Sun StorEdge™ Component Manager 2.1 Software

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Positioning

Introduction

Sun StorEdge™ Component Manager 2.1 software is a tool for controlling and monitoring the physical attributes of one or more Sun StorEdge A5X00 arrays or Sun StorEdge T3 arrays. It provides monitoring and management of array enclosures that are connected to a SPARC™ platform running the Solaris™ 2.6, 7, or 8 Operating Environment.

This software allows the user to perform unique control directives on some of the components (for example powering off a disk). In addition, Sun StorEdge Component Manager software affords constant monitoring of the Sun StorEdge A5X00 enclosures or Sun StorEdge T3 arrays and is capable of providing alarm notification and remote reporting (via e–mail, files, and system logging) upon detection of abnormal activities or conditions within a designated storage enclosure.

Note: *Note: Sun StorEdge Component Manager software does not manage the logical organization of stored data.*

Sun StorEdge Component Manager software is a Java™ technology–based storage management software plug–in that is accessible from the Sun StorEdge Management Console (SMC) software. SMC software serves as a storage management framework for Java technology–based management plug–ins, making it easier to operate, administer, and maintain storage area networks. The management GUI gives system administrators and service personnel a centralized point for storage administration. Sun StorEdge Management Console software enhances the reliability, availability, and serviceability (RAS) of storage assets. The SMC software implements elements of the specification for the Jiro™ open storage management platform to enable automated management services and interoperability across heterogeneous storage area networks.

Administrators and service personnel of supported arrays can use Sun StorEdge Component Manager's GUI and the Sun StorEdge Management Console software to:

- Monitor enclosures by using hardware polling, alarm notification, event logging, and remote reporting for abnormal conditions and activities
- Display the status of enclosures, enclosure components, and their associated properties
- Exercise control directives on some enclosure components, such as powering off a disk

New Features

The 2.1 release of Sun StorEdge Component Manager software includes support for the new Sun StorEdge T3 array, along with enhanced support for the Sun StorEdge A5X00 array. New or enhanced features include the following:

- Support for the Sun StorEdge T3 array
  - Physical view
  - LUN configuration
- Threading discovery and dynamic report/update
- The ability to discover enclosures asynchronously and also the during the start of the Sun StorEdge Component Manager software. The software will start very quickly and customers can see dynamically when each enclosure is done being discovered.

- Discovery mode vs. maintenance mode—instead of maintenance mode which turns off polling, discover mode will rediscover all enclosures.
- All polling intervals are now in the Sun StorEdge Component Manager software's configuration panel instead of in each enclosure configuration panel for ease of use.
- Polling intervals are saved between reboots.
- The system monitors for bad loops, if one is discovered and there is another path to the disks, the system has the capability to kill the laser or the loop.
- Two other features are provided with 2.1 release as a result of enhancements to the Sun StorEdge Management Console software:
  - Sun StorEdge T3 managed from Microsoft Windows NT operating environments
  - Integration with Sun Management Center (launching and alarm notifications)

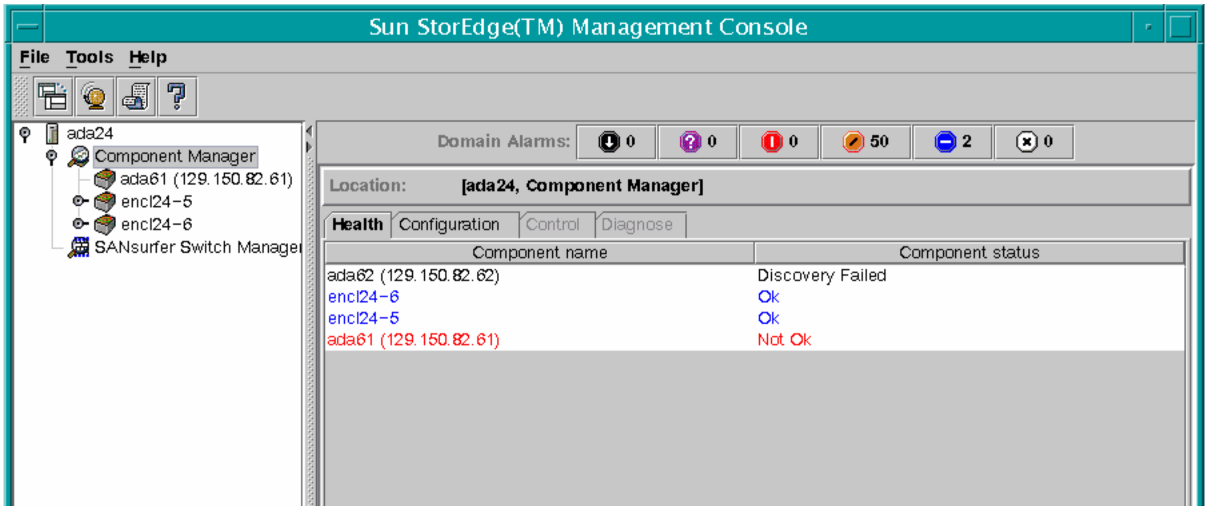
Key Features

Sun StorEdge Component Manager software allows administrators and service personnel to monitor, display, and control devices and activities within supported Sun StorEdge A5X00 arrays and Sun StorEdge T3 arrays. Descriptions for Sun StorEdge Component Manager software's basic functions follow.

Function	Description
Enclosure discovery	Identify the set of storage arrays and asynchronously associated enclosures managed by a host.
Enclosure monitoring—health	Monitor and log the operational status of one or more storage arrays and associated enclosures managed by a host.
Enclosure monitoring—alarm generation and viewer	Create, display, and manage alarms generated by abnormal events detected by Sun StorEdge Component Manager software. Notification can include a combination of visual alarms to the GUI and e–mail messages for remote reporting.
Enclosure management and control	Control storage array and associated enclosure components: blink LEDs; bypass disks, backplanes, and GBICs; and set enclosure names.
Log viewing	View log entries by administrator. Logging provides auditing results of tasks executed by Sun StorEdge Component Manager software, or provides information about a sequence of events.
Log file monitoring	Monitor a log file continuously for particular string patterns. Once a pattern is identified, rules that are preset in the application can trigger alarms or events.
LUN configuration	LUN creation, deletion, initializing, mounting and unmounting are available from the Configuration Tab, Logical View
Management from Microsoft Windows NT systems	Sun StorEdge T3 array can be managed from Microsoft Windows NT operating environments
Integration with Sun Management Center software	Sun StorEdge Management Console can be launched from Sun Management Center software.

The subsections within the GUI are the health, control, configuration, and diagnostics tabs. More detailed descriptions of each are in the following sections.

The Sun StorEdge Management Console GUI



Location: [ada24, Component Manager]

Component name	Component status
ada62 (129.150.82.62)	Discovery Failed
encl24-6	Ok
encl24-5	Ok
ada61 (129.150.82.61)	Not Ok

The Sun StorEdge Management Console launcher window presents a GUI for navigating through Sun StorEdge Component Manager software features. The main window includes a toolbar that the administrator can use to launch a new Sun StorEdge Management Console window, the alarm viewer, the log viewer, or online help. This window also includes management application tabs for health, configuration, and control, plus alarm status buttons.

Sun StorEdge Component Manager software and other Java technology–based Sun StorEdge management services rely on Sun StorEdge Management Console for the following functions:

- GUI navigation
- Common event notification
- Common logging
- Alarm generation
- Remote notification (phone home)
- Distributed managed object discovery and communications
- Persistent state
- Centralized point for storage administration

The Health Tab

The Health Tab allows the administrator to monitor the properties and status of selected hardware components. This section describes the individual properties and rules specific to each component. Rules define the conditions under which the user is notified through remote reporting when monitoring the Health module components. Rule evaluations are integrated into the Sun StorEdge Component Manager software.

Common examples of health monitoring include checking the following:

Firmware version of an enclosure
Loop configuration of the physical enclosure
Disk status and size
Temperature of an enclosure
A health summary of all the components within an enclosure

The Control Tab

The control tab allows the administrator to control the status of selected hardware components. Through this panel the user can power–cycle a disk, enable or bypass the Fibre Channel ports and “blink” the LEDs for maintenance purposes.

Disk status information is available through several buttons at the bottom of the control tab window:

- Power Up—Sets the drive to its normal start–up state.
- Power Down—Sets the disk to the drive off/unmated state. In this state, the disk is stopped and in bypass (power–save) mode. One should only power down a disk only when performing diagnostics or when you need to actually replace the disk.
- Blink LED—Requests the drive to begin blinking the LED associated with the disk.
- Stop Blink LED—Requests the drive to disable (turn off) the LED associated with the disk.
- Bypass port A—Bypasses port A of the disk.
- Bypass port B—Bypasses port B of the disk.
- Enable port A—Enables port A of the disk.
- Enable port B—Enables port B of the disk.

The Backplanes icon allows the user to select a specific backplane and then perform one of the following actions:

- Bypass Port A—Bypasses port A of the backplane.
- Bypass Port B—Bypasses port B of the backplane.
- Enable Port A—Enables port A of the backplane.
- Enable Port B—Enables port B of the backplane.

The Configuration Tab

This tab allows the user to perform the following tasks:

- Specify e–mail addresses and log files for remote reporting of alarms
- Disable alarms when hardware reconfiguration is necessary
- Customize time intervals for polling hardware components
- Change designated enclosure names

An important feature of Sun StorEdge Component Manager software is the remote repo

triggers an alarm summary which is then displayed on the AlarmBar of the Sun StorEdge Management Console. There are six categories that an alarm summary can fall into, and these are described in the table below.

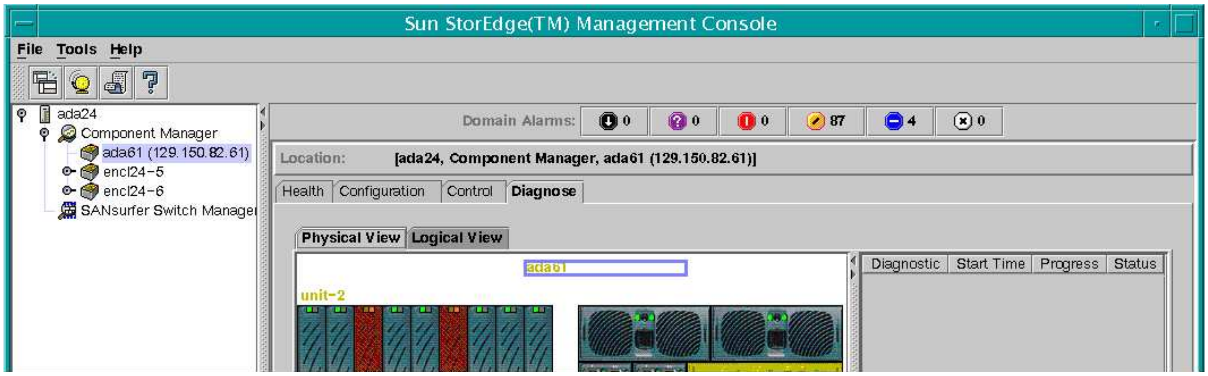
Name	**Description**
Down	The monitored object, itself, is not responding (that is, it is “down”).
Unknown	Immediate corrective action may be required.
Critical	An agent, module, or variable has entered a critical state on the host object. If an alarm or module dies, a critical alarm is generated by default. Additionally, the user may define certain thresholds for commonly monitored variables (for example, CPU usage) which will generate a critical alarm (for example, CPU usage over 97% generates a critical alarm).
Alert	A variable has entered an alert state on the host object. As with the critical alarm, the user may define thresholds for commonly monitored variables (for example, CPU usage) which will generate a critical alarm (for example, CPU usage over 70% generates an alert alarm).
Caution	A variable has entered a caution state on the host object. As with the critical and alert alarms, the user may define thresholds for commonly monitored variables (for example, CPU usage) which will generate a critical alarm (for example, CPU usage over 50% generates an alert alarm).
Off−Disabled	The alarm serves to notify other users (or remind the user who disabled the module) of the module’s state. The count on this button reflects the number of hosts whose highest alarm level is a module in the off−disabled state.

Log Viewer

Sun StorEdge Component Manager software logs an event for each monitoring or control operation performed, including failed operations. These logged events can then be viewed via the Log Viewer thus providing an audit trail which can be readily reviewed by date, category, or message string.

Log messages are presented in increments of 100, and a button is provided in the log viewer screen to allow the user to toggle between these groups of messages.

The Diagnostics Tab



Location: [ada24, Component Manager, ada61 (129.150.82.61)]

The Diagnostic Tab allows the user to run diagnostic tests on the Sun StorEdge T3 disk tray. With the diagnostics the user can test the health, the interconnect, and LUNs of the Sun StorEdge T3 array, and then view the results.

Primary Functions

- Volume (LUN) Verify—RAID parity error detection/resolution
  - Optionally fix the parity
  - Choose a rate of customer access vs. Sun StorEdge T3 array execution
  - Runs *online*
- Offline diagnostic (OFDG)—back–end loop test

  This is the loop to which the disks and expansion units are attached. The tests below must run *offline* in this release.

  1. health_check—perform fast_test on all loops in the system
  2. fast_test—perform a fast_test using patterns on ports in a loop
  3. test—perform a more comprehensive suite of test patterns
  4. fast_find—isolate to an enclosure or path between enclosures
  5. find—isolate to a cluster of disk within an enclosure

Utility Functions

- **History**

  The diagnostic history is composed of entries that provide information about diagnostic runs. The history is maintained at a Sun StorEdge T3 array system level within the diagnostic Sun Management Console layer of Sun StorEdge Component Manager software. A constraint has been set to three entries per component per test. The history may be viewed as either a summary entry in the right hand panel summary panel or, when a given summary information row is selected, as a details pop–up that conveys more information.

- **Syslog**

  The Sun StorEdge T3 array syslog is captured through http and saved in the diagnostic run for which it was generated. When a given summary row is selected, a viewer can be obtained to look at a more comprehensive view of the run. This viewer provides both sorting and filtering capabilities.

- **Remove**

  Remove applies to a given summary row that is selected. When the remove is done for the row then the associated viewer/syslog messages are also removed. Entries that are truly active will not be removed.

- **Remote alarms**

  Remote alarms will be generated for:

  - Diagnostic start and finish
  - Syslog monitor disconnect/restart
  - History persistence error/recovery

Product Family Placement

Sun StorEdge Component Manager software is one of Sun's first products that implements elements of the specification for the Jiro™ open storage management platform, which is designed to enable automated management services and interoperability across heterogeneous storage area networks.

Although the Sun StorEdge Component Manager 2.1 software's features consist of relatively basic display, monitoring, and command execution, in Sun's plans for future releases, the software's configuration, control, and monitoring features will be enhanced, and its capabilities will expand to allow it to serve as the diagnostic entry point for physical components deployed under Sun's storage network environment.

Availability

Sun StorEdge Component Manager 1.0 software became generally available for the Sun StorEdge A5X00 array family in October 1999.

Version 2.1 will be available starting July 11, 2000. This release adds support for the Sun StorEdge T3 arrays, and also includes a Diagnostics Tab specifically designed for the Sun StorEdge T3 arrays.

Target Users and Markets

Sun StorEdge Component Manager 2.1 software, and its prerequisite Sun StorEdge Management Console software, are intended for administrators and service personnel who install, monitor, and maintain both existing and new Sun StorEdge A5X00 arrays and Sun StorEdge T3 arrays. The software is applicable for all markets.

Selling Highlights

Market Value Proposition

Sun's competitors in the open storage market offer GUI–based monitoring and control software for their storage arrays. Sun needs effective enclosure management software to remain competitive. Sun StorEdge™ Management Console and Sun StorEdge Component Manager software are Sun's initial response to this critical need.

Sun StorEdge Management Console and Sun StorEdge Component Manager products enhance the overall reliability, availability, and serviceability features of Sun StorEdge A5X00 arrays and Sun StorEdge T3 arrays under their custody through:

- Enclosure discovery
- Intuitive health displays
- Alarm generation
- Log monitoring
- Hardware control
- Diagnostics services (Sun StorEdge T3 arrays only)

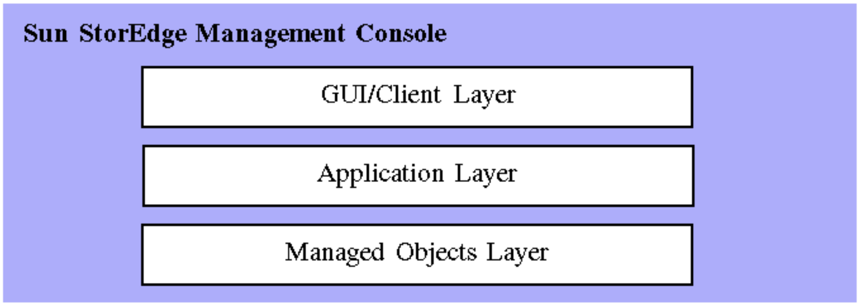
Compatibility

The Sun StorEdge Component Manager software controls and monitors one or more Sun StorEdge arrays and their associated physical enclosures. Sun StorEdge Component Manager software version 2.1 supports Sun StorEdge A5X00 arrays and Sun StorEdge T3 arrays attached to SPARC™ platforms running the Solaris™ Operating Environment. In future releases of Sun StorEdge Component Manager software, Sun plans to support newly introduced Sun StorEdge arrays. No support is currently planned for the Sun StorEdge A1000/D1000, A3X00, and A7000 arrays.

Version 2.1 of the Sun StorEdge Component Manager software complements existing command–line actions supplied by `luxadm` and the StorTools™ utilities. This release for the Sun StorEdge A5X00 family incorporates many of the `luxadm` SCSI enclosure specification features into a more intuitive display. It also provides remote notification of anomalies through its integration with "phone home" utilities.

System Architecture

Sun StorEdge™ Component Manager software is a client−agent model application. The client part is a lightweight Java™ technology−based application GUI. Sun StorEdge Component Manager software's GUI and underlying management services run as plug−ins under the Sun StorEdge Management Console software. The agent part is also written in the Java programming language, and runs on a Solaris™ Operating Environment server (host) to which the storage enclosure is attached.



Sun StorEdge Component Manager software is comprised of three layers:

- The top layer is the GUI/client layer that accepts user commands and reports results.
- The middle layer is the application layer that contains the logic to initiate data acquisition, process information, and schedule and generate sets of actions.
- The bottom layer is the managed−objects layer that performs hardware commands to satisfy requests through the underlying Java Native Interface (JNI).

The three layers communicate through distributed−object management facilities in the Sun StorEdge Management Console. The services provided by Sun StorEdge Management Console software can be seen as common facilities that all conforming management plug−ins employ to get their work done. Plug−ins, such as Sun StorEdge Component Manager software, must register their managed objects, relay significant events, issue alarms, and notify service personnel when abnormal behavior occurs. Rather than recreate those tasks for each new plug−in design, Sun StorEdge Management Console software supplies them as native functions.

Storage management plug−ins interact with the Sun StorEdge Management Console software on three levels. The user interfaces, GUI, and CLI−based, operate at the client layer, taking advantage of interactive navigation services. Intelligent configuration, control, diagnostic, and monitoring modules execute at the managed classes layer. Communications with the storage hardware and software in the form of commands and data acquisition are handled by the managed−object layer.

Sun StorEdge Component Manager software addresses remote monitoring requirements by taking advantage of the remote notifications services supplied by the Sun StorEdge Management Console software. Today these include log file entries and e−mail notifications.

Many system administrators and service personnel currently employ the command−line based administrative utility, `luxadm`, bundled with the Solaris Operating Environment for controlling and monitoring Sun StorEdge arrays. Sun StorEdge Component Manager software supplements `luxadm` by providing a GUI for many of the SCSI enclosure specification options available under `luxadm`. Future releases of Sun StorEdge Component Manager software will increasingly address other `luxadm` features.

Sun StorEdge Component Manager software resides in the Sun StorEdge Management Console launcher. The launcher window provides a graphical user interface (GUI) that allows the user to navigate through the Sun StorEdge Component Manager software's features and functions.

Features and Benefits of Sun StorEdge Management Console

Sun StorEdge Management Console software delivers an easy–to–use management facility for Sun StorEdge arrays providing high reliability, availability, and serviceability.

Features	Benefits
• GUI navigation	• Provides consistent look and feel across plug–ins through interactive navigation features • Display is organized as a hierarchical object–selection tree in the left frame and a plug–in display panel on the right • Operational roles are segregated by distinct tabs for configuration, control, health monitoring, and diagnostics
• Common event notification	• Events generated by managed objects may be directed or multicast to selected listeners • Allows all applicable plug–ins to recognize important changes in the storage environment
• Alarm generation	• Alarm generation, display, and management facilities are shared by plug–ins, and appropriately prioritized
• Common logging	• Critical events are placed in a shared, time–stamped log • Events can be centrally viewed and correlated to simplify behavioral and failure analysis
• Remote notification	• Plug–ins can issue e–mail notification when specific conditions are met • Allows pager notification for prompt administrative attention
• Distributed object management	• Interprocess communication among management plug–ins is orchestrated through the Sun StorEdge Management Console software and its distributed object kernel • Includes registration, look–up, and messaging
• Persistent state	• Configuration information and state variables are maintained non–volatile on behalf of plug–ins • Maintains checkpoint information for smooth recovery following task and system restarts
• Policy automation engine	• Provides framework for establishing storage management policies across plug–in domains • Supports increasingly intelligent and automated storage operations, minimizing human intervention

Features and Benefits of Sun StorEdge Component Manager Software

Features	Benefits
• Summary and detail views in health displays	• Monitors entire configuration from a single screen, yet drills down to individual components
• Automatic discovery of array enclosures	• Helps reduce administrative effort
• Remote notification through e–mail and log files	• Helps detect problems early
• Enclosure management	• Controls storage arrays and components; blink LEDs; bypasses disks, backplanes, and GBICs; sets enclosure names
• Change component state from the attached host through Control panels	• Centralizes command over physically distributed arrays
• Enclosure monitoring	• Monitors and logs operational status and enclosures attached to a host • Creates, displays and manages alarms; (notification includes GUI alarms and e–mail messages)
• Interaction with graphical objects via GUI	• Allows more intuitive administration with fewer errors
• Identification of physical problems via alarms	• Correlates symptoms to root cause
• Enclosure discovery	• Identifies storage arrays and components attached to a host
• Log viewing	• Views log updates; audits results of commands and provides information about sequences of events
• Log file monitoring	• Monitors continuously for string patterns; once identified, preset rules trigger alarms or events

Properties and Rules for Sun StorEdge A5X00 Arrays

For a more precise view of what users can accomplish with Sun StorEdge Component Manager software, the following table outlines the implemented properties and rules for system log and alarm generation.

Physical Attributes	Properties	Rules for Log and Alarm Generation
Enclosure	Name; status; box, product, and vendor IDs; firmware, ANSI, ISO, and ECMA revisions; physical path; port; serial number; and node worldwide name	• Changes to enclosure name * • Detection of critical, unrecoverable, or unknown condition

Physical Attributes	**Properties**	**Rules for Log and Alarm Generation**
Disk	Disk status; loop status; disk location; disk capacity; node worldwide name; product ID; vendor name; firmware, ANSI, ISO, and ECMA revisions; serial number; logical and physical path names; worldwide names and status for Ports A and B; and CRC error count	• Disk powered On or Off * • Disk bypassed by user or device (Port A or B) * • LED turned On or Off, or set to blink * • Disk drive failures • Detection of unknown condition
GBIC	GBIC, transmission, receiving, enabling, and operating status; GBIC revision	• GBIC enabled * • GBIC not available or failure • Detection of unknown condition
Power Supply	• Status and revision	• Power supply not available • Detection of unknown condition • Power supply failures
Temperature	• Status and temperature (Celsius reading)	• Temperature element not available • Detection of critical, unrecoverable, or unknown condition
Fan	• Status, speed, and revision	• Fan tray not available • Detection of critical, unrecoverable, or unknown condition
Interconnect	• Loop status and configuration	• Loop not available or not installed • Detection of unknown condition
Backplane	Backplane status, status for Ports A and B, backplane revision	• Backplane Port A or B bypassed * • Backplane disabled • Detection of critical, unrecoverable, or unknown condition • Average temperature exceeds 64°C, or is 60°C to 65°C for 10+ minutes
Interface Board	Interface board status and over temperature; status of interface board loops 0 and 1, interface board revision	• Interface board not available • Interface board failures • Detection of unknown condition
Motherboard	Motherboard status, EPROM status, motherboard revision	• Motherboard not available • Motherboard EPROM failure • Detection of unknown condition
* Conditions so noted generate only a system log message. All other conditions generate both a system log message and an alarm message. Whenever an alarm message is generated, a remote support notification is also triggered.		

For more information about the user interface, see the *Sun StorEdge Component Manager 2.1 User's Guide, For Sun StorEdge A5X00 Subsystems* (P/N 806–0160–05).

Properties and Rules for Sun StorEdge T3 Arrays

For a more precise view of what users can accomplish with Sun StorEdge Component Manager software, the following table outlines the implemented properties and rules for system log and alarm generation.

Physical Attributes	**Properties**	**Rules for Log and Alarm Generation**
System	Status; last polled time; system name; revision; FRU count; ports; fiber ports; volumes; rebooted on; IP address; subnet mask; gateway; boot delay (seconds); spin delay (seconds); cache mode; cache mirror; multi−pathing support; OFDG (offline diagnostics; OFDG time slice (seconds); read ahead; disk reconstruction rate; unit stripe size (bytes); user; vendor; model; current time; time zone; has volumes.	• System shut down in n minutes • Connection to host failed • Sun StorEdge Component Manager software loses connection with Sun StorEdge T3 array during configuration • Any FRU is missing • FRU has been missing for 30 minutes
Unit	FRU status; operational status; unit id; standby; controller unit; last polled time; identification; errors; vendor; model; revision; serial number.	• FRU is missing • FRU has been missing for 30 minutes
Disk	Disk status; loop status; disk location; disk capacity; node worldwide name; product ID; vendor name; firmware, ANSI, ISO, and ECMA revisions; serial number; logical and physical path names; worldwide names and status for Ports A and B; and CRC error count	• Disk powered On or Off * • Disk bypassed by user or device (Port A or B) * • LED turned On or Off, or set to blink * • Disk drive failures • Detection of unknown condition
LUN	LUN name; status; ID; world wide name; cache mode; cache mirror; capacity; array width; RAID level; disabled disk ID; substituted disk ID; current operation; operation progress.	• Disk drive removed • Disk drive disabled • System area of disk drive is bad • Soft, firm or hard errors increasing in frequency • LUN status changes • Lost connection while performing a LUN operational • Another user creating a LUN
Interconnect Card	FRU status; operational status; loop mode; temperature; loop card cable−1 state; loop card cable−2 state; ID; errors; vendor; model; revision; serial number.	• Interconnect card not available • Interconnect cable not installed • Interconnect cable missing • Interconnect card disabled • Interconnect card has an error

Physical Attributes	**Properties**	**Rules for Log and Alarm Generation**
Power Module	FRU status; operational status; output; source; temperature; battery state; battery life(hours); battery life used; Fan−1 state; Fan−2 state; ID; errors, vendor; model; revision; serial number.	• Power supply unit missing • Power supply unit is over temperature • Fan fault exists on a power supply unit • DC of a power supply unit is not OK • Power supply unit has been disabled • Power supply unit is off • Power supply unit has switched to battery • Battery is missing from power supply unit • Battery is fully drained or approaching total battery life • Power supply unit has an error
Controller	FRU Status; operational status; operational state; role; temperature; identification; partner ID; cache size; console baud rate; can be disabled; errors; vendor; model; revision; serial number	• Controller is missing • Controller has been disabled • Controller role change takes place • Controller error detected • Connection lost during enable/disable operation
Fibre SCSI	Operational status; fiber ALPA mode; ALPA port; identification; errors; type; FRU Id; Sun host	• Port not available • Unknown condition detected • Unable to contact host • Connection lost during configuration operation
* Conditions so noted generate only a system log message. All other conditions generate both a system log message and an alarm message. Whenever an alarm message is generated, a remote support notification is also triggered.		

Version 2.1 Limitations

Limitations of Sun StorEdge Component Manager software version 2.1 include the following:

- No support for multi−host management of a shared array and its associated enclosure
- Cannot be launched from a Web−based browser (planned for future releases)
- No SNMP support (planned for future releases)
- Not qualified for use in a clustered environment

Requirements and Configuration

Supported Platforms

Sun StorEdge™ Component Manager software currently supports the Sun StorEdge A5X00 and T3 arrays. Future releases of Sun StorEdge Component Manager software will support new Sun StorEdge arrays and FC switches. No support is planned for the Sun StorEdge A1000/D1000, A3X00, or A7000 arrays.

Sun StorEdge Component Manager software is installed on Solaris™ Operating Environment–based server accessing the Sun StorEdge A5X00 or T3 arrays, not on the arrays themselves. The following platforms are supported:

- Sun Enterprise™ 10000 server
- Sun Enterprise 6X00 server
- Sun Enterprise 5X00 server
- Sun Enterprise 4X00 server
- Intel x86 running the Microsoft Windows NT environment (Sun StorEdge T3 array only)
- Sun Enterprise 3X00 server
- Sun Enterprise 250 server
- Sun Enterprise 450 server
- Sun Ultra™ workstations

Operating Environment

The Sun StorEdge A5X00 and T3 arrays are supported under the Solaris 2.6, 7, and 8 Operating Environment. The Microsoft Windows NT environment is also supported with Sun StorEdge T3 arrays.

Standards Supported

Sun StorEdge Management Console software implements elements of the Jiro™ open storage management platform specification. Sun StorEdge Component Manager software is the first in a family of Java platform–based Sun StorEdge management plug–ins that rely on Sun StorEdge Management Console software for base services. Future releases of these products are planned to be compatible with the Jiro platform, once the Jiro platform specification and reference implementation are complete and compatibility testing becomes available.

Sun StorEdge Component Manager 2.1 software implements a subset of SCSI enclosure specification (SES) commands for the Sun StorEdge A5X00 arrays.

Compatible Software

Sun Management Center 2.0 software may be used to launch the Sun StorEdge Management Console and obtain summary of Sun StorEdge Component Manager 2.1 software generated alarms.

Licensing/Usage

A binary code license is included with the software.

Localization

Software compliance with localization for Japanese, French, and Simplified Chinese users is scheduled for Q3CY00. The localized documentation set for Sun StorEdge Component Manager software (Install Guide, User Guide, and Release Notes) will address French, Japanese, Korean, Simplified Chinese, and Traditional Chinese language readers.

Ordering Information

The Sun StorEdge™ Management Console 2.1 and Sun StorEdge Component Manager 2.1 products ship on a common CD with software and documentation.

Sun StorEdge Software Product Ordering

The following part numbers should be ordered at no−charge when entering new orders for Sun StorEdge A5X00 arrays or Sun StorEdge T3 arrays.

Order Number	Title and Description
SCMMS−210−9P99	Sun StorEdge Component Manager 2.1 software for Sun StorEdge A5X00 or T3 arrays on Solaris™ Operating Environment, media, and documentation. Sun StorEdge Management Console software is included with this part number.

Note: *Sun StorEdge Management Console software is a prerequisite to the Sun StorEdge Component Manager product.*

Upgrades

Existing customers with Sun StorEdge A5X00 arrays on SunSpectrum℠ contracts attached to qualified Solaris Operating Environment based servers may request a no−cost upgrade to Sun StorEdge Component Manager 2.1 release software, using the part number listed above.

Service and Support

The SunSpectrum℠ program is an innovative and flexible service offering that allows customers to choose the level of service best suited to their needs, ranging from mission−critical support for maximum solution availability to backup assistance for self−support customers. The SunSpectrum program provides a simple pricing structure in which a single fee covers support for an entire system, including related hardware and peripherals, the Solaris™ Operating Environment software, and telephone support for Sun™ software packages. The majority of Sun's customers today take advantage of the SunSpectrum program, underscoring the value that it represents. Customers should check with their local Sun Enterprise Services representatives for program and feature availability in their areas.

FEATURE	SUNSPECTRUM PLATINUM℠ Mission−critical Support	SUNSPECTRUM GOLD℠ Business−critical Support	SUNSPECTRUM SILVER℠ Systems Support	SUNSPECTRUM BRONZE℠ Self Support
Systems Features				
Systems approach coverage	Yes	Yes	Yes	Yes
System availability guarantee	Customized	No	No	No
Account Support Features				
Service account management team	Yes	No	No	No
Local customer support management	No	Yes	No	No
Personal technical account support	Yes	Yes	Option	No
SunStart℠ installation service	Yes	No	No	No
Account support plan	Yes	Yes	No	No
Software release planning	Yes	No	No	No
On−site account reviews	Monthly	Semiannual	No	No
Skills assessment	Yes	No	No	No
Site activity log	Yes	Yes	No	No
Coverage / Response Time				
Standard telephone coverage hours	7 day/24 hour	7 day/24 hour	8 a.m.–8 p.m., Monday–Friday	8 a.m.–5 p.m., Monday–Friday
Standard on−site coverage hours	7 day/24 hour	8 a.m.–8 p.m., Monday–Friday	8 a.m.–5 p.m., Monday–Friday	N/A
7−day/24−hour telephone coverage	Yes	Yes	Option	Option
7−day/24−hour on−site coverage	Yes	Option	Option	N/A
7−day/12−hour on−site coverage	No	Option	No	No
5−day/24−hour on−site coverage	No	Option	No	No

FEATURE	SUNSPECTRUM PLATINUM Mission–critical Support	SUNSPECTRUM GOLD Business–critical Support	SUNSPECTRUM SILVER Systems Support	SUNSPECTRUM BRONZE Self Support
Coverage / Response Time (cont.)				
Customer–defined priority setting	Yes	Yes	Yes	Option
• Urgent (phone/on site)	Live transfer/ 2 hour	Live transfer/ 4 hour	Live transfer/ 4 hour	4 hour / N/A
• Serious (phone/on site	Live transfer/ 4 hour	2 hour/next day	2 hour/next day	4 hour / N/A
• Not critical (phone/on site)	Live transfer/ customer convenience	4 hour/ customer convenience	4 hour/ customer convenience	4 hour / N/A
2–hour on–site response	Yes	Option	Option	N/A
Additional contacts	Option	Option	Option	Option
Premier Support Features				
Mission–critical support team	Yes	For urgent problems	No	No
Sun Vendor Integration Program (SunVIP℠)	Yes	Yes	No	No
Software patch management assistance	Yes	No	No	No
Field change order (FCO) management assistance	Yes	No	No	No
Hardware Support Delivery				
Replacement hardware parts	On–site technician	On–site technician	On–site technician	Courier
Two day parts delivery	N/A	N/A	N/A	Yes
Overnight parts delivery	N/A	N/A	N/A	Option
Same–day parts delivery	Yes	Yes	Yes	Option
Remote Systems Diagnostics				
Remote dial–in analysis	Yes	Yes	Yes	Yes
Remote systems monitoring	Yes	Yes	No	No
Remote predictive failure reporting	Yes	Yes	No	No
Software Enhancements and Maintenance Releases				
Solaris Operating Environment enhancement releases	Yes	Yes	Yes	Yes
Patches and maintenance releases	Yes	Yes	Yes	Yes
Sun unbundled software enhancements	Option	Option	Option	Option
Internet and CD–ROM Support Tools				
SunSolve℠ license	Yes	Yes	Yes	Yes
SunSolve EarlyNotifier℠ Service	Yes	Yes	Yes	Yes

Warranty

Standard 90–day defective media and installation warranty for software.

Glossary

Alarm	An alarm is a means of notification that signifies a problem may need to be resolved, depending on the degree of severity. An alarm corresponds to informational or exceptional management conditions (such as monitored value exceeding a specified threshold) and may require administrative interaction.
FC−AL	Fibre Channel arbitrated loop. A 100 MB/sec. serial channel, which allows connection of multiple devices (disk drives and controllers).
FRU	Field replaceable unit. The FRU is a component that is easily removed and replaced by a Client Service Engineer (CSE), by design.
GBIC	Gigabit interface converter. A small, hot−pluggable optical/electrical conversion unit that converts standard Fibre Channel connector and signaling technologies to a standard copper serial connection.
GUI	Graphical user interface. The GUI provides the user with a method of interacting with the computer and its special applications, usually via a mouse or other selection device. The GUI usually includes such things as windows, an intuitive method of manipulating directories, files, and icons.
Hardware polling	The time interval that Sun StorEdge™ Component Manager software uses to poll and monitor the subsystem hardware components. The administrator can customize hardware polling by either changing the time interval or enabling the function to suit their needs.
Hot plug	This is the capability of a field replaceable unit (FRU) to be removed and replaced while the system remains powered on and operational.
IOPS	Input/output operations per second. This is a performance measurement of the transaction rate.
LUN	Logical unit number.
Polling	Hardware polling is the time interval that Sun StorEdge Component Manager software uses to poll and monitor the subsystem hardware components. You can customize hardware polling by either changing the time interval or by disabling or enabling the function to suit your own needs. Polling time intervals are measured in seconds, and can be customized to any value greater than 900 second (15 minutes), the default polling time.
Power/cooling unit	A component (FRU) in the Sun StorEdge T3 disk tray. It contains a power supply, cooling fans, and an integrated UPS battery. There are two power/cooling units in a Sun StorEdge T3 disk tray.
RAID	Redundant array of independent disks. A configuration in which multiple drives are combined into a single virtual drive, in order to improve performance and reliability.

Remote reporting	Sun StorEdge Component Manager feature that allows the administrator to designate recipients for the different levels of alarms, according to severity. Remote reporting also allows the administrator to specify files and file locations to accept alarm messages.
SNMP	Simple network management protocol. A network management protocol designed to give a user the capability to remotely manage a computer network.
UPS	Uninterruptible power source. This is a component within the power/cooling unit. It supplies power from a battery in the case of an AC power failure.

Materials Abstract

All materials will be available on SunWIN except where noted otherwise.

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
Powerpack				
– *Sun StorEdge™ Component Manager Software 2.1, Just the Facts*	Reference Material (this document)	Training Sales Tool	SunWIN, Reseller Web	121733
– *Sun StorEdge Management Console and Plug–ins*	Customer Presentation	Sales Tool	SunWIN, Reseller Web	110525
Product Literature				
– *Sun StorEdge A5X00 Array Just the Facts*	Reference Document on the Sun StorEdge A5X00 Arrays	Sales Tool Training	SunWIN, Reseller Web	73714
– *Sun StorEdge T3 Array Just the Facts*	Reference Document on the Sun StorEdge T3 Arrays	Sales Tool Training	SunWIN, Reseller Web	112864
– *Sun StorEdge Management Console Data Sheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web	110854
– *Sun StorEdge Management Console Data Sheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web	110173
– *Sun StorEdge Storage Management Software Product Line QRC*	Quick Reference Card	Sales Tool	SunWIN, Reseller Web	110494
– *Sun StorEdge Family Product QRC*	Quick Reference Card	Sales Tool	SunWIN, Reseller Web	73691
Videos				
– *Sun StorEdge Component Manager Support Readiness Training Video*	Training Video	Sales Tool Training	SunWIN, Reseller Web, COMAC	105320 ME2102–0
External Web Site				
– *Sun StorEdge Component Manager Software Site*	`http://www.sun.com/storage/software/componentmgr.html`			