group manager mode:

1. Click on the `Reports` button.
2. Click on the `System` button.
3. Click on the `Changes` button.

The interface displays the `System Changes For System Group` window. (Refer to Figure 5-50.)

The screenshot shows a Netscape browser window titled "Netscape: SGI Embedded Support Partner - ver.2.0". The browser's menu bar includes "File", "Edit", "View", "Go", "Communicator", and "Help". The main content area displays the "esp Embedded Support Partner" logo and a navigation menu with options: "Set Environment", "Configuration", "Reports", and "Logbook". Below this, there are sub-menus for "Events", "Actions", "Availability", "Diagnostics", "Hardware", "Software", and "System". The "System" sub-menu is expanded, showing "Inventory" and "Changes".

The "System Changes Reports For System Group" window is displayed, showing a date range selector set to "Last 30 days" and "04/14/2000" to "04/14/2000". Below the selector is a table with the following data:

System Name	IP Type	System Serial Number	IP Address	Current Status
All Subscribed Systems				
h2o.csd.sgi.com	IP30	0800690A2D34	192.26.58.22	SGM
anna.csd.sgi.com	IP32	0800690C0BEB	150.166.10.36	Subscribed
deiter.csd.sgi.com	IP25	S51797	192.26.58.14	Unsubscribed
strlab01.csd.sgi.com	IP22	0800690A2B8C	192.26.58.23	Unsubscribed
strlab02.csd.sgi.com	IP30	0800690B9965	192.26.58.24	Unsubscribed
ironfist.csd.sgi.com	IP32	0800690CAB2A	192.26.58.18	Unsubscribed

A "Generate Report" button is located at the bottom of the table.

Figure 5-50 System Changes for System Group Window (System Group Manager Mode)

4. Specify the range of dates for the report.
5. Specify the systems to include in the report.
6. Click on the `Generate Report` button.

Figure 5-51 shows an example system changes report.

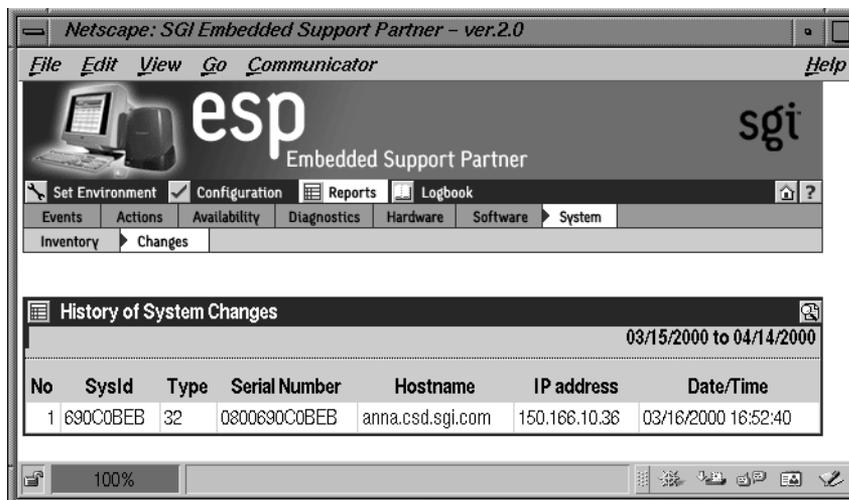


Figure 5-51 Example System Changes Report (System Group Manager Mode)

Table 5-19 describes the contents of the report.

Table 5-19 System Changes Report Contents (System Group Manager Mode)

Column Name	Description
SysId	System identification number
System type	Processor that the system uses
System serial number	Serial number of the system
Hostname	Hostname of the system
IP address	IP address of the system
Date/Time	Date and time of the change

Using the Command Line Interface

System change reports are not available from the command line interface.

Using the ESP Logbook

This chapter describes the ESP logbook, how to view it, and how to add entries to it.

About the ESP Logbook

Use the ESP logbook to record changes that you make to a system: Create a logbook entry each time that you perform a service-related activity on a system. Then, if necessary, any ESP user with the “view logbook” permission can view the entries to review the activities at a later time.

Viewing Logbook Entries

You can view any logbook entries to review previous system activities.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to view logbook entries:

1. Click on the `Logbook` button.
2. Click on the `View Log` button.

The interface displays the `View Logbook Entries` window. (Refer to Figure 6-1.)



Figure 6-1 View Logbook Entries Window

3. Specify the range of dates to view.
4. Click on the View Log Entries button.

The interface displays the specified logbook entries. (Refer to Figure 6-2.)

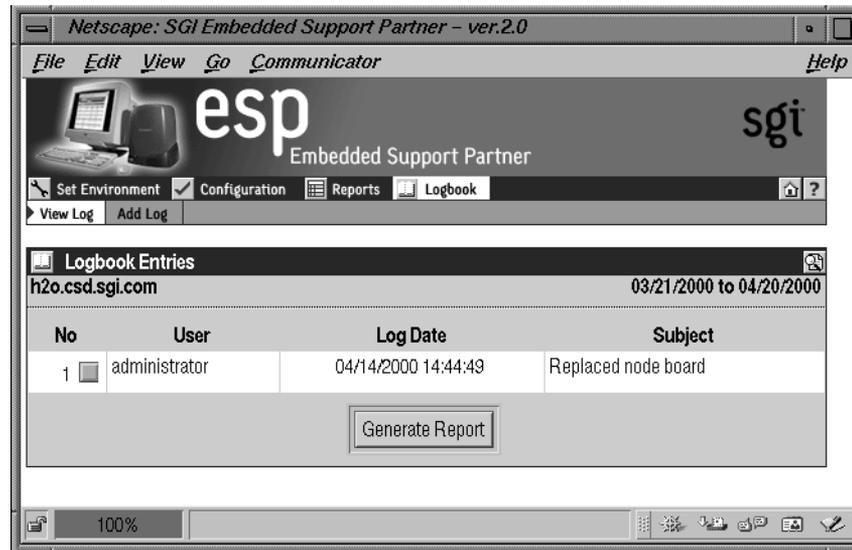


Figure 6-2 Specified Logbook Entries

5. Perform one of the following actions to view a log entry:
 - Set the check mark next to entry number, and click on the `Generate Report` button.
 - Click on the subject link for the entry.

The interface displays the logbook entry information. (Refer to Figure 6-3.)

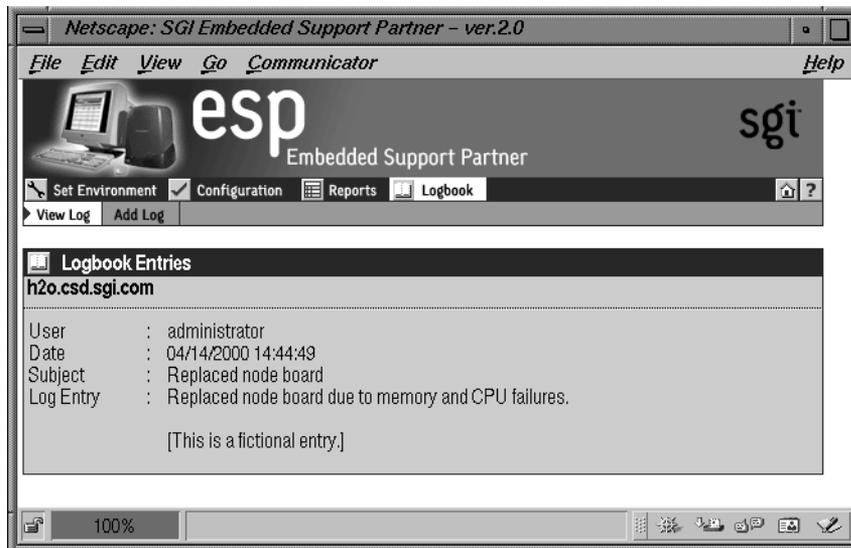


Figure 6-3 Logbook Entry Information

Using the Command Line Interface

Logbook entries are included in the output of the following syntax of the `espreport` command:

```
/usr/sbin/espreport logbook [-from <mm/dd/yyyy>] [-to <mm/dd/yyyy>]
```

Use the `-from` and `-to` options to specify a range of dates. If you do not use these options, the report includes all available data.

Adding a Logbook Entry

You should add logbook entries any time that you modify a system.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to add a logbook entry:

1. Click on the `Logbook` button.
2. Click on the `Add Log` button.

The interface displays the `Create Log` window. (Refer to Figure 6-4.)



Figure 6-4 Create Log Window

Note: ESP automatically sets the user field to the user account that you are using.

3. Enter a subject for the entry. (This required field can hold up to 128 characters.)
4. Enter a log entry. (This required field can hold up to 4 Kbytes of data.)
5. Click on the `Submit Log` button.

The interface displays the information that you entered. (Refer to Figure 6-5.)

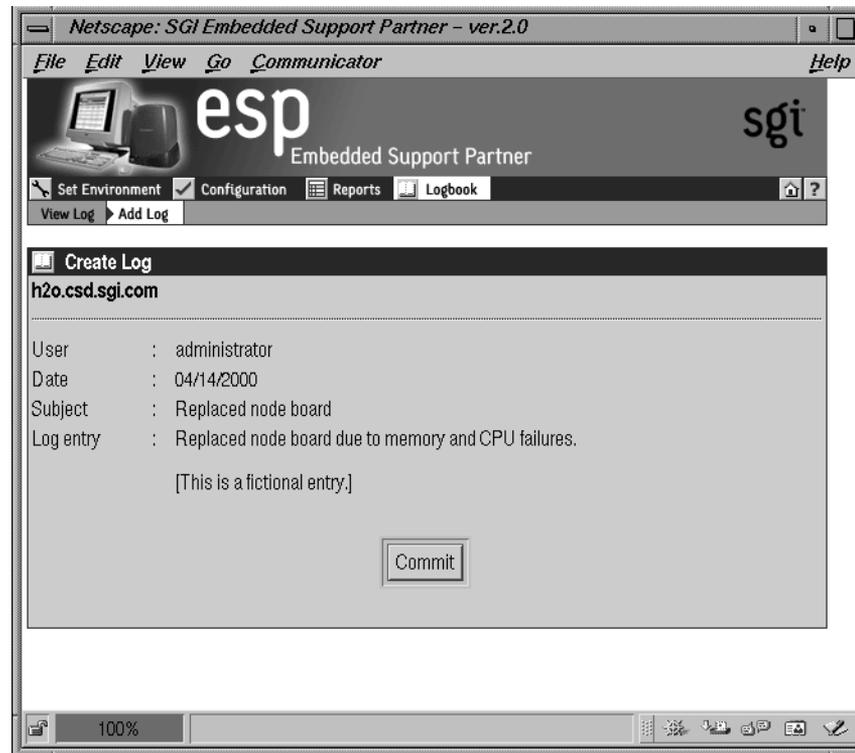


Figure 6-5 Logbook Entry Confirmation Window

6. Click on the `Commit` button to create the entry.

The interface displays the information that was added to the logbook. (Refer to Figure 6-6.)

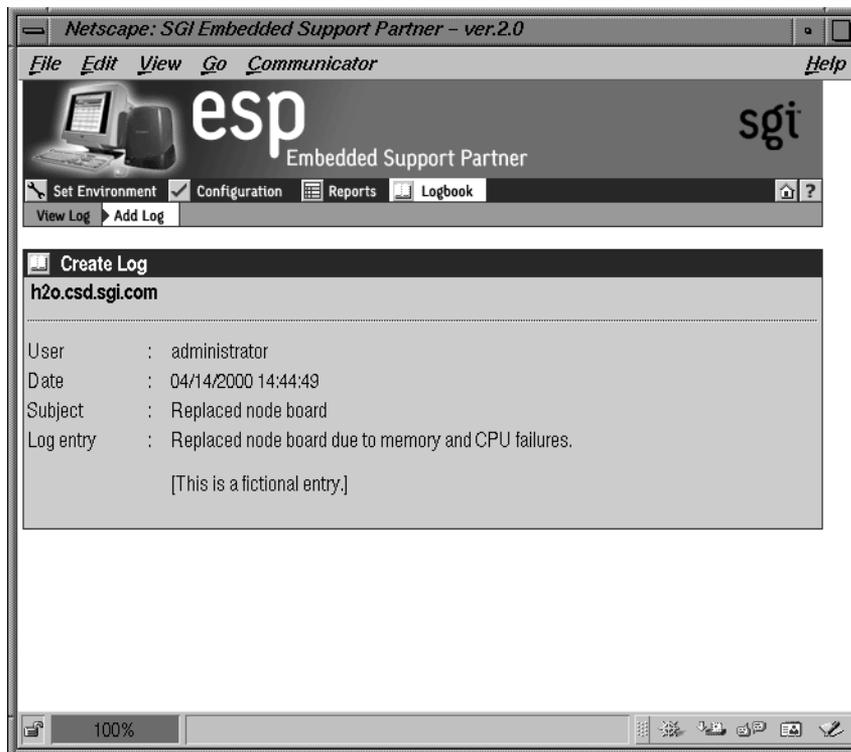


Figure 6-6 Completed Logbook Entry

Using the Command Line Interface

Logbook entries cannot be created by using the command line interface.

Sending Notifications

About the `esnotify` Tool

The ESP software suite includes the `esnotify` tool, which you can use to perform the following types of notification:

- Display a message on the system console
- Display a message on a local or remote X Window System display
- Send an e-mail message
- Send a page to an alphanumeric or chatty pager

Command Line Options for Displaying a Message on the Console

Use the following format of the `esnotify` command to display a message on the system console:

```
/usr/bin/esnotify -A <message> [-n <number>]
```

This format of the `esnotify` command has the following command line options:

- | | |
|--------------------------------|---|
| <code>-A</code> | Specifies that the message should be displayed in the console window |
| <code><message></code> | Specifies the message that the window should display |
| | Enclose <code><message></code> in single quotes (<code>'</code>) if the message contains more than one word. |
| <code>-n <number></code> | Specifies an optional priority message, which is determined by the value that you specify for <code><number></code> |

The `<number>` parameter can be a value from 1 to 7. `esnotify` attaches a label to the message based on the value of `<number>`: 1 or 2 (Critical System Error), 3 (System Error), 4 (System Warning), or 5 to 7 (System Information)

For example, the following command displays the message `This is the message to display.` on the console (refer to Figure 7-1):

```
/usr/bin/espnotify -A 'This is the message to display.'
```



Figure 7-1 Displaying a Message in the Console Window

Displaying a Message on an X Window System Display

Use the following format of the `espnotify` command to display a message on a local or remote X Window System display:

```
/usr/bin/espnotify -c <message> [-a] [-D <display>] [-g <geometry>]  
[-i <icon>] [-n <number>] [-t <title>]
```

This format of the `espnotify` command has the following command line options:

- c <message> Specifies the message that the window should display
Enclose <message> in double quotes (" ") if the message contains more than one word.
- a Specifies that an audio file should be played
The `/usr/bin/ssplay` application plays the audio file. Audio notification cannot be performed without graphical notification. Audio notification can be performed only on the local host.
- D <display> Specifies the display to use. (If you do not specify a display, the window is displayed on the host specified by the `$DISPLAY` environment variable.)

`-g <geometry>` Specifies an optional X Window System geometry string for the window (in the standard WIDTHxHEIGHTxXOFFxYOFF format)

For example, `-g 120x80x50x100` specifies a window that is 120 pixels wide by 80 pixels high and is located 50 pixels from the left edge of the screen and 100 pixels from the top edge of the screen. (Refer to the `x(1)` man page for more information.)

`-i <icon>` Specifies an optional image to display as an icon for the window

`-n <number>` Specifies an optional priority message, which is determined by the value that you specify for `<number>`

The `<number>` parameter can be a value from 1 to 7. `esnotify` attaches a label to the message based on the value of `<number>`: 1 or 2 (Critical System Error), 3 (System Error), 4 (System Warning), or 5 to 7 (System Information)

`-t <title>` Specifies an optional title of the window.

Enclose `<title>` in double quotes ("`"`") if the title contains more than one word.

For example, the following command displays a window on the local host (refer to Figure 7-2):

```
/usr/bin/esnotify -c "This is the message to display." -D localhost:0  
-t "This is the title."
```

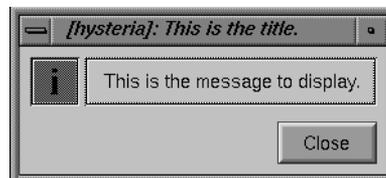


Figure 7-2 Displaying a Message on an X Window System Display

Sending an E-mail Message

Use the following format of the `espnotify` command to send an e-mail message:

```
/usr/bin/espnotify -E <address> { -f <filename> | -m <message> }  
[-n <number>] [-o <options>] [-s <subject>]
```

This format of the `espnotify` command has the following command line options:

- E <address> Specifies the e-mail addresses that should receive the message
Enclose <address> in single quotes (' ') if the list contains more than one address.
- f <filename> Specifies a text file to use as content for the message
You cannot use the -f and -m options at the same time.
- m <message> Specifies text to use as content for the message
Enclose <message> in single quotes (' ') if the message contains more than one word.
You cannot use the -f and -m options at the same time.
- n <number> Specifies an optional priority message, which is determined by the value that you specify for <number>
The <number> parameter can be a value from 1 to 7. `espnotify` attaches a label to the message based on the value of <number>: 1 or 2 (Critical System Error), 3 (System Error), 4 (System Warning), or 5 to 7 (System Information)
- o <options> Specifies processing options for the message
Two options are available: -o COMP (compress and uuencode the message) and -o ENCO (uuencode the message). These options are valid only if you also use the -f option.
- s <subject> Specifies the subject of the message
The format of the default subject is [HOSTNAME]: <text>, where HOSTNAME is replaced with the name of the host and <text> is replaced with a priority message (for example, Critical System Error).
If you use the -n and -s options, the -s option overrides the -n option.

For example, the following command sends a message to dtg@sgi.com (refer to Figure 7-3):

```
/usr/bin/espnotify -E dtg@sgi.com -m 'This is the text of the message.'
-n 1
```

```
Subject: [lobos]: Critical System Error
Date: Mon, 7 Jun 1999 09:44:24 -0700 (PDT)
From: root@lobos.csd.sgi.com (Super-User)
To: dtg@sgi.com

This is the text of the message.
```

Figure 7-3 Sending an E-mail Message

Sending a Page

Use the following format of the `espnotify` command to send a page to an alphanumeric or chatty pager:

```
/usr/bin/espnotify -C <message> -p <paggers> [-n <number>] [-Q <server>]
[-S <service>]
```

This format of the `espnotify` command has the following command line options:

- C <message> Specifies the message that the window should display.
Enclose <message> in double quotes (“ ”) if the message contains more than one word.
- p <paggers> Specifies a comma-separated list of pager names (or pager identification numbers) that should receive the message
Pager information is stored in the `/etc/qpage.cf` file on the server that is sending the page. You can set up pager names on the ESP interface.
- n <number> Specifies an optional priority message, which is determined by the value that you specify for <number>
The <number> parameter can be a value from 1 to 7. `espnotify` attaches a label to the message based on the value of <number>: 1 or 2 (Critical System Error), 3 (System Error), 4 (System Warning), or 5 to 7 (System Information)
- Q <server> Specifies an alternate paging server to use

If you do not specify this option, `esnotify` uses the `QPage` software on the local host.

`-S <service>` Specifies an alternate paging service to use

Paging service information is stored in the `/etc/qpage.cf` file on the server that is sending the page. You can set up paging service information on the ESP interface.

If you do not specify this option, `esnotify` uses the default paging service specified in the `/etc/qpage.cf` file.

For example, the following command sends the message `This is the message` to the pager named `mypager`:

```
/usr/bin/esnotify -C "This is the message" -p mypager
```

Invoking `esnotify` from ESP

Because `esnotify` is a command line utility, you can configure it as an ESP action. To do this, create a new action or update an existing action with a command string that uses the `/usr/bin/esnotify` command. This section shows two examples of how to create ESP actions that use `esnotify`.

Example 1: Creating an Action to Send an E-mail

The first example shows how to set up an ESP action to send notification by E-mail.

1. Click on the `Configuration` button.
2. Click on the `Actions` button.
3. Click on the `Add` button.
4. Click on the radio button next to `Other` action.
5. Click on the `Continue` button.

6. Update the parameters. (Table 7-1 lists the parameters for this example.)

Table 7-1 Example Action Parameters for Sending an E-mail Notification

Field	Setting
Action description	Send notification via e-mail to abc123@sgi.com
Action string	/usr/bin/esnotify -E abc123@sgi.com -m %D -s 'An event was just registered.'
Execute action as	nobody
Action timeout (in multiples of 5)	10
Before the action will be taken, the event must be registered	1
Retry (up to 23 times; more than 4 is not recommended)	4

Figure 7-4 shows an interface page with the proper settings for this example.

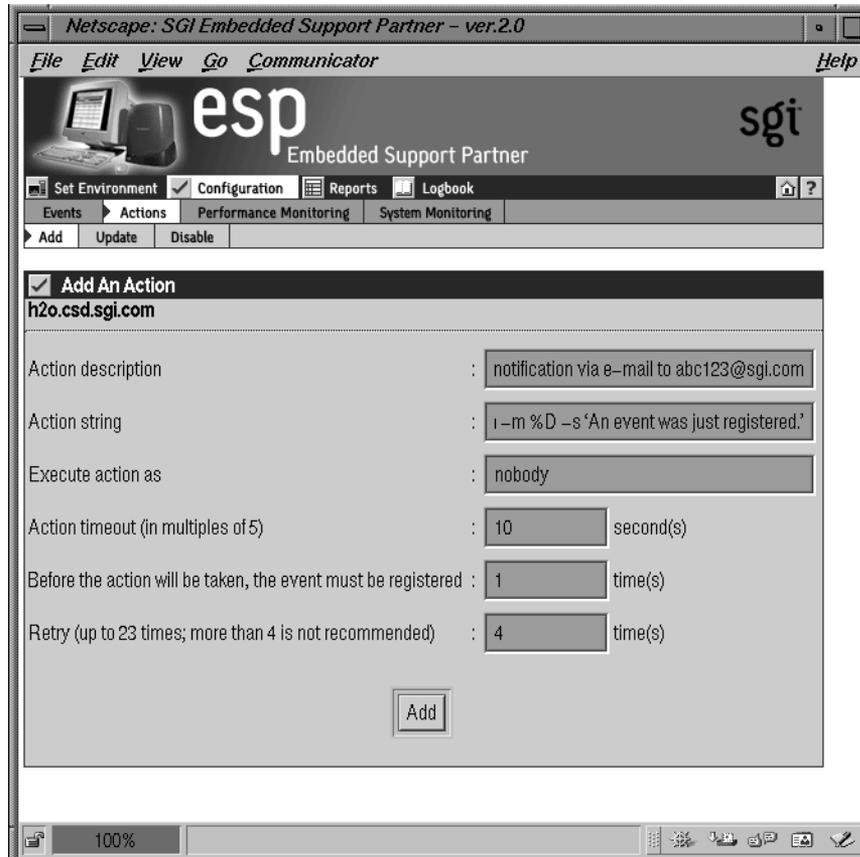


Figure 7-4 Example Action Parameters for Sending an E-mail Message

7. Click on the Add button. (Figure 7-5 shows the verification message for this example.)

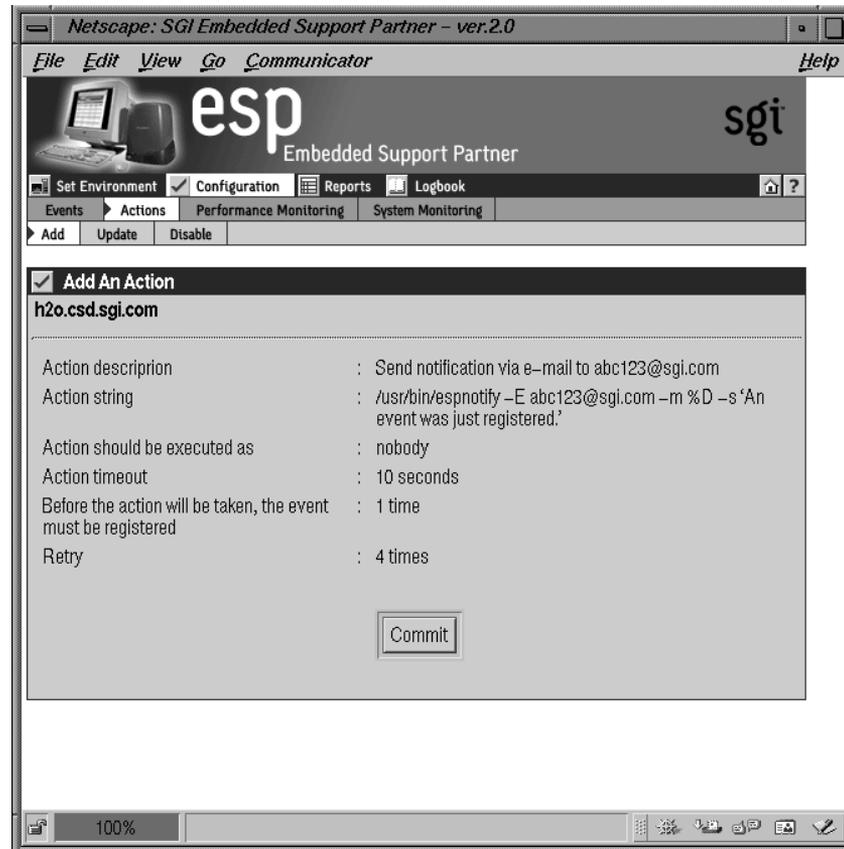


Figure 7-5 Example Verification Message for Sending an E-mail Message Action

8. Click on the `Commit` button. (Figure 7-6 shows the confirmation message for this example.)

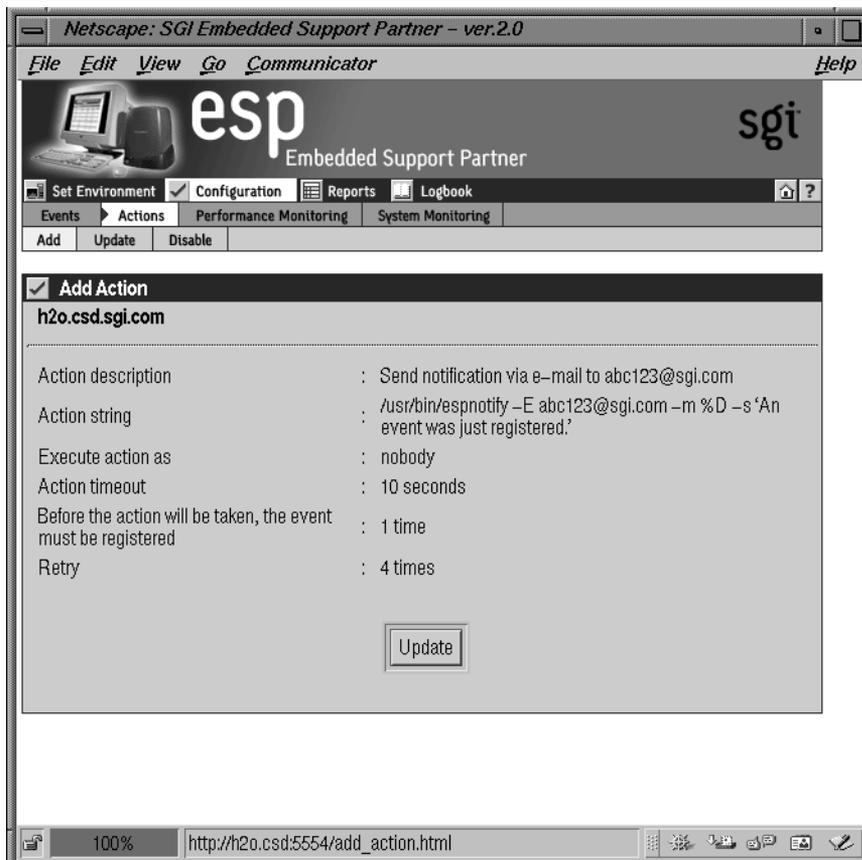


Figure 7-6 Example Confirmation Message for Sending an E-mail Message Action

Example 2: Creating an Action to Send a Page

The second example shows how to set up an ESP action to send notification to a pager.

1. Click on the `Configuration` button.
2. Click on the `Actions` button.
3. Click on the `Add` button.
4. Click on the radio button next to `Other` action.
5. Click on the `Continue` button.
6. Update the parameters. (Table 7-2 lists the parameters for this example.)

Table 7-2 Example Action Parameters for Sending a Message to a Pager

Field	Setting
Action description	Page Darrin
Action string	<code>/usr/bin/espsnotify -C 'There is a system problem.' -p Darrin_Goss</code>
Execute action as	nobody
Action timeout (in multiples of 5)	10
Before the action will be taken, the event must be registered	1
Retry (up to 23 times; more than 4 is not recommended)	4

Figure 7-7 shows an example interface page with the proper settings for this example.

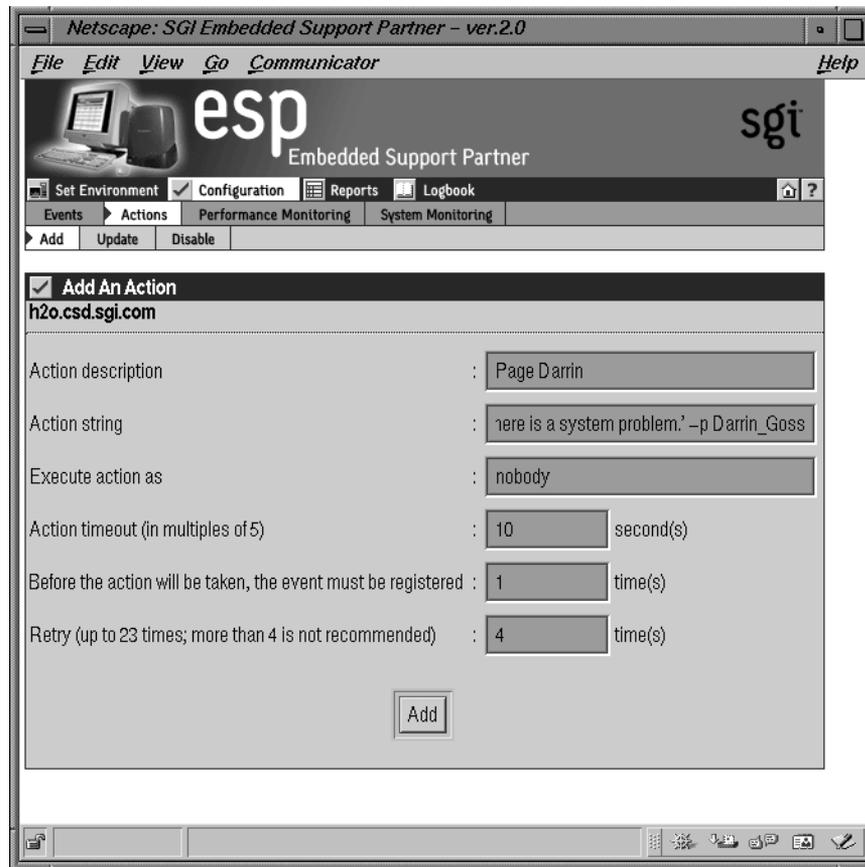


Figure 7-7 Example Action Parameters for Sending a Message to a Pager

7. Click on the Add button. (Figure 7-8 shows the verification message for this example.)

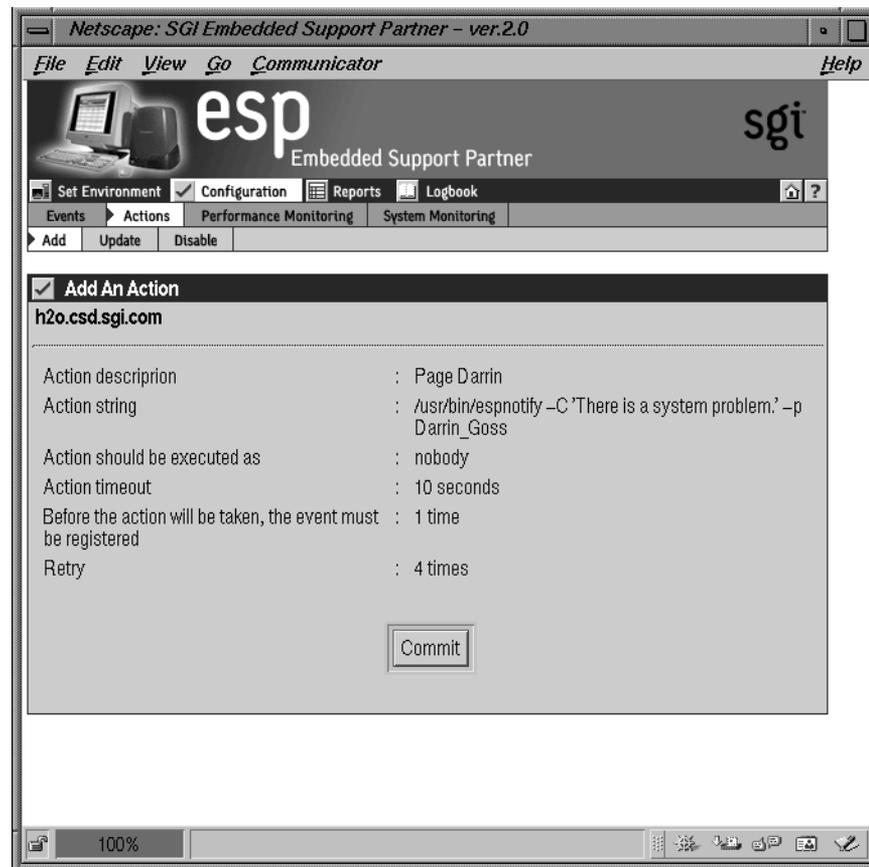


Figure 7-8 Example Verification Message for Sending a Message to a Pager Action

8. Click on the `Commit` button. (Figure 7-9 shows the confirmation message for this example.)

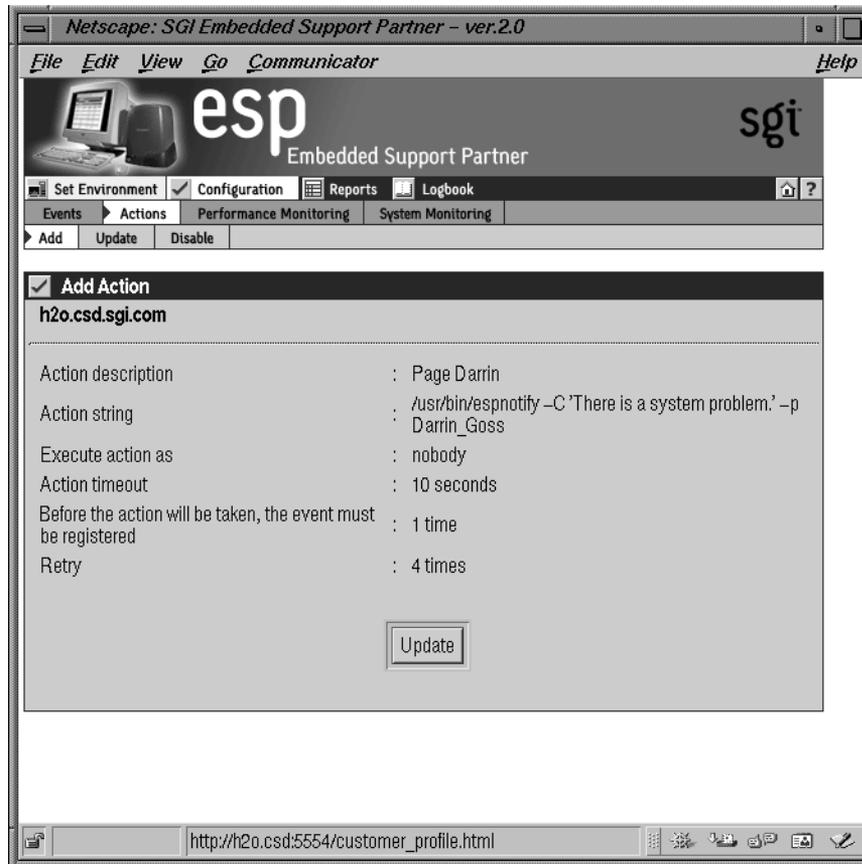


Figure 7-9 Example Confirmation Message for Sending a Message to a Pager Action

Logging Events from Applications and Scripts

The ESP framework provides two ways for you to send events from your local applications and scripts to ESP:

- By using the `eventmon` Application Programming Interface (API)
- By using the `esplogger` tool

Note: You can also use the `openlog`, `syslog`, and `closelog` SYSLOG functions to send event information through SYSLOG. Refer to the `syslog(3c)` man page for more information.

Event Classification and Sequence Numbers

The ESP framework uses a standardized event classification scheme for the events that it registers. This classification scheme was implemented to:

- Provide a meaningful representation of the events that have occurred so that users can easily interpret them
- Provide an easy way to locate the source of an error by providing a general category and more specific information

In this scheme, events are categorized by class and type. An event class describes a general area that ESP monitors (for example, SCSI). An event type provides greater detail about individual events (for example, a SCSI controller initialization failure).

ESP automatically generates event class and type numbers when you create custom events and classes. You can use these numbers with your local applications and scripts to send event information to the ESP framework through the `eventmon` API and `esplogger` tool.

The ESP framework also uses unique sequence numbers for system messages. These sequence numbers provide a mechanism that enables ESP to isolate problems at the source code level.

Using the eventmon API

The eventmon API contains a set of functions that you can call from your local C or C++ programs to send event information to the event monitoring component of ESP (eventmond). The eventmon API includes the following functions:

- `int EVMONAPI emapiIsDaemonInstalled();`

This function determines whether the eventmond software is installed on the system.

Parameters:

None

Return value:

An integer: A nonzero value indicates that the `/usr/etc/eventmond` executable file exists on the system. A zero indicates that the file does not exist on the system.

- `int EVMONAPI emapiIsDaemonStarted();`

This function determines whether eventmond is running on the system. You should use this function to verify that eventmond is running before you use any other eventmon API functions.

Parameters:

None

Return value:

An integer: A nonzero value indicates that eventmond is running on the system. A zero indicates that eventmond is not running on the system.

- `int EVMONAPI emapiDeclareDaemonUnload();`

This function unloads `eventmond` from memory. (Note that the `eventmond` daemon can remain in the memory for up to 2 seconds after this function is called while the unload process completes.)

Parameters:

None

Return value:

An integer: A nonzero value indicates that `eventmond` successfully unloaded from memory. A zero indicates that an error prevented `eventmond` from successfully unloading from memory.

An application must have root permissions/privileges to call this function.

- `int EVMONAPI emapiDeclareDaemonReloadConfig();`

This function causes `eventmond` to reload the configuration information. This process includes three steps:

1. Drop all filtering information from the internal `eventmond` memory tables.
2. Connect to system tables that contain the filtering information.
3. Reconfigure the internal `eventmond` memory tables with the information from the system tables.

This function has the same functionality as the following shell command:

```
kill -HUP eventmon_pid
```

Parameters:

None

Return value:

An integer: A nonzero value indicates that `eventmond` successfully reloaded the configuration information. A zero indicates that an error prevented `eventmond` from successfully reloading the configuration information.

An application must have root permissions/privileges to call this function.

- `int EVMONAPI emapiSendEvent(char *hostname_from, unsigned long timehost, int etype, int epri, char *eventbuffer);`

This function sends information about an event (event class sequence number and priority/facility code) to `eventmond`.

Parameters:

`char *hostname_from`

- The name of the host where the event occurred (Use NULL to indicate the local host.)

`unsigned long timehost`

- The time stamp (in seconds since 00:00:00 UTC on January 1, 1970) of the event (Use 0 to specify the current time.)

`int etype`

- A number that specifies the event type (must be a nonzero value)

`int epri`

- The priority/facility code

`char *eventbuffer`

- A valid ASCIZ buffer that contains the event message string (It must be a valid string pointer and have a nonzero size.)

The buffer cannot be larger than the number of bytes specified by `EVMONAPI_MAXEVENTSIZE` (16 KB, as defined in the `eventmonapi.h` file).

Return value:

An integer: A nonzero value indicates that the information was successfully passed to `eventmond` for processing. A zero indicates that an error prevented the information from successfully reaching `eventmond`.

The following sample code fragment demonstrates how to use the `eventmon` API:

```
#include <stdio.h>
#include <sys/syslog.h>
#include <eventmonapi.h>

main()
{ if(!emapiIsDaemonStarted())
  { printf("EventMon daemon not started!\n");
    exit(0);
  }
  return emapiSendEvent("legalov.sgi.com",0,0x20101C,
    LOG_MAKEPRI(LOG_USER,LOG_INFO), "Hello world!");
}
```

Using the esplogger Tool

Use the `esplogger` tool to pass event information from your local scripts to the event monitoring component of ESP (`eventmond`). You can run `esplogger` from a UNIX prompt or from a UNIX shell script. `esplogger` uses the following command syntax:

```
esplogger -s <sequence_number> {-f <filename> | -m "<message>"}
[-p <priority>] [-t <time>]
```

```
esplogger -h
```

```
esplogger -V
```

where:

- The `-s <sequence_number>` option specifies the sequence number (in decimal or hexadecimal). You must use this option with the `-t` option and the `-f` or `-m` options.
- The `-f <filename>` option specifies the file that contains data to log in the ESP framework. You must include the `-s` option with this option. You cannot use this option with the `-m` option.
- The `-m <message >` option specifies a message to log in the ESP framework. You must include the `-s` option with this option. You cannot use this option with the `-f` option.

- The `-p <priority>` option specifies the priority (for example, `local0.notice`). Refer to the `syslog(3C)` man page for descriptions of the priority values. If you do not specify a priority value, `esplogger` sets the priority to `local0.info`. You must use this option with the `-s` option and the `-f` or `-m` option.
- The `-t <time>` option specifies the time that the event occurred. You must specify the time in seconds since 00:00:00 UTC on January 1, 1970 (in decimal notation). If you do not specify the time, `esplogger` defaults the time to the time that it received the event. You must use this option with the `-s` option and the `-f` or `-m` option.
- The `-h` option prints the usage information.
- The `-v` option prints the `esplogger` version number.

Note: You can also use `logger` to send event information through SYSLOG. Refer to the `logger(1)` man page for more information.

Example 1

```
esplogger -s 200356 -f availmon.dat
```

This example sets the sequence number to 200356, the priority to `local0.info` (1030), and the time to the time that `esplogger` received the event. Then, it passes this information and the data in the `availmon.dat` file to `eventmond`.

Example 2

```
esplogger -s 0x00200000 -p syslog.warning -m "Start SVP"
```

This example sets the sequence number to 0x00200000, the priority to `syslog.warning` (324), and the time to the time that `esplogger` received the event. Then, it passes this information and the message to `eventmond`.

Default Event Classes and Types

This chapter lists the default event classes and events that ESP includes.

Default Event Classes

The following output from the `espsconfig` command shows the default event classes that ESP includes:

```
system# espsconfig -list evclass
```

```
ClassId  Class description
-----  -
      1  "SCSI"
      2  "I/O"
      3  "Peripheral"
      4  "Power Supply"
      5  "Memory Parity"
      6  "Memory ECC"
      7  "System Error"
      8  "System Board"
      9  "NMI"
     10  "File System"
     11  "OS AS"
     12  "OS VM"
     13  "OS PROC"
     14  "OS PDA"
     15  "OS NUMA"
     16  "OS SYSCALL"
     17  "OS Memory"
     18  "Kernel Module"
     19  "Kernel XLV"
     20  "Kernel Clock"
     21  "Kernel Vnode"
     22  "Kernel Fork"
     23  "Kernel KMEM"
     24  "Kernel File System"
```

```
25 "Kernel Heap"
26 "Kernel Stream"
27 "Net Kernel IFSWITCH"
28 "Net Kernel PS"
29 "Net Kernel Routing"
30 "Net Kernel Internal"
31 "Network Driver FDDI"
32 "Network Driver Fast Enet"
33 "Network Driver GIO Enet"
34 "Network Driver VME Fast Enet"
35 "Network Driver VME FXP Enet"
36 "Network Driver VME GFE Enet"
37 "Network Driver GIO FDDI"
38 "Network Driver VME FDDI"
39 "Network Driver IP22/6/8 Token"
40 "Network Driver PCI Fast Enet"
41 "Network Driver Everest Enet"
42 "Network Driver MACE Fast Enet"
43 "Network Kernel IFNET"
44 "Network Kernel MBUF"
45 "Network Kernel INPCB"
46 "Network Kernel BSD Init"
47 "Kernel"
48 "User"
49 "Saudit"
50 "Kona Command"
51 "Kona Timeout"
52 "Kona Resource"
53 "Kona Validity"
54 "GFX Command"
55 "GFX Validity"
56 "Venice Timeout"
57 "Venice Resource"
58 "Venice Validity"
59 "MGRAS Resource"
60 "MGRAS Command"
61 "MGRAS Timeout"
62 "MGRAS Validity"
63 "Newport Timeout"
64 "Newport Command"
65 "Newport Validity"
67 "System Controller"
69 "Net Driver ATM OC3 Everest"
70 "Net Kernel ATM SVC"
71 "Net Driver ATM PCI Speedracer"
```

```

72 "Net Kernel ATM TCPIP"
73 "Net Kernel ATM ARP"
74 "Net Driver ATM Lego"
75 "RAS"
4000 "Availability"
4002 "System Configuration"
4003 "ESP Internal Events"
4004 "ESP Event Manager"
4005 "Diagnostic"
7001 "Irix"

```

Default Event Types

The following output from the `espcnfig` command shows the default event types that ESP includes:

```

system# espcnfig -list evtype
TypeId  Type description
-----  -
1  "SCSI ctrl init failed"
2  "SCSI command timed out"
3  "SCSI hard error"
4  "SCSI bus reset"
5  "SCSI ctrl h/w sram parity error"
6  "SCSI ctrl h/w sram parity error bank0"
7  "SCSI ctrl h/w sram parity error bank1 1"
8  "XIO bus error"
9  "Keyboard error"
10 "SCSI ctrl h/w sram parity error bank1 2"
11 "SCSI bus error"
12 "SCSI debug"
13 "SCSI target or bus error"
14 "PCI bridge error"
15 "GIO bridge error"
16 "Power fail detected 1"
17 "Parity error in SIMM 1"
18 "Parity error in SIMM 2"
19 "Panic parity error in SIMM 1"
20 "Fatal parity error in SIMM 1"
21 "Panic parity error in SIMM 2"
22 "Parity error in SIMM 3"
23 "Bus error 1"
24 "Bus error 2"

```

```
25 "Memory copy error src"
26 "Memory copy error dest"
27 "TOD battery 1"
28 "TOD battery 2"
29 "TOD battery 3"
30 "TOD battery 4"
31 "TOD battery 5"
32 "TOD battery load nvram info error"
33 "Power fail detected 2"
34 "Fatal memory parity error 2"
35 "Parity error in SIMM"
36 "TOD battery 6"
37 "TOD battery 7"
38 "TOD battery 8"
39 "TOD battery 9"
40 "TOD battery 10"
41 "Fatal memory ECC error"
42 "Bus error TCC"
43 "Bus error 5"
44 "Bus error 6"
45 "Bus error internal"
46 "Bus error exception on IDLE stack"
47 "Parity error in SIMM 4"
48 "NMI 1"
49 "Parity error in SIMM 5"
50 "TOD battery 11"
51 "TOD battery 12"
52 "TOD battery 13"
53 "TOD battery 14"
54 "TOD battery 15"
55 "Memory ECC soft error"
56 "Memory ECC hard error"
57 "Parity error in DIMM phy-1"
58 "Parity error in DIMM phy-2"
59 "Parity error in DIMM Bus-1"
60 "Parity error in DIMM Bus-2"
61 "NMI 2"
62 "NMI 3"
63 "TOD battery 16"
64 "TOD battery 17"
65 "TOD battery 18"
66 "TOD battery 19"
67 "TOD battery 20"
68 "Bus error 7"
69 "Cache error 1"
```

```
70 "Cache error 2"
71 "Cache error 3"
72 "Cache error 4"
73 "Cache error 5"
74 "Bus error 8"
75 "Bus error 9"
76 "efs root mount failed"
77 "Not enough filesystem quota structures"
78 "Bad magic number"
79 "Unexpected user/project ID"
80 "Disk block timer zero"
81 "inode zero"
82 "Re-init disk quota structure"
83 "fs too large for kernel type"
84 "Invalid node number"
85 "vnode not char/block device 1"
86 "Bad vnode found by console driver"
87 "vnode not char/block device 2"
88 "Unexpected PMAP type"
89 "Memory page not freed"
90 "Memory page not found"
91 "Page cache error"
92 "Swap cache error"
93 "Privilege memory pool error"
94 "Watch point stepover"
95 "Driver locking error 1"
96 "Driver locking error 2"
97 "Unknown driver routine"
98 "Cross processor interrupt 1"
99 "Cross processor interrupt 2"
100 "R10K spec dma error"
101 "Process fork error"
102 "NUMA service error 1"
103 "MLD set topology error"
104 "NUMA MLD error 1"
105 "NUMA MLD error 2"
106 "NUMA service error 2"
107 "Invalid vfault"
108 "Lpages conversion error"
109 "Freeing unaligned memory"
110 "Invalid virtual page"
111 "Cannot swap in K2SEG 1"
112 "Cannot swap in K2SEG 2"
113 "Cannot swap in K2SEG 3"
114 "Insufficient memory on node 1"
```

115 "Insufficient memory on node 2"
116 "Insufficient memory on node 3"
117 "R10K cannot allocate page 1"
118 "R10K cannot allocate page 2"
119 "R10K cannot allocate page 3"
120 "Poison page panic"
121 "Page allocation failed"
122 "Dequeue from free page list error 1"
123 "Dequeue from free page list error 2"
124 "Invalid page freeing error 1"
125 "Invalid page freeing error 2"
126 "Invalid page freeing error 3"
127 "VCE page allocation failed"
128 "Page already free"
129 "Duplicate virtual page number"
130 "Invalid cache operation"
131 "Memory allocation error for MFHI"
132 "Logical swap fail"
133 "Bad permissions"
134 "Mload missing kernname"
135 "XLV no failover 1"
136 "XLV unable to open"
137 "XLV no failover 2"
138 "Table Overflow"
139 "Vnode pass through not init'd 1"
140 "Vnode on free list 1"
141 "Negative vnode count 1"
142 "Fork failed"
143 "No heap zone"
144 "No zone index"
145 "Buffer overlap"
146 "Invalid Size 1"
147 "Null pointer 1"
148 "Null size 1"
149 "Use count wrong"
150 "Pointer already free 1"
151 "Bad pointer"
152 "Pointer already free 2"
153 "Invalid Size 2"
154 "Null pointer 2"
155 "Null size 2"
156 "Cannot allocate qband 1"
157 "Cannot allocate qband 2"
158 "Cannot allocate space for mux_node"
159 "Unknown event"

160 "Cannot allocate memory for mux_edge 1"
161 "Cannot allocate memory for mux_edge 2"
162 "Cannot allocate qband 3"
163 "Cannot allocate stream event 1"
164 "Cannot allocate stream event 2"
165 "Message out of order"
166 "hwgraph no vertex"
167 "Bad service"
168 "Invalid service"
169 "Memory leak warning 1"
170 "Address out of range"
171 "No memory for net proc 1"
172 "CPU not used"
173 "No memory for net proc 2"
174 "Kmemory allocation error"
175 "Memory leak warning 2"
176 "Receive port error"
177 "Environmental redundancy lost"
178 "Unsupported address"
179 "MAC programming error"
180 "Stray interrupt"
181 "FDDI bad interrupt status"
182 "CAMEL NP error"
183 "Bad hwgraph vhandle"
184 "Bad unit number"
185 "No memory for frame filter"
186 "NOMEM too many devices"
187 "hwgraph dev addr error"
188 "No memory 1"
189 "No memory 2"
190 "Memory alignment error"
191 "No memory 3"
192 "ISR installation error"
193 "Hwgraph no device vhandle"
194 "Interrupt adapter check status"
195 "Statistics overflow"
196 "Need more rxds"
197 "No board found"
198 "10MB physical memory only"
199 "No enet carrier 1"
200 "Full duplex unsupported"
201 "Auto negation failed"
202 "No enet carrier 2"
203 "Netlink restored"
204 "Remote fault"

205 "Jabber detected"
206 "hwgraph no vertex"
207 "Kmemory allocation error"
208 "Memory fail to st big endian"
209 "Interrupt setup failed"
210 "hwgraph no vertex info"
211 "No enet carrier"
212 "Assertion routine"
213 "No DMA space"
214 "No VME space"
215 "DMA error"
216 "About to die 1"
217 "Board not detected"
218 "About to die 2"
219 "Remote fault"
220 "Jabber detected"
221 "Link OK 1"
222 "Link down"
223 "Memory base addr missing 1"
224 "Memory base addr missing 2"
225 "Remote fault"
226 "Jabber detected"
227 "Link down"
228 "Link OK 2"
229 "Channel overrun"
230 "Memory allocation fail for frame filter 1"
231 "Cannot lock mutex IFNET"
232 "Unknow line state"
233 "Membuf has MT_FREE 1"
234 "Membuf has MT_FREE 2"
235 "Membuf has MT_FREE 3"
236 "DMA corruption"
237 "Bad blen"
238 "Bad membuf chain 1"
239 "Bad membuf chain 2"
240 "ifnet driver re-ntered"
241 "Memory allocation fail for frame filter 2"
242 "Assertion"
243 "Memory allocation fail"
244 "Hwgraph cannot add vertex"
245 "Memory allocation failure"
246 "Shared memory null PIO map"
247 "ioctl reset failure"
248 "Memory allocation failure PGS for geninfo"
249 "PCI IO DMA map allocation failed"

```
250 "ioctl cannot get MAC addr"
251 "hwgraph missing controller vertex"
252 "Firmware missing"
253 "Memory failed to allocate >2 RRBS"
254 "ioctl event error"
255 "ioctl unimplemented command"
256 "ioctl unknown event"
257 "Link up"
258 "Link down"
259 "Firmware init fail"
260 "Firmware init error"
261 "Hwgraph could not create net vertex"
262 "Board not in master slot"
263 "Kernel rebuild needed 1"
264 "Board not in master IO4"
265 "Kernel rebuild needed 2"
266 "Adapter number in use"
267 "Adapter not configured"
268 "Bad enet address"
269 "Cannot set interrupt vector"
270 "Invalid enet address 2"
271 "Probe failed to find device"
272 "RX error, FIFO overflow"
273 "TX link failed"
274 "TX memory error"
275 "Jabber detected"
276 "Remote fault"
277 "Memory allocation failure for multicast"
278 "Memory request with incorrect size"
279 "Socket unlocked"
280 "Socket zone init failed"
281 "Exception count on exit"
282 "Swap block error"
283 "Tile cache dirty"
284 "Low on kernel memory"
285 "No thread"
286 "MFREE map overflow"
287 "Bad free size for bitmap 1"
288 "Bad free size for bitmap 2"
289 "Bitmap overflow"
290 "No free slot for rmap log"
291 "Bad device"
292 "No interactive reboot"
293 "No standalone exec"
294 "mload no ksyms"
```

```
295 "mload bootp kernal"
296 "mload registration fail"
297 "mload dynamic load module failed"
298 "mload dynamic attach module failed"
299 "mload no symbol table"
300 "Object file not ELF format"
301 "mload object unreadable"
302 "mload driver init failed"
303 "mload stropen failed"
304 "mload strload failed"
305 "mload strload not ELF format"
306 "mload strload unreadable"
307 "mload strload init failed"
308 "mload unload failed"
309 "mload strstub no queue 1"
310 "mload strstub no symbol table"
311 "mload strstub not ELF format"
312 "mload strstub unreadable"
313 "mload strstub init failed"
314 "mload strstub no queue 2"
315 "Probe DMA failed"
316 "SCHED hits bad color"
317 "Callouts allocation failed"
318 "vnode set EATTR failed"
319 "kmem zone too small"
320 "Select device no setting"
321 "PD flush error nfs3"
322 "chunkcommit bad vop"
323 "Auto power down in 30 seconds"
324 "Auto power down in 25 seconds"
325 "Auto power down in 20 seconds"
326 "Auto power down in 15 seconds"
327 "Auto power down in 10 seconds"
328 "Auto power down in 5 seconds"
329 "Fan 1 warning limit reached"
330 "Fan 2 warning limit reached"
331 "Fan 3 warning limit reached"
332 "Fan 1 fault limit reached"
333 "Fan 2 fault limit reached"
334 "Fan 3 fault limit reached"
335 "Fan 1 RPM stabilized"
336 "Fan 2 RPM stabilized"
337 "Fan 3 RPM stabilized"
338 "Environment redundancy lost"
340 "Customer information is updated"
```

```
343 "Power high fault limit reached"
344 "Power low fault limit reached"
345 "Power high warning limit reached"
346 "Power low warning limit reached"
347 "Fan fault limit reached"
348 "Fan warning limit reached"
349 "Temperature fault limit reached"
350 "Temperature critical limit reached"
351 "Temperature advisory limit reached"
352 "Power level stabilized"
353 "Fan speed stabilized"
354 "Temperature stabilized"
355 "Auto power down interrupted"
356 "Auto power down completed"
357 "Environment monitor test - fault condition - this is a test"
358 "Environment monitor test - warning condition - this is a test"
359 "secondary Cache SBE"
396 "Cached remote partition Poison Access Violation"
397 "Cached partition page Poison Access Violation"
398 "Cached read Poison Access Violation"
399 "Cached remote partition Excessive NACKs"
400 "Cached partition page Excessive NACKs"
401 "Cached read Excessive NACKs"
402 "Cached remote partition Response Data Error"
403 "Cached partition page Response Data Error"
404 "Cached read Response Data Error"
405 "Cached remote partition Packet Length Error"
406 "Cached partition page Packet Length Error"
407 "Cached read Packet Length Error"
1752 "R4K badaddr for K2 impacting performance"
1753 "Process killed [errno]"
1754 "Process killed [limit exceeded]"
1755 "Process killed [lock stack]"
1756 "Process killed [grow stack]"
1757 "Process trapped [but signal held or ignored]"
1758 "R4K badaddr for K0 impacting performance"
1759 "Tlbmiss 1 [invalid badaddr]"
1760 "R4K badaddr for K2 wired impacting performance"
1761 "R4K badaddr for K2 impacting kern performance"
1762 "Tlbmiss 2 [invalid badaddr]"
1763 "Tlbmiss User [invalid badaddr]"
1764 "Too many BADVA"
1765 "Process referenced bad addr"
1766 "Unknown branch instruction"
1770 "Sat_pn_start with existing sat_pn"
```

```
1771 "Sat_pn_start without existing sat_pn"
1772 "Allocated more memory than cleared"
1773 "Root device not available"
1774 "Bad prom swap"
1775 "Could not allocate nbufs"
1776 "Reconfigure nbufs and reboot"
1777 "Frame scheduler [invalid recovery mode]"
1778 "Frame scheduler [invalid intr source fire]"
1779 "Frame scheduler [invalid intr source reset]"
1780 "Frame scheduler [invalid attr]"
1788 "Could not allocate job for proc 0"
1789 "Biophysio Failed userdma"
1790 "Invalid information label add"
1791 "Invalid label add"
1792 "Preemption with no valid rsa"
1793 "Runnable == 2 no rsa 1"
1794 "Runnable == 2 no rsa 2"
1795 "Illegal request to yield"
1796 "Rbid set for nid but no rsa"
1797 "Dyield nid bad rsa"
1798 "Illegal dyield call"
1799 "Table inconsistent with relocation entries 1"
1800 "Table inconsistent with relocation entries 2"
1801 "Symbol not found"
1802 "Paging daemon not running"
1803 "Swap allocation overflow"
1804 "Memory deadlock with no one to kill"
1805 "Process killed due to insufficient memory"
2100 "ARM interrupt error"
2101 "GE interrupt error"
2102 "FIFO timeout"
2103 "Swapbuffer timeout 1"
2104 "Retrace event timeout"
2105 "Swapbuffer timeout 2"
2106 "Illegal hardware configuration"
2107 "XG error 1"
2108 "XG error 2"
2109 "Memory timeout"
2110 "Textport timeout"
2111 "XG error 3"
2112 "TBUS/ARM error"
2113 "Unrecognized command"
2114 "Graphics error"
2115 "Checkpipe timeout"
2116 "DMA overflow 1"
```

2117 "XG RAM parity error"
2118 "XG RAM invalid error"
2119 "XG bus parity error"
2120 "DMA overflow 2"
2121 "Mopup timeout"
2122 "DMA timeout"
2123 "Selectfeed timeout"
2124 "I/O space exhausted"
2125 "Context deactivation timeout"
2126 "Process attempting IrisGL and OpenGL at the same time 1"
2127 "Process attempting IrisGL and OpenGL at the same time 2"
2128 "Unrecognized command"
2129 "Lost clip id 1"
2130 "Lost clip id 2"
2131 "Lost clip id 3"
2132 "Process not bound to rn"
2692 "Swapbuffer timeout"
2693 "Retrace event timeout"
2694 "Board manager failed to flush FIFO"
2695 "FCG error"
2696 "FIFO overflow"
2697 "Unrecognized interrupt"
2698 "FIFO timeout"
2699 "Deactivation timeout"
2700 "DMA timeout"
2701 "Pickfeed timeout"
2702 "Vcstage timeout"
2703 "Hardware incompatibility 1"
2704 "Hardware incompatibility 2"
2705 "Illegal hardware configuration RM4 1"
2706 "Illegal hardware configuration RM4 2"
2707 "Illegal hardware configuration illegal VTX config"
2708 "Illegal hardware configuration invalid VME adapter"
2709 "Illegal hardware configuration no map VME adapter"
2710 "Illegal hardware configuration check DVI cable connection"
2711 "Write to DG2 EEPROM failed"
2712 "DG EEPROM contents invalid"
2713 "Resource exhausted"
2714 "Context switch error 1"
2715 "Context switch error 2"
2716 "Context switch timeout"
2717 "Unrecognized command"
2718 "Graphics error"
2719 "Idle wait timeout"
2720 "FIFO timeout"

2721 "Texture I/O DMA timeout 1"
2722 "Texture I/O DMA timeout 2"
2723 "Texture DMA error 1"
2724 "HQ4 context switch error"
2725 "HQ4 FIFO overflow"
2726 "HQ4 ucode error"
2727 "HQ4 DMA address range error"
2728 "HQ4 FIFO privilege violation"
2729 "HQ4 stack overflow"
2730 "HQ3 FIFO overflow"
2731 "HQ3 FIFO timeout"
2732 "FIFO error"
2733 "HQ3 ucode error"
2734 "HQ3 DMA address range error"
2735 "HQ3 FIFO privilege violation"
2736 "HQ3 stack overflow"
2737 "Bad TRAM configuration 1"
2738 "Bad TRAM configuration 2"
2739 "Bad SRAM 1"
2740 "Bad SRAM 2"
2741 "Texture DMA error 2"
2742 "Video texture DMA timeout"
2743 "DMA boundary exceeded"
2744 "DMA locking enabled"
2745 "Swapbuffer timeout"
2746 "Pixel DMA timeout 1"
2747 "Pixel DMA timeout 2"
2748 "Unrecognized flat panel display 1"
2749 "Unrecognized flat panel display 2"
2750 "FIFO timeout"
2751 "DMA error"
2836 "Cannot bring up board"
2837 "Timeout reached - wait HCA"
2838 "Memory cannot post small buffs"
2839 "Memory cannot post medium buffs"
2840 "Memory cannot post large buffs"
2841 "ATM init had duplicate unit ID"
2842 "Cannot kmem_zalloc"
2843 "Cannot kvpalloc HCA area"
2844 "Cannot kvpalloc CMDQ"
2845 "Cannot kvpalloc B2H"
2846 "Cannot allocate stats area"
2847 "dang_intr_conn failed"
2848 "H/W graph no vertex for io4vhdl"
2849 "H/W graph cannot create vertex"

2850 "Unknown input buffer"
2851 "Cannot clear int bit"
2852 "Board seen stray interrupt"
2853 "xcmd ne b2h cqcmd"
2854 "Max b2h cqcmd"
2855 "Cannot destroy fwd vcte 1"
2856 "Cannot destroy rvc vcte"
2857 "xcmd xmit result warning"
2858 "Cannot destroy fwd vcte 2"
2859 "s2d register response failed for IP"
2860 "Memory TXMT overflow 1"
2861 "Memory TXMT overflow on TSR 1"
2862 "Memory TXMT overflow 2"
2863 "Memory TXMT overflow on TSR 2"
2864 "kmem zalloc error"
2865 "ARP request but not server"
2866 "AAOP ARP request error - ARP table full"
2867 "ARP reply error - ARP table full"
2868 "ARP reply but not server"
2869 "AAOP ARP reply error - ARP table full"
2870 "Cannot find IFATM info"
2871 "kmem zalloc error"
2872 "Booting bit not cleared"
2873 "LINC LCSR boot error"
2874 "scmd init no response"
2875 "scmd init failed self test"
2876 "scmd init failed"
2877 "H/W graph cannot get vertex"
2878 "H/W graph cannot create vhdl"
2879 "H/W graph cannot add to xtalk vertex"
2880 "H/W graph cannot create device vertex"
2881 "H/W graph cannot add device vertex"
2882 "H/W graph cannot get device vertex"
2883 "H/W graph cannot create device vertex for port"
2884 "scmd timed out"
2885 "Cannot destroy zombie fwd vcte"
2886 "Unknown b2h type"
2887 "Cannot destroy fwd vcte"
2888 "Cannot destroy rvs vcte 1"
2889 "Cannot destroy rvs vcte 2"
2890 "No unit number"
2891 "H/W graph ioctl cannot create vhdl 1"
2892 "H/W graph ioctl cannot create vhdl 2"
2893 "Ecname error mode at PCI address"
2894 "Debug quadoc3 flash req cmd"

2895 "Could not locate DMA descriptor"
2900 "Number of consecutive exceptions exceeded limit"
2901 "Exception while saving hardware state"
2902 "Exception during show hardware state"
2903 "Exception during FRU analysis"
2904 "Invalid uncached attribute phy address"
2905 "Data bus error on unknown address, retrying"
2906 "Unsupported cache algorithm"
2907 "Process killed, access to page with error"
2908 "User/Kernel Data/Instr Bus error"
2909 "Access to non-existent memory address"
2910 "No write privileges to memory address"
2911 "No read privileges to memory address"
2912 "Write error exception on migrating page"
2913 "Unrecoverable VM migration error"
2914 "Page with memory/directory error could not be discarded 1"
2915 "Write error on poisoned page"
2916 "No spool info on HSPEC buserr"
2917 "Lost Spool info on HPEC buserr"
2918 "error on HSPEC access 0"
2919 "error on HSPEC access 1"
2920 "No spool info on MSPEC [0] buserr"
2921 "Lost spool info on MSPEC buserr"
2922 "error on MSPEC access 0"
2923 "error on MSPEC access 1"
2924 "UCE interrupt on PIO access"
2925 "Lost spool info on IO buserr"
2926 "Uncorrectable error on uncached memory access, physical address"
2927 "uncached remote partition access error"
2928 "Page with memory/directory error could not be discarded 2"
2929 "uncached partition page access error"
2930 "No spool info on uncached buserr at paddr"
2931 "Lost spool info on uncached buserr"
2932 "Uncached read access timed out, physical address"
2933 "uncached remote partition timeout error"
2934 "uncached partition page timeout error"
2935 "Uncached remote partition access error, physical address"
2936 "Uncached memory access error, cause unknown"
2937 "Uncached access error, bad error type"
2938 "Lost spool info on cached buserr"
2939 "Region not populated"
2940 "Cached remote partition access error"
2941 "Could not get instruction type. assuming store instruction"
2942 "Trying to recover from ibus error"
2943 "NACK error on local partition addr"

2944 "Unrecoverable bus error exception"
2945 "Mem info Hi / Lo entry addresses"
2946 "Mem info premium/standard dir entry"
2947 "elo"
2948 "dir entry IO owned"
2949 "Cached remote partition time out error"
2950 "Cached partition page time out error"
2951 "Cached read access. Time out error"
2952 "Cached read access. Directory error"
2953 "Cached remote partition directory error"
2954 "Page with memory/directory error could not be discarded 3"
2955 "Cached partition page directory error"
2956 "Cached read access. Bad error type"
2957 "Partition error handler not registered"
2958 "T5 writeback surprise. WAR done"
2959 "T5 writeback surprise. War failed"
2960 "Cache Error 0"
2961 "Cache Error 1"
2962 "Cache Error 2"
2963 "Cache Error 3"
2964 "Interface Error. Suspect MEMORY BANK"
2965 "Recovered from memory error by discarding the page"
2966 "Unrecoverable Interface error. Suspect memory address"
2967 "CPU isolated after recovered cache error"
2968 "CPU isolation failed"
2969 "CPU Error"
2970 "CPU paddr"
2971 "CPU Tag State"
2972 "CPU Cache Error recoverd by invalidating line"
2973 "Cache Error on CPU"
2974 "Recovered by killing process"
2975 "Cache Error recovery failed"
2097152 "Live event"
2097153 "System ID change"
2097154 "Power cycle"
2097155 "System reset"
2097156 "NMI"
2097157 "Panic S/W"
2097158 "Status report"
2097159 "Software error"
2097160 "Hardware error"
2097161 "No error"
2097162 "Registration"
2097163 "Deregistration"
2097164 "Power failure"

```
2097165 "System off"
2097166 "Interrupt"
2097167 "Panic H/W"
2097168 "Panic"
2097169 "Controlled shutdown unknown"
2097170 "Controlled shutdown timeout"
2097171 "Controlled shutdown 1 unknown"
2097182 "Controlled shutdown 1"
2097183 "Controlled shutdown 2"
2097184 "Controlled shutdown 3"
2097185 "Controlled shutdown 4"
2097186 "Controlled shutdown 5"
2097187 "Controlled shutdown 6"
2097190 "Singleuser shutdown unknown"
2097191 "Singleuser shutdown 1 unknown"
2097192 "Singleuser shutdown 1"
2097193 "Singleuser shutdown 2"
2097194 "Singleuser shutdown 3"
2097195 "Singleuser shutdown 4"
2097196 "Singleuser shutdown 5"
2097197 "Singleuser shutdown 6"
2097408 "Configmon init"
2097409 "Sysinfo changed"
2097410 "Hardware installed"
2097411 "Harwdare de-installed"
2097412 "Software installed"
2097413 "Software de-installed"
2097414 "System change"
2097415 "Configuration Error"
2097416 "ESP Registered"
2097417 "ESP Deregistered"
2097424 "EventMon Started"
2097425 "EventMon Stopped"
2097426 "Eventmon invalid CPU command"
2097427 "Eventmon invalid FPE command"
2097428 "Eventmon mutex initialization failure"
2097429 "Eventmon thread init error"
2097430 "Eventmon no input buffers"
2097431 "Eventmon can't find string"
2097432 "Eventmon too many strings"
2097433 "Eventmon database table empty"
2097434 "Eventmon condition variable failure"
2097435 "Eventmon fatal API error"
2097436 "Eventmon Non fatal API Error"
2097437 "Eventmon cannot open amticker timestamp file"
```

```
2097438 "Eventmon database init failure"
2097439 "Eventmon database library load failure"
2097440 "esphttpd started"
2097441 "esphttpd stopped"
2097442 "esphttpd invalid CPU command"
2097443 "esphttpd invalid FPE"
2097444 "esphttpd mutex initialization failure"
2097445 "esphttpd thread error"
2097446 "esphttpd condition variable failure"
2097447 "esphttpd thread allocation error"
2097448 "esphttpd socket bind error"
2097449 "esphttpd socket listen error"
2097450 "esphttpd missing library"
2097451 "esphttpd resource path error"
2097452 "esphttpd resource path error 1"
2097453 "esphttpd resource path error 2"
2097454 "esphttpd invalid port number"
2097455 "esphttpd database init error"
2097456 "esphttpd IP load error"
2097457 "esphttpd username error"
2097458 "esphttpd password error"
2097459 "esphttpd database connection failed"
2097460 "Eventmon cannot write amticker timestamp file"
2097461 "Eventmon cannot find amdiag file"
2097920 "Configuration Event"
2097921 "Error Event"
2098176 "Diagnostic start"
2098177 "Diagnostic interrupted"
2098178 "Diagnostic end"
2098179 "Stress start"
2098180 "Stress end"
2098181 "SVP start"
2098182 "SVP end"
2098183 "SVP interrupted"
2098184 "Stress interrupted"
4194304 "vacation / no such user uid *"
4194305 "vacation / no such user *"
4194306 "vacation / can't exec *"
4194307 "inetd / * server failing looping, service terminated"
4194308 "mount_hfs / file system corrupted *"
4194309 "mount_hfs / HFS filesystem read error, block [0-9]*: *"
4194310 "mount_hfs / HFS filesystem write error, block [0-9]*: *"
4194313 "satd / Satd recovery failure! System will probably hang soon."
4194314 "satd / all output paths full -- system shutdown in 10 seconds!"
4194315 "rexd / Out of ptys: *"
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4194320 "unix / *no carrier: *"
4194321 "unix / ec[0-9]*: late collision"
4194322 "unix / ec[0-9]*: only 10Mbit on-chip PHY was found!"
4194323 "unix / ec[0-9]*: auto-negotiation timeout!"
4194324 "unix / ec[0-9]*: auto-negotiation fail!"
4194325 "unix / ec[0-9]*: can't allocate space for receive descriptors"
4194326 "unix / ec[0-9]*: can't allocate space for transmit descriptors"
4194327 "unix / ef[0-9]*: link fail - check ethernet cable"
4194328 "unix / ec[0-9]*: could not set interrupt vector"
4194329 "unix / ec[0-9]*: phy device not found, probe failed"
4194330 "unix / ec[0-9]*: RX error, data FIFO overflow"
4194331 "unix / ec[0-9]*: TX memory read error"
4194332 "unix / inode %d: illegal mode %o"
4194333 "unix / Incore quota table overflow. lboot 1M with larger value for NDQUOT"
4194334 "unix / reclaim_locks: invalid NLM version: [0-9]*"
4194335 "unix / XFS: error reading log block *"
4194336 "unix / XFS: error writing log block *"
4194337 "unix / xfs_log_recover: unknown buffer type *"
4194338 "unix / XFS: xlog_recover_do_buffer_trans: bread error *"
4194339 "unix / XFS: xlog_recover_do_inode_trans: bread error *"
4194340 "unix / SCSI controller [0-9]* initialization failed."
4194341 "unix / SCSI command on [0-9]*,[0-9]* timed out after [0-9]* secs."
4194342 "unix / unix: SCSI overflow or underflow on *"
4194343 "unix / SCSI hard error on [0-9]*,[0-9]*."
4194344 "unix / SCSI CDROM at [0-9]*,[0-9]* failed."
4194345 "unix / SCSI bus reset on controller [0-9]*."
4194346 "unix / SCSI command * for [0-9]*,[0-9]* rejected because its too large, increase
maxdmasz."
4194347 "unix / SCSI disconnection must be enabled in order for tag-queueing to work
[0-9]*,[0-9]*."
4194348 "unix / ALERT: SCSI controller [0-9]* detected internal error."
4194349 "unix / ALERT: SCSI controller [0-9]* detected parity error."
4194350 "unix / ALERT: SCSI controller [0-9]* detected unexpected bus free."
4194351 "unix / ALERT: SCSI controller [0-9]* detected parity error."
4194352 "unix / ALERT: SCSI controller [0-9]* detected bus reset by external device."
4194353 "unix / ALERT: SCSI controller [0-9]* detected pci error *."
4194355 "unix / out of IOC3 config structs"
4194356 "unix / attempt to disconnect non-existent IOC3 at *"
4194357 "unix / plp: init failed, out of memory for eclpl driver."
4194358 "unix / plp: context IRQ out of order"
4194359 "unix / plp: memory error occurred during a DMA transaction."
4194360 "unix / plp: free context out of order"
4194361 "unix / SCSI tape * requires cleaning"
4194363 "unix / SCSI tape * Unrecoverable media error"
4194365 "unix / SCSI tape * Hardware error, Non-recoverable"
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4194366 "unix / SCSI tape * Uncorrectable media error"
4194367 "unix / * BIST Timed Out 3 seconds - slot [0-9]*"
4194368 "unix / * BIST Fails - slot [0-9]*, Code *"
4194372 "unix / Integral SCSI bus * reset"
4194373 "unix / * SCSI Bus=[0-9]* ID=[0-9]* LUN=[0-9]*: SCSI cmd=0x[0-9]* timeout after
[0-9]* sec *"
4194374 "unix / Process [0-9]* * sent SIGBUS due to Memory Error in SIMM *"
4194375 "unix / Process [0-9]* * sent SIGBUS due to Bus Error"
4194377 "unix / Environment segment invalid! Unable to zero FLASH RAM"
4194378 "unix / Environment segment invalid! Unable to program FLASH RAM"
4194379 "unix / IO4 NVRAM/time-of-day chip reports invalid RAM or time*"
4194380 "unix / rtodc: preposterous time in tod chip:*"
4194381 "unix / vhand runing low on swap handle lists, only [0-9]* left"
4194382 "unix / Swap out failed on logical swap [0-9]* blkno * for process [ vhand ]"
4194383 "unix / Failed to add swap file * error [0-9]*"
4194384 "unix / * - out of logical swap space during *"
4194385 "unix / Read error in swap for pid [0-9]* - process cannot be run again unless this
is corrected"
4194386 "unix / Read error in swap kstack ext for pid [0-9]* - process cannot be run again
unless this is corrected"
4194387 "unix / Paging Daemon vhand not running. NFS server down?"
4194388 "unix / Swap allocation overflow?"
4194389 "unix / Memory Deadlock with no one to kill!"
4194390 "unix / Process * pid [0-9]* killed due to insufficient memory/swap."
4194391 "unix / Swap * failed on logical swap [0-9]* blkno 0x* for process *"
4194392 "unix / Process * pid [0-9]* killed due to bad page read"
4194393 "unix / Process * pid [0-9]* killed due to no more swap space"
4194394 "unix / ALERT: Process * generated trap, but has signal [0-9]* held or ignored"
4194395 "unix / Process * pid [0-9]* killed: process or stack limit exceeded"
4194396 "unix / Process * pid [0-9]* killed: not enough memory to lock stack"
4194397 "unix / Process * pid [0-9]* killed: not enough memory to grow stack"
4194398 "unix / Process * pid [0-9]* killed*"
4194399 "unix / Ancestor inode [0-9]* is not a directory"
4194400 "unix / Process * ran out of contiguous space"
4194401 "unix / * Process * ran out of disk space"
4194402 "unix / XFS write error in file system meta-data block [0-9]*"
4194403 "unix / XFS read error in file system meta-data block [0-9]*"
4194404 "fam / can't open /dev/imon"
4194405 "fam / imon event queue overflow"
4194406 "mediad / The file system on device: * cannot be mounted"
4194407 "mediad / * sector size of [0-9]* too large for HFS"
4194408 "mediad / can't read sector [0-9]* of device *"
4194409 "mediad / can't open CD-ROM * I/O error"
4194410 "mediad / couldn't find DSO for device at SCSI ctrlr *"
4194411 "unix / dks*: [Alert] *"
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4194412 "unix / NOTICE: SCSI tape #* Incompatible media when reading"
4194413 "unix / ALERT: SCSI tape #* Excessive write errors"
4194414 "unix / NOTICE: SCSI tape #0,3 Incompatible media in drive, may be blank tape or
wrong tape type"
4194415 "unix / ALERT: arp: host with MAC address * is using my IP address *"
4194416 "unix / ALERT: arp: host with MAC address * is still using my IP address *"
4194417 "unix / Process [0-9]* * sent SIGBUS due to Memory Error in SIMM *"
4194418 "unix / Nonrecoverable memory parity error detected *"
4194420 "unix / * ECC Error in * side of .IMM Slot [0-9]**"
4194421 "unix / Wacom failed init * No tablet*"
4194422 "imdmonitor / il8n*"
4194423 "unix / crime: unknown ioctl *"
4194424 "unix / crimeError: resetting graphics from *"
4194425 "unix / wid [0-9]* already swapping buffers"
4194426 "unix / NFS server: increase svc_maxdupregs from [0-9]*"
4194427 "unix / * Directory [0-9]* is corrupted *"
4194428 "unix / Filesystem on device may be corrupted: unmount and fsck it."
4194429 "unix / * mtr*: POLLING_SIFINT:"
4194430 "unix / * mtr*: mtr_output*"
4194431 "unix / * mtr*: mtr_watchdog*"
4194432 "unix / * mtr*: SIOC*MULTI: srb_used:*"
4194433 "unix / * mtr*: no memory or io base register!"
4194434 "unix / * mtr*: SIFINT_ADAPTER_CHECK*"
4194435 "unix / * mtr*: SIOC_TR_RESTART failed:*"
4194436 "unix / * mtr*: failed to allocate memory for TX & RX: kvpalloc*"
4194437 "unix / * mtr*: possible lockup:*"
4194438 "unix / * mtr*: SIOCSIFADDR AF_RAW failed"
4194439 "unix / * mtr*: bad EDT ctlr entry."
4194440 "unix / * mtr*: could not allocate pio map."
4194441 "unix / * mtr*: kmem_zalloc failed*"
4194442 "unix / * mtr*: unable to allocate buff memory: *"
4194443 "unix / *corrupt *inode*in filesystem*Unmount and run xfs_repair."
4194444 "unix / *filesystem is corrupt, unmount and run xfs_repair"
4194445 "unix / *Corruption of in-memory data detected. Shutting down filesystem*"
4194446 "unix / *Superblock write error detected while unmounting filesystem * Filesystem
may not be marked shared readonly"
4194447 "unix / *I/O Error Detected. Shutting down filesystem:*"
4194448 "unix / *I/O error in filesystem * meta-data dev * block *"
4194449 "unix / Please amount the filesystem, and rectify the problem*"
4194450 "unix / xfs_iflush: *ad *inode *"
4194451 "unix / xfs_iflush: detected corrupt incore inode *"
4194452 "unix / Client * Access denied"
4194453 "unix / Client * could not setup new client"
4194454 "unix / Out of memory allocating common client info"
4194455 "unix / Could not create * semaphore for io q"
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4194456 "unix / Could not start * thread *"
4194457 "unix / Cannot initialize * client * list semaphore: *"
4194458 "unix / No space for client *"
4194459 "unix / No memory to register protocol *"
4194460 "unix / Cannot lock process in memory *"
4194461 "midisynth / *audio interface set failed*"
4194462 "midisynth / *unable to open audio out port*"
4194463 "midisynth / *unable to set output port rate or clock type*"
4194464 "midisynth / *unable to create internal MIDI device*"
4194465 "midisynth / *unable to set up IPC pipe*"
4194466 "midisynth / *resource temporarily unavailable*"
4194467 "midisynth / *initial preset load error*"
4194468 "unix / * MAINT-NEEDED*"
4194469 "unix / * SYS-DEGRADED*"
4194470 "unix / * CONFIG-ISSUE*"
4194471 "unix / * TOOK-ACTION*"
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