

Embedded Support Partner User Guide

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What's New in this Document

Revision 009 makes the following changes to this document:

- It adds information about the version of ESP 3.0 that runs under the IRIX operating system.
- It updates the document to include changes from the IRIX 6.5.23 and SGI ProPack 2.4 releases.
- It updates the descriptions of the Web-based interface throughout the document.
- It incorporates miscellaneous technical and editorial changes throughout the document.

This revision supports the IRIX and Linux operating system versions of ESP 3.0 that are included in the IRIX 6.5.23 and SGI ProPack 2.4 releases, respectively.

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.

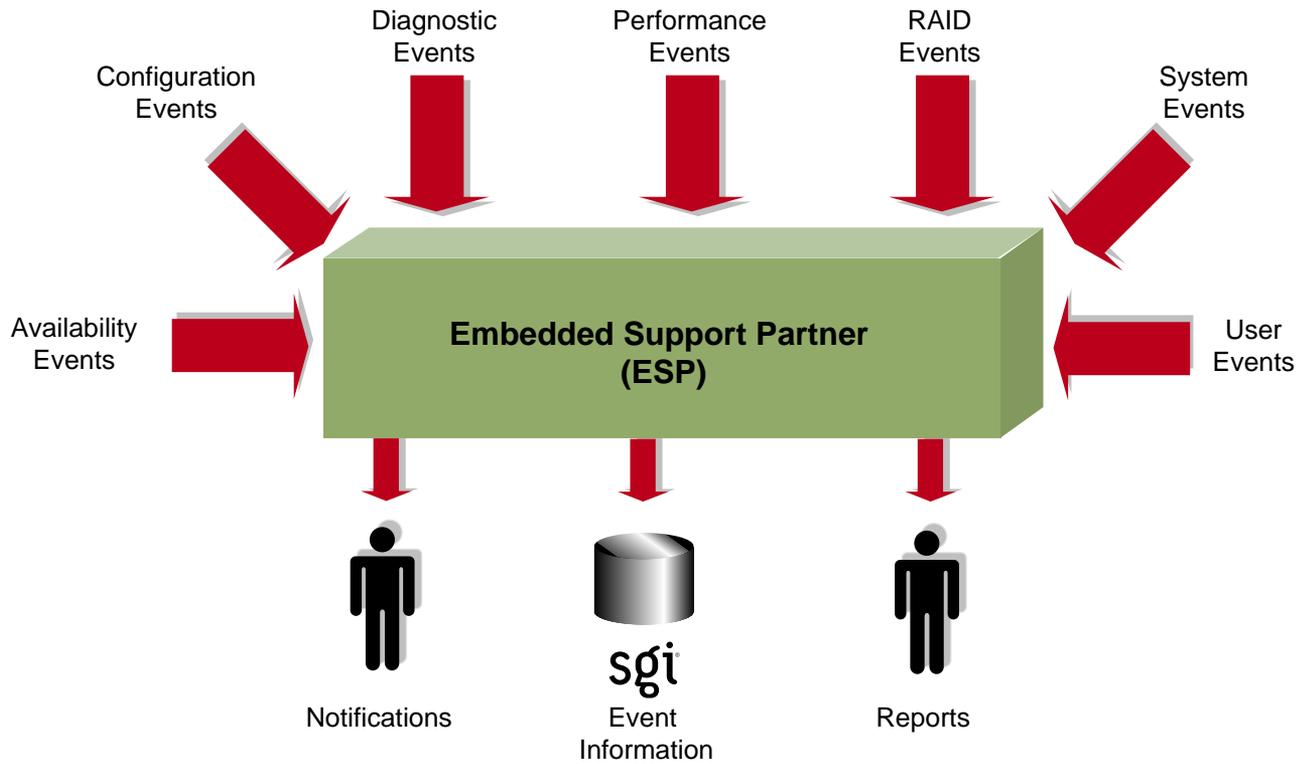


Figure 1-1 ESP Functional Diagram

This document describes ESP 3.0, which began shipping in SGI ProPack 2.3 and IRIX 6.5.23.

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 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

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 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.

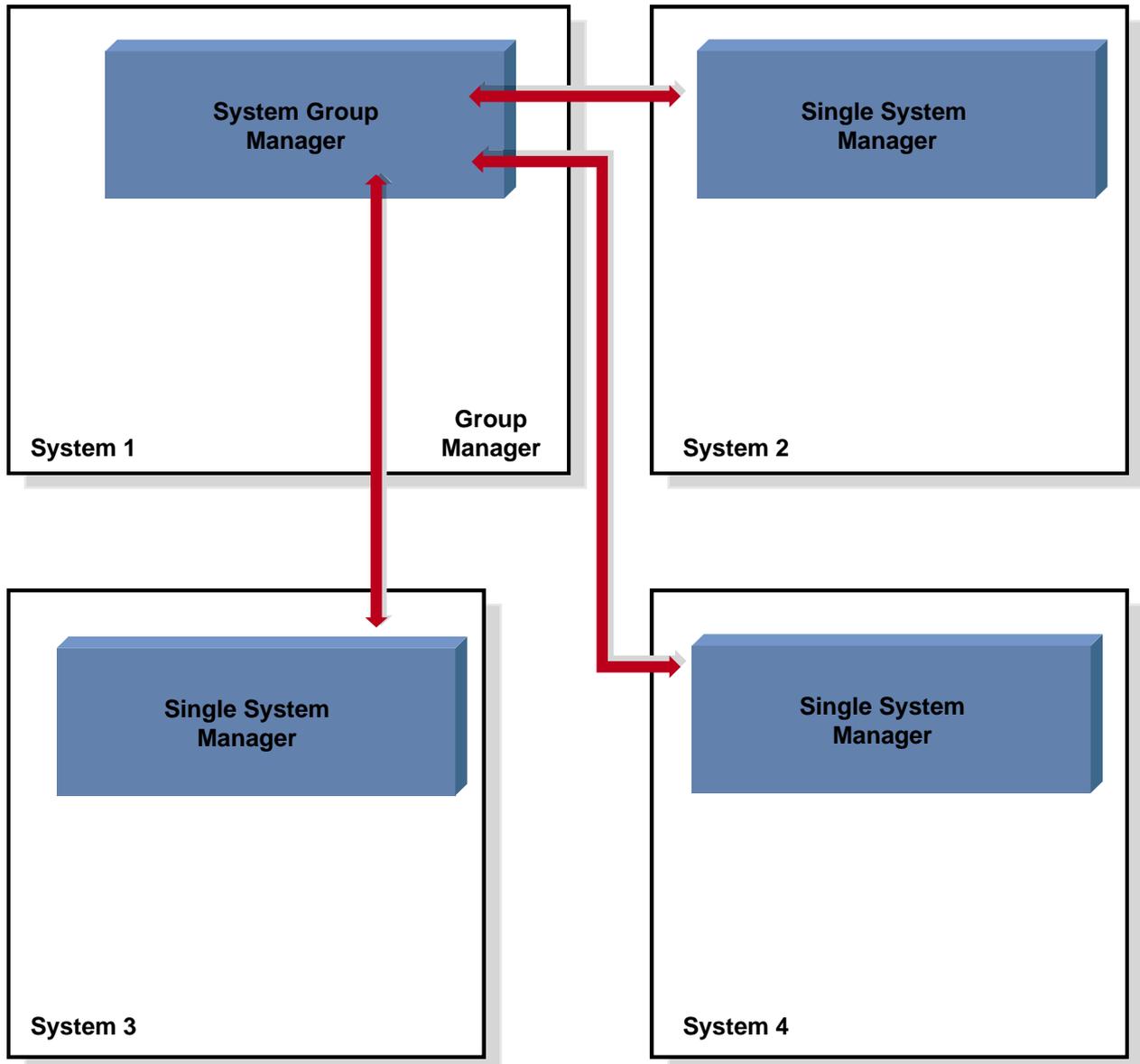


Figure 1-2 System Group Management Block Diagram

ESP 3.0 adds enhanced group management functionality in the extended package, including:

- Support for named groups
- Communication via TCP/IP protocol
- Support for full and light nodes
- Support for group management over hierarchies
- A simplified group management configuration process
- Enhanced configuration for SGM clients
- Central logbook capability

Named Groups

ESP 3.0 enables you to categorize the systems that you monitor by group name. You can use the group names to quickly access statistical information and reports about all systems in a group by generating a site report (through the Reports -> Site menu options). Example group names include *Server*, *Desktop*, and *Web server*. (Refer to Figure 1-3.)



Figure 1-3 Named Groups

Full and Light Nodes

ESP 3.0 enables SGM clients to be full or light nodes:

- A full node is a client system that stores ESP data in a database on a local disk and also sends the data to a group manager system for storage. In this case, ESP maintains two copies of the data: one copy on the local system and one copy on the group manager system.
- A light node is a client system that sends all ESP data to a group manager system for storage. No ESP data is stored on the client system, which reduces the resources used on the system. In this case, ESP stores all data on the group manager system.

For light nodes, you can generate reports on the SGM server (by accessing the ESP 3.0 interface from the Web server or by running the `espreport` command on the SGM server).

Running `espreport` on a light node returns the following message:

```
****ESPREPORT (EventRprt): This system is a light node. espreport
cannot be run on light node.
```

Note: You can convert a light node to a full node at any time; however, only data that is generated after the conversion completes is stored in the local database. (Data generated before the conversion completes is stored only in the database on the SGM server.)

Figure 1-4 shows an example of a group that contains full and light nodes.

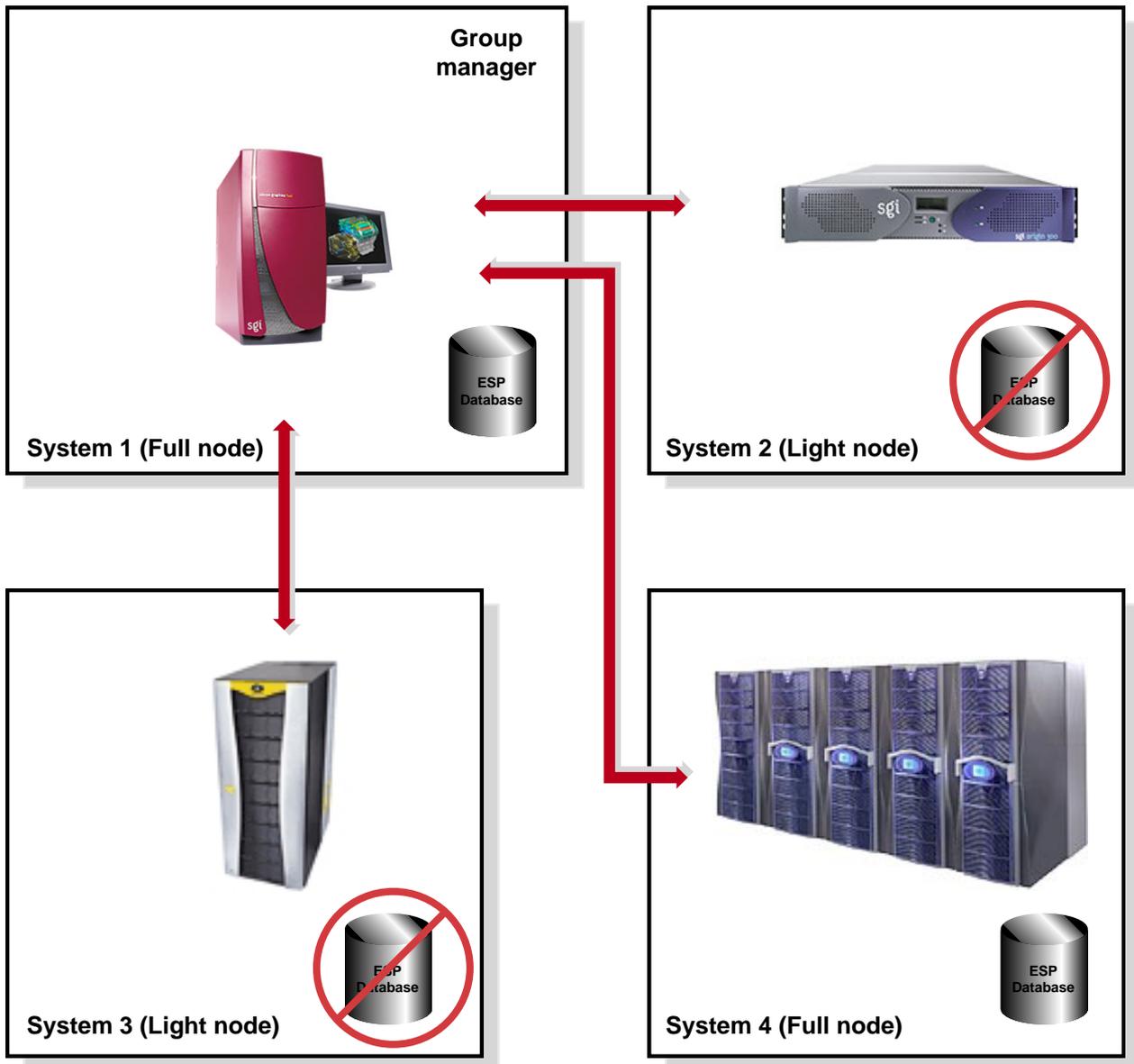


Figure 1-4 Full and Light Nodes

TCP/IP Protocol

ESP 3.0 uses TCP/IP protocol to communicate between a group manager system and its clients. (Previous versions of ESP used RPC protocol over TCP/IP.) Using standard TCP/IP protocol provides the following benefits:

- TCP/IP protocol is easier to configure.
- TCP/IP protocol uses fewer resources.
- TCP/IP protocol enables ESP 3.0 to communicate through a firewall.

Group Management Over Hierarchies

Under ESP 3.0, an SGM server is required to know the hostname but not the IP address of a client system. ESP 3.0 allows intermediate system(s) to know this information. This enables ESP to work through a firewall. (The intermediate systems must have `eventmond` and ESP running. The intermediate systems run an SGM dynamic shared object [DSO] that routes events from host to host. The intermediate systems do not require an SGM license unless they are configured as SGM servers.)

For example, system A is an SGM server and system D is a client, but system A does not know the IP address of system D. However, system B knows the IP addresses of systems A and C, and system C knows the IP addresses of systems B and D. ESP 3.0 allows you to add system D as a client to system A by specifying the connection path as follows:

B>C

This means that events will be forwarded from system D to system A, following the connection path through system C and system B. (Refer to Figure 1-5.)

In this example, an SGM DSO that is running on the client system (system D) forwards the event through the `eventmond` daemons on the intermediate systems (system C and system B) to the SGM server system (system A).

Note: The SGM DSO feature does not require a license; however, you need a license on the SGM system to create SGM clients.

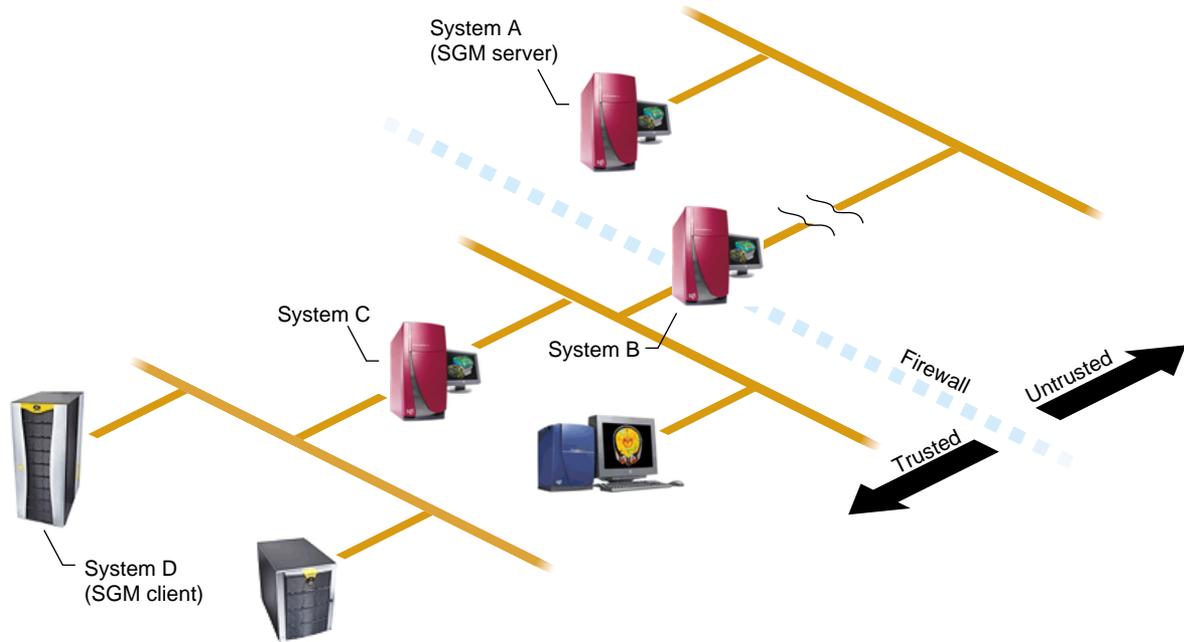


Figure 1-5 Group Management Over Hierarchies

Simplified Group Management Configuration

Under ESP 3.0, you do not need to configure group management on both the server and client sides like you did in earlier versions of ESP. You only need to configure group management from the SGM server side.

Note: No authentication is performed when you use this method to add clients to a server. For increased security, you can add a password that the server and client must exchange before they transfer data. To do this, you must configure the authentication password on the client and then on the server.

Enhanced Configuration for SGM Clients

ESP 3.0 enables you to configure all configuration parameters (including performance monitoring and system monitoring parameters) for remote systems from the SGM server. This enables you to set parameters for multiple systems from one location.

Note: You cannot configure performance monitoring and system monitoring parameters for clients that are connected to a group manager through intermediate systems. The group manager must have a direct connection to the clients to configure these parameters. This restriction is caused by limitations of PMIE.

Central Logbook Capability

ESP 3.0 includes a feature that enables you to create logbook entries for SGM clients on the SGM server. (The logbook entries are stored on the SGM server.) This feature enables you to store all logbook data on a common system, which makes it easier to access information about multiple systems. You can specify which system each logbook entry is for.

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 ESP Benefits **(continued)**

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 ESP Benefits (**continued**)

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 that uses a producer/client architecture and receives events from the Event Manager. Each module works independently on a specific function, and no functional overlap exists between the various modules. Some modules run as daemons, some run as dynamic shared objects (DSOs) that can load into the Event Manager, and some run as stand-alone applications that are driven by events.

Note: For more information about the Event Manager and the client/producer architecture, refer to the *Event Manager User Guide*, publication number 007-4661-00x.

The daemon components of ESP are:

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

The DSO components of ESP are:

- Core software:
 - ESP DSO
 - SGM DSO
- Monitoring software:
 - `availmon` DSO
 - `syslog` DSO
 - Performance monitoring DSO

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_oe` 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 diagnostic tools included on the CD.)

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

Figure 1-6 shows the ESP architecture when a Web-based interface is used. Figure 1-7 shows the ESP architecture when a command line interface is used. Descriptions of the components follow the figures.

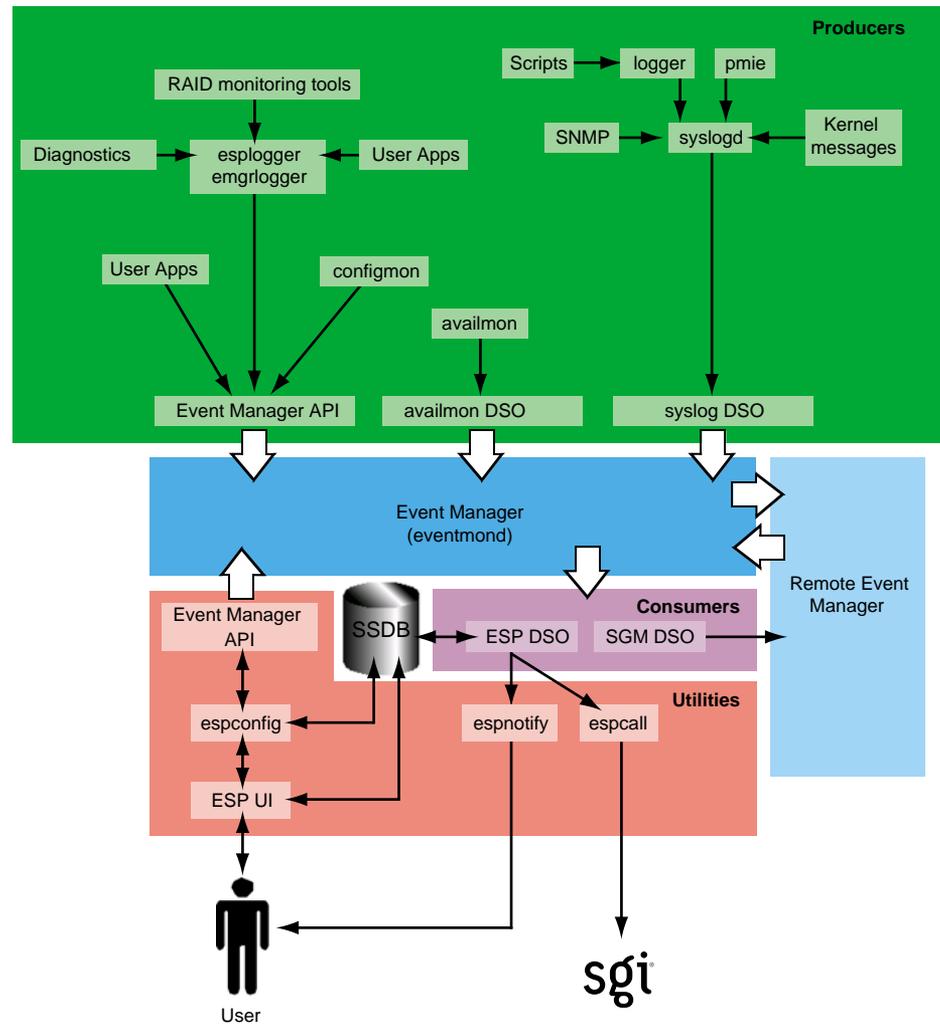


Figure 1-6 ESP Architecture (Using Web Browser)

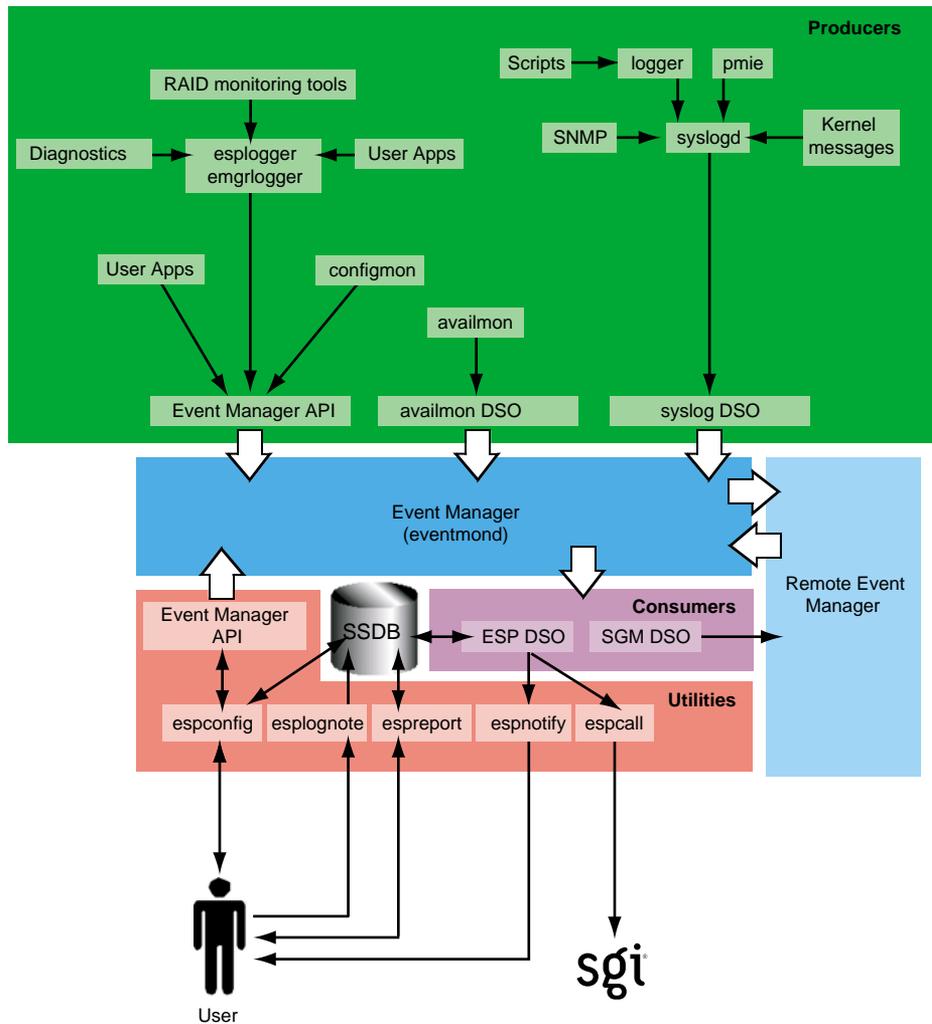


Figure 1-7 ESP Architecture (Using Command Line Interface)

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)
- ESP and SGM dynamic shared objects (DSOs)

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.

ESP and SGM DSOs

There are two main consumer DSOs that ESP 3.0 uses to subscribe, unsubscribe, and process events:

- The ESP DSO
- The System Group Manager (SGM) DSO

ESP DSO

The ESP DSO is the main ESP processing module. It is the consumer for all ESP events. It receives events from the Event Manager, converts them to the ESP-specific format, saves them in the SSDB, and executes any ESP actions that are assigned to the events. All processing done is based on configuration information from the ESP database.

The ESP startup script starts this DSO as a task of the Event Manager daemon (eventmond). The DSO stores event information in the SSDB and uses the `esnotify` utility to generate notifications.

SGM DSO

The SGM DSO provides distributed functionality among a group of ESP systems. The Event Manager loads and executes this DSO when there are SGM-specific events to handle. There is no need to load and execute this DSO during the startup sequence.

The SGM DSO serves as a router/translator for remote ESP configuration requests. When an SGM server needs to configure an SGM client, it sends an ESP SGM event via the Event Manager API. This event has an SGM DSO as a consumer; when an SGM DSO receives these events, it either performs a routing/forwarding (producer) operation if the event needs to go to a remote system or executes the specified operation and sends the result back to the SGM server. SGM DSO functionality requires a license.

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
- Event monitoring
- Availability monitoring

Monitoring is performed by tools that run as stand-alone programs or as DSOs and send events to the Event Manager. The Event Manager passes subscribed events to ESP for processing.

Note: Performance monitoring is available through the `pmie` application, which is included in the Performance Co-Pilot Execution Only Environment (`pcp_eeo` subsystem). Refer to “Performance Monitoring Tools” on page 30 for more information.

Configuration Monitoring

The base package includes a configuration monitoring application, `configmon`. `configmon` is a standalone application that 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. `configmon` uses a producer/consumer model. Some functionality is provided by the producer and some is provided by the consumer (which may or may not be on the same system as the producer if SGM servers and clients are used). The `configmon` binary tool handles both functions.

The `configmon` producer gathers information about the hardware and software configuration. Then, it checks a file in the `/var/esp` directory that contains checksums from the last time that `configmon` was run. If the current and old checksums are the same, no action is performed. If the `configmon` producer detects any differences, then the data that differs is sent to the `configmon` consumer via a private `configmon` event.

The `configmon` consumer then checks the SSDB and compares the data received from the producer to the SSDB data. If no differences in the data exist, no action is performed. If differences do exist, `configmon` brings the database up-to-date and moves the old configuration data into the archive tables.

Note: You can use the `-u` (update) and `-f` (force) command-line options to force producer data to go to the consumer.

On non-SGM systems, both the producer and consumer reside on the local system (and the data passes through the Event Manager).

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

Starting with ESP 3.0, event management moves outside of the ESP framework. A new standalone version of the Event Manager daemon (named `eventmond` to maintain compatibility with previous versions of ESP and other tools) performs all event management functions.

The Event Manager daemon collects event information from other applications. It runs independently of all other applications and enables local or remote applications to receive event data from it on a subscription basis. Any application can subscribe to receive event information from the Event Manager; event information availability is not limited to ESP, as it was in earlier releases of ESP and `eventmond`. ESP 3.0 subscribes to the Event Manager daemon to receive information about events that occur on a system.

The new Event Manager daemon provides greater flexibility for applications that submit events. This flexibility provides enhanced monitoring ability for ESP and any other applications that subscribe to receive events from the Event Manager.

Applications that submit events can specify the following information:

- An event class ID number
- An event type ID number that is unique to each application
- Internal flags that indicate how to handle the message
- An event version number that is specific to each application
- The time that the event occurred
- The user ID number of the process that generated the event
- The hostname (including domain name) of the system that generated the event
- The name of the application that owns the event (for example, Kernel or UNIX)
- The name of the application that generated the event (for example, SYSLOG)
- The event data

All events that ESP receives pass to the Event Manager daemon from one of the following paths:

- `syslog DSO`
- `esplogger` or `emgrlogger`
- `logger`
- Event Manager API

syslog DSO

The `syslog` DSO runs as a separate task of the Event Manager daemon and performs the following functions:

- It reads all SYSLOG messages from the `/tmp/.eventmond.events.sock` file.
Note: The ESP installation script creates a configuration entry in the `/etc/syslogd.conf` file that causes the `syslogd` daemon to write all messages to `/tmp/.eventmond.events.sock` file.
- It converts the messages to Event Manager event format.
- It passes the events to the Event Manager.

The Event Manager sends any subscribed SYSLOG events to the ESP DSO consumer, so ESP can process the events.

The ESP startup script starts the `syslog` DSO by loading it as a task of the Event Manager. The `syslog` DSO continues to run as long as the Event Manager runs.

esplogger and emrlogger

The `esplogger` and `emrlogger` applications provide a simple command-line interface to submit events to the Event Manager. `emrlogger` works with the new Event Manager and replaces `esplogger`, which previous versions of `eventmond` and ESP used. `esplogger` remains available to provide backward compatibility.

Note: `emrlogger` can produce any type of Event Manager event, including subscription events.

logger

`logger` provides a shell command interface to the `syslog` system log routine. It can log messages specified on the command line, from a specified file, or from the standard input. Each line in the specified file or standard input is logged separately.

Event Manager API

The Event Manager API provides a mechanism that enables tasks to communicate with `eventmond`. The `eventmond` daemon receives information from external monitoring tasks through API function calls. 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`. `availmon` monitors system 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` script runs at system start-up to gather the availability data. Do not manually run the `availmon` script. Manually running the script creates inaccurate availability results.

The `availmon` DSO monitors system uptime. To do this, it updates the `/var/adm/avail/.save/lasttick` file every 5 minutes to indicate that the system is still running. The `/var/adm/avail/.save/lasttick` file contains the current uptime (in seconds since January 1, 1970).

Note: In ESP 3.0, you cannot change the default status interval of last tick (5 minutes) or the default interval for sending status reports (7 days).

You can use the `/usr/sbin/eventmond -T` command to verify that the `availmon` DSO is running. The output from this command lists the `availmon` DSO when it is running. SGI recommends that you do not manually run the `availmon` DSO.

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 `esnotify` 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

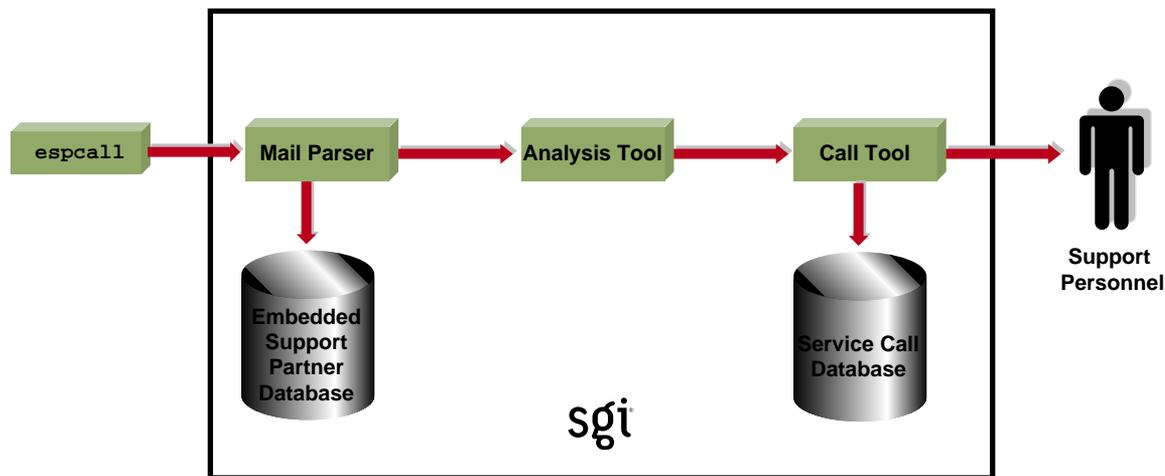
ESP 3.0 for the Linux OS does not include paging by default. SGI does not distribute the `QPage` application for the Linux OS. Paging capabilities are disabled when ESP 3.0 runs under the Linux OS. The ESP 3.0 graphical user interface for the Linux OS does not include the `Paging` menu.

If you obtain the `QPage` application for the Linux OS from another source, you should manually install and configure it and then create an ESP action that calls the `QPage` application.

ESP 3.0 for the IRIX OS still includes the `QPage` application. The ESP 3.0 graphical user interface for the IRIX OS still includes the `Paging` menu.

Typically, the ESP DSO invokes the `esnotify` tool in response to some event. However, you can run the `esnotify` 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 1-8 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 1-8 Sending Event Information to SGI

SGI uses the event information to provide faster and more accurate responses 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.)

The following example message, which was generated by `espcall`, shows the type of information that is returned to SGI for an availability event:

Subject: [maui]: System Information

```
maui.sgi.com 1015961831,1015961831,1015357057,0,7
,NULL,NULL,NULL,NULL,NULL,NULL,0,0,NULL,NULL 03/12/2002 11:37:11
Availability 4000 Status report 2097158 21 B0006011
```

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

The ESP GUI uses the `espcnfig` command to interact with the Event Manager

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.

The CLA software comprises three components:

- `espcnfig`
- `esplgnote`
- `espreport`

The `espcnfig` command enables you to configure ESP. `espcnfig` is the main ESP configuration utility. It maintains all ESP configuration information in the SSDB and ESP configuration files. It performs ESP-related operations, such as database accesses and Event Manager interactions (for example, subscribing/unsubscribing certain events and producing SGM-related events), based on command-line interface requests.

The `esplgnote` command enables you to create logbook entries.

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 `espcnfig`, `esplgnote`, and `espreport` commands.

External Tools

The following external tools can generate events:

- Performance monitoring tools
- Diagnostic tools
- RAID monitoring 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), provides 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 for IA-64 Linux User's and Administrator's Guide*, publication number 007-4580-00x, or the *Performance Co-Pilot for IRIX User's and Administrator's Guide*, publication number 007-3965-00x, for more information about `pmie` and the `pcp_eoe` subsystem.

ESP 3.0 uses a performance monitoring DSO when you configure performance monitoring settings via the ESP user interface or the `espcnfig` command (for example, `/usr/sbin/espcnfig -on performance` or `/usr/sbin/espcnfig -off performance`).

The performance monitoring DSO enables you to:

- Enable/disable `PMIECONF` at the global level (performs `chkcnfig pmie on` or `chkcnfig pmie off`)
- Enable/disable specific PMIE rules

You can use the ESP user interface or the `espcnfig` command to configure performance monitoring.

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 diagnostic tools that are included on the CD. Refer to the CD booklet for installation instructions for the support tools.

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

RAID Monitoring Tools

Starting with IRIX 6.5.17, ESP receives RAID events from the TP9100 and TP9400 disk subsystems. The following software enables ESP to receive these events:

- The `tpmwatch` application monitors the TP9100 disks and writes RAID events to the `tpmwatch` log.
- The `tpssm7monitor` (for T9400 releases 3 and 4) and `tpssmmonitor` (for TP9400 release 5) daemons monitor the TP9400 disks and write RAID events to the Major Event Log (MEL).
- A script checks the `tpmwatch` log and MEL for new events and uses `esplogger` to send the events to ESP.
- The `Storage_TP9100.esp` and `Storage_TP9400.esp` ESP event profiles specify the RAID events that ESP should register.

Refer to the *tp9100esptool User Guide*, publication number 007-4596-00x, for more information about how `tpmwatch` sends events to ESP.

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.

Security Features

ESP implements the following security features to prevent unauthorized access to ESP, the data that ESP stores, and the system that is running ESP:

- ESP requires a login/password combination to access the Web server.
- ESP validates user permissions for the accounts that are assigned to execute actions.
- ESP does not permit actions to run as root.
- ESP implements ReverseDNS lookup for Web server and SGM connections.
- ESP uses HMAC-MD5 digital signatures for all data transfers to an SGM server.
- ESP disables login attempts after four unsuccessful attempts. (Users must wait several minutes before attempting to log in again.)
- ESP includes a command-line interface to enable users to use ESP without running the Web server on their system.
- ESP restricts database access to local transactions (external systems cannot directly access the ESP database).
- ESP limits information returned to SGI with the call-logging feature to event-specific information. (ESP does not transmit any customer proprietary information to SGI.)
- ESP can encrypt the e-mail notifications that it sends.

System Performance Impact of ESP

The `eventmond` and `espdbd` daemons that ESP uses are event-driven and consume CPU resources only when events occur. When ESP receives an event, the daemons use less than 2 milliseconds of CPU time to process the event and store it in the ESP database.

The `eventmond` daemon uses approximately 200 KB of memory to run; the `espdbd` daemon uses approximately 500 KB of memory to run. Most of this memory is used to store the system configuration data, so the daemons use more memory on larger systems than they do on smaller systems.

ESP disk utilization depends on the size of the system; larger systems require more disk space than smaller systems. (For example, a 64-processor system with 75 to 125 boards uses less than 30 MB of disk space.) Once a database uses at least 10 MB of disk space, you can use the `esparchive` utility to compress the database to 40 to 60 percent of its original size.

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 three commands: `espcfg`, `espreport`, and `esplognote`. The `espcfg` command configures ESP. The `espreport` command generates and displays ESP reports. The `esplognote` command creates logbook entries.

`espcfg` has the following command line options:

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

Group Configuration
-----
espcfg -add group -name <new group name>
espcfg -delete group -name <group name>
espcfg -list group
espcfg -listmembers group -name <group name>
```

Event Configuration

```
espconfig -show evtype {-tid <type id> |-td <type desc> }
                        [-sgmclient <client alias>]
espconfig -list evtype [-cid <class id>|-cd <class desc>]
                        [-enable|-disable]
                        [-log|-nolog]
                        [-sgmclient <client alias>]
espconfig -add evtype -td <type desc>
                        {-cid <class id>|-cd <class desc>}
                        [-throttle <value>]
                        [-enable|-disable]
                        [-log|-nolog]
                        [-acfreq <action frequency value>]
                        [-acid <action id>|-acd <action desc>]
                        [-pri <priority>] [-fac <facility>]
                        [-appname <app. name>] [-regexp <reg. expression>]
                        [-prfid <profile id> |-prfn <profile name>]
                        [-sgmclient <client alias>|-sysid <client system id >]
espconfig -update evtype -tid <type id> [-cid <class id>|-cd <class desc>]
                        [-sgmclient <client alias>|-sysid <client system id >]
                        [-td <type desc>]
                        [-throttle <value>]
                        [-enable|-disable]
                        [-log|-nolog]
                        [-acfreq <action frequency value>]
                        [-acid <action id> | -acd <action desc>|
                        -noacid <action id> | -noacd <action desc>]
                        [-pri <priority>] [-fac <facility>]
                        [-appname <app. name>] [-regexp <reg. expression>]
                        [-prfid <profile id> | -prfn <profile name> |
                        -nopr fid <profile id> | -nopr fn <profile name>]
espconfig -delete evtype {-tid <type id>|-td <type desc>}
                        [-sgmclient <client alias>|-sysid <client system id >]
espconfig -subscribe evtype [-cid <class id>|-cd <class desc>]
                        [-tid <type id>|-td <type desc>]
                        [-pri <priority>] [-fac <facility>]
                        [-appname <application name>]
                        [-sgmclient <client alias>|-sysid <client system id >]
espconfig -unsubscribe evtype [-cid <class id>|-cd <class desc>]
                        [-tid <type id>|-td <type desc>]
                        [-pri <priority>] [-fac <facility>]
                        [-appname <application name>]
                        [-sgmclient <client alias>|-sysid <client system id >]
```

```

espconfig -add evclass [-cid <class id>] -cd <class desc>
                        [-sgmclient <client alias>|-sysid <client system id >]
espconfig -update evclass -cid <class id> -cd <class desc>
                        [-sgmclient <client alias>|-sysid <client system id >]
espconfig -delete evclass {-cid <class id>|-cd <class desc>}
                        [-sgmclient <client alias>|-sysid <client system id >]
espconfig -list evclass

```

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>]
espconfig -update evaction {-acd <action desc> | -acid <action id>}
                        [-act <action string>]
                        [-enable|-disable]
                        [-user <name>]
                        [-tout <timeout value>]

```

Exporting and Importing Environment

```

-----
espconfig -add|-load|-merge eventprofile <profile name>+|allprofiles
                        [-defaults] [-dontsubscribe]
                        [-sgmclient <client alias> | -sysid <system Id>]
espconfig -drop|-unload eventprofile <profile name>+|allprofiles
                        [-sgmclient <client alias> | -sysid <system Id>]
espconfig -save|-refresh eventprofile [-defaults] <profile name>+|allprofiles
                        [-sgmclient <client alias> | -sysid <system Id>]
espconfig -list eventprofile
                        [-sgmclient <client alias> | -sysid <system Id>]
espconfig -showevents eventprofile <profile name>+
                        [-sgmclient <client alias> | -sysid <system Id>]
espconfig -save espenv [global][ipaddr][user][site|customer_profile][all] [-to <file
name>]
espconfig -load espenv [-sysid <client system id >]
                        [-chk <check definition file name>]
                        -from <data definition 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>]
    [-host <host name>|-alias <client alias>|-sysid <system 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>]
    [-host <host name>|-alias <client alias>|-sysid <system id>]
espconfig -show customer_profile
    [-host <host name>|-alias <client alias>|-sysid <system id>]

```

Global Configuration

```

-----
espconfig -enable call_logging [-text|-comp_encoded]
    [-sgmclient <client alias> |-sysid <system id>]
espconfig -enable {event_registration
    |event_throttling
    |event_actions
    |shutdown_reason}
    [-sgmclient <client alias> |-sysid <system id>]
espconfig -enable mail -from <email address>
    [-email1 <email address>]
    [-email2 <email address>]
espconfig -disable {call_logging
    |event_registration
    |event_throttling
    |event_actions
    |shutdown_reason}
    [-sgmclient <client alias> |-sysid <system id>]
espconfig -show {call_logging
    |event_registration
    |event_throttling
    |event_actions
    |shutdown_reason}
    [-sgmclient <client alias> |-sysid <system id>]
espconfig -show mail
espconfig -flushdb [-sysid <system id>|-host <host name>]
    [config|all]

```

```
espconfig -reconstructdb
```

Performance and System Monitoring Configuration

```
-----  
espconfig -on performance  
-off performance  
-list performance [-status|-enable|-disable]  
-enable performance -pd {all|<pmie rule description>}  
-disable performance -pd {all|<pmie rule description>}  
espconfig monitor -list <service name>  
monitor -show <service name> [-sgmclient <client alias>]  
monitor -enable <service name> [-sgmclient <client alias> ]  
monitor -disable <service name> [-sgmclient <client alias> ]
```

SGM Related Commands

```
-----  
espconfig -show systems  
espconfig -show sgmclients  
espconfig -show sgmservers  
espconfig -show system  
-host <host name>|-sgmclient <client alias>|-sysid <system id>  
espconfig -set system -host <host name>|-sysid <system id>  
[-alias <new alias>]  
[-group <group name> | -gid <group id> ]  
espconfig -setnode system -sgmnode|-fullnode  
espconfig -check system -sgmlicense|-update  
espconfig -add sgmclient -alias <client alias> -host <client hostname>  
[-path <client reach path>]  
[-group <group descr.>|-gid <group id>]  
[-v2|-v3] [-p <password>]  
espconfig -subscribe sgmclient  
-host <host name>|-alias <client alias>|-sysid <system id>  
[-loadprofiles] [-refreshprofiles] [-lightnode|-fullnode] ] [-force]  
espconfig -unsubscribe sgmclient  
-host <host name>|-alias <client alias>|-sysid <system id>  
[-force]  
espconfig -update sgmclient  
-host <host name>|-alias <client alias>|-sysid <system id>  
[-p <password>] [-path <new path>] [-lightnode|-fullnode]  
espconfig -delete sgmclient  
-host <host name>|-alias <client alias>|-sysid <system id>  
espconfig ping  
-sgmclient <client alias>|-sysid <system id>|-path <reach path>  
[-espver]  
espconfig -add sgmserver -host <SGM host name> -p <communication password>
```

```
espconfig -update sgmkey -host <host name> -p <comm. password> [-pid <key ID>]
```

Refer to Chapter 3, “Administering ESP,” Chapter 4, “Setting Up the ESP Environment,” and Chapter 5, “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   [-sysid <system id>|-host <host name>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport swchanges   [-sysid <system id>|-host <host name>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport logbook     [-sysid <system id>|-host <host name>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport summary     [-sysid <system id>|-host <host name>]
                        [-from mm/dd/yyyy] [-to mm/dd/yyyy]
espreport sysinfo     [-sysid <system id>|-host <host name>]
                        [all]
```

Refer to Chapter 6, “Viewing Reports,” for more information about using the `espreport` command.

`esplognote` does not have any command line options:

```
system# esplognote
```

Refer to Chapter 7, “Using the ESP Logbook,” for more information about using the `esplognote` command.

Using the Web-based Interface

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

- Opening a URL in a Web browser
- Using the `Embedded_Support_Partner` icon
- Entering the `launchESPartner` command

Note: The `Embedded_Support_Partner` icon and `launchESPartner` command are available only for the IRIX OS.

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>espht tpd</code>) is running on the system. Restart the ESP Web server if it is not running. If the <code>espht tpd</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 68.)

Table 2-1 ESP Startup Error Messages (continued)

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 (/etc/esphttpd.conf): <pre>ReverseDNSLookup : off</pre> <ol style="list-style-type: none"> 2. Enter the following command to kill the current Web server process: <pre>killall esphttpd</pre> <ol style="list-style-type: none"> 3. Restart the esphttpd process. <p>Warning: Disabling the reverse DNS lookup feature increases the possibility of security problems.</p>
<p>Authorization failed. Retry?</p>	<p>The username and password that you entered are not valid.</p>	<p>Enter a valid username and password. If you forget your username and password, enter espconfig -update user -name <username>. ESP will prompt you for a new password.</p>
<p>Forbidden Request</p> <p>The current request was forbidden. Please check your permissions.</p> <p>Connection was rejected since number of authorization attempts was reached.</p> <p>Please try to connect later.</p>	<p>You did not enter a valid username/password combination within four attempts.</p> <p>When this happens, the ESP Web server prevents login attempts for two minutes.</p>	<p>Wait for two minutes and log in with a valid username/password combination.</p>

Opening a URL in a Web Browser

You can access the Web-based interface via one of the following URLs:

- `http://localhost:5554`
- `http://<systemname>:5554`

Tips: If the system that you want to use is a server without graphics capability, you can:

- Log into the server system from another networked system that has graphics capability. Then, set the `DISPLAY` variable on the server to a display on the remote system and start a Web browser application on the server. Open the `http://localhost:5554` URL in the Web browser window that is displayed on the remote system.
- Open the `http://<server_system_name>:5554` URL from a Web browser application running on a remote system that has graphics capability. (If you use this option, you must use the `espconfig -enable <ipaddr>` command to enable network access for the remote system before you open the URL.)

Perform the following procedure to access ESP by opening a URL in a Web browser:

1. If this is the first time that you are using ESP on the system, do the following:
 - Log into the system as root and enter `espconfig -createadmin` to create the default user account (administrator).
 - Enter `espconfig -enable ipaddr 127.0.0.0` and `espconfig -enable ipaddr 127.0.0.1` to enable access to ESP from the local system.
2. Open the appropriate URL (`http://localhost:5554` or `http://<systemname>:5554`) in a Web browser.

The Web browser displays the ESP opening page. (Refer to Figure 2-1.)



Figure 2-1 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.⁶
4. Enter a username and password. (Refer to Figure 2-2.)

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

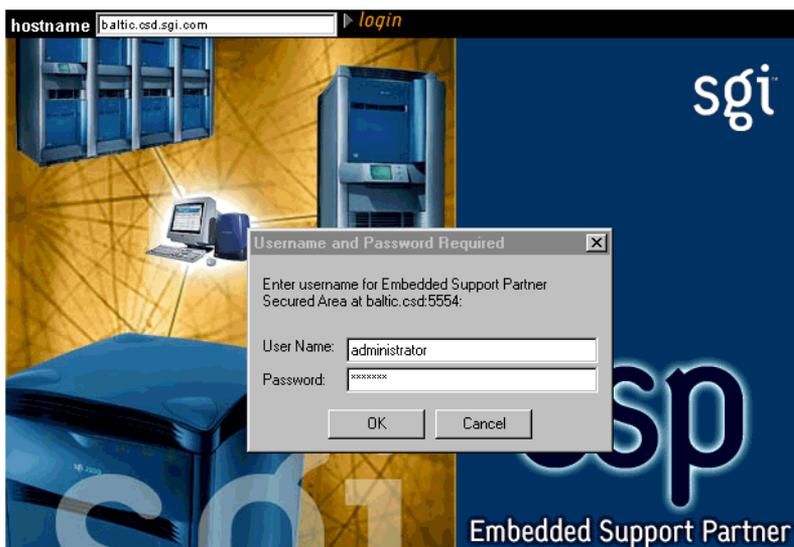
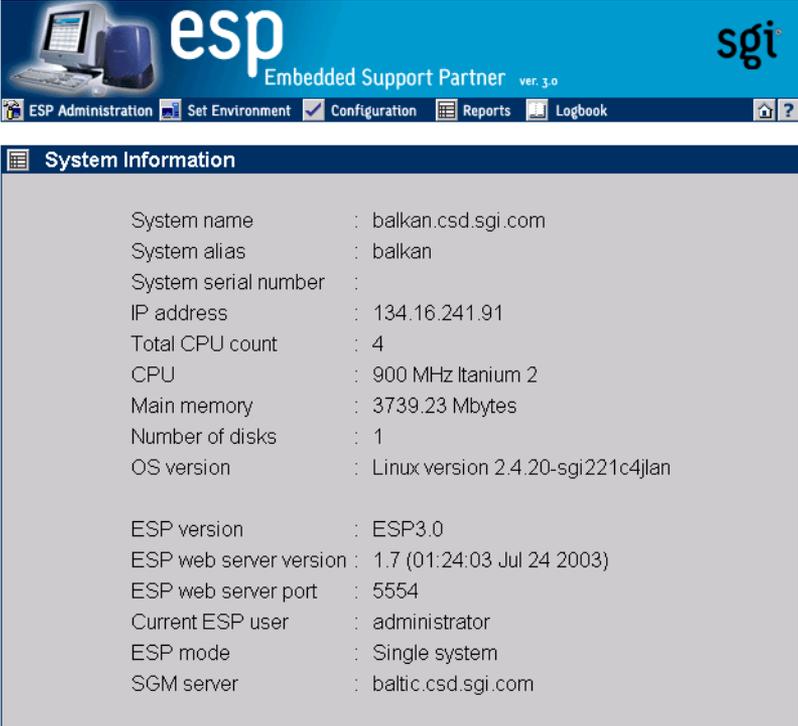


Figure 2-2 Entering a Username and Password

The ESP main page appears. (Figure 2-3 shows the main page in single system manager mode. Figure 2-4 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.



The screenshot displays the ESP (Embedded Support Partner) web interface. At the top, there is a blue header with the 'esp' logo, the text 'Embedded Support Partner ver. 3.0', and the 'sgi' logo. Below the header is a navigation bar with buttons for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The main content area is titled 'System Information' and lists various system details:

System name	: balkan.csd.sgi.com
System alias	: balkan
System serial number	:
IP address	: 134.16.241.91
Total CPU count	: 4
CPU	: 900 MHz Itanium 2
Main memory	: 3739.23 Mbytes
Number of disks	: 1
OS version	: Linux version 2.4.20-sgi221c4jlan
ESP version	: ESP3.0
ESP web server version	: 1.7 (01:24:03 Jul 24 2003)
ESP web server port	: 5554
Current ESP user	: administrator
ESP mode	: Single system
SGM server	: baltic.csd.sgi.com

Figure 2-3 ESP Main Page (Single System Manager Mode)

The screenshot shows the ESP (Embedded Support Partner) main page in System Group Manager Mode. The page header features the 'esp' logo, 'Embedded Support Partner ver. 3.0', and the 'sgi' logo. Below the header is a navigation bar with links for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The main content area is titled 'System Information' and displays the following details:

System name	: baltic.csd.sgi.com
System alias	: baltic
System serial number	:
IP address	: 134.16.241.92
Total CPU count	: 12
CPU	: 900 MHz Itanium 2
Main memory	: 11245.67 Mbytes
Number of disks	: 2
OS version	: Linux version 2.4.20-sgi221c4jlan
ESP version	: ESP3.0
ESP web server version	: 1.7 (17:49:00 Jul 23 2003)
ESP web server port	: 5554
Current ESP user	: administrator
ESP mode	: System Group Manager (SGM)
SGM client(s)	: balkan.csd.sgi.com

Figure 2-4 ESP Main Page (System Group Manager Mode)

Using the Embedded_Support_Partner Icon (ESP for the IRIX OS Only)

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 2-5.)

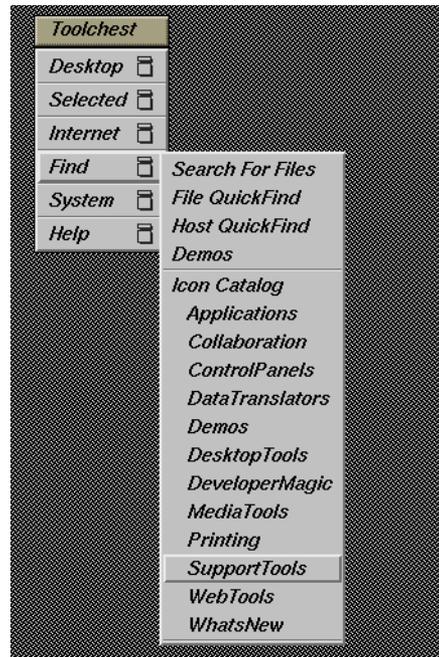


Figure 2-5 Toolchest Menu

The Icon Catalog application opens to the SupportTools category. (Refer to Figure 2-6.)

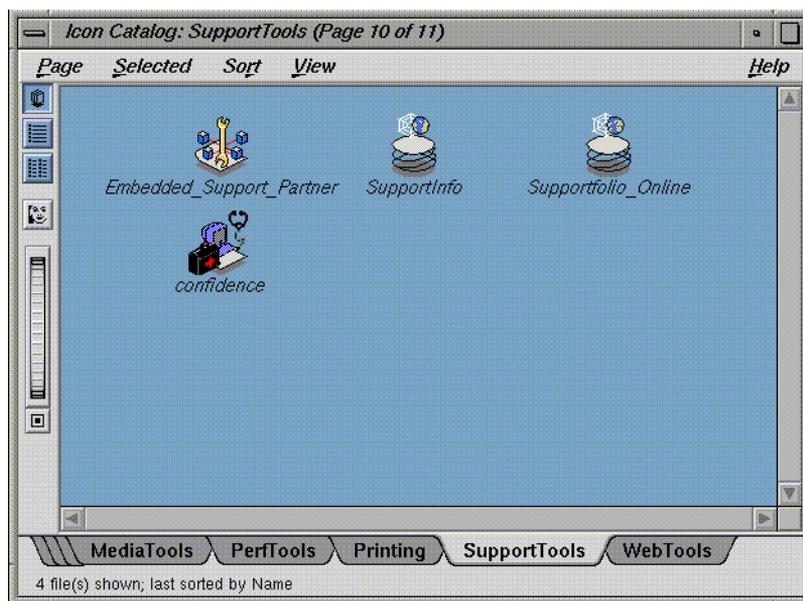


Figure 2-6 Icon Catalog

2. Double-click on the Embedded_Support_Partner icon.
Netscape displays the ESP opening page. (Refer to Figure 2-7.)



Figure 2-7 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 2-2.)

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).

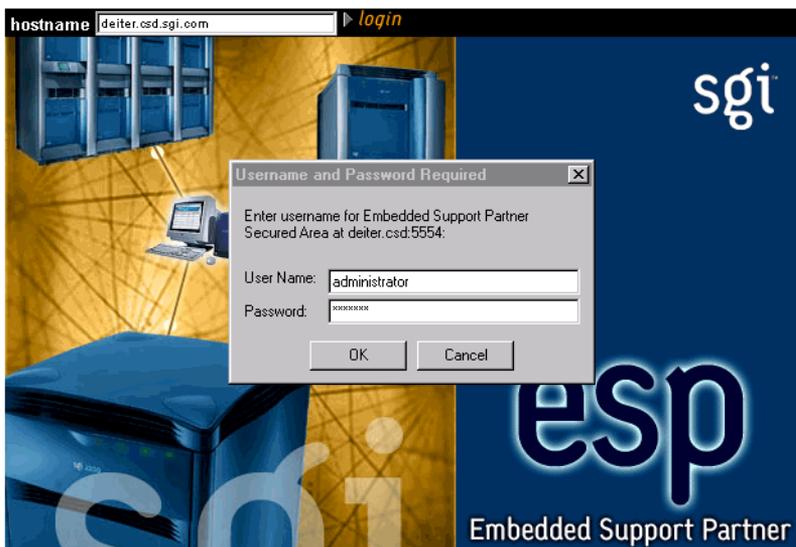
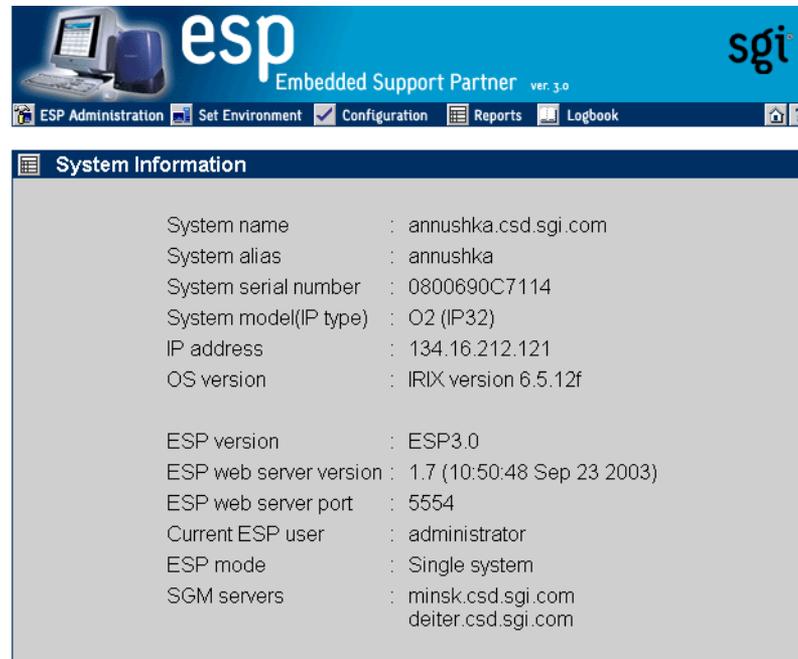


Figure 2-8 Entering a Username and Password

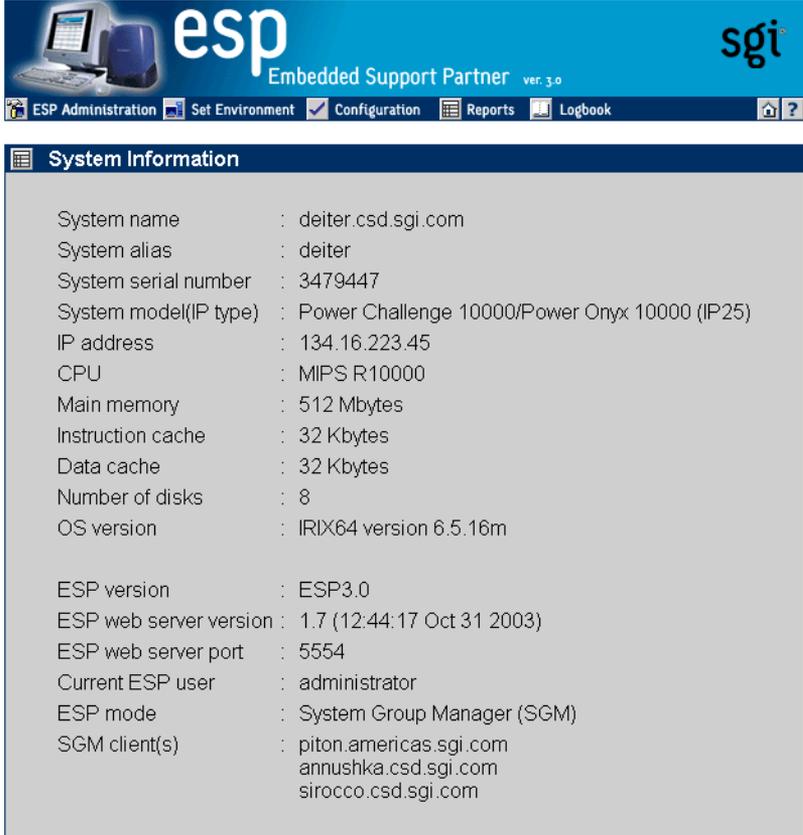
The ESP main page appears. (Figure 2-3 shows the main page in single system manager mode. Figure 2-4 shows the main page in system group manager mode.) The main page shows the current system and ESP configuration information and provides buttons that link to the main ESP functions.



The screenshot displays the ESP web interface. At the top, there is a blue header with the 'esp' logo, 'Embedded Support Partner ver. 3.0', and the 'sgi' logo. Below the header is a navigation bar with buttons for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The main content area is titled 'System Information' and contains the following details:

System name	: annushka.csd.sgi.com
System alias	: annushka
System serial number	: 0800690C7114
System model(IP type)	: O2 (IP32)
IP address	: 134.16.212.121
OS version	: IRIX version 6.5.12f
ESP version	: ESP3.0
ESP web server version	: 1.7 (10:50:48 Sep 23 2003)
ESP web server port	: 5554
Current ESP user	: administrator
ESP mode	: Single system
SGM servers	: minsk.csd.sgi.com deiter.csd.sgi.com

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



The screenshot displays the ESP (Embedded Support Partner) web interface. At the top, there is a blue header with the 'esp' logo and 'Embedded Support Partner ver. 3.0' text, alongside the 'sgi' logo. Below the header is a navigation bar with icons and labels for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The main content area is titled 'System Information' and lists various system parameters in a key-value format.

System name	: deiter.csd.sgi.com
System alias	: deiter
System serial number	: 3479447
System model(IP type)	: Power Challenge 10000/Power Onyx 10000 (IP25)
IP address	: 134.16.223.45
CPU	: MIPS R10000
Main memory	: 512 Mbytes
Instruction cache	: 32 Kbytes
Data cache	: 32 Kbytes
Number of disks	: 8
OS version	: IRIX64 version 6.5.16m
ESP version	: ESP3.0
ESP web server version	: 1.7 (12:44:17 Oct 31 2003)
ESP web server port	: 5554
Current ESP user	: administrator
ESP mode	: System Group Manager (SGM)
SGM client(s)	: piton.americas.sgi.com annushka.csd.sgi.com sirocco.csd.sgi.com

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

Using the launchESPartner Command (ESP for the IRIX OS Only)

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 2-11.)



Figure 2-11 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 `espcnfig -createadmin` to create the default user account (administrator).

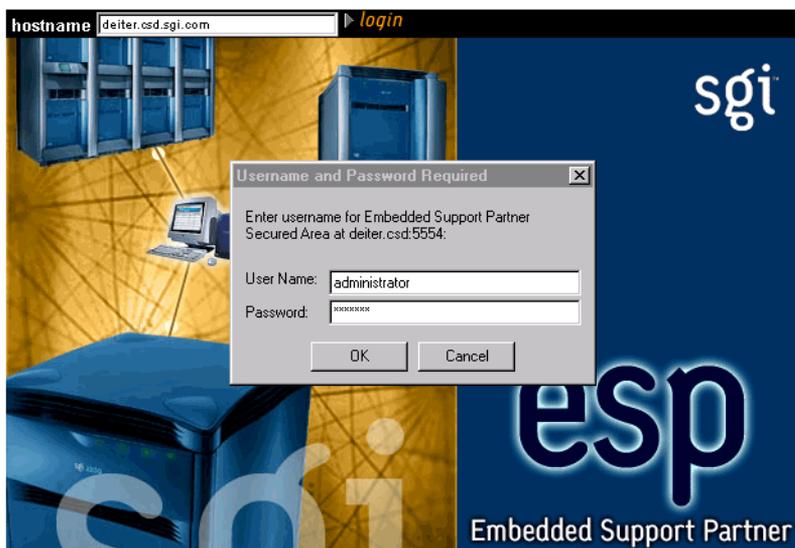
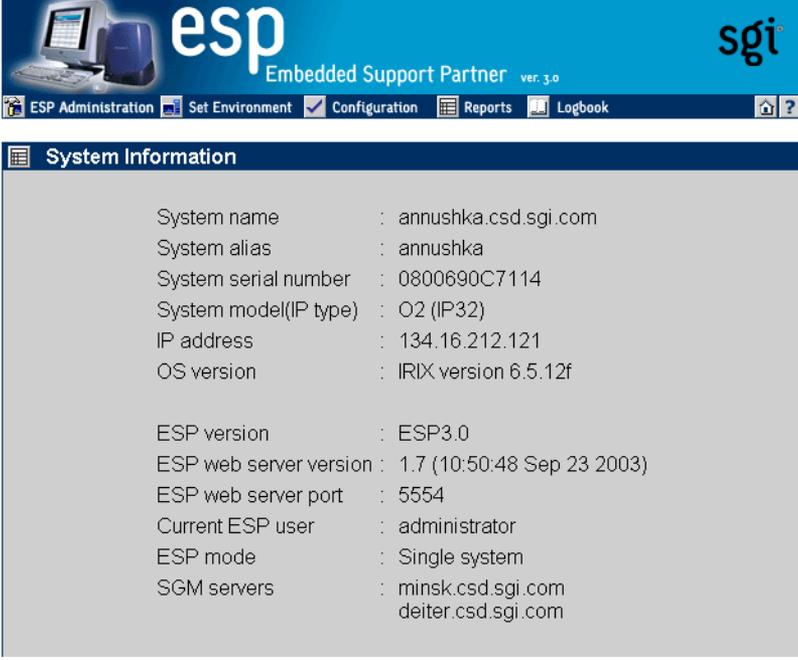


Figure 2-12 Entering a Username and Password

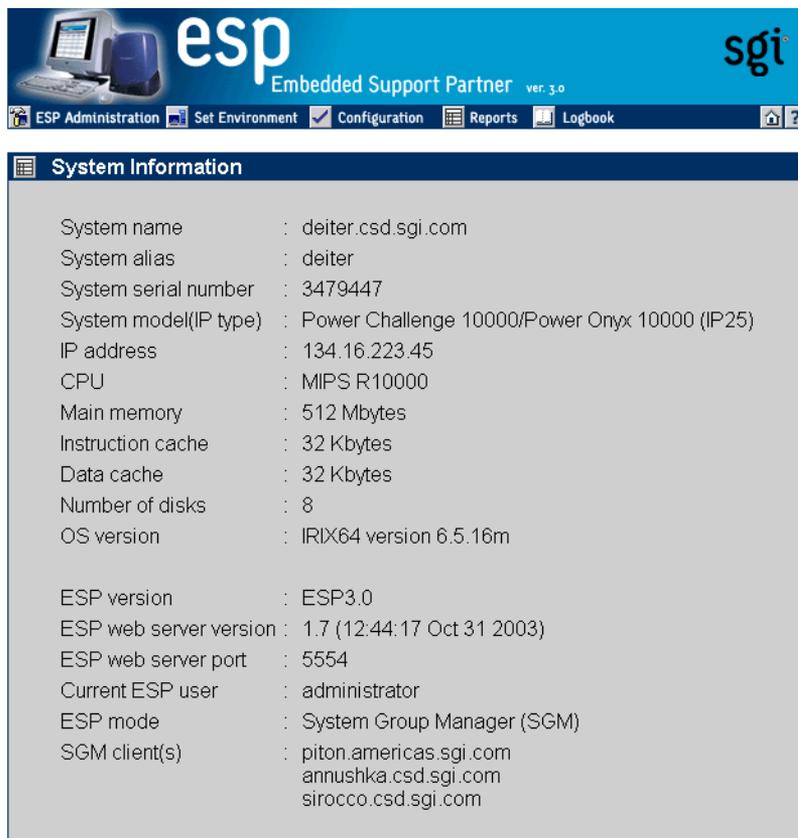
The ESP main page appears. (Figure 2-13 shows the main page in single system manager mode. Figure 2-14 shows the main page in system group manager mode.) The main page shows the current system and ESP configuration information and provides buttons that link to the main ESP functions.



The screenshot displays the ESP (Embedded Support Partner) web interface. At the top, there is a blue header with the 'esp' logo and 'Embedded Support Partner ver. 3.0' text, alongside the 'sgi' logo. Below the header is a navigation bar with buttons for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The main content area is titled 'System Information' and lists various system and ESP details.

System name	: annushka.csd.sgi.com
System alias	: annushka
System serial number	: 0800690C7114
System model(IP type)	: O2 (IP32)
IP address	: 134.16.212.121
OS version	: IRIX version 6.5.12f
ESP version	: ESP3.0
ESP web server version	: 1.7 (10:50:48 Sep 23 2003)
ESP web server port	: 5554
Current ESP user	: administrator
ESP mode	: Single system
SGM servers	: minsk.csd.sgi.com deiter.csd.sgi.com

Figure 2-13 ESP Main Page (Single System Manager Mode)



The screenshot displays the ESP (Embedded Support Partner) web interface. At the top, there is a blue header with the 'esp' logo and 'Embedded Support Partner ver. 3.0' text, alongside the 'sgi' logo. Below the header is a navigation bar with icons and labels for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The main content area is titled 'System Information' and lists various system details in a key-value format.

System name	: deiter.csd.sgi.com
System alias	: deiter
System serial number	: 3479447
System model(IP type)	: Power Challenge 10000/Power Onyx 10000 (IP25)
IP address	: 134.16.223.45
CPU	: MIPS R10000
Main memory	: 512 Mbytes
Instruction cache	: 32 Kbytes
Data cache	: 32 Kbytes
Number of disks	: 8
OS version	: IRIX64 version 6.5.16m
ESP version	: ESP3.0
ESP web server version	: 1.7 (12:44:17 Oct 31 2003)
ESP web server port	: 5554
Current ESP user	: administrator
ESP mode	: System Group Manager (SGM)
SGM client(s)	: piton.americas.sgi.com annushka.csd.sgi.com sirocco.csd.sgi.com

Figure 2-14 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. Enter `espsconfig -enable ipaddr 127.0.0.0` and `espsconfig -enable ipaddr 127.0.0.1` to enable access to the ESP from the local system.
3. Open one of the following URLs in a Web browser:
 - `http://localhost:5554`
 - `http://<systemname>:5554`(Refer to “Using the Web-based Interface” on page 42.)
4. Change the default password to prevent unauthorized access to your system. (Refer to “Updating a Password” on page 77.)
 - The default user name is `administrator`.
 - The default password is `partner`.
5. Set up any user accounts and permissions that you want on your system. (Refer to “Setting Up the User Permissions” on page 71.)
6. 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 refuse connections from all other IP addresses. (Refer to “Setting Up the Network Permissions” on page 68.)
7. If the system is running the Linux OS and ESP does not detect the system serial number, enter the system serial number. (Refer to “Setting Up the System Serial Number (ESP for the Linux OS Only)” on page 92.)
8. Enter the customer profile information. (Refer to “Setting Up the Customer Profile” on page 64.)
9. Set up the global configuration parameters. (Refer to “Setting Up the Global Configuration Parameters” on page 97.)
10. Modify and/or add actions. (Refer to “Configuring Actions” on page 187.)
11. Modify and/or add events. (Refer to “Configuring Events” on page 139.)

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. You must configure a system to use system group manager (SGM) mode to use the group management functions in ESP.

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 (if it is a full node; light nodes do not maintain a 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.
- 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.

An ESP 3.0 SGM server can have ESP 3.0 and/or ESP 2.0 clients. ESP 3.0 clients can run the IRIX or Linux OS. ESP 2.0 clients can run the IRIX OS.

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 group manager system in SGM mode. (Refer to “Setting Up the System Parameters (Single System Manager Mode Only)” on page 114.)
4. Configure ESP on each client system. You can configure each client as a single system manager or a system group manager and as a full node or a light node.
5. Add the SGM clients on the SGM server. (Refer to “Adding a New SGM Client” on page 116.)

Note: For greater security, configure an authentication password on the SGM server and clients. You must configure the password on an SGM client first (refer to “Adding a Password for a New Server” on page 133) and then on the SGM server (refer to “Adding a New SGM Client” on page 116 and “Updating the System or a Client” on page 122).

6. Subscribe to the events that you want to receive from the SGM Clients. (Refer to “Subscribing Events from SGM Clients” on page 182.)

Administering ESP

This chapter describes how to administer ESP on your system. ESP administration includes the following components:

- Customer profile
- Network permissions
- User permissions
- Database archives

You must set up the administration components when you first configure ESP on a system. After that, modify specific parameters as needed (for example, add or delete users).

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 `ESP Administration` button.

Note: If the system is an SGM server, choose the system for which you want to set up the customer profile and click on the `Continue` button. (Refer to Figure 3-1.)

The interface displays the `Create Customer Profile` window. (Refer to Figure 3-2.)

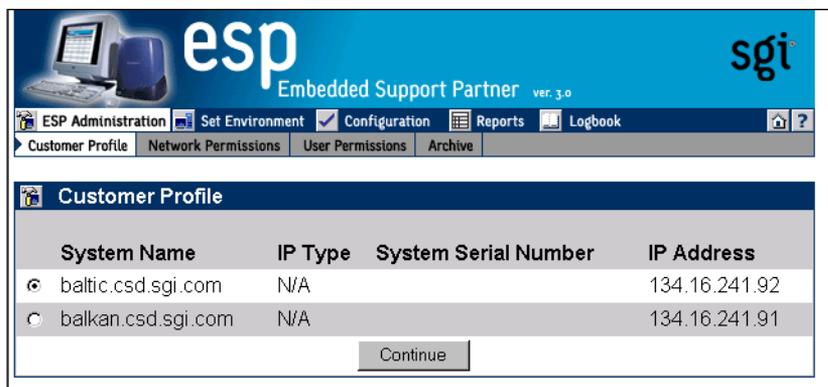


Figure 3-1 Choosing the System to Update the Customer Profile

esp Embedded Support Partner ver. 3.0 **sgi**

ESP Administration Set Environment Configuration Reports Logbook

Customer Profile Network Permissions User Permissions Archive

Create Customer Profile
baltic.csd.sgi.com

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) :

Figure 3-2 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)

Table 3-1 Customer Profile Parameters **(continued)**

Parameter	Description
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  
[-host <host name>|-alias <client alias>|-sysid <systemid>]
```

- 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>]  
[-post <postal code>]  
[-country <country>]  
[-site_id <site id>]  
[-host <host name>|-alias <client alias>|-sysid <systemid>]
```

- 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>]  
[-host <host name>|-alias <client alias>|-sysid <systemid>]
```

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.

By default, the “restrict access” list is set to *.*.*.* to restrict all hosts. You must enable access by the local host (127.0.0.0 and 127.0.0.1) before you can access the ESP Web server. To do this, enter the `espsconfig -enable ipaddr 127.0.0.0` and `espsconfig -enable ipaddr 127.0.0.1` commands before you attempt to access ESP on a system for the first time.

Using the Web-based Interface

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

1. Click on the `ESP Administration` button.
2. Click on the `Network Permissions` button.

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

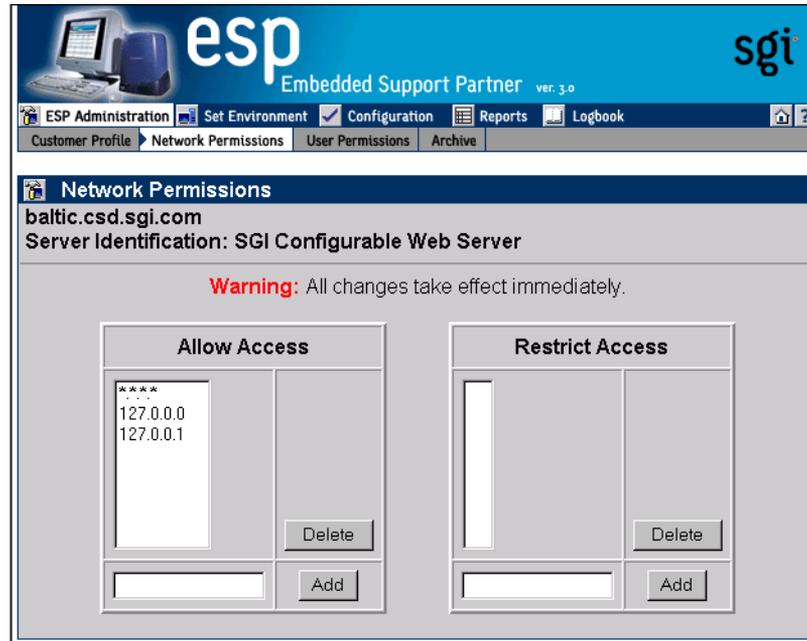


Figure 3-3 Network Permissions Window (Web-based Interface)

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 `espcnfig` 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/espcnfig -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/espcnfig -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/espcnfig -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/espcnfig -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 `ESP Administration` button.
2. Click on the `User Permissions` button.

The interface shows the list of current users. (Refer to Figure 3-4.)

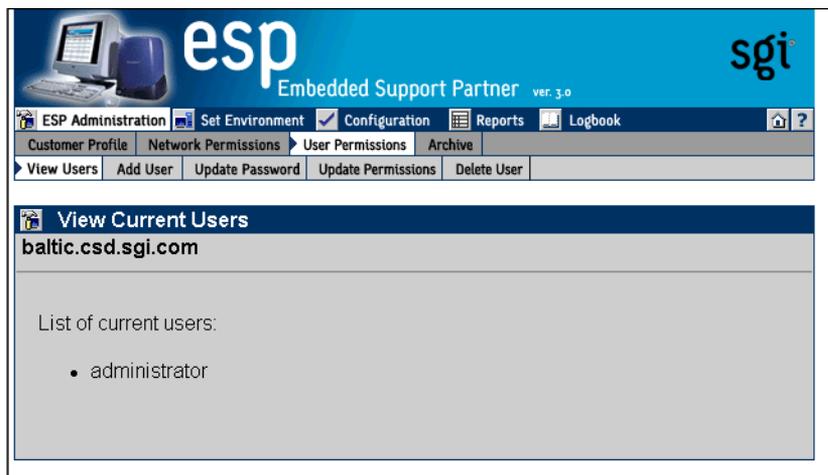


Figure 3-4 Current User List (Web-based Interface)

Using the Command Line Interface

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

```
/usr/sbin/espsconfig -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 “ESP Administration and 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 `ESP Administration` 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 3-5.)

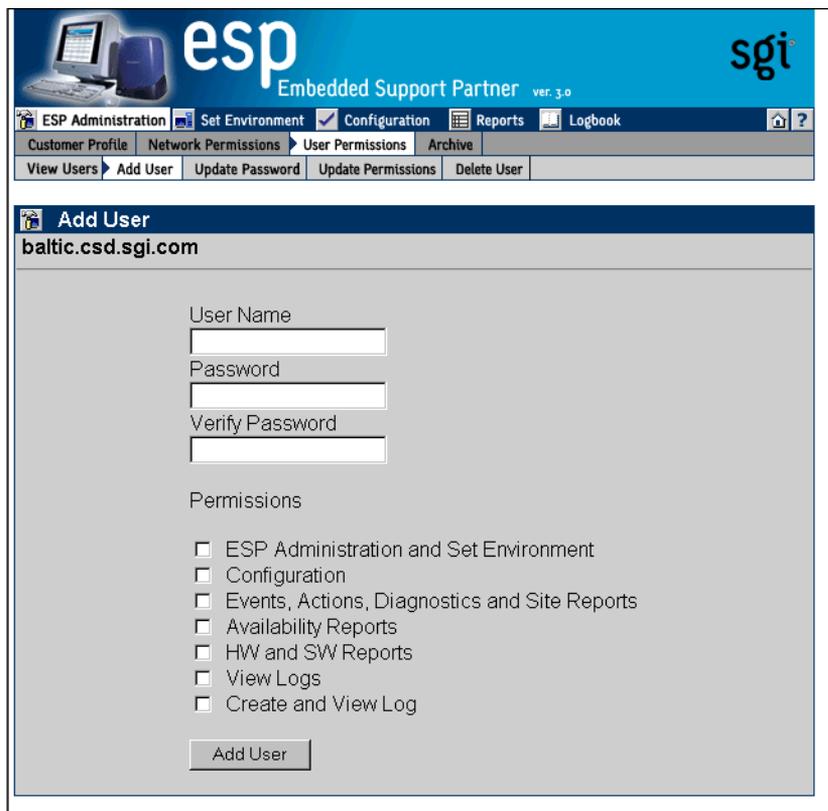


Figure 3-5 Add User Window (Web-based Interface)

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
ESP Administration and Set Environment	Enables the user to perform all activities in the ESP Administration and Set Environment sections 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 Configuration section of the interface (configure events, actions, performance monitoring, and system monitoring)
Events, Actions, Diagnostics and Site Reports	Enables the user to view all event reports, action reports, diagnostic reports, and site 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 `espcfg` command to add a new user:

```
/usr/sbin/espcfg -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 “ESP Administration and 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 `ESP Administration` 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 3-6.)

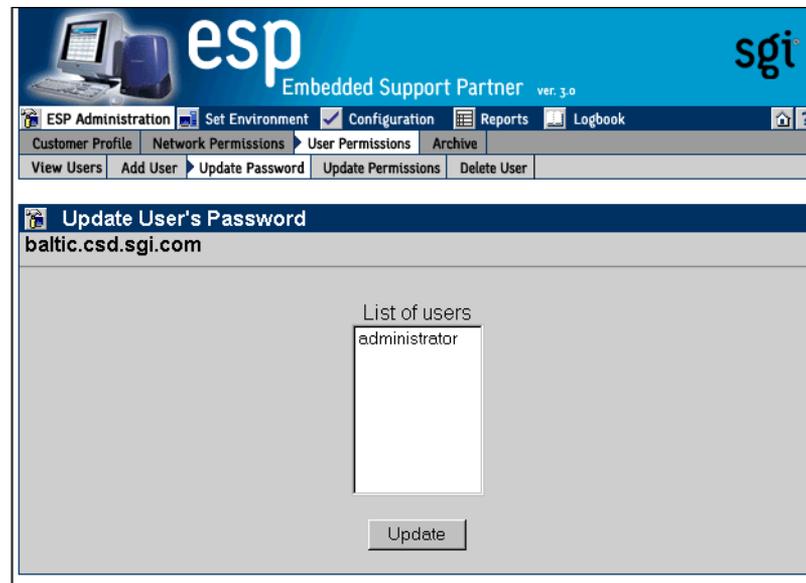


Figure 3-6 Update Password Window (Web-based Interface)

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 3-5.)

The screenshot shows the ESP Administration web interface. At the top, there is a blue header with the 'esp' logo and 'Embedded Support Partner ver. 3.0' text, and the 'sgi' logo on the right. Below the header is a navigation menu with tabs for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. Underneath, there are sub-tabs for 'Customer Profile', 'Network Permissions', 'User Permissions', and 'Archive'. A secondary menu shows 'View Users', 'Add User', 'Update Password', 'Update Permissions', and 'Delete User'. The main content area is titled 'Update Password For User "administrator"' and 'baltic.csd.sgi.com'. A red warning message states: 'Warning: All changes take effect immediately. Changing password for a current user will result in the authentication failure. You will be asked to provide a new password immediately.' Below the warning are three input fields labeled 'Old Password', 'New Password', and 'Verify Password', followed by a 'Commit' button.

Figure 3-7 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 “ESP Administration and 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 `ESP Administration` 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 3-8.)

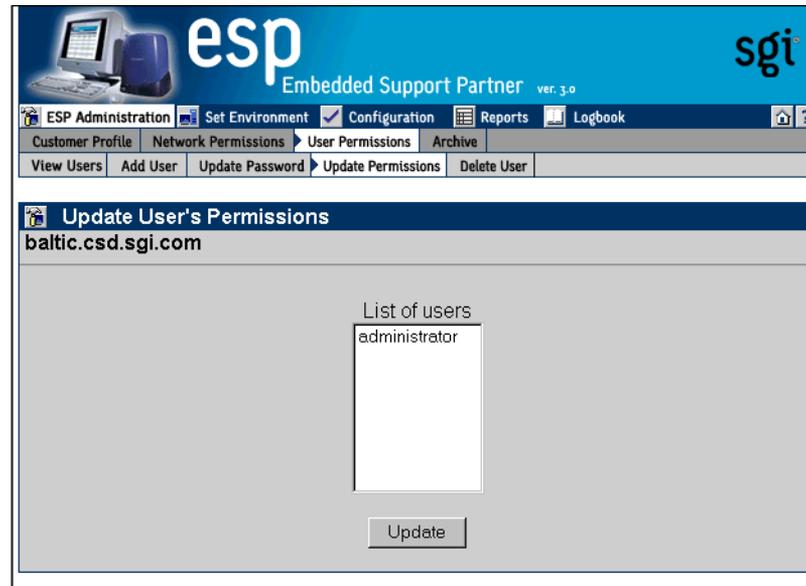


Figure 3-8 Update User's Permissions Window (Web-based Interface)

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 3-9.)

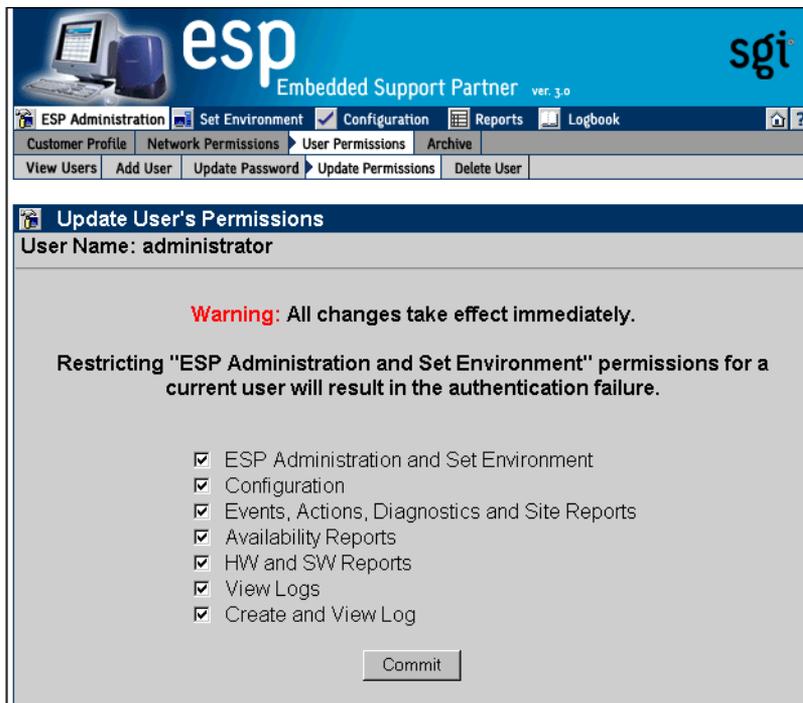


Figure 3-9 Updated Update User Permissions Window (Web-based Interface)

6. Select the permissions that you want the user to have. (Refer again to Table 3-2 on page 75 for descriptions of the permissions.)

Note: Restricting the "ESP Administration and 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
ESP administration and set environment	ESPpermission:set_environment
Configuration	ESPpermission:configuration
Event registered, actions taken, diagnostic results, and site 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/esconfig -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 “ESP Administration and 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 `ESP Administration` 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 3-10.)

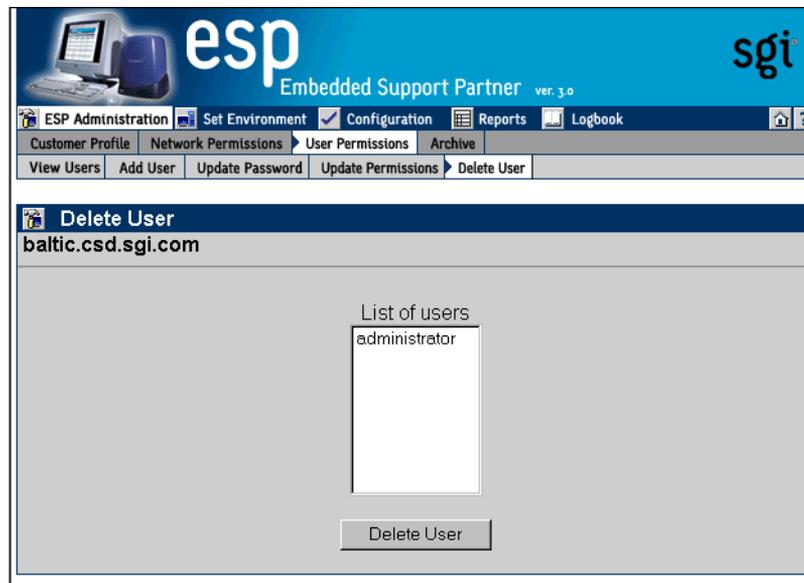


Figure 3-10 Delete User Window (Web-based Interface)

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 3-11.)

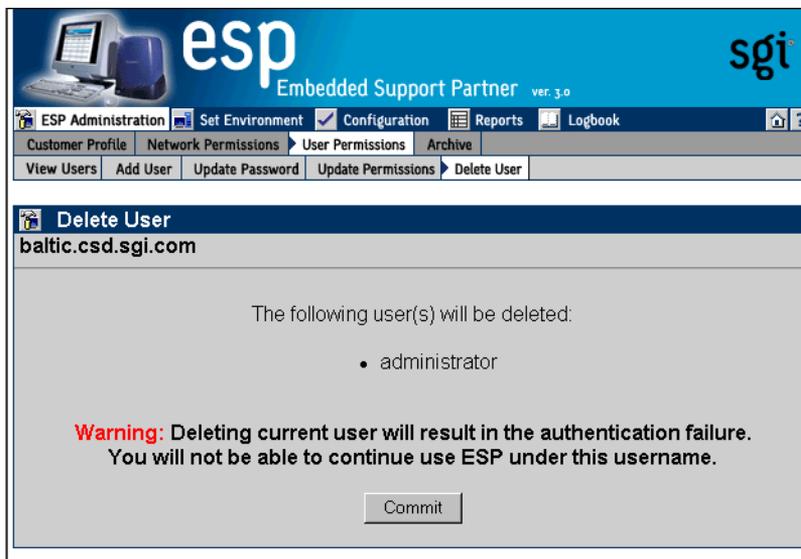


Figure 3-11 Updated Delete User Window (Web-based Interface)

6. Click on the `Commit` button.

Using the Command Line Interface

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

```
espsconfig -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).

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 `ESP Administration` button.
2. Click on the `Archive` button.

The interface displays the `Delete Archive` window. (Refer to Figure 3-12.)

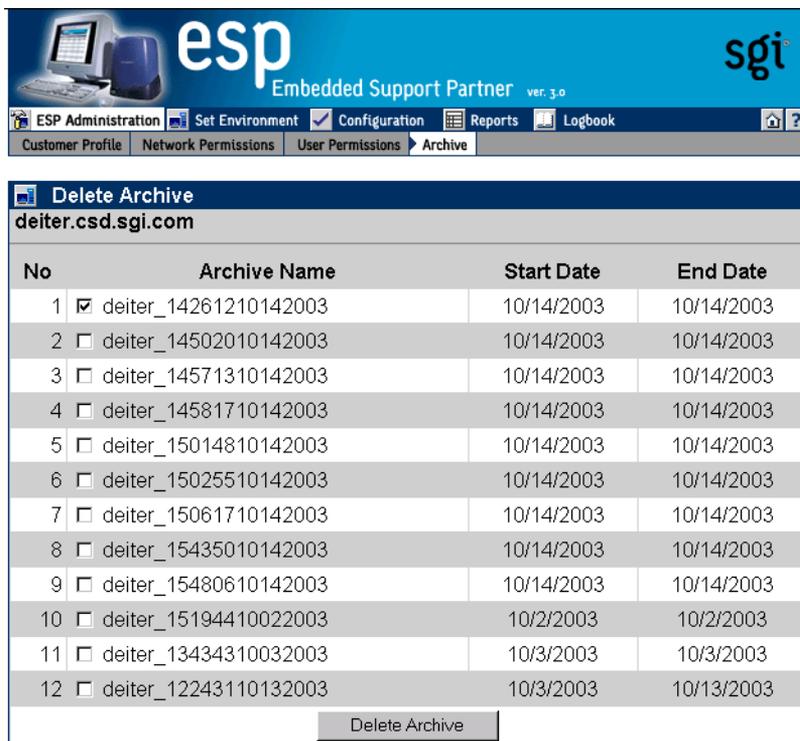


Figure 3-12 Delete Archive Window (Web-based Interface)

3. Click on the check box next to 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 3-13.)

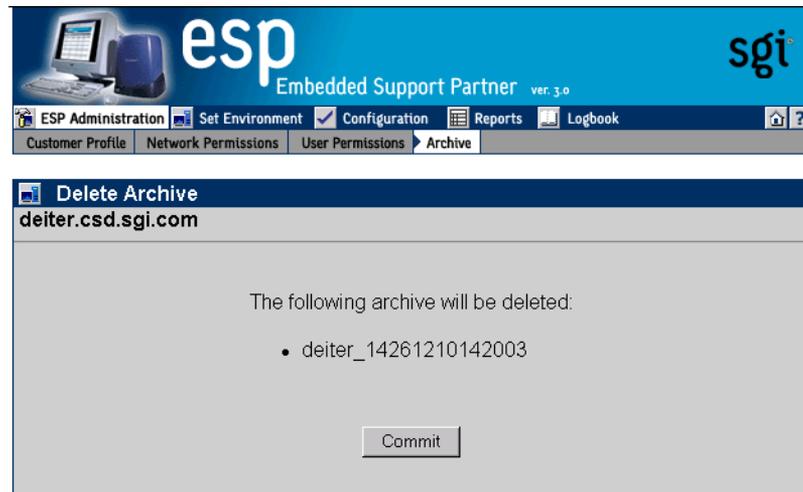


Figure 3-13 Delete Archive Verification Screen

5. Click on the `Commit` button.

Using the Command Line Interface

You can use the `espcnfig` 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/espcnfig -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/espcnfig -drop archive <archive name>
```

The `espcfg` 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/espcfg -reconstructdb
```

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

```
/usr/sbin/espcfg -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 ESP Environment

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

- System serial number (Linux OS only)
- Global configuration
- Paging parameters
- System/client parameters
- System Group Manager (SGM) password parameters

Note: The paging parameters are not included in the ESP 3.0 Web-based interface for the Linux OS. ESP 3.0 for the Linux OS does not include paging by default because SGI does not distribute the `QPage` application for the Linux OS. Paging capabilities are disabled when ESP 3.0 runs under the Linux OS. The ESP 3.0 graphical user interface for the Linux OS does not include the `Paging` menu. If you obtain the `QPage` application for the Linux OS from another source, you should manually install and configure it and then create an ESP action that calls the `QPage` application.

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.

Setting Up the System Serial Number (ESP for the Linux OS Only)

The `Linux System SN` button (refer to Figure 4-1) is available only on systems that run the Linux OS. This button enables you to enter the serial number of a system that is running the Linux OS. (This button can appear if you are running ESP from SGI ProPack 2.3 or later; however, this button should not normally appear for ESP from SGI ProPack 2.4 and later, which can automatically detect the system serial number.)



Figure 4-1 Linux System SN Button

The `Linux System SN` button appears under two conditions:

- A local system is running the Linux OS, and ESP cannot detect the system serial number.
- An SGM server has a subscribed client that is running the Linux OS and the system serial number was not detected or entered on the client before you subscribed the client to the SGM server.

Note: You cannot set the `Registration with SGI` global configuration parameter to `Enabled` until you set the system serial number.

On a local system, the `Linux System SN` button disappears after you enter the system serial number. On an SGM system, the `Linux System SN` button disappears after you enter the system serial number for each client system that does not have a system serial number set.

Setting the System Serial Number (Single System Manager Mode)

Perform the following procedure to set the system serial number in single system manager mode:

1. Click on the `Set Environment` button.
2. Click on the `Linux System SN` button.

The interface displays the `Add Linux System Serial Number` window. (Refer to Figure 4-2.)



Figure 4-2 Add Linux System Serial Number Window (Single System Manager Mode)

3. Enter the system serial number in the `System serial number` field.

Tip: To determine the system serial number, enter the `cat /proc/sgi_sn/system_serial_number` command.

4. Click on the `Continue` button.

The interface displays a verification window. (Refer to Figure 4-3.)

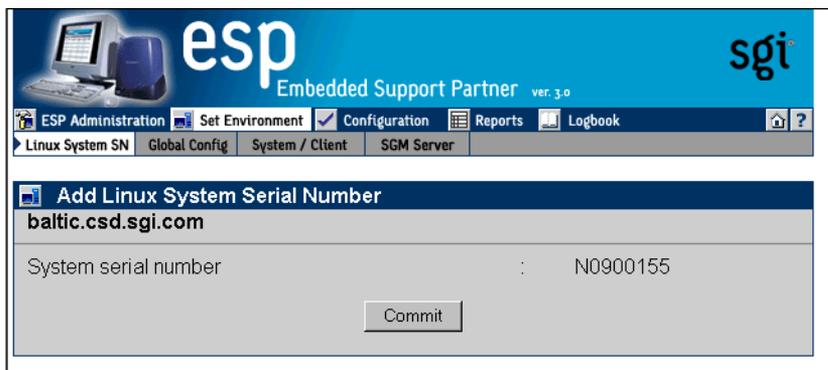


Figure 4-3 Add Linux System Serial Number Verification Window (Single System Manager Mode)

Tip: Verify that you correctly entered the serial number before you click on the `Commit` button. You cannot change the serial number once it has been submitted.

5. Click on the `Commit` button.

Setting the System Serial Number (System Group Manager Mode)

Perform the following procedure to set the system serial number in system group manager mode:

1. Click on the `Set Environment` button.
2. Click on the `Linux System SN` button.

The interface displays the `Add Linux System Serial Number` window.

One SGM Client without a Serial Number Set

If there is only one SGM client without a serial number, enter the system serial number in the `System serial number` field, and click on the `Continue` button. (Refer to Figure 4-4.) Then, log into ESP on the SGM client, and set the serial number on that system. You must set the serial number on the SGM server and the SGM client.

Tip: Verify that you correctly entered the serial number before you click on the `Commit` button. You cannot change the serial number once it has been submitted.



Figure 4-4 Linux System SN Window (SGM Server that has One Client without a Serial Number Entered)

Multiple Clients without a Serial Number Set

If there is more than one SGM client without a serial number, choose the correct system from the pulldown menu, enter the system serial number in the `System serial number` field, and click on the `Continue` button. (Refer to Figure 4-5.) Then, log into ESP on the SGM client, and set the serial number on that system. You must set the serial number on the SGM server and the SGM client.

Tip: Verify that you correctly entered the serial number before you click on the `Commit` button. You cannot change the serial number once it has been submitted.



Figure 4-5 Linux System SN Window (SGM Server that has Multiple Clients without Serial Numbers Entered)

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.

Note: If the system is an SGM server, choose the system for which you want to update the global configuration parameters, and click on the `Continue` button. (Refer to Figure 4-6.)

The interface displays the `Global Configuration` window. (Refer to Figure 4-7.)

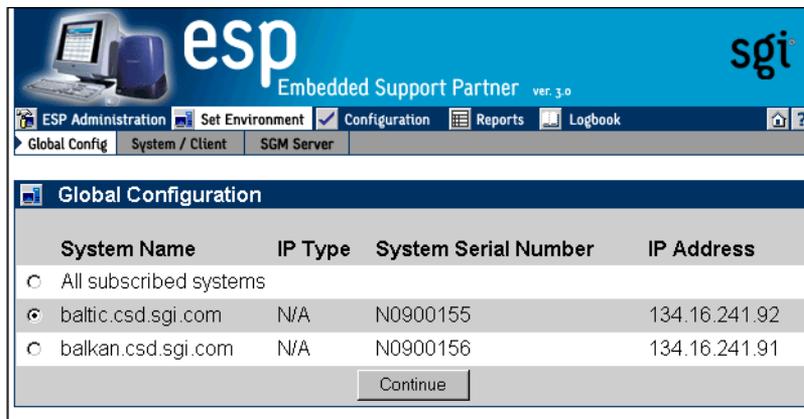


Figure 4-6 Choosing the System to Update the Global Parameters

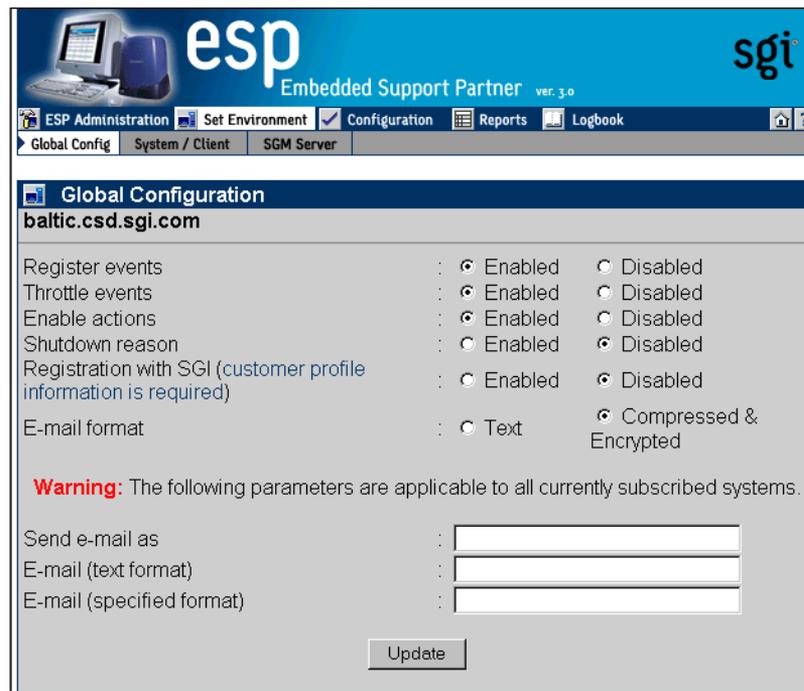


Figure 4-7 Global Configuration Window (Web-based Interface)

3. Set the parameters. (Table 4-1 describes the global configuration parameters.)

Table 4-1 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>

Table 4-1 Global Configuration Parameters (**continued**)

Parameter	Description
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>
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 ^a	<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>

Table 4-1 Global Configuration Parameters (**continued**)

Parameter	Description
Send e-mail as ^a	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).
E-mail (text format) ^a	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> . The <code>E-mail (text format)</code> parameter specifies e-mail addresses that should receive the e-mail in plain text format. 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. Each field can hold up to 255 characters; you should separate multiple e-mail addresses with spaces or commas. Recommendation: Enter e-mail addresses of local personnel that are interested in this information (for example, system administrators)
E-mail (specified format) ^a	

a. Any changes that you make to these parameters from an SGM server affect all SGM clients that are currently subscribed to that server.

4. Click on the `Update` button. The interface displays a confirmation window.
5. Click on the `Commit` button.

Using the Command Line Interface

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

- Use the following command syntax to view the current setting of the event registration parameter:

```
/usr/sbin/espcfg -show event_registration  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to enable event registration by ESP:

```
/usr/sbin/espcfg -enable event_registration  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to disable event registration by ESP:

```
/usr/sbin/espcfg -disable event_registration  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to view the current setting of the event throttling parameter:

```
/usr/sbin/espcfg -show event_throttling  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to enable event throttling:

```
/usr/sbin/espcfg -enable event_throttling  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to disable event throttling:

```
/usr/sbin/espcfg -disable event_throttling  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to view the current setting of the actions parameter:

```
/usr/sbin/espcfg -show event_actions  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to enable actions:

```
/usr/sbin/espcfg -enable event_actions  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to disable actions:

```
/usr/sbin/espcfg -disable event_actions  
                [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to view the current setting of the shutdown description parameter:

```
/usr/sbin/espcnfig -show shutdown_reason  
                    [-sgmclient <client alias>|-sysid <system id>]
```
- Use the following command syntax to prompt users for a description when they shut down the system:

```
/usr/sbin/espcnfig -enable shutdown_reason  
                    [-sgmclient <client alias>|-sysid <system id>]
```
- Use the following command syntax to allow users to shut down the system without providing a reason:

```
/usr/sbin/espcnfig -disable shutdown_reason  
                    [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to view the current setting of the call logging parameter:

```
/usr/sbin/espcnfig -show call_logging  
                    [-sgmclient <client alias>|-sysid <system id>]
```

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

```
/usr/sbin/espcnfig -enable call_logging [-text|-comp_encoded]  
                    [-sgmclient <client alias>|-sysid <system id>]
```

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 disable call logging:

```
/usr/sbin/espcnfig -disable call_logging  
                    [-sgmclient <client alias>|-sysid <system id>]
```

- Use the following command syntax to view the current setting of the e-mail parameter:

```
/usr/sbin/espcnfig -show mail
```

- Use the following command syntax to enable ESP to send e-mail messages and specify the e-mail account that sends the messages:

```
/usr/sbin/espconfig -enable mail -from <email address>  
                    [-email1 <email address>]  
                    [-email2 <email address>]
```

- Use the following command syntax to disable ESP from sending e-mail messages:

```
/usr/sbin/espconfig -disable mail
```

Setting Up the Paging Parameters (ESP for IRIX OS Only)

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/espnotify` application. (Refer to Figure 4-8.)

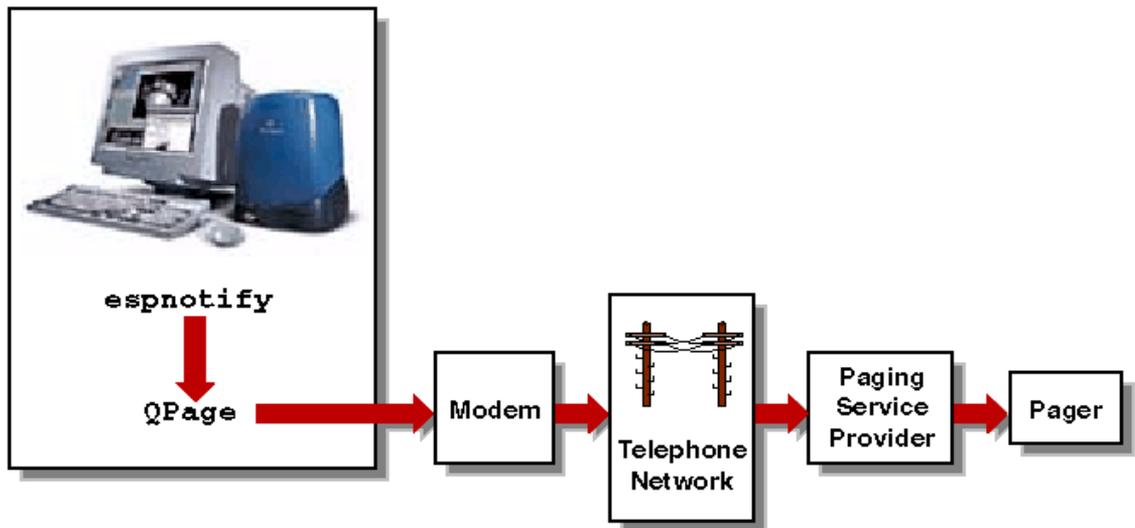


Figure 4-8 Process for Sending a Page

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 automatically restarts 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.

Note: The paging parameters are not included in the ESP 3.0 Web-based interface for the Linux OS. ESP 3.0 for the Linux OS does not include paging by default because SGI does not distribute the `QPage` application for the Linux OS. Paging capabilities are disabled when ESP 3.0 runs under the Linux OS. The ESP 3.0 graphical user interface for the Linux OS does not include the `Paging` menu. If you obtain the `QPage` application for the Linux OS from another source, you should manually install and configure it and then create an ESP action that calls the `QPage` application.

Setting Up the Modem Parameters (ESP for IRIX OS Only)

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 4-9.)

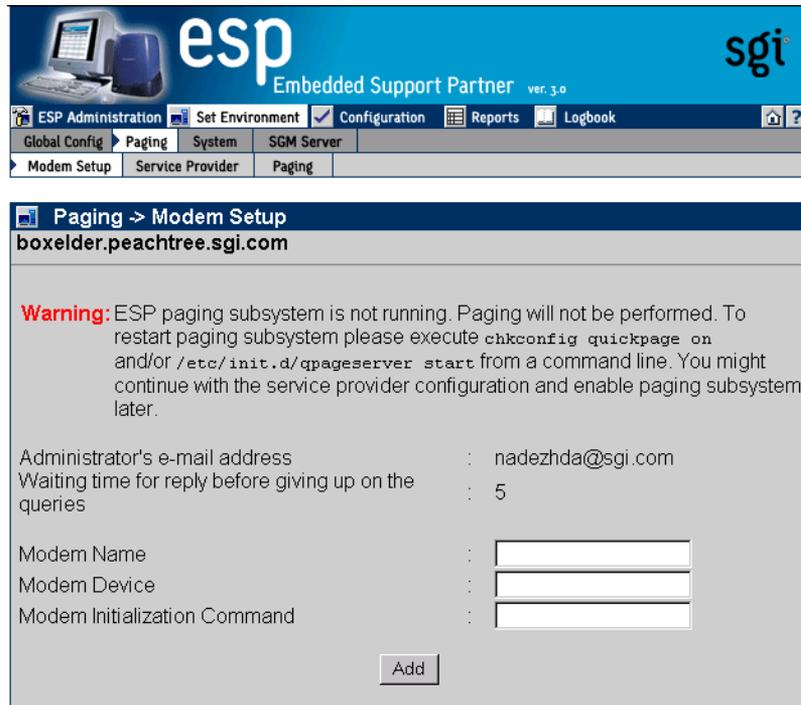


Figure 4-9 Modem Parameters Window (Web-based Interface)

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

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`.

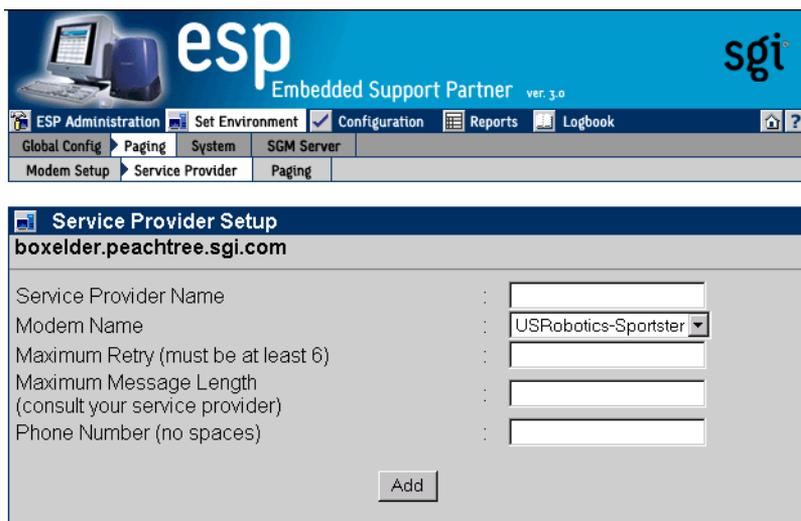
Setting Up the Paging Service Provider Parameters (ESP for IRIX OS Only)

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 `Service Provider Setup` window. (Refer to Figure 4-10.)



The screenshot shows the ESP Embedded Support Partner web-based interface. The top banner features the 'esp' logo and 'Embedded Support Partner ver. 3.0' with the 'sgi' logo on the right. Below the banner is a navigation menu with tabs for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. Under 'Set Environment', there are sub-tabs for 'Global Config', 'Paging', 'System', and 'SGM Server'. Under 'Paging', there are sub-tabs for 'Modem Setup', 'Service Provider', and 'Paging'. The main content area is titled 'Service Provider Setup' and displays the URL 'boxelder.peachtree.sgi.com'. It contains five input fields for configuration: 'Service Provider Name', 'Modem Name' (with a dropdown menu showing 'USRobotics-Sportster'), 'Maximum Retry (must be at least 6)', 'Maximum Message Length (consult your service provider)', and 'Phone Number (no spaces)'. An 'Add' button is located at the bottom of the form.

Figure 4-10 Paging Service Provider Pager (Web-based Interface)

4. Update the parameters. (Table 4-2 describes the parameters.)

Table 4-2 Paging Service Provider Parameters

Parameter	Description
Service Provider Name	Specifies the name of the paging 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 (Enter only numbers in this field; for example 17151234567)

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 add a new paging service provider, click on the Add 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.)

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 (ESP for the IRIX OS Only)

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 `Pager Setup` window. (Refer to Figure 4-11.)



Figure 4-11 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 add a new pager, click on the `Add` 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.

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`.

Setting Up the System Parameters (Single System Manager Mode Only)

The system parameters enable you to set up an alias name, select the system mode (full or SGM), and add the system to a group.

Perform the following procedure to update the system parameters in single system manager mode:

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

The interface displays the `Update System Information` window. (Refer to Figure 4-12.)

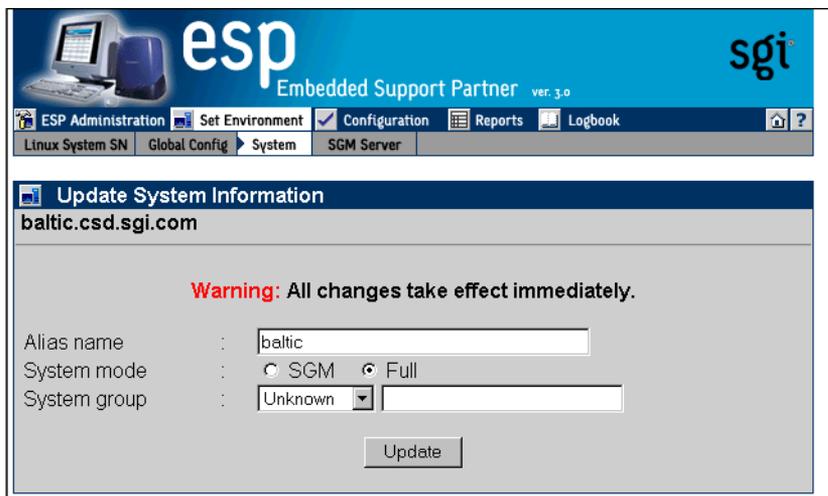


Figure 4-12 Update System Information Window (Single System Manager)

3. Set the parameters. (Table 4-3 describes the parameters that are available.)
4. Click the `update` button.

Table 4-3 Update System Information Window Parameters (Single System Manager Mode)

Parameter	Description
Alias	<p>Specifies an alias that ESP uses to identify the SGM server.</p> <p>This parameter is optional. If you do not set this parameter, ESP uses the hostname of the client (without the domain name).</p> <p>This parameter can contain any non-blank-space character, except for single or double quotes.</p>
System mode	<p>Specifies how the system is configured.</p> <p>There are two choices: <code>SGM</code> and <code>Full node</code> (default)</p> <p>The <code>SGM</code> option configures the system to be a system group manager system.</p> <p>The <code>Full node</code> option configures the system as a single system manager. The system does not have any clients.</p>
System group	<p>Specifies the group to which the system belongs. You can use groups to quickly access information about all systems in a group by generating a site report. Example group names include <code>Server</code>, <code>Desktop</code>, <code>Web Server</code>, and <code>File Server</code>.</p> <p>To create a new group, enter the name in the <code>System group</code> field. Once you create one or more group names, ESP displays a menu of the existing groups; to select an existing group, choose it from the menu.</p> <p>Note: When you enter group names, the entry in the field takes precedence over the selection in the menu. The proper way to create a new group is to set the menu to <code>New Group</code> and enter the group name in the <code>System Group</code> field.</p> <p>The following three rules apply for creating group names:</p> <ol style="list-style-type: none"> 1) The case of characters does not matter. (ESP puts systems that you enter in the groups named <code>"Web server"</code> and <code>"Web Server"</code> in the same group.) 2) Spacing between characters does matter. (ESP puts systems that you enter in the groups named <code>"Web server"</code> and <code>"Web server"</code> in different groups.) 3) Single and double quotes are not allowed. <p>This parameter is optional.</p>

Setting Up the System/Client Parameters (System Group Manager Mode Only)

The system/client parameters enable you to add a new SGM client to an SGM server, update system parameters for an SGM server or one of its SGM clients, and unsubscribe an SGM client from an SGM server.

Adding a New SGM Client

1. Click on the `Set Environment` button.
2. Click on the `System` button.
3. Click on the `Add New Client` button.

The interface displays the `Add New Client` window. (Refer to Figure 4-13.)

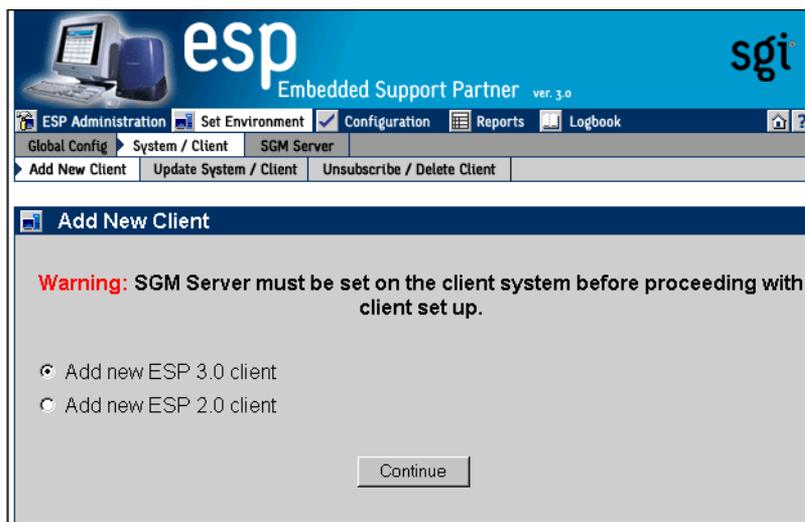


Figure 4-13 Add New Client Window (System Group Manager Mode)

4. Select the type of client to add (ESP 3.0 or ESP 2.0 client).
5. Click on the `Continue` button.

Figure 4-14 shows the Add New Client window for an ESP 3.0 client.

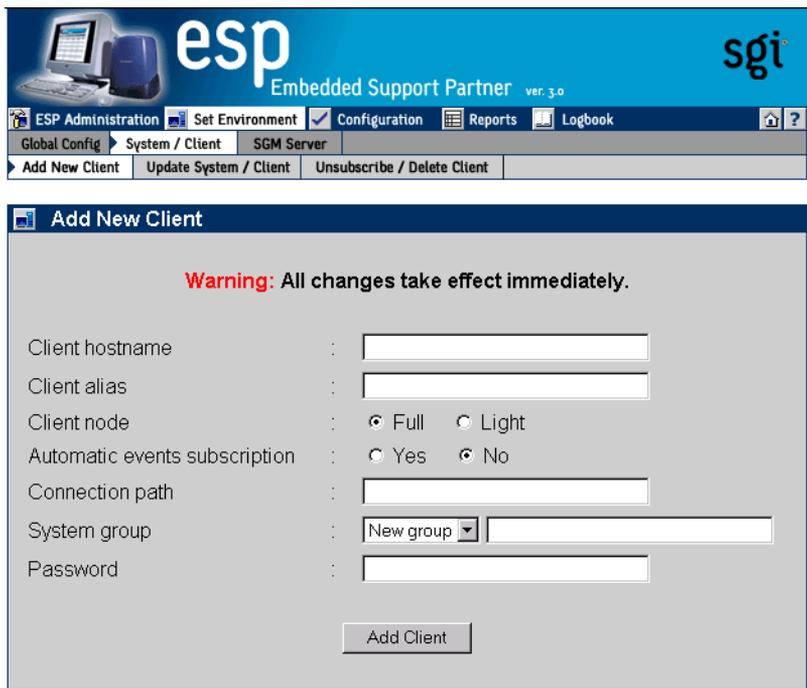


Figure 4-14 Add New Client Window for ESP 3.0 Client (System Group Manager Mode)

Figure 4-15 shows the Add New Client window for an ESP 2.0 client.

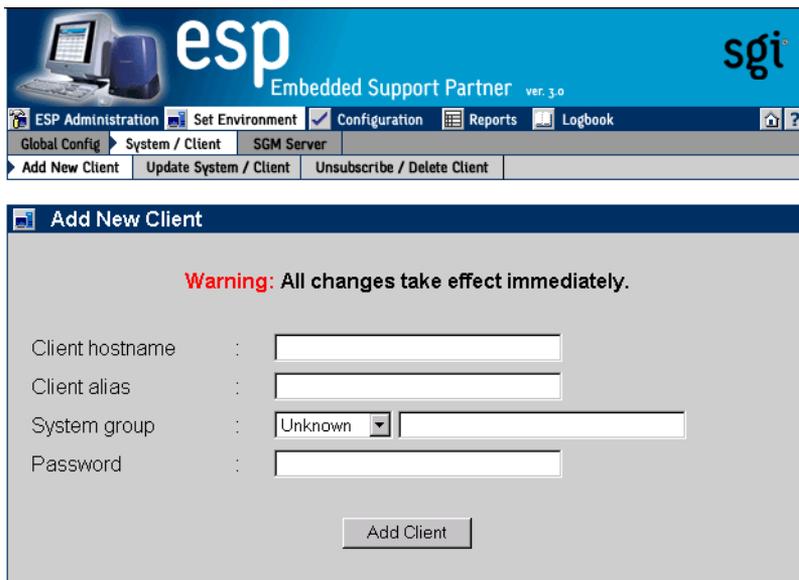


Figure 4-15 Add New Client Window for ESP 2.0 Client (System Group Manager Mode)

6. Set the parameters for the client. (Table 4-4 describes the parameters that are available.)
7. Click on the Add Client button.
8. Click on the Continue button.

For ESP 3.0 clients, ESP immediately subscribes the system without waiting for additional verification. If ESP cannot establish a connection between systems, ESP displays a message that indicates this. For ESP 2.0 clients, you must also configure SGM clients from the client side.

Table 4-4 Add New Client Window Parameters

Parameter	Description
Client hostname	Specifies the fully qualified hostname of a client system.
Client alias	Specifies an alias that ESP uses to identify the client. This parameter is optional. If you do not set this parameter, ESP uses the hostname of the client (without the domain name). This parameter can contain any non-blank-space character, except for single or double quotes.
Client node ^a	Specifies how the client is configured. There are two choices: <code>Full</code> and <code>Light</code> (default). A full node is an SGM client that sends data to an SGM server and also keeps a copy of all data in its own database. Full nodes require more local disk space than light nodes. A light node is an SGM client that sends data to an SGM server but does not keep any data in its own database. You can convert a light node to a full node at any time; however, only data that is generated after the conversion completes is stored in the local database. (Data generated before the conversion completes is stored only in the database on the SGM server.)
Automatic events subscription ^a	Specifies whether or not ESP should automatically subscribe events with the Event Manager. If you set this parameter to <code>Yes</code> , you do not need to manually subscribe the event (with the <code>Subscription</code> button).

Table 4-4 Add New Client Window Parameters (**continued**)

Parameter	Description
Connection path ^a	<p>Specifies the connection path between the SGM server and this client. This parameter applies only to ESP 3.0 clients. ESP 2.0 clients ignore this parameter.</p> <p>ESP 3.0 does not require an SGM to know the hostname and IP address information for its clients. ESP 3.0 allows an intermediate system to know this information about the SGM and client systems. This enables ESP to work through a firewall.</p> <p>For example, system A is an SGM server and system D is a client, but system A does not know the hostname or IP address of system D. However, system B knows about systems A and C, and system C knows about systems B and D. ESP 3.0 allows you to add system D as a client to system A by specifying the connection path as follows:</p> <p>B>C</p> <p>This means that events are forwarded from system D to system A, following the connection path through system C and system B.</p> <p>If only one system is intermediate, enter a fully qualified hostname of that system. If a direct connection can be established between SGM server and client systems, leave this field blank.</p> <p>Note: A connection path must be specified in the direction from the SGM server towards a client. The SGM server and client hostnames should be omitted. All systems name must be fully qualified hostnames.</p>

Table 4-4 Add New Client Window Parameters (**continued**)

Parameter	Description
System group	<p>Specifies the group to which the client belongs. You can use groups to quickly access information about all systems in a group by generating a site report. Example group names include Server, Desktop, Web Server, and File Server.</p> <p>To create a new group, enter the name in the <code>System group</code> field. Once you create one or more group names, ESP displays a menu of the existing groups; to select an existing group, choose it from the menu.</p> <p>Note: When you enter group names, the entry in the field takes precedence over the selection in the menu. The proper way to create a new group is to set the menu to <code>New Group</code> and enter the group name in the <code>System Group</code> field.</p> <p>The following three rules apply for creating group names:</p> <ol style="list-style-type: none"> 1) The case of characters does not matter. (ESP puts systems that you enter in the groups named “Web server” and “Web Server” in the same group.) 2) Spacing between characters does matter. (ESP puts systems that you enter in the groups named “Web server” and “Web server” in different groups.) 3) Single and double quotes are not allowed. <p>This parameter is optional.</p>
Password	<p>Specifies a password that the server and client must exchange before transmitting data (to provide stronger security via authentication)</p> <p>This parameter is optional for ESP 3.0 clients. This parameter is required for ESP 2.0 clients. If you require a password, you must configure it on the client side first.</p>

a. This parameter appears only for ESP 3.0 clients.

Updating the System or a Client

Perform the following procedure to update the SGM server (system) or an SGM client in system group manager mode:

1. Click on the `Set Environment` button.
2. Click on the `System/Client` button.
3. Click on the `Update System/Client` button.

The interface displays the `Update System/Client` window. (Refer to Figure 4-16.)

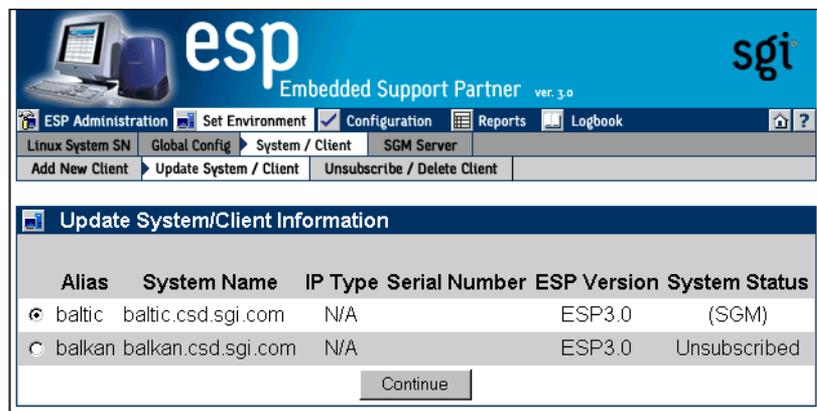


Figure 4-16 Update System/Client Window (System Group Manager Mode)

4. Select the system to update.
5. Click on the `Continue` button.

Updating the SGM Server

If you select the local system (the SGM server), ESP displays the Update System Information window. (Refer to Figure 4-17.)

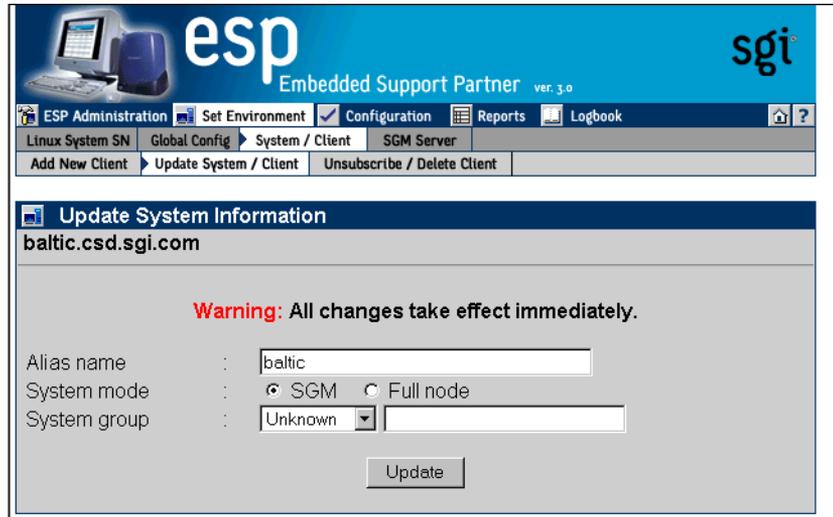


Figure 4-17 Update System Information Window (SGM Server Selected)

1. Set the parameters. (Table 4-5 describes the parameters that are available.)
2. Click the update button.

Table 4-5 Update System Information Window Parameters (SGM Server)

Parameter	Description
Alias	<p>Specifies an alias that ESP uses to identify the SGM server.</p> <p>This parameter is optional. If you do not set this parameter, ESP uses the hostname of the client (without the domain name).</p> <p>This parameter can contain any non-blank-space character, except for single or double quotes.</p>
System mode	<p>Specifies how the system is configured.</p> <p>There are two choices: <code>SGM</code> (default) and <code>Full node</code></p> <p>The <code>SGM</code> option configures the system to be a system group manager system.</p> <p>The <code>Full node</code> option configures the system as a single system manager. The system does not have any clients.</p>
System group	<p>Specifies the group to which the system belongs. You can use groups to quickly access information about all systems in a group by generating a site report. Example group names include <code>Server</code>, <code>Desktop</code>, <code>Web Server</code>, and <code>File Server</code>.</p> <p>To create a new group, enter the name in the <code>System group</code> field. Once you create one or more group names, ESP displays a menu of the existing groups; to select an existing group, choose it from the menu.</p> <p>Note: When you enter group names, the entry in the field takes precedence over the selection in the menu. The proper way to create a new group is to set the menu to <code>New Group</code> and enter the group name in the <code>System Group</code> field.</p> <p>The following three rules apply for creating group names:</p> <ol style="list-style-type: none"> 1) The case of characters does not matter. (ESP puts systems that you enter in the groups named “Web server” and “Web Server” in the same group.) 2) Spacing between characters does matter. (ESP puts systems that you enter in the groups named “Web server” and “Web server” in different groups.) 3) Single and double quotes are not allowed. <p>This parameter is optional.</p>

Updating an ESP 3.0 SGM Client

If you select an ESP 3.0 SGM client, ESP displays the Update Client Information window shown in Figure 4-18.

esp Embedded Support Partner ver. 3.0 **sgi**

ESP Administration Set Environment Configuration Reports Logbook

Linux System SN Global Config System / Client SGM Server

Add New Client Update System / Client Unsubscribe / Delete Client

Update Client Information
balkan.csd.sgi.com

Warning: All changes take effect immediately.

Client status : Subscribed Unsubscribed

Client alias :

Client node : Full Light

Connection path :

System group :

Password : Leave it as is Add

Figure 4-18 Update Client Information Window (ESP 3.0 SGM Client Selected)

1. Set the parameters. (Table 4-6 describes the parameters that are available.)
2. Click the `update` button.

Table 4-6 Update Client Information Window Parameters (ESP 3.0 SGM Client)

Parameter	Description
Client alias	<p>Specifies an alias that ESP uses to identify the client.</p> <p>This parameter is optional. If you do not set this parameter, ESP uses the hostname of the client (without the domain name).</p> <p>This parameter can contain any non-blank-space character, except for single or double quotes.</p>
Client node	<p>Specifies how the client is configured:</p> <p>Full and Light</p> <p>A full node is an SGM client that sends data to an SGM server and also keeps a copy of all data in its own database. Full nodes require more local disk space than light nodes.</p> <p>A light node is an SGM client that sends data to an SGM server but does not keep any data in its own database.</p> <p>You can convert a light node to a full node at any time; however, only data that is generated after the conversion completes is stored in the local database. (Data generated before the conversion completes is stored only in the database on the SGM server.)</p> <p>This parameter applies only to ESP 3.0 clients.</p>

Table 4-6 Update Client Information Window Parameters (ESP 3.0 SGM Client) (continued)

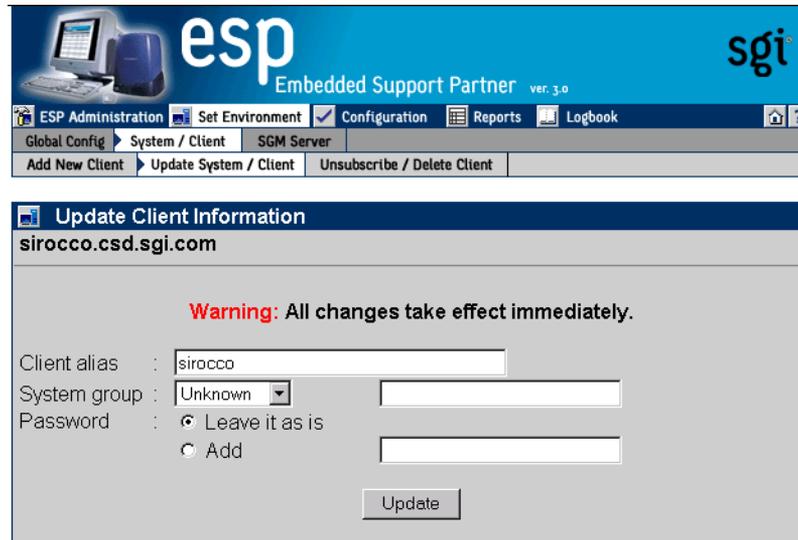
Parameter	Description
Connection path	<p>Specifies the connection path between the SGM server and this client. This parameter applies only to ESP 3.0 clients. ESP 2.0 clients ignore this parameter.</p> <p>ESP 3.0 does not require an SGM to know the hostname and IP address information for its clients. ESP 3.0 allows an intermediate system to know this information about the SGM and client systems. This enables ESP to work through a firewall.</p> <p>For example, system A is an SGM server and system D is a client, but system A does not know the hostname or IP address of system D. However, system B knows about systems A and C, and system C knows about systems B and D. ESP 3.0 allows you to add system D as a client to system A by specifying the connection path as follows:</p> <p>B>C</p> <p>This means that events are forwarded from system D to system A, following the connection path through system C and system B.</p> <p>If only one system is intermediate, enter a fully qualified hostname of that system. If a direct connection can be established between SGM server and client systems, leave this field blank.</p> <p>Note: A connection path must be specified in the direction from the SGM server towards a client. The SGM server and client hostnames should be omitted. All systems name must be fully qualified hostnames.</p>

Table 4-6 Update Client Information Window Parameters (ESP 3.0 SGM Client) **(continued)**

Parameter	Description
System group	<p>Specifies the group to which the client belongs. You can use groups to quickly access information about all systems in a group by generating a site report. Example group names include Server, Desktop, Web Server, and File Server.</p> <p>To create a new group, enter the name in the <i>System group</i> field. Once you create one or more group names, ESP displays a menu of the existing groups; to select an existing group, choose it from the menu.</p> <p>Note: When you enter group names, the entry in the field takes precedence over the selection in the menu. The proper way to create a new group is to set the menu to <i>New Group</i> and enter the group name in the <i>System Group</i> field.</p> <p>The following three rules apply for creating group names:</p> <ol style="list-style-type: none"> 1) The case of characters does not matter. (ESP puts systems that you enter in the groups named "Web server" and "Web Server" in the same group.) 2) Spacing between characters does matter. (ESP puts systems that you enter in the groups named "Web server" and "Web server" in different groups.) 3) Single and double quotes are not allowed. <p>This parameter is optional.</p>
Password	<p>Specifies a password that the server and client must exchange before transmitting data (to provide stronger security via authentication)</p> <p>This parameter is optional. If you require a password, you must configure it on the client side first. Use the <i>Leave it as is</i> option to retain an existing password. Use the <i>Add</i> option to add a new password.</p>

Updating an ESP 2.0 SGM Client

If you select an ESP 2.0 SGM client, ESP displays the `Update Client Information` window shown in Figure 4-19.



The screenshot shows the ESP Administration web interface. The top banner includes the ESP logo and 'Embedded Support Partner ver. 3.0' with the SGI logo. The navigation menu includes 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The breadcrumb trail is 'Global Config > System / Client > SGM Server'. The main menu options are 'Add New Client', 'Update System / Client', and 'Unsubscribe / Delete Client'. The 'Update Client Information' window is open, displaying the client name 'sirocco.csd.sgi.com'. A red warning message states: 'Warning: All changes take effect immediately.' The form contains the following fields and options:

- Client alias : sirocco
- System group : Unknown (dropdown menu)
- Password : Leave it as is, Add
- Update button

Figure 4-19 Update Client Information Window (ESP 2.0 SGM Client Selected)

1. Set the parameters. (Table 4-7 describes the parameters that are available.)
2. Click the `update` button.

Table 4-7 Update Client Information Window Parameters (ESP 2.0 SGM Client)

Parameter	Description
Client alias	<p>Specifies an alias that ESP uses to identify the client.</p> <p>This parameter is optional. If you do not set this parameter, ESP uses the hostname of the client (without the domain name).</p> <p>This parameter can contain any non-blank-space character, except for single or double quotes.</p>
System group	<p>Specifies the group to which the client belongs. You can use groups to quickly access information about all systems in a group by generating a site report. Example group names include Server, Desktop, Web Server, and File Server.</p> <p>To create a new group, enter the name in the <code>System group</code> field. Once you create one or more group names, ESP displays a menu of the existing groups; to select an existing group, choose it from the menu.</p> <p>Note: When you enter group names, the entry in the field takes precedence over the selection in the menu. The proper way to create a new group is to set the menu to <code>New Group</code> and enter the group name in the <code>System Group</code> field.</p> <p>The following three rules apply for creating group names:</p> <ol style="list-style-type: none"> 1) The case of characters does not matter. (ESP puts systems that you enter in the groups named "Web server" and "Web Server" in the same group.) 2) Spacing between characters does matter. (ESP puts systems that you enter in the groups named "Web server" and "Web server" in different groups.) 3) Single and double quotes are not allowed. <p>This parameter is optional.</p>
Password	<p>Specifies a password that the server and client must exchange before transmitting data (to provide stronger security via authentication)</p> <p>This parameter is required. You must configure the password on the client side first. Use the <code>Leave it as is</code> option to retain an existing password. Use the <code>Add</code> option to add a new password.</p>

Unsubscribing SGM Clients

If a system is subscribed, you can either unsubscribe a client or unsubscribe and delete it:

- When you unsubscribe a client, the client no longer sends events to the SGM server, and changes occur on the client system. If a client system is a light node and subscribed to only one SGM server, the client system resets to a full node once the unsubscription process completes. If a client system is a full node or is subscribed to two or more SGM servers, the mode for that node remains the same. All information about an unsubscribed client for the period of time that the system was subscribed to the SGM server remains available on the SGM system.
- When unsubscribe a delete a system, the same actions occur, and all information for the system (including reports) is removed from the SGM server.

Tip: If an ESP SGM license expires and you do not plan to renew it, enter the `espconfig -unsubscribe sgmclient` command to unsubscribe the clients.

Perform the following procedure to unsubscribe a system:

1. Click on the `Set Environment` button.
2. Click on the `System/Client` button.
3. Click on the `Unsubscribe/Delete Client` button.

The interface displays the `Unsubscribe/Delete Client` window. (Refer to Figure 4-20.)

Note: If more than one client is subscribed to the SGM server, the interface displays a list of clients. Select the client that you want to unsubscribe and click on the `Continue` button.



Figure 4-20 Unsubscribe/Delete Client Window

4. Specify if you want to unsubscribe the client or unsubscribe and delete the client. (ESP 2.0 clients are unsubscribed immediately. For ESP 3.0 clients, you must commit the unsubscription on a verification screen before ESP will unsubscribe them.)

Note: When you unsubscribe an ESP 2.0 client on the server side, SGI recommends that you also unregister the server on the ESP 2.0 client side.

5. Click on the `Commit` button.

Setting Up the Authentication Password

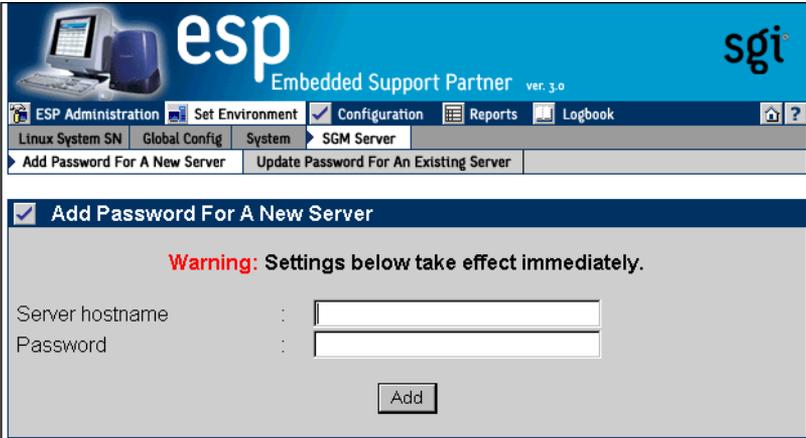
You can use authentication between the SGM server and clients to provide stronger security. Authentication requires the SGM server to exchange and authenticate a password before any data transactions can occur. You must configure the password on the client side and then on the server side.

Adding a Password for a New Server

Perform the following procedure to set up a password on the client side in single system manager mode:

1. Click on the `Set Environment` button.
2. Click on the `SGM Server` button.
3. Click on the `Add Password for a New Server` button.

The interface displays the `Add Password for a New Server` window. (Refer to Figure 4-21.)



The screenshot shows the ESP Administration web interface. The top header includes the 'esp' logo, 'Embedded Support Partner ver. 3.0', and the 'sgt' logo. Below the header is a navigation menu with options: 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. A secondary menu shows 'Linux System SN', 'Global Config', 'System', and 'SGM Server'. The main content area is titled 'Add Password For A New Server' and contains a warning: 'Warning: Settings below take effect immediately.' Below the warning are two input fields: 'Server hostname' and 'Password'. An 'Add' button is located at the bottom of the form.

Figure 4-21 Add Password for a New Server Window

4. Enter the fully qualified hostname of the SGM server in the `Server hostname` field.
5. Enter the password in the `Password` field.
6. Click on the `Add` button.

ESP immediately adds the password. Be sure to configure the same password on the SGM server when you add the client to the server. (Refer to “Adding a New SGM Client” on page 116.)

Updating the Password for an Existing Server

Perform the following procedure to update a password that you previously assigned to a server:

1. Click on the `Set Environment` button.
2. Click on the `SGM Server` button.
3. Click on the `Update Password for an Existing Server` button.

The interface displays the `Update Password for an Existing Server` window. (Refer to Figure 4-22.)

Note: If the client has more than one SGM server, select the server for which you want to update the password, and click on the `Continue` button.

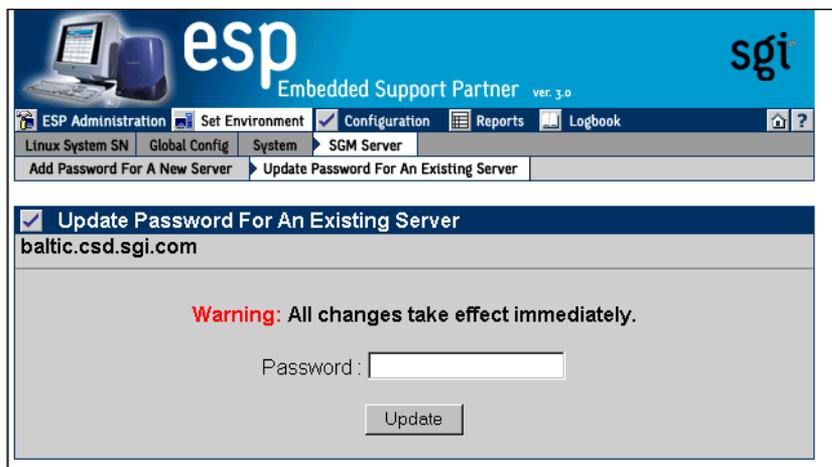


Figure 4-22 Update Password for an Existing Server Window

4. Enter the new password in the `Password` field.
Tip: To remove a password, leave the `Password` field empty.
5. Click on the `Update` button.

Using the Command Line Interface to Configure SGM Settings

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

- Use the following command syntax to register a server:

```
/usr/sbin/espconfig -add sgmserver -host <SGM host name>
```

The command prompts you for a communication password.

You can use the `espconfig` command to configure SGM clients.

- Use the following command syntax to register a client:

```
/usr/sbin/espconfig -add sgmclient <client alias> <client hostname>  
<server alias>
```

The command prompts you for a communication password.

- Use the following command syntax to add a client:

```
/usr/sbin/espconfig -add sgmclient -alias <client alias>  
-host <client hostname>  
[-path <client reach path>]  
[-group <group descr.>|-gid <group id>]  
[-v2|-v3] [-p <password>]
```

- Use the following command syntax to subscribe a client:

```
/usr/sbin/espconfig -subscribe sgmclient  
-host <host name>|-alias <client alias>|-sysid <system id>  
[-loadprofiles] [-refreshprofiles] [-lightnode|-fullnode]  
[-force]
```

- Use the following command syntax to unsubscribe a client:

```
/usr/sbin/espconfig -unsubscribe sgmclient  
-host <host name>|-alias <client alias>|-sysid <system id>  
[-force]
```

- Use the following command syntax to update a client:

```
/usr/sbin/espcnfig -update sgmclient
    -host <host name>|-alias <client alias>|-sysid <system id>
    [-p <password>] [-path <new path>] [-lightnode|-fullnode]
```

- Use the following command syntax to delete a client:

```
/usr/sbin/espcnfig -delete sgmclient
    -host <host name>|-alias <client alias>|-sysid <system id>
```

- Use the following command syntax to ping a client:

```
/usr/sbin/espcnfig ping
    -sgmclient <client alias>|-sysid <system id>|-path <reach path>
    [-espver]
```

You can use the `espcnfig` to check and configure general SGM settings.

- Use the following command syntax to show the systems that an SGM knows:

```
/usr/sbin/espcnfig -show systems
```

- Use the following command syntax to show an SGM's clients:

```
/usr/sbin/espcnfig -show sgmclients
```

- Use the following command syntax to show the SGM servers configured for a system:

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

- Use the following command syntax to show information about a system:

```
/usr/sbin/espcnfig -show system
    -host <host name>|-sgmclient <client alias>|-sysid <system id>
```

- Use the following command syntax to set group management parameters for a system:

```
/usr/sbin/espcnfig -set system -host <host name>|-sysid <system id>
    [-alias <new alias>]
    [-group <group name> | -gid <group id> ]
```

- Use the following command syntax to configure a system (node) in SGM or full mode:

```
/usr/sbin/espcnfig -setnode system -sgmnode|-fullnode
```

- Use the following command syntax to get information about the SGM license or update it:

```
/usr/sbin/espcnfig -check system -sgmlicense|-update
```

- Use the following command syntax to update the SGM license key:

```
/usr/sbin/espsconfig -update sgmkey -host <host name> -p <comm. password> [-pid <key ID>]
```

You can use the `espsconfig` command to create and manage named groups.

- Use the following command syntax to create a new group name:

```
espsconfig -add group -name <new group name>
```
- Use the following command syntax to delete a group name:

```
espsconfig -delete group -name <group name>
```
- Use the following command syntax to list the groups that are available:

```
espsconfig -list group
```
- Use the following command syntax to list the members of a group:

```
espsconfig -listmembers group -name <group name>
```

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] [site|customer_profile] [all] [-to <filename> ]
```
- Use the following command syntax to load an ESP environment:

```
/usr/sbin/espsconfig -load espenv [-sysid <client system id>] [-chk <check definition filename>] -from <data definition filename>
```

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 panics, high processor utilizations, 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 10, “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.

Note: If the system is an SGM server, the interface displays a list of clients. (Refer to Figure 5-1.) Click on the client that you want to use, and click on the `Continue` button.)

The interface displays the `Event Profile` window. (Refer to Figure 5-2.)

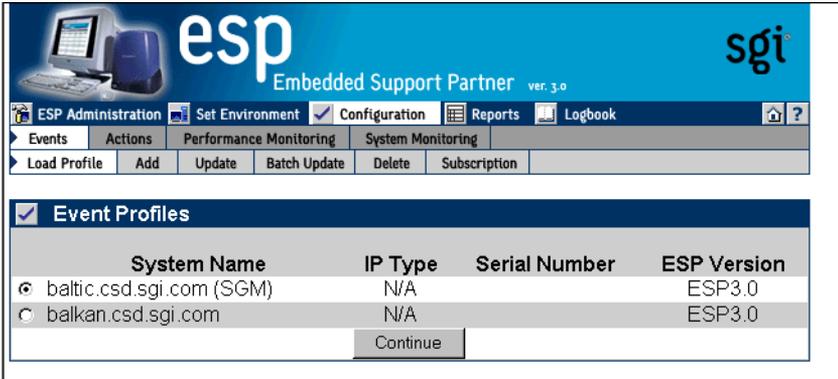


Figure 5-1 Event Profile Window (System Group Manager)

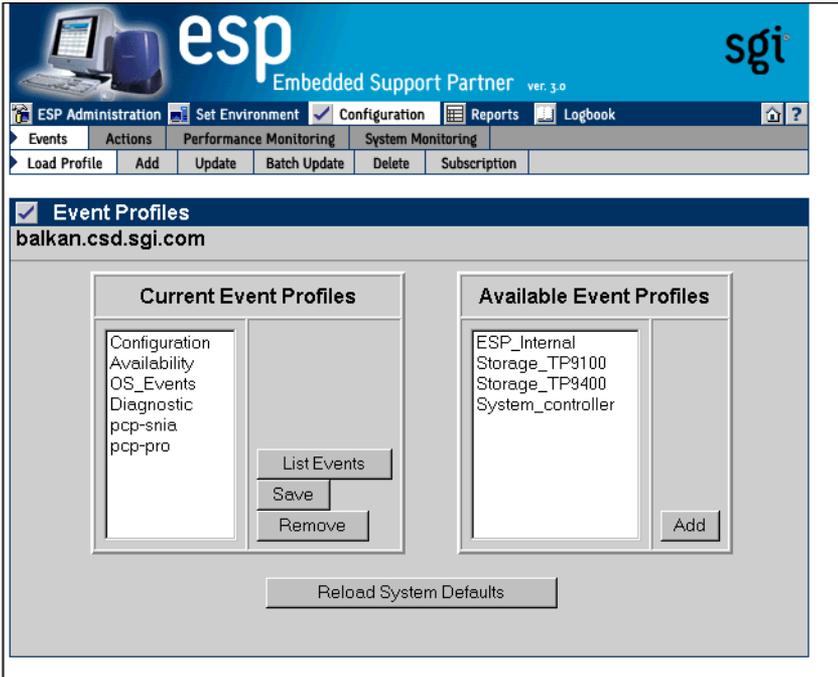


Figure 5-2 Event Profile Window

4. Use this window as follows:
 - To list the events that are contained in a profile, click on the profile in the `Current Event Profile` list, and then click on the `List Events` button.
 - 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, click on a profile name, and then click on the `Save` button.
 - To refresh the list of profiles (from the SGM client), click on the `Refresh All Profiles` 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.

Note: If the selected system is an SGM client, you should click on one of the radio buttons before you click on the `Add` button. Click on the radio button next to `Subscribe` to subscribe the events in the profile to the SGM server when ESP loads the event profile, or click on the radio button next to `Do Not Subscribe` to load the event profile without subscribing the events to the SGM server.
 - 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 list the event profiles that are available on a system and determine which profiles are currently loaded:

```
/usr/sbin/espconfig -list eventprofile [eventprofile name]
[-sgmclient <client alias> | -sysid <system Id>]
```

If you indicate a specific event profile, ESP lists only information about that event profile.

- 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
<profile name>+|allprofiles [-defaults] [-dontsubscribe]
[-sgmclient <client alias> | -sysid <system Id>]
```

- 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
<profile name>+|allprofiles [-defaults] [-dontsubscribe]
[-sgmclient <client alias> | -sysid <system Id>]
```

- 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
<profile name>+|allprofiles [-defaults] [-dontsubscribe]
[-sgmclient <client alias> | -sysid <system Id>]
```

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>+|allprofiles
[-sgmclient <client alias> | -sysid <system Id>]
```

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

- Use the following command syntax to unload an event profile:

```
/usr/sbin/espsconfig -unload eventprofile  
  <eventprofile name>+|allprofiles  
  [-sgmclient <client alias> | -sysid <system Id>]
```

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

```
/usr/sbin/espsconfig -save eventprofile <profile name>+|allprofiles  
  [-defaults]
```

- Use the following command syntax to refresh the ESP event list and assigned actions from an event profile data file:

```
/usr/sbin/espsconfig -refresh eventprofile <profile  
name>+|allprofiles  [-defaults]
```

- Use the following command syntax to show event information from an event profile:

```
/usr/sbin/espsconfig -refresh eventprofile <profile name>+  
  [-sgmclient <client alias> | -sysid <system Id>]
```

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 10, “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>] [-enable | -disable] [-log | -nolog] [-sgmclient
<alias>]
```

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 10, “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>} [-sgmclient <alias>]
```

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 5-3.)



Figure 5-3 Add Event Window (Single System Manager)

If the system is an SGM server, the interface displays a list of clients. (Refer to Figure 5-4.) Click on the client that you want to use, and click on the Continue button.)

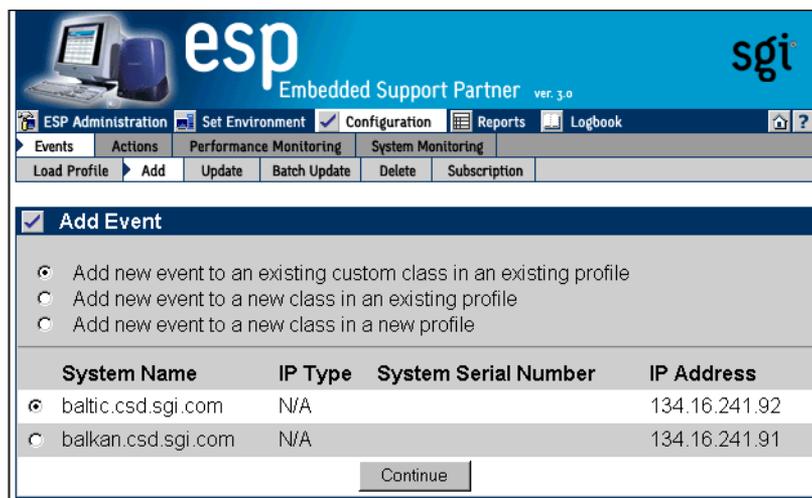


Figure 5-4 Add Event Window (System Group Manager)

You should be aware of the following restrictions when you add events from an SGM server:

- When you select an SGM server from the *System Name* list, ESP adds events only to the SGM server. It does not add events to any of the SGM clients for that server. You must select an SGM client to add events to it.
- You cannot use this window to add events to ESP 2.0 clients. To add events to an ESP 2.0 client from an SGM server, click on *Configuration* -> *Events* -> *Subscription*.

Adding an Event to an Existing Event Class in an Existing Profile

Figure 5-5 shows the Add Event window when you choose the Add new event to an existing customer class in an existing profile option. Use this option to add an event to an event class that you already created. (You can only add events to the event classes that you create; you cannot add events to the default event classes.)

The screenshot shows the 'Add Event' window in the ESP Administration interface. The window title is 'Add Event' and the URL is 'balkan.csd.sgi.com'. The interface includes a navigation bar with 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. Below the navigation bar are tabs for 'Events', 'Actions', 'Performance Monitoring', and 'System Monitoring'. The 'Add Event' form contains the following fields and options:

- Existing profiles: Configuration
- Existing classes: Demo1
- Event description: [Text input field]
- Event status: Enabled Disabled
- Occurrences prior to registration: 1
- Application name: [Text input field]
- Priority: -1
- Facility: -1
- Regular expression: [Text input field]

At the bottom, there is a section for 'Available actions' with a checkbox for 'Notify sysadmin on console' and an 'Action frequency' field set to '86400' seconds. An 'Add' button is located at the bottom center.

Figure 5-5 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 profile.
2. Choose the event class.
3. 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: ' <
4. 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.
5. 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.
6. Set the following optional parameters to provide more information about the event:
 - Application name
 - Priority value
 - Facility value
 - Regular expression to match
7. Assign an action to the event. (If `Event status` is set to `Enabled`, ESP performs this action when the event is registered.)
8. Specify the number of seconds that ESP should pause between multiple executions of an action in the `Action frequency time` field. (A value of 0 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.

Figure 5-6 shows the `Add Event` window with example parameters.

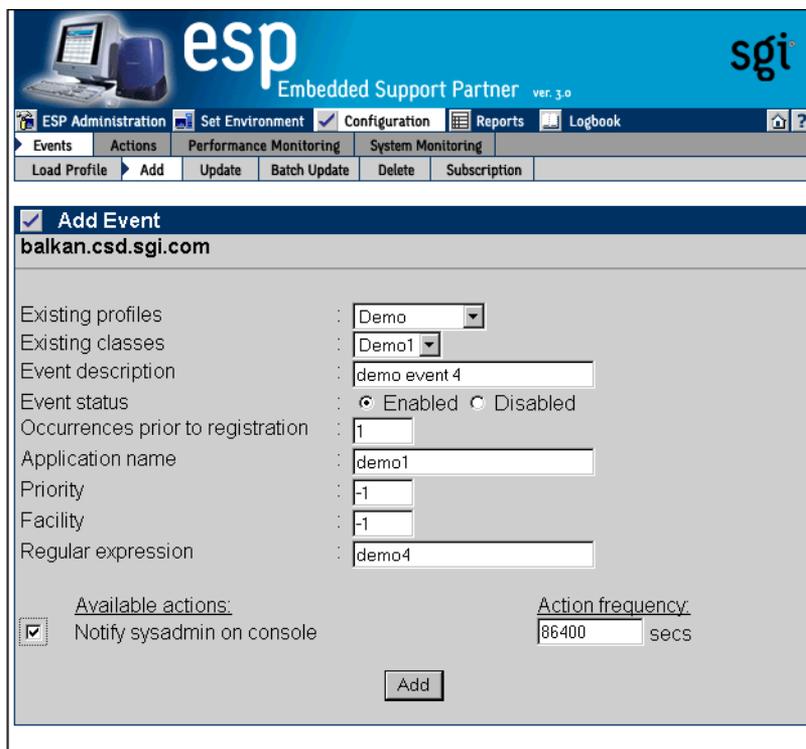


Figure 5-6 Add Event Window with Sample Parameters (Adding Event to Existing Class)

9. Click on the Add button.

The interface displays a verification message. (Refer to Figure 5-7.)



Figure 5-7 Verification Message for Adding an Event (Adding Event to Existing Class)

10. Click on the `Commit` button.

The interface displays information about the event that was added. (Refer to Figure 5-8.) 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 9, “Logging Events from Applications and Scripts.”)

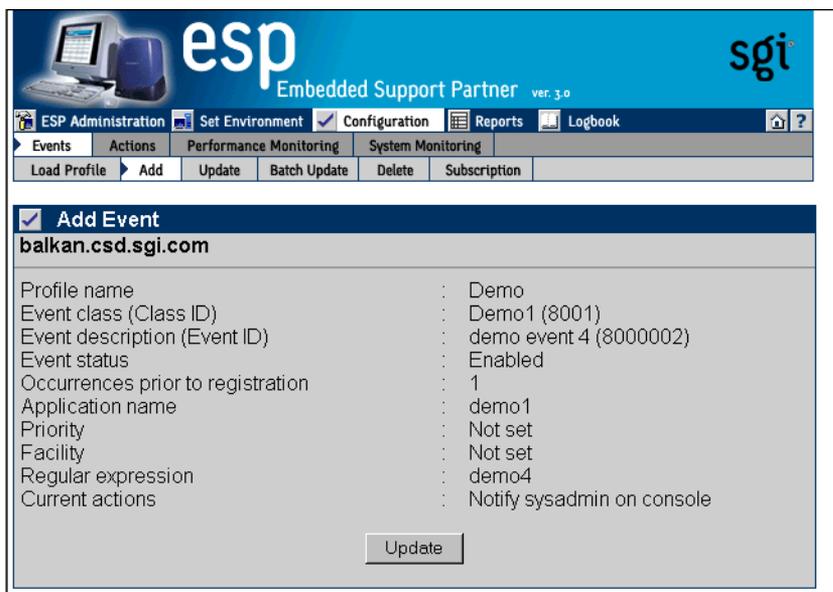


Figure 5-8 Confirmation Message for Adding an Event (Adding Event to Existing Class)

Adding an Event to a New Event Class in an Existing Event Profile

Figure 5-9 shows the Add Event window when you choose the Add new event to a new class in an existing profile option (refer again to Figure 5-3).

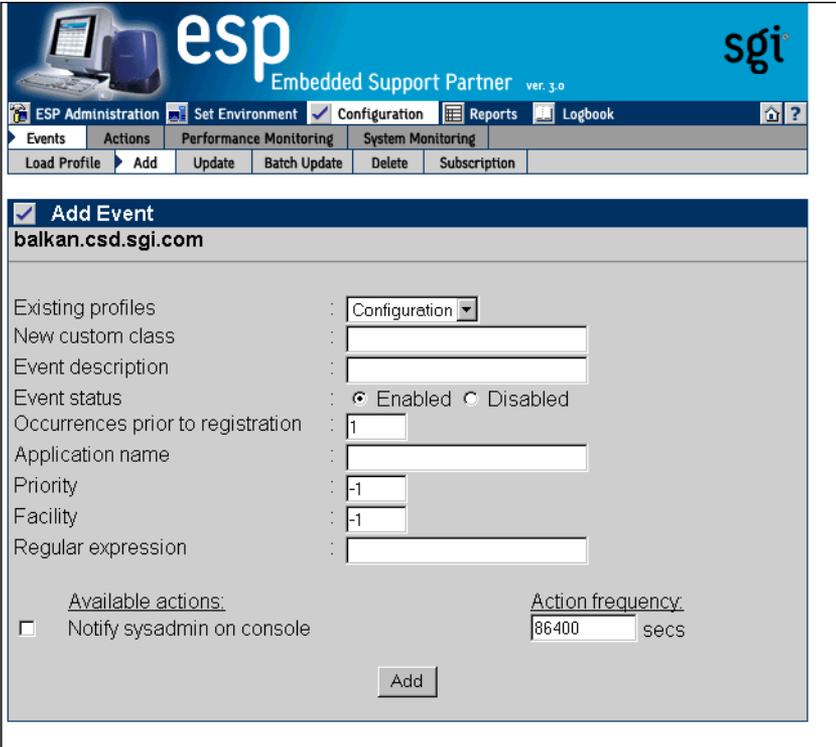


Figure 5-9 Add Event Window (Adding Event to New Class)

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

1. Choose the event profile.
2. Enter the name of the new event class in the `New custom class` field.
3. 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: ' <
4. 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.
5. 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.
6. Set the following optional parameters to provide more information about the event:
 - Application name
 - Priority value
 - Facility value
 - Regular expression to match
7. Assign an action to the event. (If `Event status` is set to `Enabled`, ESP performs this action when the event is registered.)
8. Specify the number of seconds that ESP should pause between multiple executions of an action in the `Action frequency time` field. (A value of 0 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.

Figure 5-10 shows the `Add Event` window with example parameters.

esp Embedded Support Partner ver. 3.0 **sgi**

ESP Administration Set Environment Configuration Reports Logbook

Events Actions Performance Monitoring System Monitoring

Load Profile Add Update Batch Update Delete Subscription

Add Event
balkan.csd.sgi.com

Existing profiles : Demo

New custom class : Realtime Demo

Event description : Demo start

Event status : Enabled Disabled

Occurrences prior to registration : 1

Application name : realdemo

Priority : -1

Facility : -1

Regular expression :

Available actions: Notify sysadmin on console

Action frequency: 86400 secs

Add

Figure 5-10 Add Event Window with Example Parameters (Adding Event to New Class)

9. Click on the Add button.

The interface displays a verification message. (Refer to Figure 5-11.)

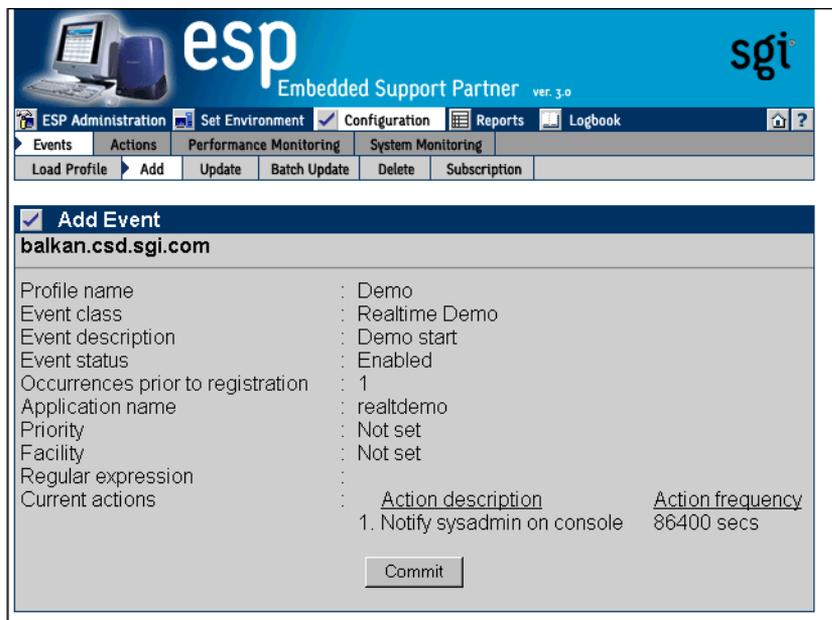


Figure 5-11 Verification Message for Adding an Event (Adding Event to New Class)

10. Click on the `Commit` button.

The interface displays information about the event that was added. (Refer to Figure 5-12.) 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 9, “Logging Events from Applications and Scripts.”)

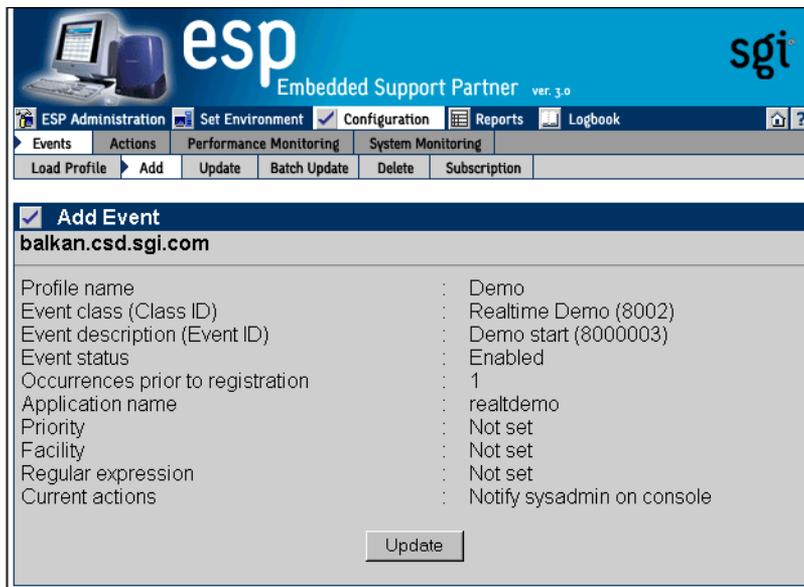


Figure 5-12 Confirmation Message for Adding an Event (Adding Event to New Class)

Adding an Event to a New Event Class in a New Event Profile

Figure 5-13 shows the Add Event window when you choose the Add new event to a new class in a new profile option (refer again to Figure 5-3).

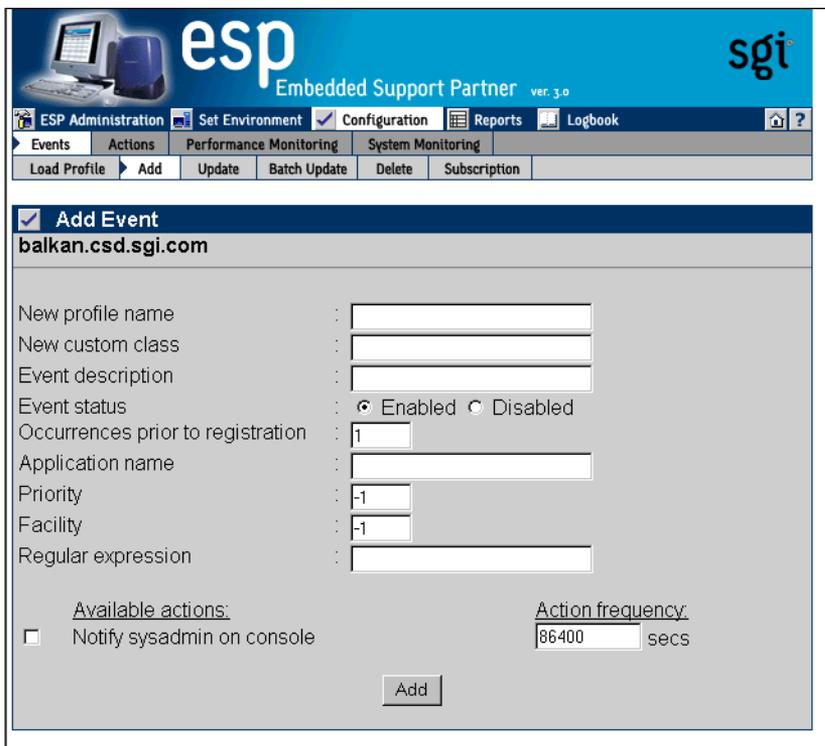


Figure 5-13 Add Event Window (Adding an Event to a New Class in a New Profile)

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 profile in the `New profile name` field.
2. Enter the name of the new event class in the `New custom class` field.
3. 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: ' <
4. 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.
5. 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.
6. Set the following optional parameters to provide more information about the event:
 - Application name
 - Priority value
 - Facility value
 - Regular expression to match
7. Assign an action to the event. (If `Event status` is set to `Enabled`, ESP performs this action when the event is registered.)
8. Specify the number of seconds that ESP should pause between multiple executions of an action in the `Action frequency time` field. (A value of 0 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.

Figure 5-14 shows the `Add Event` window with example parameters.

esp Embedded Support Partner ver. 3.0 sgi

ESP Administration Set Environment Configuration Reports Logbook

Events Actions Performance Monitoring System Monitoring

Load Profile Add Update Batch Update Delete Subscription

Add Event

balkan.csd.sgi.com

New profile name : Demo

New custom class : Demo1

Event description : Demo1 Event1

Event status : Enabled Disabled

Occurrences prior to registration : 1

Application name : demo1 app

Priority : -1

Facility : -1

Regular expression :

Available actions: Notify sysadmin on console

Action frequency: 86400 secs

Add

Figure 5-14 Add Event Window with Example Parameters (Adding an Event to a New Class in a New Profile)

9. Click on the Add button.

The interface displays a verification message. (Refer to Figure 5-15.)

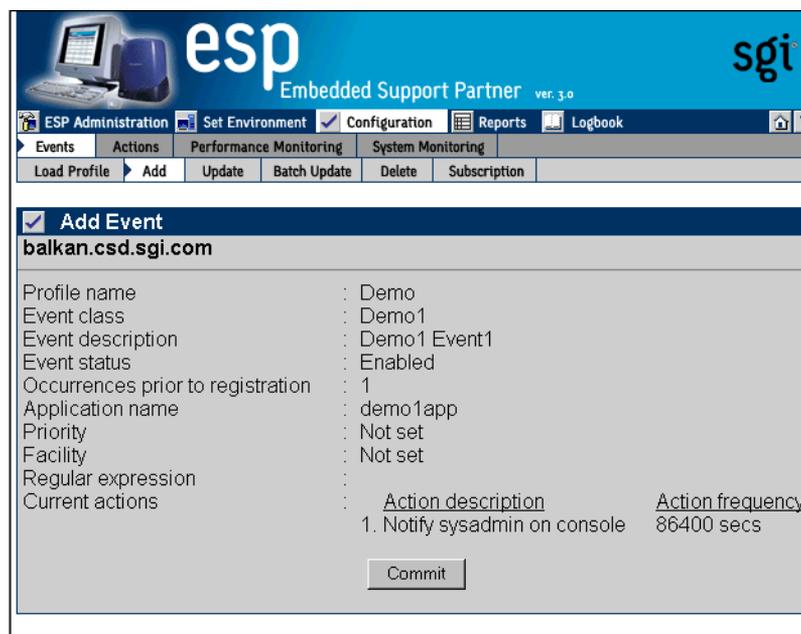


Figure 5-15 Verification Message for Adding an Event (Adding an Event to a New Class in a New Profile)

10. Click on the `Commit` button.

The interface displays information about the event that was added. (Refer to Figure 5-16.) 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 9, “Logging Events from Applications and Scripts.”)

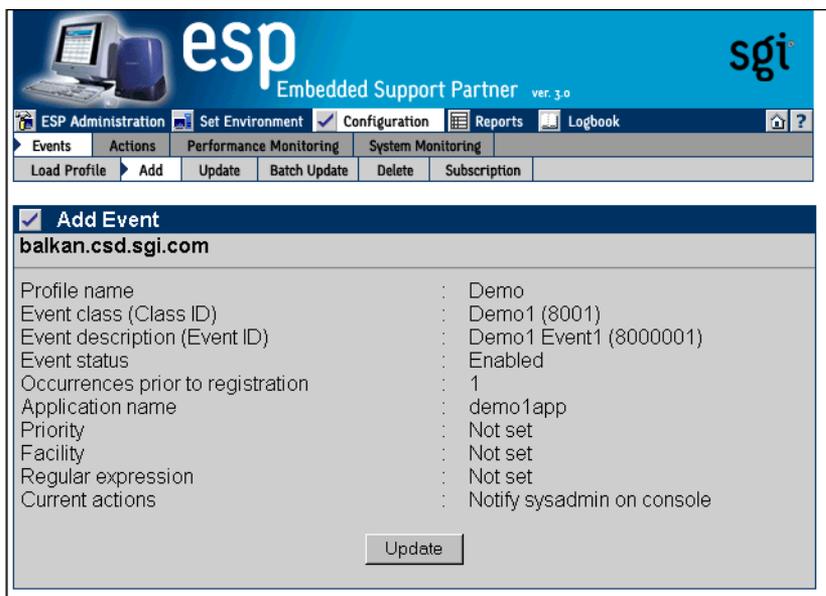


Figure 5-16 Confirmation Message for Adding an Event (Adding Event to a New Class in a New Profile)

Using the Command Line Interface

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

```
/usr/sbin/espconfig -add evtype -td <type description>
  {-cid <class id> | -cd <class description>}
  [-throttle <throttle value>]
  [-enable | -disable]
  [-log | -nolog]
  [-acfreq <action frequency value>]
  [-acid <action id> | -acd <action description>]
  [-pri <priority>] [-fac <facility>]
  [-appname <app name>] [-regexp <reg expression>]
  [-prfid <profile id> | -prfn <profile name>]
  [-sgmclient <client alias> | -sysid <client system id>]
```

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` option 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 `-log` or `-nolog` option to specify if ESP should log the event.

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.

Use the `-pri`, `-fac`, `-appname`, and `-regexp` options to provide more information about the event (priority, facility, application name, and regular expression).

Use the `-prfid` or `-prfn` option to add the event to an event profile.

Use the `-sgmclient` or `-sysid` to add the event to an SGM client.

Use the following syntax to update add an event class:

```
/usr/sbin/esconfig -add evclass -cid <class id> -cd <class  
description> [-sgmclient <client alias> | -sysid <client system id>]
```

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

Use the `-sgmclient` or `-sysid` option to select the SGM client on which you want to update the event information.

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.

Note: 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 5-17.) Select the system on which you want to update the event, and click on the `Continue` button.

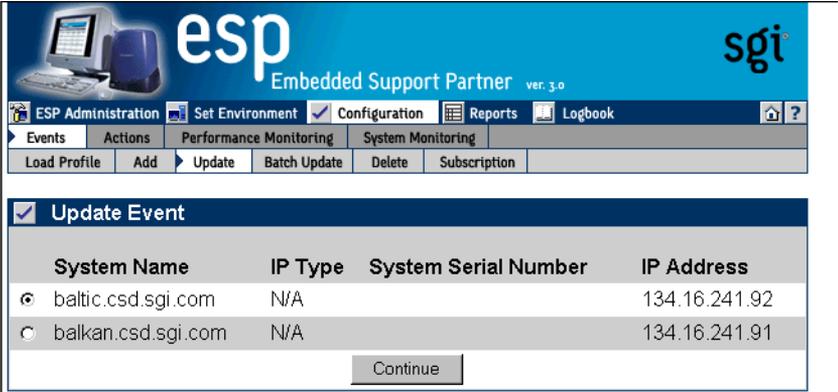


Figure 5-17 Update Event Window (with SGM Clients)

The interface displays the Update Event window. (Refer to Figure 5-18.)

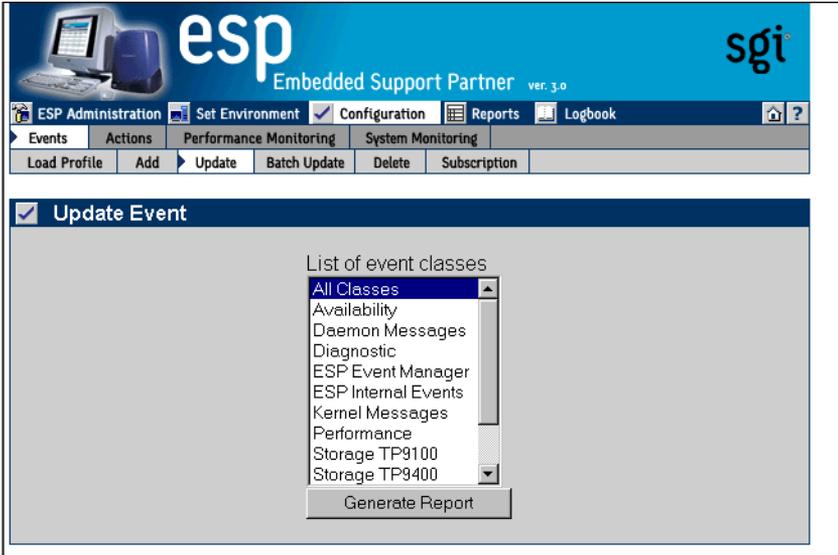


Figure 5-18 Update Event Window

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

The interface displays a list of all events in the event class that you selected. (Refer to Figure 5-19.)



Figure 5-19 Event List for Updating an Event

6. 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 5-20.)

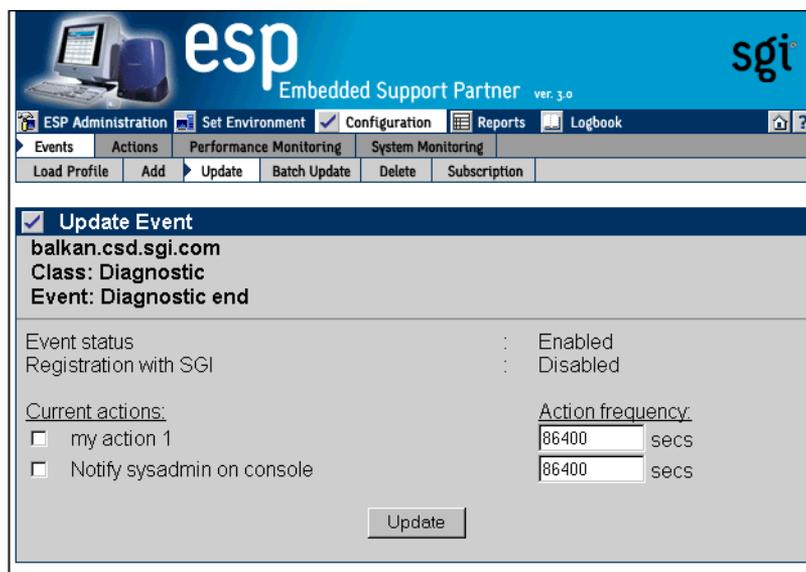


Figure 5-20 Update Event Window (with Event to Update)

You cannot modify the parameters for single events in the availability, configuration, and diagnostics classes. You must use the `Batch Update` command to update these parameters for events in those classes. (The `Live` event in the availability class is the exception; you can modify all parameters for this event.)

You cannot update the `Event Status` parameter for individual events in the availability, system configuration, or diagnostics event classes. Use the `Batch Update` command to update these parameters.

7. 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.
8. Update the `Registration with SGI` parameter:
 - Click on `Enabled` to specify that ESP should return information about the event to SGI when the event occurs.
 - Click on `Disabled` to specify that ESP should not return information about the event to SGI when the event occurs.

The `Registration with SGI` parameter provides individual control over specific events that ESP returns to SGI. To use this parameter, you must also enable the global `Registration with SGI` parameter.

When the `Registration with SGI` global configuration parameter is enabled in the `Global Configuration` window (refer to Figure 4-7 on page 98), the `Registration with SGI` parameter for each event takes precedence for the individual events. When the `Registration with SGI` global configuration parameter is disabled, the `Registration with SGI` parameter for individual events does not affect ESP operation.

The `Registration with SGI` parameter is not available for custom events. ESP never returns information about custom events to SGI.

9. Update the `Occurrences prior to registration` parameter.
10. Select the actions to assign to the event.
11. Update the `Action frequency time` parameter for each action.
12. Click on the `Update` button.

The interface displays a verification message that shows the changes that you selected. (Refer to Figure 5-21.)



Figure 5-21 Verification Message for Updating an Event

13. Click on the `Commit` button.

The interface displays a confirmation message that shows the updated event in bold. (Refer to Figure 5-22.)



Figure 5-22 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>
  [-cid <class id> | -cd <class description>]
  [-sgmclient <client alias> | -sysid <client system id>]
  [-td <type description>]
  [-throttle <throttle value>]
  [-enable | -disable]
  [-log | -nolog]
  [-acfreq <action frequency value>]
  [-acid <action id> | -acd <action description> |
  -noacid <action id> | -noacd <action description>]
  [-acid <action id> | -acd <action description>]
  [-pri <priority>] [-fac <facility>]
  [-appname <app name>] [-regexp <reg expression>]
  [-prfid <profile id> | -prfn <profile name> |
  -noprfid <profile id> | -noprfn <profile name>]
```

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

Use the `-sgmclient` or `-sysid` option to select the SGM client on which you want to update the event information.

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 that 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 `-log` or `-nolog` option to specify if ESP should log 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 `-pri`, `-fac`, `-appname`, and `-regex` options to provide more information about the event (priority, facility, application name, and regular expression).

Use the `-prfid` or `-prfn` option to add the event to an event profile.

Use the `-noprfid` or `-noprfn` to remove the event from an event profile.

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

```
/usr/sbin/espsconfig -update evclass -cid <class id> -cd <class  
description> [-sgmclient <client alias> | -sysid <client system id>]
```

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).

Use the `-sgmclient` or `-sysid` option to select the SGM client on which you want to update the event information.

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 5-23.) Select the system on which you want to update events, and click on the `Continue` button.

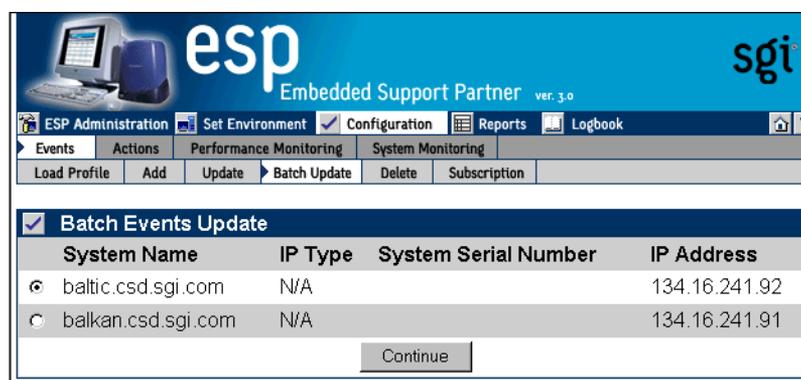


Figure 5-23 Batch Events Update Window (with SGM Clients)

The interface displays the `Event Batch Update` window. (Refer to Figure 5-24.)

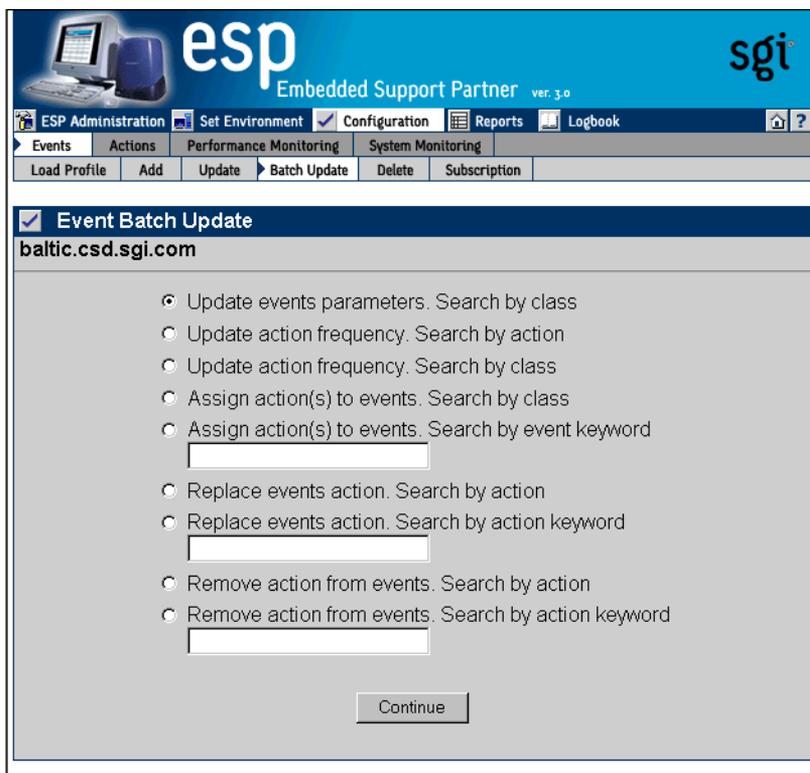


Figure 5-24 Event Batch Update Window

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

Table 5-1 Batch Update Options

Option	Description
Update events parameters. Search by class	Updates the event parameters for an entire class of events Perform the following procedure: 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 and Registration with SGI values 5. Click on the Update button 6. Click on the Commit button
Update action frequency. Search by action	Updates the action frequency for multiple events Perform the following procedure: 1. Click on the Continue button 2. Click on the action that you want to update 3. Click on the Continue button 4. Uncheck the checkmark for any event classes that you do not want to update, or click on a class description to update actions assigned to individual events in the class 5. Update the Action Frequency values 6. Click on the Update button
Update action frequency. Search by class	Updates the action frequency for multiple events Perform the following procedure: 1. Click on the Continue button 2. Choose the class of events that you want to update 3. Click on the Continue button 4. Update the Action Frequency values 5. Click on the Update button

Table 5-1 Batch Update Options (**continued**)

Option	Description
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 <code>Continue</code> button2. Choose one or more classes of events3. Choose one or more actions4. Click on the <code>Assign Action</code> button5. If you selected only one event class, select the check box for any events for which you do not want to assign the action6. Click on the <code>Commit</code> button
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 box2. Click on the <code>Continue</code> button3. Select the events to which you want to assign the action4. Click on the <code>Assign Action</code> button5. Select one or more actions6. Click on the <code>Assign Action</code> button7. Deselect the check box for any events for which you do not want to assign the action8. 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> button2. Select the actions to replace3. Select the new action4. Click on the <code>Replace Action</code> button5. Deselect the check box for any events for which you do not want to replace the action6. Click on the <code>Commit</code> button

Table 5-1 Batch Update Options (continued)

Option	Description
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 Continue button 3. Select the actions to replace 4. Select the new action 5. Click on the Replace Action button
Remove action from events. Search action	Removes an assigned action from an event Perform the following procedure: <ol style="list-style-type: none"> 1. Click on the Continue button 2. Select the action to remove 3. Click on the Remove Action button 4. Deselect the check box for any events for which you do not want to delete the action 5. Click on the Commit 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: <ol style="list-style-type: none"> 1. Enter the keyword in the box 2. Click on the Continue button 3. Select the action to remove 4. Click on the Remove Action button 5. Deselect the check mark for any events for which you do not want to delete the action 6. Click on the Commit 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.

Note: If the system is an SGM server, the interface displays a list of clients. (Refer to Figure 5-25.) Click on the client that you want to use, and click on the `Continue` button.)

The interface displays the `Delete User Events` window. (Refer to Figure 5-26.)

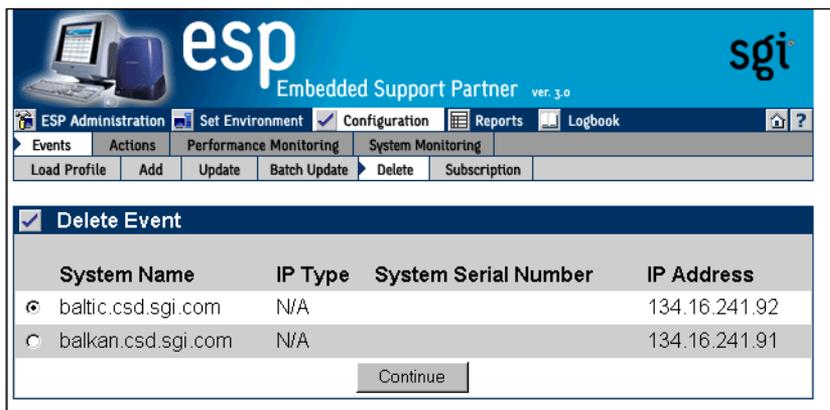


Figure 5-25 Delete User Events Window (with SGM Clients)



Figure 5-26 Delete User Events Window (Web-based Interface)

4. 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 5-27.)

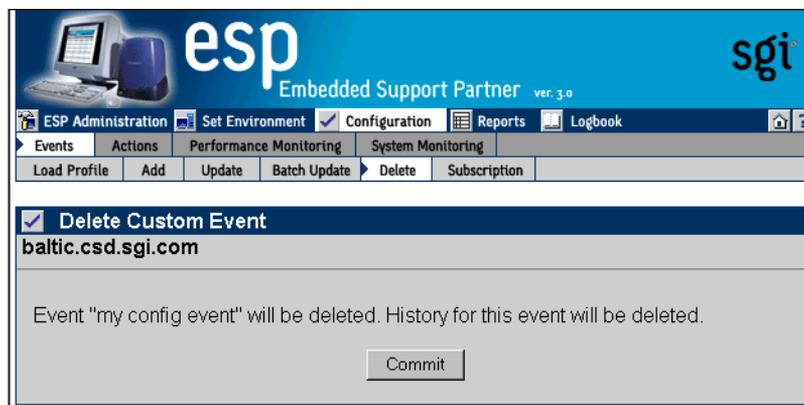


Figure 5-27 Verification Message for Deleting an Event

5. Click on the `Commit` button.

The interface displays a confirmation message. (Refer to Figure 5-28.)

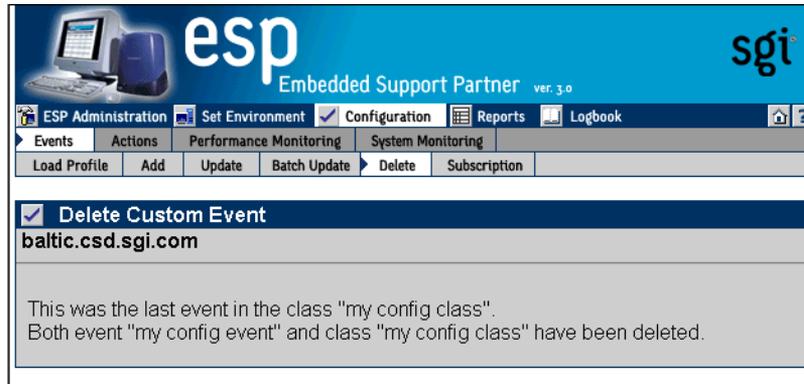


Figure 5-28 Confirmation Message for Deleting an Event

Using the Command Line Interface

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

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

```
/usr/sbin/espsconfig -delete evtype {-tid <type id> | -td <type
description>} [-sgmclient <client alias> | -sysid <client system
id>]
```

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

Use the `-sgmclient` or `-sysid` option to specify an SGM client.

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 `-tid` 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/espsconfig -delete evclass {-cid <class id>|-cd <class  
description>} [-sgmclient <client alias> | -sysid <client system  
id>]
```

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).

Use the `-sgmclient` or `-sysid` option to select the SGM client on which you want to update the event information.

- Use the following command syntax to delete all event-related data structures (types, classes, actions, and so on) in the system support database:

```
/usr/bin/espsconfig -delete events [-sysid <system id> | -host <host  
name>]
```

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 deletes data from the database tables on the local system.

Subscribing Events from SGM Clients

You can select which events to subscribe from the SGM clients.

Tip: ESP 3.0 includes an automatic subscription option. If you enable the `Automatic events subscription` option when you add a client, ESP automatically subscribes events from the client. Then, you do not need to manually subscribe events via the `Subscription` button

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.

Note: If the system is an SGM server, the interface displays a list of clients. (Refer to Figure 5-29.) Click on the client that you want to use, and click on the `Continue` button.

The interface displays the `Events Subscription by Class` window. (Refer to Figure 5-30.)



Figure 5-29 Batch Event Subscription Window

<input checked="" type="checkbox"/>	Network Driver VME FDDI	0 of 11
<input checked="" type="checkbox"/>	Network Driver VME FXP Enet	0 of 2
<input checked="" type="checkbox"/>	Network Driver VME GFE Enet	0 of 4
<input checked="" type="checkbox"/>	Network Kernel BSD Init	0 of 1
<input checked="" type="checkbox"/>	Network Kernel IFNET	0 of 1
<input checked="" type="checkbox"/>	Network Kernel INPCB	0 of 1
<input checked="" type="checkbox"/>	Network Kernel MBUF	0 of 1
<input checked="" type="checkbox"/>	Newport Command	0 of 2
<input checked="" type="checkbox"/>	Newport Timeout	0 of 3
<input checked="" type="checkbox"/>	Newport Validity	0 of 1
<input checked="" type="checkbox"/>	NMI	0 of 3
<input checked="" type="checkbox"/>	OS AS	0 of 1
<input checked="" type="checkbox"/>	OS Memory	0 of 25
<input checked="" type="checkbox"/>	OS NUMA	0 of 6
<input checked="" type="checkbox"/>	OS PDA	0 of 6
<input checked="" type="checkbox"/>	OS PROC	0 of 1
<input checked="" type="checkbox"/>	OS SYSCALL	0 of 2
<input checked="" type="checkbox"/>	OS VM	0 of 5
<input checked="" type="checkbox"/>	Performance	0 of 33
<input checked="" type="checkbox"/>	Peripheral	0 of 1
<input checked="" type="checkbox"/>	Power Supply	0 of 2
<input checked="" type="checkbox"/>	RAS	0 of 107
<input checked="" type="checkbox"/>	Saudit	0 of 2
<input checked="" type="checkbox"/>	SCSI	0 of 11
<input checked="" type="checkbox"/>	SES	0 of 1
<input checked="" type="checkbox"/>	Storage TP9100	0 of 245
<input checked="" type="checkbox"/>	Storage TP9400	0 of 445
<input checked="" type="checkbox"/>	System Board	0 of 21
<input checked="" type="checkbox"/>	System Configuration	11 of 11
<input checked="" type="checkbox"/>	System Controller	0 of 56
<input checked="" type="checkbox"/>	System Error	0 of 17
<input checked="" type="checkbox"/>	Tape	0 of 7
<input checked="" type="checkbox"/>	User	0 of 12
<input checked="" type="checkbox"/>	Venice Resource	0 of 10
<input checked="" type="checkbox"/>	Venice Timeout	0 of 7
<input checked="" type="checkbox"/>	Venice Validity	0 of 3
<input type="button" value="Refresh"/> <input type="button" value="Subscribe"/> <input type="button" value="Unsubscribe"/>		

Figure 5-30 Events by Subscription Class Window

This window displays all event classes available on the selected client.

- Set the check mark to select an entire class for subscription or unsubscription.
- Click on a class description to access the individual events in a class. The interface displays the current status of all events in the class.
- 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.)
- If no event classes are listed for an ESP 2.0 client, click on the `Refresh` button. ESP retrieves the event list from the ESP 2.0 client, stores the list on the SGM server, and displays the list of available event classes. You can use the `Refresh` button to verify subscribed events.

Note: The `Refresh` button does not appear for ESP 3.0 clients. Use the `Refresh All Profiles` button in the `Event Profiles` window (accessible via `Configuration -> Events -> Load`) to refresh event information from an ESP 3.0 client.

Using the Command Line Interface

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

- Use the following command syntax to subscribe events:

```
/usr/sbin/espsconfig -subscribe evtype
  [-cid <class id>|-cd <class desc>]
  [-tid <type id>|-td <type desc>]
  [-pri <priority>] [-fac <facility>]
  [-appname <application name>]
  [-sgmclient <client alias>|-sysid <client system id >]
```

- Use the following command syntax to unsubscribe events:

```
/usr/sbin/espsconfig -unsubscribe evtype
  [-cid <class id>|-cd <class desc>]
  [-tid <type id>|-td <type desc>]
  [-pri <priority>] [-fac <facility>]
  [-appname <application name>]
  [-sgmclient <client alias>|-sysid <client system id >]
```

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 `espconfig` 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/espconfig -list evaction
```

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

```
/usr/sbin/espconfig -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/espnotify -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 5-31.)

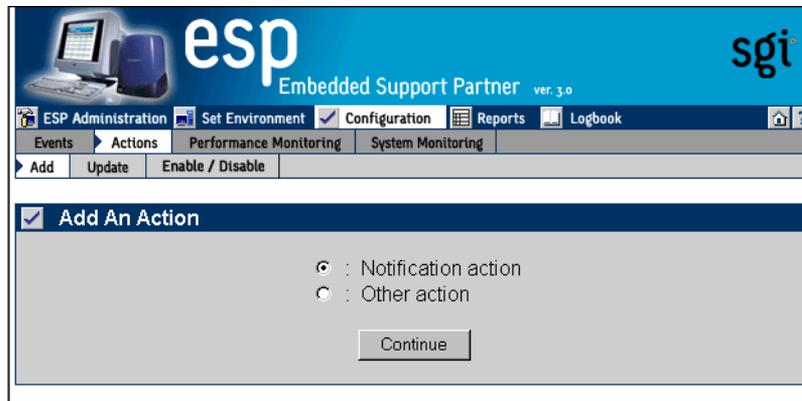


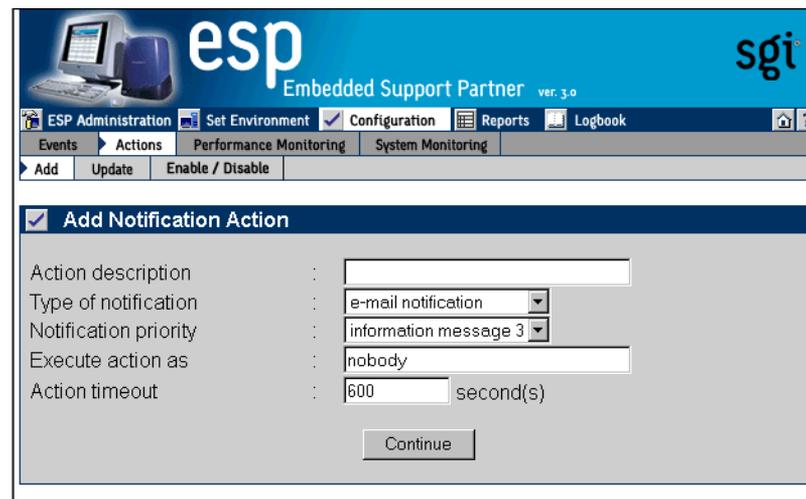
Figure 5-31 Add an Action Window

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 `espnotify` 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 `espnotify` 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 5-32 shows the Add an Action window when you choose the Notification Action option.



The screenshot displays the ESP Administration web interface. The top navigation bar includes 'ESP Administration', 'Set Environment', 'Configuration' (selected), 'Reports', and 'Logbook'. Below this, a secondary menu shows 'Events', 'Actions' (selected), 'Performance Monitoring', and 'System Monitoring'. A sub-menu under 'Actions' contains 'Add', 'Update', and 'Enable / Disable'. The main content area is titled 'Add Notification Action' and contains the following fields:

- Action description:
- Type of notification:
- Notification priority:
- Execute action as:
- Action timeout: second(s)

A 'Continue' button is located at the bottom of the dialog.

Figure 5-32 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, 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. Click on the `Continue` button.
 - If you selected `e-mail notification`, ESP displays the window shown in Figure 5-33.
 - If you selected `notify on console`, ESP displays the window shown in Figure 5-34.
 - If you selected `GUI pop-up notification`, ESP displays the window shown in Figure 5-35.

The screenshot displays the ESP Administration web interface. The top navigation bar includes 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The 'Configuration' menu is expanded to show 'Events', 'Actions', 'Performance Monitoring', and 'System Monitoring'. The 'Actions' sub-menu is further expanded to show 'Add', 'Update', and 'Enable / Disable'. The main content area is titled 'Add Notification Action' and features a sub-header 'email me'. Below this, there are four input fields: 'E-mail address(es)', 'Subject (optional)', 'Notification message (optional)', and 'Notification format'. The 'Notification format' field is a list of checkboxes with the following options: 'Host name from which event originated' (checked), 'Data received along with the event' (checked), 'Event time stamp (in mm/dd/yyyy hh:mm:ss format)' (checked), 'Event class description' (unchecked), 'Event class ID' (unchecked), 'Event description' (unchecked), 'Event type ID' (unchecked), 'Event ID (as registered by ESP)' (unchecked), 'Forwarder hostname (in case of SGM)' (unchecked), and 'System ID' (unchecked). A 'Continue' button is located at the bottom right of the configuration area.

Figure 5-33 Add an Action Window (Using Notification Action and E-mail Options)

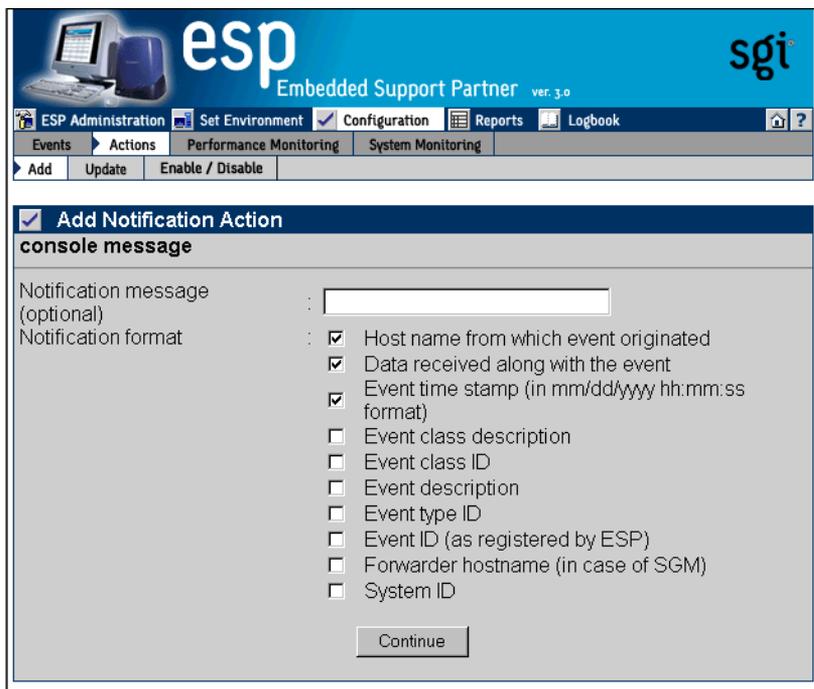


Figure 5-34 Add an Action Window (Using Notification Action and System Console Options)

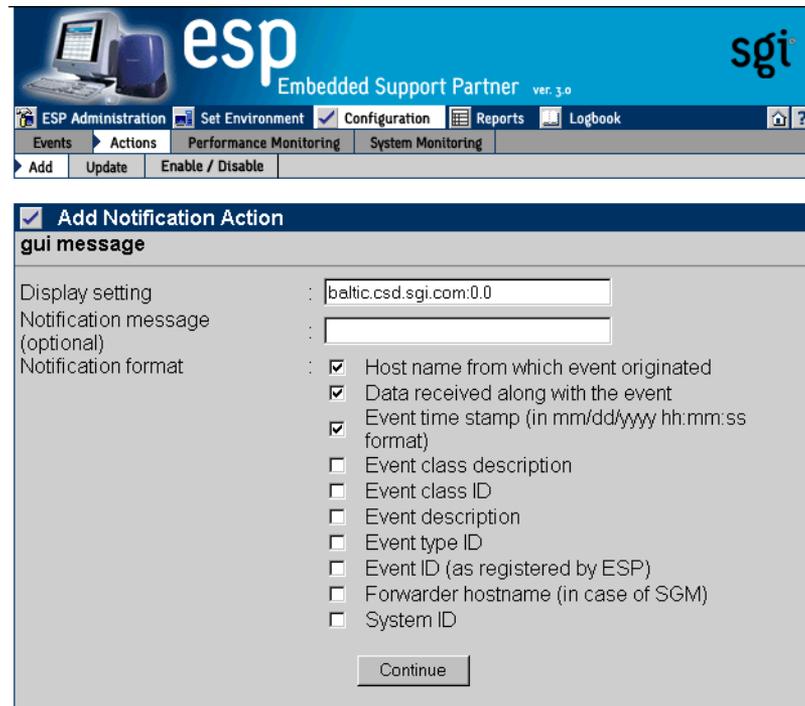


Figure 5-35 Add an Action Window (Using Notification Action and GUI Pop-up Options)

7. Set the parameters for the action.

Table 5-2 describes the parameters that are available for each type of notification.

Table 5-2 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).
	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
Console Notification	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
GUI pop-up notification	Display setting	Specifies the X Window System display to use
	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

8. Click on the `Continue` button.

The interface displays a verification message. (Refer to Figure 5-36.)

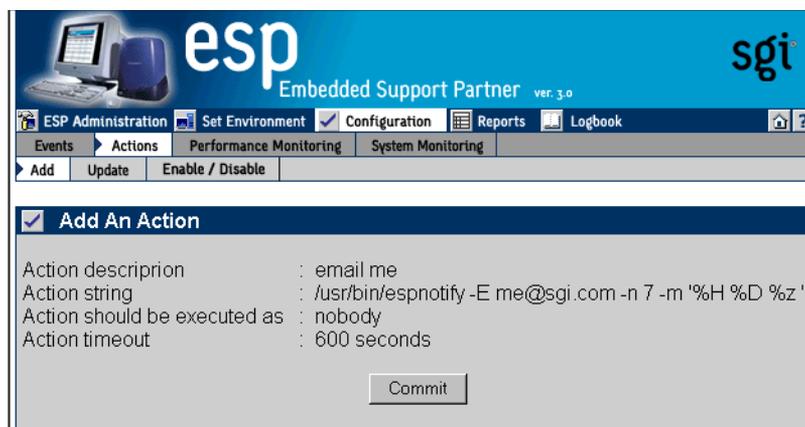


Figure 5-36 Verification Message for Adding an Action (Using Notification Action Option)

9. Click on the `Commit` button.

The interface displays a confirmation message. (Refer to Figure 5-37.) If you need to update the action parameters, click on the `Update` button.

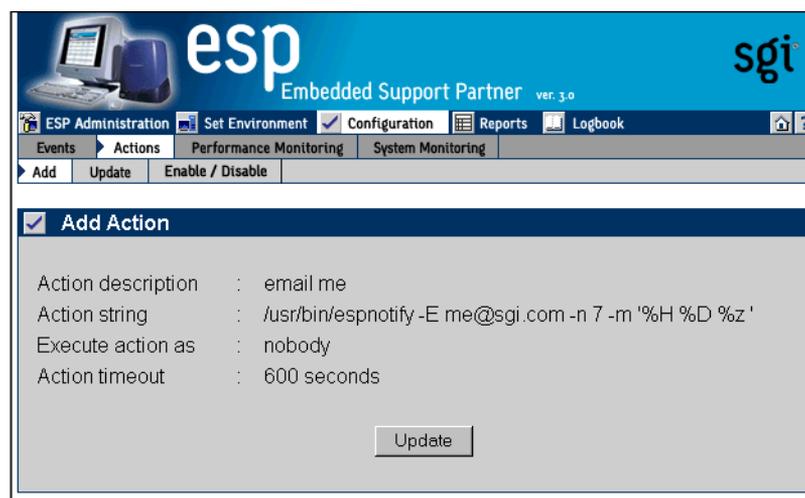


Figure 5-37 Confirmation Message for Adding an Action (Using Notification Action Option)

Using the Other Action Option

Figure 5-38 shows the Add An Action window when you choose the Other Action option.

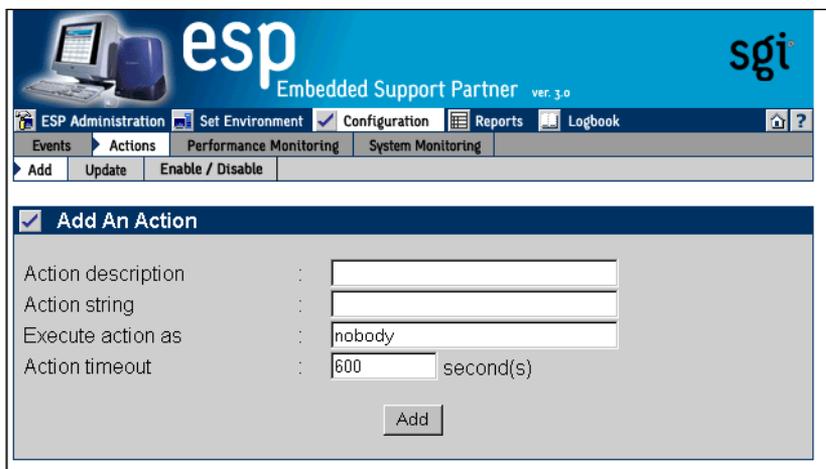


Figure 5-38 Add an Action Window (Using Other Action Option)

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 8, “Sending Notifications,” for more information about using the `espnotify` command to send notifications.)

Note: If you want to create a standard notification, it is easiest to use the Notification Action option in the Add An Action window. (Refer to Figure 5-31.)

Tip: When you use the `espsnotify` command, you can include several variables in the `<message>` parameter. (Table 5-3 describes the variables.)

Table 5-3 `espsnotify` Parameters

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

Figure 5-39 shows the `Add an Action` window with example parameters.

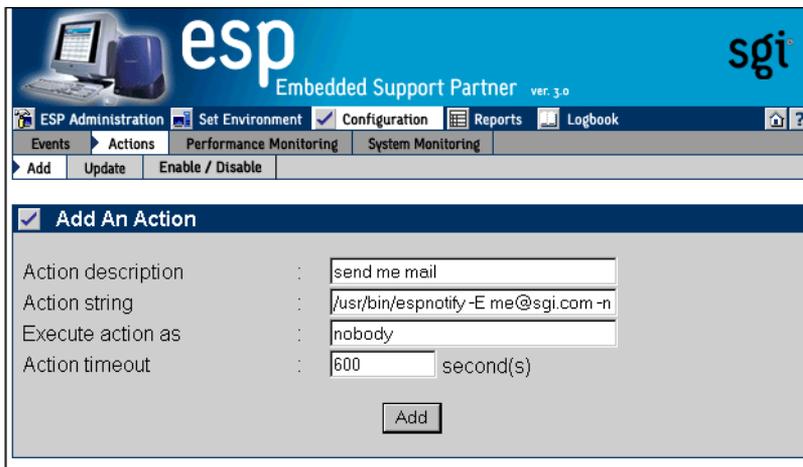


Figure 5-39 Example Parameters (Add an Action Window Using Other Action Option)

5. Click on the Add button.

The interface displays a verification page. (Refer to Figure 5-40.)

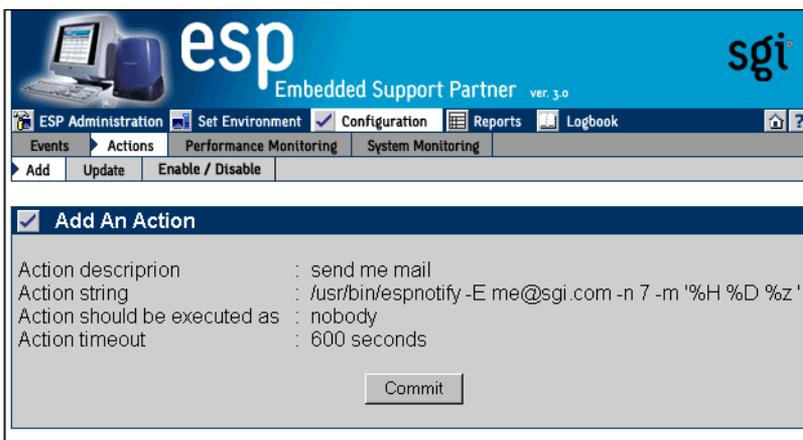


Figure 5-40 Verification Message for Adding an Action (Using Other Action Option)

6. Click on the Commit button.

The interface displays a confirmation message. (Refer to Figure 5-41.) If you need to update the action parameters, click on the `Update` button.

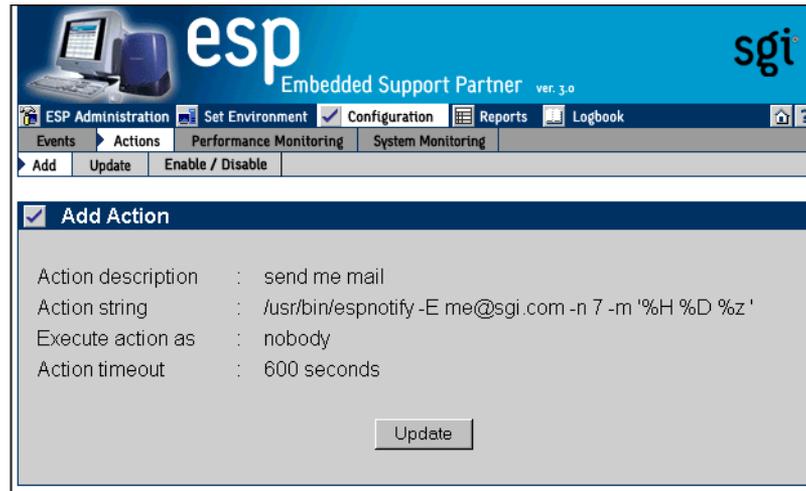


Figure 5-41 Confirmation Message for Adding an Action (Using Other Action Option)

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 5-42.)

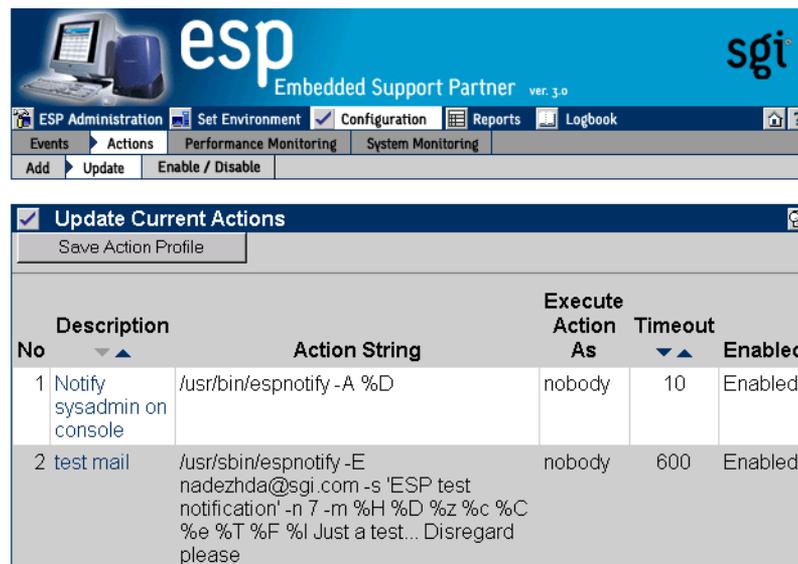


Figure 5-42 Update Current Actions Window

Tip: The `Save Action Profile` button in the `Update Current Actions` window saves all current actions in an action profile (`/var/esp/init/eventprofiles/Actions.esp`). You can copy this file to another system and load the profile (using the same method as loading event profiles) to have the same actions on that system. ESP does not automatically save actions in an action profile. You must click on the `Save Action Profile` button to save the current actions in an action profile.

4. Click on the description of the action that you want to update.

The interface displays the `Update Action` window. (Refer to Figure 5-43.)

The screenshot shows the ESP Administration web interface. The top navigation bar includes 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. The 'Configuration' menu is expanded, showing 'Events', 'Actions', 'Performance Monitoring', and 'System Monitoring'. The 'Update Action' window is open, displaying the configuration for the 'Notify sysadmin on console' action. The configuration includes fields for 'Action type', 'Notification priority', 'Notification format', 'Notification message', 'Execute action as', 'Action timeout', and 'Action status'.

Update Action	
Notify sysadmin on console	
Action type	: notify on console
Notification priority	: information message 3
Notification format	: <input type="checkbox"/> Host name from which event originated <input checked="" type="checkbox"/> Data received along with the event <input type="checkbox"/> Event time stamp (in mm/dd/yyyy hh:mm:ss format) <input type="checkbox"/> Event class description <input type="checkbox"/> Event class ID <input type="checkbox"/> Event description <input type="checkbox"/> Event type ID <input type="checkbox"/> Event ID (as registered by ESP) <input type="checkbox"/> Forwarder hostname (in case of SGM) <input checked="" type="checkbox"/> System ID
Notification message	: <input type="text"/>
Execute action as	: nobody
Action timeout	: 30 second(s)
Action status	: <input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
<input type="button" value="Update"/>	

Figure 5-43 Update Action Window

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

The interface displays a verification window. (Refer to Figure 5-44.)

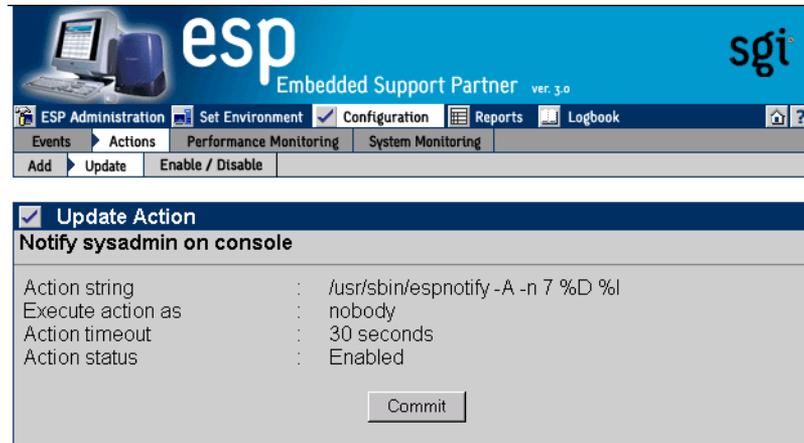
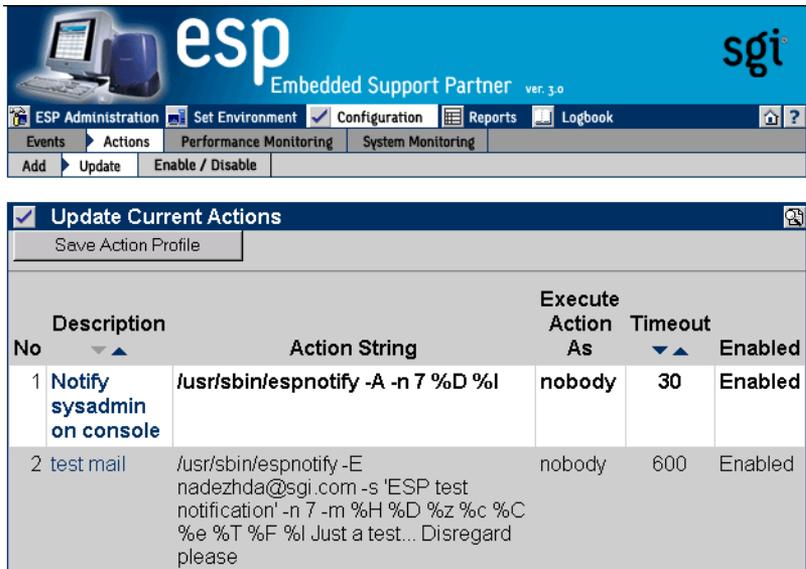


Figure 5-44 Verification Message for Updating an Action

7. Click on the `Commit` button.

The interface displays a confirmation message. (Refer to Figure 5-45.) If you need to update the parameters again, click on the description of the action.



The screenshot shows the ESP Administration web interface. At the top, there is a blue header with the 'esp' logo and 'Embedded Support Partner ver. 3.0' text, and the 'sgi' logo on the right. Below the header is a navigation menu with tabs for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. Underneath, there are sub-tabs for 'Events', 'Actions', 'Performance Monitoring', and 'System Monitoring'. A secondary menu bar contains 'Add', 'Update', and 'Enable / Disable' buttons.

The main content area displays a dialog box titled 'Update Current Actions' with a 'Save Action Profile' button. Below the button is a table with the following data:

No	Description	Action String	Execute Action As	Timeout	Enabled
1	Notify sysadmin on console	/usr/sbin/espnotify -A -n 7 %D %l	nobody	30	Enabled
2	test mail	/usr/sbin/espnotify -E nadezhda@sgi.com -s 'ESP test notification' -n 7 -m %H %D %z %c %C %e %T %F %l Just a test... Disregard please	nobody	600	Enabled

Figure 5-45 Confirmation Message for Updating an Action

Using the Command Line Interface

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

```
/usr/sbin/espcnfig -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 and Enabling 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. (You can also re-enable any actions that you disable.)

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 `Enable/Disable` button.

The interface displays the `View Current Actions` window. (Refer to Figure 5-46.)

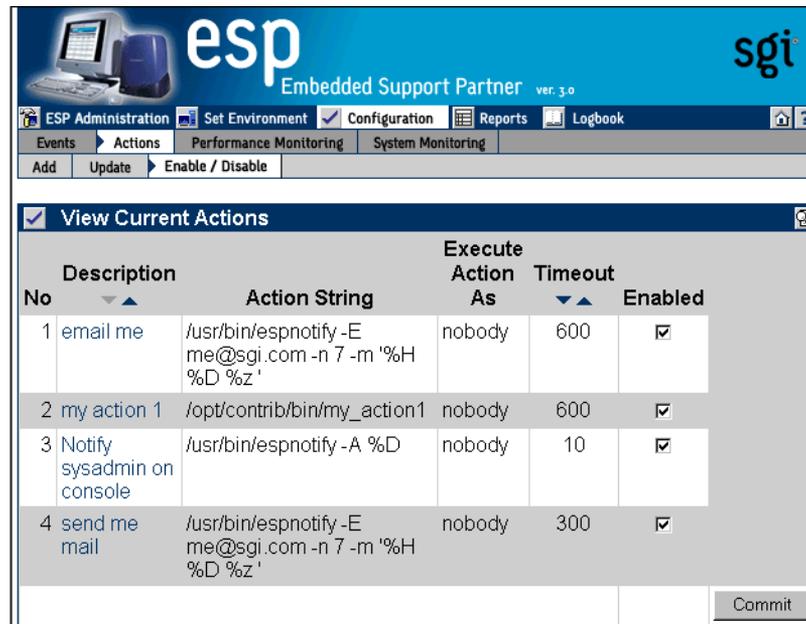


Figure 5-46 View Current Actions Window

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. Performance monitoring is disabled by default.

Using the Web-based Interface

Perform the following procedure to use the Web-based interface to configure performance monitoring for the local system and/or any ESP 3.0 SGM clients.

Notes:

- SGM clients must be directly connected to the SGM server to use this procedure; the clients cannot connect through any intermediate systems. To configure performance monitoring on an ESP 3.0 SGM client that is connected through an intermediate server, you must log into the client and configure the performance monitoring parameters directly on the client.
- ESP 2.0 SGM clients are not supported by this procedure. To configure performance monitoring on an ESP 2.0 SGM client, you must log into the client and configure the performance monitoring parameters directly on the client.

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

Note: If the system is an SGM server, the interface displays a list of clients. (Refer to Figure 5-47.) Click on the client that you want to use, and click on the `Continue` button.

The interface displays the `Performance Monitoring` window.

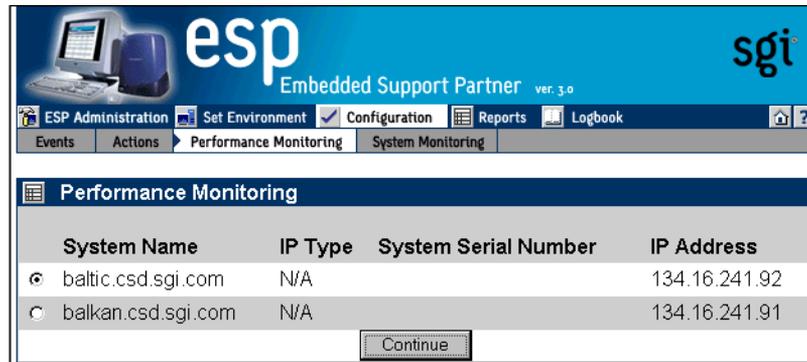


Figure 5-47 Performance Monitoring Window (with SGM Clients)

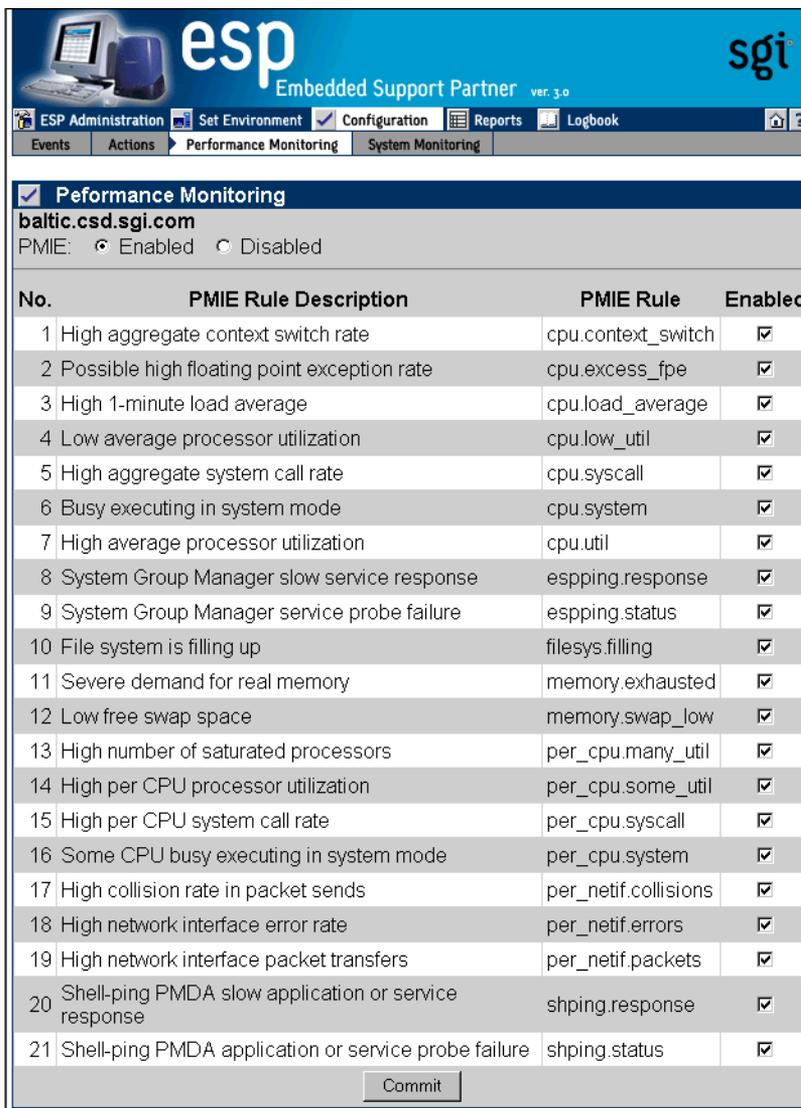


Figure 5-48 Performance Monitoring Window

3. Click on the `Enabled` radio button to enable performance monitoring or click on the `Disabled` radio button to disable performance monitoring.

Note: This setting is also available in the `System Monitoring` window. If you change the `PMIE` setting in the `Performance Monitoring` window, the setting also changes in the `System Monitoring` window.

4. Set the `Enabled` check marks for the `PMIE` rules that you want to enable.
5. Click on the `Update` button.

Table 5-4 describes the `PMIE` rules that are available and the performance issues that they detect. Refer to the *Performance Co-Pilot for IA-64 Linux User's and Administrator's Guide*, publication number 007-4580-00x, or the *Performance Co-Pilot for IRIX User's and Administrator's Guide*, publication number 007-3965-00x, for more information about `PMIE` rules.

Table 5-4 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).

Table 5-4 PMIE Rules (continued)

Rule	Description	Performance Issue
cpu.low_util	Low average processor utilization	<p>The average processor utilization across all CPUs was below a threshold percentage.</p> <p>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.</p> <p>In such a situation, you should enable the <code>cpu.low_util</code> rule and disable the <code>cpu.util</code> rule.</p>
cpu.syscall	High aggregate system call rate	The average number of system calls per CPU per second exceeded a threshold value.
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.
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.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.
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	<p>The amount of swap space remaining reached a threshold value.</p> <p>Reduce the number and size of the running programs, or add more <code>swap(1)</code> space before it completely runs out.</p>

Table 5-4 PMIE Rules (continued)

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_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>
per_netif.errors	High network interface error rate	For at least one network interface, the error rate exceeded a threshold value.

Table 5-4 PMIE Rules (continued)

Rule	Description	Performance Issue
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>
shping.response	Shell-ping PMDA slow application or service response	A response came from a shell-ping PMDA application or service probe
shping.status	Shell-ping PMDA application or service probe failure	A failure occurred in a shell-ping PMDA application or service probe

Using the Command Line Interface

You can use the `espconfig` command to configure performance monitoring.

- Use the following command syntax to enable performance monitoring:

```
/usr/sbin/espconfig -on performance
```

- Use the following command syntax to disable performance monitoring:

```
/usr/sbin/espconfig -off performance
```

- Use the following command syntax to list the current performance monitoring settings and PMIE rule settings:

```
/usr/sbin/espconfig -list performance [-status|-enable|-disable]
```

Use the `-status` option to list the current status (on or off) of performance monitoring on a system.

Use the `-enable` option to list all PMIE that are currently enabled.

Use the `-disable` option to list all PMIE that are currently disabled.

- Use the following command syntax to enable PMIE rules:

```
/usr/sbin/espconfig -enable performance -pd {all|<pmie rule description>}
```

Use the `all` option to enable all PMIE rules.

Use the `<pmie rule description>` parameter to enable specific PMIE rules.

- Use the following command syntax to disable PMIE rules:

```
/usr/sbin/espconfig -disable performance -pd {all|<pmie rule description>}
```

Use the `all` option to disable all PMIE rules.

Use the `<pmie rule description>` parameter to disable specific PMIE rules.

Configuring System Monitoring

You can configure ESP to monitor ICMP, DNS, X Window System server, RPCBIND, SMTP, NNTP, 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`.)

System monitoring is disabled by default.

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 5-49.)

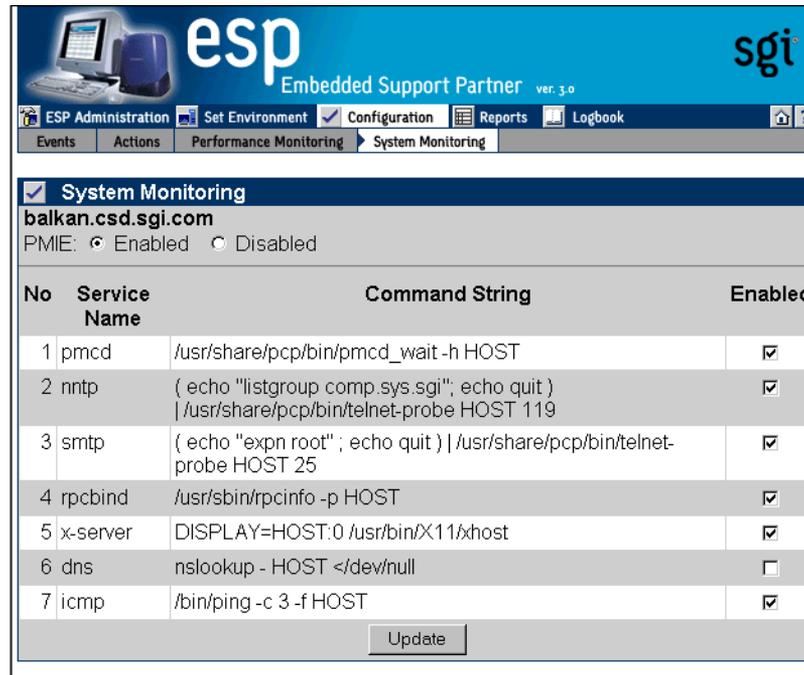


Figure 5-49 System Monitoring Window (Single System Manager Mode)

3. Click on the `Enabled` radio button to enable performance monitoring or click on the `Disabled` radio button to disable performance monitoring.

Note: This setting is also available in the `Performance Monitoring` window. If you change the `PMIE` setting in the `System Monitoring` window, the setting also changes in the `Performance Monitoring` window.

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

The interface displays a verification screen. (Refer to Figure 5-50.)

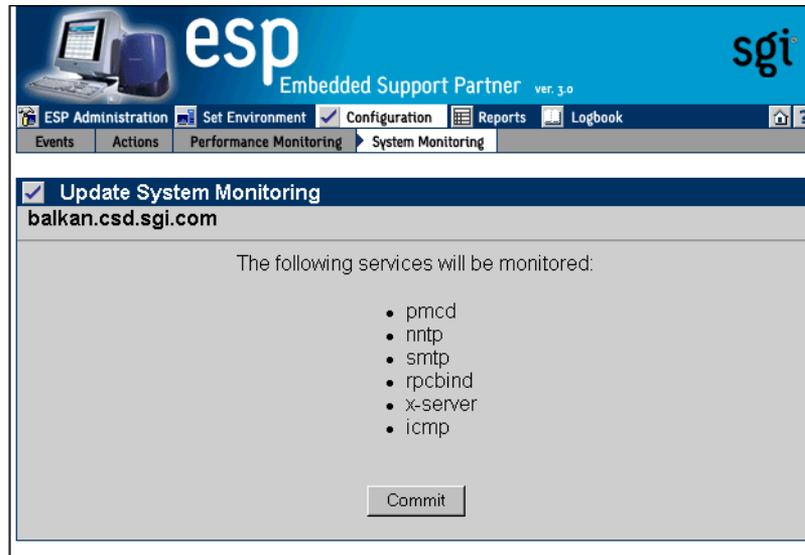


Figure 5-50 System Monitoring Change Verification Screen (Single System Manager Mode)

6. Click on the `Commit` button.

esp Embedded Support Partner ver. 3.0 **sgi**

ESP Administration Set Environment Configuration Reports Logbook

Events Actions Performance Monitoring System Monitoring

System Monitoring

balkan.csd.sgi.com
PMIE: Enabled Disabled

No	Service Name	Command String	Enabled
1	pmcd	/usr/share/pcp/bin/pmcd_wait -h HOST	<input checked="" type="checkbox"/>
2	nntp	(echo "listgroup comp.sys.sgi"; echo quit) /usr/share/pcp/bin/telnet-probe HOST 119	<input checked="" type="checkbox"/>
3	smtp	(echo "expn root" ; echo quit) /usr/share/pcp/bin/telnet-probe HOST 25	<input checked="" type="checkbox"/>
4	rpcbind	/usr/sbin/rpcinfo -p HOST	<input checked="" type="checkbox"/>
5	x-server	DISPLAY=HOST:0 /usr/bin/X11/xhost	<input checked="" type="checkbox"/>
6	dns	nslookup - HOST </dev/null	<input type="checkbox"/>
7	icmp	/bin/ping -c 3 -f HOST	<input checked="" type="checkbox"/>

Update

Figure 5-51 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 5-52.)



Figure 5-52 System Monitoring Window (System Group Manager Mode)

Note: To change the performance monitoring status, click on the `Enabled` radio button to enable performance monitoring or click on the `Disabled` radio button to disable performance monitoring, and click on the `Commit` button. (To perform system monitoring, performance monitoring must be enabled.)

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

The interface displays the `Update System Monitoring` window. (Refer to Figure 5-53.)



Figure 5-53 Update System Monitoring Window (System Group Manager Mode)

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

The interface displays a verification screen. (Refer to Figure 5-54.)



Figure 5-54 System Monitoring Change Verification Screen (System Group Manager Mode)

- Click on the `Commit` button.

The interface displays an updated `System Monitoring` window. (Refer to Figure 5-55.)

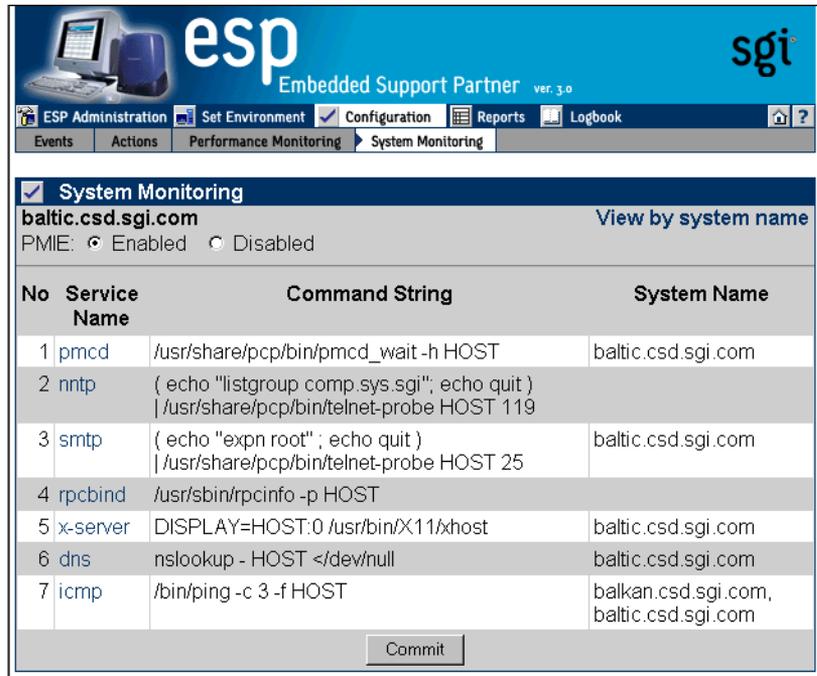


Figure 5-55 Updated System Monitoring Window (System Group Manager Mode)

Using the Command Line Interface

You can use the `espcnfig` command to configure system monitoring.

- Use the following command syntax to list descriptions of services that are available for monitoring:

```
/usr/sbin/espcnfig monitor -list [<service list>]
```

Use the `<service list>` parameter to specify which services to show. If you do not use the `<service list>` parameter, this command lists all services that are available on the system.

- Use the following the command syntax to show the hosts that are being monitored for selected services:

```
/usr/sbin/espsconfig monitor -show [<service list>] [-sgmclient <host list>]
```

Use the `<service list>` parameter to specify which services to show. If you do not use the `<service list>` parameter, this command lists all services that are available on the system.

Use the `-sgmclient` option to display services on one or more SGM clients. Use the `<host list>` parameter to specify the SGM clients to view.

- Use the following command syntax to enable monitoring of specific services:

```
/usr/sbin/espsconfig monitor -enable [<service list>] [-sgmclient [all|<host list>]]
```

Use the `<service list>` parameter to specify which services to show. If you do not use the `<service list>` parameter, this command lists all services that are available on the system.

Use the `-sgmclient` option to display services on one or more SGM clients. Use the `all` parameter to list services on all SGM clients. Use the `<host list>` parameter to list services on specific SGM clients.

- Use the following command syntax to disable monitoring of specific services:

```
/usr/sbin/espsconfig monitor -disable [<service list>] [-sgmclient [all|<host list>]]
```

Use the `<service list>` parameter to specify which services to stop monitoring. If you do not use the `<service list>` parameter, this command disables all services that are currently monitored on the system.

Use the `-sgmclient` option to display services on one or more SGM clients. Use the `all` parameter to list services on all SGM clients. Use the `<host list>` parameter to list services on specific SGM clients.

Viewing Reports

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

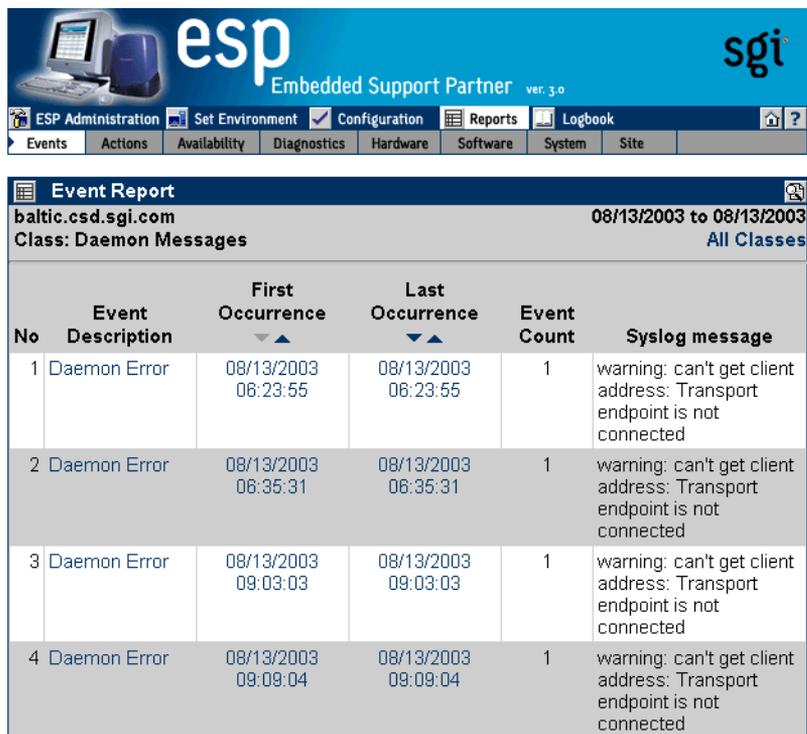
- Events registered reports
- Actions taken reports
- Availability reports
- Diagnostic reports
- Hardware reports
- Software reports
- System reports
- Site reports

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 6-1 shows an example report generated by the Web-based interface. Figure 6-2 shows an example report generated by the Web-based interface in printable format.



The screenshot displays the ESP Embedded Support Partner web-based interface. The top navigation bar includes links for ESP Administration, Set Environment, Configuration, Reports, and Logbook. Below this is a secondary menu with links for Events, Actions, Availability, Diagnostics, Hardware, Software, System, and Site. The main content area is titled "Event Report" and shows the following details:

- Host: baltic.csd.sgi.com
- Period: 08/13/2003 to 08/13/2003
- Class: Daemon Messages
- Link: All Classes

No	Event Description	First Occurrence	Last Occurrence	Event Count	Syslog message
1	Daemon Error	08/13/2003 06:23:55	08/13/2003 06:23:55	1	warning: can't get client address: Transport endpoint is not connected
2	Daemon Error	08/13/2003 06:35:31	08/13/2003 06:35:31	1	warning: can't get client address: Transport endpoint is not connected
3	Daemon Error	08/13/2003 09:03:03	08/13/2003 09:03:03	1	warning: can't get client address: Transport endpoint is not connected
4	Daemon Error	08/13/2003 09:09:04	08/13/2003 09:09:04	1	warning: can't get client address: Transport endpoint is not connected

Figure 6-1 Example Report (Web-based Interface)

```

Event report for "Daemon Messages" class
From 08/13/2003 to 08/13/2003
System: baltic.csd.sgi.com

```

No.	Event Description	First Occurrence	Last Occurrence	Ev. Cnt	Syslog message
1	Daemon Error	08/13/2003 06:23:55	08/13/2003 06:23:55	1	warning: can't get client address: Transport endpoint is not connected
2	Daemon Error	08/13/2003 06:35:31	08/13/2003 06:35:31	1	warning: can't get client address: Transport endpoint is not connected
3	Daemon Error	08/13/2003 09:03:03	08/13/2003 09:03:03	1	warning: can't get client address: Transport endpoint is not connected
4	Daemon Error	08/13/2003 09:09:04	08/13/2003 09:09:04	1	warning: can't get client address: Transport endpoint is not connected

Figure 6-2 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 6-1.)

Table 6-1 Report Navigation Controls

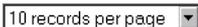
Control	Function
	Select the number of report entries (records) to show on a page
	Select the software application to view in a software inventory report
	Activate the selected menu options.
	Display the report in the printable format that shows an ASCII table with all report entries
	Expand all rows in the table to show subcomponents of each row

Table 6-1 Report Navigation Controls (**continued**)

Control	Function
	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
	Sort by this column ascending.
	Sort by this column descending.

Figure 6-3 shows an example report generated by the command line interface.

```

root@baltic root]# espreport events -cid 7130 -from 08/13/2003 -to 08/13/2003

Event report by class for system "baltic.csd.sgi.com"
Class: (7130) - "Daemon Messages"
-----+-----+-----+-----+-----+-----+-----+
| ## | Type           | First           | Last            | # | Syslog message |
|-----+-----+-----+-----+---+-----+-----+
| 1. | Daemon Error   | 08/13/2003     | 08/13/2003     | 1 | warning: can't get client |
|   |                | 06:23:55       | 06:23:55       |   | address: Transport |
|   |                |                |                |   | endpoint is not connected |
|-----+-----+-----+-----+---+-----+-----+
| 2. | Daemon Error   | 08/13/2003     | 08/13/2003     | 1 | warning: can't get client |
|   |                | 06:35:31       | 06:35:31       |   | address: Transport |
|   |                |                |                |   | endpoint is not connected |
|-----+-----+-----+-----+---+-----+-----+
| 3. | Daemon Error   | 08/13/2003     | 08/13/2003     | 1 | warning: can't get client |
|   |                | 09:03:03       | 09:03:03       |   | address: Transport |
|   |                |                |                |   | endpoint is not connected |
|-----+-----+-----+-----+---+-----+-----+
| 4. | Daemon Error   | 08/13/2003     | 08/13/2003     | 1 | warning: can't get client |
|   |                | 09:09:04       | 09:09:04       |   | address: Transport |
|   |                |                |                |   | endpoint is not connected |
|-----+-----+-----+-----+---+-----+-----+
root@baltic root]# █

```

Figure 6-3 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 6-4.)

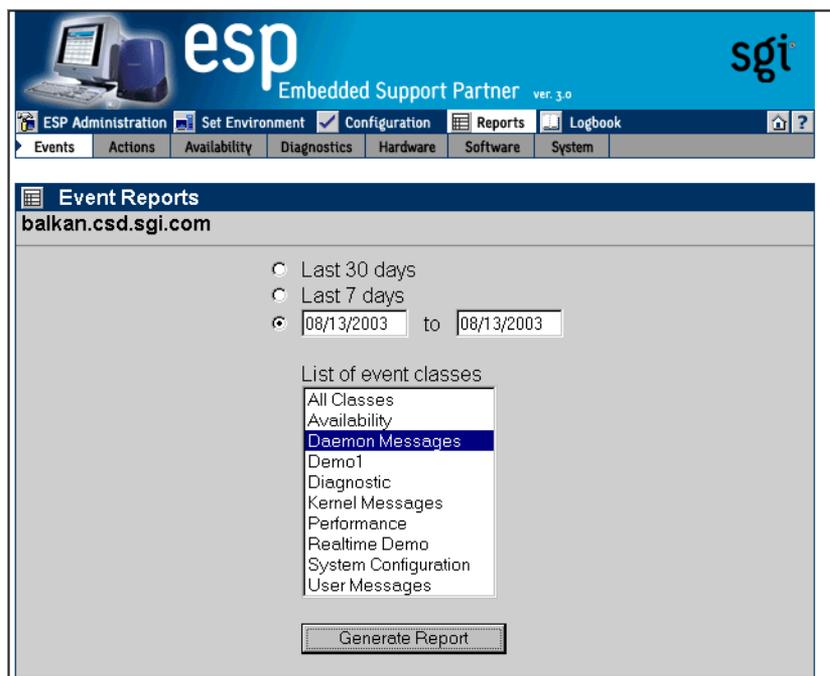


Figure 6-4 Event Reports Window (Single System Manager Mode)

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 6-5 shows an example event report.

Event Report					
balkan.csd.sgi.com			08/13/2003 to 08/13/2003		
Class: Daemon Messages			All Classes		
No	Event Description	First Occurrence	Last Occurrence	Event Count	Syslog message
1	Daemon Error	08/13/2003 06:04:20	08/13/2003 06:04:20	1	warning: can't get client address: Transport endpoint is not connected
2	Daemon Error	08/13/2003 06:41:12	08/13/2003 06:41:12	1	warning: can't get client address: Transport endpoint is not connected
3	Daemon Error	08/13/2003 09:06:12	08/13/2003 09:06:12	1	warning: can't get client address: Transport endpoint is not connected
4	Daemon Error	08/13/2003 09:35:44	08/13/2003 09:35:44	1	warning: can't get client address: Transport endpoint is not connected
5	Daemon Error	08/13/2003 09:50:38	08/13/2003 09:50:38	1	warning: can't get client address: Transport endpoint is not connected

Figure 6-5 Example Events Registered Report (Single System Manager Mode)

Table 6-2 describes the information that the report contains.

Table 6-2 Events Registered Report Contents (Single System Manager Mode)

Column Heading	Description
No.	Index number within the table
Class ^a	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
Syslog message	Message from SYSLOG that generated the event

a. This column appears only if a report shows events from more than one class.

To “drill down” a report that contains events from multiple classes 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 6-6.)



The screenshot shows the ESP Administration web interface. At the top, there is a navigation bar with tabs for 'Events', 'Actions', 'Availability', 'Diagnostics', 'Hardware', 'Software', and 'System'. Below this is a header section for the 'Event Report' for the class 'Daemon Messages' on the system 'balkan.csd.sgi.com' for the date range '08/13/2003 to 08/13/2003'. The report contains a table with the following data:

Event No	Event Description	First Occurrence	Last Occurrence	Event Count	Syslog message
1	Daemon Error	08/13/2003 06:04:20	08/13/2003 06:04:20	1	warning: can't get client address: Transport endpoint is not connected
2	Daemon Error	08/13/2003 06:41:12	08/13/2003 06:41:12	1	warning: can't get client address: Transport endpoint is not connected
3	Daemon Error	08/13/2003 09:06:12	08/13/2003 09:06:12	1	warning: can't get client address: Transport endpoint is not connected
4	Daemon Error	08/13/2003 09:35:44	08/13/2003 09:35:44	1	warning: can't get client address: Transport endpoint is not connected
5	Daemon Error	08/13/2003 09:50:38	08/13/2003 09:50:38	1	warning: can't get client address: Transport endpoint is not connected
6	Daemon Error	08/13/2003 09:59:30	08/13/2003 09:59:30	1	warning: can't get client address: Transport endpoint is not connected

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

- Click on the Event Description for the event.

The interface displays all occurrences of the event. (Refer to Figure 6-7.)

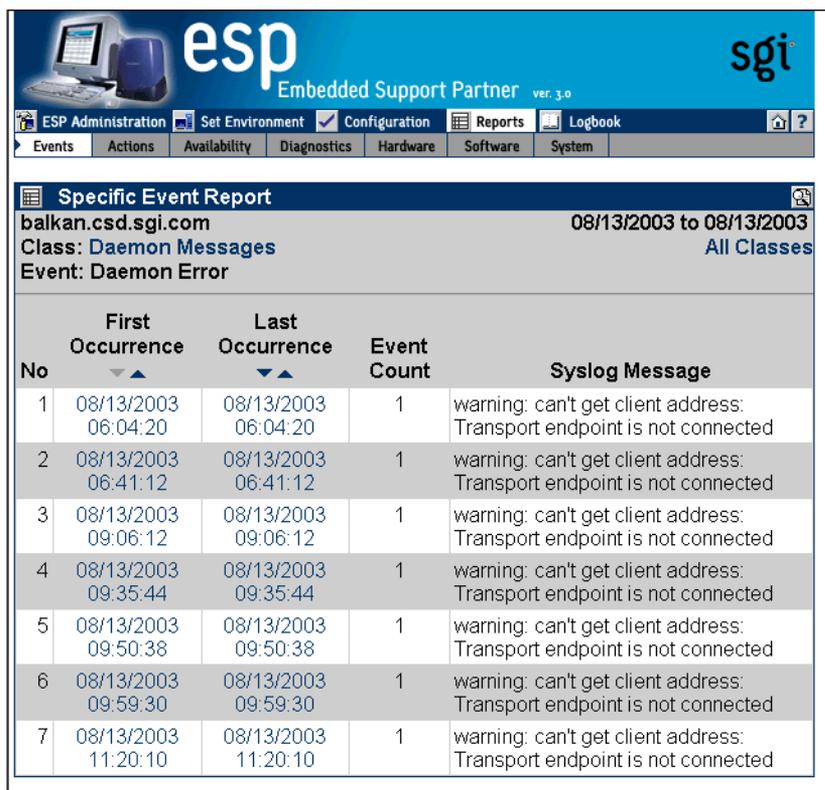


Figure 6-7 All Occurrences of a Specific Event (Single System Manager Mode)

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:

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

The interface displays the `Event Reports For System Group` window. (Refer to Figure 6-8.)

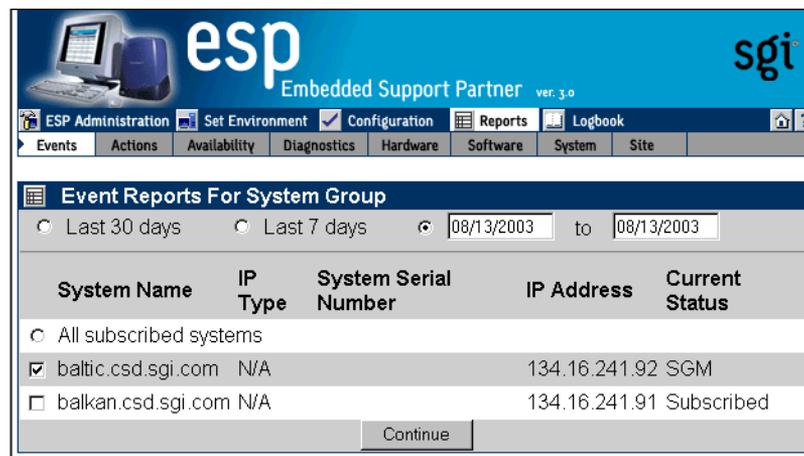


Figure 6-8 Event Reports for System Group Window (System Group Manager Mode)

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

The interface displays the list of classes. (Refer to Figure 6-9.)

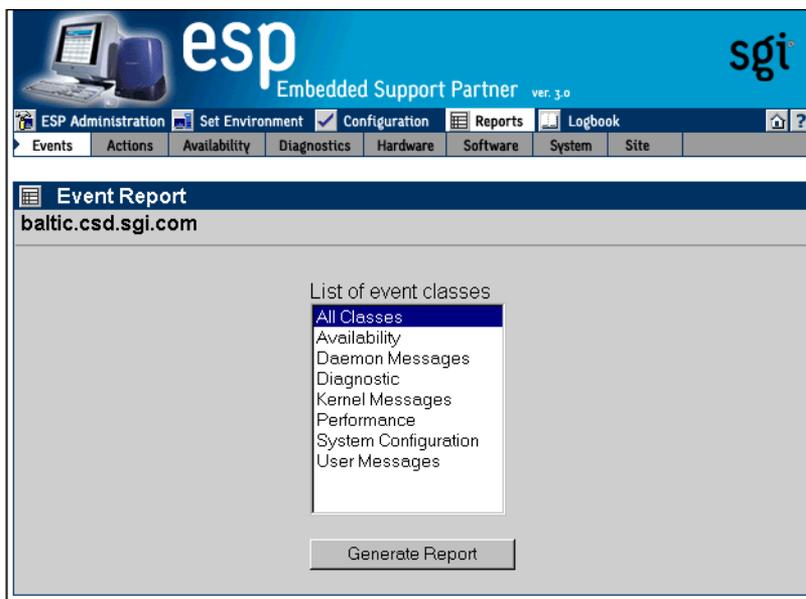


Figure 6-9 Event Reports Window with List of Classes (System Group Manager Mode)

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

Figure 6-10 shows an example events registered report.

The screenshot shows the ESP Administration interface. The main window displays an 'All Events Report' for the system 'baltic.csd.sgi.com' covering the date range '08/13/2003 to 08/13/2003'. The report is set to display 10 records per page. The table below lists the events, all of which are 'Performance' class events with the description 'Low average processor utilization'.

No	Class	Event Description	First Occurrence	Last Occurrence	Event Count
1	Performance	Low average processor utilization	08/13/2003 00:01:12	08/13/2003 00:01:12	1
2	Performance	Low average processor utilization	08/13/2003 00:11:11	08/13/2003 00:11:11	1
3	Performance	Low average processor utilization	08/13/2003 00:21:12	08/13/2003 00:21:12	1
4	Performance	Low average processor utilization	08/13/2003 00:31:12	08/13/2003 00:31:12	1
5	Performance	Low average processor utilization	08/13/2003 00:41:12	08/13/2003 00:41:12	1
6	Performance	Low average processor utilization	08/13/2003 00:51:12	08/13/2003 00:51:12	1
7	Performance	Low average processor utilization	08/13/2003 01:01:11	08/13/2003 01:01:11	1
8	Performance	Low average processor utilization	08/13/2003 01:11:12	08/13/2003 01:11:12	1
9	Performance	Low average processor utilization	08/13/2003 01:21:12	08/13/2003 01:21:12	1
10	Performance	Low average processor utilization	08/13/2003 01:31:12	08/13/2003 01:31:12	1

The interface also shows navigation controls at the bottom of the table, indicating '1 of 8' records are displayed.

Figure 6-10 Example Events Registered Report (System Group Manager Mode)

Table 6-3 describes the information that the report contains.

Table 6-3 Events Registered Report Contents (System Group Manager Mode)

Column Heading	Description
No.	Index number within the table
Class ^a	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 ^b	Client system on which the event occurred

a. This column appears only when reports contain more than one event class.

b. This column appears only on SGM systems when reports contain more than one system.

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 6-11.)

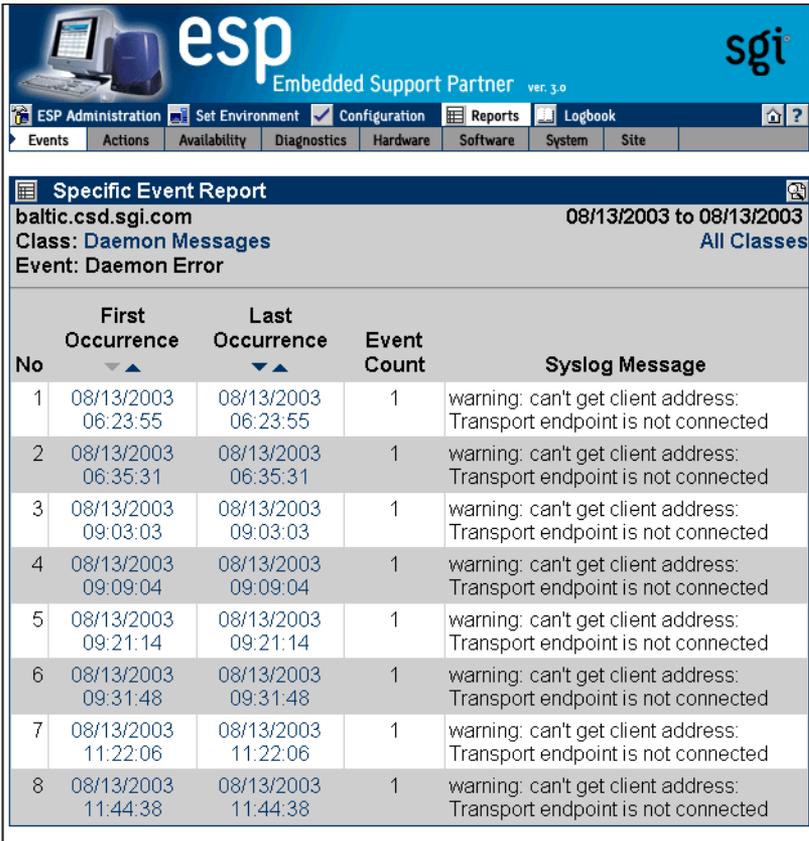


No	Event Description	First Occurrence	Last Occurrence	Event Count	Syslog message
1	Daemon Error	08/13/2003 06:23:55	08/13/2003 06:23:55	1	warning: can't get client address: Transport endpoint is not connected
2	Daemon Error	08/13/2003 06:35:31	08/13/2003 06:35:31	1	warning: can't get client address: Transport endpoint is not connected
3	Daemon Error	08/13/2003 09:03:03	08/13/2003 09:03:03	1	warning: can't get client address: Transport endpoint is not connected
4	Daemon Error	08/13/2003 09:09:04	08/13/2003 09:09:04	1	warning: can't get client address: Transport endpoint is not connected
5	Daemon Error	08/13/2003 09:21:14	08/13/2003 09:21:14	1	warning: can't get client address: Transport endpoint is not connected
6	Daemon Error	08/13/2003 09:31:48	08/13/2003 09:31:48	1	warning: can't get client address: Transport endpoint is not connected
7	Daemon Error	08/13/2003 11:22:06	08/13/2003 11:22:06	1	warning: can't get client address: Transport endpoint is not connected
8	Daemon Error	08/13/2003 11:44:38	08/13/2003 11:44:38	1	warning: can't get client address: Transport endpoint is not connected

Figure 6-11 Events Registered in a Specify Class (System Group Manager Mode)

- Click on the Event Description for the event.

The interface displays all occurrences of the event. (Refer to Figure 6-12.)



The screenshot shows the ESP Administration web interface. At the top, there is a navigation menu with options: ESP Administration, Set Environment, Configuration, Reports, and Logbook. Below the menu, there are tabs for Events, Actions, Availability, Diagnostics, Hardware, Software, System, and Site. The main content area is titled 'Specific Event Report' and shows details for 'baltic.csd.sgi.com' on '08/13/2003 to 08/13/2003'. The event class is 'Daemon Messages' and the specific event is 'Daemon Error'. A table below lists 8 occurrences of the event, each with a unique ID, a timestamp, and a Syslog message.

No	First Occurrence	Last Occurrence	Event Count	Syslog Message
1	08/13/2003 06:23:55	08/13/2003 06:23:55	1	warning: can't get client address: Transport endpoint is not connected
2	08/13/2003 06:35:31	08/13/2003 06:35:31	1	warning: can't get client address: Transport endpoint is not connected
3	08/13/2003 09:03:03	08/13/2003 09:03:03	1	warning: can't get client address: Transport endpoint is not connected
4	08/13/2003 09:09:04	08/13/2003 09:09:04	1	warning: can't get client address: Transport endpoint is not connected
5	08/13/2003 09:21:14	08/13/2003 09:21:14	1	warning: can't get client address: Transport endpoint is not connected
6	08/13/2003 09:31:48	08/13/2003 09:31:48	1	warning: can't get client address: Transport endpoint is not connected
7	08/13/2003 11:22:06	08/13/2003 11:22:06	1	warning: can't get client address: Transport endpoint is not connected
8	08/13/2003 11:44:38	08/13/2003 11:44:38	1	warning: can't get client address: Transport endpoint is not connected

Figure 6-12 All Occurrences of a Specific Event (System Group Manager Mode)

Using the Command Line Interface

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

```
/usr/sbin/esreport events [-sysid <system id> | -host <hostname>]
                          [-from mm/dd/yyyy] [-to mm/dd/yyyy]
                          [-tid <type id> | -td <type desc>]
                          [-cid <class id> | -cd <class 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/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, 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 6-13.)



Figure 6-13 Action Reports Window (Single System Manager Mode)

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

Figure 6-14 shows an example actions taken report.

No	Class	Event Description	Time	Action Taken
1	Daemon Messages	Daemon Error	08/13/2003 12:35:24	mail sysadm
2	Diagnostic	Diagnostic start	08/13/2003 12:36:17	mail sysadm
3	Diagnostic	Diagnostic interrupted	08/13/2003 12:36:17	mail sysadm

Figure 6-14 Example Actions Taken Report (Single System Manager Mode)

Table 6-4 describes the information that the report contains.

Table 6-4 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 6-15.)

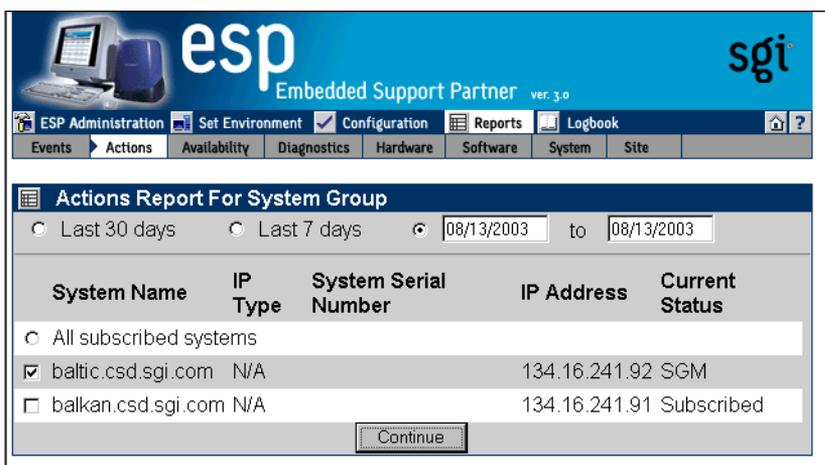


Figure 6-15 Actions Report for System Group Window (System Group Manager Mode)

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 6-16 shows an example actions taken report.

Action Report				
baltic.csd.sgi.com			08/13/2003 to 08/13/2003	
No	Class	Event Description	Time	Action Taken
1	Performance	Low average processor utilization	08/13/2003 12:21:12	send me mail
2	Daemon Messages	Daemon Error	08/13/2003 12:21:12	send me mail

Figure 6-16 Example Actions Taken Report (System Group Manager Mode)

Table 6-5 describes the information that the report contains.

Table 6-5 Actions Taken Report Contents (System Group Manager Mode)

Column	Description
No .	Index number in the table
Class ^a	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 ^b	Client system on which the event occurred

a. This column appears only when reports contain more than one event class.

b. This column appears only on SGM systems when reports contain more than one system.

Using the Command Line Interface

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

```
/usr/sbin/espreport 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 6-17.)

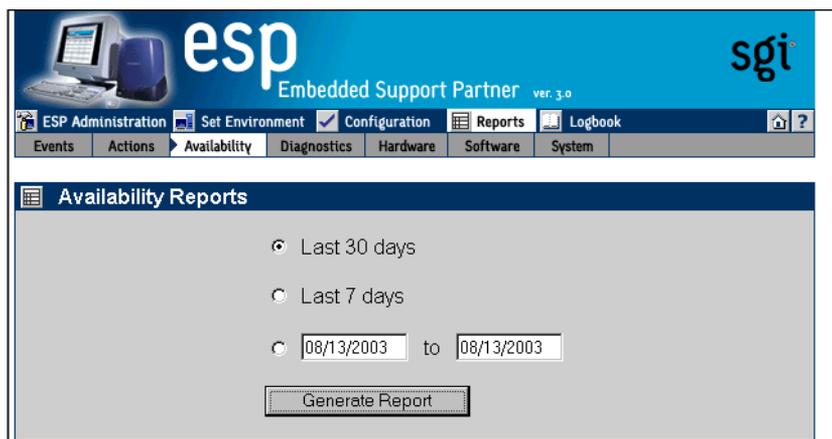


Figure 6-17 Availability Reports Window (Single System Mode)

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

Figure 6-18 shows an example availability report.

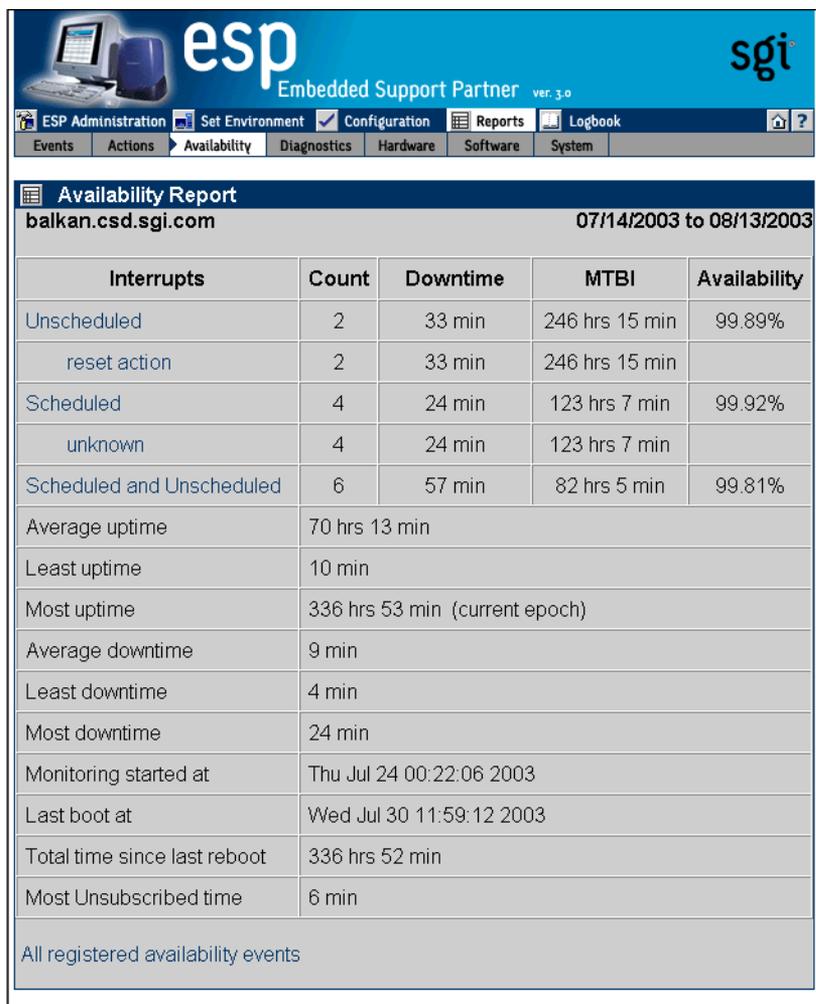


Figure 6-18 Example Availability Report (Single System Manager Mode)

Table 6-6 describes the contents of the report.

Table 6-6 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 6-19.)

The screenshot shows the ESP Embedded Support Partner web interface. The main navigation bar includes 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. Below this is a sub-menu with 'Events', 'Actions', 'Availability', 'Diagnostics', 'Hardware', 'Software', 'System', and 'Site'. The 'Availability Report' window is open, showing a date range selector with radio buttons for 'Last 30 days' (selected), 'Last 7 days', and a date range from '08/13/2003' to '08/13/2003'. Below the selector is a table with the following data:

System Name	IP Type	System Serial Number	IP Address	Current Status
<input checked="" type="radio"/> baltic.csd.sgi.com	N/A		134.16.241.92	SGM
<input type="radio"/> balkan.csd.sgi.com	N/A		134.16.241.91	Subscribed

A 'Continue' button is located at the bottom right of the table.

Figure 6-19 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.

Figure 6-20 shows an example availability report for a specific host.

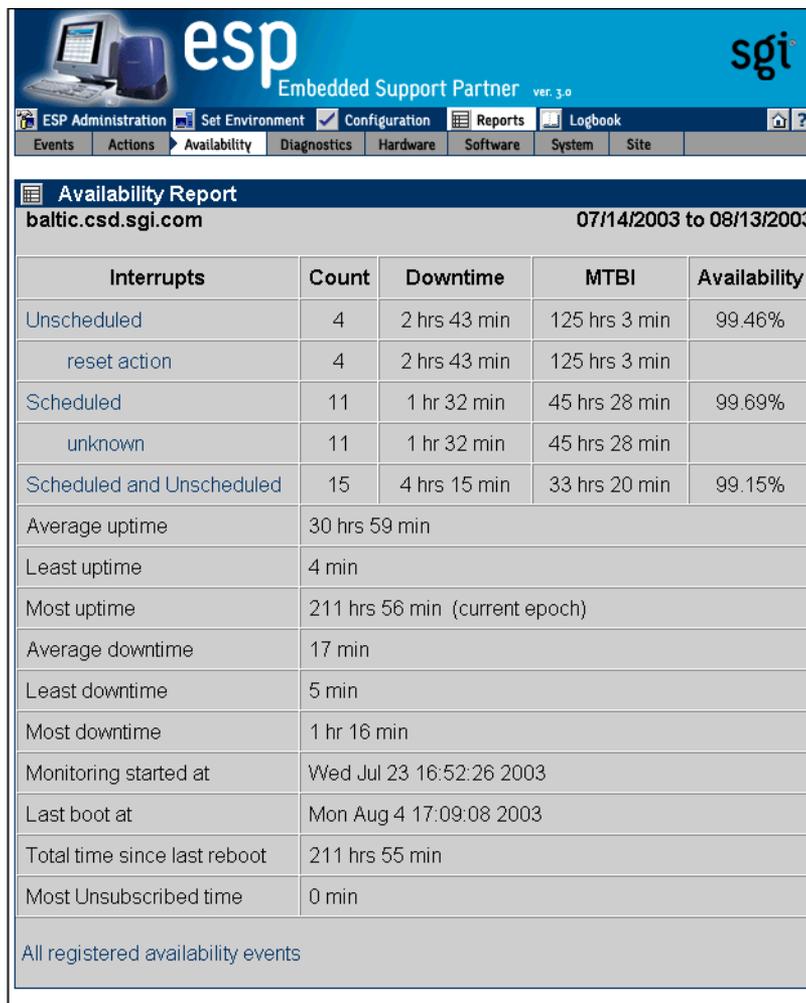


Figure 6-20 Example Availability Report for a Specific Host (System Group Manager Mode)

Table 6-7 describes the contents of the report.

Table 6-7 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 6-21.)

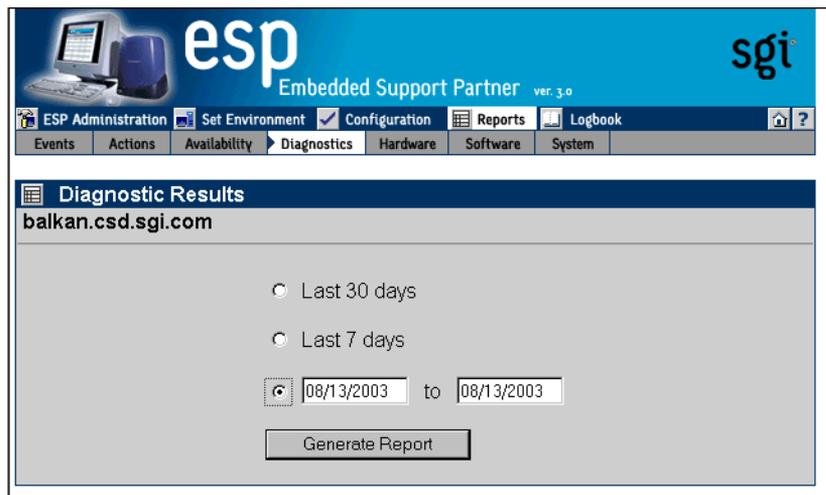


Figure 6-21 Diagnostic Results Window (Single System Manager Mode)

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 6-22 shows an example diagnostic results report.

No	Diagnostic Name	Diagnostic Result	Diagnostic Result Time
1	olcmt	Passed	08/13/2003 13:10:49
2	olmem	Passed	08/13/2003 13:11:15

Figure 6-22 Example Diagnostic Results Report (Single System Manager Mode)

Table 6-8 describes the contents of the report.

Table 6-8 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

Table 6-8 Diagnostic Results Report Contents (Single System Manager Mode) (continued)

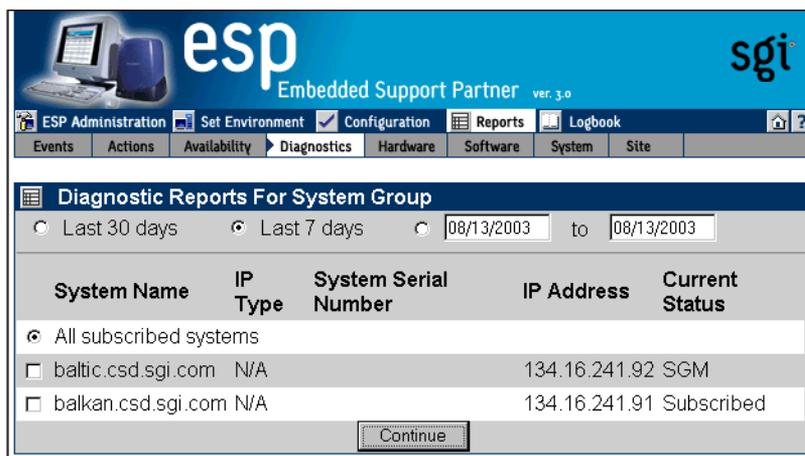
Column Heading	Description
Diagnostic Result	Result of the diagnostic: PASS, FAIL, or COMPLETE PASS indicates that the diagnostic completed successfully FAIL indicates that the diagnostic failed COMPLETE indicates that multiple tests ran and one or more of them failed and the others passed
Diagnostic 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:

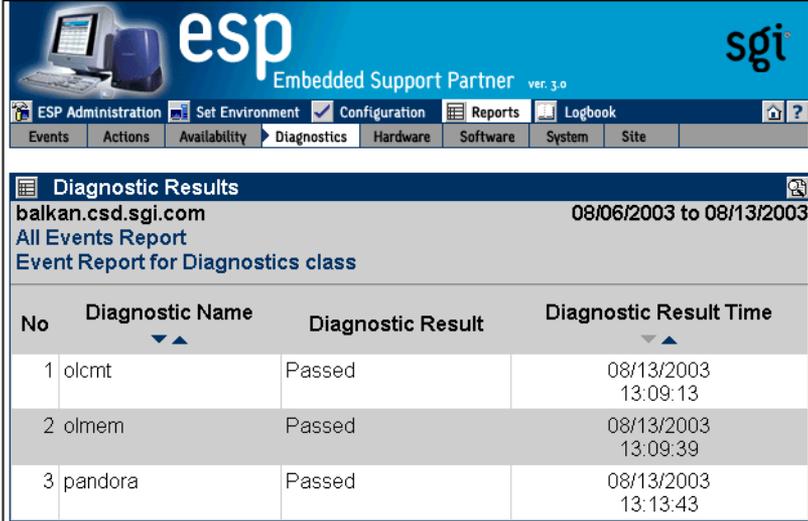
1. Click on the `Reports` button.
2. Click on the `Diagnostics` button.

The interface displays the `Diagnostic Results` window. (Refer to Figure 6-23.)

**Figure 6-23** 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 6-24 shows an example diagnostic results report.



No	Diagnostic Name	Diagnostic Result	Diagnostic Result Time
1	olcmt	Passed	08/13/2003 13:09:13
2	olmem	Passed	08/13/2003 13:09:39
3	pandora	Passed	08/13/2003 13:13:43

Figure 6-24 Example Diagnostic Results Report (System Group Manager Mode)

Table 6-9 describes the contents of the report.

Table 6-9 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
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 6-25.)

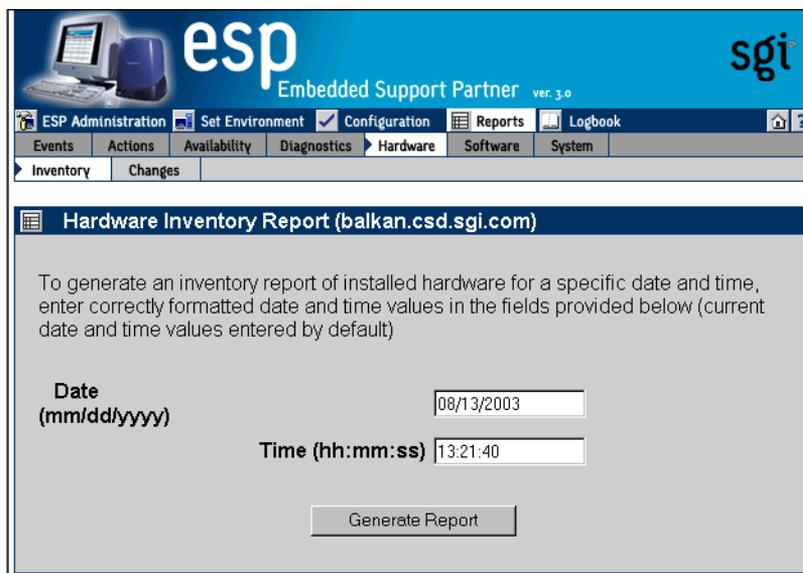
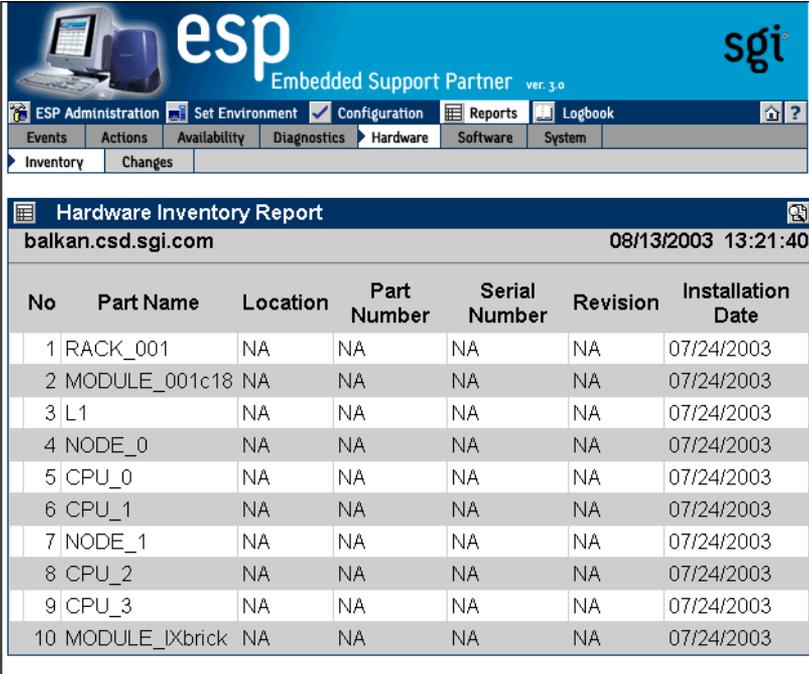


Figure 6-25 Hardware Inventory Report Window (Single System Manager Mode)

3. Specify the date and time of the hardware inventory that you want to view.
4. Click on the `Generate Report` button.

Figure 6-26 shows an example hardware inventory report.



No	Part Name	Location	Part Number	Serial Number	Revision	Installation Date
1	RACK_001	NA	NA	NA	NA	07/24/2003
2	MODULE_001c18	NA	NA	NA	NA	07/24/2003
3	L1	NA	NA	NA	NA	07/24/2003
4	NODE_0	NA	NA	NA	NA	07/24/2003
5	CPU_0	NA	NA	NA	NA	07/24/2003
6	CPU_1	NA	NA	NA	NA	07/24/2003
7	NODE_1	NA	NA	NA	NA	07/24/2003
8	CPU_2	NA	NA	NA	NA	07/24/2003
9	CPU_3	NA	NA	NA	NA	07/24/2003
10	MODULE_IXbrick	NA	NA	NA	NA	07/24/2003

Figure 6-26 Example Hardware Inventory Report (Single System Manager Mode)

Table 6-10 describes the contents of the report.

Table 6-10 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 6-27.)

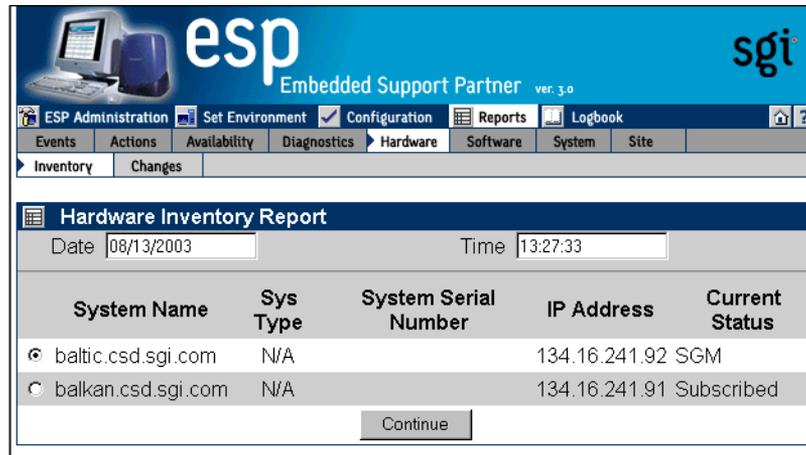
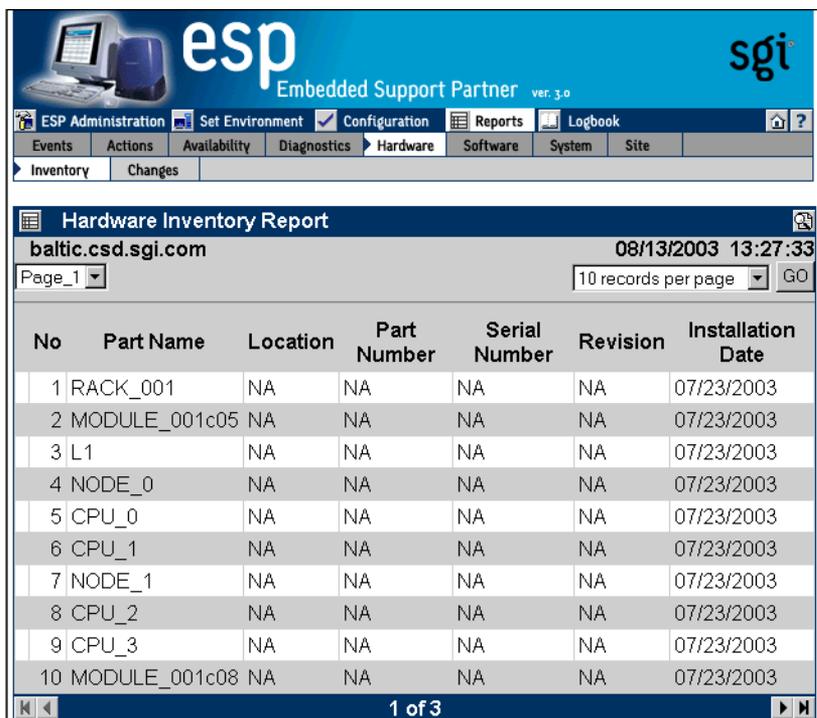


Figure 6-27 Hardware Inventory Reports for System Group Window (System Group Manager Mode)

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 6-28 shows an example hardware inventory report.



The screenshot displays the ESP Administration web interface. At the top, there is a navigation menu with options: ESP Administration, Set Environment, Configuration, Reports, and Logbook. Below this, there are tabs for Events, Actions, Availability, Diagnostics, Hardware (selected), Software, System, and Site. A sub-menu under Hardware shows 'Inventory' and 'Changes'. The main content area is titled 'Hardware Inventory Report' and shows the URL 'baltic.csd.sgi.com' and the date/time '08/13/2003 13:27:33'. There is a page selector 'Page_1' and a 'GO' button. The report table has 7 columns: No, Part Name, Location, Part Number, Serial Number, Revision, and Installation Date. The table contains 10 rows of data, all with an installation date of 07/23/2003. At the bottom, there are navigation arrows and the text '1 of 3'.

No	Part Name	Location	Part Number	Serial Number	Revision	Installation Date
1	RACK_001	NA	NA	NA	NA	07/23/2003
2	MODULE_001c05	NA	NA	NA	NA	07/23/2003
3	L1	NA	NA	NA	NA	07/23/2003
4	NODE_0	NA	NA	NA	NA	07/23/2003
5	CPU_0	NA	NA	NA	NA	07/23/2003
6	CPU_1	NA	NA	NA	NA	07/23/2003
7	NODE_1	NA	NA	NA	NA	07/23/2003
8	CPU_2	NA	NA	NA	NA	07/23/2003
9	CPU_3	NA	NA	NA	NA	07/23/2003
10	MODULE_001c08	NA	NA	NA	NA	07/23/2003

Figure 6-28 Example Hardware Inventory Report (System Group Manager Mode)

Table 6-11 describes the contents of the report.

Table 6-11 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

Use 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 6-29.)

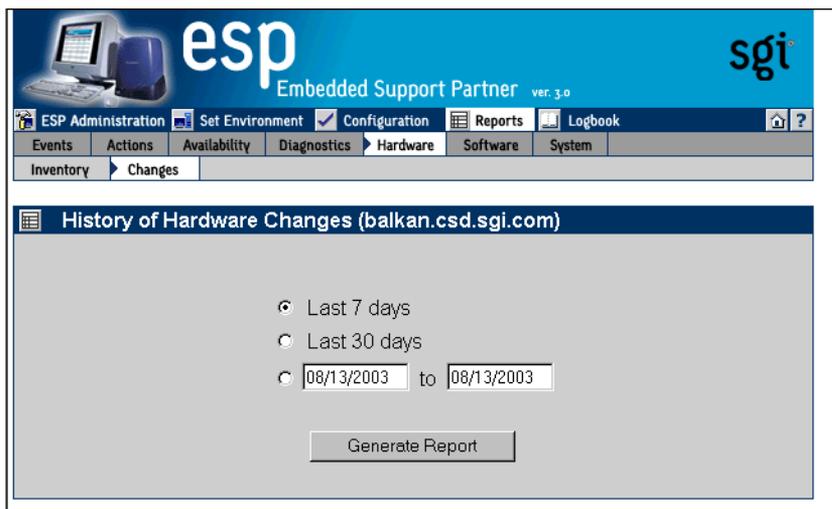


Figure 6-29 History of Hardware Changes Window (Single System Manager Mode)

- Specify the range of dates for the report.
- Click on the `Generate Report` button.

Figure 6-30 shows an example hardware changes report.

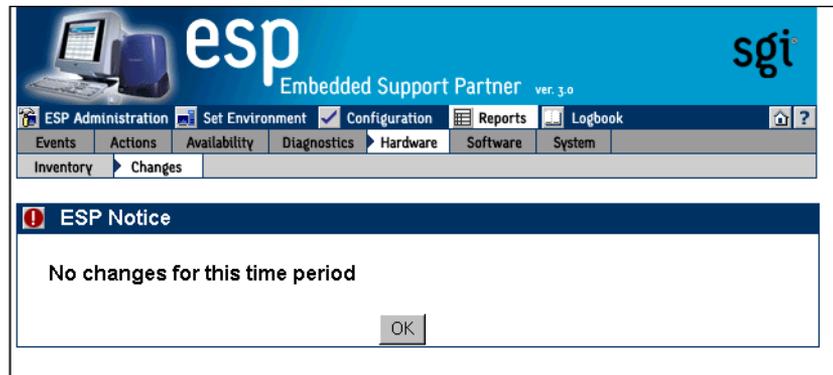


Figure 6-30 Example Hardware Changes Report (Single System Manager Mode)

Table 6-12 describes the contents of the report.

Table 6-12 Hardware Changes Report Contents (Single System Manager Mode)

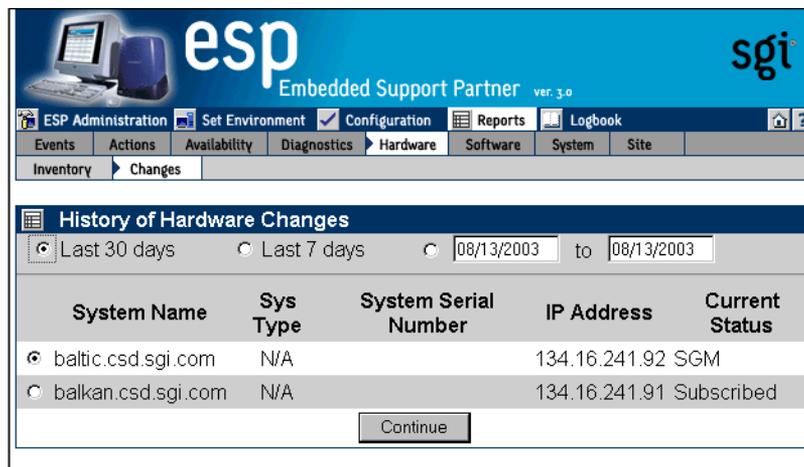
Column Heading	Description
No.	Index number in the table
Part Name	Name of the part
Location	Location of the part
Serial Number	Serial number of the part
Part Number	Part number of the part
Revision	Revision level of the part
Install Date/Time	Date and time that the part was installed in the location
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 6-31.)



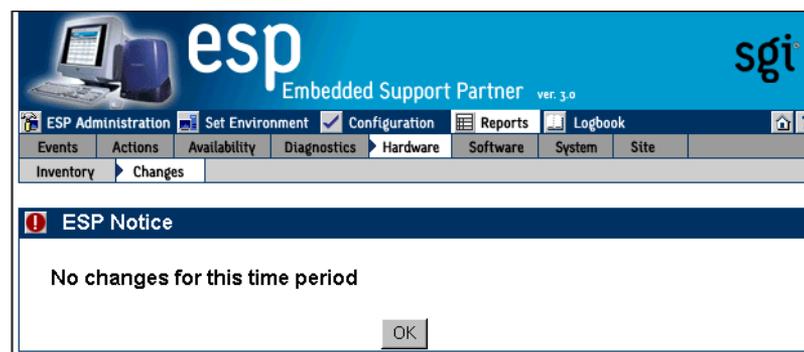
The screenshot shows the 'History of Hardware Changes' window in System Group Manager Mode. The interface includes a navigation menu with 'Hardware' selected, and a table listing system names, types, serial numbers, IP addresses, and current statuses.

System Name	Sys Type	System Serial Number	IP Address	Current Status
<input checked="" type="radio"/> baltic.csd.sgi.com	N/A		134.16.241.92	SGM
<input type="radio"/> balkan.csd.sgi.com	N/A		134.16.241.91	Subscribed

Figure 6-31 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 6-32 shows an example hardware changes report.



The screenshot shows an 'ESP Notice' dialog box with the message 'No changes for this time period' and an 'OK' button.

Figure 6-32 Example Hardware Changes Report (Single Group Manager Mode)

Table 6-13 describes the contents of the report.

Table 6-13 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  
                        [-sysid <system id> | -host <host name>]  
                        [-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 6-33.)

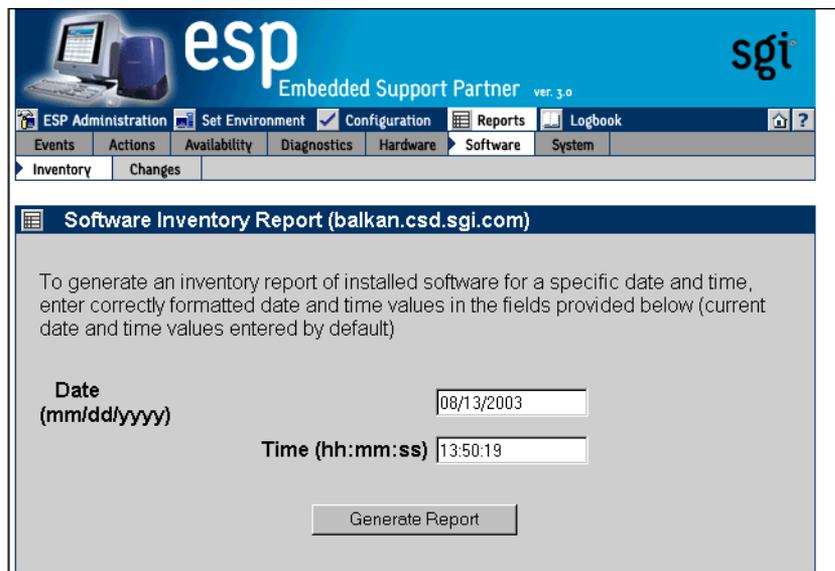


Figure 6-33 Software Inventory Report Window (Single System Manager Mode)

4. Specify the date and time of the software inventory that you want to view.
5. Click on the `Generate Report` button.

Figure 6-34 shows an example software inventory report.

The screenshot displays the ESP Administration web interface. At the top, there is a navigation bar with the following menu items: ESP Administration, Set Environment, Configuration, Reports, and Logbook. Below this, a secondary menu includes Events, Actions, Availability, Diagnostics, Hardware, Software (selected), and System. A sub-menu under Software shows Inventory and Changes. The main content area is titled 'Software Inventory Report' and shows the system 'balkan.csd.sgi.com' as of '08/13/2003 13:50:19'. A dropdown menu is set to '4Suite' and the page size is '10 records per page'. The report table contains the following data:

No	Software Name	Version	Installation Date	Software Description
1	4Suite	0.11-2	02/26/2003	Python tools and libraries for XML processing and databases.
2	Canna-devel	3.5b2-50.as21.1	06/13/2003	Header file and library for developing programs which use Canna.
3	Canna-libs	3.5b2-50.as21.1	06/13/2003	The runtime library for Canna.
4	CpuMemSets	0.8-sgi221c1	06/19/2003	CpuMemSets processor and memory placement utilities
5	CpuMemSets-devel	0.8-sgi221c1	06/19/2003	The development option for CpuMemSets
6	Distutils	1.0.2-2	02/26/2003	Python distribution utilities.
7	ElectricFence	2.2.2-8	02/26/2003	A debugger which detects memory allocation violations.
8	FreeWnn-devel	1.11-19	02/26/2003	Development library and header files for FreeWnn.
9	FreeWnn-libs	1.11-19	02/26/2003	A runtime library for FreeWnn.
10	GConf	1.0.4-3	02/26/2003	The Gnome Config System.

Figure 6-34 Example Software Inventory Report (Single System Manager Mode)

Table 6-14 describes the contents of the report.

Table 6-14 Software Inventory Report Contents (Single System Manager Mode)

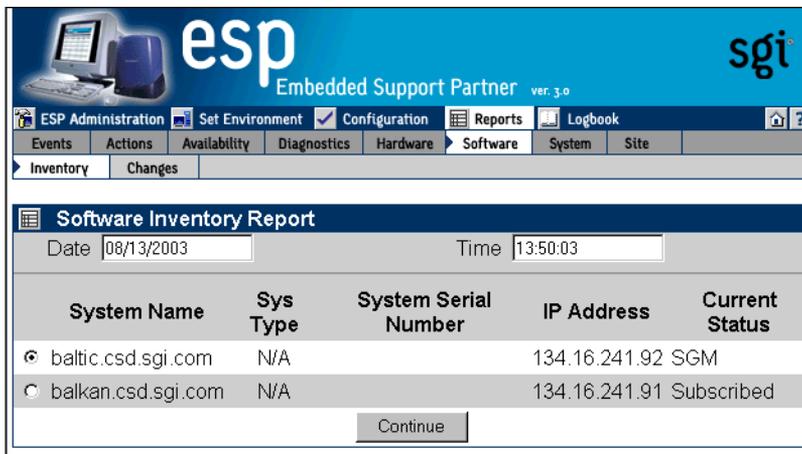
Column Heading	Description
No.	Index number within the table
Software Name	Name of the software application
Version	Version number of the software application
Installation Date	Date on which the software application was installed
Software Description	Brief description of the software

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 6-35.)



The screenshot shows the Embedded Support Partner (ESP) web interface. The top navigation bar includes 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. Below this, there are tabs for 'Events', 'Actions', 'Availability', 'Diagnostics', 'Hardware', 'Software', 'System', and 'Site'. The 'Software' tab is active, and the 'Inventory' sub-tab is selected. The main content area displays a 'Software Inventory Report' window with the following details:

System Name	Sys Type	System Serial Number	IP Address	Current Status
<input checked="" type="radio"/> baltic.csd.sgi.com	N/A		134.16.241.92	SGM
<input type="radio"/> balkan.csd.sgi.com	N/A		134.16.241.91	Subscribed

The report also shows a 'Date' field set to '08/13/2003' and a 'Time' field set to '13:50:03'. A 'Continue' button is located at the bottom of the report window.

Figure 6-35 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 6-36 shows an example software inventory report.

The screenshot displays the ESP Administration web interface. At the top, there is a navigation menu with options: ESP Administration, Set Environment, Configuration, Reports, and Logbook. Below this is a secondary menu with: Events, Actions, Availability, Diagnostics, Hardware, Software (selected), System, and Site. The main content area is titled 'Software Inventory Report' and shows the following data:

No	Software Name	Version	Installation Date	Software Description
1	4Suite	0.11-2	02/26/2003	Python tools and libraries for XML processing and databases.
2	Canna-devel	3.5b2-50.as21.1	06/13/2003	Header file and library for developing programs which use Canna.
3	Canna-libs	3.5b2-50.as21.1	06/13/2003	The runtime library for Canna.
4	CpuMemSets	0.8-sgi221c1	06/18/2003	CpuMemSets processor and memory placement utilities
5	CpuMemSets-devel	0.8-sgi221c1	06/18/2003	The development option for CpuMemSets
6	Distutils	1.0.2-2	02/26/2003	Python distribution utilities.
7	ElectricFence	2.2.2-8	02/26/2003	A debugger which detects memory allocation violations.
8	FreeWnn-devel	1.11-19	02/26/2003	Development library and header files for FreeWnn.
9	FreeWnn-libs	1.11-19	02/26/2003	A runtime library for FreeWnn.
10	GConf	1.0.4-3	02/26/2003	The Gnome Config System.

The interface also shows a header with 'baltic.csd.sgi.com', the date '08/13/2003 13:50:03', and a dropdown menu for '4Suite'. A footer indicates '1 of 110' records.

Figure 6-36 Example Software Inventory Report (System Group Manager Mode)

Table 6-15 describes the contents of the report.

Table 6-15 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

Use 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 6-37.)

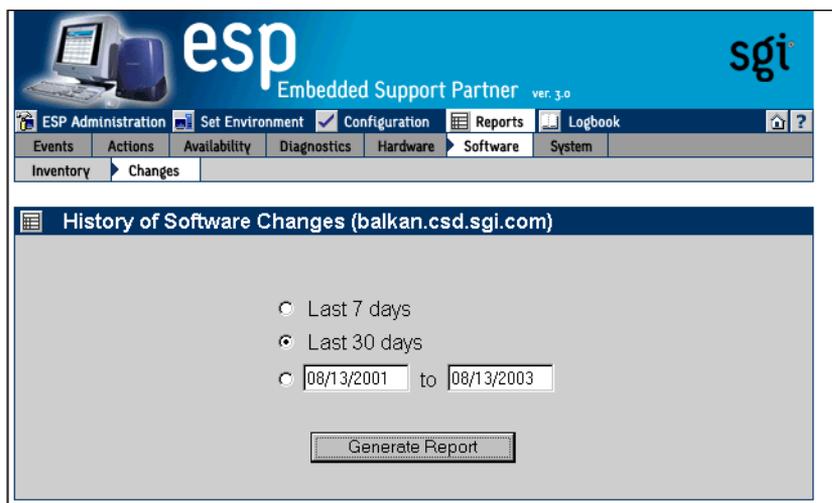


Figure 6-37 History of Software Changes Window (Single System Manager Mode)

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

Figure 6-38 shows an example software changes report.

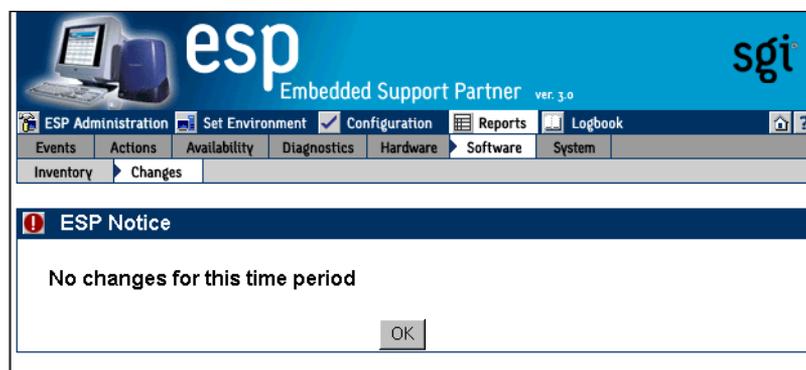


Figure 6-38 Example Software Changes Report (Single System Manager Mode)

Table 6-16 describes the contents of the report.

Table 6-16 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 6-39.)

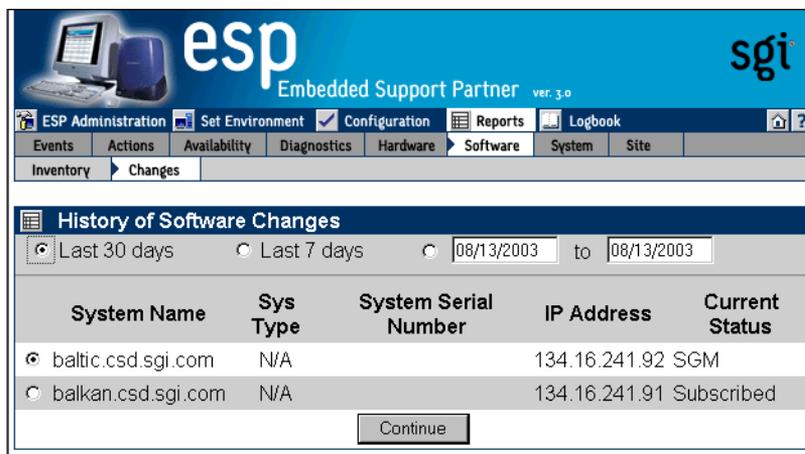


Figure 6-39 Software Changes for System Group Window (System Group Manager Mode)

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 6-40 shows an example software changes report.

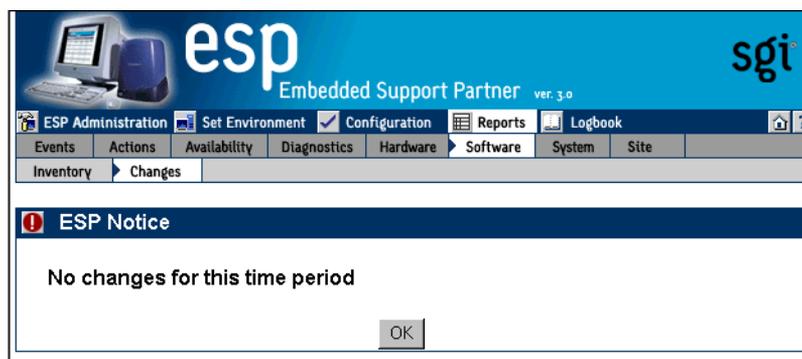


Figure 6-40 Example Software Changes Report (System Group Manager Mode)

Table 6-17 describes the contents of the report.

Table 6-17 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
                        [-sysid <system id> | -host <host name>]
                        [-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:

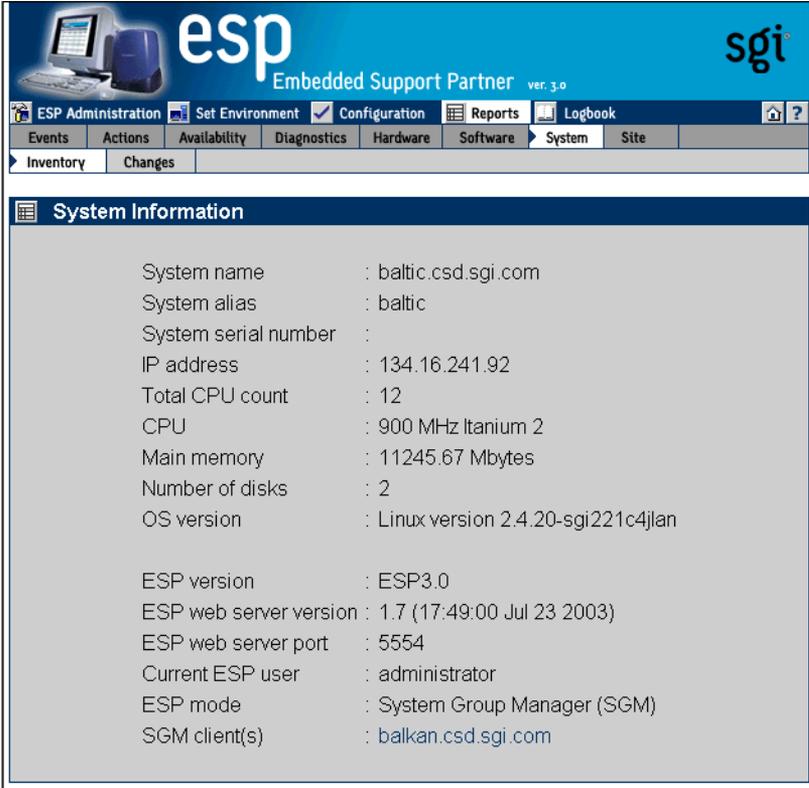
1. Click on the `Reports` button.
2. Click on the `System` button.
3. Click on the `Inventory` button.

The interface displays the `System` window. (Figure 6-41 shows an example system inventory report in single system manager mode. Figure 6-42 shows an example system inventory report in system group manager mode.)

The screenshot displays the ESP Embedded Support Partner web interface. At the top, there is a blue header with the 'esp' logo and 'Embedded Support Partner ver. 3.0' text, along with the 'sgi' logo. Below the header is a navigation menu with tabs for 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. A secondary menu shows 'Events', 'Actions', 'Availability', 'Diagnostics', 'Hardware', 'Software', and 'System'. Under 'System', there are sub-tabs for 'Inventory' and 'Changes'. The main content area is titled 'System Information' and lists various system parameters:

System name	: balkan.csd.sgi.com
System alias	: balkan
System serial number	:
IP address	: 134.16.241.91
Total CPU count	: 4
CPU	: 900 MHz Itanium 2
Main memory	: 3739.23 Mbytes
Number of disks	: 1
OS version	: Linux version 2.4.20-sgi221c4jlan
ESP version	: ESP3.0
ESP web server version	: 1.7 (01:24:03 Jul 24 2003)
ESP web server port	: 5554
Current ESP user	: administrator
ESP mode	: Single system
SGM server	: baltic.csd.sgi.com

Figure 6-41 Example System Inventory Report (Single System Manager Mode)



The screenshot displays the ESP Embedded Support Partner web interface. The top navigation bar includes links for ESP Administration, Set Environment, Configuration, Reports, and Logbook. Below this is a secondary menu with tabs for Events, Actions, Availability, Diagnostics, Hardware, Software, System, and Site. The 'System' tab is selected, and the 'Inventory' sub-tab is active. The main content area is titled 'System Information' and lists the following details:

System name	: baltic.csd.sgi.com
System alias	: baltic
System serial number	:
IP address	: 134.16.241.92
Total CPU count	: 12
CPU	: 900 MHz Itanium 2
Main memory	: 11245.67 Mbytes
Number of disks	: 2
OS version	: Linux version 2.4.20-sgi221c4jlan
ESP version	: ESP3.0
ESP web server version	: 1.7 (17:49:00 Jul 23 2003)
ESP web server port	: 5554
Current ESP user	: administrator
ESP mode	: System Group Manager (SGM)
SGM client(s)	: balkan.csd.sgi.com

Figure 6-42 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
                    [-sysid <system id> | -host <host name>]
                    [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
                    [-sysid <system id> | -host <host name>]
                    [-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 6-43.)

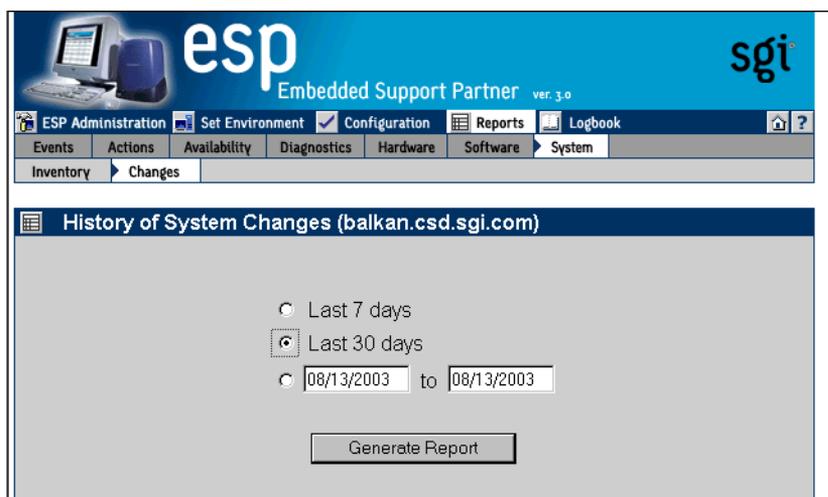


Figure 6-43 History of System Changes Window (Single System Manager Mode)

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

Figure 6-44 shows an example system changes report.

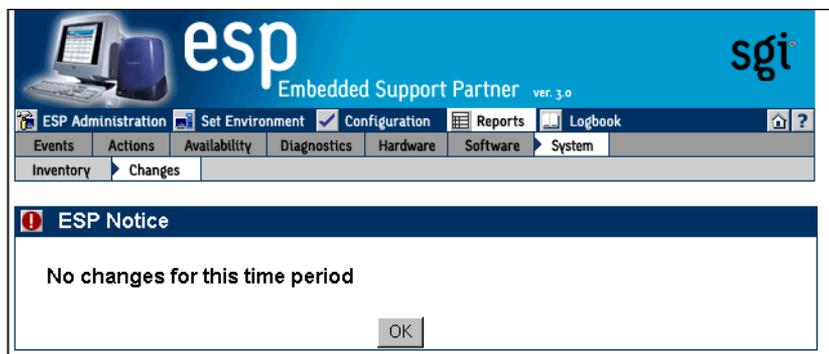


Figure 6-44 Example System Changes Report (Single System Manager Mode)

Table 6-18 describes the contents of the report.

Table 6-18 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 6-45.)

The screenshot shows the ESP Administration web interface. The top navigation bar includes 'ESP Administration', 'Set Environment', 'Configuration', 'Reports', and 'Logbook'. Below this, a secondary menu shows 'Events', 'Actions', 'Availability', 'Diagnostics', 'Hardware', 'Software', 'System', and 'Site'. The 'System' menu is expanded to show 'Inventory' and 'Changes'. The 'History of System Changes' window is open, displaying a table of system changes. The table has columns for 'System Name', 'Sys Type', 'System Serial Number', 'IP Address', and 'Current Status'. Two systems are listed: 'baltic.csd.sgi.com' (N/A, 134.16.241.92, SGM) and 'balkan.csd.sgi.com' (N/A, 134.16.241.91, Subscribed). A 'Continue' button is located at the bottom of the table.

System Name	Sys Type	System Serial Number	IP Address	Current Status
<input checked="" type="radio"/> baltic.csd.sgi.com	N/A		134.16.241.92	SGM
<input type="radio"/> balkan.csd.sgi.com	N/A		134.16.241.91	Subscribed

Figure 6-45 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 6-46 shows an example system changes report.

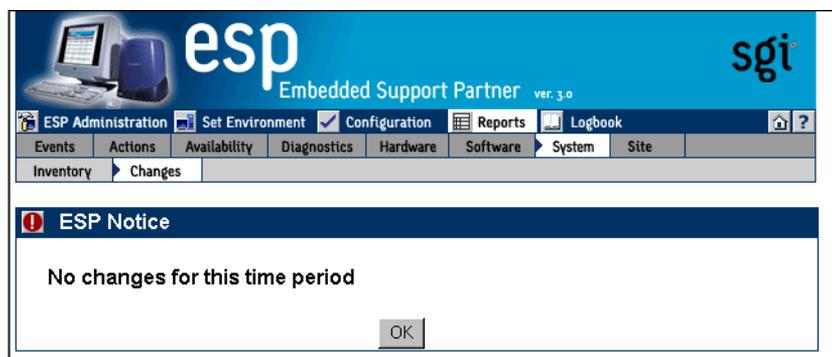


Figure 6-46 Example System Changes Report (System Group Manager Mode)

Table 6-19 describes the contents of the report.

Table 6-19 System Changes Report Contents (System Group Manager Mode)

Column Name	Description
<code>SysId</code>	System identification number
<code>System type</code>	Processor that the system uses
<code>System serial number</code>	Serial number of the system
<code>Hostname</code>	Hostname of the system
<code>IP address</code>	IP address of the system
<code>Date/Time</code>	Date and time of the change

Using the Command Line Interface

System change reports are not available from the command line interface.

Site Reports (System Group Manager Mode Only)

Site reports show information for various combinations of systems at a site. ESP limits site reports to include only systems that meet specific criteria, including:

- Systems that are in a specific group
- Systems that run a specific operating system version
- Systems that have a specific processor type

Site reports can contain system information, all available events, or specific events by class for the selected systems. Site reports are available only from SGM servers.

Perform the following procedure to use the Web-based interface to generate a site inventory report from system group manager mode:

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

The interface displays the Site Reports window. (Refer to Figure 6-47.)

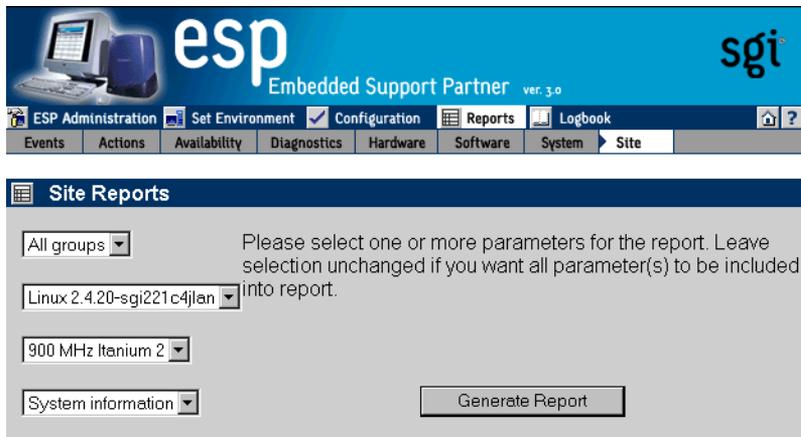
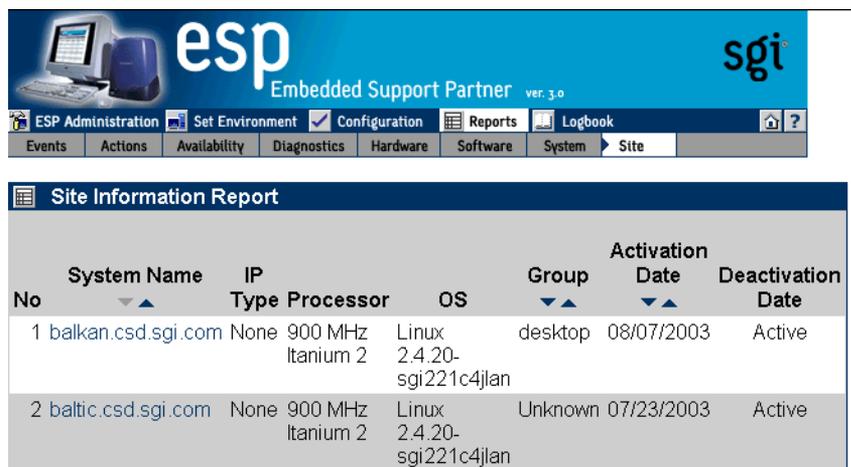


Figure 6-47 Site Reports Window

3. Select the items to include in the report:
 - Choose the groups that you want to include in the report. The pulldown menu includes the names of all groups that are available. When you choose a group name from the menu, the report contains only the systems in the group that you select. Choose `All groups` to include all systems in the report.
 - Choose the operating system that you want to include in the report. The pulldown menu includes the name of all operating systems that ESP detected on the systems. When you choose an operating system from the menu, the report contains only systems that are running that operating system.
 - Choose a processor type. The pulldown menu includes all processor types that ESP detected in the systems. When you choose a processor type from the menu, the report contains only systems that contain that type of processor.
 - Choose the type of site report to generate. The following options are available:
 - The `System information` option generates a site information report, which includes the following information: system name, IP type (if applicable), processor type, OS version, the group that includes the system, the system activation date (the date when system was added to the group for the first time), and system deactivation date (the date when system was unsubscribed).
 - The `All events` option generates a report of all available events.
 - The `Events by class` generates a report of events from specific classes.
4. Click on the `Generate Report` button.

The interface displays the report. (Figure 6-48 shows an example of a site information report.)



No	System Name	IP Type	Processor	OS	Group	Activation Date	Deactivation Date
1	balkan.csd.sgi.com	None	900 MHz Itanium 2	Linux 2.4.20- sgi221c4jlan	desktop	08/07/2003	Active
2	baltic.csd.sgi.com	None	900 MHz Itanium 2	Linux 2.4.20- sgi221c4jlan	Unknown	07/23/2003	Active

Figure 6-48 Site Information Report

Using the Command Line Interface

Site 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 (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to view logbook entries in single system manager mode:

1. Click on the `Logbook` button.
2. Click on the `View Log` button.

The interface displays the `View Logbook Entries` window. (Refer to Figure 7-1.)



Figure 7-1 View Logbook Entries Window (Single System Manager Mode)

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 7-2.)

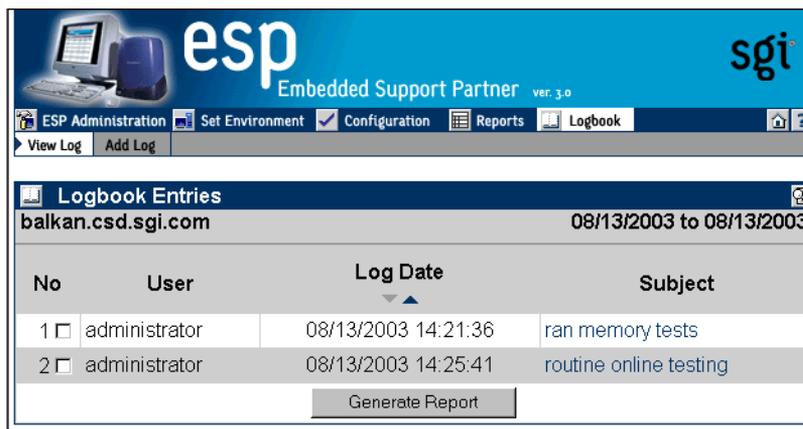


Figure 7-2 Specified Logbook Entries (Single System Manager Mode)

5. Perform one 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 7-3.)



Figure 7-3 Logbook Entry Information (Single System Manager Mode)

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

Perform the following procedure to use the Web-based interface to view logbook entries in system group manager mode:

1. Click on the `Logbook` button.
2. Click on the `View Log` button.

The interface displays the `View Logbook Entries` window. (Refer to Figure 7-4.)

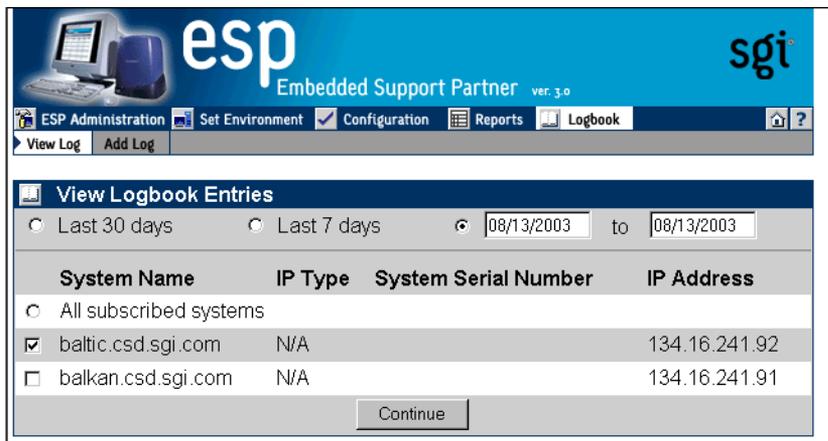


Figure 7-4 View Logbook Entries Window (System Group Manager Mode)

3. Specify the range of dates to view.
4. Select the systems to view.
5. Click on the View Log Entries button.

The interface displays the specified logbook entries. (Refer to Figure 7-5.)

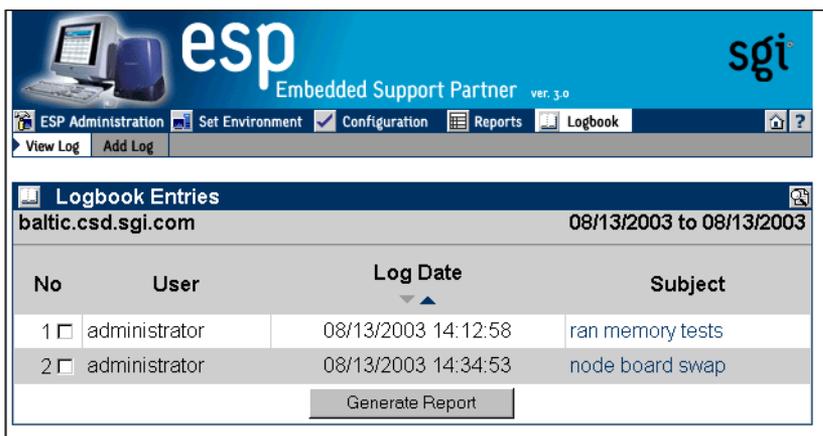


Figure 7-5 Specified Logbook Entries (System Group Manager Mode)

6. Perform one 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 7-6.)



Figure 7-6 Logbook Entry Information (System Group Manager Mode)

Using the Command Line Interface

Use the following syntax of the `espreport` command to view logbook entries:

```
/usr/sbin/espreport logbook [-sysid <system id>|-host <host name>]
                             [-from mm/dd/yyyy] [-to mm/dd/yyyy]
```

Use the `-sysid` and `-host` options to select a system. 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 (Single System Manager Mode)

Perform the following procedure to use the Web-based interface to add a logbook entry in single system manager mode:

1. Click on the `Logbook` button.
2. Click on the `Add Log` button.

The interface displays the `Create Log` window. (Refer to Figure 7-7.)



Figure 7-7 Create Log Window (Single System Manager Mode)

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 7-8.)

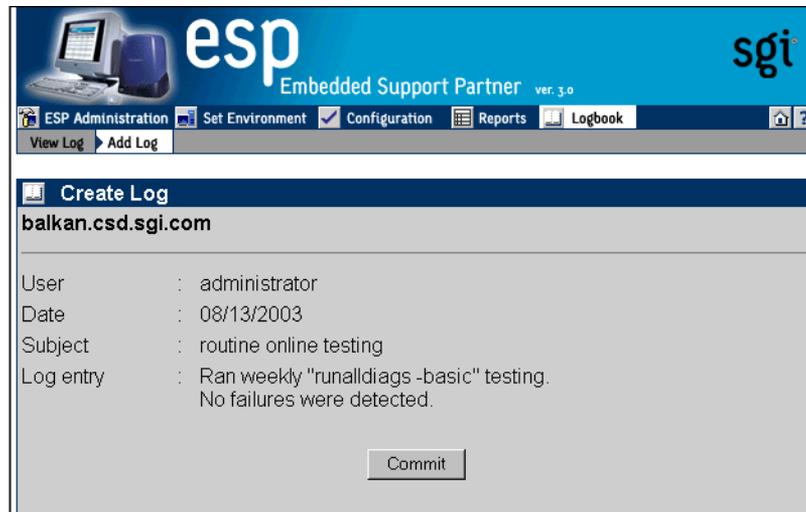


Figure 7-8 Logbook Entry Confirmation Window (Single System Manager Mode)

6. Click on the `Commit` button to create the entry.

The interface displays the information that was added to the logbook. (Refer to Figure 7-9.)

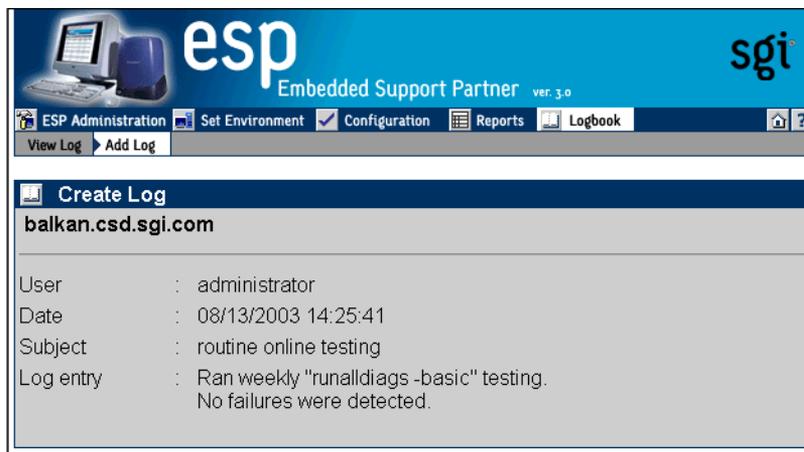


Figure 7-9 Completed Logbook Entry (Single System Manager Mode)

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

Perform the following procedure to use the Web-based interface to add a logbook entry in system group manager mode:

1. Click on the Logbook button.
2. Click on the Add Log button.

The interface displays the Create Log window. (Refer to Figure 7-10.)

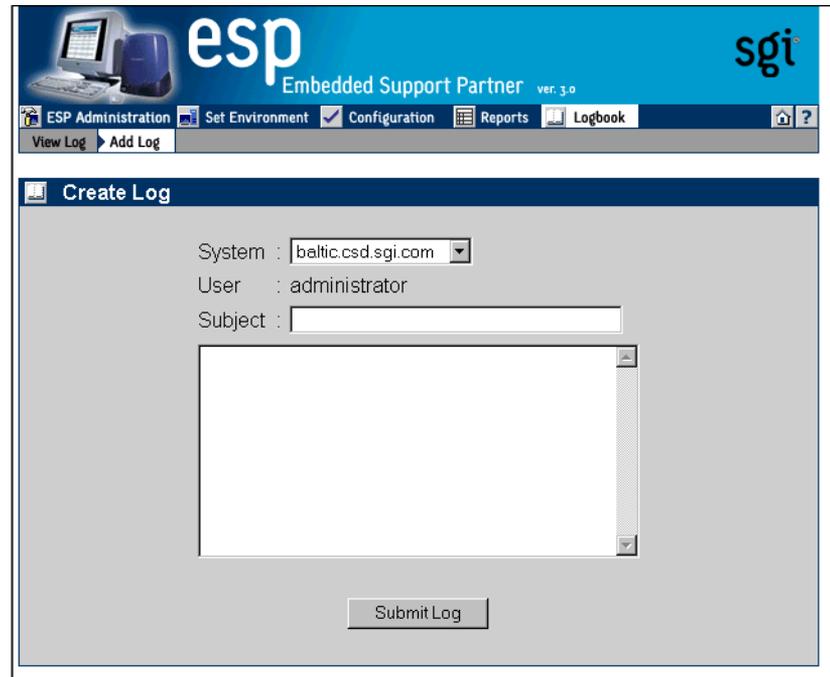


Figure 7-10 Create Log Window (System Group Manager Mode)

Note: ESP automatically sets the `User` field to the user account that you are using.

3. Select the system that the log entry is for.
4. Enter a subject for the entry. (This required field can hold up to 128 characters.)
5. Enter a log entry. (This required field can hold up to 4 Kbytes of data.)
6. Click on the `Submit Log` button.

The interface displays the information that you entered. (Refer to Figure 7-11.)

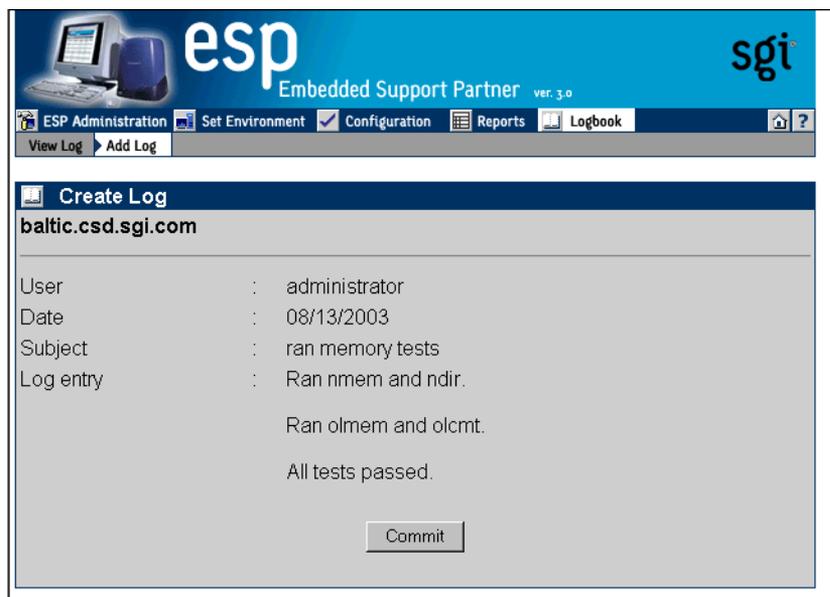


Figure 7-11 Logbook Entry Confirmation Window (System Group Manager Mode)

7. Click on the `Commit` button to create the entry.

Note: All log entries are stored on the SGM server.

The interface displays the information that was added to the logbook. (Refer to Figure 7-12.)



Figure 7-12 Completed Logbook Entry (System Group Manager Mode)

Using the Command Line Interface

Use the `/usr/sbin/esplognote` command to add a logbook entry. This command prompts you for the information that is required in a logbook entry.

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

Note: This chapter describes how to use the `esnotify` command to create notifications. ESP can also automatically generate the `esnotify` command line from options that you select from the graphical user interface (when you use the `Notification Action` option in the `Add Action` window). The information in this chapter simply provides examples of how you can create command lines as actions. If you need to create standard notification actions, it is easiest to use the automated method.

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. |

`-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)

For example, the following command displays the message `This is the message to display.` on the console (refer to Figure 8-1):

```
/usr/bin/esnotify -A 'This is the message to display.'
```



Figure 8-1 Displaying a Message in the Console Window

Displaying a Message on an X Window System Display

Use the following format of the `esnotify` command to display a message on a local or remote X Window System display:

```
/usr/bin/esnotify -c <message> [-a] [-D <display>] [-g <geometry>] [-i <icon>] -n <number>] [-t <title>]
```

This format of the `esnotify` 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 8-2):

```
/usr/bin/esnotify -c "This is the message to display." -D localhost:0  
-t "This is the title."
```



Figure 8-2 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:

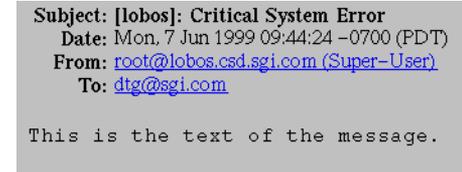
```
/usr/bin/espnotify -E <address> { -f <filename> | -m <message> }  
[-n <number>] [-o <options>] [-s <subject>]
```

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 8-3):

```
/usr/bin/esnotify -E dtg@sgi.com -m 'This is the text of the message.'  
-n 1
```

A screenshot of an email message header and body. The header includes the subject, date, from, and to fields. The body contains the text of the message.

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 8-3 Sending an E-mail Message

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 an example of how to create ESP actions that use `esnotify`.

Note: ESP automatically generates the proper `esnotify` command line when you choose the `Notification` option in the `Add Action` window.

Example: 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.

- Update the parameters. (Table 8-1 lists the parameters for this example.)

Table 8-1 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/espnotify -E abc123@sgi.com -m %D -s 'An event was just registered.'
Execute action as	nobody
Action timeout	600

Figure 8-4 shows an interface page with the proper settings for this example.

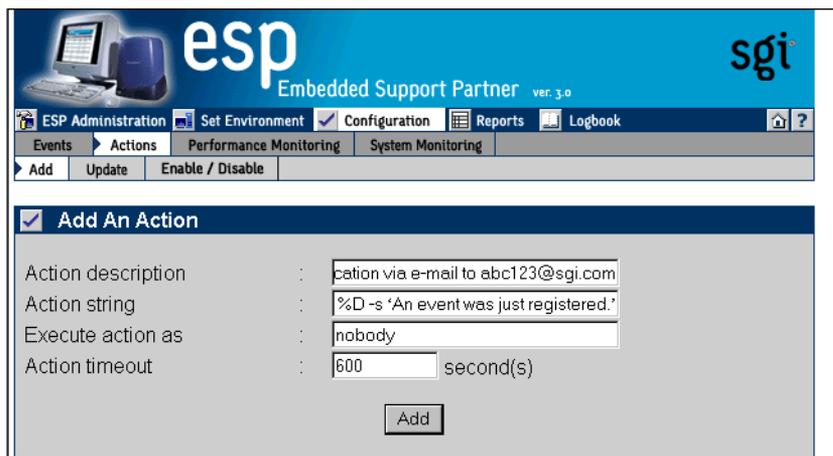


Figure 8-4 Example Action Parameters for Sending an E-mail Message

- Click on the Add button. (Figure 8-5 shows the verification message for this example.)

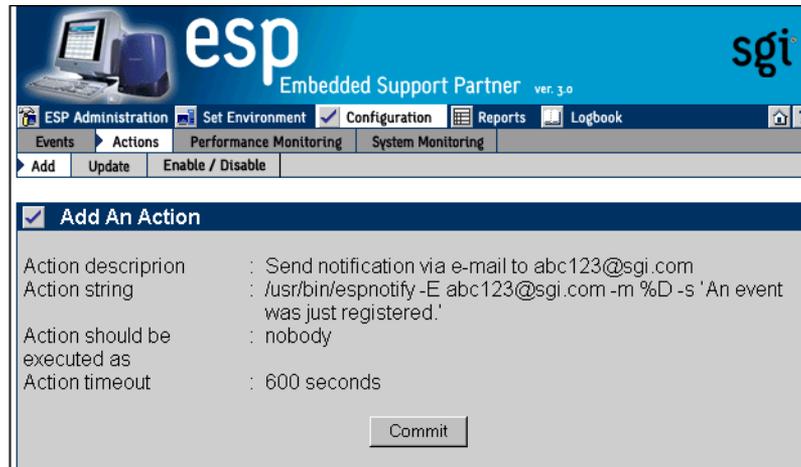


Figure 8-5 Example Verification Message for Sending an E-mail Message Action

8. Click on the `Commit` button. (Figure 8-6 shows the confirmation message for this example.)

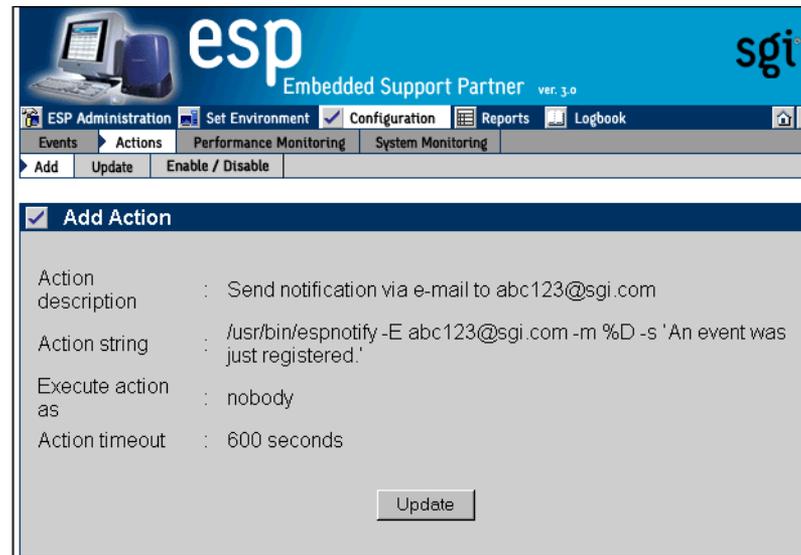


Figure 8-6 Example Confirmation Message for Sending an E-mail Message Action

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 Event Manager Application Programming Interface (API)
- By using the `emgrlogger` and `esplogger` tools

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 Event Manager API and `esplogger` and `emgrlogger` tools.

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 Event Manager API

The Event Manager API contains a set of functions that you can call from your local C or C++ programs to send event information to the Event Manager daemon (`eventmond`). The Event Manager forwards events to ESP on a subscription basis.

Refer to the *Event Manager User Guide*, publication number 007-4661-00x, for more information about the Event Manager API functions and how to use them.

Using the `emrlogger` and `esplogger` Tools

The `esplogger` and `emrlogger` tools provide a simple command-line interface to submit events to the Event Manager. `emrlogger` works with the new Event Manager and replaces `esplogger`, which was used with previous versions of `eventmond` and ESP. `esplogger` remains available to provide backward compatibility. `emrlogger` can produce any type of Event Manager event, including subscription events.

Use the `emrlogger` and `esplogger` tools 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. `emrlogger` and `esplogger` use the following command syntax:

emrlogger:

```
emrlogger -h
emrlogger [-S | -U | -Q | -UQ | -RS]
           [-c <class>] [-t <type>] [-a <appname>] [-s <source host>]
           [-o <origin>] [-p <priority>] [-f <facility>]
           [-P <path to remote host>] [ -is [<tag>]= [<value>] |
           -if [<tag>]=<file path> |
           -id [<tag>]=<hex data>
           ]*
```

Note: Options related to creating subscription events are not typically used and are not described in this document.

where:

- The `-s` option makes a subscription request.
- The `-U` option makes an unsubscription request.

- The `-Q` option makes a subscription query.
- The `-UQ` option makes an unsubscription by query result request.
- The `-RS` option makes a remote subscription request.
- The `-c` option specifies the event class.
- The `-t` option specifies the event type.
- The `-a` option specifies the name of the application.
- The `-s` option specifies the source (hostname) of the event.
- The `-o` option specifies the origin of the event.
- The `-p` option specifies the priority value of the event.
- The `-f` option specifies the facility value of the event.
- The `-P` option specifies the delivery path for a remote subscription event.
- The `-is` option specifies string data.
- The `-if` option specifies file data.
- The `-id` option specifies digital (binary) data in hexadecimal format.

esplogger:

```
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

```
emgrlogger -t 200356 -if FILE=availmon.dat
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

```
emgrlogger -t 0x00200000 -p syslog -f warning -is MSG="Start SVP"
emgrlogger -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 `emgrlogger` or `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.

ESP for the Linux OS

Default Event Classes

The following output from the `espconfig` command shows the default event classes that ESP includes on a system running the Linux OS:

```
linux# espconfig -list evclass
ClassId  Class description
-----  -
4000    "Availability"
4001    "Performance"
4002    "System Configuration"
4005    "Diagnostic"
7100    "Kernel Messages"
7110    "User Messages"
7130    "Daemon Messages"
```

Default Event Types

The following output from the `espsconfig` command shows the default event types that ESP includes on a system running the Linux OS:

```
linux# espsconfig -list evtype
Event types for 8006913E029:
```

Class Id	Type Id	Type Description	Enabled	Log Enabled
4002	2097408	Configmon init	Yes	Yes
4002	2097409	Sysinfo changed	Yes	Yes
4002	2097410	Hardware installed	Yes	Yes
4002	2097411	Hardware de-installed	Yes	Yes
4002	2097412	Software installed	Yes	Yes
4002	2097413	Software de-installed	Yes	Yes
4002	2097414	System change	Yes	Yes
4002	2097415	Configuration error	Yes	Yes
4002	2097416	ESP registered with SGI	Yes	Yes
4002	2097417	ESP deregistered with SGI	Yes	Yes
4002	2097418	ESP package updated	Yes	No
4002	2097419	ESP package uninstalled	Yes	No
4002	2097420	ESP system information change	Yes	No
4002	2097421	ESP profile(s) update	Yes	No
4002	340	Customer information is updated	Yes	No
4000	2097152	Live event	No	No
4000	2097153	System ID change	Yes	Yes
4000	2097154	Power cycle	Yes	Yes
4000	2097155	System reset	Yes	Yes
4000	2097156	NMI	Yes	Yes
4000	2097157	Panic (S/W)	Yes	Yes
4000	2097158	Status report	Yes	Yes
4000	2097159	Software error	Yes	Yes
4000	2097160	Hardware error	Yes	Yes
4000	2097161	No error	Yes	Yes
4000	2097162	Registration	Yes	Yes
4000	2097163	Deregistration	Yes	Yes
4000	2097164	Power failure	Yes	Yes
4000	2097165	System off	Yes	Yes
4000	2097166	Interrupt	Yes	Yes
4000	2097167	Panic (H/W)	Yes	Yes
4000	2097168	Panic	Yes	Yes
4000	2097169	Controlled shutdown (unknown)	Yes	Yes
4000	2097170	Controlled shutdown (timeout)	Yes	Yes
4000	2097171	Controlled shutdown(1) (unknown)	Yes	Yes

4000	2097182	Controlled shutdown (1)	Yes	Yes
4000	2097183	Controlled shutdown (2)	Yes	Yes
4000	2097184	Controlled shutdown (3)	Yes	Yes
4000	2097185	Controlled shutdown (4)	Yes	Yes
4000	2097186	Controlled shutdown (5)	Yes	Yes
4000	2097187	Controlled shutdown (6)	Yes	Yes
4000	2097190	Singleuser shutdown (unknown)	Yes	Yes
4000	2097191	Singleuser shutdown(1)(unknown)	Yes	Yes
4000	2097192	Singleuser shutdown (1)	Yes	Yes
4000	2097193	Singleuser shutdown (2)	Yes	Yes
4000	2097194	Singleuser shutdown (3)	Yes	Yes
4000	2097195	Singleuser shutdown (4)	Yes	Yes
4000	2097196	Singleuser shutdown (5)	Yes	Yes
4000	2097197	Singleuser shutdown (6)	Yes	Yes
4000	3761	Subscribe availability events	Yes	Yes
4000	3762	Unsubscribe availability events	Yes	Yes
7100	7000100	Kernel Emergency	Yes	No
7100	7000101	Kernel Alert	Yes	No
7100	7000102	Kernel Critical	Yes	No
7100	7000103	Kernel Error	Yes	No
7100	7000104	Kernel Warning	Yes	No
7100	7000105	Kernel Notice	No	No
7100	7000106	Kernel Info	No	No
7100	7000107	Kernel Debug	No	No
7110	7000110	User Emergency	Yes	No
7110	7000111	User Alert	Yes	No
7110	7000112	User Critical	Yes	No
7110	7000113	User Error	Yes	No
7110	7000114	User Warning	No	No
7110	7000115	User Notice	No	No
7110	7000116	User Info	No	No
7110	7000117	User Debug	No	No
7130	7000130	Daemon Emergency	Yes	No
7130	7000131	Daemon Alert	Yes	No
7130	7000132	Daemon Critical	Yes	No
7130	7000133	Daemon Error	Yes	No
7130	7000134	Daemon Warning	No	No
7130	7000135	Daemon Notice	No	No
7130	7000136	Daemon Info	No	No
7130	7000137	Daemon Debug	No	No
4005	2098176	Diagnostic start	Yes	Yes
4005	2098177	Diagnostic interrupted	Yes	Yes
4005	2098178	Diagnostic end	Yes	Yes
4005	2098179	Stress start	Yes	Yes

4005	2098180	Stress end	Yes	Yes
4005	2098181	SVP start	Yes	Yes
4005	2098182	SVP end	Yes	Yes
4005	2098183	SVP interrupted	Yes	Yes
4005	2098184	Stress interrupted	Yes	Yes
4001	2097244	High aggregate context switch rate	Yes	Yes
4001	2097217	Possible high floating point exception rate	Yes	Yes
4001	2097218	High 1-minute load average	Yes	Yes
4001	2097246	Low average processor utilization	Yes	Yes
4001	2097219	High aggregate system call rate	Yes	Yes
4001	2097220	Busy executing in system mode	Yes	Yes
4001	2097221	High average processor utilization	Yes	Yes
4001	2097249	System Group Manager slow service response	Yes	Yes
4001	2097248	System Group Manager service probe failure	Yes	Yes
4001	2097226	File system is filling up	Yes	Yes
4001	2097227	Severe demand for real memory	Yes	Yes
4001	2097228	Low free swap space	Yes	Yes
4001	2097247	High number of saturated processes	Yes	Yes
4001	2097241	High per CPU processor utilization	Yes	Yes
4001	2097239	High per CPU system call rate	Yes	Yes
4001	2097240	Some CPU busy executing in system mode	Yes	Yes
4001	2097230	High collision rate in packet sends	Yes	Yes
4001	2097231	High network interface error rate	Yes	Yes
4001	2097232	High network interface packet transfers	Yes	Yes

ESP for the IRIX OS

Default Event Classes

The following output from the `espconfig` command shows the default event classes that ESP includes on a system running the IRIX OS:

```
irix# espconfig -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 "  
78 "Kernel XTCI "  
80 "Storage TP9100 "  
81 "Storage TP9400 "  
82 "CXFS "  
83 "XFS "
```

```

84 "XVM"
85 "snmp"
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 `espsconfig` command shows the default event types that ESP includes on a system running the IRIX OS:

```
irix# espsconfig -list evttype
```

```
Event types for 351797:
```

Class Id	Type Id	Type Description	Enabled	Log Enabled
4000	2097152	Live event	No	No
4000	2097153	System ID change	Yes	Yes
4000	2097154	Power cycle	Yes	Yes
4000	2097155	System reset	Yes	Yes
4000	2097156	NMI	Yes	Yes
4000	2097157	Panic (S/W)	Yes	Yes
4000	2097158	Status report	Yes	Yes
4000	2097159	Software error	Yes	Yes
4000	2097160	Hardware error	Yes	Yes
4000	2097161	No error	Yes	Yes
4000	2097162	Registration	Yes	Yes
4000	2097163	Deregistration	Yes	Yes
4000	2097164	Power failure	Yes	Yes
4000	2097165	System off	Yes	Yes
4000	2097166	Interrupt	Yes	Yes
4000	2097167	Panic (H/W)	Yes	Yes
4000	2097168	Panic	Yes	Yes
4000	2097169	Controlled shutdown (unknown)	Yes	Yes
4000	2097170	Controlled shutdown (timeout)	Yes	Yes
4000	2097171	Controlled shutdown(1) (unknown)	Yes	Yes
)		
4000	2097182	Controlled shutdown (1)	Yes	Yes
4000	2097183	Controlled shutdown (2)	Yes	Yes
4000	2097184	Controlled shutdown (3)	Yes	Yes
4000	2097185	Controlled shutdown (4)	Yes	Yes

4000	2097186	Controlled shutdown (5)	Yes	Yes
4000	2097187	Controlled shutdown (6)	Yes	Yes
4000	2097190	Singleuser shutdown (unknown)	Yes	Yes
4000	2097191	Singleuser shutdown(1)(unknown)	Yes	Yes
4000	2097192	Singleuser shutdown (1)	Yes	Yes
4000	2097193	Singleuser shutdown (2)	Yes	Yes
4000	2097194	Singleuser shutdown (3)	Yes	Yes
4000	2097195	Singleuser shutdown (4)	Yes	Yes
4000	2097196	Singleuser shutdown (5)	Yes	Yes
4000	2097197	Singleuser shutdown (6)	Yes	Yes
4000	3761	Subscribe availability events	Yes	No
4000	3762	Unsubscribe availability events	Yes	No
4003	2097424	EventMon Started	No	No
4003	2097425	EventMon Stopped	No	No
4003	2097426	Eventmon invalid CPU command	No	No
4003	2097427	Eventmon invalid FPE command	No	No
4003	2097428	Eventmon mutex initialization failure	No	No
4003	2097429	Eventmon thread init error	No	No
4003	2097430	Eventmon no input buffers	No	No
4003	2097431	Eventmon can't find string	No	No
4003	2097432	Eventmon too many strings	No	No
4003	2097433	Eventmon database table empty	No	No
4003	2097434	Eventmon condition variable failure	No	No
4003	2097435	Eventmon fatal API error	No	No
4003	2097436	Eventmon Non fatal API Error	No	No
4003	2097437	Eventmon cannot open amticker timestamp file	No	No
4003	2097438	Eventmon database init failure	No	No
4003	2097439	Eventmon database library load failure	No	No
4003	2097440	esphttpd started	No	No
4003	2097441	esphttpd stopped	No	No
4003	2097442	esphttpd invalid CPU command	No	No
4003	2097443	esphttpd invalid FPE	No	No
4003	2097444	esphttpd mutex initialization failure	No	No
4003	2097445	esphttpd thread error	No	No
4003	2097446	esphttpd condition variable failure	No	No
4003	2097447	esphttpd thread allocation error	No	No
4003	2097448	esphttpd socket bind error	No	No
4003	2097449	esphttpd socket listen error	No	No

4003	2097450	esphttpd missing library	No	No
4003	2097451	esphttpd resource path error	No	No
4003	2097452	esphttpd resource path error(1)	No	No
4003	2097453	esphttpd resource path error(2)	No	No
4003	2097454	esphttpd invalid port number	No	No
4003	2097455	esphttpd database init error	No	No
4003	2097456	esphttpd IP load error	No	No
4003	2097457	esphttpd username error	No	No
4003	2097458	esphttpd password error	No	No
4003	2097459	esphttpd database connection failed	No	No
4003	2097460	Eventmon cannot write amticker timestamp file	No	No
4003	2097461	Eventmon cannot find amdiag file	No	No
4003	2097462	NodeChange for SgmClient	Yes	No
4003	2097463	ESP started	No	No
4003	2097464	ESP stopped	No	No
4003	2097465	ESP set SGM node	No	No
4003	2097466	ESP unset SGM node	No	No
4003	2097467	ESP SGM client added	No	No
4003	2097468	ESP SGM client subscribed	No	No
4003	2097469	ESP SGM client unsubscribed	No	No
4003	2097470	ESP SGM client deleted	No	No
4004	2097920	Configuration Event	Yes	No
4004	2097921	Error Event	Yes	No
1	1	SCSI ctrl init failed	Yes	Yes
1	2	SCSI command timed out	Yes	Yes
1	3	SCSI hard error	Yes	Yes
1	4	SCSI bus reset	Yes	Yes
1	5	SCSI ctrl h/w (sram parity error)	Yes	Yes
1	6	SCSI ctrl h/w (sram parity error bank0)	Yes	Yes
1	7	SCSI ctrl h/w (sram parity error bank1)(1)	Yes	Yes
2	8	XIO bus error	Yes	Yes
3	9	Keyboard error	Yes	Yes
1	10	SCSI ctrl h/w (sram parity error bank1)(2)	Yes	Yes
1	11	SCSI bus error	Yes	Yes
1	12	SCSI debug	Yes	Yes
1	13	SCSI target or bus error	Yes	Yes
2	14	PCI bridge error	Yes	Yes
2	15	GIO bridge error	Yes	Yes

4	16	Power fail detected(1)	Yes	Yes
5	17	Parity error in SIMM(1)	Yes	Yes
5	18	Parity error in SIMM(2)	Yes	Yes
5	19	Panic parity error in SIMM(1)	Yes	Yes
5	20	Fatal parity error in SIMM(1)	Yes	Yes
5	21	Panic parity error in SIMM(2)	Yes	Yes
5	22	Parity error in SIMM(3)	Yes	Yes
7	23	Bus error(1)	Yes	Yes
7	24	Bus error(2)	Yes	Yes
7	25	Memory copy error(src)	Yes	Yes
7	26	Memory copy error(dest)	Yes	Yes
8	27	TOD battery(1)	Yes	Yes
8	28	TOD battery(2)	Yes	Yes
8	29	TOD battery(3)	Yes	Yes
8	30	TOD battery(4)	Yes	Yes
8	31	TOD battery(5)	Yes	Yes
8	32	TOD battery(load nvram info error)	Yes	Yes
4	33	Power fail detected(2)	Yes	Yes
5	34	Fatal memory parity error(2)	Yes	Yes
5	35	Parity error in SIMM	Yes	Yes
8	36	TOD battery(6)	Yes	Yes
8	37	TOD battery(7)	Yes	Yes
8	38	TOD battery(8)	Yes	Yes
8	39	TOD battery(9)	Yes	Yes
8	40	TOD battery(10)	Yes	Yes
6	41	Fatal memory ECC error	Yes	Yes
7	42	Bus error (TCC)	Yes	Yes
7	43	Bus error (5)	Yes	Yes
7	44	Bus error (6)	Yes	Yes
7	45	Bus error (internal)	Yes	Yes
7	46	Bus error (exception on IDLE state)	Yes	Yes
5	47	Parity error in SIMM(4)	Yes	Yes
9	48	NMI(1)	Yes	Yes
5	49	Parity error in SIMM(5)	Yes	Yes
8	50	TOD battery(11)	Yes	Yes
8	51	TOD battery(12)	Yes	Yes
8	52	TOD battery(13)	Yes	Yes
8	53	TOD battery(14)	Yes	Yes
8	54	TOD battery(15)	Yes	Yes
6	55	Memory ECC (soft) error	Yes	Yes
6	56	Memory ECC (hard) error	Yes	Yes
6	57	Parity error in DIMM(phy-1)	Yes	Yes
6	58	Parity error in DIMM(phy-2)	Yes	Yes

6	59	Parity error in DIMM(Bus-1)	Yes	Yes
6	60	Parity error in DIMM(Bus-2)	Yes	Yes
9	61	NMI(2)	Yes	Yes
9	62	NMI(3)	Yes	Yes
8	63	TOD battery(16)	Yes	Yes
8	64	TOD battery(17)	Yes	Yes
8	65	TOD battery(18)	Yes	Yes
8	66	TOD battery(19)	Yes	Yes
8	67	TOD battery(20)	Yes	Yes
7	68	Bus error(7)	Yes	Yes
7	69	Cache error(1)	Yes	Yes
7	70	Cache error(2)	Yes	Yes
7	71	Cache error(3)	Yes	Yes
7	72	Cache error(4)	Yes	Yes
7	73	Cache error(5)	Yes	Yes
7	74	Bus error(8)	Yes	Yes
7	75	Bus error(9)	Yes	Yes
10	76	efs root mount failed	Yes	Yes
10	77	Not enough filesystem quota structures	Yes	Yes
10	78	Bad magic number	Yes	Yes
10	79	Unexpect user/project ID	Yes	Yes
10	80	Disk block timer zero	Yes	Yes
10	81	inode zero	Yes	Yes
10	82	Re-init disk quota structure	Yes	Yes
10	83	fs too large for kernel type	Yes	Yes
10	85	vnode not char/block device(1)	Yes	Yes
10	86	Bad vnode found by console driver	Yes	Yes
10	87	vnode not char/block device(2)	Yes	Yes
11	88	Unexpected PMAP type	Yes	Yes
12	89	Memory page not freed	Yes	Yes
12	90	Memory page not found	Yes	Yes
12	91	Page cache error	Yes	Yes
12	92	Swap cache error	Yes	Yes
12	93	Privilege memory pool error	Yes	Yes
13	94	Watch point stepover	Yes	Yes
14	95	Driver locking error(1)	Yes	Yes
14	96	Driver locking error(2)	Yes	Yes
14	97	Unknown driver routine	Yes	Yes
14	98	Cross processor interrupt(1)	Yes	Yes
14	99	Cross processor interrupt(2)	Yes	Yes
14	100	R10K spec dma error	Yes	Yes
15	101	Process fork error	Yes	Yes
15	102	NUMA service error(1)	Yes	Yes

15	103	MLD set topology error	Yes	Yes
15	104	NUMA MLD error(1)	Yes	Yes
15	105	NUMA MLD error(2)	Yes	Yes
15	106	NUMA service error(2)	Yes	Yes
16	107	Invalid vfault	Yes	Yes
16	108	Lpages conversion error	Yes	Yes
17	84	Invalid node number	Yes	Yes
17	109	Freeing unaligned memory	Yes	Yes
17	110	Invalid virtual page	Yes	Yes
17	111	Cannot swap in K2SEG(1)	Yes	Yes
17	112	Cannot swap in K2SEG(2)	Yes	Yes
17	113	Cannot swap in K2SEG(3)	Yes	Yes
17	114	Insufficient memory on node(1)	Yes	Yes
17	115	Insufficient memory on node(2)	Yes	Yes
17	116	Insufficient memory on node(3)	Yes	Yes
17	117	R10K cannot allocate page(1)	Yes	Yes
17	118	R10K cannot allocate page(2)	Yes	Yes
17	119	R10K cannot allocate page(3)	Yes	Yes
17	120	Poison page panic	Yes	Yes
17	121	Page allocation failed	Yes	Yes
17	122	Dequeue from free page list err or(1)	Yes	Yes
17	123	Dequeue from free page list err or(2)	Yes	Yes
17	124	Invalid page freeing error(1)	Yes	Yes
17	125	Invalid page freeing error(2)	Yes	Yes
17	126	Invalid page freeing error(3)	Yes	Yes
17	127	VCE page allocation failed	Yes	Yes
17	128	Page already free	Yes	Yes
17	129	Duplicate virtual page number	Yes	Yes
17	130	Invalid cache operation	Yes	Yes
17	131	Memory allocation error for MFH I	Yes	Yes
17	132	Logical swap fail	Yes	Yes
10	133	Bad permissions	Yes	Yes
18	134	Mload missing kernname	Yes	Yes
19	135	XLV no failover(1)	Yes	Yes
19	136	XLV unable to open	Yes	Yes
19	137	XLV no failover(2)	Yes	Yes
20	138	Table Overflow	Yes	Yes
21	139	Vnode pass through not init'd(1)	Yes	Yes
21	140	Vnode on free list(1)	Yes	Yes
21	141	Negative vnode count(1)	Yes	Yes
22	142	Fork failed	Yes	Yes

23	143	No heap zone	Yes	Yes
23	144	No zone index	Yes	Yes
24	145	Buffer overlap	Yes	Yes
25	146	Invalid Size(1)	Yes	Yes
25	147	Null pointer(1)	Yes	Yes
25	148	Null size(1)	Yes	Yes
25	149	Use count wrong	Yes	Yes
25	150	Pointer already free(1)	Yes	Yes
25	151	Bad pointer	Yes	Yes
25	152	Pointer already free(2)	Yes	Yes
25	153	Invalid Size(2)	Yes	Yes
25	154	Null pointer(2)	Yes	Yes
25	155	Null size(2)	Yes	Yes
26	156	Cannot allocate qband(1)	Yes	Yes
26	157	Cannot allocate qband(2)	Yes	Yes
26	158	Cannot allocate space for mux_n ode	Yes	Yes
26	159	Unknown event	Yes	Yes
26	160	Cannot allocate memory for mux_ edge(1)	Yes	Yes
26	161	Cannot allocate memory for mux_ edge(2)	Yes	Yes
26	162	Cannot allocate qband(3)	Yes	Yes
26	163	Cannot allocate stream event(1)	Yes	Yes
26	164	Cannot allocate stream event(2)	Yes	Yes
26	165	Message out of order	Yes	Yes
27	166	hwgraph no vertex	Yes	Yes
28	167	Bad service	Yes	Yes
28	168	Invalid service	Yes	Yes
29	169	Memory leak warning(1)	Yes	Yes
30	170	Address out of range	Yes	Yes
30	171	No memory for net proc(1)	Yes	Yes
30	172	CPU not used	Yes	Yes
30	173	No memory for net proc(2)	Yes	Yes
30	174	Kmemory allocation error	Yes	Yes
29	175	Memory leak warning(2)	Yes	Yes
31	176	Receive port error	Yes	Yes
31	178	Unsupported address	Yes	Yes
31	179	MAC programming error	Yes	Yes
31	180	Stray interrupt	Yes	Yes
31	181	FDDI bad interrupt status	Yes	Yes
31	182	CAMEL NP error	Yes	Yes
31	183	Bad hwgraph vhandle	Yes	Yes
31	184	Bad unit number	Yes	Yes
31	185	No memory for frame filter	Yes	Yes

31	186	NOMEM too many devices	Yes	Yes
31	187	hwgraph dev addr error	Yes	Yes
31	188	No memory(1)	Yes	Yes
31	189	No memory(2)	Yes	Yes
31	190	Memory alignment error	Yes	Yes
31	191	No memory(3)	Yes	Yes
31	192	ISR installation error	Yes	Yes
31	193	Hwgraph no device vhandle	Yes	Yes
32	194	Interrupt adapter check status	Yes	Yes
32	195	Statistics overflow	Yes	Yes
32	196	Need more rxds	Yes	Yes
32	197	No board found	Yes	Yes
32	198	10MB physical memory only	Yes	Yes
32	199	No enet carrier(1)	Yes	Yes
32	200	Full duplex unsupported	Yes	Yes
32	201	Auto negation failed	Yes	Yes
32	202	No enet carrier(2)	Yes	Yes
32	203	Netlink restored	Yes	Yes
32	204	Remote fault	Yes	Yes
32	205	Jabber detected	Yes	Yes
32	206	hwgraph no vertex	Yes	Yes
32	207	Kmemory allocation error	Yes	Yes
32	208	Memory fail to st big endian	Yes	Yes
32	209	Interrupt setup failed	Yes	Yes
32	210	hwgraph no vertex info	Yes	Yes
33	211	No enet carrier	Yes	Yes
34	212	Assertion routine	Yes	Yes
34	213	No DMA space	Yes	Yes
34	214	No VME space	Yes	Yes
34	215	DMA error	Yes	Yes
34	216	About to die(1)	Yes	Yes
34	217	Board not detected	Yes	Yes
34	218	About to die(2)	Yes	Yes
34	219	Remote fault	Yes	Yes
34	220	Jabber detected	Yes	Yes
34	221	Link OK(1)	Yes	Yes
34	222	Link down	Yes	Yes
35	223	Memory base addr missing(1)	Yes	Yes
35	224	Memory base addr missing(2)	Yes	Yes
36	225	Remote fault	Yes	Yes
36	226	Jabber detected	Yes	Yes
36	227	Link down	Yes	Yes
34	228	Link OK(2)	Yes	Yes
36	229	Channel overrun	Yes	Yes
37	230	Memory allocation fail for fram	Yes	Yes

38	231	e filter(1)	Yes	Yes
38	232	Cannot lock mutex IFNET	Yes	Yes
38	233	Unknow line state	Yes	Yes
38	234	Membuf has MT_FREE(1)	Yes	Yes
38	235	Membuf has MT_FREE(2)	Yes	Yes
38	236	Membuf has MT_FREE(3)	Yes	Yes
38	237	DMA corruption	Yes	Yes
38	238	Bad blen	Yes	Yes
38	239	Bad membuf chain(1)	Yes	Yes
38	240	Bad membuf chain(2)	Yes	Yes
38	241	ifnet driver re-ntered	Yes	Yes
38	242	Memory allocation fail for fram	Yes	Yes
39	243	e filter(2)	Yes	Yes
39	244	Assertion	Yes	Yes
40	245	Memory allocation fail	Yes	Yes
40	246	Hwgraph cannot add vertex	Yes	Yes
40	247	Memory allocation failure	Yes	Yes
40	248	Shared memory null PIO map	Yes	Yes
40	249	ioctl reset failure	Yes	Yes
40	250	Memory allocation failure PGS f	Yes	Yes
40	251	or geninfo	Yes	Yes
40	252	PCI IO DMA map allocation faile	Yes	Yes
40	253	d	Yes	Yes
40	254	ioctl cannot get MAC addr	Yes	Yes
40	255	hwgraph missing controller vert	Yes	Yes
40	256	ex	Yes	Yes
40	257	Firmware missing	Yes	Yes
40	258	Memory failed to allocate >2 RR	Yes	Yes
40	259	BS	Yes	Yes
40	260	ioctl event error	Yes	Yes
40	261	ioctl unimplemented command	Yes	Yes
40	262	ioctl unknown event	Yes	Yes
40	263	Link up	Yes	Yes
40	264	Link down	Yes	Yes
40	265	Firmware init fail	Yes	Yes
40	266	Firmware init error	Yes	Yes
40	267	Hwgraph could not create net ve	Yes	Yes
41	268	rtex	Yes	Yes
41	269	Board not in master slot	Yes	Yes
41	270	Kernel rebuild needed(1)	Yes	Yes
41	271	Board not in master IO4	Yes	Yes
41	272	Kernel rebuild needed(2)	Yes	Yes
41	273	Adapter number in use	Yes	Yes
41	274	Adapter not configured	Yes	Yes
41	275	Bad enet address	Yes	Yes

42	269	Cannot set interrupt vector	Yes	Yes
42	270	Invalid enet address(2)	Yes	Yes
42	271	Probe failed to find device	Yes	Yes
42	272	RX error, FIFO overflow	Yes	Yes
42	273	TX link failed	Yes	Yes
42	274	TX memory error	Yes	Yes
42	275	Jabber detected	Yes	Yes
42	276	Remote fault	Yes	Yes
43	277	Memory allocation failure for m ulticast	Yes	Yes
44	278	Memory request with incorrect s ize	Yes	Yes
45	279	Socket unlocked	Yes	Yes
46	280	Socket zone init failed	Yes	Yes
47	281	Exception count on exit	Yes	Yes
47	282	Swap block error	Yes	Yes
47	283	Tile cache dirty	Yes	Yes
47	284	Low on kernel memory	Yes	Yes
47	285	No thread	Yes	Yes
47	286	MFREE map overflow	Yes	Yes
47	287	Bad free size for bitmap(1)	Yes	Yes
47	288	Bad free size for bitmap(2)	Yes	Yes
47	289	Bitmap overflow	Yes	Yes
47	290	No free slot for rmap log	Yes	Yes
47	291	Bad device	Yes	Yes
47	292	No interactive reboot	Yes	Yes
47	293	No standalone exec	Yes	Yes
18	294	mload no ksyms	Yes	Yes
18	295	mload bootp kernal	Yes	Yes
18	296	mload registration fail	Yes	Yes
18	297	mload dynamic load module faile d	Yes	Yes
18	298	mload dynamic attach module fai led	Yes	Yes
18	299	mload no symbol table	Yes	Yes
18	300	Object file not ELF format	Yes	Yes
18	301	mload object unreadable	Yes	Yes
18	302	mload driver init failed	Yes	Yes
18	303	mload stropen failed	Yes	Yes
18	304	mload strload failed	Yes	Yes
18	305	mload strload not ELF format	Yes	Yes
18	306	mload strload unreadable	Yes	Yes
18	307	mload strload init failed	Yes	Yes
18	308	mload unload failed	Yes	Yes
18	309	mload strstub no queue(1)	Yes	Yes

18	310	mload strstub no symbol table	Yes	Yes
18	311	mload strstub not ELF format	Yes	Yes
18	312	mload strstub unreadable	Yes	Yes
18	313	mload strstub init failed	Yes	Yes
18	314	mload strstub no queue(2)	Yes	Yes
47	315	Probe DMA failed	Yes	Yes
47	316	SCHED hits bad color	Yes	Yes
47	317	Callouts allocation failed	Yes	Yes
47	318	vnode set EATTR failed	Yes	Yes
47	319	kmem zone too small	Yes	Yes
47	320	Select device no setting	Yes	Yes
47	321	PD flush error nfs3	Yes	Yes
47	322	chunkcommit bad vop	Yes	Yes
47	423	Frame scheduler [slave FRS not found]	Yes	Yes
47	424	Frame scheduler [invalid state during interrupt]	Yes	Yes
47	425	Frame scheduler [illegal dispatch state]	Yes	Yes
47	426	Frame scheduler [invalid dispatch state]	Yes	Yes
47	427	Frame scheduler [invalid new attribute]	Yes	Yes
47	1752	R4K badaddr for K2 impacting performance	Yes	Yes
48	1753	Process killed [errno]	Yes	Yes
48	1754	Process killed [limit exceeded]	Yes	No
48	1755	Process killed [lock stack]	Yes	Yes
48	1756	Process killed [grow stack]	Yes	Yes
48	1757	Process trapped [but signal held or ignored]	Yes	No
48	1758	R4K badaddr for K0 impacting performance	Yes	Yes
48	1759	Tlbmiss(1) [invalid badaddr]	Yes	Yes
48	3010	Process core dump - Trap on CPU	Yes	No
47	1760	R4K badaddr for K2 wired impacting performance	Yes	Yes
47	1761	R4K badaddr for K2 impacting kernel performance	Yes	Yes
48	1762	Tlbmiss(2) [invalid badaddr]	Yes	Yes
47	1763	Tlbmiss(User) [invalid badaddr]	Yes	Yes
47	1764	Too many BADVA	Yes	Yes
48	1765	Process referenced bad addr	Yes	Yes
48	1766	Unknown branch instruction	Yes	Yes
49	1770	Sat_pn_start with existing sat_	Yes	Yes

49	1771	Sat_pn_start without existing s at_pn	Yes	Yes
47	1772	Allocated more memory than clea red	Yes	Yes
47	1773	Root device not available	Yes	Yes
47	1774	Bad prom swap	Yes	Yes
47	1775	Could not allocate nbufs	Yes	Yes
47	1776	Reconfigure nbufs and reboot	Yes	Yes
47	1777	Frame scheduler [inavlid recove ry mode]	Yes	Yes
47	1778	Frame scheduler [invalid intr s ource fire]	Yes	Yes
47	1779	Frame scheduler [invalid intr s ource reset]	Yes	Yes
47	1780	Frame scheduler [invalid attr]	Yes	Yes
47	1788	Could not allocate job for proc 0	Yes	Yes
47	1789	Biophysio Failed userdma	Yes	Yes
47	1790	Invalid information label add	Yes	Yes
47	1791	Invalid label add	Yes	Yes
47	1792	Preemption with no valid rsa	Yes	Yes
47	1793	Runnable == 2 no rsa(1)	Yes	Yes
47	1794	Runnable == 2 no rsa(2)	Yes	Yes
47	1795	Illegal request to yield	Yes	Yes
47	1796	Rbid set for nid but no rsa	Yes	Yes
47	1797	Dyield nid bad rsa	Yes	Yes
47	1798	Illegal dyield call	Yes	Yes
47	1799	Table inconsistent with relocat ion entries(1)	Yes	Yes
47	1800	Table inconsistent with relocat ion entries(2)	Yes	Yes
47	1801	Symbol not found	Yes	Yes
47	1802	Paging daemon not running	Yes	Yes
47	1803	Swap allocation overflow	Yes	Yes
47	1804	Memory deadlock with no one to kill	Yes	Yes
48	1805	Process killed due to insuffici ent memory	Yes	Yes
50	2100	ARM interrupt error	Yes	Yes
50	2101	GE interrupt error	Yes	Yes
51	2102	FIFO timeout	Yes	Yes
51	2103	Swapbuffer timeout(1)	Yes	Yes
51	2104	Retrace event timeout	Yes	Yes
51	2105	Swapbuffer timeout(2)	Yes	Yes

52	2106	Illegal hardware configuration	Yes	Yes
50	2107	XG error(1)	Yes	Yes
50	2108	XG error(2)	Yes	Yes
51	2109	Memory timeout	Yes	Yes
51	2110	Textport timeout	Yes	Yes
50	2111	XG error(3)	Yes	Yes
50	2112	TBUS/ARM error	Yes	Yes
50	2113	Unrecognized command	Yes	Yes
50	2114	Graphics error	Yes	Yes
51	2115	Checkpipe timeout	Yes	Yes
52	2116	DMA overflow(1)	Yes	Yes
53	2117	XG RAM parity error	Yes	Yes
53	2118	XG RAM invalid error	Yes	Yes
53	2119	XG bus parity error	Yes	Yes
52	2120	DMA overflow(2)	Yes	Yes
51	2121	Mopup timeout	Yes	Yes
51	2122	DMA timeout	Yes	Yes
51	2123	Selectfeed timeout	Yes	Yes
52	2124	I/O space exhausted	Yes	Yes
51	2125	Context deactivation timeout	Yes	Yes
54	2126	Process attempting IrisGL and O penGL at the same time(1)	Yes	Yes
54	2127	Process attempting IrisGL and O penGL at the same time(2)	Yes	Yes
54	2128	Unrecognized command	Yes	Yes
55	2129	Lost clip id(1)	Yes	Yes
55	2130	Lost clip id(2)	Yes	Yes
55	2131	Lost clip id(3)	Yes	Yes
55	2132	Process not bound to rn	Yes	Yes
56	2692	Swapbuffer timeout	Yes	Yes
56	2693	Retrace event timeout	Yes	Yes
57	2694	Board manager failed to flush F IFO	Yes	Yes
58	2695	FCG error	Yes	Yes
57	2696	FIFO overflow	Yes	Yes
59	2697	Unrecognized interrupt	Yes	Yes
56	2698	FIFO timeout	Yes	Yes
56	2699	Deactivation timeout	Yes	Yes
56	2700	DMA timeout	Yes	Yes
56	2701	Pickfeed timeout	Yes	Yes
56	2702	Vcstage timeout	Yes	Yes
57	2703	Hardware incompatibility(1)	Yes	Yes
57	2704	Hardware incompatibility(2)	Yes	Yes
57	2705	Illegal hardware configuration(RM4)(1)	Yes	Yes

57	2706	Illegal hardware configuration(RM4)(2)	Yes	Yes
57	2707	Illegal hardware configuration(illegal VTX config)	Yes	Yes
57	2708	Illegal hardware configuration(invalid VME adapter)	Yes	Yes
57	2709	Illegal hardware configuration(no map VME adapter)	Yes	Yes
57	2710	Illegal hardware configuration(check DVI cable connection)	Yes	Yes
58	2711	Write to DG2 EEPROM failed	Yes	Yes
58	2712	DG EEPROM contents invalid	Yes	Yes
59	2713	Resource exhausted	Yes	Yes
60	2714	Context switch error(1)	Yes	Yes
60	2715	Context switch error(2)	Yes	Yes
61	2716	Context switch timeout	Yes	Yes
60	2717	Unrecognized command	Yes	Yes
60	2718	Graphics error	Yes	Yes
61	2719	Idle wait timeout	Yes	Yes
61	2720	FIFO timeout	Yes	Yes
61	2721	Texture I/O DMA timeout(1)	Yes	Yes
61	2722	Texture I/O DMA timeout(2)	Yes	Yes
60	2723	Texture DMA error(1)	Yes	Yes
60	2724	HQ4 context switch error	Yes	Yes
59	2725	HQ4 FIFO overflow	Yes	Yes
60	2726	HQ4 ucode error	Yes	Yes
62	2727	HQ4 DMA address range error	Yes	Yes
60	2728	HQ4 FIFO privilege violation	Yes	Yes
59	2729	HQ4 stack overflow	Yes	Yes
59	2730	HQ3 FIFO overflow	Yes	Yes
61	2731	HQ3 FIFO timeout	Yes	Yes
60	2732	FIFO error	Yes	Yes
60	2733	HQ3 ucode error	Yes	Yes
62	2734	HQ3 DMA address range error	Yes	Yes
60	2735	HQ3 FIFO privilege violation	Yes	Yes
59	2736	HQ3 stack overflow	Yes	Yes
59	2737	Bad TRAM configuration(1)	Yes	Yes
59	2738	Bad TRAM configuration(2)	Yes	Yes
59	2739	Bad SRAM(1)	Yes	Yes
59	2740	Bad SRAM(2)	Yes	Yes
60	2741	Texture DMA error(2)	Yes	Yes
61	2742	Video texture DMA timeout	Yes	Yes
62	2743	DMA boundary exceeded	Yes	Yes
60	2744	DMA locking enabled	Yes	Yes
61	2745	Swapbuffer timeout	Yes	Yes

63	2746	Pixel DMA timeout(1)	Yes	Yes
63	2747	Pixel DMA timeout(2)	Yes	Yes
64	2748	Unrecognized flat panel display (1)	Yes	Yes
64	2749	Unrecognized flat panel display (2)	Yes	Yes
63	2750	FIFO timeout	Yes	Yes
65	2751	DMA error	Yes	Yes
78	3011	No room left in the Xthread Table	Yes	Yes
78	3012	Conflict in the Xthread Table	Yes	Yes
75	2900	Number of consecutive exceptions exceeded limit	Yes	Yes
75	2901	Exception while saving hardware state	Yes	Yes
75	2902	Exception during show hardware state	Yes	Yes
75	2903	Exception during FRU analysis	Yes	Yes
75	2904	Invalid uncached attribute physical address	Yes	Yes
75	2905	Data bus error on unknown address, retrying	Yes	Yes
75	2906	Unsupported cache algorithm	Yes	Yes
75	2907	Process killed, access to page with error	Yes	Yes
75	2908	User/Kernel Data/Instruction Bus error	Yes	Yes
75	2909	Access to non-existent memory address	Yes	Yes
75	2910	No write privileges to memory address	Yes	Yes
75	2911	No read privileges to memory address	Yes	Yes
75	2912	Write error exception on migrating page	Yes	Yes
75	2913	Unrecoverable VM migration error	Yes	Yes
75	2914	Page with memory/directory error could not be discarded (1)	Yes	Yes
75	2915	Write error on poisoned page	Yes	Yes
75	2916	No spool info on HSPEC buserror	Yes	Yes
75	2917	Lost Spool info on HPEC buserror	Yes	Yes
75	2918	error on HSPEC access(0)	Yes	Yes
75	2919	error on HSPEC access(1)	Yes	Yes
75	2920	No spool info on MSPEC buserror	Yes	Yes

75	2921	Lost spool info on MSPEC buserr	Yes	Yes
75	2922	error on MSPEC access(0)	Yes	No
75	2923	error on MSPEC access(1)	Yes	No
75	2924	UCE interrupt on PIO access	Yes	Yes
75	2925	Lost spool info on IO buserr	Yes	Yes
75	2926	Uncorrectable error on uncached memory access, physical address	Yes	Yes
75	2927	uncached remote partition access error	Yes	Yes
75	2928	Page with memory/directory error could not be discarded (2)	Yes	Yes
75	2929	uncached partition page access error	Yes	Yes
75	2930	No spool info on uncached buserr at paddr	Yes	Yes
75	2931	Lost spool info on uncached bus err	Yes	Yes
75	2932	Uncached read access timed out, physical address	Yes	Yes
75	2933	uncached remote partition timeout error	Yes	Yes
75	2934	uncached partition page timeout error	Yes	Yes
75	2935	Uncached remote partition access error, physical address	Yes	Yes
75	2936	Uncached memory access error, cause unknown	Yes	Yes
75	2976	Uncached Read Access Error to node	Yes	Yes
75	2977	Uncached remote partition Read Access Error to node	Yes	Yes
75	2978	Uncached partition page Read Access Error to node	Yes	Yes
75	2979	Uncached read Directory Error to node	Yes	Yes
75	2980	Uncached remote partition read Directory Error to node	Yes	Yes
75	2981	Uncached partition page read Directory Error to node	Yes	Yes
75	2982	Uncached read Poison Access Violation to node	Yes	Yes
75	2983	Uncached remote partition read Poison Access Violation to node	Yes	Yes
75	2984	Uncached partition page read Po	Yes	Yes

75	2985	ison Access Violation to node Uncached read Excessive NACKs to node	Yes	Yes
75	2986	Uncached remote partition read Excessive NACKs to node	Yes	Yes
75	2987	Uncached partition page read Ex cessive NACKs to node	Yes	Yes
75	2988	Uncached read Response Data Err or to node	Yes	Yes
75	2989	Uncached remote partition read Response Data Error to node	Yes	Yes
75	2990	Uncached partition page read Re sponse Data Error to node	Yes	Yes
75	2991	Uncached read Packet Length Err or to node	Yes	Yes
75	2992	Uncached remote partition read Packet Length Error to node	Yes	Yes
75	2993	Uncached partition page read Pa cket Length Error to node	Yes	Yes
75	2937	Uncached access error, bad erro r type	Yes	Yes
75	2938	Lost spool info on cached buser r	Yes	Yes
75	2939	Region not populated	Yes	Yes
75	2940	Cached remote partition access error	Yes	Yes
75	2941	Could not get instruction type. assuming store instruction	Yes	Yes
75	2942	Trying to recover from ibus err or	Yes	Yes
75	2943	NACK error on local partition a ddr	Yes	Yes
75	2944	Unrecoverable bus error excepti on	Yes	Yes
75	2945	Mem info Hi / Lo entry addresse s	Yes	Yes
75	2946	Mem info premium/standard dir e ntry	Yes	Yes
75	2947	elo	Yes	Yes
75	2948	dir entry IO owned	Yes	Yes
75	2949	Cached remote partition time ou t error	Yes	Yes
75	2950	Cached partition page time out error	Yes	Yes
75	2951	Cached read access. Time out er	Yes	Yes

75	2952	Cache read access. Directory error	Yes	Yes
75	2953	Cache remote partition directory error	Yes	Yes
75	2954	Page with memory/directory error could not be discarded (3)	Yes	Yes
75	2955	Cache partition page directory error	Yes	Yes
75	2956	Cache read access. Bad error type	Yes	Yes
75	2957	Partition error handler not registered	Yes	Yes
75	2958	T5 writeback surprise. WAR done	Yes	Yes
75	2959	T5 writeback surprise. War failed	Yes	Yes
75	2960	Cache Error(0)	Yes	Yes
75	2961	Cache Error(1)	Yes	Yes
75	2962	Cache Error(2)	Yes	Yes
75	2963	Cache Error(3)	Yes	Yes
75	2964	Interface Error. Suspect MEMORY BANK	Yes	Yes
75	2965	Recovered from memory error by discarding the page	Yes	Yes
75	2966	Unrecoverable Interface error. Suspect memory address	Yes	Yes
75	2967	CPU isolated after recovered cache error	Yes	Yes
75	2968	CPU isolation failed	Yes	Yes
75	2969	CPU Error	Yes	Yes
75	2970	CPU paddr	Yes	Yes
75	2971	CPU Tag State	Yes	Yes
75	2972	CPU Cache Error recovered by invalidating line	Yes	Yes
75	2973	Cache Error on CPU	Yes	Yes
75	2974	Recovered by killing process	Yes	Yes
75	2975	Cache Error recovery failed	Yes	Yes
75	359	secondary Cache SBE	Yes	Yes
75	396	Cache remote partition Poison Access Violation	Yes	Yes
75	397	Cache partition page Poison Access Violation	Yes	Yes
75	398	Cache read Poison Access Violation	Yes	Yes
75	399	Cache remote partition Excessi	Yes	Yes

75	400	ve NACKs Cached partition page Excessive	Yes	Yes
75	401	NACKs Cached read Excessive	Yes	Yes
75	402	Response Cached remote partition	Yes	Yes
75	403	Data Error Cached partition page Response	Yes	Yes
75	404	Data Error Cached read Response	Yes	Yes
75	405	Packet Cached remote partition	Yes	Yes
75	406	Length Error Cached partition page Packet	Yes	Yes
75	407	Length Error Cached read Packet	Yes	Yes
67	338	Environment redundancy lost	Yes	Yes
67	177	Environmental redundancy lost	Yes	Yes
67	323	Auto power down in 30 seconds	Yes	Yes
67	324	Auto power down in 25 seconds	Yes	Yes
67	325	Auto power down in 20 seconds	Yes	Yes
67	326	Auto power down in 15 seconds	Yes	Yes
67	327	Auto power down in 10 seconds	Yes	Yes
67	328	Auto power down in 5 seconds	Yes	Yes
67	329	Fan 1 warning limit reached	Yes	Yes
67	330	Fan 2 warning limit reached	Yes	Yes
67	331	Fan 3 warning limit reached	Yes	Yes
67	332	Fan 1 fault limit reached	Yes	Yes
67	333	Fan 2 fault limit reached	Yes	Yes
67	334	Fan 3 fault limit reached	Yes	Yes
67	335	Fan 1 RPM stabilized	Yes	Yes
67	336	Fan 2 RPM stabilized	Yes	Yes
67	337	Fan 3 RPM stabilized	Yes	Yes
67	343	Power high fault limit reached	Yes	Yes
67	344	Power low fault limit reached	Yes	Yes
67	345	Power high warning limit reached	Yes	Yes
67	346	Power low warning limit reached	Yes	Yes
67	347	Fan fault limit reached	Yes	Yes
67	348	Fan warning limit reached	Yes	Yes
67	349	Temperature fault limit reached	Yes	Yes
67	350	Temperature critical limit reached	Yes	Yes
67	351	Temperature advisory limit reached	Yes	Yes
67	352	Power level stabilized	Yes	Yes
67	353	Fan speed stabilized	Yes	Yes

67	354	Temperature stabilized	Yes	Yes
67	355	Auto power down interrupted	Yes	Yes
67	356	Auto power down completed	Yes	Yes
67	357	Environment monitor test - fault condition - this is a test	Yes	Yes
67	358	Environment monitor test - warning condition - this is a test	Yes	Yes
67	418	VRM not present	Yes	Yes
67	419	VRM not okay	Yes	Yes
67	420	48V power failure	Yes	Yes
67	421	System controller watchpoint condition #1	Yes	Yes
67	422	System controller watchpoint condition #2	Yes	Yes
67	428	Power Bay DPS 1 AC fail, lost redundancy	Yes	Yes
67	429	Power Bay DPS 2 AC fail, lost redundancy	Yes	Yes
67	430	Power Bay DPS 3 AC fail, lost redundancy	Yes	Yes
67	431	Power Bay DPS 4 AC fail, lost redundancy	Yes	Yes
67	432	Power Bay DPS 5 AC fail, lost redundancy	Yes	Yes
67	433	Power Bay DPS 6 AC fail, lost redundancy	Yes	Yes
67	434	Power Bay DPS 1 fail, lost redundancy	Yes	Yes
67	435	Power Bay DPS 2 fail, lost redundancy	Yes	Yes
67	436	Power Bay DPS 3 fail, lost redundancy	Yes	Yes
67	437	Power Bay DPS 4 fail, lost redundancy	Yes	Yes
67	438	Power Bay DPS 5 fail, lost redundancy	Yes	Yes
67	439	Power Bay DPS 6 fail, lost redundancy	Yes	Yes
67	440	Power Bay DPS 1 predictive fail	Yes	Yes
67	441	Power Bay DPS 2 predictive fail	Yes	Yes
67	442	Power Bay DPS 3 predictive fail	Yes	Yes
67	443	Power Bay DPS 4 predictive fail	Yes	Yes
67	444	Power Bay DPS 5 predictive fail	Yes	Yes
67	445	Power Bay DPS 6 predictive fail	Yes	Yes
69	2836	Cannot bring up board	Yes	Yes

69	2837	Timeout reached - wait HCA	Yes	Yes
69	2838	Memory cannot post small buffs	Yes	Yes
69	2839	Memory cannot post medium buffs	Yes	Yes
69	2840	Memory cannot post large buffs	Yes	Yes
69	2841	ATM init had duplicate unit ID	Yes	Yes
69	2842	Cannot kmem_zalloc	Yes	Yes
69	2843	Cannot kvppalloc HCA area	Yes	Yes
69	2844	Cannot kvppalloc CMDQ	Yes	Yes
69	2845	Cannot kvppalloc B2H	Yes	Yes
69	2846	Cannot allocate stats area	Yes	Yes
69	2847	dang_intr_conn() failed	Yes	Yes
69	2848	H/W graph no vertex for io4vhdl	Yes	Yes
69	2849	H/W graph cannot create vertex	Yes	Yes
69	2850	Unknown input buffer	Yes	Yes
69	2851	Cannot clear int bit	Yes	Yes
69	2852	Board seen stray interrupt	Yes	Yes
69	2853	xcmd ne b2h cqcmd	Yes	Yes
69	2854	Max b2h cqcmd	Yes	Yes
69	2855	Cannot destroy fwd vcte (1)	Yes	Yes
69	2856	Cannot destroy rvc vcte	Yes	Yes
69	2857	xcmd xmit result warning	Yes	Yes
69	2858	Cannot destroy fwd vcte (2)	Yes	Yes
70	2859	s2d register response failed fo r IP	Yes	Yes
71	2860	Memory TXMT overflow (1)	Yes	Yes
71	2861	Memory TXMT overflow on TSR (1)	Yes	Yes
71	2862	Memory TXMT overflow (2)	Yes	Yes
71	2863	Memory TXMT overflow on TSR (2)	Yes	Yes
72	2864	kmem zalloc error	Yes	Yes
72	2865	ARP request but not server	Yes	Yes
72	2866	AAOP ARP request error - ARP ta ble full	Yes	Yes
72	2867	ARP reply error - ARP table ful l	Yes	Yes
72	2868	ARP reply but not server	Yes	Yes
72	2869	AAOP ARP reply error - ARP tabl e full	Yes	Yes
73	2870	Cannot find IFATM info	Yes	Yes
73	2871	kmem zalloc error	Yes	Yes
74	2872	Booting bit not cleared	Yes	Yes
74	2873	LINC LCSR boot error	Yes	Yes
74	2874	scmd init no response	Yes	Yes
74	2875	scmd init failed self test	Yes	Yes
74	2876	scmd init failed	Yes	Yes
74	2877	H/W graph cannot get vertex	Yes	Yes

74	2878	H/W graph cannot create vhd1	Yes	Yes
74	2879	H/W graph cannot add to xtalk v ertex	Yes	Yes
74	2880	H/W graph cannot create device vertex	Yes	Yes
74	2881	H/W graph cannot add device ver tex	Yes	Yes
74	2882	H/W graph cannot get device ver tex	Yes	Yes
74	2883	H/W graph cannot create device vertex for port	Yes	Yes
74	2884	scmd timed out	Yes	Yes
74	2885	Cannot destroy zombie fwd vcte	Yes	Yes
74	2886	Unknown b2h type	Yes	Yes
74	2887	Cannot destroy fwd vcte	Yes	Yes
74	2888	Cannot destroy rvs vcte (1)	Yes	Yes
74	2889	Cannot destroy rvs vcte (2)	Yes	Yes
74	2890	No unit number	Yes	Yes
74	2891	H/W graph ioctl cannot create v hdl (1)	Yes	Yes
74	2892	H/W graph ioctl cannot create v hdl (2)	Yes	Yes
74	2893	Ecname error mode at PCI address	Yes	Yes
74	2894	Debug quadoc3 flash req cmd	Yes	Yes
74	2895	Could not locate DMA descriptor	Yes	Yes
82	3729	CMS:Cannot allocate nCr_handle current_cells	Yes	Yes
82	3728	Membership lost - withdrawing f rom cluster	Yes	Yes
82	3727	cms_comb_dynamic_init cannot al loc memory	Yes	Yes
82	3714	mtcp_hb_watchdog expired	Yes	Yes
82	3713	Cannot create multicast socket	Yes	Yes
82	3712	invalid config cmd	Yes	Yes
82	3711	unexpected param type	Yes	Yes
82	3710	mesg_xpmb_count: Bad paramater type	Yes	Yes
82	3709	unknown header type	Yes	Yes
82	3708	unregistered subsystem	Yes	Yes
82	3707	thread callback still in progre ss	Yes	Yes
82	3706	unregistered translation subsys tem	Yes	Yes
82	3705	unknown subsystem	Yes	Yes

82	3704	illegal mesging during recovery	Yes	Yes
82	3703	CMS:Cannot allocate nCr_handle cells	Yes	Yes
4002	2097408	Configmon init	Yes	Yes
4002	2097409	Sysinfo changed	Yes	Yes
4002	2097410	Hardware installed	Yes	Yes
4002	2097411	Harwdare de-installed	Yes	Yes
4002	2097412	Software installed	Yes	Yes
4002	2097413	Software de-installed	Yes	Yes
4002	2097414	System change	Yes	Yes
4002	2097415	Configuration error	Yes	Yes
4002	2097416	ESP registered with SGI	Yes	Yes
4002	2097417	ESP deregistered with SGI	Yes	Yes
4002	2097418	ESP package updated	Yes	No
4002	2097419	ESP package uninstalled	Yes	No
4002	2097420	ESP system information change	Yes	No
4002	2097421	ESP profile(s) update	Yes	No
4002	340	Customer information is updated	Yes	No
4005	2098176	Diagnostic start	Yes	Yes
4005	2098177	Diagnostic interrupted	Yes	Yes
4005	2098178	Diagnostic end	Yes	Yes
4005	2098179	Stress start	Yes	Yes
4005	2098180	Stress end	Yes	Yes
4005	2098181	SVP start	Yes	Yes
4005	2098182	SVP end	Yes	Yes
4005	2098183	SVP interrupted	Yes	Yes
4005	2098184	Stress interrupted	Yes	Yes
85	3764	snmp trap events	Yes	Yes
80	3143	Internal controller has encount ered Strong-ARM processor speci fic error. (928)	Yes	Yes
80	3142	Internal controller has encount ered i960 processor specific er ror. (912)	Yes	Yes
80	3141	Internal controller has encount ered a firmware breakpoint. (89 7)	Yes	Yes
80	3140	Internal controller is in the h ung state. (896)	Yes	Yes
80	3139	A debug dump exists on this sys tem. (807)	Yes	Yes
80	3138	A Debug Dump exists on this sys tem. (806)	Yes	Yes
80	3137	Configuration on disk import fa iled. (805)	Yes	Yes

80	3136	Configuration on disk access error. (803)	Yes	Yes
80	3135	Configuration invalid. (802)	Yes	Yes
80	3134	Request Sense (702)	Yes	Yes
80	3133	Back end fibre dead. (644)	Yes	Yes
80	3132	Back end SCSI bus dead. (642)	Yes	Yes
80	3131	Channel failed. (640)	Yes	Yes
80	3130	Automatic reboot count has changed. (518)	Yes	Yes
80	3129	Lost connection to server, or server is down. (517)	Yes	Yes
80	3128	Size table full. (513)	Yes	Yes
80	3127	Mirror Race on critical drive. (428)	Yes	Yes
80	3126	Mirror Race recovery failed. (427)	Yes	Yes
80	3125	Controller is using default non-unique world-wide name. (426)	Yes	Yes
80	3124	Controller boot ROM image needs to be reloaded. (425)	Yes	Yes
80	3123	Killed partner. (423)	Yes	Yes
80	3122	BBU out of service. (418)	Yes	Yes
80	3121	Hard ECC error corrected. (415)	Yes	Yes
80	3120	Soft ECC error corrected. (414)	Yes	Yes
80	3119	BBU battery not present. (410)	Yes	Yes
80	3118	WARM BOOT failed. (406)	Yes	Yes
80	3117	BBU removed. (405)	Yes	Yes
80	3116	Controller firmware mismatch. (404)	Yes	Yes
80	3115	Controller's partner is gone, controller is in failover mode now. (399)	Yes	Yes
80	3114	Controller is gone. System is disconnecting from this controller. (395)	Yes	Yes
80	3113	BBU Power OK. (394)	Yes	Yes
80	3112	BBU Power Low. (393)	Yes	Yes
80	3111	Controller is gone. System is disconnecting from this controller. (391)	Yes	Yes
80	3110	Controller is found. (390)	Yes	Yes
80	3109	Controller has been reset. (389)	Yes	Yes
80	3108	Controller is dead. System is disconnecting from this controller. (388)	Yes	Yes

		isconnecting from this controll		
		er. (388)		
80	3107	Internal log structures getting	Yes	Yes
		full; PLEASE SHUTDOWN AND RESE		
		T THE SYSTEM IN THE NEAR FUTURE		
		. (386)		
80	3106	Write back error. (385)	Yes	Yes
80	3105	Access to fan status informatio	Yes	Yes
		n has been lost. Switch card o		
		r connectivity has been removed		
		. (337)		
80	3104	Access to power supply status i	Yes	Yes
		nformation has been lost. (336)		
80	3103	Access to temperature sensor ha	Yes	Yes
		s been lost. (335)		
80	3102	Enclosure Soft Addressing Detec	Yes	Yes
		ted. (333)		
80	3101	Enclosure access is offline. (3	Yes	Yes
		32)		
80	3100	Enclosure access critical. (330	Yes	Yes
)		
80	3099	Temperature sensor is not prese	Yes	Yes
		nt. (329)		
80	3098	Temperature is above working li	Yes	Yes
		mit. (327)		
80	3097	Temperature is over safe limit.	Yes	Yes
		Failure imminent. (326)		
80	3096	Power supply is not present. (3	Yes	Yes
		25)		
80	3095	Power supply failure. (323)	Yes	Yes
80	3094	Fan is not present. (322)	Yes	Yes
80	3093	Fan failure. (320)	Yes	Yes
80	3092	Uninterruptible power supply fa	Yes	Yes
		iled. (310)		
80	3091	Uninterruptible power supply ba	Yes	Yes
		ttery low. (309)		
80	3090	Uninterruptible power supply AC	Yes	Yes
		failed. (308)		
80	3089	Uninterruptible power supply di	Yes	Yes
		sabled. (307)		
80	3088	Storage Works enclosure reporte	Yes	Yes
		d failure state. (304)		
80	3087	Storage cabinet temperature sen	Yes	Yes
		sor is not present. (292)		
80	3086	Over temperature. (291)	Yes	Yes

80	3085	Temperature is above 50 degrees Celsius. (289)	Yes	Yes
80	3084	Over temperature. Temperature is above 70 degrees Celsius. (288)	Yes	Yes
80	3083	Storage cabinet power supply is not present. (275)	Yes	Yes
80	3082	Power supply failure. (274)	Yes	Yes
80	3081	Power supply failure. (272)	Yes	Yes
80	3080	Storage cabinet fan is not present. (259)	Yes	Yes
80	3079	Fan failure. (258)	Yes	Yes
80	3078	Fan failure. (256)	Yes	Yes
80	3077	Logical drive background initialization completed. (181)	Yes	Yes
80	3076	Logical drive background initialization failed. (180)	Yes	Yes
80	3075	Logical drive background initialization stopped. (177)	Yes	Yes
80	3074	Logical drive background initialization started. (176)	Yes	Yes
80	3073	A standby rebuild has started on logical drive. (162)	Yes	Yes
80	3072	Temporary-Offline RAID0+1/RAID1/RAID0/JBOD array is available to the user again. (161)	Yes	Yes
80	3071	Temporary-Offline RAID5/RAID3 array is available to the user again with the possibility of data in the array. (160)	Yes	Yes
80	3070	Data for Disk Block has been lost due to Logical Drive problem. (159)	Yes	Yes
80	3069	System drive LUN mapping has been written to config. (157)	Yes	Yes
80	3068	Bad data blocks found. Possible data loss. (156)	Yes	Yes
80	3067	Bad Blocks found. (153)	Yes	Yes
80	3066	Expand Capacity stopped with error. (152)	Yes	Yes
80	3065	Logical drive initialization failed. (147)	Yes	Yes
80	3064	Rebuild stopped because logical drive failed. (143)	Yes	Yes
80	3063	Rebuild stopped with error. New	Yes	Yes

80	3062	device failed. (142) Rebuild stopped with error. (141)	Yes	Yes
80	3061	An automatic rebuild has started on logical drive. (137)	Yes	Yes
80	3060	Logical drive is critical. (135)	Yes	Yes
80	3059	Logical drive has been made offline. (134)	Yes	Yes
80	3058	Consistency check failed due to physical device failure. (133)	Yes	Yes
80	3057	Consistency check on logical drive failed. (132)	Yes	Yes
80	3056	Consistency check on logical drive error. (131)	Yes	Yes
80	3055	Device loop ID conflict (soft addressing) detected. (96)	Yes	Yes
80	3054	A standby rebuild was started. (61)	Yes	Yes
80	3053	Temporary-Dead physical drive is automatically made online. (60)	Yes	Yes
80	3052	Physical drive missing on startup. (57)	Yes	Yes
80	3051	Physical device failed to start. (54)	Yes	Yes
80	3050	A hard disk failed because write operation of 'Bad Data Table' failed. (49)	Yes	Yes
80	3049	A hard disk failed because write operation of the 'Configuration On Disk' failed. (48)	Yes	Yes
80	3048	A hard disk failed because device was not found on startup. (47)	Yes	Yes
80	3047	A hard disk failed because device is not ready. (46)	Yes	Yes
80	3046	A hard disk failed because device returned an unknown status. (45)	Yes	Yes
80	3045	A hard disk failed because of a sequence error in the SCSI bus phase handling. (44)	Yes	Yes
80	3044	A hard disk failed because access to the device met with a sel	Yes	Yes

80	3043	A hard disk set to failed state by host. (42)	Yes	Yes
80	3042	A hard disk failed because of b usy status or parity error. (41	Yes	Yes
80	3041	A hard disk failed because of t he system reset. (40)	Yes	Yes
80	3040	A hard disk failed because comm and to the device timed out. (3	Yes	Yes
80	3039	A hard disk failed because of b ad tag from the device. (38)	Yes	Yes
80	3038	A hard disk failed because of g ross error on SCSI processor. (Yes	Yes
80	3037	A hard disk failed because devi ce is missing. (36)	Yes	Yes
80	3036	A hard disk failed because doub le check condition occurred. (3	Yes	Yes
80	3035	A hard disk failed because SCSI bus reset failed. (34)	Yes	Yes
80	3034	A hard disk failed because writ e recovery failed. (33)	Yes	Yes
80	3033	Initialization failed. (31)	Yes	Yes
80	3032	Request Sense Data available. (Yes	Yes
80	3031	SCSI device reset. (25)	Yes	Yes
80	3030	Misc error found. (24)	Yes	Yes
80	3029	Soft error found. (23)	Yes	Yes
80	3028	Parity error found. (22)	Yes	Yes
80	3027	SCSI command retried on hard di sk. (21)	Yes	Yes
80	3026	SCSI command abort on hard disk . (20)	Yes	Yes
80	3025	SCSI command timeout on hard de vice. (19)	Yes	Yes
80	3024	A hard disk has failed. (12)	Yes	Yes
80	3016	Hard disk error found. (3)	Yes	Yes
80	3023	Rebuild stopped because logical drive failed. (11)	Yes	Yes
80	3022	Rebuild stopped with error. New device failed. (10)	Yes	Yes
80	3021	Rebuild stopped with error. (9)	Yes	Yes

80	3020	Rebuild is cancelled. (8)	Yes	Yes
80	3019	Rebuild is over. (7)	Yes	Yes
80	3018	An automatic rebuild has started. (5)	Yes	Yes
80	3017	Hard disk PFA condition found, this disk may fail soon. (4)	Yes	Yes
80	3230	Configuration on disk converted. (804)	No	No
80	3229	Configuration cleared. (801)	No	No
80	3228	New configuration received. (800)	No	No
80	3227	Set real time clock. (703)	No	No
80	3226	Event log entries lost. (701)	No	No
80	3225	Event log empty. (700)	No	No
80	3224	Back end fibre alive. (645)	No	No
80	3223	Back end SCSI bus alive. (643)	No	No
80	3222	Channel online. (641)	No	No
80	3221	Server alive. (516)	No	No
80	3220	User logged out. (515)	No	No
80	3219	User logged in. (514)	No	No
80	3218	System started. (512)	No	No
80	3217	Dual controllers entered nexus. (424)	No	No
80	3216	Dual controllers enabled. (422)	No	No
80	3215	Inserted partner. (421)	No	No
80	3214	Relinquished partner. (420)	No	No
80	3213	Updated partner's status. (419)	No	No
80	3212	Controller's Partner Has Been Removed. (417)	No	No
80	3211	BBU recondition needed. (416)	No	No
80	3210	Controller device start complete. (413)	No	No
80	3209	Controller entered normal cache mode. (412)	No	No
80	3208	Controller entered Conservative Cache Mode. (411)	No	No
80	3207	BBU calibration cycle is canceled. (409)	No	No
80	3206	BBU calibration cycle finished. (408)	No	No
80	3205	BBU calibration cycle started. (407)	No	No
80	3204	Installation aborted. (403)	No	No
80	3203	BBU reconditioning is canceled. (402)	No	No

80	3202	BBU reconditioning is finished. (401)	No	No
80	3201	BBU reconditioning is started. (400)	No	No
80	3200	Controller is gone. System is d isconnecting from this controll er. (398)	No	No
80	3199	Controller is online. (397)	No	No
80	3198	Controller powered on (396)	No	No
80	3197	BBU Present. (392)	No	No
80	3196	Array management server softwar e started successfully. (384)	No	No
80	3195	Enclosure services ready. (334)	No	No
80	3194	Enclosure access has been resto red. (331)	No	No
80	3193	Normal temperature has been res tored. (328)	No	No
80	3192	Power supply has been restored. (324)	No	No
80	3191	Fan has been restored. (321)	No	No
80	3190	Uninterruptible power supply no rmal. (311)	No	No
80	3189	Storage Works enclosure reporte d normal state. (306)	No	No
80	3188	Storage Works enclosure reporte d critical state. (305)	No	No
80	3187	Normal temperature has been res tored. (290)	No	No
80	3186	Power supply has been restored. (273)	No	No
80	3185	Fan has been restored. (257)	No	No
80	3184	Logical drive background initia lization restarted. (179)	No	No
80	3183	Logical drive background initia lization paused. (178)	No	No
80	3182	Attempt to read data from block that is marked in Bad Data Tab le. (158)	No	No
80	3181	System drive type changed. (155))	No	No
80	3180	System drive size changed. (154))	No	No
80	3179	Expand Capacity completed. (151)	No	No
80	3178	Expand Capacity started. (150)	No	No

80	3177	A logical drive has been deleted. (149)	No	No
80	3176	A logical drive has been found. (148)	No	No
80	3175	Logical drive initialization cancelled. (146)	No	No
80	3174	Logical drive initialization done. (145)	No	No
80	3173	Logical drive initialization started. (144)	No	No
80	3172	Rebuild on logical drive is cancelled. (140)	No	No
80	3171	Rebuild on logical drive is over. (139)	No	No
80	3170	A manual rebuild has started on logical drive. (138)	No	No
80	3169	Logical drive has been placed online. (136)	No	No
80	3168	Consistency check is cancelled. (130)	No	No
80	3167	Consistency check is finished. (129)	No	No
80	3166	Consistency check is started. (128)	No	No
80	3165	Physical drive is switching from a channel to the other channel. (59)	No	No
80	3164	Rebuild startup failed due to lower disk capacity. (58)	No	No
80	3163	Physical device negotiated different bus width than config. (56)	No	No
80	3162	Physical device negotiated different offset than config. (55)	No	No
80	3161	Physical device ID did not match. (53)	No	No
80	3160	Physical device status changed to rebuild. (52)	No	No
80	3159	Physical device status changed to Hot Spare. (51)	No	No
80	3158	Physical device status changed to offline. (50)	No	No
80	3157	Initialization canceled. (32)	No	No
80	3156	Initialization completed. (30)	No	No
80	3155	Initialization started. (29)	No	No

80	3154	Warm spare found. (27)	No	No
80	3153	Active spare found. (26)	No	No
80	3152	Expand Capacity stopped with error. (18)	No	No
80	3151	Expand Capacity Completed. (17)	No	No
80	3150	Expand Capacity started. (16)	No	No
80	3149	A previously configured disk is now available. (15)	No	No
80	3148	A hard disk has been removed. (14)	No	No
80	3147	A new hard disk has been found. (13)	No	No
80	3146	A rebuild has started. (6)	No	No
80	3145	A hard disk added as hot spare. (2)	No	No
80	3144	A hard disk has been placed online. (1)	No	No
80	3730	Unknown Event	Yes	Yes
80	3760	Valid SANMap was not found in the configuration on disk. (809)	No	No
80	3759	Valid configuration on disk not found. (808)	No	No
80	3758	Battery test failed, battery backed. (522)	Yes	Yes
80	3757	Battery test cancelled. (521)	No	No
80	3756	Battery test has completed. (520)	No	No
80	3755	Battery test has started. (519)	No	No
80	3754	A replacement controller attempted to stop the surviving controller. (441)	Yes	Yes
80	3753	Error in mirror race table. (440)	Yes	Yes
80	3752	Dual-active negotiation failed cache memory size. (439)	Yes	Yes
80	3751	Dual-active negotiation failed memory size. (438)	Yes	Yes
80	3750	Dual-active negotiation failed host ports. (437)	Yes	Yes
80	3749	Dual-active negotiation failed disk channels. (436)	Yes	Yes
80	3748	Dual-active negotiation failed board types. (435)	Yes	Yes
80	3747	Dual-active negotiation failed IDs. (434)	Yes	Yes

80	3746	Dual-active negotiation failed jumpers. (433)	Yes	Yes
80	3745	Dual-active automatic flash of replacement controller. (432)	No	No
80	3744	Controller improperly shutdown. Data might have been lost. (43 1)	Yes	Yes
80	3743	Controller disconnected from cl uster. (430)	No	No
80	3742	Controller connected to cluster . (429)	No	No
80	3741	Low battery charge level. Logic al drive may have lost data. (1 82)	Yes	Yes
80	3740	Online controller firmware upgr ade has failed. (75)	Yes	Yes
80	3739	Online controller firmware upgr ade has completed successfully. (74)	No	No
80	3738	Online controller firmware upgr ade has started. (73)	No	No
80	3737	Controller parameters checksum verification failed; restored d efault. (72)	Yes	Yes
80	3736	Mirror race recovery failed for logical drive. (71)	Yes	Yes
80	3735	Physical disk port has failed o r cannot operate at the configu red channel speed. (70)	Yes	Yes
80	3734	Physical disk has acquired an i nappropriate loop ID. Enclosure disk-slot operations are disab led while this condition persis ts.	Yes	Yes
80	3733	Physical disk found on only one disk channel. (67)	Yes	Yes
80	3732	Hot spare replaced with a small er capacity drive. (62)	No	No
81	3339	Failed to communicate storage a rray's world-wide name (0x6505)	Yes	Yes
81	3338	Remote storage array's world-wi de name changed (0x6504)	Yes	Yes
81	3337	Communication to remote volume - down (0x6503)	Yes	Yes
81	3336	Data on mirrored pair unsynchro	Yes	Yes

81	3335	nized (0x6402) Dual secondary volume conflict (0x6401)	Yes	Yes
81	3334	Dual primary volume conflict (0x6400)	Yes	Yes
81	3333	Snapshot volume failed (0x6202)	Yes	Yes
81	3332	Snapshot repository volume capacity - full (0x6201)	Yes	Yes
81	3331	Snapshot repository volume capacity - threshold exceeded (0x6200)	Yes	Yes
81	3330	Internal configuration database full (0x6101)	Yes	Yes
81	3329	Diagnostics rejected - configuration error on this controller's alternate (0x5617)	Yes	Yes
81	3328	Diagnostics rejected - configuration error on controller (0x5616)	Yes	Yes
81	3327	This controller's alternate failed diagnostics write test (0x5610)	Yes	Yes
81	3326	Diagnostics write test failed on controller (0x560F)	Yes	Yes
81	3325	This controller's alternate failed diagnostics read test (0x560E)	Yes	Yes
81	3324	Diagnostics read test failed on controller (0x560D)	Yes	Yes
81	3323	Diagnostics rejected - CtlrDiag task on controller's alternate cannot obtain Mode Select lock (0x560C)	Yes	Yes
81	3322	Diagnostics rejected - CtlrDiag task cannot obtain Mode Select lock (0x560B)	Yes	Yes
81	3321	This controller's alternate failed - timeout waiting for results (0x5602)	Yes	Yes
81	3320	Feature Enable Identifier changed (0x5404)	Yes	Yes
81	3319	Premium feature exceeds limit (0x5403)	Yes	Yes
81	3318	Premium feature out of compliance (0x5402)	Yes	Yes

81	3317	Error writing configuration (0x5212)	Yes	Yes
81	3316	Fail drive (0x5006)	Yes	Yes
81	3315	Place controller offline (0x5005)	Yes	Yes
81	3255	Cache between controllers not synchronized (0x210B)	Yes	Yes
81	3254	Controller cache not enabled - cache sizes do not match (0x2109)	Yes	Yes
81	3253	Data/parity mismatch detected on volume (0x2034)	Yes	Yes
81	3252	Parity reconstructed on volume (0x2033)	Yes	Yes
81	3251	Read drive error during interrupted write (0x202E)	Yes	Yes
81	3250	Virtual disk failed during interrupted write (0x2021)	Yes	Yes
81	3249	Piece failed during interrupted write (0x2020)	Yes	Yes
81	3248	Uncompleted writes detected in NVSRAM at start-of-day (0x2015)	Yes	Yes
81	3247	Unwritten data/parity recovered from cache (0x2013)	Yes	Yes
81	3246	Unrecovered deferred error on volume (0x200B)	Yes	Yes
81	3245	Data/parity mismatch on volume (0x200A)	Yes	Yes
81	3244	Piece failed (0x2006)	Yes	Yes
81	3243	Virtual disk failed - interrupted write (0x2005)	Yes	Yes
81	3242	ESM miswire (0x1510)	Yes	Yes
81	3241	Channel miswire (0x150F)	Yes	Yes
81	3240	Controller loop-back diagnostics failed (0x150E)	Yes	Yes
81	3239	Unresponsive drive (bad AL_PAE error) (0x150A)	Yes	Yes
81	3238	Fibre channel link errors-threshold exceeded (0x1207)	Yes	Yes
81	3237	Incorrect mode parameters set on drive (0x1015)	Yes	Yes
81	3236	Impending drive failure (PFA) detected (0x1010)	Yes	Yes
81	3235	Drive returned CHECK CONDITION (0x100A)	Yes	Yes

81	3234	Drive write failure - retries exhausted (0x1006)	Yes	Yes
81	3233	Drive read failure - retries exhausted (0x1005)	Yes	Yes
81	3232	Drive error tally exceeded threshold (0x1003)	Yes	Yes
81	3231	Channel failed (0x1001)	Yes	Yes
81	3256	Controller cache battery failed (0x210C)	Yes	Yes
81	3314	Sys wipe request received by alternate controller (0x4002)	Yes	Yes
81	3313	Sys wipe request sent to controller (0x4000)	Yes	Yes
81	3312	VKI panic (0x3201)	Yes	Yes
81	3311	Environmental card firmware download failed (0x301D)	Yes	Yes
81	3310	Drive firmware download failed (0x301A)	Yes	Yes
81	3309	Volume ownership changed due to failover (0x3019)	Yes	Yes
81	3308	Drive by-passed (0x2823)	Yes	Yes
81	3307	ESM firmware mismatch (0x281E)	Yes	Yes
81	3306	Temperature sensor removed (0x281D)	Yes	Yes
81	3305	Maximum temperature exceeded (0x281C)	Yes	Yes
81	3304	Nominal temperature exceeded (0x281B)	Yes	Yes
81	3303	Tray ID mismatch - duplicate IDs in same drive tray (0x2818)	Yes	Yes
81	3302	Tray ID conflict - duplicate IDs across drive trays (0x2816)	Yes	Yes
81	3301	GBIC failed (0x2815)	Yes	Yes
81	3300	Mini-hub canister failed (0x2813)	Yes	Yes
81	3299	ESM - loss of communication (0x280F)	Yes	Yes
81	3298	Standby power source not fully charged (0x280E)	Yes	Yes
81	3297	Drive tray component failed (0x280D)	Yes	Yes
81	3296	Controller tray component failed (0x280B)	Yes	Yes
81	3295	Controller tray component missing (0x280A)	Yes	Yes

81	3294	Tray ID not unique (0x2808)	Yes	Yes
81	3293	ESM Failed (0x2807)	Yes	Yes
81	3292	UPS battery-two minutes to fail ure (0x2803)	Yes	Yes
81	3291	Storage Array running on UPS ba ttery (0x2801)	Yes	Yes
81	3290	Recoverable error in processor memory detected/corrected (0x27 03)	Yes	Yes
81	3289	Controller unexpected RPA inter rupt detected (0x2702)	Yes	Yes
81	3288	PCI controller parity error (0x 2701)	Yes	Yes
81	3287	Controller RPA memory parity er ror detected (0x2700)	Yes	Yes
81	3286	Persistent controller memory pa rity error (0x2604)	Yes	Yes
81	3285	Automatic controller firmware s ynchronization failed (0x2602)	Yes	Yes
81	3284	Controller inserted or removed (0x2500)	Yes	Yes
81	3283	Volume definition incompatible with ALT mode-ALT disabled (0x2 255)	Yes	Yes
81	3282	Redundancy (parity) and data mi smatch was detected (0x2254)	Yes	Yes
81	3281	Drive marked offline during int errupted write (0x2252)	Yes	Yes
81	3280	Drive failed - reconstruction f ailure (0x2251)	Yes	Yes
81	3279	Volume failure (0x2250)	Yes	Yes
81	3278	Drive failed-initialization/rec onstruction failure (0x224E)	Yes	Yes
81	3277	Drive failed-no response at sta rt of day (0x224D)	Yes	Yes
81	3276	Drive failed-initialization fai lure (0x224B)	Yes	Yes
81	3275	Drive has wrong block size (0x2 24A)	Yes	Yes
81	3274	Drive capacity less than minimu m (0x2249)	Yes	Yes
81	3273	Drive failed - write failure (0 x2248)	Yes	Yes
81	3272	Data lost on volume during unre covered interrupted write (0x22	Yes	Yes

		47)		
81	3271	Partially reconstructed drive marked optimal (0x223F)	Yes	Yes
81	3270	Drive reinserted (0x223C)	Yes	Yes
81	3269	Drive manually failed (0x222D)	Yes	Yes
81	3268	Drive failed by controller (0x2229)	Yes	Yes
81	3267	Drive spun down (0x2226)	Yes	Yes
81	3266	Duplicate data structure exists for two devices (0x2223)	Yes	Yes
81	3265	Piece failed during uncompleted write processing (0x2218)	Yes	Yes
81	3264	Piece failed (0x2217)	Yes	Yes
81	3263	Piece taken out of service (0x2216)	Yes	Yes
81	3262	Drive marked failed (0x2215)	Yes	Yes
81	3261	Parity repaired (0x2212)	Yes	Yes
81	3260	Memory parity ECC error (0x2118)	Yes	Yes
81	3259	Controller cache memory initialization failed (0x2110)	Yes	Yes
81	3258	Controller cache memory parity error detected (0x210F)	Yes	Yes
81	3257	Controller cache memory recovery failed after power cycle or reset (0x210E)	Yes	Yes
81	3674	Communication to remote volume - up (0x6502)	No	No
81	3673	Remote volume deleted (0x6501)	No	No
81	3672	Remote volume created (0x6500)	No	No
81	3671	Mirrored pair changed to optimal (0x6404)	No	No
81	3670	Mirror repository volume deleted (0x6301)	No	No
81	3669	Mirror repository volume created (0x6300)	No	No
81	3668	Diagnostics rejected - download is in progress (0x561F)	No	No
81	3667	Running diagnostics on this controller (0x561E)	No	No
81	3666	Diagnostics initiated from this controller (0x561D)	No	No
81	3665	Diagnostics rejected - both controllers must be in active mode (0x561C)	No	No

81	3664	Diagnos	tics rejected - data tra	No	No
			nsfer on this controller's alte		
			rnate is not disabled (quiesced		
) (0x561B)		
81	3663	Diagnos	tics rejected - data tra	No	No
			nsfer on controller is not disa		
			bled (quiesced) (0x561A)		
81	3662	Diagnos	tics rejected - no cache	No	No
			memory on this controller's al		
			ternate (0x5619)		
81	3661	Diagnos	tics rejected - no cache	No	No
			memory on controller (0x5618)		
81	3660		Not Used (0x5615)	No	No
81	3659	A host-	side port (link) has bee	No	No
			n detected as down (0x5614)		
81	3658	Diagnos	tics loopback test ident	No	No
			ified bad destination channel(s		
) (0x5613)		
81	3657	This con	troller's alternate pas	No	No
			sed diagnostics, but loopback t		
			est identified an error on loop		
			(s) (0x5612)		
81	3656	Control	ler passed diagnostics,	No	No
			but loopback test identified an		
			error on loop(s) (0x5611)		
81	3655	Diagnos	tics rejected - access v	No	No
			olume (UTM)is not enabled (0x56		
			0A)		
81	3654	Diagnos	tics unable to select a	No	No
			drive for I/O (0x5609)		
81	3653	Diagnos	tics rejected - test ID	No	No
			is incorrect (0x5608)		
81	3652	Diagnos	tics returned unknown Re	No	No
			turnCode (0x5607)		
81	3651	Diagnos	tics rejected - ctlrDiag	No	No
			task unable to queue DIAG_INIT		
			_MSG message (0x5606)		
81	3650	Diagnos	tics rejected - error oc	No	No
			curred when sending the Icon me		
			ssage (0x5605)		
81	3649	Diagnos	tics rejected - this con	No	No
			troller's alternate is absent o		
			r failed (0x5604)		
81	3648	Diagnos	tics rejected - already	No	No
			in progress (0x5603)		

81	3647	This controller's alternate pas sed diagnostics. (0x5601)	No	No
81	3646	Controller passed diagnostics (0x5600)	No	No
81	3645	Premium feature disabled (0x540 1)	No	No
81	3644	Premium feature enabled (0x5400)	No	No
81	3643	Change volume-to-LUN mapping (0 x5211)	No	No
81	3642	Delete volume-to-LUN mapping (0 x5210)	No	No
81	3641	Create volume-to-LUN mapping (0 x520F)	No	No
81	3640	Move Storage Array port (0x520E)	No	No
81	3639	Delete Storage Array port group (0x520D)	No	No
81	3638	Create Storage Array port group (0x520C)	No	No
81	3637	Set host port type (0x520B)	No	No
81	3636	Move host port (0x520A)	No	No
81	3635	Rename host port (0x5209)	No	No
81	3634	Delete host port (0x5208)	No	No
81	3633	Create host port (0x5207)	No	No
81	3632	Move host (0x5206)	No	No
81	3631	Rename host (0x5205)	No	No
81	3630	Delete host (0x5204)	No	No
81	3629	Create host (0x5203)	No	No
81	3628	Rename host group (0x5202)	No	No
81	3627	Delete host group (0x5201)	No	No
81	3626	Create host group (0x5200)	No	No
81	3625	Create mirror relationship (0x5 033)	No	No
81	3624	Change synchronization priority (0x5032)	No	No
81	3623	Deactivate remote mirroring (0x 5031)	No	No
81	3622	Activate remote mirroring (0x50 30)	No	No
81	3621	Increase volume capacity (0x502 B)	No	No
81	3620	Assign volume ownership (0x502A)	No	No
81	3619	Reset controller battery age (0	No	No

81	3618	Controller NVSRAM download completed (0x5028)	No	No
81	3617	Controller NVSRAM download failed (0x5027)	No	No
81	3616	Controller firmware download completed (0x5026)	No	No
81	3615	Controller firmware download failed (0x5025)	No	No
81	3614	Internal download checkpoint (0x5024)	No	No
81	3613	Controller return status/function call for requested operation (0x5023)	No	No
81	3612	Automatic configuration on Storage Array (0x5022)	No	No
81	3611	Reset configuration of Storage Array (0x5021)	No	No
81	3610	Change media scan (scrub) settings of Storage Array (0x5020)	No	No
81	3609	Change media scan (scrub) settings of volume (0x501F)	No	No
81	3608	Change positions of trays in physical view (0x501E)	No	No
81	3607	Revive volume (0x501D)	No	No
81	3606	Revive drive (0x501C)	No	No
81	3605	Place controller online (0x501B)	No	No
81	3604	Change name of volume (0x501A)	No	No
81	3603	Change parameters of volume (0x5019)	No	No
81	3602	Change cache parameters of volume (0x5018)	No	No
81	3601	Synchronize controller clock (0x5017)	No	No
81	3600	Change name of Storage Array (0x5016)	No	No
81	3599	Update cache parameters of Storage Array (0x5015)	No	No
81	3598	Change controller to active mode (0x5014)	No	No
81	3597	Change controller to passive mode (0x5013)	No	No
81	3596	Change segment size of volume (0x5012)	No	No

81	3595	Change RAID level of volume group (0x5011)	No	No
81	3594	Add free capacity to volume group (0x5010)	No	No
81	3593	Start volume group defragmentation (0x500F)	No	No
81	3592	Reconstruct drive/volume (0x500E)	No	No
81	3591	Place volume group online (0x500D)	No	No
81	3590	Place volume group offline (0x500C)	No	No
81	3589	Controller NVSRAM download started (0x500B)	No	No
81	3588	Download drive firmware issued (0x500A)	No	No
81	3587	Controller firmware download started (0x5009)	No	No
81	3586	Initialize drive (0x5008)	No	No
81	3585	Initialize volume group or volume (0x5007)	No	No
81	3584	Delete volume (0x5004)	No	No
81	3583	De-assign hot spare drive (0x5003)	No	No
81	3582	Create volume (0x5002)	No	No
81	3581	Assign hot spare drive (0x5001)	No	No
81	3580	Assign volume group ownership (0x5000)	No	No
81	3579	Controller reset (0x4010)	No	No
81	3578	Controller reset by its alternate (0x400F)	No	No
81	3577	Automatic volume transfer started (0x400E)	No	No
81	3576	Controller placed online (0x400D)	No	No
81	3575	Controller placed offline (0x400C)	No	No
81	3574	All channel reset detected (0x400B)	No	No
81	3573	Alternate controller quiescence released (0x400A)	No	No
81	3572	Controller quiescence released (0x4009)	No	No
81	3571	Controller quiescence halted (0x4008)	No	No

81	3570	Subsystem quiescence started (0x4007)	No	No
81	3569	Alternate controller quiescence started (0x4006)	No	No
81	3568	Controller quiescence started (0x4005)	No	No
81	3567	Alternate controller quiescence message received (0x4004)	No	No
81	3566	NVSRAM clear request received by alternate controller (0x4003)	No	No
81	3565	NVSRAM clear request sent to alternate controller (0x4001)	No	No
81	3564	VKI common error (0x3200)	No	No
81	3563	Deferred error (EEL) (0x3102)	No	No
81	3562	AEN posted for recently logged event (0x3101)	No	No
81	3561	Environmental card firmware download completed (0x301E)	No	No
81	3560	Environmental card firmware download started (0x301C)	No	No
81	3559	Drive firmware download completed (0x301B)	No	No
81	3558	Set pass command issued (0x3018)	No	No
81	3557	Set pass-through issued (0x3017)	No	No
81	3556	Alternate controller transition issued (0x3016)	No	No
81	3555	Drive pass-through issued (0x3015)	No	No
81	3554	Drive firmware download started (0x3014)	No	No
81	3553	Download controller firmware issued (0x3013)	No	No
81	3552	Write Buffer (0x3012)	No	No
81	3551	Defect list received (0x3011)	No	No
81	3550	Mode select for hot spare page 3A received (0x3010)	No	No
81	3549	Mode select for time page 2F received (0x300F)	No	No
81	3548	Mode select for vendor-unique cache page 2E received (0x300E)	No	No
81	3547	Mode select for redundant controller page 2C received (0x300D)	No	No
81	3546	Mode select for array logical p	No	No

81	3545	Mode select for array physical page 2B received (0x300C)	No	No
81	3544	Mode select for control mode page A received (0x300A)	No	No
81	3543	Mode for caching page 8 received (0x3009)	No	No
81	3542	Mode select for page 2 received (0x3008)	No	No
81	3541	Mode select for page 1 received (0x3007)	No	No
81	3540	Safe pass-through issued (0x3006)	No	No
81	3539	Synchronize controller cache issued (0x3005)	No	No
81	3538	Release issued (0x3004)	No	No
81	3537	Reserve issued (0x3003)	No	No
81	3536	Reassign blocks issued from host (0x3002)	No	No
81	3535	Quiescence issued (0x3001)	No	No
81	3534	Format unit issued (0x3000)	No	No
81	3533	Drive by-passed condition resolved (0x2824)	No	No
81	3532	Incompatible mini-hub canister (0x2821)	No	No
81	3531	Two controllers present but NVS RAM (offset 0x35, bit 6) set for NOT reporting a missing second controller (0x2820)	No	No
81	3530	ESM Environmental card firmware mismatch resolved (0x281F)	No	No
81	3529	Temperature changed to optimal (0x281A)	No	No
81	3528	Tray ID mismatch resolved (0x2819)	No	No
81	3527	Tray ID conflict resolved (0x2817)	No	No
81	3526	GBIC changed to optimal (0x2814)	No	No
81	3525	Mini-hub canister changed to optimal (0x2812)	No	No
81	3524	Not Used (0x2811)	No	No
81	3523	ESM - communication restored (0x2810)	No	No
81	3522	Drive tray component changed to	No	No

81	3521	Controller tray component changed to optimal (0x2809)	No	No
81	3520	Tray component change (0x2806)	No	No
81	3519	Controller tray component change detected (0x2805)	No	No
81	3518	Not Used (0x2804)	No	No
81	3517	UPS battery is fully charged (0x2802)	No	No
81	3516	Power supply state change detected (0x2800)	No	No
81	3515	Start-of-day routine completed (0x2605)	No	No
81	3514	Default volume created (0x2603)	No	No
81	3513	Automatic controller firmware synchronization completed (0x2601)	No	No
81	3512	Automatic controller firmware synchronization started (0x2600)	No	No
81	3511	Controller mode switch occurred (0x2505)	No	No
81	3510	Controller mode changed to active (0x2504)	No	No
81	3509	Controller mode changed to passive (0x2503)	No	No
81	3508	Controller icon chip error (0x2502)	No	No
81	3507	Controller mode changed to active (0x2501)	No	No
81	3506	Hot swap monitor detected drive insertion (0x2401)	No	No
81	3505	Hot swap monitor detected drive removal (0x2400)	No	No
81	3504	Immediate availability initialization (IAF) started on volume (0x225A)	No	No
81	3503	Initialization started on volume (0x2259)	No	No
81	3502	Modification (reconfigure) completed on volume (0x2258)	No	No
81	3501	Modification (reconfigure) started on volume (0x2257)	No	No
81	3500	Copyback completed on volume (0x2256)	No	No
81	3499	Volume group or volume modified	No	No

		(created or deleted) (0x2253)		
81	3498	Hot spare capacity not sufficient for all drives (0x224F)	No	No
81	3497	Wrong drive removed/replaced (0x224C)	No	No
81	3496	Media scan (scrub) resumed (0x2246)	No	No
81	3495	Media scan (scrub) stopped (0x2245)	No	No
81	3494	Unknown drive marked unassigned (0x2244)	No	No
81	3493	Unassigned drive with no DACSTORE removed (0x2243)	No	No
81	3492	Unassigned drive with no DACSTORE deleted (0x2242)	No	No
81	3491	Unassigned drive with no DACSTORE failed (0x2241)	No	No
81	3490	DACSTORE created for unassigned or hot spare drive (0x2240)	No	No
81	3489	Drive marked optimal (0x223E)	No	No
81	3488	Unassigned drive replaced (0x223D)	No	No
81	3487	Failed/Replaced drive marked replaced (0x223B)	No	No
81	3486	Drive marked deleted (0x223A)	No	No
81	3485	Hot spare drive assigned internally (0x2239)	No	No
81	3484	Drive added in previously unused slot (0x2238)	No	No
81	3483	Replaced drive completed reconstruction (0x2237)	No	No
81	3482	Hot spare drive copy completed (0x2236)	No	No
81	3481	Optimal/Replaced drive marked removed (0x2235)	No	No
81	3480	Reconstructing drive marked removed (0x2234)	No	No
81	3479	Unassigned drive marked removed (0x2233)	No	No
81	3478	Removed drive marked removed (0x2232)	No	No
81	3477	Drive marked removed (0x2231)	No	No
81	3476	Drive failed by device manager (0x2230)	No	No
81	3475	Drive marked replaced (0x222F)	No	No

81	3474	Mark drive removed (0x222E)	No	No
81	3473	Drive marked unassigned (0x222C)	No	No
81	3472	Drive replaced when Storage Array was turned off (0x222B)	No	No
81	3471	Hot spare drive assigned (0x222A)	No	No
81	3470	Drive deleted (0x2228)	No	No
81	3469	Drive marked optimal (0x2227)	No	No
81	3468	Reconstruction restarted (0x2225)	No	No
81	3467	Reconstruction started (0x2224)	No	No
81	3466	Logical unit number for volume reassigned (0x2222)	No	No
81	3465	Hot spare drive removed from hot spare list (0x2221)	No	No
81	3464	Hot spare drive added to hot spare list (0x2220)	No	No
81	3463	Initialization (immediate availability) started or restarted (0x221F)	No	No
81	3462	Volume group or volume initialized (0x221E)	No	No
81	3461	Volume group placed online (0x221D)	No	No
81	3460	Volume group placed offline (0x221C)	No	No
81	3459	Piece placed in service (0x221B)	No	No
81	3458	Piece replaced (0x221A)	No	No
81	3457	Piece removed from volume (0x2219)	No	No
81	3456	One or more Sundry regions created (0x2214)	No	No
81	3455	Volume initialized with zeros (0x2213)	No	No
81	3454	Restore completed (0x2211)	No	No
81	3453	Restore started (0x2210)	No	No
81	3452	Media scan (scrub) completed (0x220F)	No	No
81	3451	Media scan (scrub) started (0x220E)	No	No
81	3450	Media scan (scrub) enabled (0x220D)	No	No
81	3449	Device failed during interrupte	No	No

		d write processing (0x220C)		
81	3448	Copyback restarted (0x220B)	No	No
81	3447	Copyback started (0x220A)	No	No
81	3446	Modification (reconfigure) completed (0x2209)	No	No
81	3445	Modification (reconfigure) started (0x2208)	No	No
81	3444	Device copy complete (0x2207)	No	No
81	3443	Reconstruction completed (0x2206)	No	No
81	3442	Source drive failed during copy operation (0x2205)	No	No
81	3441	I/O is resumed (0x2204)	No	No
81	3440	Volume group or volume deleted (0x2203)	No	No
81	3439	Volume added (0x2202)	No	No
81	3438	Volume marked optimal (0x2201)	No	No
81	3437	Cache corrected by using alternate controller's cache (0x211A)	No	No
81	3436	Recoverable error in data buffer memory detected/corrected (0x2119)	No	No
81	3435	Controller cache manager error cleared (0x2117)	No	No
81	3434	Alternate controller cache battery failed (0x2116)	No	No
81	3433	Alternate controller cache battery nearing expiration (0x2115)	No	No
81	3432	Alternate controller cache battery is fully charged (0x2114)	No	No
81	3675	Controller cache battery nearing expiration (0x2113)	Yes	Yes
81	3431	Controller cache battery is fully charged (0x2112)	No	No
81	3430	Controller cache task failed (0x2111)	No	No
81	3429	Controller deferred error (0x2110D)	No	No
81	3428	Controller cache not enabled or was internally disabled (0x2110A)	No	No
81	3427	Controller cache manager experiencing errors (0x2108)	No	No
81	3426	Clear requested on controller cache manager's DACSTORE (0x2107)	No	No

81	3425	Update requested on controller cache manager's DACSTORE (0x2106)	No	No
81	3424	Controller cache reconfigure event (0x2105)	No	No
81	3423	Controller cache synchronization/purge event (0x2104)	No	No
81	3422	UPS battery is fully charged (0x2103)	No	No
81	3421	Cache mirroring on controllers not synchronized (0x2102)	No	No
81	3420	Alternate controller checked in late (0x2101)	No	No
81	3419	Initialization resumed on volume (0x2032)	No	No
81	3418	Initialization started on volume (0x2031)	No	No
81	3417	Initialization completed on volume (0x2030)	No	No
81	3416	Automatic volume transfer completed (0x202F)	No	No
81	3415	Redundancy check resumed (0x202D)	No	No
81	3414	Redundancy check completed (0x202C)	No	No
81	3413	Redundancy check started (0x202B)	No	No
81	3412	Modification (reconfigure) resumed (0x202A)	No	No
81	3411	Modification (reconfigure) completed (0x2029)	No	No
81	3410	Modification (reconfigure) started (0x2028)	No	No
81	3409	Reconstruction resumed (0x2027)	No	No
81	3408	Reconstruction completed (0x2026)	No	No
81	3407	Reconstruction started (0x2025)	No	No
81	3406	Media scan (scrub) resumed (0x2024)	No	No
81	3405	Media scan (scrub) completed (0x2023)	No	No
81	3404	Media scan (scrub) started (0x2022)	No	No
81	3403	VDD repair completed (0x201F)	No	No

81	3402	VDD repair started (0x201E)	No	No
81	3401	VDD recover completed (0x201D)	No	No
81	3400	VDD recover started (0x201C)	No	No
81	3399	VDD restore completed (0x201B)	No	No
81	3398	VDD restore started (0x201A)	No	No
81	3397	Performance monitor (0x2019)	No	No
81	3396	I/O suspended due to no pre-allocated resources (0x2018)	No	No
81	3395	Interrupted writes detected from checkpoint logs (0x2017)	No	No
81	3394	Interrupted writes processed (0x2016)	No	No
81	3393	VDD logged an error (0x2014)	No	No
81	3392	Cache flush completed (0x2012)	No	No
81	3391	Cache flush started (0x2011)	No	No
81	3390	Cache synchronization completed (0x2010)	No	No
81	3389	Cache synchronization started (0x200F)	No	No
81	3388	Virtual disk driver reconfigured (0x200E)	No	No
81	3387	I/O aborted on volume (0x200D)	No	No
81	3386	Recovered error on volume (0x200C)	No	No
81	3385	RAID 0 write failures (0x2009)	No	No
81	3384	Failed volume started reconstruction (0x2008)	No	No
81	3383	Fail piece delayed (0x2007)	No	No
81	3382	Interrupted write completed (0x2004)	No	No
81	3381	Interrupted write started (0x2003)	No	No
81	3380	Repair completed (0x2002)	No	No
81	3379	Repair started (0x2001)	No	No
81	3378	Environmental card miswire resolved (0x1512)	No	No
81	3377	Channel miswire resolved (0x1511)	No	No
81	3376	Channel reset occurred (0x150D)	No	No
81	3375	Unresponsive environmental card (ESM) (bad AL_PA error) (0x150C)	No	No
81	3374	Unresponsive alternate controller (bad AL_PA error) (0x150B)	No	No
81	3373	Loop port bypass (LPB) issued t	No	No

		o environmental card(ESM) (0x1509)		
81	3372	Loop port bypass (LPB) issued to alternate controller (0x1508)	No	No
81	3371	Loop port bypass (LPB) issued to drive (0x1507)	No	No
81	3370	Loop port enable (LPE) issued to environmental card (ESM) (0x1506)	No	No
81	3369	Loop port enable (LPE) issued to alternate controller (0x1505)	No	No
81	3368	Loop port enable (LPE) issued to drive (0x1504)	No	No
81	3367	Selective LIP reset issued to environmental card (ESM) (0x1503)	No	No
81	3366	Selective LIP reset issued to alternate controller (0x1502)	No	No
81	3365	Selective LIP reset issued to drive (0x1501)	No	No
81	3364	Channel initialization error (0x1500)	No	No
81	3363	Fibre channel link errors continue (0x1206)	No	No
81	3362	Fibre channel-driver detected error during initialization (0x1205)	No	No
81	3361	Fibre channel-driver detected error after initialization (0x1204)	No	No
81	3360	Fibre channel-TPRLO reset received (0x1203)	No	No
81	3359	Fibre channel-TGT reset received (0x1202)	No	No
81	3358	Fibre channel-LIP reset received (0x1201)	No	No
81	3357	Unknown interrupt (0x1104)	No	No
81	3356	Host bus reset received (0x1103)	No	No
81	3355	Host bus reset asserted (0x1102)	No	No
81	3354	SRC driver detected exception on SCSI chip (0x1101)	No	No
81	3353	Destination driver successfully issued reassign blocks command	No	No

81	3352	(0x1014) Destination driver level 0 diagnostic failed (0x1013)	No	No
81	3351	Destination driver error (0x1012)	No	No
81	3350	Chip error (0x1011)	No	No
81	3349	Bus parity error on controller (0x100F)	No	No
81	3348	Unexpected interrupt on controller (0x100E)	No	No
81	3347	Timeout on drive side of controller (0x100D)	No	No
81	3346	Hardware error on drive side of controller (0x100C)	No	No
81	3345	Start-of-day error in destination driver (0x100B)	No	No
81	3344	Controller memory parity error (0x1009)	No	No
81	3343	Unsupported SCSI chip (0x1008)	No	No
81	3342	Controller out of memory (0x1007)	No	No
81	3341	Error on drive open (0x1004)	No	No
81	3340	Channel revived (0x1002)	No	No
83	3726	Fatal error on root filesystem	Yes	Yes
83	3725	xfstool: xfs_buf_item_log_check bip	Yes	Yes
83	3724	attempting to delete a log item not in the AIL	Yes	Yes
83	3723	I/O Error Detected.	Yes	Yes
83	3722	Log I/O Error Detected.	Yes	Yes
83	3721	Corruption of in-memory data detected.	Yes	Yes
83	3720	reservation ran out. Need to update reservation	Yes	Yes
83	3719	bad inode, forkoff	Yes	Yes
83	3718	detected corrupt incore inode	Yes	Yes
83	3717	Bad directory inode	Yes	Yes
83	3716	Bad regular inode	Yes	Yes
83	3715	Bad inode magic number	Yes	Yes
83	3677	XFS specific messages	Yes	Yes
84	3687	unhandled vetype	Yes	Yes
84	3686	unhandled attrtype	Yes	Yes
84	3685	old version disk label	Yes	Yes
84	3684	remote i/o not supported	Yes	Yes
84	3683	io request cannot be routed remotely	Yes	Yes

84	3682	Freeing more than allocated	Yes	Yes
84	3681	Allocated less than freed	Yes	Yes
84	3680	client commit failure	Yes	Yes
84	3679	XVM hostnames dont match	Yes	Yes
84	3678	XVM specific messages	Yes	Yes
7001	4194471	unix / *(TOOK-ACTION*	Yes	No
7001	4194470	unix / *(CONFIG-ISSUE*	Yes	No
7001	4194469	unix / *(SYS-DEGRADED*	Yes	No
7001	4194468	unix / *(MAINT-NEEDED*	Yes	No
7001	4194467	midisynth / *initial preset loa d error*	Yes	No
7001	4194466	midisynth / *resource temporari ly unavailable*	Yes	No
7001	4194465	midisynth / *unable to set up I PC pipe*	Yes	No
7001	4194464	midisynth / *unable to create i nternal MIDI device*	Yes	No
7001	4194463	midisynth / *unable to set outp ut port rate or clock type*	Yes	No
7001	4194462	midisynth / *unable to open aud io out port*	Yes	No
7001	4194461	midisynth / *audio interface se t failed*	Yes	No
7001	4194460	unix / Cannot lock process in m emory *	Yes	No
7001	4194459	unix / No memory to register pr otocol *	Yes	No
7001	4194458	unix / No space for client *	Yes	No
7001	4194457	unix / Cannot initialize * clie nt * list semaphore: *	Yes	No
7001	4194456	unix / Could not start * thread *	Yes	No
7001	4194455	unix / Could not create * semap hore for io q	Yes	No
7001	4194454	unix / Out of memory allocating common client info	Yes	No
7001	4194453	unix / Client * could not setup new client	Yes	No
7001	4194452	unix / Client * Access denied	Yes	No
7001	4194451	unix / xfs_iflush: detected cor rupt incore inode *	Yes	No
7001	4194450	unix / xfs_iflush: *ad *inode *	Yes	No
7001	4194449	unix / Please umount the filesy stem, and rectify the problem*	Yes	No
7001	4194448	unix / *I/O error in filesystem	Yes	No

7001	4194447	unix / * meta-data dev * block * tting down filesystem:*	Yes	No
7001	4194446	unix / *Superblock write error detected while unmounting files ystem * Filesystem may not be m arked shared readonly	Yes	No
7001	4194445	unix / *Corruption of in-memory data detected. Shutting down filesystem*	Yes	No
7001	4194444	unix / *filesystem is corrupt, unmount and run xfs_repair	Yes	No
7001	4194443	unix / *corrupt *inode*in files ystem*Unmount and run xfs_repai r.	Yes	No
7001	4194442	unix / * mtr*: unable to alloca te buff memory: *	Yes	No
7001	4194441	unix / * mtr*: kmem_zalloc fail ed*	Yes	No
7001	4194440	unix / * mtr*: could not alloca te pio map.	Yes	No
7001	4194439	unix / * mtr*: bad EDT ctlr ent ry.	Yes	No
7001	4194438	unix / * mtr*: SIOCSIFADDR(AF_R AW) failed	Yes	No
7001	4194437	unix / * mtr*: possible lockup: *	Yes	No
7001	4194436	unix / * mtr*: failed to alloca te memory for TX & RX: kvpalloc *	Yes	No
7001	4194435	unix / * mtr*: SIOC_TR_RESTART failed:*	Yes	No
7001	4194434	unix / * mtr*: SIFINT_ADAPTER_C HECK*	Yes	No
7001	4194433	unix / * mtr*: no memory or io base register!	Yes	No
7001	4194432	unix / * mtr*: SIOC*MULTI: srb_ used:*	Yes	No
7001	4194431	unix / * mtr*: mtr_watchdog*	Yes	No
7001	4194430	unix / * mtr*: mtr_output*	Yes	No
7001	4194429	unix / * mtr*: POLLING_SIFINT:	Yes	No
7001	4194428	unix / Filesystem on device may be corrupted: unmount and fsck it.	Yes	No
7001	4194427	unix / * Directory [0-9]* is co	Yes	No

7001	4194426	unix / NFS server: increase svc _maxdupreqs from [0-9]*	Yes	No
7001	4194425	unix / wid [0-9]* already swapp ing buffers	Yes	No
7001	4194424	unix / crimeError: resetting gr aphics from *	Yes	No
7001	4194423	unix / crime: unknown ioctl *	Yes	No
7001	4194422	imdmonitor / il8n*	Yes	No
7001	4194421	unix / Wacom failed init * No t ablet*	Yes	No
7001	4194420	unix / * ECC Error in * side of .IMM Slot [0-9]**	Yes	No
7001	4194418	unix / Nonrecoverable memory pa rity error detected *	Yes	No
7001	4194416	unix / ALERT: arp: host with MA C address * is still using my I P address *	Yes	No
7001	4194415	unix / ALERT: arp: host with MA C address * is using my IP addr ess *	Yes	No
7001	4194414	unix / NOTICE: SCSI tape #0,3 I ncompatible media in drive, may be blank tape or wrong tape ty pe	Yes	No
7001	4194413	unix / ALERT: SCSI tape #* Exce ssive write errors	Yes	No
7001	4194412	unix / NOTICE: SCSI tape #* Inc ompatible media when reading	Yes	No
7001	4194411	unix / dks*: [Alert] *	Yes	No
7001	4194410	mediad / couldn't find DSO for device at SCSI ctlr *	Yes	No
7001	4194409	mediad / can't open CD-ROM * I/ O error	Yes	No
7001	4194408	mediad / can't read sector [0-9]* of device *	Yes	No
7001	4194407	mediad / * sector size of [0-9] * too large for HFS	Yes	No
7001	4194406	mediad / The file system on dev ice: * cannot be mounted	Yes	No
7001	4194405	fam / imon event queue overflow	Yes	No
7001	4194404	fam / can't open /dev/imon	Yes	No
7001	4194403	unix / XFS read error in file s ystem meta-data block [0-9]*	Yes	No
7001	4194402	unix / XFS write error in file	Yes	No

7001	4194401	system meta-data block [0-9]* unix / * Process * ran out of disk space	Yes	No
7001	4194400	unix / Process * ran out of contiguous space	Yes	No
7001	4194399	unix / Ancestor inode [0-9]* is not a directory	Yes	No
7001	4194397	unix / Process * pid [0-9]* killed: not enough memory to grow stack	Yes	No
7001	4194396	unix / Process * pid [0-9]* killed: not enough memory to lock stack	Yes	No
7001	4194395	unix / Process * pid [0-9]* killed: process or stack limit exceeded	Yes	No
7001	4194394	unix / ALERT: Process * generated trap, but has signal [0-9]* held or ignored	Yes	No
7001	4194393	unix / Process * pid [0-9]* killed due to no more swap space	Yes	No
7001	4194392	unix / Process * pid [0-9]* killed due to bad page read	Yes	No
7001	4194391	unix / Swap * failed on logical swap [0-9]* blkno 0x* for process *	Yes	No
7001	4194390	unix / Process * pid [0-9]* killed due to insufficient memory/swap.	Yes	No
7001	4194389	unix / Memory Deadlock with no one to kill!	Yes	No
7001	4194388	unix / Swap allocation overflow?	Yes	No
7001	4194387	unix / Paging Daemon (vhand) not running. NFS server down?	Yes	No
7001	4194386	unix / Read error in swap (kstack ext) for pid [0-9]* - process cannot be run again unless this is corrected	Yes	No
7001	4194385	unix / Read error in swap for pid [0-9]* - process cannot be run again unless this is corrected	Yes	No
7001	4194384	unix / * - out of logical swap space during *	Yes	No

7001	4194383	unix / Failed to add swap file * error [0-9]*	Yes	No
7001	4194382	unix / Swap out failed on logic al swap [0-9]* blkno * for proc ess [vhand]	Yes	No
7001	4194381	unix / vhand runing low on swap handle lists, only [0-9]* left	Yes	No
7001	4194380	unix / rtodc: preposterous time in tod chip:*	Yes	No
7001	4194379	unix / IO4 NVRAM/time-of-day ch ip reports invalid RAM or time*	Yes	No
7001	4194378	unix / Environment segment inva lid! Unable to program FLASH RA M	Yes	No
7001	4194377	unix / Environment segment inva lid! Unable to zero FLASH RAM	Yes	No
7001	4194375	unix / Process [0-9]* * sent SI GBUS due to Bus Error	Yes	No
7001	4194374	unix / Process [0-9]* * sent SI GBUS due to Memory Error in SIM M *	Yes	No
7001	4194373	unix / * SCSI Bus=[0-9]* ID=[0- 9]* LUN=[0-9]*: SCSI cmd=0x[0-9]* timeout after [0-9]* sec *	Yes	No
7001	4194372	unix / Integral SCSI bus * rese t	Yes	No
7001	4194368	unix / * BIST Fails - slot [0-9]*, Code *	Yes	No
7001	4194367	unix / * BIST Timed Out (3 seco nds) - slot [0-9]*	Yes	No
7001	4194366	unix / SCSI tape * Uncorrectabl e media error	Yes	No
7001	4194365	unix / SCSI tape * Hardware err or, Non-recoverable	Yes	No
7001	4194363	unix / SCSI tape * Unrecoverabl e media error	Yes	No
7001	4194361	unix / SCSI tape * requires cle aning	Yes	No
7001	4194360	unix / plp: free context out of order	Yes	No
7001	4194359	unix / plp: memory error occure d during a DMA transation.	Yes	No
7001	4194358	unix / plp: context IRQ out of order	Yes	No
7001	4194357	unix / plp: init failed, out of	Yes	No

7001	4194356	memory for ecplp driver. unix / attempt to disconnect non-existent IOC3 at * ts	Yes	No
7001	4194355	unix / out of IOC3 configuration	Yes	No
7001	4194353	unix / ALERT: SCSI controller [0-9]* detected pci error *	Yes	No
7001	4194352	unix / ALERT: SCSI controller [0-9]* detected bus reset by external device.	Yes	No
7001	4194350	unix / ALERT: SCSI controller [0-9]* detected unexpected bus failure.	Yes	No
7001	4194349	unix / ALERT: SCSI controller [0-9]* detected parity error.	Yes	No
7001	4194348	unix / ALERT: SCSI controller [0-9]* detected internal error.	Yes	No
7001	4194347	unix / SCSI disconnection must be enabled in order for tag queuing to work ([0-9]*,[0-9]*).	Yes	No
7001	4194346	unix / SCSI command * for ([0-9]*,[0-9]*) rejected because its size too large, increase maxdmasz.	Yes	No
7001	4194345	unix / SCSI bus reset on controller [0-9]*.	Yes	No
7001	4194344	unix / SCSI CDROM at ([0-9]*,[0-9]*) failed.	Yes	No
7001	4194343	unix / SCSI hard error on ([0-9]*,[0-9]*).	Yes	No
7001	4194342	unix / unix: SCSI overflow or underflow on *	Yes	No
7001	4194341	unix / SCSI command on ([0-9]*,[0-9]*) timed out after [0-9]* secs.	Yes	No
7001	4194340	unix / SCSI controller [0-9]* initialization failed.	Yes	No
7001	4194339	unix / XFS: xlog_recover_do_inode_trans: bread error *	Yes	No
7001	4194338	unix / XFS: xlog_recover_do_buffer_trans: bread error *	Yes	No
7001	4194337	unix / xfs_log_recover: unknown buffer type *	Yes	No
7001	4194336	unix / XFS: error writing log buffer lock *	Yes	No
7001	4194335	unix / XFS: error reading log buffer	Yes	No

7001	4194334	unix / reclaim_locks: invalid N LM version: [0-9]*	Yes	No
7001	4194333	unix / Incore quota table overf low. lboot(1M) with larger valu e for NDQUOT	Yes	No
7001	4194332	unix / inode 0: illegal mode 0	Yes	No
7001	4194331	unix / ec[0-9]*: TX memory read error	Yes	No
7001	4194330	unix / ec[0-9]*: RX error, data FIFO overflow	Yes	No
7001	4194329	unix / ec[0-9]*: phy device not found, probe failed	Yes	No
7001	4194328	unix / ec[0-9]*: could not set interrupt vector	Yes	No
7001	4194327	unix / ef[0-9]*: link fail - ch eck ethernet cable	Yes	No
7001	4194326	unix / ec[0-9]*: can't allocate space for transmit descriptors	Yes	No
7001	4194325	unix / ec[0-9]*: can't allocate space for receive descriptors	Yes	No
7001	4194324	unix / ec[0-9]*: auto-negotiati on fail!	Yes	No
7001	4194323	unix / ec[0-9]*: auto-negotiati on timeout!	Yes	No
7001	4194322	unix / ec[0-9]*: only 10Mbit on -chip PHY was found!	Yes	No
7001	4194321	unix / ec[0-9]*: late collision	Yes	No
7001	4194320	unix / *no carrier: *	Yes	No
7001	4194315	rexid / Out of ptys: *	Yes	No
7001	4194314	satd / all output paths full -- system shutdown in 10 seconds!	Yes	No
7001	4194313	satd / Satd recovery failure! System will probably hang soon.	Yes	No
7001	4194310	mount_hfs / HFS filesystem writ e error, block [0-9]*: *	Yes	No
7001	4194309	mount_hfs / HFS filesystem read error, block [0-9]*: *	Yes	No
7001	4194308	mount_hfs / file system corrupt ed *	Yes	No
7001	4194307	inetd / * server failing (loopi ng), service terminated	Yes	No
7001	4194306	vacation / can't exec *	Yes	No
7001	4194304	vacation / no such user uid *	Yes	No

ESP Error Codes

This chapter lists the error codes that the Web-based interface displays. When an error occurs, the interface displays more information about what you should do to recover from the error.

Generic Errors

Code	Description
-1	Generic error

Event Manager Errors

Code	Description
1	Forwarding path is missing
2	Consumer is missing
3	Invalid consumer definition
4	Invalid event
5	Invalid format
6	Invalid DSO
7	Invalid function name
8	Wrong value
9	System error
10	Network error
11	Memory allocation failure
12	Duplicate subscription

Code	Description
13	No such subscription
14	Address resolution error
15	Event translation error
16	Operation timeout
17	No such file
18	No administrative permissions

SGM Error Codes

Code	Description
100	System error
101	Lower layer error
102	Event allocation error
103	Timeout
104	Delivery error
105	Invalid format
106	Invalid parameter value
107	Invalid response ID
108	No response ID
109	No subscription status
110	Database error
111	File access error
112	File save error
113	No system information
114	No site information
115	Tool table information missing
116	No profile information

Code	Description
117	hinv table information missing
118	No SGM information
119	Invalid system role
120	No peer information
121	System is unreachable
122	Already subscribed
123	New role is incompatible
124	No such SGM
125	No license
126	Invalid Destination
127	SGM no response
128	Authorization failure

ESP Execution Errors

Code	Description
200	Memory allocation error
201	Processing error
202	Event profile read error
203	Event profile entry error
204	Unknown section
205	Incomplete definition
206	Invalid event type definition
207	Invalid event action definition
208	Duplicate system
209	Invalid system ID
210	Duplicate event attribute

Code	Description
211	Missing system serial number
212	Registration event (Availability class) is disabled (not used)
213	Missing Configuration profile
214	Group operation error
215	Duplicate call log setting
216	Incorrect argument
217	Invalid user
218	Duplicate system group name
219	Missing customer information profile
220	Missing or expired SGM license
221	This operation is not allowed for ESP 2.0 client
222	ESP 2.0 client error
223	System time (ctime) on a client and SGM server is not synchronized
224	System must be unsubscribed before deletion