

Sun StorEdge™ LibMON™ 2.0

Just the Facts



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Positioning

Background

Today's more powerful computers continue to amaze customers with their high performance and low cost. Yet, faster processors alone are not always adequate. Needing an increase in overall performance, users are often disappointed to find that upgrades to more powerful systems don't always yield the expected results. Upon investigation, they find that the storage system is the bottleneck, and an important lesson is learned: high performance processors must be balanced with corresponding improvements in storage systems.

The growing complexity of heterogeneous distributed systems and the extremely rapid growth of storage requirements are causing considerable interest in enterprise-wide solutions for backing up, restoring, and archiving data. Performing these tasks, however, is not simply accomplished by purchasing appropriate hardware. What is needed is a tool to monitor tape libraries that are used for backup and archival purposes.

Storage Management Systems

Today, tape libraries are sold as an intelligently managed collection of tapes organized to perform backup and archival tasks. The combination of tape libraries and intelligent software to manage tape libraries is commonly referred to as a subset of Storage Resource Management, or SRM. With increasing numbers of tape libraries and a higher demand for backup and archival solutions in mission-critical environments, Storage Resource Management systems have a number of requirements:

- **Reliability.** SRM software must implement the features necessary to provide accurate storage and retrieval of data that has been backed up and archived.
- **System Availability.** Many organizations run 24 hours a day, 7 days a week. In these environments, it is imperative for data that's been backed up to be available on demand.
- **Management of Large Amounts of Data.** User's are generating more data than ever before. Organizations need a method for organizing data (through activity) such that data reliability is maintained.
- **Simplified Administration.** Monitoring a large number of tapes can be daunting and challenging. SRM software must provide tools to ease this task.
- **Application Integration.** SRM software must fit seamlessly into existing customer server and client environments.

What is Sun StorEdge™ LibMON™ Software?

Whether using an individual tape drive or a large collection of tape libraries, users must find a consistent, intuitive means to monitor their tapes. It isn't enough to simply provide a large number of tape libraries to a user. It is essential that users be given the software to help them monitor and administer those tape libraries and take advantage of features that improve data integrity, reliability, and availability.

Sun StorEdge™ LibMON™ 2.0 software enables effective monitoring of tape libraries by addressing the following needs:

- Periodic polling of library activity
- Event logging and notification recording library events and notifying defined recipients of unusual actions so that problems can be identified and corrected
- Host-based software that lets administrators monitor tape libraries via a web browser enabled by Java™ technology

Key Messages

The key messages to remember when selling Sun StorEdge LibMON 2.0 software are:

- **Simplified Administration.** Sun StorEdge LibMON 2.0 software eliminates the need to understand proprietary commands as a prerequisite to operating a library by providing a friendly graphical user interface for point-and-click operation.
- **Improved Serviceability.** Serviceability is greatly improved through maintenance of library activity records and continuously updated status information.
- **Improved Availability.** Through physical and logical views of the library, and e-mail or pager notification, proactive, rather than reactive, measures can now be taken before disaster strikes.
- **Complements Traditional Data Management Solutions.** Sun StorEdge LibMON 2.0 software complements traditional data management solutions such as backup and archiving by making tape libraries centrally managed, shared resources that can be monitored from local or remote sites 24 hours a day.
- **Enterprise-Level Solution.** Sun StorEdge LibMON 2.0 software expands Sun's enterprise hardware, software and solutions offerings in the storage arena.

Product Availability

Sun StorEdge LibMON 2.0 software will be announced on September 1, 1998. It will be available to ship in volume on September 21, 1998.

Target Markets

Sun StorEdge LibMON 2.0 software is intended for both workgroup and enterprise level computing environments. More specifically, it is targeted at environments where backing up and archiving of data is being performed. It is anticipated that this software will be sold into the same markets as the tape libraries that it monitors—specifically, the targeted markets for the Sun StorEdge L140, L280, L400, L1000, L1800, and DDS-3 Autoloader.

Features and Benefits

Sun StorEdge LibMON 2.0 software provides customers with the following benefits:

Features

- LibAgent
- Physical and Logical Views of Libraries
- Web Browser Interface based on Java Technology
- Event Logging, E-Mail Support, and Pager Support
- Obfuscated Code
- Client Installation
- Library Availability-Based Actions
- Threshold-Based Actions

Benefits

- Remote detection of significant tape library events
- Improved availability and serviceability of tape libraries
- Simplified administration
- Improved serviceability
- Faster download of JAR/zip file to client machine
- No latency when the LibMON™ client is first started to download Java technology classes from server to client
- Benefits remote users accessing LibMON software via a slow modem connection
- Appropriate action is taken when tape library becomes unavailable
- Triggers both e-mail and pager (via scripts) notification
- Identify a potential problem before it causes a tape library to become unavailable
- Triggers both e-mail and pager (via scripts) notification

Technical Information

Overview

Sun StorEdge™ LibMON™ 2.0 software is a tape library administration and monitoring tool used to:

- set up and configure tape libraries for monitoring
- monitor the status of library robotics, drives, and cartridges
- view detailed tape library event information
- automatically notify tape library administrators of important events via e-mail
- automatically execute user-defined scripts when important events occur
- access service functions, such as downloading firmware and placing libraries on- or off-line

Architecture

The server is the computer to which tape libraries are attached and on which the administrator installs the LibMON™ software. Numerous tape libraries may be attached to the server, although performance for the server machine and the LibMON software deteriorates with more than four attached libraries. Tape libraries are connected to the same Sun server and this server is where LibMON server software is running. This is a single host solution: LibMON software cannot manage libraries that are not physically connected via SCSI to the server host.

The client is the computer used to access the LibMON URL and monitor the library. This may be the same computer as the server. To access the LibMON URL, Internet browser software must be installed on the client.

Navigating LibMON Software

LibMON Home Page

The LibMON Home Page is the first page you see each time you open LibMON. This page displays the tape libraries and graphically illustrates dynamic library event and summary information.

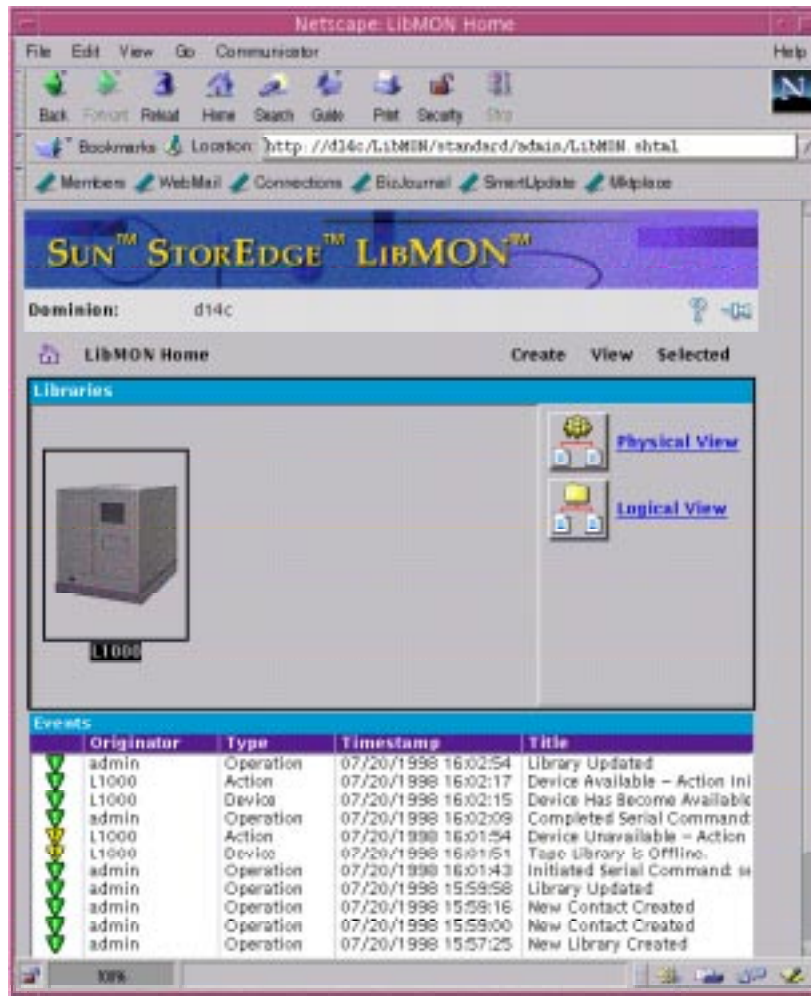


Figure 1. LibMON Home Page

The content area of the LibMON Home Page is divided into two management areas:

- The library management area, which displays summary information about monitored libraries
- The event management area, which displays summary information about library and Sun StorEdge LibMON system events

Navigating LibMON Software (cont.)

Physical View

The Physical View Page displays a physical representation of the library. The left side of the page shows an internal physical view of the library. Icons represent the media (tape cartridges) present in the storage bins, the import/export elements, the tape drives, and the robot. No icon is shown if the bin, drive or robot is empty. The icons also indicate whether the media has a bar code label or a cleaning tape.

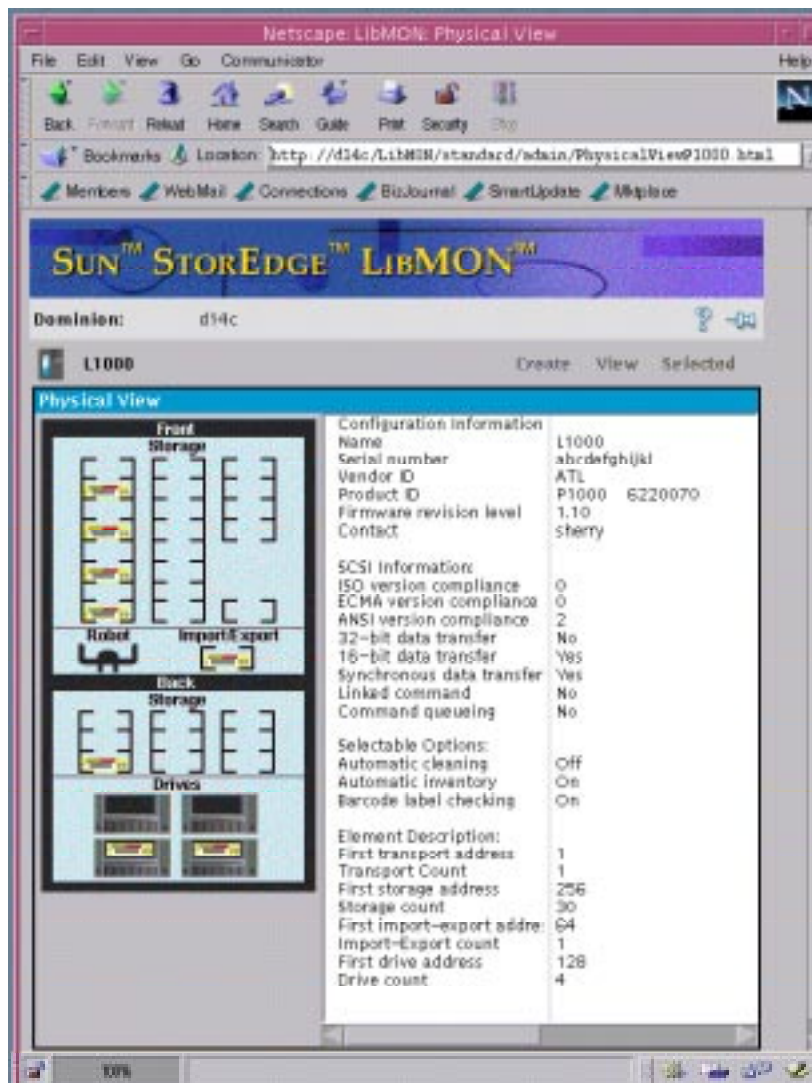


Figure 2. LibMON Physical View Page

Navigating LibMON Software (cont.)

Logical View

The Logical View Page displays the hierarchical representation of the library. The left side of the page displays the hierarchical tree structure that represents the internal components of the library. The right side of the page displays detailed library component information.

The physical and logical views display the same information, just in different formats.

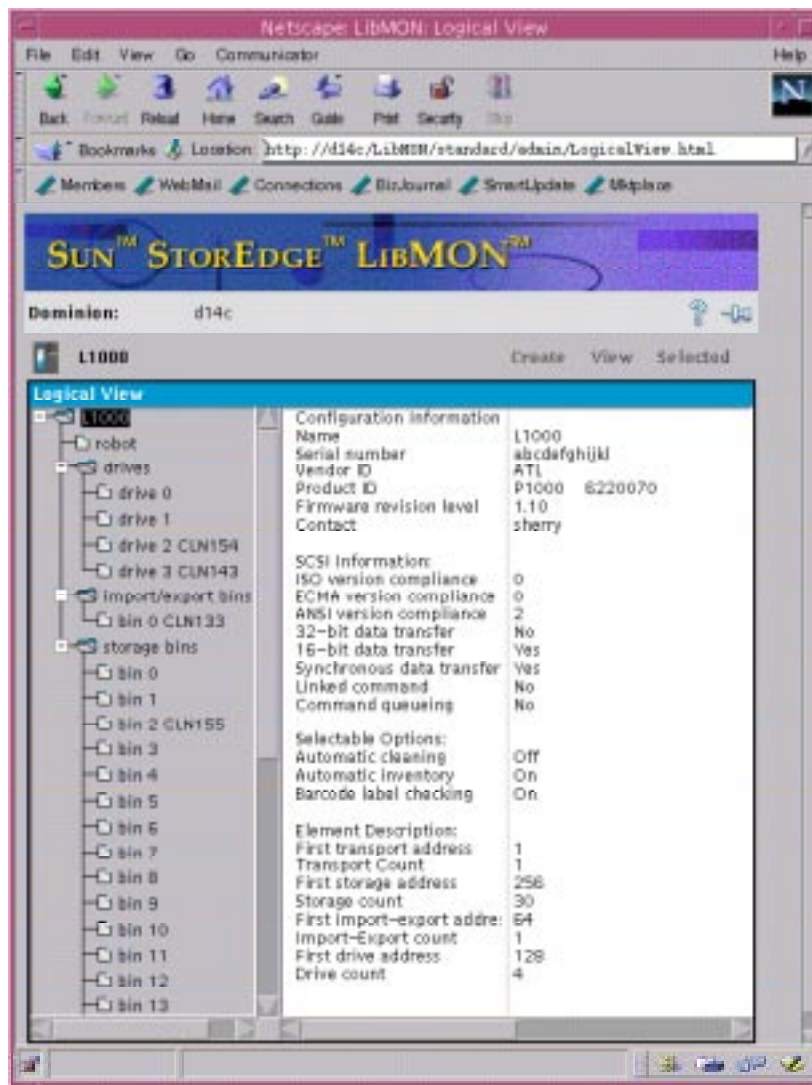


Figure 3. LibMON Logical View Page

Key Features

- **Increased Library Monitoring Accessibility**

Increased library monitoring accessibility is created through Sun StorEdge LibMON software's utilization of a GUI based on Java technology. Operators can therefore monitor their tape libraries via a web browser for remote management.

- **Internationalization**

Sun StorEdge LibMON 2.0 software will be localized for Japanese and English.

- **Obfuscated Code**

Obfuscated code compresses the size of Java technology class files, thus resulting in smaller files and faster download time.

- **Library Availability-Based Actions**

When a tape library becomes unavailable, library availability-based actions ensure user notification so that appropriate action can be taken. Therefore, the user can define that any library availability change can trigger the activation of an e-mail/pager notification and/or a user defined command. The user defined commands are defined using the LibMON description file that has a pre-defined format.

Library availability based actions that can initiate user-defined commands allows the customer to further tie LibMON 2.0 software into their applications used for daily notifications. For example, a company-accepting paging system could perhaps be integrated into all applications to provide a common notification method. Configuring commands to fit specific needs and requirements creates an effective tape library system.

- **Threshold-Based Actions**

Through threshold based action, the user is identified of potential problems before the problem causes the tape library to become unavailable. Therefore, the user can define thresholds to trigger the activation of an e-mail/pager notification and/or a user defined command. The user defined commands are defined using the Sun StorEdge LibMON description file that has a predefined format.

Once a library has been created, user-defined thresholds can be established for any medium changer or drive within the tape library. Each device will have a predefined set of threshold triggers based on the availability of log sense information for that device. Each threshold trigger can be configured individually to provide a high level granularity in this area.

- **Client Installation**

The Client Installation option is provided for system administrators who want to access LibMON software from a remote location connected via a slower modem or network. During client installation, the Java technology classes are downloaded and stored locally on the client's hard disk so that when LibMON software is started, the Java technology classes do not need to be downloaded over the network. A LibMON web page that provides both client installation instructions and a means to download classes to the client hard disk will be a part of the LibMON product.

Key Features *(cont.)*

- **LibAgent**

LibAgent allows remote detection of significant tape library events via any network management program. LibAgent is a storage library SNMP subagent that can be integrated with the Solstice™ Site Manager™ software. In addition, the agent technology that LibAgent is based on conforms to SNMP V1 specifications, which are supported by network management platform, such as HP OpenView, IBM NetView, and CA Unicenter's TNG.

SNMP Traps

Type	Description
Information	A check condition was detected that provides information about the tape library
Warning	A check condition was detected that provides information about the tape library that could indicate some sort of problem
Failure	A check condition was detected that provides information about the tape library that could indicate a hardware failure
Available	The library has returned to an available state
Unavailable	A check condition was detected that caused the library to transition to a unavailable state.

System Requirements

Sun StorEdge LibMON 2.0 software is a tape library management solution that can be used on Sun™ systems running the Solaris™ operating environment.

- Supported Platforms:
 - SPARCserver™ 5, SPARCserver 10, 20, and 1000E
 - SPARCcenter™ 2000E
 - Sun™ Enterprise™ Workgroup Servers (1, 2, 150, 250, and 450)
 - Sun Enterprise Server family (3000, 3500, 4000, 4500, 5000, 5500, 6000, 6500, and 10000)
- Supported Sun StorEdge Products:
 - L140
 - L280 (currently not supported; targeted for Q2FY99)
 - L400
 - L1000
 - L1800
 - L3500
 - DDS-3 Autoloader
- Requirements for servers based on SPARC™ Technology:
 - 64 MB or more of RAM
 - 50 MB or more of disk space
 - Swap space should be at least twice the amount of installed memory.
 - Solaris 2.5.1 and 2.6 operating environment
- Client requirements:
 - Solaris 2.5.1 or 2.6 operating environment
 - SPARCstation™ or better
 - 32 MB or more of memory
 - Microsoft Windows 95 or Windows NT operating environment
 - Pentium, Pentium Pro, or Pentium II processor (133 MHz or faster)
 - 32 MB or more of memory
 - Monitor with resolution of 800 x 600 or better
- LibAgent Requirements:
 - 20 MB or more of disk space for LibAgent and Solstice™ Enterprise Agents™ software (Version 1.1)
 - 64 MB or more of RAM
 - a CD-ROM drive connected to your system or another system on the network (to install LibAgent)
- Browser Requirements:
 - Browser must support Java Development Kit (JDK™) 1.1 or later
 - Netscape Communicator 4.05, HotJava™ 1.1.2, or Microsoft Internet Explorer 4.01

Ordering Information

Part numbers and product descriptions for Sun StorEdge™ LibMON™ 2.0 software are listed below.

Order Number	Description
LMD9S-200-E999	Sun StorEdge LibMON 2.0 Documentation, English
LMD9S-200-E99C	Sun StorEdge LibMON 2.0 Documentation, Japanese
LMN9S-200-E999	Sun StorEdge LibMON 2.0 media, documentation, and RTU for the L140, L400 or DDS-3 Autoloader, English
LMN9S-200-E99C	Sun StorEdge LibMON 2.0 media, documentation and RTU for the L140, L400 or DDS-3 Autoloader, Japanese
LMA9S-200-E999	Sun StorEdge LibMON 2.0 Base Pack (media, documentation and RTU) for the L1000, L1800 or L3500, English
LMA9S-200-E99C	Sun StorEdge LibMON 2.0 Base Pack (media, documentation and RTU) for the L1000, L1800 or L3500, Japanese
LMA9S-200-E9U9	Upgrade to Sun StorEdge LibMON 2.0 media, documentation, and RTU, English

Service and Support

The SunSpectrumSM program is an innovative and flexible service offering that allows customers to choose the level of service best suited to their needs æ 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 SolarisTM operating environment, and telephone support for Sun software packages. The majority of Sun's customers today take advantage of the SunSpectrum program, underscoring the value it represents. Customers should check with their local SunTM EnterpriseSM Services representative for program/feature variance and availability in their area.

FEATURE	SUNSPECTRUM SM PLATINUM SM Mission-Critical Support	SUNSPECTRUM SM GOLD SM Business-Critical Support	SUNSPECTRUM SM SILVER SM Systems Support	SUNSPECTRUM SM BRONZE SM 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	No	No
Account support plan	Yes	Yes	No	No
Software release planning	Yes	No	No	No
On-site account reviews	Monthly	Semi-annual	No	No
Skills assessment	Yes	No	No	No
Education coupons	Yes	Yes	No	No
Site activity log	Yes	Yes	No	No
Coverage Hours and Response Times				
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	N/A	N/A	N/A	N/A
7 day/12 hour on-site coverage	N/A	N/A	N/A	N/A
5 day/24 hour on-site coverage	N/A	N/A	N/A	N/A

FEATURE	SUNSPECTRUM PLATINUM Mission-Critical Support	SUNSPECTRUM GOLD Business-Critical Support	SUNSPECTRUM SILVER Systems Support	SUNSPECTRUM BRONZE Self Support
Customer-defined priority setting	Yes	Yes	Yes	Option
– Urgent (phone/on-site)	Live transfer/ 2 hours	Live transfer/ 4 hours	Live transfer/ 4 hours	4 hours / N/A
– Serious (phone/on-site)	Live transfer/ 4 hours	4 hours/next day	4 hours/next day	4 hours / N/A
– Not critical (phone/on-site)	Live transfer/ customer convenience	4 hours/ customer convenience	4 hours/ customer convenience	4 hours / N/A
2 hour on-site response	Yes	Option	Option	No
Additional technical contacts	Option	Option	Option	Option
Customer-defined priority setting	Yes	Yes	Yes	Option
– Urgent (phone/on-site)	Live transfer/ 2 hours	Live transfer/ 4 hours	Live transfer/ 4 hours	4 hours / N/A
– Serious (phone/on-site)	Live transfer/ 4 hours	4 hours/next day	4 hours/next day	4 hours / N/A
– Not critical (phone/on-site)	Live transfer/ customer convenience	4 hours/ customer convenience	4 hours/ customer convenience	4 hours / N/A
2 hour on-site response	Yes	Option	Option	No
Additional technical contacts	Option	Option	Option	Option
Customer-defined priority setting	Yes	Yes	Yes	Option
– Urgent (phone/on-site)	Live transfer/ 2 hours	Live transfer/ 4 hours	Live transfer/ 4 hours	4 hours / N/A
– Serious (phone/on-site)	Live transfer/ 4 hours	4 hours/next day	4 hours/next day	4 hours / N/A
– Not critical (phone/on-site)	Live transfer/ customer convenience	4 hours/ customer convenience	4 hours/ customer convenience	4 hours / N/A



Glossary

applet	A mini-application, created in the Java™ programming language, that allows for animation, data processing, or real time information updates. Each LibMON™ page is an applet.
CD-ROM	Compact disc read-only memory. A type of optical disc, capable of storing large amounts of data.
event	A change in the state of a library, possibly an error condition or a change in the LibMON database.
HTTP	Hypertext Transfer Protocol. A protocol used to transfer HTML code, Java programming language applets, and other information over a network or the Internet.
Java	Sun Microsystem's programming language for the Internet.
LibMON Home Page	The first page displayed when a user accesses LibMON. This page contains the library management area and the event management area. Both areas display summary information about libraries and events. The information displayed is user-configurable, as defined in the Sort Order and Display Attributes dialog boxes.
Logical View Page	A Sun StorEdge LibMON page that displays a hierarchical representation of a tape library and detailed information about each component in the library.
Manager	A Sun StorEdge LibMON components used to collect and present information about objects and services, and the relationships between them. In Sun StorEdge LibMON, there are three managers, the Library manager, the Event manager, and the Contact manager.
master agent	A process on a manager node that exchanges SNMP protocol messages with the SNMP network managers.
network manager	A system that is running network applications and can initiate SNMP set/get requests, receive set/get responses, and receive SNMP traps.
Physical View Page	A Sun StorEdge LibMON page that displays a physical representation of the tape library and detailed information about each component in the library.

SEA	Solstice™ Enterprise Agents™.
Solaris	An operating environment developed by Sun Microsystems, based on UNIX®.
SNMP	Simple Network Management Protocol. The Internet standard protocol that provides network management service. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network. SNMP-compliant devices, called agents, store data about themselves in Management Information Bases (MIBs) and return this data to the SNMP requesters.
tape drive	A device that reads from and writes data to a tape cartridge.
tape library	A robotic storage and retrieval system for tape cartridges, used mainly for backup and archival purposes.
trap	A message generated by an SNMP agent that reports an event on a managed system.
URL	Uniform Resource Locator. A server address used by clients, such as Web browsers, to access information over the network using HTTP and other protocols.
web browser	A client application that renders HTML code in a Graphical User Interface (GUI) and uses other Internet protocols to communicate with web servers. For example, Netscape Navigator™ is a web browser.
Web server	A server process that provides Web services based on HTTP and other Internet protocols.

Materials Abstract

All materials are available on SunWIN, except where noted otherwise.

Collateral	Description	Purpose	Distribution	Token # or Comac order #
Powerpack				
– <i>Just the Facts</i>	Reference guide for Sun StorEdge™ LibMON™ 2.0 software	Training Sales tool	SunWIN, Reseller web	92987
– <i>Customer Presentation</i>	Presentation on Sun StorEdge LibMON 2.0 software; slide notes for presentation	Sales tool	SunWIN, Reseller web	TBD
References				
– <i>Sun Product Intro</i>	Introduction e-mail	Sales tool	SunWIN, E-mail, Reseller web	92394
– <i>Data Sheet</i>	Data Sheet for Sun StorEdge LibMON 2.0 software	Sales tool	SunWIN, Reseller web	92837
External Web Sites				
– <i>Sun StorEdge LibMON 2.0 Product Overview</i>	http://www.sun.com/storage/software/lib_monitor.html			
Internal Web Sites				
– <i>Sun StorEdge LibMON 2.0 Product Information</i>	http://storageweb.eng/Product_Info/software/lib_monitor.html			

Internal Information

Sun™ Proprietary—Confidential: Internal Use Only

Competitive Information

There really is no competition for Sun StorEdge™ LibMON™ 2.0 software. This is the first product of its type offered in the marketplace.

ATL sells a product called WebAdmin. This is the same product as Sun StorEdge LibMON.

Future/Roadmap

Sun is currently in discussions with ATL (from whom Sun OEMs LibMON) about features for the next release of LibMON as well as the estimated first customer shipment date.

Internal Information