

StorageTek SL3000 Modular Library System

User's Guide



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Summary of Changes

Current Version – March 2011

Assigned new Oracle document part number and revision: E20875-01. Part number is referenced on the title page of this document.

Sun part number (316194401) and revision numbering system have been retired.

Updates to support the following features:

- New Oracle hardware activation files.
See [Chapter 3, "Hardware Activation Files"](#) on page 109.
- Distribution of the SL Console Web server and client via the Oracle E-Delivery website.
See ["Standalone SL Console Installation Tasks"](#) on page 97 and [Appendix D, "Web-launched SL Console Server"](#) on page 625.
- Redundant Electronics feature.
See [Chapter 7, "Redundant Electronics Management"](#) on page 359.
- Library auto clean.
See [Chapter 11, "Drive Cleaning"](#) on page 443.
- Cleaning cartridge import/export.
See ["Importing and Exporting Cleaning Cartridges"](#) on page 447.
- Diagnostic cartridge import/export.
See ["Importing and Exporting Diagnostic Cartridges"](#) on page 483.
- Multi Port Fibre Channel feature.
See ["Multi-Path Connections"](#) on page 52 and ["Display HLI Port Status"](#) on page 340.
- Support for IPv6. See ["IP Addresses"](#) on page 55 and ["Display Library Configuration Properties"](#) on page 343.

Revision History

Sun document part number: 316194401

Revision AD, June 2010

Former Chapter 3, “SL3000 Automated Library Operations”— Separated into the following chapters:

- [Chapter 5, “Library Management”](#)
- [Chapter 7, “CAP Management”](#)
- [Chapter 8, “Drive Management”](#)
- [Chapter 9, “Cartridge Management”](#)
- [Chapter 10, “Drive Cleaning”](#)
- [Chapter 11, “Robot and Power Supply Management”](#)

Hardware Activation Files for reviewing optional features activated on the library – See [Chapter 3, Hardware Activation Files](#) for details.

Revision AC, September 2009

Updated for the following features:

- Cleaning cartridge import – See the following sections for details:
 - [“CAP Assignment Mode” on page 81](#)
 - [“Managing Automatic Cleaning Through the SL Console” on page 92](#)
 - [“Change the CAP Assignment Mode for an FC-SCSI Library” on page 138](#)
 - [“Enter Cleaning or Diagnostic Cartridges” on page 183](#)
 - [“Eject Cleaning or Diagnostic Cartridges” on page 184](#)
- SCSI FastLoad – See the following sections for details:
 - [“SCSI FastLoad Feature” on page 94](#)
 - [“Configure SCSI FastLoad in a Non-Partitioned Library” on page 189](#)
 - [“Configure SCSI FastLoad for a Partition” on page 191](#)
- Barcode presentation – See the following sections for details:
 - [“Barcode Presentation” on page 88](#)
 - [“Configure Barcode Presentation in a Non-Partitioned FC-SCSI Library” on page 147](#)
 - [“Configure Cartridge Barcode Presentation for an FC-SCSI Partition” on page 149](#)
- Cartridge Table report – See the following sections for details:
 - [“Display Library Cartridge Information in Tabular Format” on page 151](#)

- Linux local operator panel – See the following sections for details:
 - “Virtual Keypad” on page 41
 - “Touch Screen Calibration” on page 42
 - “Re-calibrate the Local Operator Panel” on page 71
 - “Reset the Local Operator Panel Calibration” on page 74

Revision AB, May 2009

Updated for the following features:

- Access Expansion Module (AEM) – See the following sections for details:
 - “Access Expansion Module” on page 15
 - “CAP Operations” on page 79
 - “AEM Operations” on page 84
 - “Rotational and AEM CAP Management Tasks” on page 126
 - “Cartridge Management Tasks” on page 140
 - “AEM Safety Door Management Tasks” on page 198
 - “Partitions and Rotational and AEM CAPs” on page 159
 - “AEM Safety Door Utility Tasks” on page 205
 - “Manual Operation Tasks” on page 212
 - FIGURE B-5, “Access Expansion Module Walls” on page 248
- Non-disruptive library capacity changes. See “Non-disruptive Capacity Changes” on page 227.
- Non-disruptive partitioning. See “Non-Disruptive Partitioning” on page 164.
- Status alert messages. See “Status Alert Messages” on page 78.
- Library energy monitor reports. See the following:
 - “Display the “Last 24 Hours” Library Energy Monitor Report” on page 120
 - “Display the “Last Month” Library Energy Monitor Report” on page 122
 - “Display the “Last Year” Library Energy Monitor Report” on page 124
- Drive and media events reports. See the following:
 - “Display the Media Events Report” on page 165
 - “Display the Drive Events Report” on page 176
 - “Display the Drive Media Events Report” on page 178
- Log snapshot file. See the following:
 - “Library Log Snapshot File” on page 239
 - “Transfer the Library Log Snapshot File” on page 289

Revision A, April 2008

Initial release.

Preface

This guide is intended primarily for administrators and operators of Oracle's StorageTek SL3000 modular library system. It can also be used by Oracle partners and support representatives.

Most of the information in this guide pertains to the library hardware, Oracle's StorageTek Library Console, and related operations. For specific drive information or for client application software commands, see the appropriate drive or software documentation.

Deaf/Hard of Hearing Access to Oracle Support Services

Oracle customers have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/support/contact.html> or visit <http://www.oracle.com/accessibility/support.html> if you are hearing impaired.

Environmental Requirements – Airborne Contaminants

Control over contaminant levels in a computer room is an extremely important consideration when evaluating an environment. The impact of contamination on sensitive electronic hardware is well recognized, but the most harmful contaminants are often overlooked because they are so small.

Automated Tape Library components and electronics, tape drives, and media are subject to damage from airborne particulates. The operating environment must adhere to the requirements of:

ISO 14644-1 Class 8 environment

For more information refer to the *Data Center Site Planning Guide* on the Oracle Technology Network website.

For example:

Excessive concentrations of certain gases can accelerate corrosion and cause failure in electronic components. Gaseous contaminants are a particular concern in a computer room because of the sensitivity of the hardware.

TABLE 0-1 lists some recommendations for gaseous limits.

TABLE 0-1 Gas Limit Recommendations

Chemical Name	Formula	ASHRAE	OSH (PEL)	ACGIH	NIOSH
Acetic Acid	CH ₃ COOH	Not defined	10 ppm	Not defined	Not defined
Ammonia	NH ₃	3500 µg/m ³	350 ppm	25 ppm	Not defined
Chlorine	Cl ₂	2100 µg/m ³	31 ppm (c)	Not defined	0.5 ppm (c)
Hydrogen Chloride	HCl	Not defined	5 ppm (c)	Not defined	Not defined
Hydrogen Sulfide	H ₂ S	50 µg/m ³	320 ppm (c)	10 ppm	10 ppm
Ozone	O ₃	235 µg/m ³	30.1 ppm	Not defined	Not defined
Petrol-hydrocarbons	C _n H _n	Not defined	500 ppm	75 ppm	300 ppm
Sulfur Dioxide	SO ₂	80 µg/m ³	35 ppm	2 ppm	0.5 ppm (c)
Sulfuric Acid	H ₂ SO ₄	Not defined	1 ppm	Not defined	1 ppm (c)

PEL: Permissible Exposure Limit

ppm: Parts per million

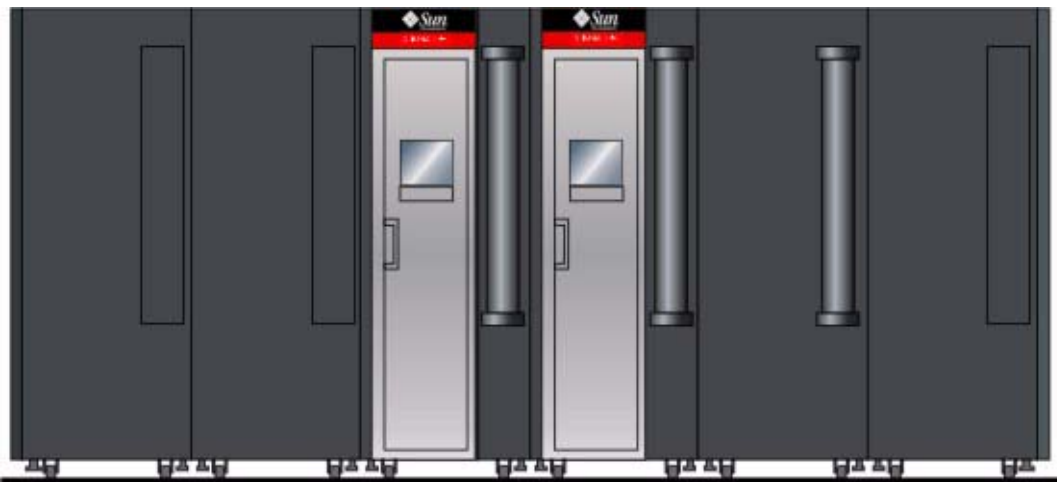
µg/m³: Micrograms per cubic meter

(c): ceiling

SL3000 Introduction

The SL3000 is the latest addition to Oracle's StorageTek modular library family, which includes the SL500 and SL8500 modular library systems.

FIGURE 1-1 SL3000 Modular Library System



This chapter introduces you to the SL3000 library and its components and configurations, including the following topics:

- [“SL3000 Features” on page 27](#)
- [“Modular Design” on page 28](#)
- [“Base Module” on page 32](#)
- [“Drive Expansion Module” on page 35](#)
- [“Cartridge Expansion Module” on page 38](#)
- [“Parking Expansion Module” on page 39](#)
- [“Access Expansion Module” on page 41](#)
- [“Tape Drives” on page 43](#)
- [“Cartridge Access Ports” on page 45](#)

- [“Robotics Units” on page 46](#)
- [“Power Options” on page 49](#)
- [“Cooling” on page 51](#)
- [“Interfaces” on page 52](#)
- [“Library Management Software” on page 57](#)
- [“Operating Modes” on page 59](#)

SL3000 Features

The SL3000 library offers customers the benefits of:

- Scalability in storage capacity from 200 to 5925 storage cells
- Performance from 1 to 56 tape drives
- Support of a variety of tape drives
- Oracle's StorageTek Any Cartridge, Any Slot support of mixed-media
- Heterogeneous attachments using standard interfaces
- Multiple library management software options and programs
- Support for Internet Protocol, version 6 (IPv6)

The SL3000 was designed to:

- Address medium to large open systems and entry-level mainframe markets.
- Occupy a standard datacenter footprint with measurements of approximately:
 - Height: 198 cm (78 in.),
 - Depth: 124 cm (48.8 in.),
 - Length: varies from 91.5 cm (36 in.) with one Base module, to 966.24 cm (380.4 in.) with the maximum twelve modules (Base, DEM, eight CEMs, and two AEMs).

Modular Design

The SL3000 library provides a modular design, which allows customers to meet the demands of a rapidly growing and constantly changing environment.

Modules

There are five types of modules in an SL3000 library. The Base Module is the only one that is required.

- [Base Module](#) – one only
- [Drive Expansion Module \(DEM\)](#) – one only, attached directly to the left side of the Base Module
- [Cartridge Expansion Module \(CEM\)](#) – up to eight total, with up to four on the left side of the Base Module (and optional DEM) and up to four on the right
- [Parking Expansion Module \(PEM\)](#) – installed always in pairs, one on each end of the library configuration
- [Access Expansion Module \(AEM\)](#) – one or two, always installed on the end of the library configuration.

Note – AEMs and PEMs cannot be installed in the same library.

The modules consist of walls, columns, and rows that house cartridge storage cells, tape drives, cartridge access ports (CAPs), and robotics units (TallBots).

CenterLine Technology

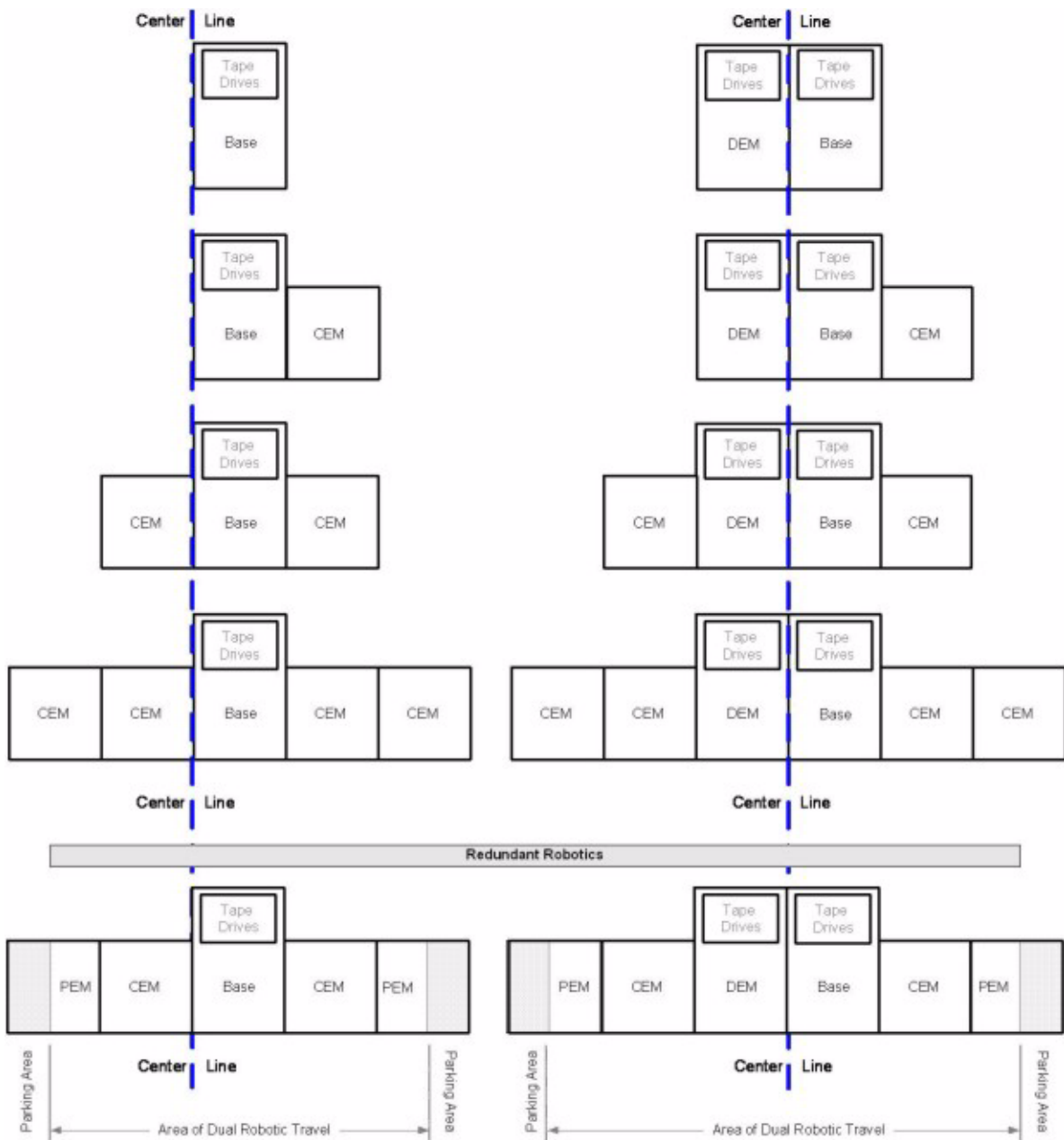
The SL3000 modular design uses CenterLine technology to help balance the work load and improve the performance of the library. The left side of the Base Module serves as the centerline. You can add other modules to the left and right of the Base Module. Columns to the right of the centerline have positive (+) numbers, while columns to the left have negative (-) numbers.

[FIGURE 1-2 on page 29](#) shows the library centerline and some possible module configurations, including:

- Base module only
- Base module and drive expansion module (DEM)
- Addition of cartridge expansion modules (CEMs) and parking expansion modules (PEMs) s

FIGURE 1-2 Library Configurations Around CenterLine

Base Module Configurations **Base and Drive Expansion Module Configurations**



L206_232

Any Cartridge, Any Slot Technology

Mixed-media storage cells are used to hold the cartridges. This allows the SL3000 library to support Oracle's StorageTek Any Cartridge, Any Slot technology and accept a variety of media types without reconfiguring the library.

Cartridges lie flat and are placed in the storage cells with hub down and parallel to the floor. To prevent slippage, cartridges are held in place by internal retainer clips.

Physical Capacities

The SL3000 is scalable, with physical storage capacities from 200 to 5925 storage cells. In addition, the Capacity on Demand feature allows you to pay for only the capacity you actually use and expand capacity with minimal disruption to library operations.

See [Chapter 4, “Capacity on Demand” on page 143](#) for details about installing and managing library storage capacity.

See [TABLE 1-1 on page 31](#) for detailed physical capacities for each module type. To calculate the total accessible physical storage cells for a configuration, start with the standard configuration cell count, outlined with a heavy border, and then make the appropriate adjustments for options and positioning. Following are some examples:

- Base Module with operator’s panel, a module installed on the right, and three total drive arrays:

$$320 + 0 + 13 - 55 - 60 = 218$$

- DEM, a module installed on the left, window arrays, a CAP, and four drive arrays:

$$410 + 88 + 23 - 77 - 66 - 72 - 78 = 228$$

- CEM installed to the left of CenterLine, a module installed on the left, and a CAP:

$$516 + 104 - 78 = 542$$

- PEMs (always installed in pairs), one with a CAP, one without:

$$308 + 312 - 78 = 542$$

Optional Fire/Smoke Detection

Access ports in the ceilings of the modules are provided for optional fire suppression or smoke detection equipment. Installation and maintenance of this equipment must be arranged by the customer.

TABLE 1-1 Accessible Physical Cell Count Per Module

Module Options	Standalone or Position-Independent	Adjacent Module Installed on the:		Total Count
		Right	Left	
Base Module				
Standard (with viewing window), standalone	320	+13	+88	
With operator's panel	+0			
With window storage arrays		+23		
With second drive array	-55		-66	
With third drive array	-60		-72	
Drive Expansion Module (DEM)				
Standard (with viewing window and no CAP)	—	410	+88	
With window storage arrays	—	+23		
With CAP	—	-77		
With second drive array	—	-55	-66	
With third drive array	—	-60	-72	
With fourth drive array	—	-65	-78	
Cartridge Expansion Module (CEM)				
Standard (no CAP), to the left of CenterLine	516	+0	+104	
Standard (no CAP), to the right of CenterLine	620	+0	+0	
With CAP		-78		
Parking Expansion Module (PEM)				
Standard (no CAP), to the left of CenterLine	—	308		
Standard (no CAP), to the right of CenterLine	—		312	
With CAP	-78			
Access Expansion Module (AEM)				
Cannot be used for long-term storage	0		+104	
Total accessible storage cell count				

Base Module

The Base Module provides both cartridge storage and a minimum of eight tape drives. This module includes the power configurations, robotics, electronic modules, cartridge access port, cartridge storage cells, tape drives, and operator controls. It centralizes the infrastructure for all other modules in the library.

One and only one Base Module is required for every library installation.

TABLE 1-2 Base Module – Front View

Configurations		Capacity
8 drives, CAP		
16 drives, CAP		See
24 drives, CAP		TABLE 1-1 on page 31
8 drives, CAP, and Operator panel/Window		
16 drives, CAP, and Operator panel/Window		
24 drives, CAP, and Operator panel/Window		
Dimensions	Measurement	
Height	197 cm (77.625 in.) to 200 cm (78.63 in.) fully adjusted	
Width	76.8 cm (30.23 in.) without covers ¹ 91.5 cm (36 in.) with covers	
Depth	121.9 cm (48 in.) without handles 124 cm (49 in.) with handles	
Weight	265 kg (584 lb) frame only	
Service clearance	Front: 46 cm (18 in.) Rear: 81 cm (32 in.)	
Both doors open	262 cm (103 inches)	
Side clearance ²	Cooling: 5 cm (2 in.) Installation: 91 cm (36 in.)	
Note –		
1. When additional modules are installed, the covers are removed from the Base Module and placed on the ends of the last module in the string.		
2. Required to install or remove the sides covers; they swing out and lift off of brackets.		



The front of the Base Module includes the following components:

- Single, 26-cartridge, dual-magazine cartridge access port (CAP)
- Service door for library access
- Front panel with three LEDs: Library Active, Service Required, and Wait.
- Standard viewing window, which can be replaced by either of the following options:
 - Touch-screen operator panel
 - Cartridge storage cells

The Base Module can hold up to 24 tape drives in any combination that the library supports – see [“Tape Drives” on page 43](#) for a list and description. The minimum configuration includes one drive bay that can hold from one to eight drives. Two additional drive bays can be added to accommodate either 8 or 16 more drives, for a maximum of 24 drives.

Note – Adding a drive bay displaces approximately 55 to 72 additional storage cells, depending on the library configuration. See [TABLE 1-1 on page 31](#) for the exact number.

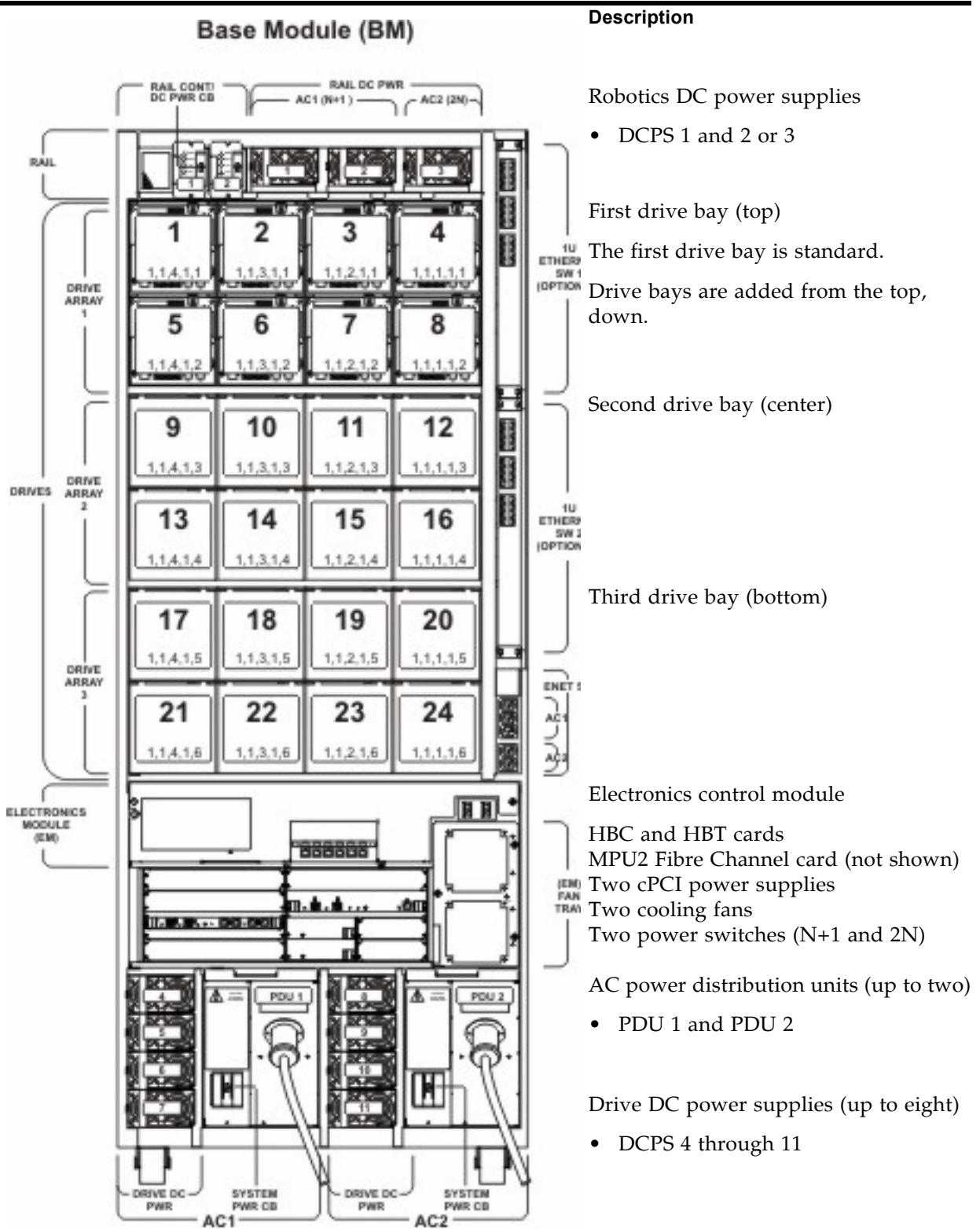
See [FIGURE 1-3 on page 34](#) for a rear view of the Base Module. The rear door allows access to the following:

- Electronics control module (ECM)
- Power distribution units (PDUs)
- DC power supplies
- Tape drives
- Two one-unit rack spaces (1 unit = 44.5 mm [1.75 in.]) for vertically mounting auxiliary equipment, such as Ethernet switches

Note – The Base Module does not contain any general-purpose 19-inch rack space.

See [FIGURE B-1, “Base Module Walls” on page 608](#) for a detailed diagram of the wall layout.

FIGURE 1-3 Base Module – Rear View Drawing



L206_0

Drive Expansion Module

The optional Drive Expansion Module (DEM) provides the library with additional tape drives and cartridge storage capacity. One DEM can be included in a library installation, always to the left of the Base Module.

FIGURE 1-4 Drive Expansion Module – Front View

	Configurations	Capacity
	8 drives 16 drives	
	24 drives	
	32 drives	
	8 drives, CAP	See
	16 drives, CAP	TABLE 1-1 on
	24 drives, CAP	page 31
	32 drives, CAP	
	8 drives, CAP, and Operator panel/Window	
	16 drives, CAP, and Operator panel/Window	
	24 drives, CAP, and Operator panel/Window	
32 drives, CAP, and Operator panel/Window		
	Dimensions¹	Measurement
Height	197 cm (77.625 in.) to	
	200 cm (78.63 in.)	
Width		
DEM only	76.8 cm (30.23 in.)	
Base and DEM	168.3 cm (66.26 in.) with covers ²	
Depth	121.9 cm (48 in.) without handles	
	124 cm (49 in.) with handles	
Weight	265 kg (584 lb) frame only	
Service clearance	Front: 46 cm (18 in.)	
	Rear: 81 cm (32 in.)	
Both doors open	262 cm (103 inches)	
Side clearance ³	Cooling: 5 cm (2 in.)	
	Installation: 91 cm (36 in.)	

L206_235

Note –

1. The dimensions of the DEM are the same as the Base module.
2. When additional modules are installed, the covers are removed from the Base Module and placed on the ends of the last module in the string.
3. Required to install or remove the side covers; they swing out and lift off of brackets.

The front of the DEM includes space for the following components:

- Service door for library access (standard)
- Front panel with three LEDs: Library Active, Service Required, and Wait
- Optional 26-cartridge, dual-magazine cartridge access port (CAP)
- Standard viewing window, which can be replaced by either of the following options:
 - Touch-screen operator panel, if not already in the Base Module
 - Cartridge storage cells

The DEM comes standard with drive slots to support up to eight tape drives. DEM drive slots can optionally be increased, in increments of eight, to a maximum of 32.

Note – Adding a drive bay displaces approximately 55 to 78 additional storage cells, depending on the library configuration. See [TABLE 1-1 on page 31](#) for the exact number.

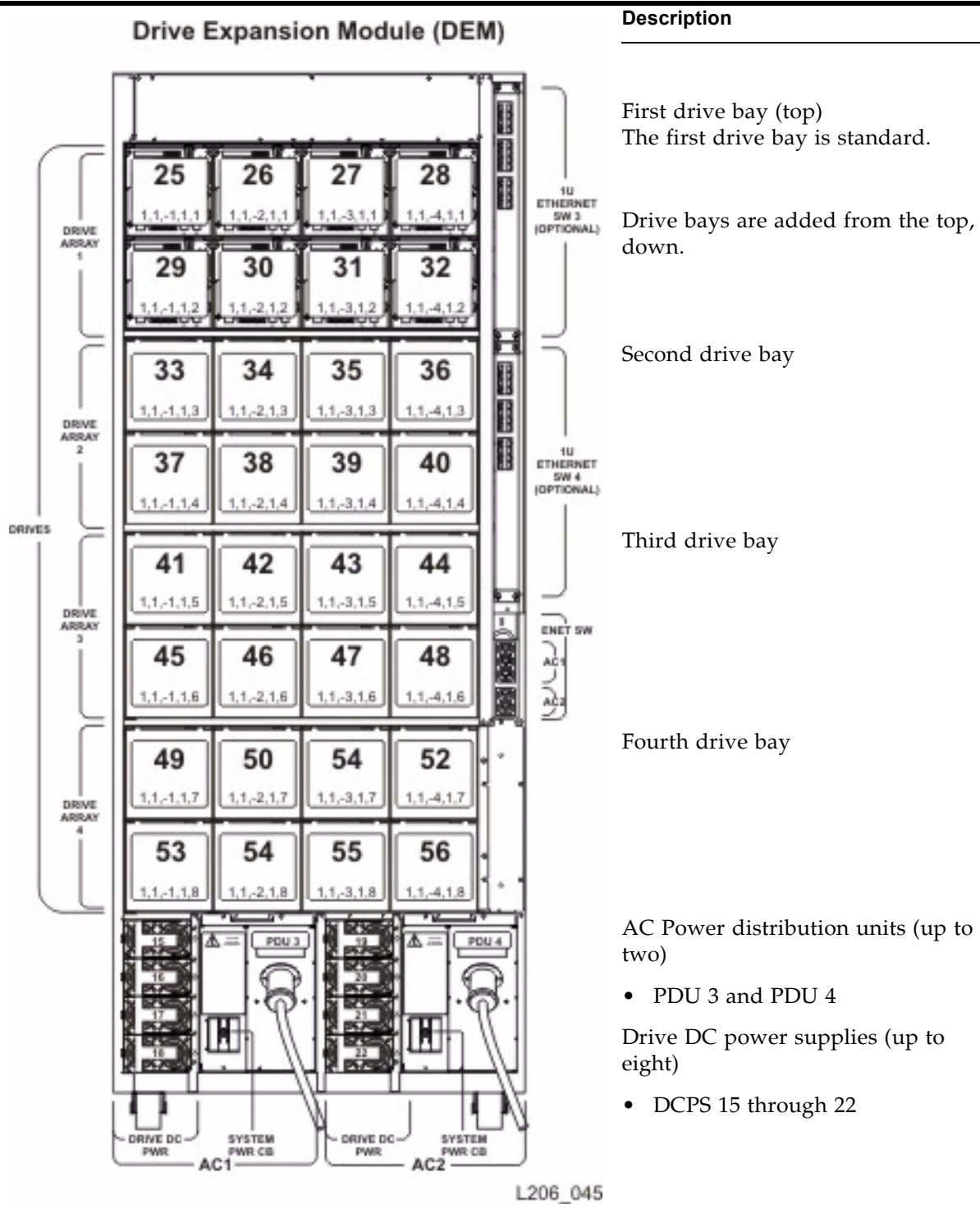
There is an additional power system integral to the DEM to support the additional tape drives.

See [FIGURE 1-5 on page 37](#) for a rear view of the DEM. The rear door allows access to the following:

- Tape drives
- Drive DC power supplies
- AC power distribution units (PDUs)

See [FIGURE B-2, “Drive Expansion Module Walls” on page 609](#) for a detailed diagram of the wall layout.

FIGURE 1-5 Drive Expansion Module – Rear View Drawing



L206_045

Cartridge Expansion Module

The optional Cartridge Expansion Module (CEM) provides additional storage cell capacity and growth. No tape drives are in this module. A maximum of eight CEMs are supported in a single library.

The following considerations will maximize library efficiency:

- As a best practice, CEMs should be alternated on either side of the Base Module and optional DEM, with the initial CEM installed directly to the right of the Base Module. This decreases the amount of robotics travel and provides the best use of cartridge storage cells.
- If the Dual Robotics feature is installed without the use of Access Expansion Modules (AEMS), the two outside CEMs are converted to Parking Expansion Modules (PEMs). This provides areas for the TallBots to park when service is required.

Each CEM adds up to 620 data cartridge physical storage cells. The capacity varies depending on the direction of growth (left or right) and the presence of a CAP.

FIGURE 1-6 Cartridge Expansion Module with Base Module



Configuration		Capacity
(next to Base with 24 drives)		
CEM (expanded left)		
CEM with optional CAP (left)		See TABLE 1-1 on page 31
CEM (expanded right)		
CEM with optional CAP (right)		
CEM with optional CAP (right)		
Dimensions	Measurement	
Height	197 cm (77.625 in.) to 200 cm (78.63 in.) fully adjusted	
Width	76.8 cm (30.23 in.) without covers ¹ One side cover adds 7.62 cm (3 in.)	
Depth	77.5 cm (30.5 in.)	
Weight	175 kg (385 lb) frame only	
Side clearance ²	Cooling: 5 cm (2 in.) Installation: 91 cm (36 in.)	
Service clearance, front and rear	None required	

Note –

1. When additional modules are installed, the covers are removed from the Base Module and replaced on the ends of the last module in the string.
2. Required to install or remove the sides covers; they swing out and lift off of brackets.

See [FIGURE B-3, “Cartridge Expansion Module Walls” on page 610](#) for a detailed diagram of the wall layout.

Parking Expansion Module

The optional Parking Expansion Modules (PEMs) provide additional storage cell capacity and growth, as well as space for defective TallBots to be “parked” for service. The parking space makes the three outer-most columns of storage cells on the front and rear walls inaccessible. The inaccessible cells can be left out of the module, or they can be installed to allow later conversion of the PEM to a CEM. PEMs do not include tape drives.

PEMs are only used with the Dual Robotics feature, and they are always installed in pairs. They must be the last modules on the right and left sides of the library string.

Note – AEMs and PEMs cannot be installed in the same library.

FIGURE 1-7 Parking Expansion Module

	Configuration		Capacity
	PEM (expanded left) 308 cells		See TABLE 1-1 on page 31
	PEM (expanded right) 312 cells		
	CAP –78 cells		
	Installed in pairs for the Dual Robotics feature.		
	Dimensions ¹	Measurement	
	Height:	197 cm (77.625 in.) to 200 cm (78.63 in.) fully adjusted	
	Width:	76.8 cm (30.23 in.) without covers ² One side cover adds 7.62 cm (3 in.)	
	Depth:	77.5 cm (30.5 in.)	
	Weight:	103.4 kg (277 lb) frame only	
Side clearance	Cooling: 5 cm (2 in.) Installation: 91 cm (36 in.) ³		
Service clearance front and rear	None required		
Note –			
<ol style="list-style-type: none"> 1. The dimensions of the PEM are the same as the cartridge expansion module. 2. When additional modules are installed, the covers are removed from the Base Module and placed on the ends of the last module in the string. 3. Required to install or remove the sides covers; they swing out and lift off of brackets. 			

See [FIGURE B-4, "Parking Expansion Module Walls"](#) on page 611 for a detailed diagram of the wall layout.

Access Expansion Module

The optional Access Expansion Module (AEM) provides the following capabilities:

- Bulk loading and unloading of up to 234 cartridges at a time to and from the SL3000 library through the AEM CAP. The AEM is essentially a very large CAP, with all the characteristics of a CAP, such as online/offline state, ability to be shared by partitions, etc. The cartridge slots in the AEM cannot be used for long-term cartridge storage.
- Non-disruptive robot maintenance through the use of a safety door (or “garage” door), which sections off a defective robot from the other library modules. A Oracle service representative can safely access the disabled robot through the AEM access door while the library remains online. If the Dual Robotics feature is installed, the library can continue normal operations through the remaining functional robot.


The library can include one or two AEMs. The AEM must be installed at the very end of the library string. If the library includes redundant TallBots, then two AEMs must be installed, one on each end of the library.

Note – AEMs and PEMs cannot be installed in the same library.

AEMs do not include tape drives.

See [“AEM Operations” on page 381](#) for additional details about AEM functions and usage.

FIGURE 1-8 Access Expansion Module

	Configuration		Capacity
	AEM (expanded left) 234 CAP cells		See TABLE 1-1 on page 31
	AEM (expanded right) 234 CAP cells		
	Installed in pairs for the Dual Robotics feature.		
	Dimensions	Measurement	
	Height:	197 cm (77.625 in.) to 200 cm (78.63 in.) fully adjusted	
	Width:	91.5 cm (36.0 in.) without covers ¹ One side cover adds 7.62 cm (3 in.)	
	Depth:	77.5 cm (30.5 in.)	
	Weight:	204.12 kg (450 lb.)	
	Side clearance	Cooling: 5 cm (2 in.) Installation: 91 cm (36 in.) ²	
Service clearance	Front: 58.7 cm (23.1 in.) Rear: Need access for Ethernet; there is no cover.		
Note –			
<ol style="list-style-type: none"> 1. When additional modules are installed, the covers are removed from the Base Module and placed on the ends of the last module in the string. 2. Required to install or remove the side covers; they swing out and lift off of brackets. 			

Tape Drives

[TABLE 1-3](#) lists the tape drives, data path interfaces, and media types supported by the SL3000 library.

TABLE 1-3 Supported Tape Drives

Manufacturer	Drive Type	Interface Type	Media
Oracle StorageTek	T9840C	Fibre Channel	9840
	T9840D	FICON	VolSafe-capable
		ESCON	
Oracle StorageTek	T10000A	Fibre Channel	T10000Standard, Sport, and VolSafe
	T10000B	FICON	
HP	LTO 3	Fibre Channel	LTO 3, LTO 3 WORM
IBM			LTO 2
			LTO 1 (read only)
HP	LTO 4	Fibre Channel	LTO 4, LTO 4 WORM
IBM			LTO 3, LTO 3 WORM
			LTO 2 (read only)
HP IBM	LTO 5	Fibre Channel	LTO 5, LTO 5 WORM
			LTO 4, LTO 4 WORM
			LTO 3 (read only)

You can install up to 56 drives within one library, as follows:

- Up to 24 in the Base Module
- Up to 32 in a DEM

The actual number of drives varies, depending on the AC power option and the media types. See [TABLE 1-4](#) for details.

TABLE 1-4 Power Options and Number of Drives

	110–127 PDU		220–240 PDU	
	Base Module	DEM	Base Module	DEM
T9840	12	14	24	32
T10000	13	16	24	32
LTO 3, 4	24	32	24	32
Mixed media	varies		any intermix	

Drive Trays

In the SL3000, a single, universal drive tray accommodates all types of tape drives and interfaces. The SL3000 drive trays have two layers, as follows:

- The power supply and connections are on the top.
- The tape drive is under the power supply.

Each drive tray slides into an eight-drive bay.

FIGURE 1-9 Drive Tray



Internal power supply cards and cabling are unique, depending on the drive type and interface within the drive tray. Cabling to the drive itself is out of the rear of the drive tray and library, then routed through the strain relief system. Both floor and ceiling cabling access is allowed.

Cartridge Access Ports

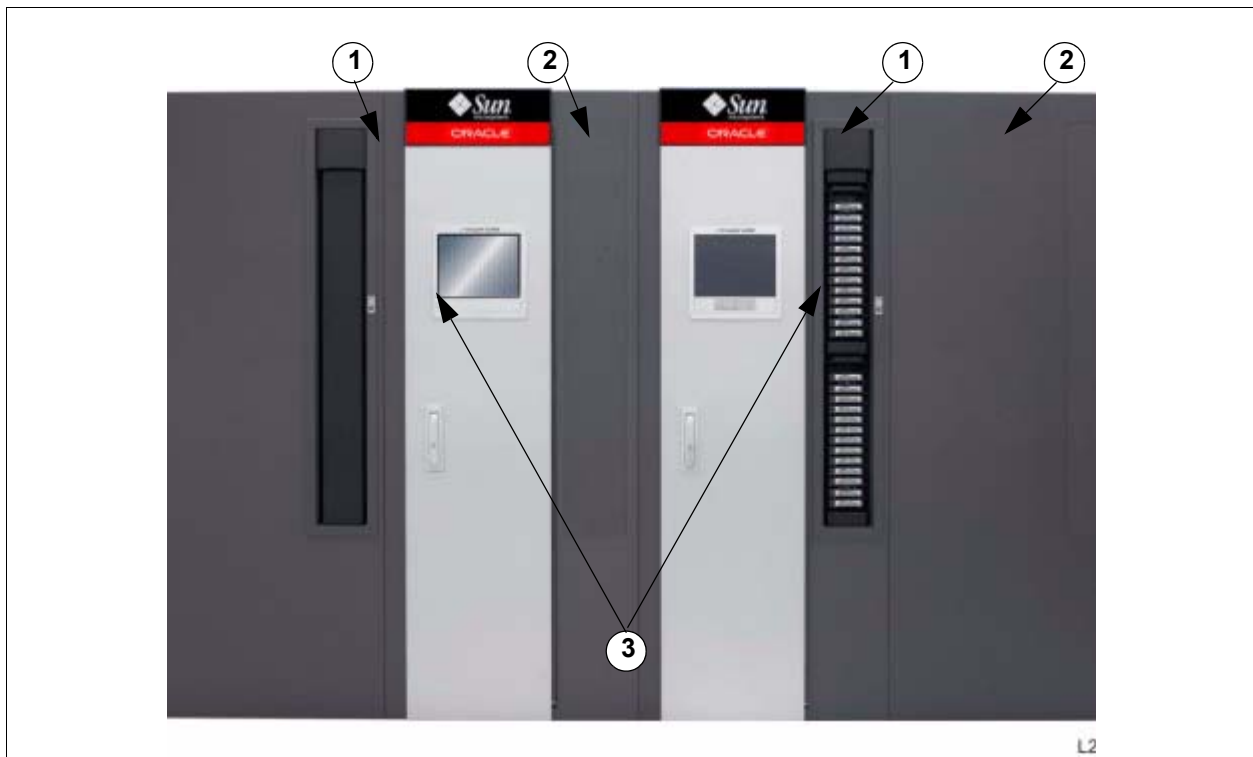
The cartridge access port (CAP) is a vertically-mounted, rotating cylinder with two removable 13-slot magazines (26 cells total). CAPs are used to enter or eject cartridges from the library.

The Base Module comes with one CAP as a standard feature. Optionally, one CAP can be installed in each expansion module, up to a maximum of ten CAPs for the library.

Each CAP has its own set of controls, consisting of a small keypad and indicators. The CAP and its magazines rotate as a single unit.

See [“CAP Operations” on page 377](#) for details about using CAPs.

FIGURE 1-10 Cartridge Access Port



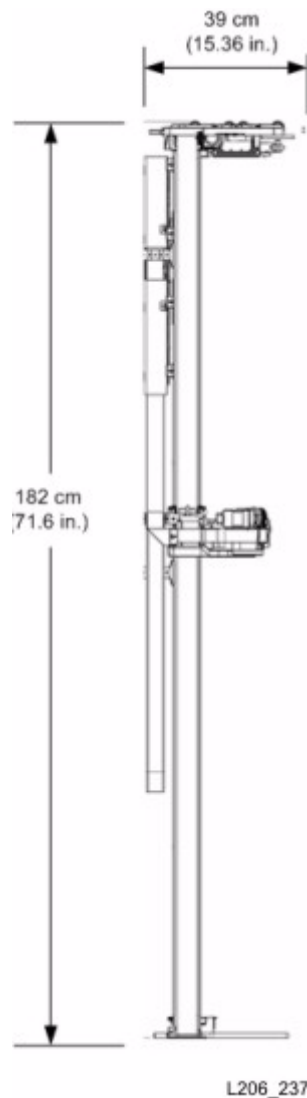
1. Cartridge access ports
2. Blank covers
When a CAP is not installed, a blank cover is installed. This can always be upgraded in the future to include a CAP.
3. Keypad and indicator user interface.

Robotics Units

The robotics unit in an SL3000 library is called a TallBot. Each library can have either one (standard) or two (redundant) TallBots.

TallBots are responsible for the movement and cataloging – or audit – of cartridges throughout the library.

FIGURE 1-11 TallBot



TallBot measurements are:

- Width: 30 cm (11.84 in.)
- Depth: 39 cm (15.36 in.)
- Weight: 8.6 kg (19 lb)

TallBots are driven along two rails on the rear wall of the library – one rail at the top and one attached to the floor.

Two copper strips are inserted into the top rail to provide both power and signal paths for TallBot operation.

- Power comes from +48 VDC, 1200 Watt, load-sharing power supplies.
- Signals are received and transmitted between the TallBots and the library controller.
- A Rail Power Enable module is installed as a safety circuit for rail power.

Handling of the cartridges by the TallBots include:

- Retrieving cartridges from a CAP
- Inserting cartridges into a CAP
- Inserting and retrieving cartridges to and from storage cells
- Mounts and dismounts of cartridges to and from tape drives

TallBots contain a laser bar code scanner that:

- Reads the configuration blocks in each module during library initialization. See [FIGURE B-5 “Configuration Block” on page 613](#) for an example.
- Targets on cartridge storage/CAP cells and tape drives. Targets have the following shape, similar to the letter “N”:

| \ |

- Identifies volume IDs (VOLIDs) of cartridges during:
 - CAP entries
 - Audits

The TallBot reads cartridge VOLIDs during audits and CAP enters only. Each cartridge’s assigned location is stored in the library controller database, and the TallBot uses that location to retrieve the cartridge.

Redundant (Dual) Robotics

The Redundant Robotics feature is offered as a high availability option. This affords:

- A speed increase for library operations
- A backup TallBot in case one should fail

This option requires PEMs at each end of the library. A defective TallBot will take itself offline and may move, or can be pushed, into one of the PEMs or AEMS, allowing the library to continue operations with one TallBot until time can be scheduled to replace the defective one. If AEMS are installed, the downed TallBot can be serviced without disruption to library operations.

The requirements for redundant TallBot operation are:

- A 240 VAC, 2N power configuration
- PEMs on each end of the library

- Dual TallBot hardware activation key

Power Options

AC Power Configurations

The following AC power source options are available:

- Limited features: 110 VAC, 50/60 Hz, at 20 Amps (range: 100–127 VAC, 50–60 Hz, 16 Amps)
- Full features: 220 VAC, 50/60 Hz, at 30 Amps (range: 200–240 VAC, 50–60 Hz, 24 Amps)

Power Distribution Units (PDUs) are located at the rear of the Base Module and optional DEM.

Power Redundancy

The SL3000 provides full redundancy for tape drives, robotics units, and electronics. The following redundancy options are available:

- N+1 – One AC PDU, with one extra DC power supply for DC power redundancy. This is the standard power configuration for the SL3000. This configuration requires at least a 20 Amp circuit breaker at the customer's branch service panel.
- 2N – Two PDUs for AC redundancy; each PDU has a set of DC power supplies (N DC power supplies). This configuration requires a second, separate customer power source.
- 2N+1 – Two PDUs for AC redundancy; each PDU has extra DC power supplies for N+1 redundancy for each PDU. The second PDU does not have N+1 for the TallBot.

DC Power

Load sharing 1200 Watt DC power supplies are required for distribution of +48 VDC for TallBot and tape drive operation. The number of DC power supplies required depends on the power configuration and total number of drives in the library.

A Rail Power Enable module is also installed as a safety circuit for rail power. Two cPCI power supplies (200 Watts each) distribute power to the Electronics Control Module. These power supplies are located below the HBT card – two on the left for N+1, or one on each side for 2N.

Library Environment Specifications

TABLE 1-5 lists the library environment specifications. Refer to your tape drive and media publications for their specifications.

TABLE 1-5 Library Environment Specifications

Item	Measurements		
	Operating	Storage	Transporting
Temperature	+16 to +32°C (+60 to +90°F)	+10 to +40°C (+50 to +104°F)	-40 to +60°C (-40 to +140°F)
Humidity	20 to 80%	10 to 95%	10 to 95%
Wet bulb (maximum, noncondensing)	+29.2°C (+84.5°F)	+35°C (+95°F)	+35°C (+95°F)
Airborne Contamination	Tape drives and media are subject to damage from airborne particulates. The operating environment must adhere to the ISO 14644 Class 8 requirements.		
Altitude	-76 to 3048 m (-250 to 10,000 ft)		

Cooling

Cooling within the SL3000 is divided into three areas:

- Library electronics
- Tape drives
- DC power supplies

Library Electronics

There are two fans located to the right of the electronics control module that provide cooling for the electronics in the library. Air is drawn from the floor and sides of the library and flows through the fans to the rear of the library.

- These fans are monitored by the HBC card for proper operation.
- An amber **Fault** indicator is on the fan assembly to indicate a failure.

While there are two dedicated fans, one fan is sufficient to provide adequate cooling for the library/electronics. Nevertheless, since the fans can be replaced without interfering with library operations, it is best to replace a defective fan when it is detected.

Tape Drives

Each tape drive tray contains one or two fans for drive cooling.

Power for the fans is supplied through the tape drives power converter card. Air is drawn from the front of the drive and flows through the fan to the rear of the drive/library.

DC Power Supplies

Each 1200 Watt DC power supply contains a fan that pulls air from the front of the library, through the rear of the supply, and out the rear of the library.

Interfaces

The SL3000 library supports the following types of interfaces:

- [Library Control Path](#) – Transfers library management commands, such as cartridge mounts and dismounts, between the host and the library components. No host data is present on this interface.
- [Data Path](#) – Transfers data between the host and the tape drives.
- [Command Line Interface](#) – Allows an Oracle support representative to configure and diagnose the library.
- [SNMP](#) – Allows system administrators to query the library and receive information about potential problems.
- [SL Console](#) – Allows library operators and administrators to configure and manage the library from a graphical user interface.

Library Control Path

Note – When a new library is integrated into a network, it is strongly recommended that the system/network administrator work closely with a Oracle StorageTek representative to define the configuration.

The control path provides for the transfer of library management commands between the host and the library. The SL3000 supports the following host connection types for the control path:

- [TCP/IP Interface](#) – TCP/IP protocol using Ethernet 10/100 Base-T and CAT-5 cables
- [FC-SCSI Interface](#) – Small Computer System Interface (SCSI) protocol and command set over a physical Fibre Channel interface

A non-partitioned library can use only one interface type – either FC-SCSI or TCP/IP. Using the optional Partitioning feature, a library can connect to multiple hosts over a combination of the two interface types. See [Chapter 5, “Library Partitioning” on page 187](#) for details.

Library addressing depends on the host connection type:

- TCP/IP hosts use a panel, row, column (PRC) numbering scheme.
- FC-SCSI hosts use a sequential element numbering scheme, with each element type (storage cells, tape drives, and CAPs) having its own sequential range.

See [Appendix A, “Library Resource Addresses” on page 589](#) for full details.

Multi-Path Connections

For both connection types—TCP/IP and FC-SCSI—the standard SL3000 library configuration includes a single port for host-to-library communications. You can add a second port through the following optional features:

- Dual TCP/IP (or Dual Port) – for TCP/IP connections
- Multi Port Fibre – for FC-SCSI connections

These features must be installed and enabled by your Oracle support representative. See [Chapter 3, “Hardware Activation Files” on page 109](#) for details.

Once the optional second port is activated, both ports can be connected to the same host or to two different ones. The ports operate independently, and the library always responds to a host request on the same port that the request was received.

In the event of a port failure, automatic failover is managed by the host software, not the library. See the appropriate host software documentation for details about the provided failover support.

Any problems with the ports are reported in the system Event Log and the **Status Module** screen. See [“Library Events” on page 479](#) and [“Status Alert Messages” on page 332](#) for details.

TCP/IP Interface

The TCP/IP interface type uses the TCP/IP protocol over an Ethernet physical interface, (CAT-5, Ethernet, 10/100 BaseT cable). This interface enables either of the following host platforms to connect to and communicate with the library:

- Open system platforms with ACSLS (see [“Automated Cartridge System Library Software” on page 58](#) for details).
- Enterprise-level mainframes with ELS (see [“Enterprise Library Software” on page 57](#) for details).

The library TCP/IP interface complies with the Institute of Electrical and Electronics Engineers standard—IEEE 802.3—for Ethernet networks. The ports are capable of auto-negotiating the following functions:

- Method of transmission
 - Half-duplex: Transmits data in just one direction at a time
 - Full-duplex: Transmits data in two directions simultaneously
- Speed of the transmission
 - 10Base-T: 10 megabits per second (Mbps)
 - 100Base-T: 100 megabits per second (Mbps)

Network Configuration

The SL3000 should be installed on a secure private network. Use the following configuration guidelines in order to maximize throughput and minimize resource contention.

- Directly connect the library to a switch.
- Place the library on its own subnet.
- Use a managed switch that can:
 - Set priorities on ports to give the host and library higher priority.
 - Provide dedicated bandwidth between the host and the library.
 - Create a VLAN between the host and the library.

- Use a virtual private network (VPN) to insulate host-to-library traffic.

Oracle StorageTek's 9300 Control Path Adapter provides the hardware connection for mainframe hosts. This interface adapter is installed on the mainframe and converts data on the Ethernet network to compatible Host Library Interface (HLI) commands.

Library Controller Redundant Electronics

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

The optional Redundant Electronics feature provides failover protection in HLI libraries. If the library controller experiences errors, it automatically switches operations to an alternate library controller, with minimal disruption to library and host operations. This allows your Oracle support representative to replace the faulty card while the library continues normal operations.

The Redundant Electronics feature also provides minimal disruption of library operations during firmware upgrades.

FC-SCSI Interface

The FC-SCSI interface type uses the SCSI command set over a physical Fibre Channel connection. The Oracle StorageTek implementation of Fibre Channel conforms to the following standards:

- American National Standards Institute (ANSI)
- National Committee for Information Technology Standards (NCITS)

Applications supporting the SCSI-3 protocol are required for FC-SCSI hosts.

Topology

The recommended Fibre Channel topology for the SL3000 is switched fabric. A switched fabric provides dynamic interconnections between nodes, and multiple, simultaneous Fibre Channel connections for the network.

If the SL3000 is connected to a Fibre Channel switch or fabric-capable host, it automatically configures itself as a switched topology and can support up to 16 million ports logged into the fabric.

See the *SL3000 Interface Reference Manual* for complete information. This manual contains information about the SCSI command set, plus information about Fibre Channel operations, command implementations, topologies, cables, and connectors.

Note – While the SL3000 supports the arbitrated loop topology, this topology is not recommended.

Note – The SL3000 does not support forcing arbitrated loop connection by setting Hard ALPAs (Arbitrated Loop Physical Addresses).

Library Internal Network

The library's internal network handles all communication between the library controller and the private system ports, such as:

- CAPs
- Drive control path
- Local operator panel

Data Path

The data path, which is separate and distinct from the library control path supports the transfer of data between the host and the tape drive. Host data paths to the tape drives can be Fibre Channel, FICON, or ESCON, depending on the operational characteristics of the drive type. See [“Tape Drives” on page 43](#) for details.

IP Addresses

The SL3000 supports Internet Protocol, version 6 (IPv6). The following minimum code levels are required:

- SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.
- ACSLS 8.0.2
- HSC IPv6 PTFs:
 - VM/HSC 6.2 SMS6200 L1H15F9
 - MVS/HSC 6.S SOS6200 L1H1558
 - MVS/HSC 7.0 SSEA700 L1H15FA

See the appropriate tape management software documentation for details on configuring your library with IPv6 addresses.

Command Line Interface

The SL3000 command line interface (CLI) is a library interface for trained and qualified Oracle support representatives only. This interface allows support representative to configure and diagnose problems with the library.

Note – Customers do not have access to the CLI interface.

SNMP

Simple Network Management Protocol (SNMP) allows system administrators and network managers to monitor and receive library status information, including the following:

- Operational state of the library (such as microcode level, serial number, online/offline status)
- Status of the CAPs (such as open, closed, number of cells)
- Library elements (number of TallBots, storage cells, CAPs)
- Number of storage cells and media types in the library
- Number and types of tape drives installed in the library

Note – By default, the SNMP agent is turned off and must be activated by your Oracle support representative through the command line interface (CLI).

The SL3000 supports the following SNMP versions:

- SNMPv2c – For machine status queries; the information transmitted is not secure.
- SNMPv3 – For Oracle Confidential: Internal Use Only information, since it supports encryption and strong user identification. SNMPv3, therefore, is the preferred protocol for proprietary data.

Note – See the *SL3000 SNMP Guide* (PN 3161945xx) for detailed information concerning SNMP and the setup procedures.

SL Console

The StorageTek Library Console (SL Console) is a Java-based software application that provides a graphical user interface (GUI) for monitoring and managing the StorageTek SL3000 library. See [Chapter 2, “StorageTek Library Console” on page 61](#) for complete details.

Library Management Software

Library management software components control the library to perform activities such as mounts and dismounts, enters and ejects. They also manage their own cartridge databases, containing volume location and attribute information.

Oracle offers several software components depending on the platform, connection type, and operating system. These include the following:

- Direct-attach SCSI over Fibre Channel interface
- ACSLS
- Enterprise Library Software (ELS), which includes:
 - CDRT (Concurrent Disaster Recovery Test)
 - CSC (Client System Component)
 - ExHPDM (Extended High Performance Data Mover)
 - ExPR (Expert Performance Reporter)
 - LibraryStation
 - MSM (MegaRAID Storage Manager)
 - VTCS (Virtual Tape Control System)
 - VSM (Virtual Storage Manager) GUI
- Library Content Manager (formerly ExLM)

Note – See the appropriate library management software documentation for the version levels required to support the SL3000.

Nearline Control Solutions

The SL3000 supports the following Oracle Nearline Control Solutions (NCS) software products.

- [Enterprise Library Software](#)
- [Storage Management Component](#)
- [StorageTek HTTP Server](#)

Enterprise Library Software

Oracle's StorageTek Enterprise Library Software 7.0 (ELS) packages together multiple components along with many enhancements – all designed to reduce complexity, boost productivity, and improve reliability and availability in your data center. Compared to ELS and VTCS individual software, StorageTek Enterprise Library Software 7.0 delivers enhancements in several areas to provide more functions and increased usability at a lower price.

- Parameter pre-validation of storage management policies
- Improved CDS recovery and logging

- Integrated task-oriented documentation
- Improved migration system
- Enhanced disaster recovery
- Higher availability clustering solution
- SMC simulation
- Improved client/server virtual tape volume mount processing through
- Storage Management Component (SMC)

Storage Management Component

Oracle's Storage Management Component (SMC) is the interface between IBM's OS/390 and z/OS operating systems and a Oracle StorageTek library. SMC performs the allocation processing, message handling, and SMS processing for the NCS solution. SMC resides on the MVS host system with ELS, or on a remote system using the Oracle StorageTek HTTP server to communicate with the ELS. SMC communicates with ELS to determine policies, volume locations, and drive ownership.

Library Content Manager

Oracle's Library Content Manager (LCM) provides automated library management for z/OS environments. It enhances and optimizes the overall performance of automated tape libraries by providing content management to assure there are adequate storage resources (tape drives, tape cartridges, etc.) available to run scheduled jobs and to run them at optimum efficiency. It also provides reporting of the overall operations of the library.

StorageTek HTTP Server

Oracle's StorageTek HTTP Server for OS/390 and z/OS optionally provides the middleware to allow communication between the SMC (client) and a remote ELS subsystem (server). The HTTP server executes as a separate subsystem on the MVS host where the remote ELS subsystem resides.

Automated Cartridge System Library Software

Oracle's Automated Cartridge System Library Software (ACSL) functions as the central service provider for all library operations, efficiently sharing library resources with ACSL-enabled applications on any system, and allowing you to manage multiple libraries from a single point of control. The key benefits of using ACSL in your tape environment include:

- Centralized library control across multiple StorageTek libraries, including legacy technology
- Optimized library performance by load-balancing hardware and executing parallel commands
- Reduced downtime through dynamic configuration capabilities and queuing commands during short-term library outages
- Enriched reporting and management capabilities for ease of use

Operating Modes

Four modes of operation are possible for the SL3000:

- [Automated Mode](#)
- [Manual Mode](#)
- [Maintenance Mode](#)
- [Degraded Mode](#)

Automated Mode

When in automated mode of operation, the library automatically mounts and dismounts cartridges without physical intervention by a person.

Automated operations include the following activities:

- Mounting and dismounting cartridges
- Entering and ejecting cartridges through the CAP
- Logging library events
- Drive cleaning

See [“Automated Mode of Operation” on page 325](#) for complete details.

Manual Mode

Manual mode of operation occurs when the library is unavailable for system use and human intervention is required. An example of this situation would be when a library experiences an unrecoverable error, making automated mounts and dismounts impossible.

Another example would be where a library component cannot perform a mount to a drive for a particularly important job request. In this case, the library may require a person to enter a library, locate the cartridge, and manually mount it into the requested drive.

Warning – Anyone entering the library must be advised of the safety procedures required of them.

See [Chapter 14, “Manual Operations” on page 573](#) for complete details.

Maintenance Mode

In the case of a failure in a non-redundant library component (for example, a single TallBot for the entire library), the library is said to be “unavailable” to the system. In this case, the entire library must be placed offline until the repair is accomplished.

After the defective component has been repaired or replaced, the library can be placed in maintenance mode while verification tests are performed.

Degraded Mode

When in degraded mode, the library is still operational and online, but its operational efficiency is degraded due to a failing component. Examples of degraded mode are:

- In a redundant TallBot configuration, one TallBot has failed; the other TallBot has assumed all mount and dismount operations for the entire library.
- A single tape drive has experienced a failure and must be replaced.

StorageTek Library Console

Oracle's StorageTek Library Console (SL Console) is a Java-based software application that provides a graphical user interface (GUI) for monitoring and managing the StorageTek SL3000 library.

Following are some of the activities you can perform with the SL Console:

- Manage available library storage capacity
- Manage and configure library partitions (optional feature)
- View and modify status and properties of the library and associated devices (drives, CAP, robots, and elevators)
- Perform an audit on all or part of the library
- Perform a self-test on the library or an associated device
- Perform a diagnostic move (exercise a robot)
- Locate a cartridge
- Move a cartridge from one location to another
- Display library logs
- Display library status event messages
- Display error explanations
- Download new library firmware while the library is in operation
- Display context-sensitive help

SL Console Modes

Depending on your needs, you can run the SL Console in any of the following modes. For details and procedures, see:

- [“Local Operator Panel” on page 67](#)
- [“Web-launched SL Console” on page 69](#)
- [“Standalone SL Console” on page 70](#)

SL Console Security

Security features built into the SL Console control both user authentication and user authorization. The security features include:

- User IDs – User IDs control user authentication. Each user must have a valid, active user ID and password to log in to the SL Console.
- Access permissions – Access permissions control user authorization. Each user ID is assigned a set of access permissions, which determine the types of requests the user can submit through the SL Console. For example, in order to modify the system properties of a drive, a user must log in with a user ID that has the proper access permissions.

When you log in to the SL Console with a valid user ID, password, and library name, the system authenticates your identity and then authorizes your access to the various SL Console functions.

User IDs

To log in to the SL Console, you must have a valid, active user ID. Each user ID must be assigned a password.

There are a fixed set of user IDs at a site. The user IDs include `admin` (customer administrator), `service` (Oracle support representative), and `oem` (third-party field service technician). When you log in successfully, the SL Console displays your user ID in the status bar of the screen.

Only one user at a time can be logged in to the local operator panel. Any number of users can connect to a library through the standalone SL Console or Web-launched SL Console.

Activation Password

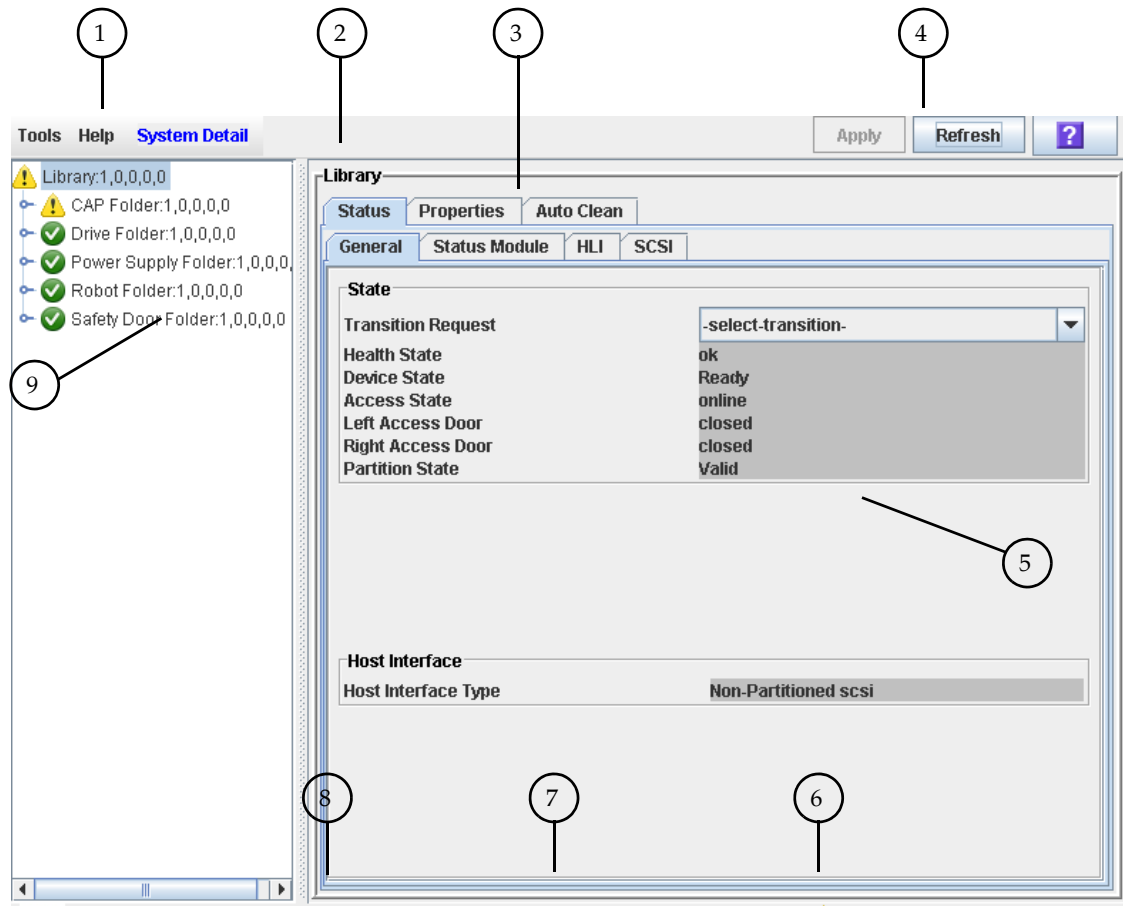
Before any users at your site can use the SL Console for the first time, your library administrator must activate the “admin” userid with a special activation password. Your Oracle support representative provides your administrator with the activation password, which is valid for one-time use only.

After logging in with the activation password, the administrator must change the admin user ID password to ensure system security.

For details about this process, see the appropriate library *Installation Guide*.

SL Console Screen Display

The following figure and table explain the components of the SL Console screen.



Component Name	Description
1	Menu bar – includes the Tools Menu and the Help Menu Tools menu provides access to System Detail, Reports, Monitors, Utilities, Partitioning, User Management, and Log off functions. Help menu provides access to the table of contents of the help system. It also identifies the version of the SL Console in use.
2	Title bar Displays the title of the current screen.
3	Function tabs Identifies the available functions for a screen.
4	Options bar Location of buttons related to the screen (for example, Apply , Refresh , Print). Always includes the SL Console Help button (?). See “Synchronizing the Display With the Controller Database” on page 64 for details on using the Apply and Refresh buttons.
5	Work area Location of the screen data.
6	Library health indicator Identifies the library to which the SL Console is connected, and displays a graphical representation of the library health.

	Component Name	Description
7	UserID indicator	Displays the user ID currently logged in to the SL Console.
8	Server communication health indicator	Displays a graphical heartbeat monitor indicating the state of server communication health.
9	Device tree	Lists the devices included in the library.

Modifying the Screen Layout

Note – This feature is available starting with SL Console version FRS_3.30. It is available on selected screens only.

You can modify the layout and display of selected SL Console screens as follows.

Display Option	Instructions
Sort the display by any column	Click the heading of the column you want to sort by. Initially the sort is in ascending order. Click the heading again to switch between ascending and descending order.
Arrange the columns in any order	Click and drag a column heading horizontally to any position in the heading row.
Resize the columns	Click the border of the column heading and drag it left or right to change the column width.

Synchronizing the Display With the Controller Database

Logging In

The SL Console gets all library configuration data from the library controller. Therefore, you should be careful when logging in to the SL Console before the library has fully initialized. You may see warnings that configuration data is not yet available, in which case you need to exit and log in again at a later time. Additionally, if a library audit is performed as part of initialization, until the audit is complete, any configuration data displayed may not be completely up-to-date and accurate.

Making Library Configuration Updates

When you first bring up an SL Console screen, the display reflects the most recently saved data from the library controller database. If you use the screen to modify the library contents or configuration, your changes do not update the controller database until you commit your changes by clicking the **Apply** button. Multiple users can access the library at the same time, using the SL Console, command line interface, and various host applications to make their own changes to the library contents and configuration. If other users make changes and apply them to the controller database, you will not see these changes until you click **Apply** or **Refresh** on your screen. Therefore, the display you see on the SL Console may not reflect the actual saved library configuration at a given point in time.

For these reasons, if you are making major modifications to the library configuration – adding modules, defining partitions, etc. – it is important that you coordinate these changes with other library users. Failure to do so could result in conflicts within the controller database.

SL Console Reports

The SL Console library reports provide information on the library and its associated devices (for example, drives, robots, and CAPs), events, and tape cartridges. You can use the reports to monitor library activity and identify potential problems. In addition to displaying the reports on-screen, you can save the report data to a file, which you can then print or include in e-mail.

All report output is a static display of information sent from the library controller at the time the report is generated. The SL Console does not update the information dynamically unless you explicitly select the **Update** button on the Options bar.

Note – Running multiple instances of the standalone SL Console or Web-launched SL Console on the same PC or workstation can cause problems such as inconsistent data on reports. It is recommended that only one user at a time produce SL Console reports on a PC or workstation, unless all instances of the SL Console are the same version.

Report Types

The SL Console provides the following types of reports:

- Log – detailed system event logs
- Statistics – statistical information on library operations
- Status Detail – details on the status of the library and associated devices, such as CAPs, drives, and robots
- Status Summary – summary information on the status of the library and associated devices
- Version – details about library hardware and software versions

Report Options Bar

The Options bar on each report allows you to perform the following functions:

- [Search a Library Report](#)
- Update the report with current data
- [Save Library Report Data to a File](#)

Report Procedures

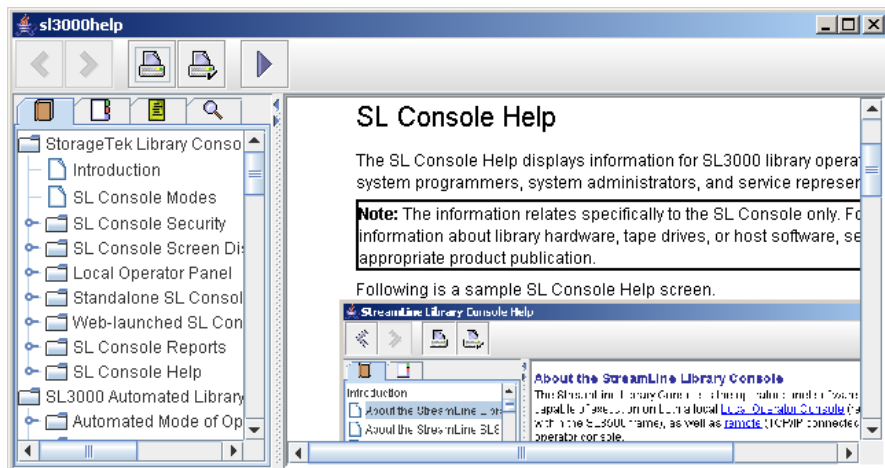
For report procedures, see [“General SL Console Report Tasks”](#) on page 85.

SL Console Help

The SL Console Help displays information for library operators, system programmers, system administrators, and service representatives.


Note – The information relates specifically to the SL Console only. For information about library hardware, tape drives, or host software, see the appropriate product publication.

Following is a sample SL Console Help screen.



Accessing the SL Console Help

You can display the SL Console Help from any SL Console screen. Use either of the following methods:

- To display context-sensitive help for the current SL Console screen, click the  button in the Options bar.
- To display general help information, click **Help > Contents** in the Menu bar.







Help Navigation

The left panel of the SL Console Help screen displays either of the following:

- Table of contents (TOC) – An outline of topics and subtopics
- Index – A list of terms and topics, in alphabetical order

The right panel displays the Help topic itself.

The top of the SL Console Help screen includes the following navigation buttons.

Button	Action
 Back	Retraces your steps, going backward one topic at a time.
 Forward	Retraces your steps, going forward one topic at a time.
 Print	Displays the Print popup, which allows you to print one or more topics: <ul style="list-style-type: none"> • To print the current topic, click the Print button. • To print a different topic, click the topic title in the SL Console Help table of contents, and click the Print button. • To print more than one topic, highlight the topics in the SL Console Help table of contents by pressing Shift-Click or Ctrl-Click, and then click the Print button.
 Print Setup	Displays the Page Setup popup, which allows you to modify your print page layout.
 TOC	Displays the SL Console Help table of contents.
 Index	Displays the SL Console Help index.

Tips for Using the SL Console Help

- You can minimize, maximize, or resize the Help screen to accommodate your needs.
- You can resize the left and right panels of the Help screen by clicking the border between them and dragging it left or right.
- Most topics include a **Related Topics** button at the bottom of the page. Click on this button to display and navigate to help topics containing related information.

Local Operator Panel

The local operator panel is an optional feature of the library, which is built in to the Base Module and Drive Expansion Module (DEM). It enables you to run most of the SL Console application directly at the library from a flat-screen display with a touch screen interface.

The local operator panel has the following features:

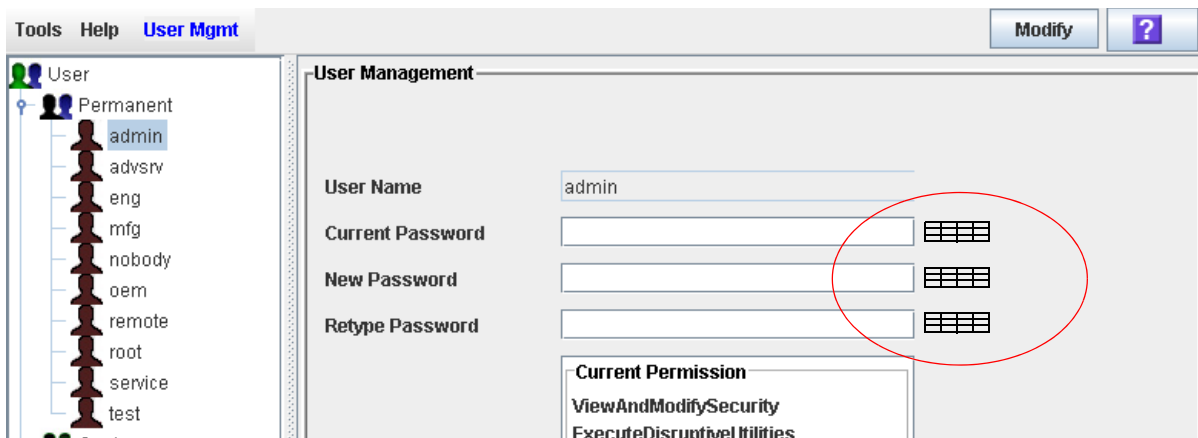
- Flat-panel display (12.1-inch), resident within the library
- Touch screen interface, allowing alphanumeric data entry; stylus available; see [“Virtual Keypad”](#) for details.
- No keyboard or mouse option

LEDs located directly below the local operator panel provide the following status information:

- Library Active – Library processor is working.
- Wait – Library firmware is loading.
- Service Required – Library is rebooting.

Virtual Keypad

Some screen fields require you to make a text entry. The local operator panel displays a keyboard icon next to these fields. By clicking on the keyboard icon, you can display a virtual keypad, which allows you to enter valid alphanumeric characters into the field. The following figure illustrates the keyboard icons on a sample screen.



The virtual keypad provides the standard alphanumeric and symbol characters. It allows you to enter only characters that are valid for the current field; characters that are not valid are grayed out.

The virtual keypad also provides the following cursor movement buttons:

Button	Function
Insert	If highlighted, inserts text at the cursor position. If not highlighted, replaces text to the right of the cursor.
Home	Places cursor at the beginning of the field.
Del	Deletes character to the right of the cursor.
End	Places cursor at the end of the field.
Back	Deletes character to the left of the cursor
Clear	Clears the entire field
Left	Moves cursor one character to the left
Right	Moves cursor one character to the right
OK	Submits the text entry in the field
Cancel	Cancel the text entry in the field and dismisses the virtual keypad

Touch Screen Calibration

Alignment of the local operator panel touch screen is calibrated at the factory. The factory settings are appropriate for most situations, and it is usually not necessary for you to make any adjustments. On rare occasions, however, the touch screen may come out of alignment or need adjustment.

To re-calibrate the touch screen, proceed as follows:

- If you have a Linux-based local operator panel, you can re-calibrate it yourself. See [“Re-calibrate the Local Operator Panel” on page 93](#) for detailed instructions.
- If you have a Windows-based local operator panel, contact your Oracle support representative. Windows-based local operator panels can be re-calibrated only by an authorized service representative.

If you have a Linux-based local operator panel, you can re-set the touch screen to its factory settings at any time. See [“Reset the Local Operator Panel Calibration” on page 96](#) for detailed instructions.

Web-launched SL Console

The Web-launched SL Console is a standard feature of the library. It enables the SL Console to be installed on a centralized Web server. Individual clients can then use a supported Web browser to download the Web-launched SL Console. Using the Web-launched SL Console you can connect to any library for which you have a valid user ID.

The Web-launched SL Console is delivered to clients as a Java Web Start process, which executes outside the browser.

Security Considerations

The Web-launched SL Console software is digitally signed, which guarantees that it has been issued by Oracle Corporation and has not been altered or corrupted since it was created. As a Java Web Start process, the Web-launched SL Console includes the security features provided by the Java 2 platform.

The customer is responsible for implementing all appropriate additional security systems, including firewalls, user access, etc.

Client Requirements

You can download the Web-launched SL Console to clients meeting the following requirements:

Platform	Solaris 9 – SPARC (Firefox 2.x) Solaris 10 – SPARC (Firefox 2.x) Windows 2000 – 32 bit (IE 5, IE 5.5, Firefox 2.x) Windows XP – 32 bit (IE 6, IE 7, Firefox 2.x) Windows Vista – 32 bit (IE 7, Firefox 2.x)
Other	<ul style="list-style-type: none">• Java 1.5 Plug-in (the browser will install this automatically if it is not present already)• Ethernet connection to the library• Ethernet connection to the Web-launched SL Console server

Web-launched SL Console Updates

Updates to the Web-launched SL Console only need to be installed on the centralized Web server. Once the updates are installed on the server, they are downloaded automatically to all clients whenever the application is started on the client.

Starting the Web-launched SL Console on a Client

You can use either of the following methods to start and log in to the Web-launched SL Console on a client:

- From a command line (Solaris only) or supported browser. See [“Log in to the Web-launched SL Console Using a Browser or Command Line” on page 75](#).
- By double-clicking the `slc.jnlp` icon on your client. In order to use this method from a client, you must use the browser method at least once and save the `slc.jnlp` file locally. See [“Log in to the Web-launched SL Console Using an Icon” on page 79](#).

Standalone SL Console

The standalone SL Console is a standard feature of the StorageTek SL3000 library. It enables you to run the SL Console application remotely from a PC or workstation that has a network connection to the library. Using the standalone SL Console you can connect to any library for which you have a valid user ID.

Security Considerations

The SL Console application interfaces with the primary library interface (PLI) over a security software layer (SSL). The SSL provides a secure communication path between the library and the customer's SL Console session; this prevents an unauthorized network user from monitoring library activity.

Installation Requirements

You can install the standalone SL Console on a computer meeting the following requirements:

Platform	Solaris 9 – SPARC Solaris 10 – SPARC Windows 2003 Server – 32 bit Windows XP Client – 32 bit Windows Vista – 32 bit
Other	Ethernet connection to the library

The standalone SL Console software is available for download at the Oracle Corporation E-Delivery website, which is at the following URL:

<http://edelivery.oracle.com/>

Standalone SL Console Updates

Note – Before you can install a new version of the standalone SL Console, you must uninstall the previous version. See your PC or workstation documentation for detailed instructions. Running multiple versions of the SL Console on the same PC or workstation can cause problems such as inconsistent data on reports.

Once you have uninstalled the previous version of the SL Console, see the following procedures for detailed instructions on upgrading the software.

- [“Download the Standalone SL Console Media Pack” on page 98](#)
- [“Install the Standalone SL Console” on page 103](#)

SL Console Task Summary

SL Console tasks are divided into the following categories:

- [“General SL Console Usage Tasks” on page 73](#)
- [“General SL Console Report Tasks” on page 85](#)
- [“Local Operator Panel Calibration Tasks” on page 92](#)
- [“Standalone SL Console Installation Tasks” on page 97](#)

General SL Console Usage Tasks

Task	Page
Log in to the Local Operator Panel	74
Log in to the Web-launched SL Console Using a Browser or Command Line	75
Log in to the Web-launched SL Console Using an Icon	79
Log in to the Standalone SL Console	82
Log Off the SL Console	83
Change a User Password	84

▼ Log in to the Local Operator Panel

Use this procedure to log in to the local library.

Note – Only one user at a time can log in to the local operator panel.

1. If the touch screen panel is blank, touch the screen anywhere to activate the **Login** screen.
2. Use the virtual keypad to enter your login information (see [“Virtual Keypad” on page 68](#) for details).

User ID: *SLC_login*

Password: *password*

where:

- *SLC_login* is the SL Console user ID.
- *password* is the password assigned to this user ID.

Note – The user ID you use determines the screens you can access. See [“SL Console Security” on page 62](#).

3. Click **Log on**.

▼ Log in to the Web-launched SL Console Using a Browser or Command Line

Note – Before you perform this activity, you must obtain the DNS alias or IP address of the SL Console server. Depending on how your Web-launched SL Console server has been set up, it may be accessible only by IP address. See your library administrator for assistance.

Note – The command line option is available on Solaris platforms only.

On Windows 2000, you may need to install a Java plugin for your Web browser before performing this procedure. You can download the plugin from the following location:

http://java.sun.com/products/archive/j2se/5.0_04/index.html

On Solaris platforms, it is easier to log in to the Web-launched SL Console using the command line. If you prefer to log in using a Web browser, however, you need to download a recent version of the Firefox Web browser from the following location: www.mozilla.com

1. Choose your login method:

- Command line – available on Solaris only. Proceed to [Step 2](#).
- Web browser – available on either Windows or Solaris. Proceed to [Step 3](#).

2. Open a terminal window, and type the following command:

```
javaws http://server_ID:port_ID/opel/slc.jnlp
```

where:

- *server_ID* is either of the following:
 - IP address of the SL Console server
 - DNS alias of the SL Console server
- *port_ID* is the port ID of the SL Console application, typically 8080
- *opel* is the name (context root) of the Web-launched SL Console application on the server.

Proceed to [Step 4](#).

3. Start a supported Web browser on your client PC or workstation (see “[Client Requirements](#)” on [page 70](#) for a list of supported browsers), and in the Location Bar or Address field, enter the URL of the SL Console Web Start application:

```
http://server_ID:port_ID/opel
```

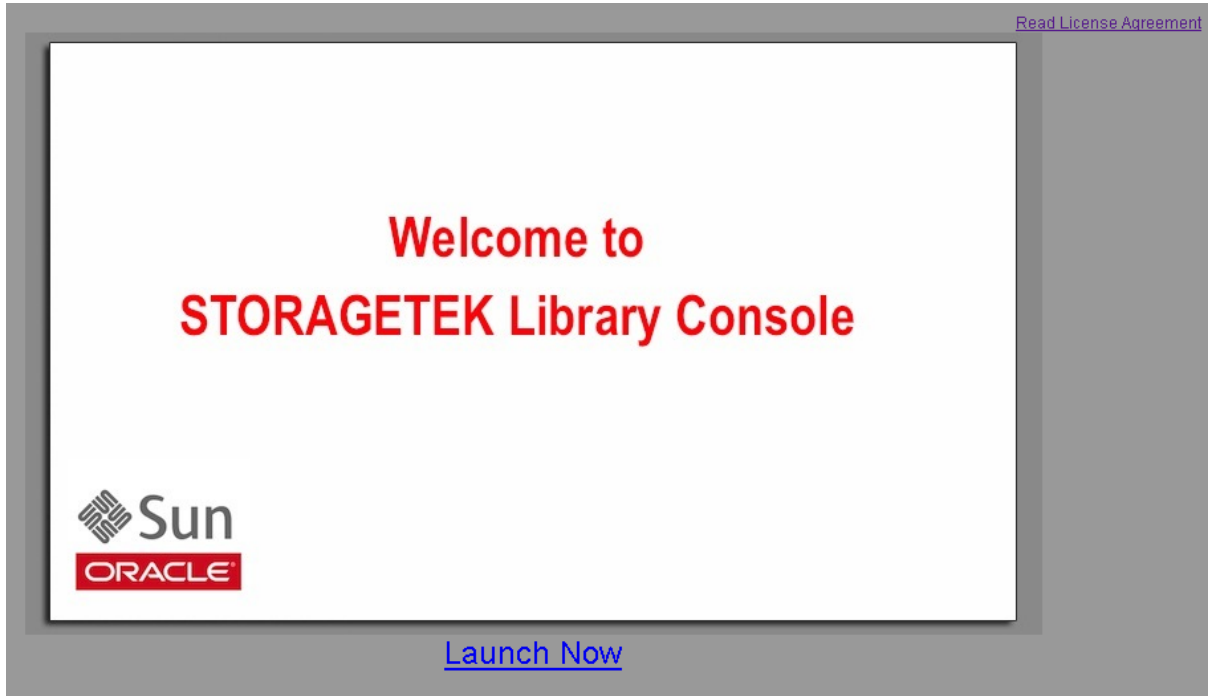
where:

- *server_ID* is either of the following:
 - IP address of the SL Console server
 - DNS alias of the SL Console server
- *port_ID* is the port ID of the SL Console application; typically 8080

- `ope1` is the name (context root) of the Web-launched SL Console application on the server.

Note – You can bookmark this URL for future logins.

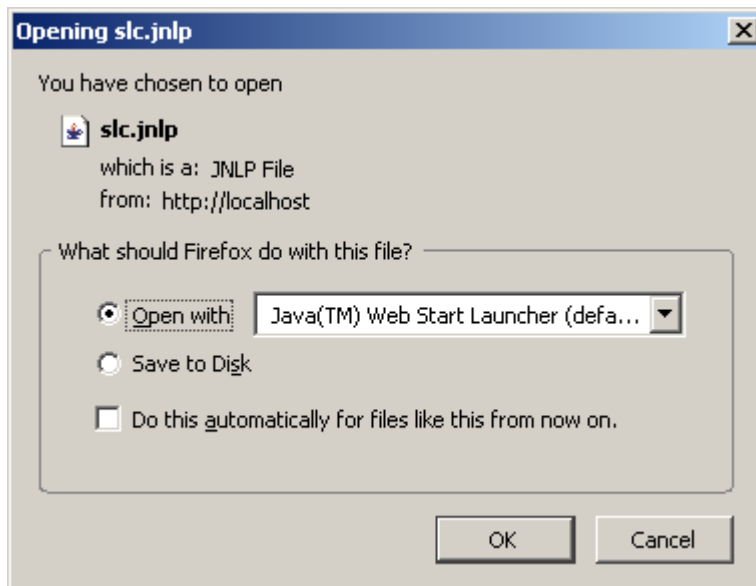
The **SL Console Launch** screen appears.



4. **Click Launch Now.**

The Web Start process retrieves the Web-launched SL Console application from the server. Any updates are downloaded automatically.

The **Opening slc.jnlp** popup appears.



5. **Complete the popup as follows:**

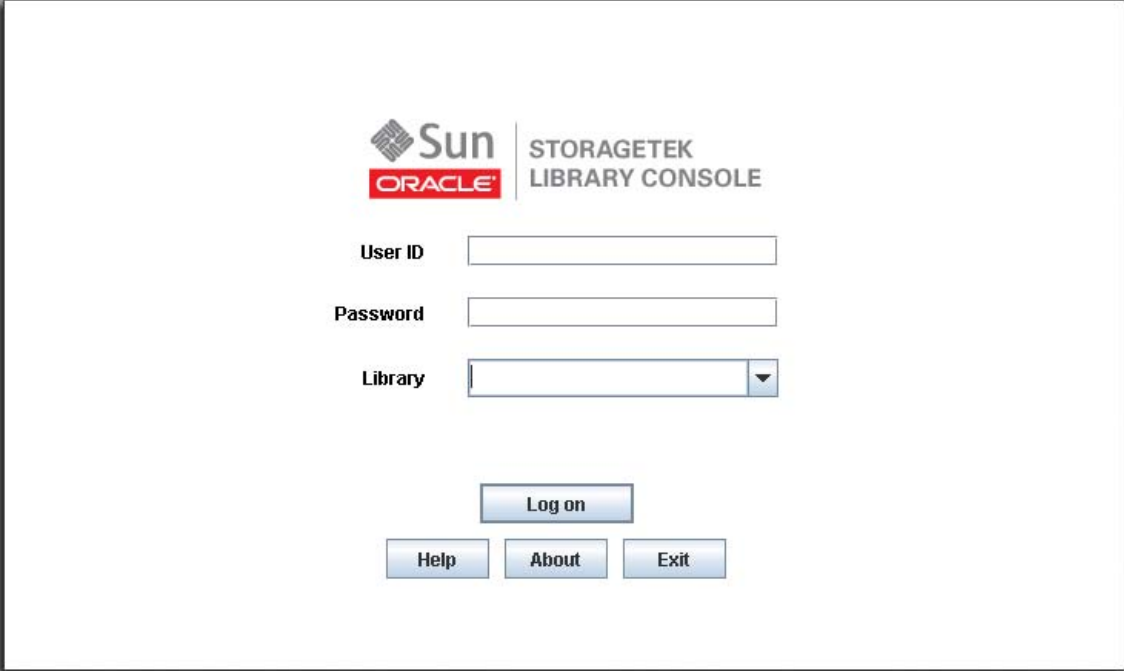
- a. Specify the action you want to take with the `slc.jnlp` file:
 - Click the **Open with Java(TM) Web Start Launcher** radio button if you want to start the SL Console directly.
 - Click the **Save to Disk** radio button if you want to save the `slc.jnlp` file to your client and log in to the SL Console later. See [“Log in to the Web-launched SL Console Using an Icon” on page 79](#) for login instructions.
- b. Optionally click the “Do this automatically for files like this from now on” checkbox. If you make this selection, this popup will not appear during future logins.
- c. Click OK.

If this is the first time you are running the Web-launched SL Console, a digital signature warning popup appears.



6. Complete the popup as follows:
 - a. Verify the Publisher.
 - b. Optionally click the “Always trust content from the publisher” checkbox. If you make this selection, this popup will not appear during future logins.
 - c. Click Run.

The SL Console Login screen appears.



The screenshot shows the login interface for the Sun ORACLE STORAGE TEK LIBRARY CONSOLE. At the top left is the Sun logo with 'ORACLE' in a red box below it. To the right, the text 'STORAGE TEK LIBRARY CONSOLE' is displayed. Below the logos are three input fields: 'User ID', 'Password', and 'Library'. The 'Library' field is a dropdown menu. At the bottom, there are four buttons: 'Log on', 'Help', 'About', and 'Exit'.

7. Enter your login information, and click Log on.

User ID: *SLC_login*

Password: *password*

Library: *library_ID*

where:

- *SLC_login* is the SL Console user ID.
- *password* is the password assigned to this user ID.
- *library_ID* is the library to which you want to connect, expressed in either of the following ways:
 - IP address of the library
 - DNS alias of the library

Note – The user ID you use determines the screens you can access. See [“SL Console Security”](#).

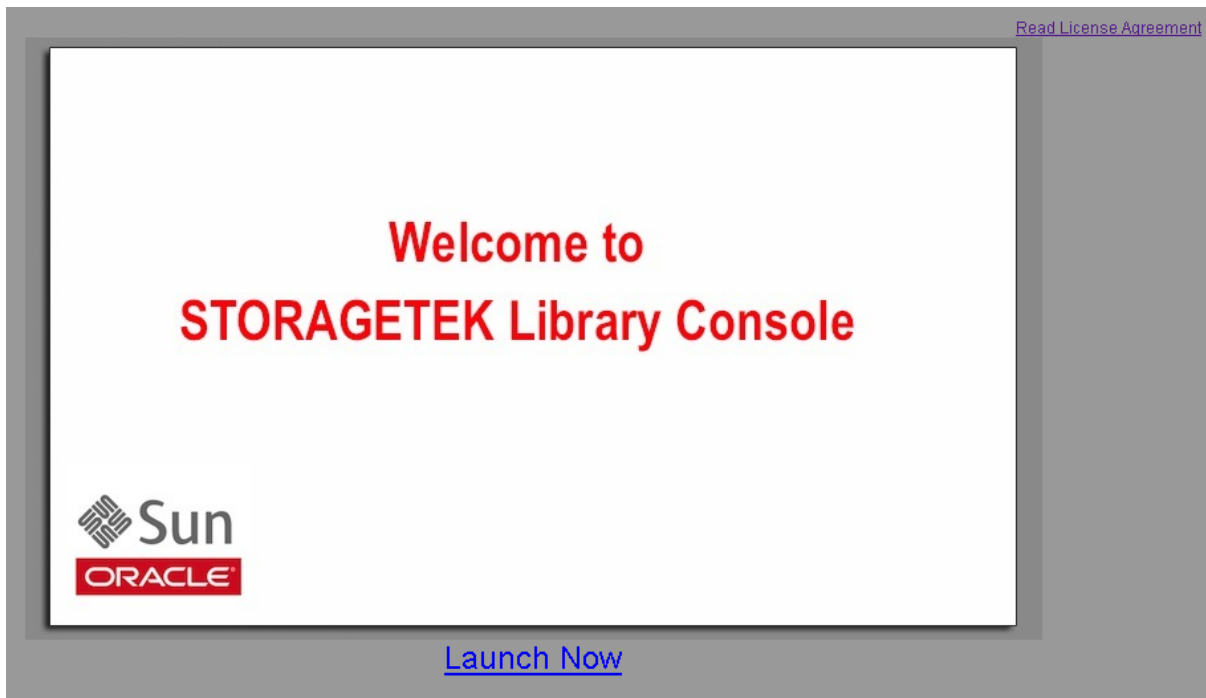
▼ Log in to the Web-launched SL Console Using an Icon

Note – In order to perform this activity, you must first save the Web-launched SL Console `slc.jnlp` file to your client. See [“Log in to the Web-launched SL Console Using a Browser or Command Line”](#) on page 75 for details.

1. **Double-click the `slc.jnlp` desktop icon on your client.**

The Web Start process retrieves the Web-launched SL Console application from the server. Any updates are downloaded automatically.

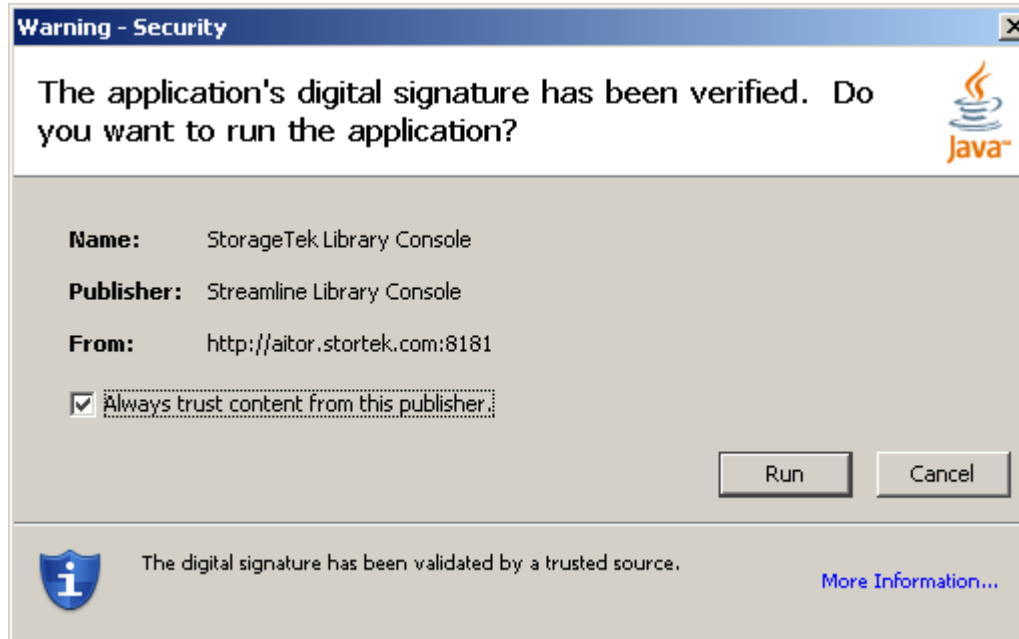
The **SL Console Launch** screen appears.



2. **Click Launch Now.**

The Web Start process retrieves the Web-launched SL Console application from the server. Any updates are downloaded automatically.

If this is the first time you are running the Web-launched SL Console, a security warning popup appears.



3. Complete the popup as follows:
 - a. Verify that the Publisher is Oracle Corporation
 - b. Optionally click the "Always trust content from the publisher" checkbox. If you make this selection, this popup will not appear during future logins.
 - c. Click Run.

The SL Console Login screen appears.



The screenshot shows the login interface for the Sun ORACLE STORAGE TEK LIBRARY CONSOLE. It features a header with the Sun and ORACLE logos and the text 'STORAGE TEK LIBRARY CONSOLE'. Below the header, there are three input fields: 'User ID', 'Password', and 'Library'. The 'Library' field is a dropdown menu. At the bottom, there are three buttons: 'Log on', 'Help', 'About', and 'Exit'.

4. Enter your login information, and click Log on.

User ID: *SLC_login*

Password: *password*

Library: *library_ID*

where:

- *SLC_login* is the SL Console user ID.
- *password* is the password assigned to this user ID.
- *library_ID* is the library to which you want to connect, expressed in either of the following ways:
 - IP address of the library
 - DNS alias of the library

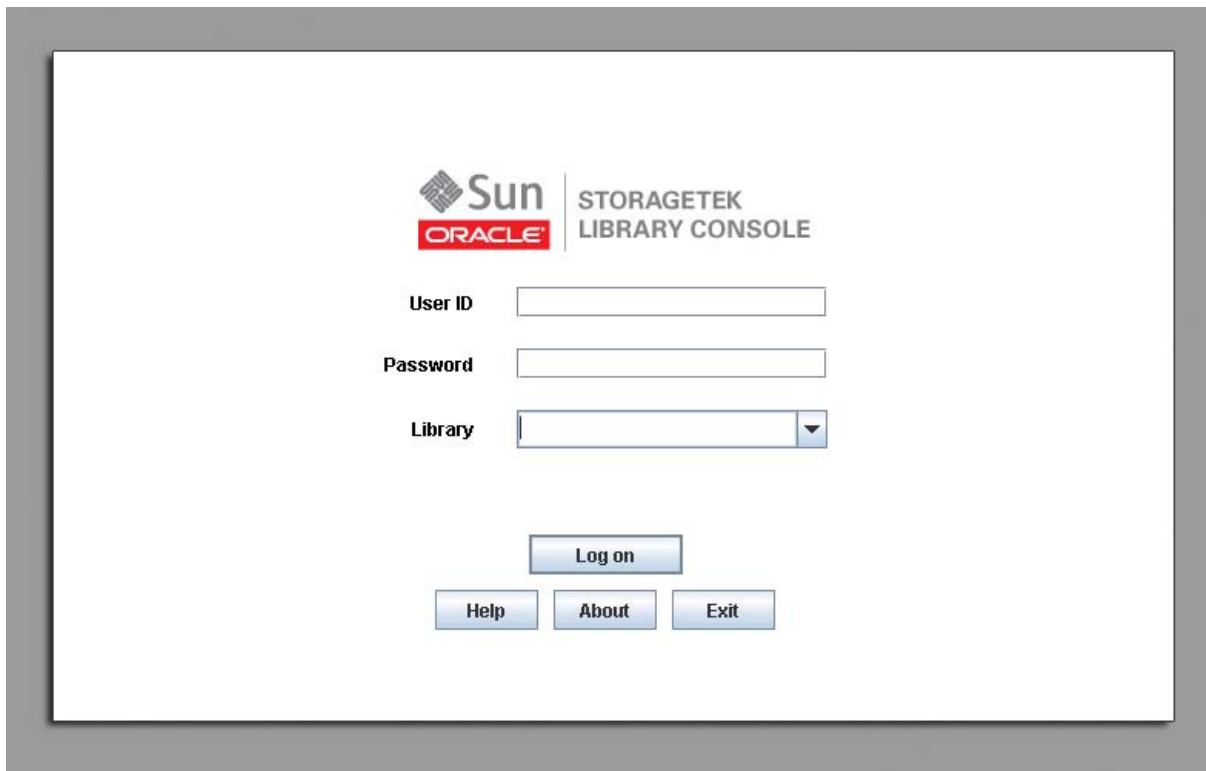
Note – The user ID you use determines the screens you can access. See [“SL Console Security”](#).

▼ Log in to the Standalone SL Console

1. Start the SL Console application on your PC or workstation by doing either of the following:

- Double-click the **SL Console** icon on the desktop.
- Select **Start > RunSLConsole** or **Launch > RunSLConsole**

The SL Console starts and the **Login** screen appears.



2. Enter your login information.

User ID: *SLC_login*

Password: *password*

Library: *library_ID*

where:

- *SLC_login* is the SL Console user ID.
- *password* is the password assigned to this user ID.
- *library_ID* is the library to which you want to connect, expressed in either of the following ways:
 - IP address of the library
 - DNS alias of the library

Note – The user ID you use determines the screens you can access. See [“SL Console Security”](#).

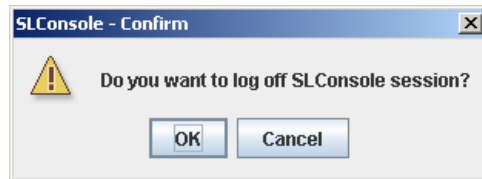
3. Click **Log on**.

▼ Log Off the SL Console

Note – Before you log off, make sure all operations for the current SL Console session have completed (for example, code loads, audits, diagnostic moves).

1. From any SL Console screen, select **Tools > Log Off**.

The **Confirm** popup appears.



Note – To remain logged in to the SL Console, click **Cancel**. You are returned to the originating screen without logging off.

2. Click **OK**.

You are logged off the SL Console, and the **Login** screen appears.



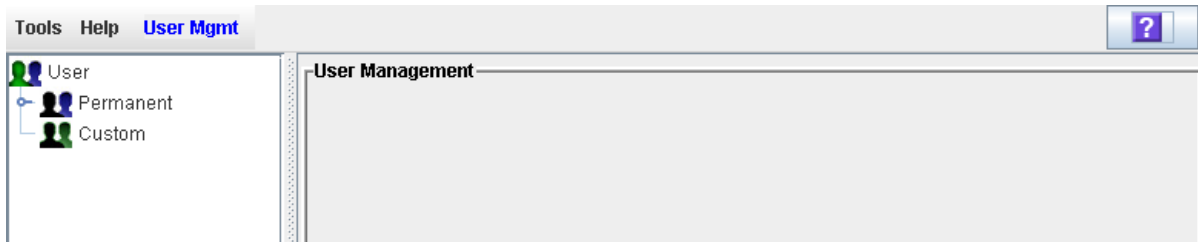
3. Click **Exit** to close the SL Console.

▼ Change a User Password

Use this procedure to change the password for a user account.

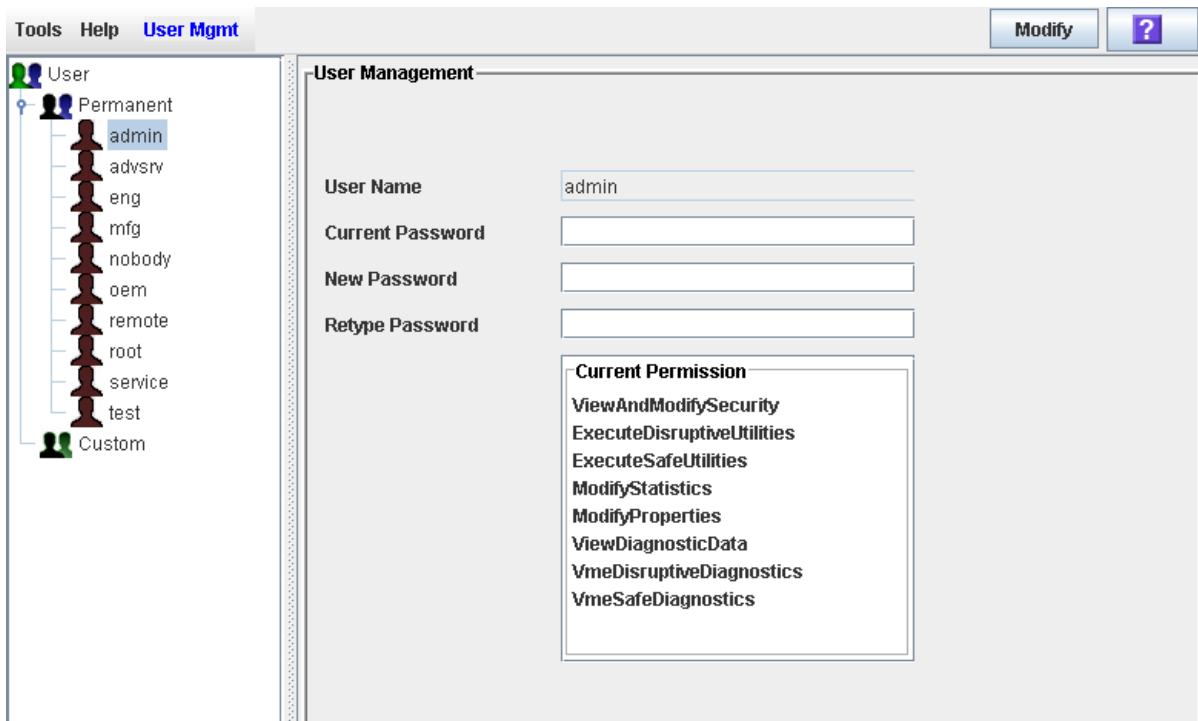
1. Log in to the SL Console using any of the modes available to you (local operator panel, Web-launched SL Console, or standalone SL Console). You must log in using the user account you want to modify.
2. Select Tools > User Mgmt.

The User Management screen appears.



3. On the User tree, expand the Permanent folder, and click the user account you want to modify (the user account you are logged in as).

Detailed information for the user account is displayed.



4. Complete the following fields: Current Password, New Password, and Retype Password.
5. Click Modify.

The password for the account is updated.

General SL Console Report Tasks

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Display a Library Report	86
Search a Library Report	88
Save Library Report Data to a File	90

▼ Display a Library Report

Use this procedure to display library reports available from the **Tools > Reports** menu.

Note – All report output is a static display of information sent from the library controller at the time the report is generated. The SL Console does not update the information dynamically unless you explicitly select the **Update** button on the Options Bar.

If you want to search the report data or save it to a file, see the following procedures:

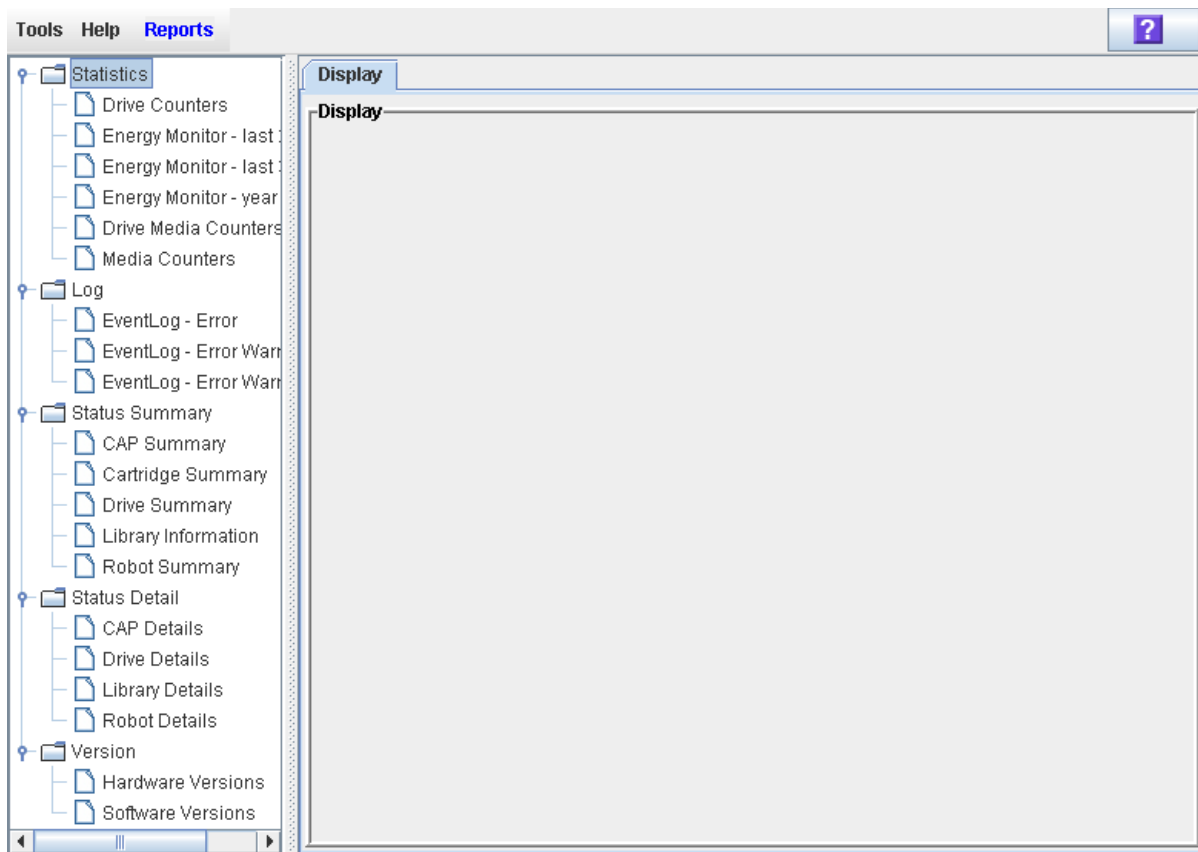
- [“Search a Library Report” on page 88](#)
- [“Save Library Report Data to a File” on page 90](#)

Additional reports are available from the following menus:

- **Tools > Partitions**
- **Tools > Select Active Cells**

1. Select Tools > Reports.

The reports **Display** screen appears. All library report options are listed in the navigation bar.



2. In the navigation bar, expand a report category to see the report options.
3. Click the report you want to display.

The selected report is displayed.

The screenshot shows a software interface with a menu bar at the top containing 'Tools', 'Help', and 'Reports'. To the right of the menu are buttons for 'Search', 'Update', 'Save', and a help icon. A left-hand navigation pane lists various report categories: 'Log' (with sub-items 'EventLog - Error', 'EventLog - Error Warn', and 'EventLog - Error Warn Inf'), 'Status Detail' (with sub-items 'CAP Details', 'Drive Details', 'Library Details', and 'Robot Details'), 'Status Summary' (with sub-items 'CAP Summary', 'Cartridge Summary', 'Drive Summary', 'Library Information', and 'Robot Summary'), and 'Version' (with sub-items 'Hardware Versions' and 'Software Versions'). The 'EventLog - Error' item is selected. The main display area, titled 'Display', shows the following information:

EventLog - Error

Generated on : Thu Feb 28 13:13:30 MST 2008

Event

Time : 2007-12-21T08:22:24.528
Device Address : 1.1.0.2.0
User : root
Requester : default
Activity : internal
Request Id : 0
Level : error
Result Code : 3333
Text : "Dropped unexpected device response"
Parameters : Data=<response sequence="57"

final="false"><command>audit</command><result
identifier="1"><resultStatus><resultSeverity>info</resultSeverity><resultCode>0000</resultCode><res
ultText><![CDATA]End of
Text||</resultText><operationalState>000</operationalState></resultStatus><cartPresent>>false</cartP
resent><upsideDown>>false</upsideDown><address>1,1,7,1,45</address><label><![CDATA]||></labe
l></result></response>

Time : 2007-12-21T08:22:24.575
Device Address : 1.1.0.2.0
User : root
Requester : default

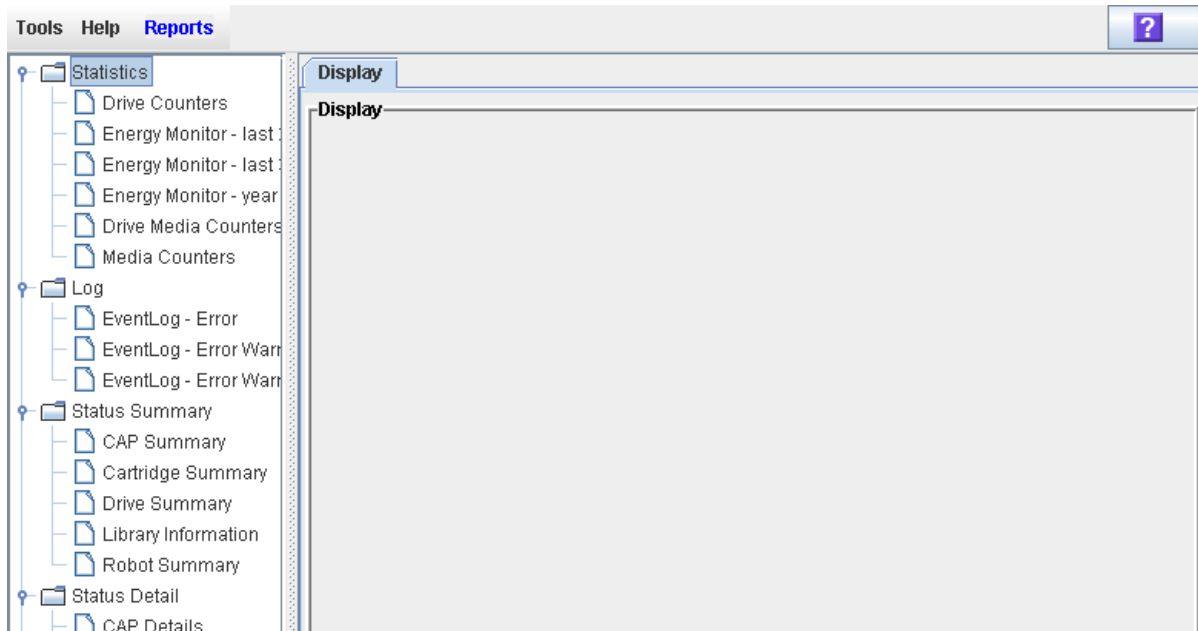
The bottom status bar displays 'SL3000' on the left, and three indicators on the right: a green checkmark for 'Comm Status', 'UserID: root', and another green checkmark for 'Library:crimson20.stortek.com'.

▼ Search a Library Report

Use this procedure to search a library report for a specified text string. This procedure can be performed on any of the library report screens.

1. Select Tools > Reports.

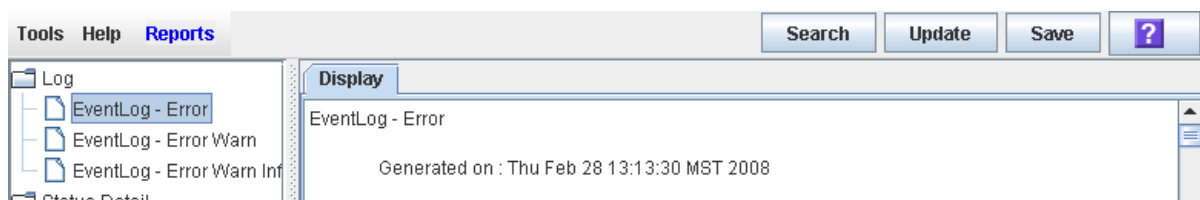
The reports **Display** screen appears. All library report options are listed in the navigation bar.



2. In the navigation bar, expand a report category to see the report options.

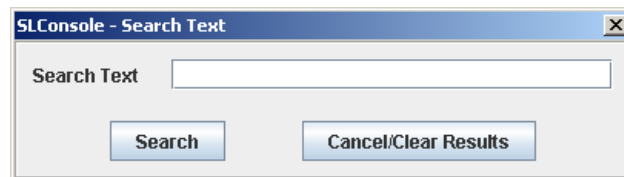
3. Click the report you want to display.

The specified report is displayed. All report screens include the **Search** button on the Options Bar.



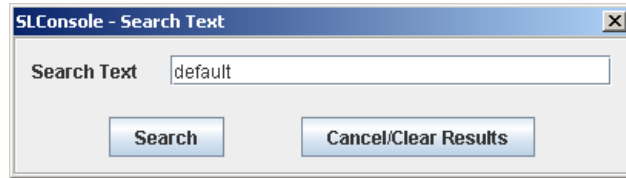
4. Click Search.

The **Search Text** popup appears.

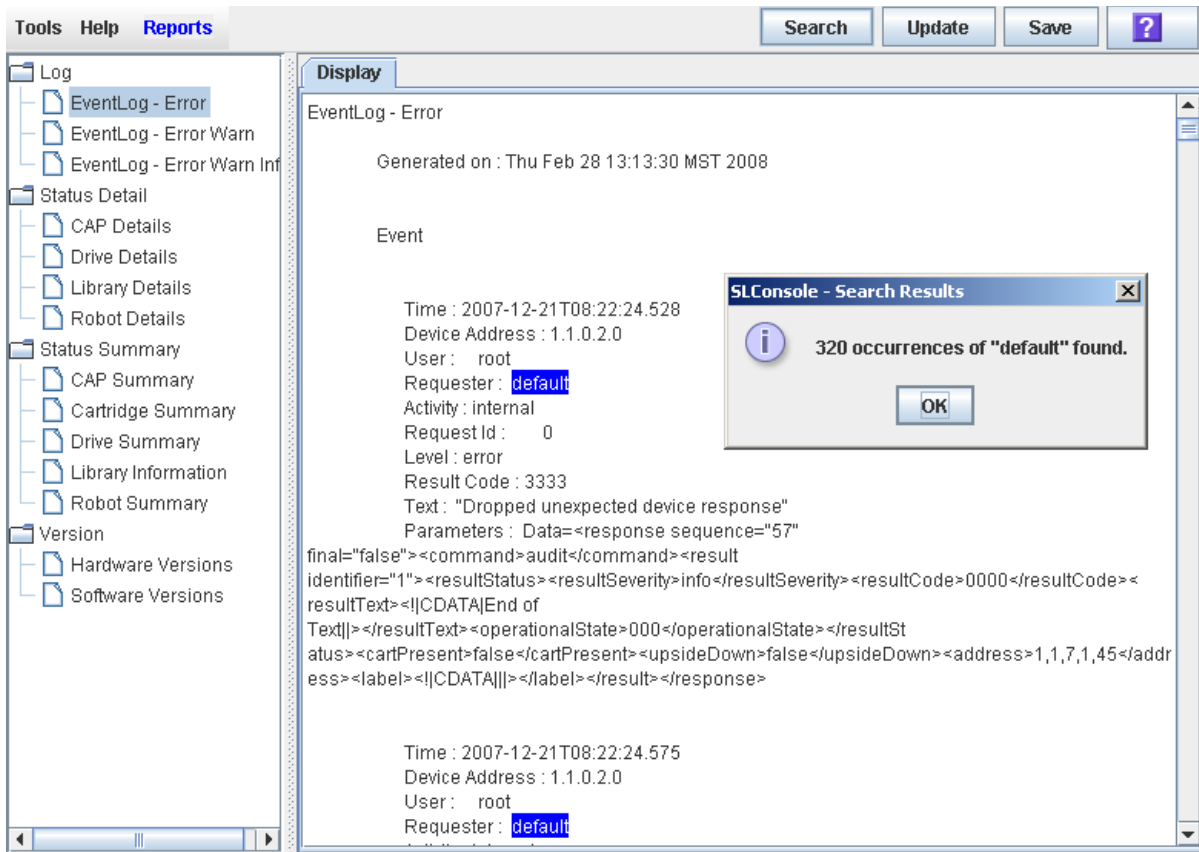


5. Enter the text string you want to search for, and click Search.

Note – The search is case-sensitive, and wildcards are not supported.



6. The Search Results popup appears, displaying the number of occurrences of the text string. All instances of the text string in the report are highlighted.



7. Click OK to dismiss the popup.

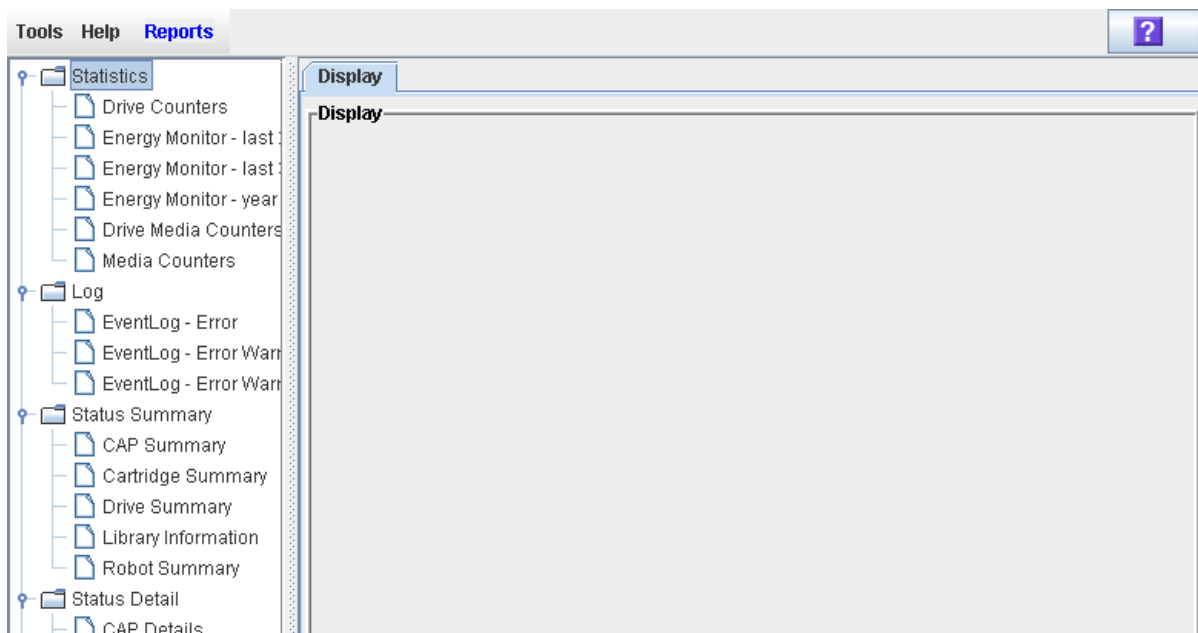
▼ Save Library Report Data to a File

Use this procedure to display a library report and save the data to a file. Depending on the report, you can save to in text (.txt), HTML, XML, or comma-separated values (.csv) format. This procedure can be performed from any of the library report screens.

Once the file is saved, you can print it or include it in e-mail. This may be useful for communicating about library issues with your Oracle support representative. Also, you can import a .csv file into a spreadsheet or charting application in order to better understand and interpret the data.

1. Select Tools > Reports.

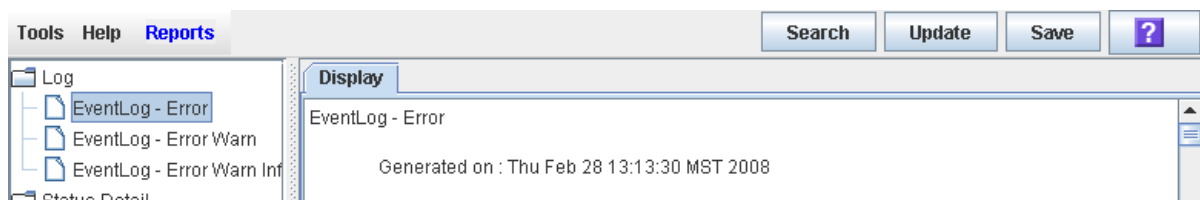
The reports **Display** screen appears. All library report options are listed in the navigation bar.



2. In the navigation bar, expand a report category to see the report options.

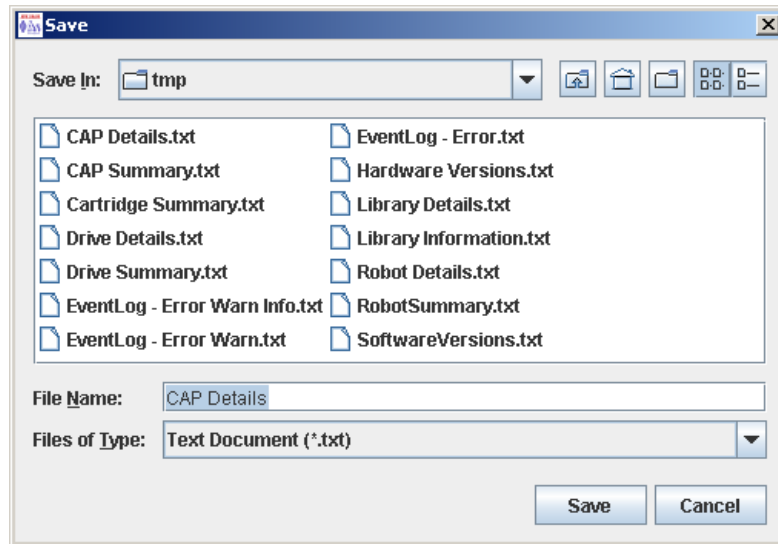
3. Click the report you want to display.

The specified report is displayed. All report screens include the **Save** button on the Options Bar.



4. Click Save.

The Save popup appears.



5. Browse to the directory where you want to save the file. In the File Name field, you can accept the default entry or enter a different file name.
6. In the Files of Type pull-down, select the format in which you want to save the data (HTML, Text, XML, .csv).
7. Click Save.

The data is saved to the specified file.

Note – If the file exists already, a popup appears prompting you whether you want to replace the file.

Local Operator Panel Calibration Tasks

Task	Page
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Reset the Local Operator Panel Calibration	96

▼ Re-calibrate the Local Operator Panel

Use this procedure to change the alignment of the local operator panel touch screen. The touch screen comes pre-calibrated from the factory, and in most cases no adjustment is necessary. Typically, you would use this procedure only if the touch screen has come out of alignment.

Note – This procedure can be performed only at a Linux-based local operator panel. To re-calibrate a Windows-based local operator panel, contact your Oracle support representative.

Note – Before beginning this procedure, make sure there is no debris on the touch screen, as this can interfere with an accurate calibration.

Note – You can re-set the touch screen to its factory settings at any time. See [“Reset the Local Operator Panel Calibration” on page 96](#) for detailed instructions.

1. **Log in to the local operator panel.**

See [“Log in to the Local Operator Panel” on page 74](#) for detailed instructions.

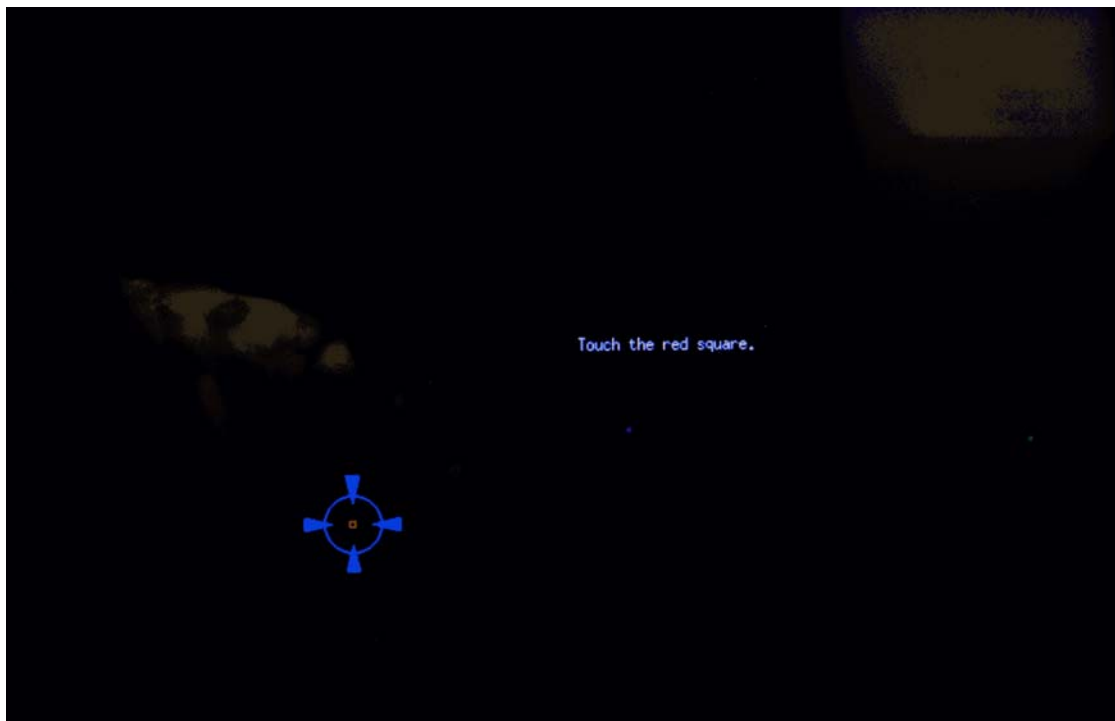
2. **Select Tools > Calibrate.**

The **Select Calibration Option** popup appears.



3. **Click Calibrate.**

The alignment sequence begins. Ten targets are presented sequentially on the screen.



4. Gently tap in the center of each target with your finger or a pointing stylus.

This aligns the screen according to your touch. Be sure to touch the center of each target so you can get an accurate calibration.

Note – If you tap outside of a target, you can potentially mis-align your touch screen. Depending on the severity of the mis-alignment, you may have trouble logging back into the local operator panel if you save these new settings. See [Step 7](#) for instructions on discarding settings.

After you touch the last target of the alignment sequence, the first of two **Accept Calibration** popups appears, with a **Click Me** button on the left side of the popup.



5. Proceed as follows with the agility test, depending on whether the new alignment settings are good:
 - To save the new alignment settings, proceed to [Step 6](#).
 - To discard the new settings, proceed to [Step 7](#).
6. Use the following steps to save the new settings.
 - a. On the **Accept Calibration** popup, touch the **Click Me** button within the indicated time period.

- If the button depresses when you touch it directly, the touch screen is properly aligned. The second **Accept Calibration** popup appears, this time with a **Click Me** button on the right side of the popup.



- If the button does not depress when you touch it directly, the touch screen is not properly aligned and you should discard the new settings. Proceed to [Step 7](#).
- b. **On the second Accept Calibration screen, touch the Click Me button within the indicated time period.**

If you depress the button successfully, the alignment settings are saved and the **Calibration Accepted** popup appears.



- c. **Click OK to dismiss the popup and save the new settings.**

The new settings are effective immediately, and the display returns to the SL Console screen. The local operator panel is not rebooted.

7. **Use the following steps to discard the new settings.**

- a. **On either Accept Calibration popup, let the timer run out without touching the Click Me button.**

The **Retry Calibration** countdown message appears.



- b. **The calibration sequence screen is presented again. Return to [Step 4](#) to try the calibration a second time.**

If you are not able to successfully calibrate the screen on the second try, the local operator panel is rebooted automatically, and the alignment is restored to the previously saved settings.

▼ Reset the Local Operator Panel Calibration

Use this procedure to restore the alignment of the local operator panel touch screen to the factory settings. This procedure forces a reboot of the local operator panel, which takes several minutes.

Note – This procedure is available only for a Linux-based local operator panel. To re-set the calibration of a Windows-based local operator panel, contact your Oracle support representative.

1. Log in to the local operator panel.

See “Log in to the Local Operator Panel” on page 74 for detailed instructions.

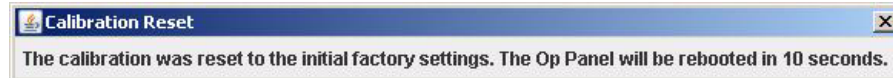
2. Select Tools > Calibrate.

The **Select Calibration Option** popup appears.



3. Click Reset Calibration.

The current touch screen calibration settings are discarded, and the alignment is restored to the factory settings. The **Calibration Reset** countdown message is displayed.



The local operator panel is rebooted automatically, and the display returns to the SL Console screen.

Note – The reboot takes several minutes.

Standalone SL Console Installation Tasks

Task	Page
Download the Standalone SL Console Media Pack	98
Install the Standalone SL Console	103

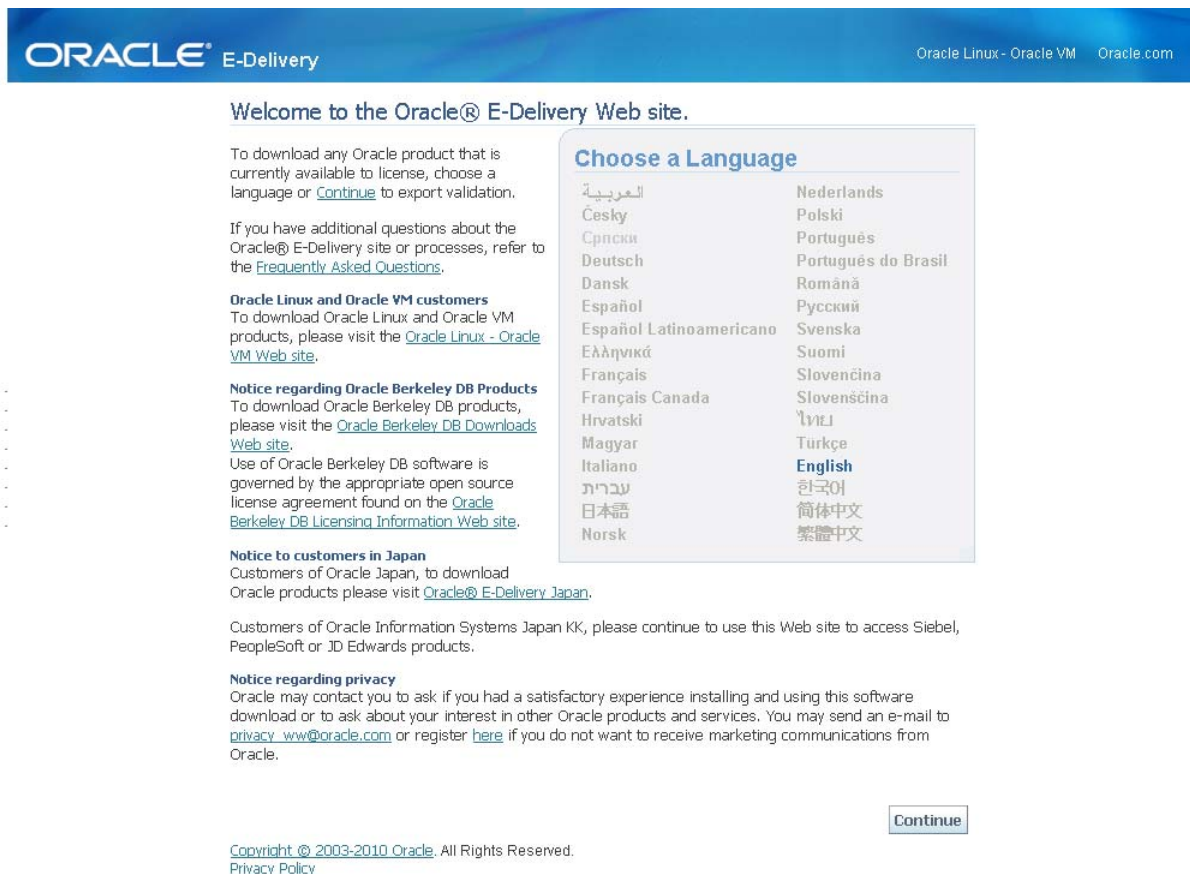
▼ Download the Standalone SL Console Media Pack

Use this procedure to download and extract the current SL Console Media Pack from the Oracle E-Delivery website. The Media Pack includes the Web-launched SL Console server, as well as the Web-launched SL Console client and the standalone SL Console.

Note – Your Oracle support representative may have performed this procedure for you during library installation.

1. **Start a Web browser on your PC or workstation and navigate to the Oracle E-Delivery website at the following URL:**

<http://edelivery.oracle.com/>



The screenshot shows the Oracle E-Delivery website interface. At the top, there is a blue header with the Oracle logo and 'E-Delivery' text on the left, and 'Oracle Linux - Oracle VM Oracle.com' on the right. Below the header, the main content area is white. On the left side, there is a vertical navigation menu with several links. The main content area contains the following text:

Welcome to the Oracle® E-Delivery Web site.

To download any Oracle product that is currently available to license, choose a language or [Continue](#) to export validation.

If you have additional questions about the Oracle® E-Delivery site or processes, refer to the [Frequently Asked Questions](#).

Oracle Linux and Oracle VM customers
To download Oracle Linux and Oracle VM products, please visit the [Oracle Linux - Oracle VM Web site](#).

Notice regarding Oracle Berkeley DB Products
To download Oracle Berkeley DB products, please visit the [Oracle Berkeley DB Downloads Web site](#).
Use of Oracle Berkeley DB software is governed by the appropriate open source license agreement found on the [Oracle Berkeley DB Licensing Information Web site](#).

Notice to customers in Japan
Customers of Oracle Japan, to download Oracle products please visit [Oracle® E-Delivery Japan](#).

Customers of Oracle Information Systems Japan KK, please continue to use this Web site to access Siebel, PeopleSoft or JD Edwards products.

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At the bottom right of the main content area, there is a 'Continue' button.

At the bottom left of the main content area, there is a copyright notice: 'Copyright © 2003-2010 Oracle. All Rights Reserved. Privacy Policy'.

On the right side of the main content area, there is a 'Choose a Language' dialog box with a list of languages. The languages listed are:

Choose a Language	
العربية	Nederlands
Česky	Polski
Српски	Português
Deutsch	Português do Brasil
Dansk	Română
Español	Русский
Español Latinoamericano	Svenska
Ελληνικά	Suomi
Français	Slovenčina
Français Canada	Slovenščina
Hrvatski	ไทย
Magyar	Türkçe
Italiano	English
עברית	한국어
日本語	简体中文
Norsk	繁體中文

2. **Click Continue.**

3. **On the Export Validation screen, make the following entries:**

- Enter your contact information.
- Read the License Agreement and Export Restrictions, and click the check boxes to indicate your acceptance.

- Click Continue.

ORACLE E-Delivery Oracle Linux - Oracle VM Oracle.com

Export Validation Search Download

Export Validation

TIP Each time you visit this site, enter the information *exactly* the same. This will reduce the chance of long delays while processing your request. For example, if you include your middle initial one time but leave it out the next time, your name must be processed as a new user.

Need help? Look at our [Frequently Asked Questions](#).

Full name (FIRST LAST) * Example: John Doe

Company name * Example: Oracle

E-mail address *

Country * - Select a country -

Note: * indicates a required field.

Notice

By accessing the software on this Web site, you agree that (1) you have already obtained a license from Oracle, or an Oracle partner, for your use of the software and that your Oracle License and Services Agreement or Software License and Services Agreement, Oracle PartnerNetwork Agreement, Oracle distribution agreement, or other license agreement with Oracle or an Oracle partner, plus the applicable ordering document with Oracle or an Oracle partner, governs your use of the software; or (2) if you have not already obtained a license from Oracle or an Oracle Partner for your use of the software, the Oracle Electronic Delivery Trial License Agreement on this Web site governs your use of the software for the time specified in such agreement. Note: Programs downloaded for trial use or downloaded as replacement media may not be used to update any unsupported programs.

Electronic Delivery Trial License Agreement [View printable version](#)

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GENERAL INFORMATION

The "Trial Term" shall be 30 Days from the date of your acceptance of the terms and conditions of

YES, I accept the Trial License Terms and Export Restrictions and I acknowledge that I have reviewed and understand the agreement and agree to use the language I selected in entering into this agreement.

OR, I have already obtained a license from Oracle which governs my use of the software. I understand that Oracle has recently acquired Sun Microsystems, Inc. and that some of the downloads may contain or refer to a Software License Agreement and/or Entitlement in the legal directory, readme file, or elsewhere. I acknowledge that my Oracle or Oracle partner license described in (1) above, or the Electronic Delivery Trial License Agreement (including export restrictions) described in (2) above, supersedes and replace any terms contained in any other Software License and/or Entitlement document including those written in the legal directory or readme file.

Export Restrictions

You agree that U.S. export control laws and other applicable export and import laws govern your use of the programs, including technical data; additional information can be found on Oracle's [Global Trade Compliance Web site](#).

You agree that neither the programs nor any direct product thereof will be exported, directly, or indirectly, in violation of these laws, or will be used for any purpose prohibited by these laws including, without limitation, nuclear, chemical, or biological weapons proliferation.

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YES, I accept these Export Restrictions

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4. On the Media Pack Search screen, make the following selections:

- In the **Select a Product Pack** pull-down, select **Oracle StorageTek Products**.
- In the **Platform** pull-down, select **Generic Platform**.

- Click Go.

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Export Validation **Search** Download

Media Pack Search

Instructions

1. Review the [License List](#) to determine which Product Pack or Packs you need to download.
2. Select the Product Pack and Platform and click "Go".
3. If there is only one result, you will see the download page. If there are multiple results, select one and click "Continue".

Frequently Asked Questions

- [What is a Media Pack?](#)
- [How do I find the Media Pack that I need?](#)
- [How do I get my license code?](#)
- [More...](#)

Select a Product Pack ⓘ

Platform

Results

Select	Description	Release	Part Number	Updated	# Parts / Size
*** No search conducted ***					

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5. All media packs meeting your selection criteria are displayed in the Results section of the screen. Select the SL Console version you want to download. Click Continue.

Media Pack Search

Instructions

1. Review the [License List](#) to determine which Product Pack or Packs you need to download.
2. Select the Product Pack and Platform and click "Go".
3. If there is only one result, you will see the download page. If there are multiple results, select one and click "Continue".

Frequently Asked Questions

- [What is a Media Pack?](#)
- [How do I find the Media Pack that I need?](#)
- [How do I get my license code?](#)
- [More...](#)

Select a Product Pack ⓘ

Platform

Results

Select	Description	Release	Part Number	Updated	# Parts / Size
<input checked="" type="radio"/>	Oracle StorageTek Library Console (SLC) (v.4.75.0) Media Pack for Generic Platform	4.75.0.0.0	B62036-01	DEC-27-2010	1 / 358M
<input type="radio"/>	Oracle StorageTek Library Console (SLC) (v.4.67.0) Media Pack for Generic Platform	4.67.0.0.0	B62035-01	DEC-27-2010	1 / 359M
<input type="radio"/>	Oracle StorageTek Virtual Operator Panel (VOP) v.1.0.16.0.0 Media Pack for Generic Platform	1.0.16.0.0	B62146-01	JAN-05-2011	1 / 17M
<input type="radio"/>	Oracle StorageTek SL500 Hardware Activation Files Media Pack for Generic Platform	1.0.0.0.0	B62148-01	JAN-05-2011	4 / 3.0K

Total: 4

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- On the specific media pack screen, review the information to verify that you have selected the correct media pack. Click **Download**.

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Export Validation Search **Download**

Oracle StorageTek Library Console (SLC) (v.4.75.0) Media Pack for Generic Platform

[Back](#) [Search Again](#)

TIP View the Readme file(s) to help decide which files you need to download.

Print this page with the list of downloadable files. It contains a list of the part numbers and their corresponding description that you may need to reference during the installation process.

Frequently Asked Questions

- [How do I know which files are required?](#)
- [What are the disk space requirements?](#)
- [How do I get my license code?](#)
- [More...](#)

Oracle StorageTek Library Console (SLC) (v.4.75.0) Media Pack v1 for Generic Platform

[Readme](#) [View Digest](#)

Select	Name	Part Number	Size (Bytes)
Download	Oracle StorageTek Library Console (SLC), version 4.75	V24226-01	358M

Total: 1

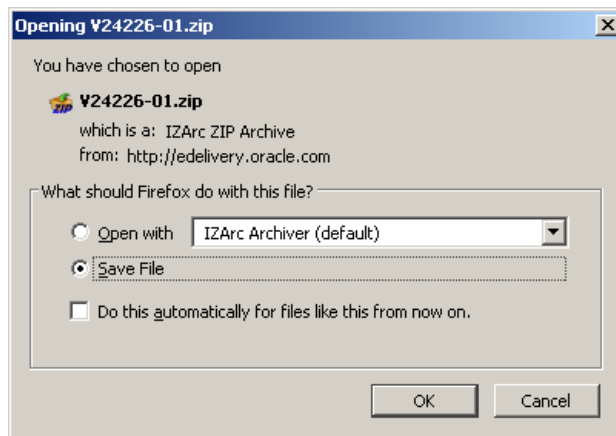
Download Notes

Before You Download:

To ensure that you download the files successfully, first review the Media Pack Readme for download instructions and product information by clicking on the 'Readme' button.

- In the popup, click **Save File** to save the media pack to your PC or workstation. Click **OK**.

Note – This process may take several minutes.



- Use the appropriate extraction utility to extract the media pack to the location of your choice.

Note – To complete the installation, see [“Install the Standalone SL Console” on page 103](#).

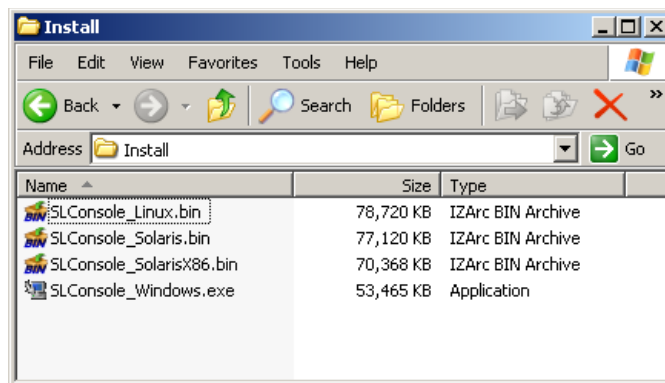
▼ Install the Standalone SL Console

Use this procedure to install the standalone SL Console on your PC or workstation.

Note – Your Oracle support representative may have performed this procedure for you during library installation.

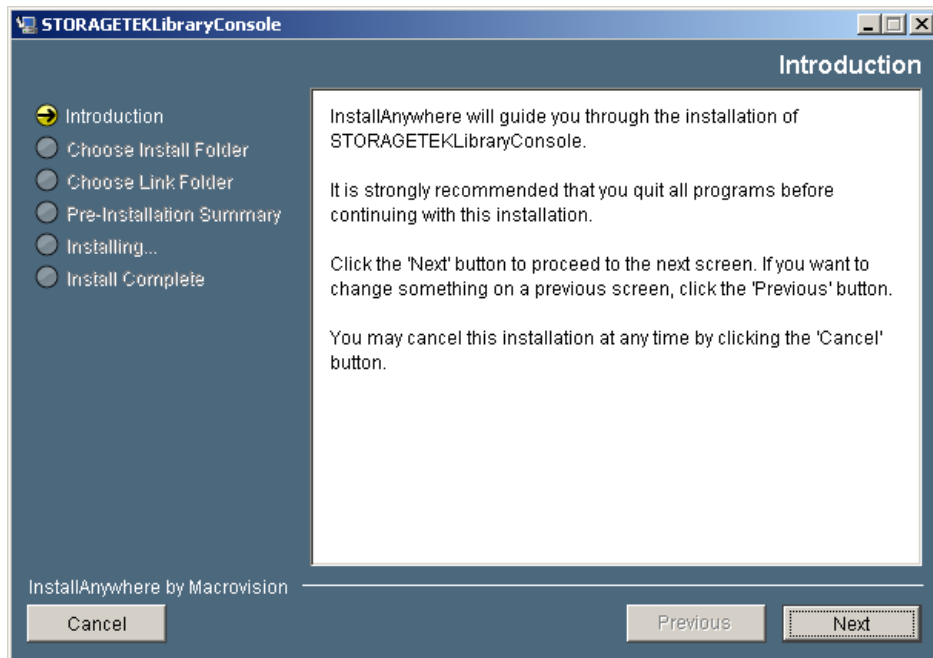
Note – Prior to using this procedure, you must have downloaded and extracted the standalone SL Console media pack to your PC or workstation. See [“Download the Standalone SL Console Media Pack”](#) on page 98.

1. On your PC or workstation, go to the location where you have extracted the standalone SL Console media pack.
2. Open the Install folder.



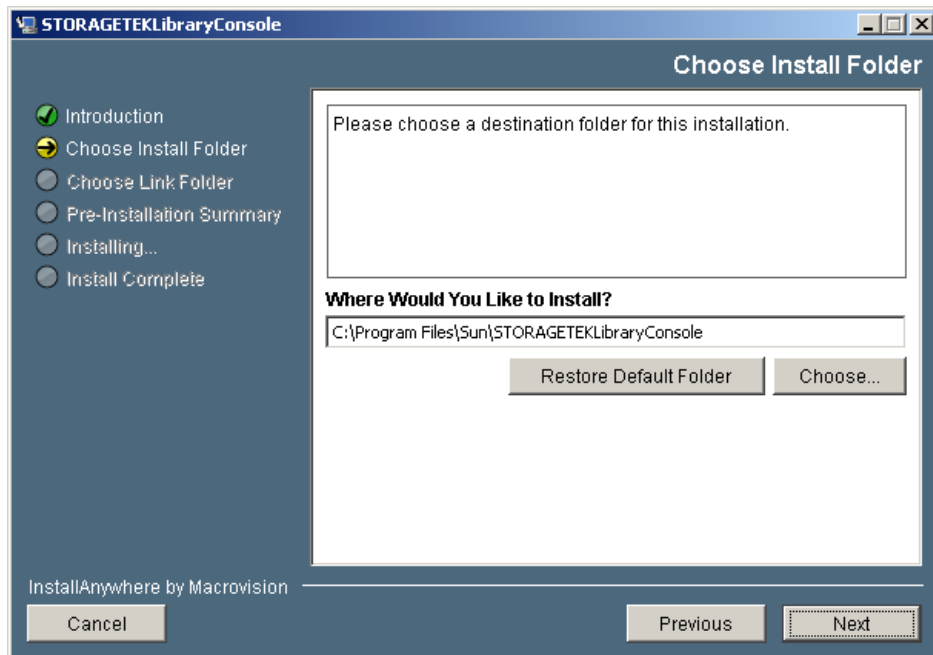
3. Open the SL Console installer file that is appropriate for your operating system.
The installation wizard begins and the **Introduction** screen appears.

Note – At any time during the installation wizard, you can click **Cancel** to cancel the installation or **Previous** to return to the previous screen and re-enter information.



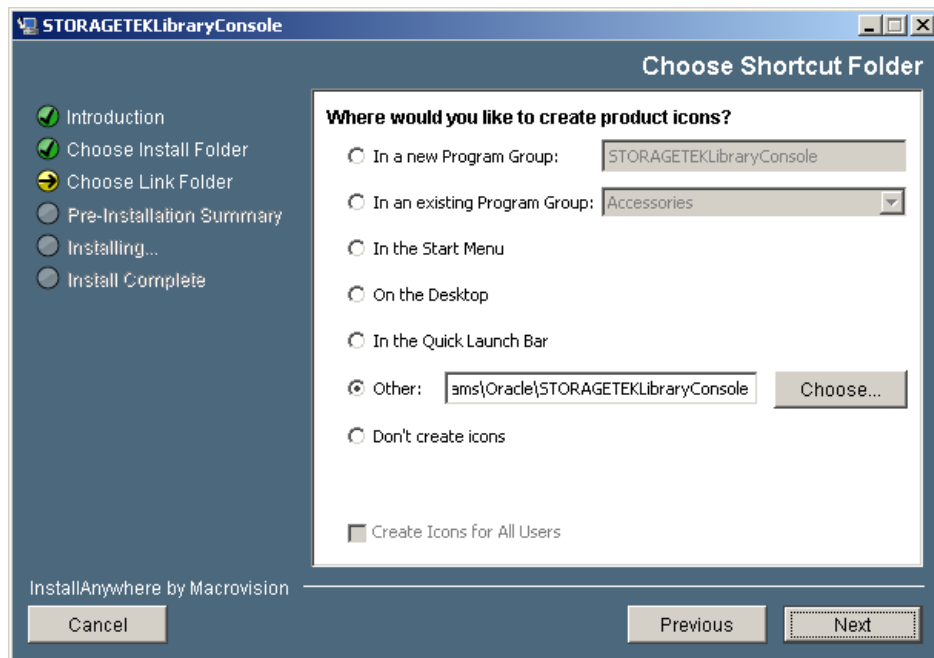
4. Review the information, and click Next.

The **Choose Install Folder** screen appears.



5. Specify where you want to install the SL Console program. You can accept the default location displayed, or you can click **Choose** to browse to a different directory. Click **Next** to continue.

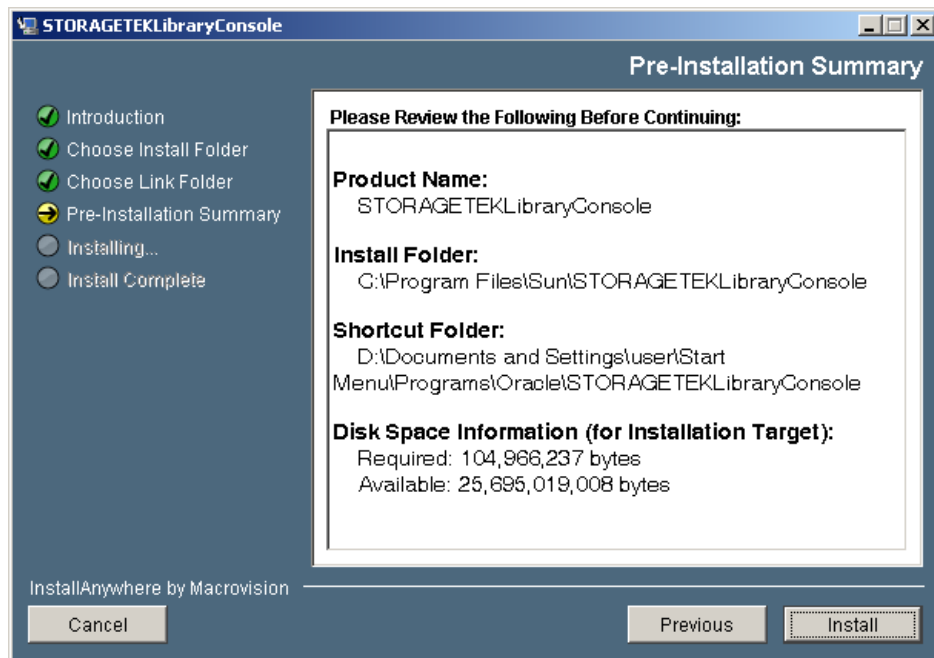
The **Choose Shortcut Folder** screen appears.



6. Enter the location where you want to create the SL Console shortcut icons. You can accept the default location displayed, or you can click one of the other choices listed and specify a different location. Click Next to continue.

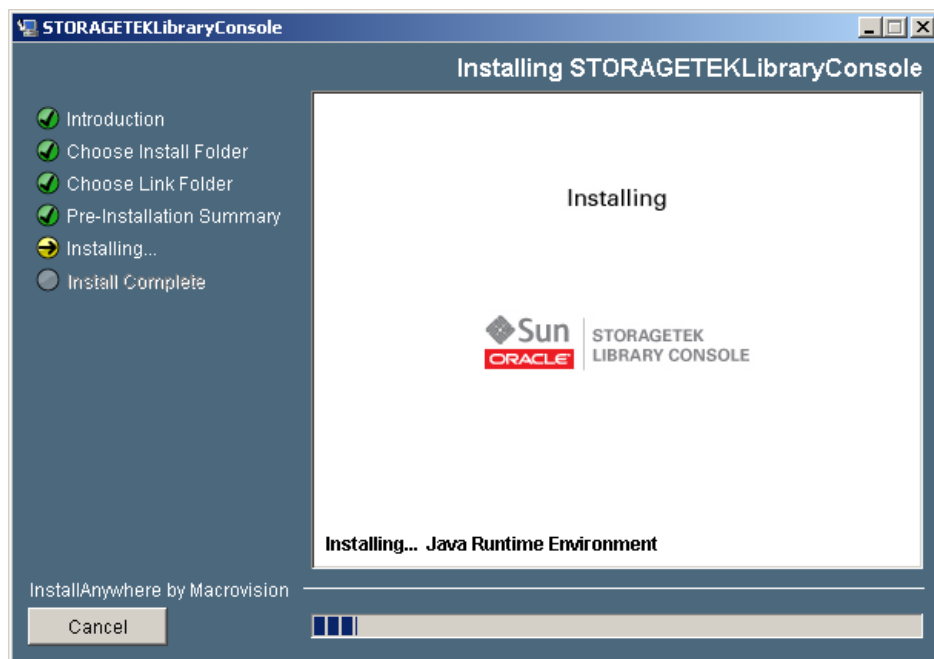
Note – On Solaris, the default location for shortcuts is the user's home directory. However, shortcuts cannot be created in /, which is the root user's home, so if you are installing on a Solaris platform as root you must choose something other than the default location. In this case, it is recommended that you choose /usr/bin or a similar location.

The **Pre-Installation Summary** screen appears.

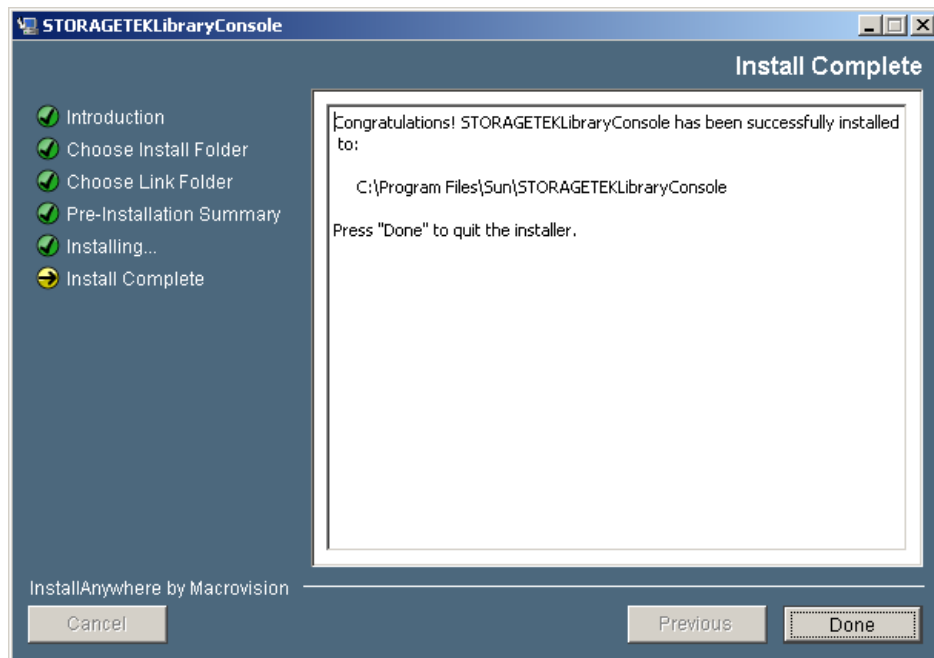


7. **Review the information and verify that it is all correct. Click Install to continue.**

The installation begins, and the **Installing SL Console** screen appears.



8. When the installation finishes, the Install Complete screen appears.



9. Review the information and click Done to exit the installation program.

Hardware Activation Files

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

The hardware activation utility allows you to activate and monitor selected optional features on the SL3000 library. Some library features are activated by the customer, while other must be installed and enabled by an Oracle support representative. [TABLE 3-1](#) lists the available features and their activation method.

This chapter describes the processes and SL Console screens used for features activated by customers. See your Oracle support representative for assistance with features that he or she must install and enable.

Note – The functions described in this chapter can be performed from the standalone SL Console or Web-launched SL Console only; these functions are not available at the local operator panel.

TABLE 3-1 Library Feature Activation

Feature	Activated by Customer	Enabled by Oracle support representative
SL3000 Capacity Upgrades (25, 100, 200, 500, 700, 1000)	X	
Dual Robotics		X
Dual TCP/IP	X	
Multi Port Fibre Channel	X	
Partitioning	X	
Redundant Electronics		X

Oracle Hardware Activation Files

Selected SL3000 features are activated through an Oracle hardware activation file, which is a digitally signed Java Archive (.jar) file containing a feature activation key. You install one hardware activation file for each feature you have purchased. When you install a new hardware activation file, the included feature is added to the ones already activated on the library.

Downloading Oracle Hardware Activation Files

You download Oracle hardware activation files from the Oracle E-Delivery website at the following URL:

<http://edelivery.oracle.com>

Legacy Hardware Activation Files

For SL3000 libraries prior to firmware version FRS_3.0, hardware activation files were delivered via e-mail from Oracle Corporation. In addition, all features you purchased for an SL3000 library were included in a single hardware activation file. When you installed a new hardware activation file on the library, it would overlay any previously installed activation files.

This distribution system has been replaced by the Oracle hardware activation files described in this chapter. When you upgrade to SL3000 firmware version FRS_3.0, all features that have already been activated on the library are retained.

Once the library has been upgraded to SL3000 firmware version FRS_3.0, you use the processes described in this chapter to activate any new features. See [“Hardware Activation File Installation Process” on page 111](#) for a summary of the process.

Note – If your SL3000 library is running firmware prior to FRS_3.0, features are still delivered to you via e-mail from Oracle Corporation.

Hardware Activation File Installation Process

Following is a summary of the process you use to activate customer-activated library features. See [TABLE 3-1](#) for a list of available features and their activation methods.

Note – See your Oracle support representative for assistance with features that he or she must install and enable.

1. You purchase a feature for an Oracle StorageTek library from Oracle Corporation.
2. You locate the hardware activation file for the feature on the Oracle E-Delivery website and download it to a system accessible to the SL Console session.
3. You use the SL Console to verify and install the hardware activation file on the target library.
4. See the following topics for detailed information about implementing specific activated features:
 - [“Capacity on Demand” on page 143](#)
 - [“Library Partitioning” on page 187](#)
 - [“Redundant Electronics Management” on page 359](#)

Hardware Activation Tasks

Note – You can perform these tasks from the standalone SL Console or Web-launched SL Console only. They are not available at the local operator panel.

Task	Page
Download a New Hardware Activation File	113
Display and Verify New Hardware Activation File Contents	115
Install a New Hardware Activation File on the Target Library	118
Display Current Hardware Activation Files	122
Delete a Hardware Activation File	123
Display the Feature Audit Log	127

▼ Download a New Hardware Activation File

Use this procedure to download a hardware activation file from the Oracle E-Delivery website. The hardware activation file is a compressed archive file. You must download it to a system accessible to the SL Console session.

Note – See [TABLE 3-1](#) for a list of customer-activated features. See your Oracle support representative for assistance with features that he or she must install and enable.

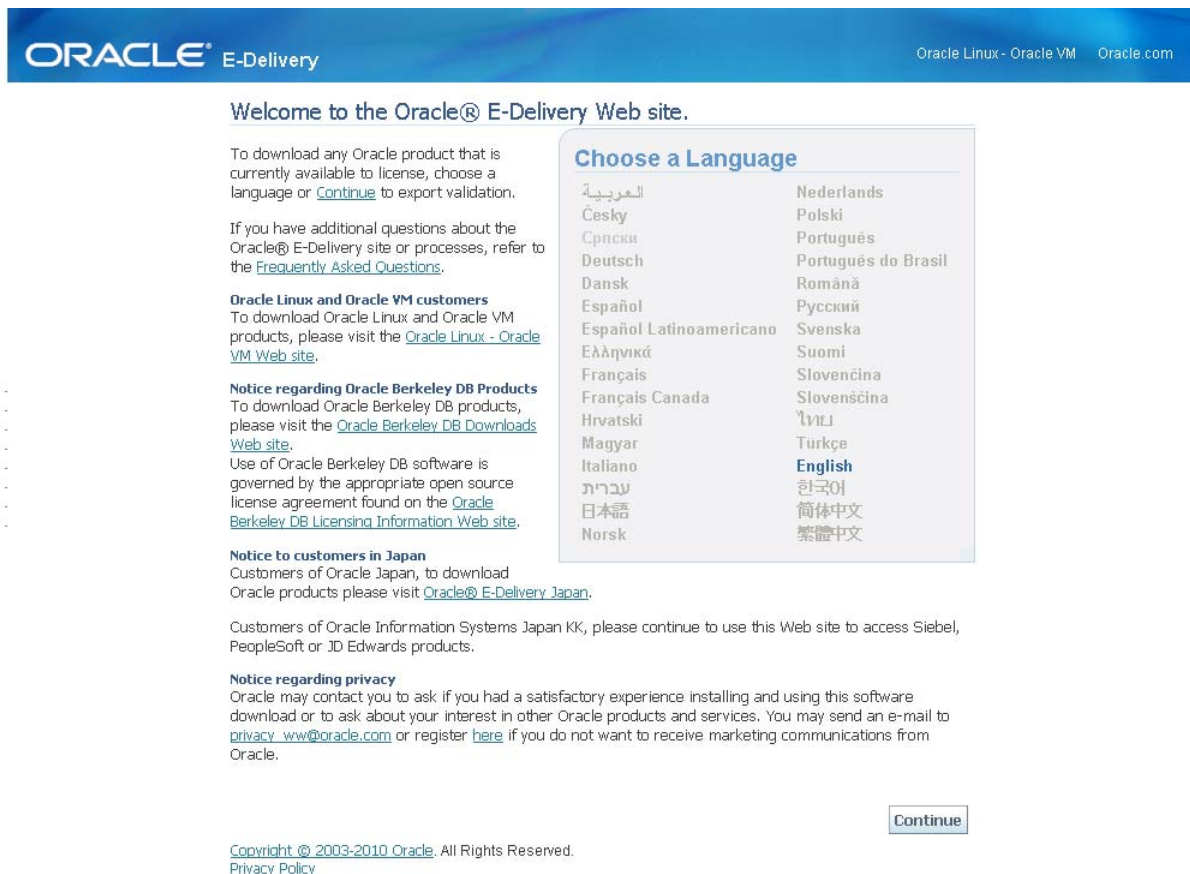
Note – This procedure is not performed at the SL Console.

1. Purchase one or more features from Oracle Corporation.

See your Oracle support representative for assistance.

2. Open a browser window and navigate to the Oracle E-Delivery website at the following URL:

<http://edelivery.oracle.com/>



The screenshot shows the Oracle E-Delivery website interface. At the top, there is a blue header with the Oracle logo and 'E-Delivery' text on the left, and 'Oracle Linux - Oracle VM Oracle.com' on the right. Below the header, the main content area is white. On the left side, there is a 'Welcome to the Oracle® E-Delivery Web site.' section with several paragraphs of text, including links for 'Continue', 'Frequently Asked Questions', 'Oracle Linux and Oracle VM customers', 'Notice regarding Oracle Berkeley DB Products', 'Notice to customers in Japan', and 'Notice regarding privacy'. On the right side, there is a 'Choose a Language' dialog box with a list of languages. The languages listed are: العربية, Cesky, Српски, Deutsch, Dansk, Español, Español Latinoamericano, Ελληνικά, Français, Français Canada, Hrvatski, Magyar, Italiano, עברית, 日本語, Norsk, Nederlands, Polski, Português, Português do Brasil, Română, Русский, Svenska, Suomi, Slovenčina, Slovenščina, ไทย, Türkçe, English, 한국어, 简体中文, and 繁體中文. The 'English' option is highlighted in blue. At the bottom right of the dialog box, there is a 'Continue' button. At the bottom left of the main content area, there is a copyright notice: 'Copyright © 2003-2010 Oracle. All Rights Reserved. Privacy Policy'.

3. Click Continue.

4. On the Export Validation screen, enter your contact information, read the License Agreement and Export Restrictions, and click the check boxes to indicate your acceptance. Click Continue.

ORACLE E-Delivery Oracle Linux - Oracle VM Oracle.com

Export Validation Search Download

Export Validation

TIP Each time you visit this site, enter the information *exactly* the same. This will reduce the chance of long delays while processing your request. For example, if you include your middle initial one time but leave it out the next time, your name must be processed as a new user.

Need help? Look at our [Frequently Asked Questions](#).

Full name (FIRST LAST) * Example: John Doe

Company name * Example: Oracle

E-mail address *

Country * Select a country

Note: * indicates a required field.

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5. Use the pull-downs to navigate to the applicable library type and the feature you want to download.
6. Save the hardware activation file to a system accessible to the SL Console session.

▼ Display and Verify New Hardware Activation File Contents

Use this procedure to display a new hardware activation file before installing it on a target library.

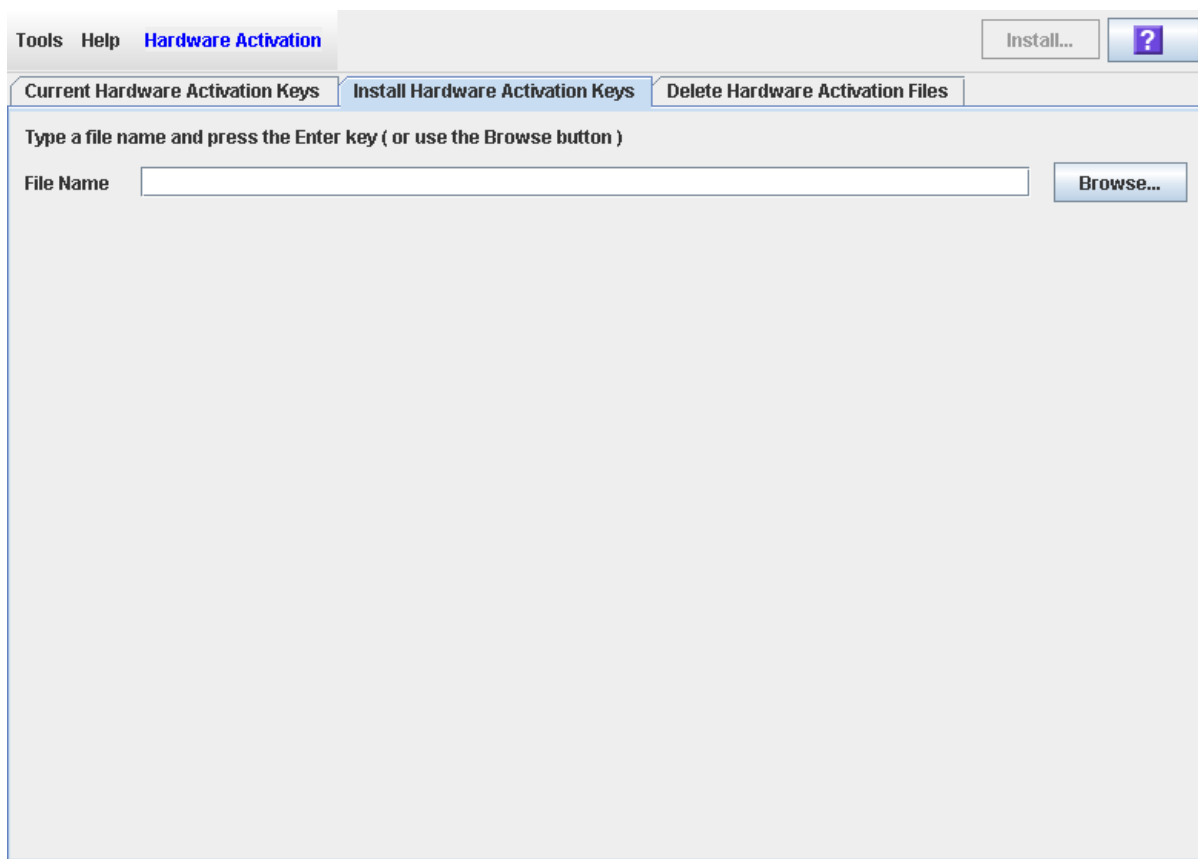
Prior to performing this procedure, you must download a new hardware activation file to a system accessible to the SL Console session. See [“Download a New Hardware Activation File”](#) on page 113.

1. **Use the SL Console to log in to the target library.**

See [“General SL Console Usage Tasks”](#) on page 73 for details.

2. **Select Tools > Hardware Activation Management, and click the Install Activation Keys tab.**

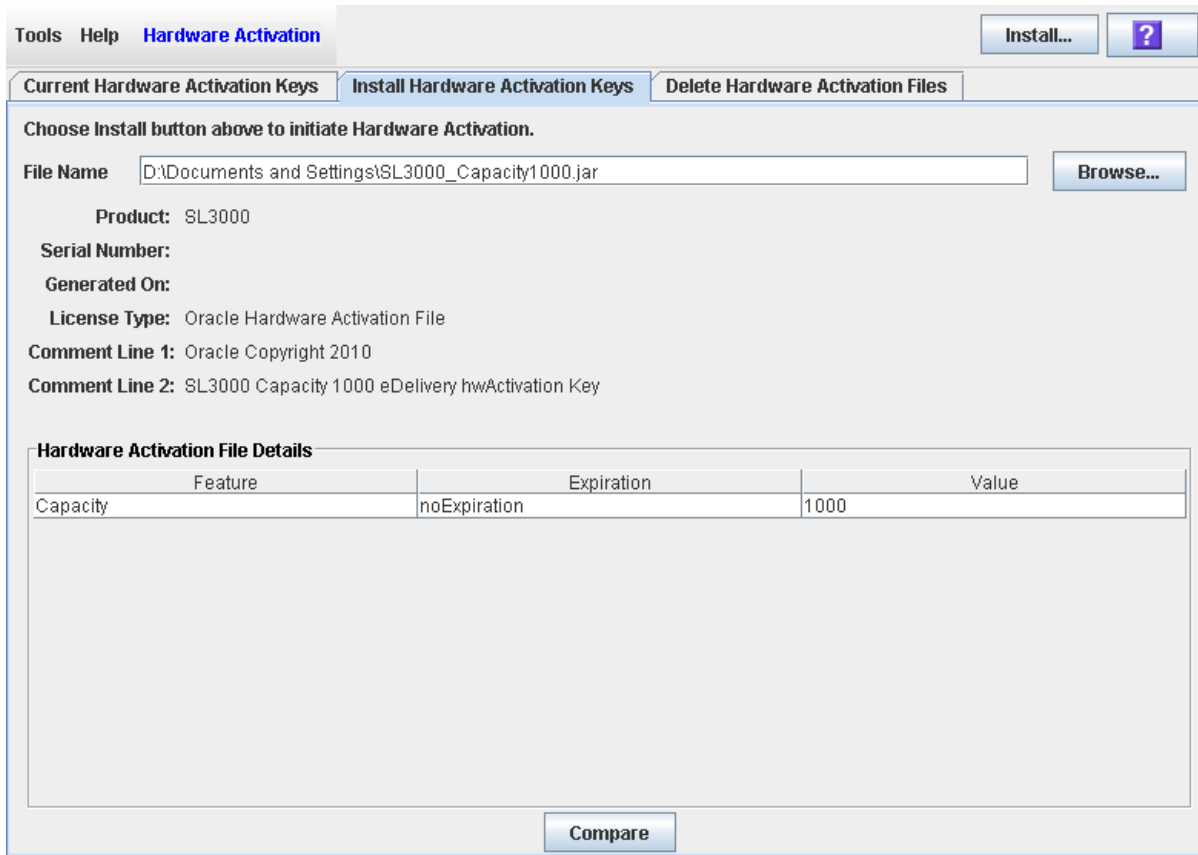
The **Install Activation Keys** screen appears.



The screenshot shows a software interface window titled "Hardware Activation". At the top, there are menu items "Tools" and "Help". Below the menu is a toolbar with an "Install..." button and a help icon (a question mark in a square). Underneath the toolbar are three tabs: "Current Hardware Activation Keys", "Install Hardware Activation Keys", and "Delete Hardware Activation Files". The "Install Hardware Activation Keys" tab is selected. The main area of the window contains the text "Type a file name and press the Enter key (or use the Browse button)". Below this text is a "File Name" label followed by a text input field and a "Browse..." button.

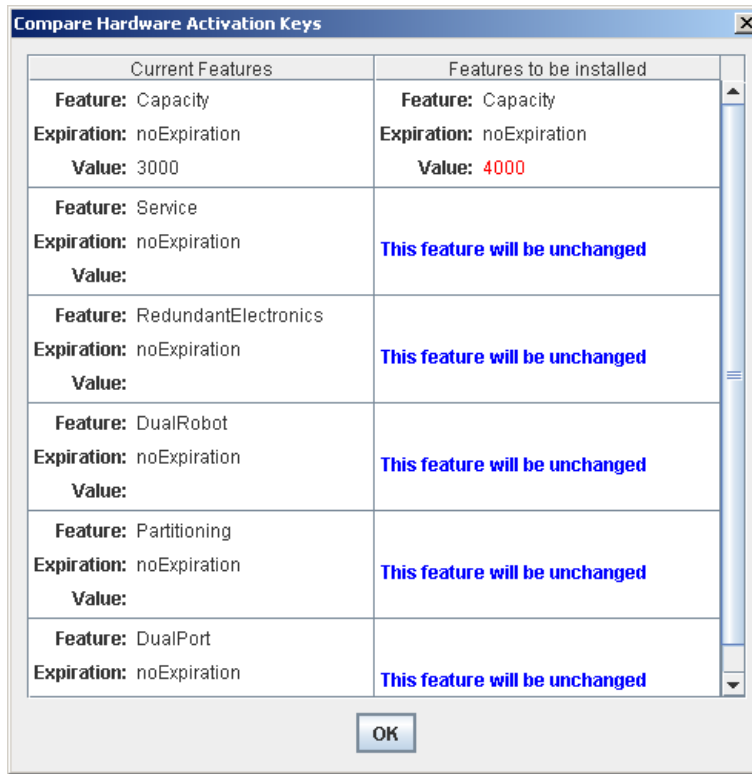
3. **In the File Name field, enter the full path of the hardware activation file you want to display, and press Enter. Optionally, you can click Browse and navigate to the file location.**

The Hardware Activation File Details appear on the screen.



4. Review the hardware activation file details, and then click Compare.

The Compare Hardware Activation Keys popup appears.



5. Review the activation file information.

Note – Changes that will be implemented by the new hardware activation file, such as additional capacity or expiration date changes, are highlighted in red.

6. Click OK to dismiss the popup.

▼ Install a New Hardware Activation File on the Target Library

Use this procedure to install a new hardware activation file on the target library.

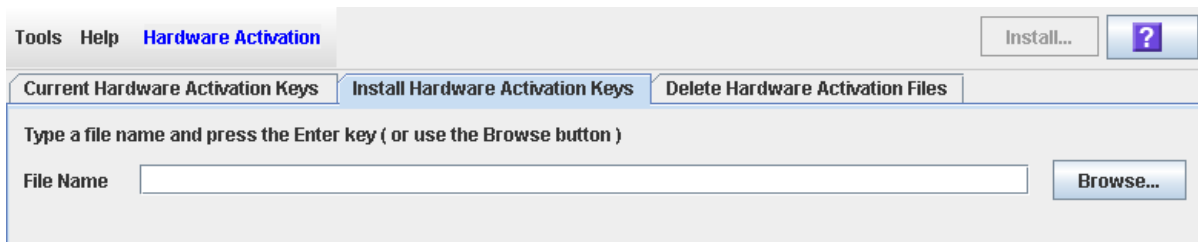
Prior to performing this procedure, you must download a new hardware activation file to a system accessible to the SL Console session. See [“Download a New Hardware Activation File”](#) on page 113.

1. Use the SL Console to log in to the target library.

See [“General SL Console Usage Tasks”](#) on page 73 for details.

2. Select **Tools > Hardware Activation**, and click the **Install Hardware Activation Keys** tab.

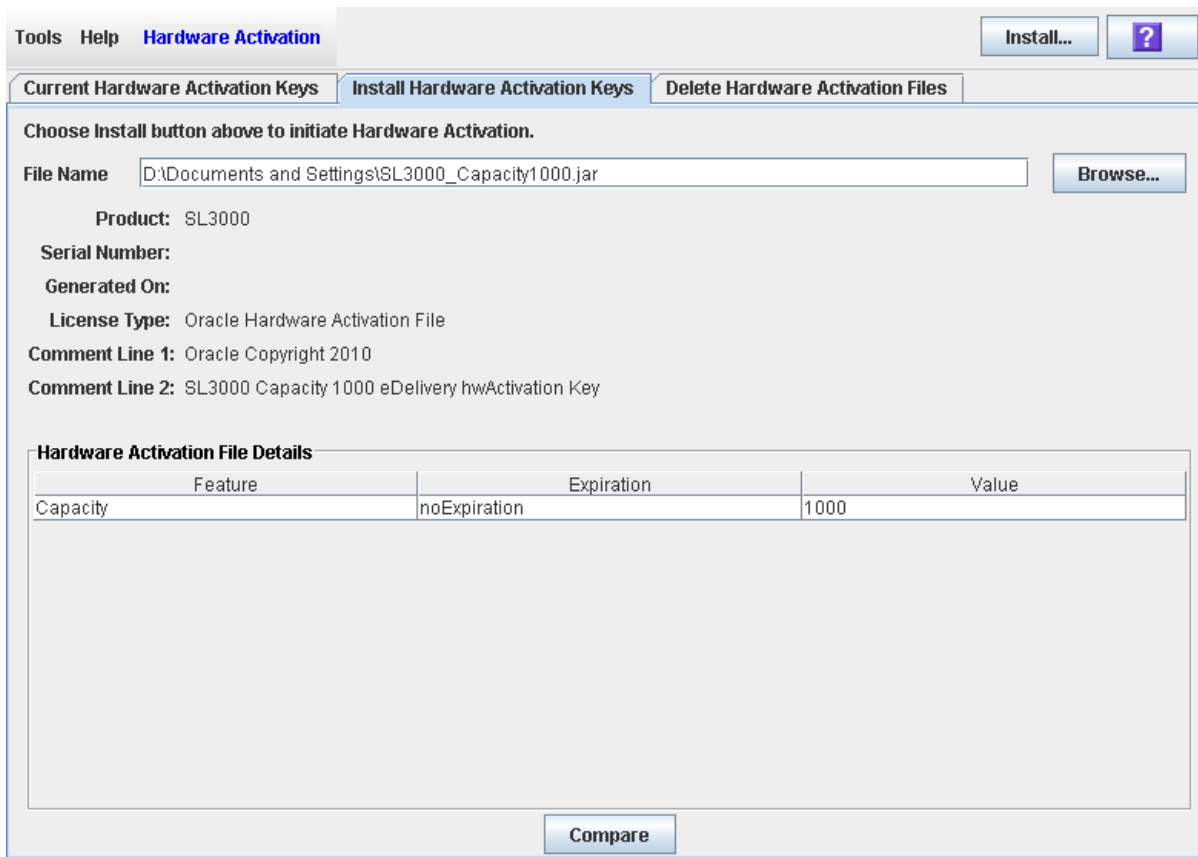
The **Install Hardware Activation Keys** screen appears.



The screenshot shows the 'Hardware Activation' window with the 'Install Hardware Activation Keys' tab selected. The interface includes a 'File Name' input field and a 'Browse...' button for selecting a file.

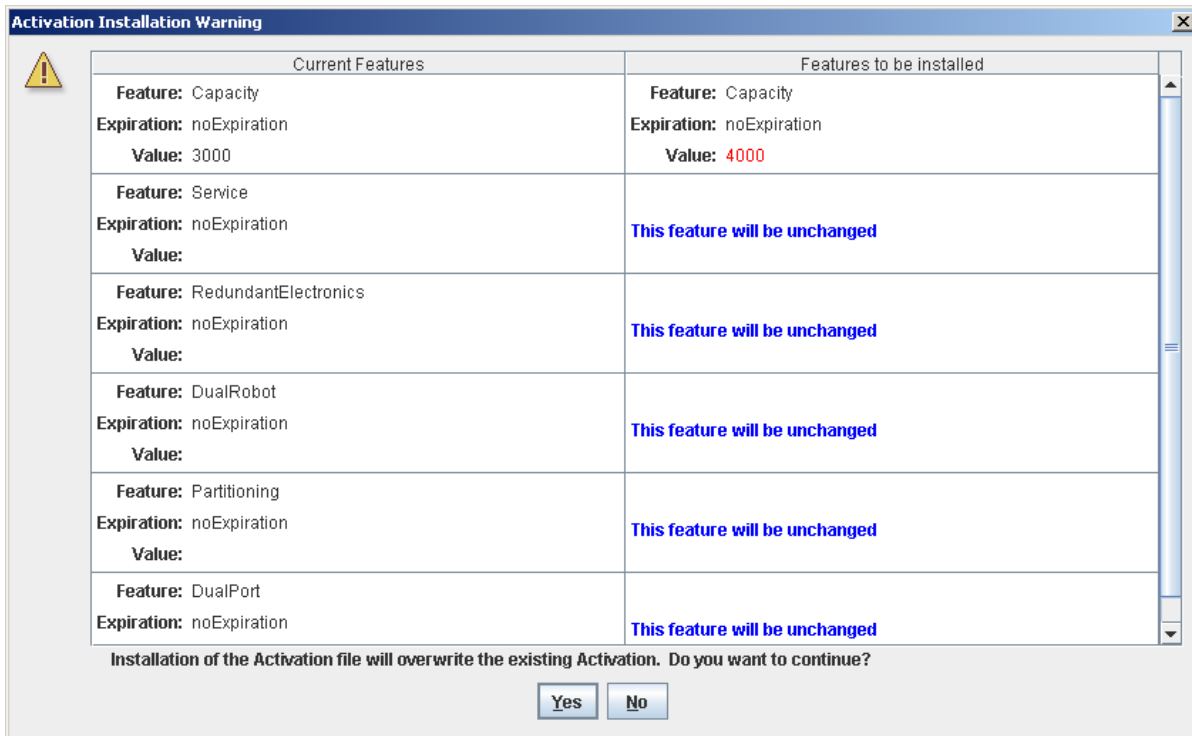
3. In the **File Name** field, enter the full path of the hardware activation file you want to install, and press **Enter**. Optionally, you can click **Browse** and navigate to the file location.

The Hardware Activation File Details appear in the lower part of the screen.



4. Review the hardware activation file details, and then click Install in the Options Bar.

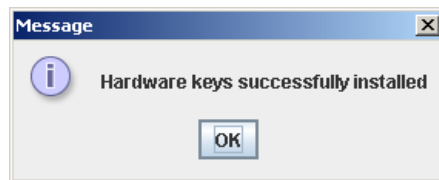
The Activation File Installation Warning popup appears.



5. Review the Features to be Installed and verify that the new hardware activation file is accurate.

Note – Changes that will be implemented by the new hardware activation file, such as additional capacity or expiration date changes, are highlighted in red.

6. If the new hardware activation file is accurate, click Yes to begin installing the activation file on the target library.
7. The library controller installs the hardware activation file, and a confirmation popup appears.



8. Click OK to dismiss the popup.
9. You can verify that the activation file has been installed successfully by displaying the current activation files. See [“Display Current Hardware Activation Files” on page 122](#) for details.
10. Depending on the features included in the hardware activation file, you may need to perform additional tasks in order to use the new features.
 - See [“Increasing Activated Capacity” on page 147](#) and [“Decreasing Activated Capacity” on page 148](#) for special considerations that apply when you install a hardware activation file that changes the activated capacity of the library.

- See [“Installing the Partitioning Feature” on page 188](#) for special considerations that apply when you install a hardware activation file with the Partitioning feature.

▼ Display Current Hardware Activation Files

Use this procedure to display the features currently activated on the library you are logged in to.

1. Select **Tools > Hardware Activation**, and click the **Current Hardware Activation Keys** tab.

The **Current Activation Keys** screen appears, listing the currently activated features.

Feature	Expiration	Value	Time Remaining
Capacity	noExpiration	3000	
Service	noExpiration		
RedundantElectronics	noExpiration		
DualRobot	noExpiration		
Partitioning	noExpiration		
DualPort	noExpiration		

See [“Hardware Activation > Current Hardware Activation Keys”](#) on page 129 for detailed information about the screen fields.

▼ Delete a Hardware Activation File

Use this procedure to delete a hardware activation file from an SL3000 library.

You can only delete customer-installed hardware activation files. You cannot delete features that have been enabled by an Oracle support representative.

Caution – Deleting a hardware activation file is an exceptional situation. Be sure it is really what you want to do before you begin this procedure. Having extra hardware activation files installed on a library does not present any problems (for example, Capacity activation files that exceed the physical capacity of the library); the extra activation files are simply not used.

Caution – Deleting a Capacity hardware activation file reduces the activated capacity of the affected library module. This can result in orphaned cartridges and data that could be lost. See [“Decreasing Activated Capacity” on page 148](#) and [“Orphaned Cartridges in Non-Partitioned Libraries” on page 145](#) for details.

Caution – Deleting a Partitioning hardware activation file deletes the Partitioning feature from the library. See [“Deleting the Partitioning Feature” on page 190](#) for details about the effects on the library configuration.

1. **Use the SL Console to log in to the target library.**
See [“General SL Console Usage Tasks” on page 73](#) for details.
2. **Select Tools > Hardware Activation, and click the Delete Hardware Activation Files tab.**

The Delete Hardware Activation Files screen appears. Only customer-installed hardware activation files are included in the list.

Tools Help **Hardware Activation** Delete ?

Current Hardware Activation Keys Install Hardware Activation Keys **Delete Hardware Activation Files**

Currently Installed Hardware Activation Files

File Number	License Type
0	incremental
1	incremental
2	incremental
4	incremental
5	incremental
6	incremental

Associated Activation Feature Detail(s)

Feature	Expiration	Value
---------	------------	-------

3. Click the activation file you want to delete.

The **Delete** button in the Options Bar is activated, and detail for the file is displayed in the **Associated Activation Feature Detail(s)** section of the screen.

Tools Help **Hardware Activation** Delete ?

Current Hardware Activation Keys Install Hardware Activation Keys **Delete Hardware Activation Files**

Currently Installed Hardware Activation Files

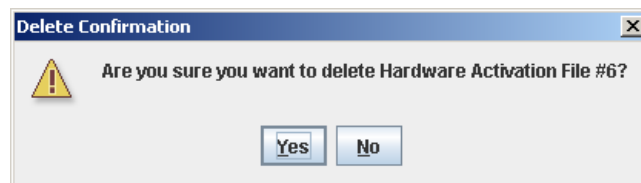
File Number	License Type
0	incremental
1	incremental
2	incremental
4	incremental
5	incremental
6	incremental

Associated Activation Feature Detail(s)

Feature	Expiration	Value
Capacity	noExpiration	1000

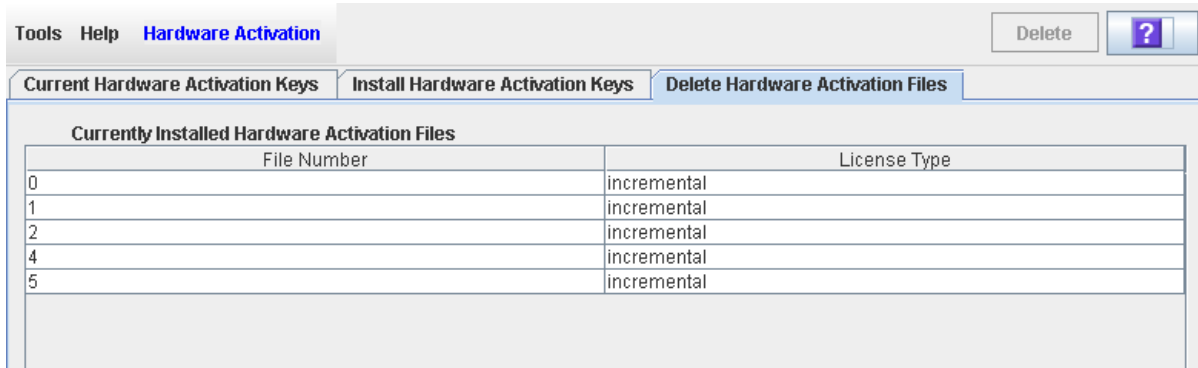
4. Verify that you have selected the correct activation file, and click the Delete button.

A Delete Confirmation popup appears.



5. Click Yes to begin the deletion.

The hardware activation file is deleted from the library, and the **Currently Installed Hardware Activation Files** section is updated.



6. Depending on the feature included in the hardware activation file, you may need to perform additional tasks after deleting the key.

- See [“Decreasing Activated Capacity” on page 145](#) for special considerations that apply when you delete a Capacity hardware activation file.
- See [“Deleting the Partitioning Feature” on page 190](#) for special considerations that apply when you delete a Partitioning hardware activation file.

▼ Display the Feature Audit Log

Use this procedure to display a list of all feature activation activity that has occurred over the life of the library. You can use this log to verify the validity of all features installed on the library.

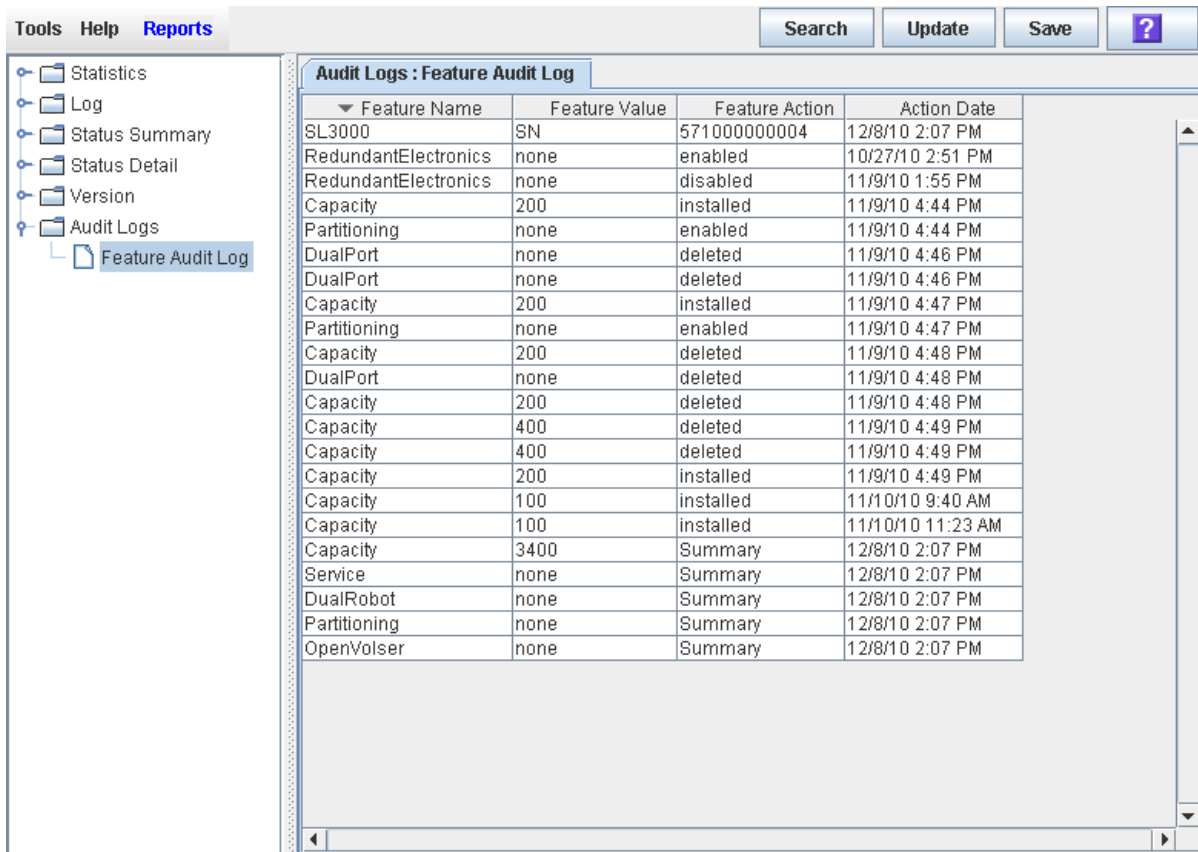
Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

By default, the report is sorted in chronological order. Optionally, you can change the sort order, and rearrange and resize the columns. See [“Modifying the Screen Layout”](#) on page 64.

To create a chart from this report, you can save the data to a comma-separated (.csv) file and then import the .csv file into a charting application. For details, see [“Save Library Report Data to a File”](#).

1. Select **Tools > Reports**.
2. Expand the **Audit Logs** folder, and click **Feature Audit Log**.

The **Feature Audit Log** appears.



Feature Name	Feature Value	Feature Action	Action Date
SL3000	SN	571000000004	12/8/10 2:07 PM
RedundantElectronics	none	enabled	10/27/10 2:51 PM
RedundantElectronics	none	disabled	11/9/10 1:55 PM
Capacity	200	installed	11/9/10 4:44 PM
Partitioning	none	enabled	11/9/10 4:44 PM
DualPort	none	deleted	11/9/10 4:46 PM
DualPort	none	deleted	11/9/10 4:46 PM
Capacity	200	installed	11/9/10 4:47 PM
Partitioning	none	enabled	11/9/10 4:47 PM
Capacity	200	deleted	11/9/10 4:48 PM
DualPort	none	deleted	11/9/10 4:48 PM
Capacity	200	deleted	11/9/10 4:48 PM
Capacity	400	deleted	11/9/10 4:49 PM
Capacity	400	deleted	11/9/10 4:49 PM
Capacity	200	installed	11/9/10 4:49 PM
Capacity	100	installed	11/10/10 9:40 AM
Capacity	100	installed	11/10/10 11:23 AM
Capacity	3400	Summary	12/8/10 2:07 PM
Service	none	Summary	12/8/10 2:07 PM
DualRobot	none	Summary	12/8/10 2:07 PM
Partitioning	none	Summary	12/8/10 2:07 PM
OpenVolser	none	Summary	12/8/10 2:07 PM

See [“Reports > Feature Audit Log”](#) on page 140 for detailed information about the screen fields.

Hardware Activation Screen Reference

This section includes detailed descriptions of all SL Console hardware activation file screens, arranged by screen navigation path. For example, **Activation File Management > Install Activation File— Compare** indicates the screen accessed by clicking **Tools** and then **Hardware Activation** from the Menu Bar, and then clicking the **Install Activation File** tab, and then the **Compare** button.

Note – You can access the hardware activation file screens only from the standalone SL Console or the Web-launched SL Console. They are not available on the local operator panel.

Screen	Page
Hardware Activation > Current Hardware Activation Keys	129
Hardware Activation > Install Hardware Activation Keys	131
Hardware Activation > Install Activation File— Compare	134
Hardware Activation > Install Activation File— Install	136
Hardware Activation > Install Activation File— Compare	134
Reports > Feature Audit Log	140

Hardware Activation > Current Hardware Activation Keys

Sample Screen

Feature	Expiration	Value	Time Remaining
Capacity	noExpiration	3000	
Service	noExpiration		
RedundantElectronics	noExpiration		
DualRobot	noExpiration		
Partitioning	noExpiration		
DualPort	noExpiration		

Description

Displays the contents of the hardware activation file currently installed on the library you are logged in to.

You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Screen Fields

Feature

Name of the feature activated on the library.

Expiration

Number of days until the feature is due to expire or has expired. If there is no expiration date, the field displays “noExpiration.”

Value

Display only.

Qualification for the feature, if applicable. For example, for the Capacity feature, this field displays the capacity the activation file provides. Depending on the feature, the field may be blank or indicate "None".

Time Remaining

Amount of time remaining until the expiration of the feature. If there is no expiration date, the field is blank.

Buttons

Refresh

Click to refresh the display with current data from the library controller database.

? (Help)

Click to display online help for the screen.

See Also

- [Hardware Activation > Install Hardware Activation Keys](#)

Hardware Activation > Install Hardware Activation Keys

Sample Screen

Tools Help **Hardware Activation** Install... ?

Current Hardware Activation Keys **Install Hardware Activation Keys** Delete Hardware Activation Files

Choose Install button above to initiate Hardware Activation.

File Name Browse...

Product: SL3000

Serial Number:

Generated On:

License Type: Oracle Hardware Activation File

Comment Line 1: Oracle Copyright 2010

Comment Line 2: SL3000 Capacity 1000 eDelivery hwActivation Key

Hardware Activation File Details		
Feature	Expiration	Value
Capacity	noExpiration	1000

Compare

Description

Allows you to display the contents of a new hardware activation file.

Also includes buttons that allow you to initiate any of the following activities:

- Compare the new hardware activation file with the one currently installed on the library.
- Install the new hardware activation file on the library.

You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Screen Fields

File Name

Required.

Enter the full path of the hardware activation file you want to install on the library. Optionally, you can click **Browse** and navigate to the file location. The file must be located on a system accessible to the SL Console session.

Product

Display only.

Type of library the hardware activation file is for. For example, SL3000 or SL500.

Serial Number

Display only.

Serial number of the library the hardware activation file is for. This entry applies only to legacy hardware activation files. See [“Legacy Hardware Activation Files” on page 110](#) for details.

Generated On

Display only.

Date when the hardware activation file was created.

License Type

Display only.

Type of hardware activation file. Options are:

- Oracle Hardware Activation File—File downloaded from the Oracle E-Delivery website.
- Sun Hardware Activation File—Legacy file. See [“Legacy Hardware Activation Files” on page 110](#) for details.

Comment Line 1

Display only.

Optional comment concerning the hardware activation file, from Oracle Corporation

Comment Line 2

Display only.

Optional comment concerning the hardware activation file, from Oracle Corporation

Hardware Activation File Details**Feature**

Display only.

Name of a feature included in the hardware activation file.

Expiration

Display only.

Number of days until the feature is due to expire. If there is no expiration date, the field displays “noExpiration.”

Value

Display only.

Qualification for the feature, if applicable. For example, for the Capacity feature, this field displays the amount of storage capacity the activation file provides. Depending on the feature, the field may be blank.

Buttons

Install

Click to install the displayed hardware activation file on the library you are logged in to. The [Hardware Activation >Install Activation File— Install](#) popup appears.

Browse

Click to navigate to the hardware activation file you want to display and install.

Compare

Click to compare the new hardware activation file with the ones currently installed on the library. The [Hardware Activation > Install Activation File— Compare](#) popup appears.

? (Help)

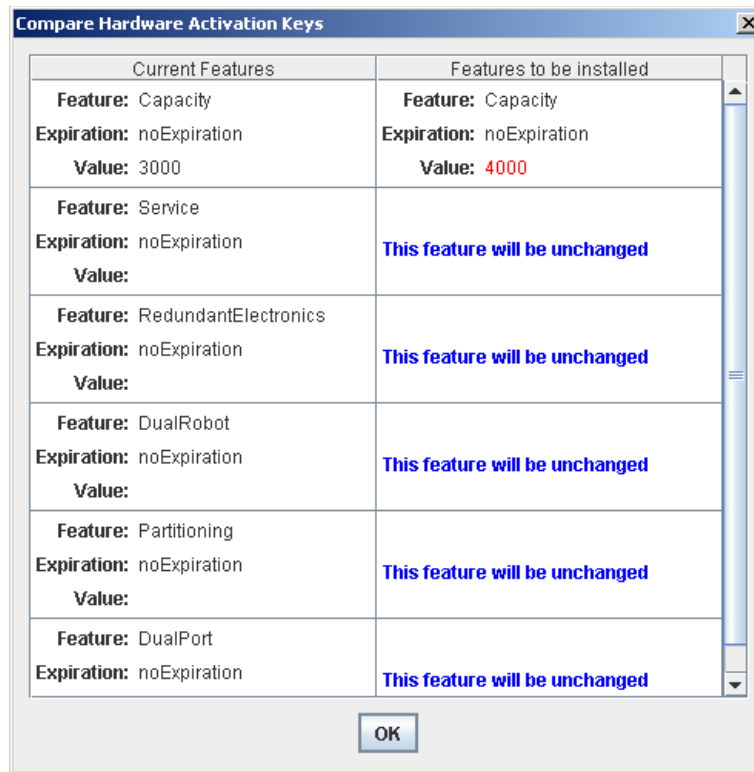
Click to display online help for the screen.

See Also

- [Hardware Activation > Current Hardware Activation Keys](#)
- [Hardware Activation > Install Activation File— Compare](#)
- [Hardware Activation >Install Activation File— Install](#)

Hardware Activation > Install Activation File— Compare

Sample Screen



Description

Allows you to compare the following sets of activation file information:

- Features currently activated on the library you are logged in to.
- Feature included in the new hardware activation file you have specified in the [Hardware Activation > Install Hardware Activation Keys](#) screen.

Note – Changes that will be implemented by the new hardware activation file, such as additional capacity or expiration date changes, are highlighted in red.

This screen is a popup that appears when you click **Compare** on the [Hardware Activation > Install Hardware Activation Keys](#) screen.

Screen Fields

Current Features

Display only.

List of features, expiration dates, and values for all features currently activated on the library you are logged in to.

Features to be Installed

Display only.

Name, expiration date, and values for the feature included in the specified new hardware activation file. Changes that will be implemented by the new hardware activation file, such as additional capacity or expiration date changes, are highlighted in red.

Buttons

OK

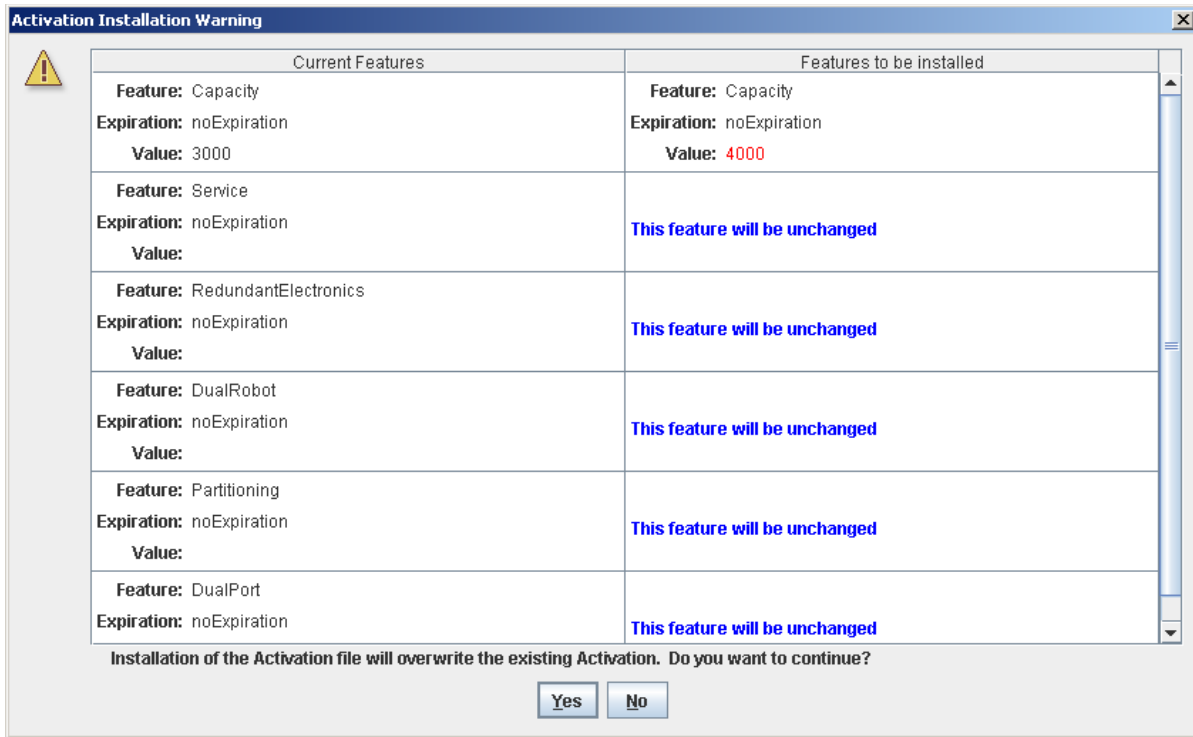
Click to dismiss the popup and return to the previous screen.

See Also

- [Hardware Activation > Install Hardware Activation Keys](#)
- [Hardware Activation > Install Activation File— Install](#)

Hardware Activation >Install Activation File— Install

Sample Screen



Description

Allows you to compare the following sets of activation file information:

- Features currently activated on the library you are logged in to.
- Feature included in the new hardware activation file you have specified in the [Hardware Activation > Install Hardware Activation Keys](#) screen.

Warning messages are displayed if installation of the new hardware activation file will result in features being removed from the library.

After comparing the activation file information, you can install the new hardware activation file on the library by clicking the **Yes** button.

This screen is a popup that appears when you click **Install** on the [Hardware Activation > Install Hardware Activation Keys](#) screen.

Depending on the features included in the hardware activation file, you may need to perform additional tasks in order to use the new features.

- See [“Increasing Activated Capacity” on page 147](#) and [“Decreasing Activated Capacity” on page 148](#) for special considerations that apply when you install a hardware activation file that changes the activated capacity of the library.
- See [“Deleting the Partitioning Feature” on page 190](#) for special considerations that apply when you install a hardware activation file with the Partitioning feature.

Screen Fields

Current Features

Display only.

List of features, expiration dates, and values for all features currently activated on the library you are logged in to.

Features to be Installed

Display only.

Name, expiration date, and values for the feature included in the specified new hardware activation file. Warning messages are displayed if installation of the hardware activation file will result in features being removed from the library.

Buttons

Yes

Click to install the specified hardware activation file on the library. The library controller verifies the validity of the hardware activation file and installs it.

No

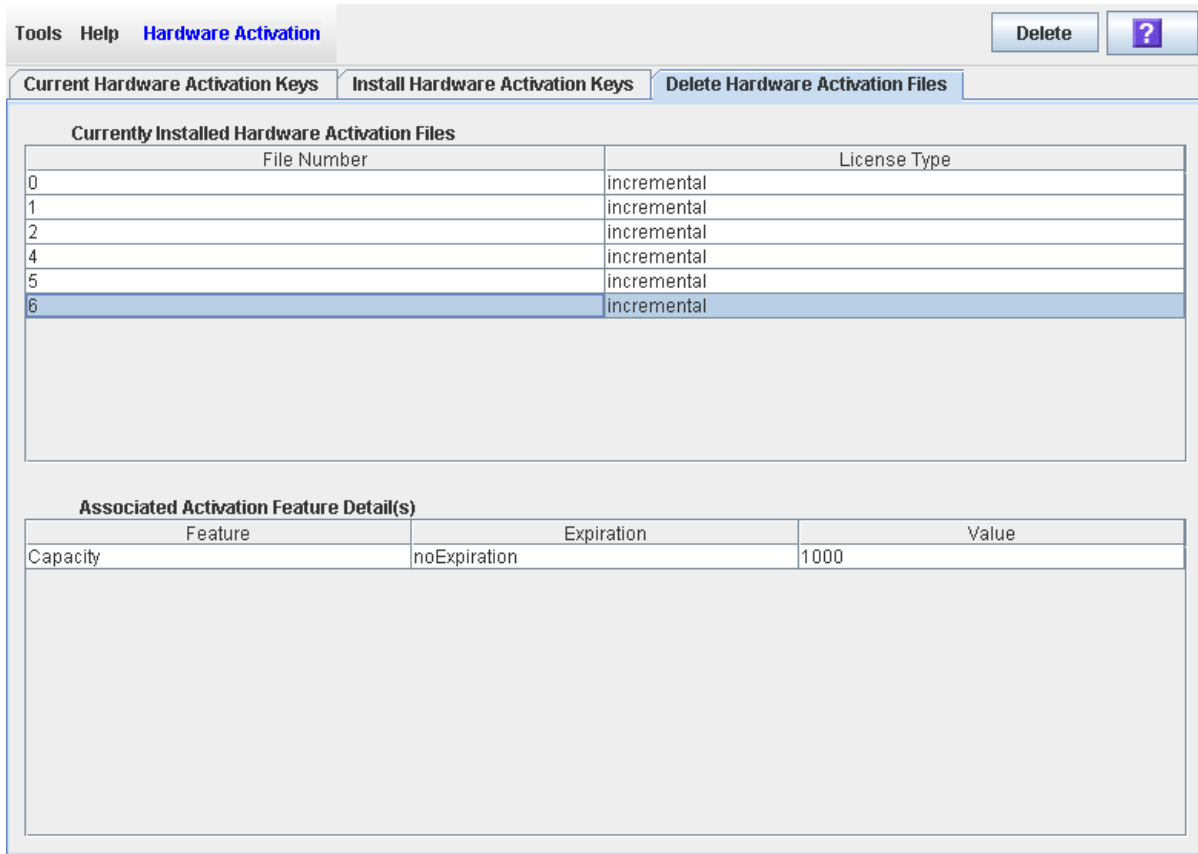
Click to cancel the update and return to the previous screen.

See Also

- [Hardware Activation > Install Hardware Activation Keys](#)
- [Hardware Activation > Install Activation File— Compare](#)

Hardware Activation > Delete

Sample Screen



Description

Allows you to review and delete selected hardware activation files from the library. Only customer-installed hardware activation files appear on this screen for deletion.

Caution – Deleting a hardware activation file is an exceptional situation and can have significant effects on library operations. See [“Delete a Hardware Activation File” on page 123](#) for considerations.

Screen Fields

Currently Installed Hardware Activation Files

File Number

Display only.

ID number assigned to the hardware activation file. The numbers indicate the sequence in which the features were installed on the library. There may be gaps in the sequence, which may result from one of the following reasons:

- A feature was deleted.
- A feature was installed and enabled by an Oracle support representative and therefore does not appear on this list.

License Type

Display only.

Type of hardware activation file. Options are:

- incremental—Oracle hardware activation file downloaded from the Oracle E-Delivery website.
- absolute—Legacy Sun hardware Activation file. See [“Legacy Hardware Activation Files” on page 110](#) for details.

Associated Activation Feature Detail(s)**Feature**

Name of the feature activated on the library.

Expiration

Number of days until the feature is due to expire or has expired. If there is no expiration date, the field displays “noExpiration.”

Value

Display only.

Qualification for the feature, if applicable. For example, for the Capacity feature, this field displays the capacity the activation file provides. Depending on the feature, the field may be blank or may indicate “None”.

Buttons**Delete**

Click to delete the currently selected hardware activation file.

See Also

- [Hardware Activation > Install Hardware Activation Keys](#)
- [Hardware Activation > Install Activation File— Install](#)

Reports > Feature Audit Log

Sample Screen

Feature Name	Feature Value	Feature Action	Action Date
SL3000	SN	571000000004	12/8/10 2:07 PM
RedundantElectronics	none	enabled	10/27/10 2:51 PM
RedundantElectronics	none	disabled	11/9/10 1:55 PM
Capacity	200	installed	11/9/10 4:44 PM
Partitioning	none	enabled	11/9/10 4:44 PM
DualPort	none	deleted	11/9/10 4:46 PM
DualPort	none	deleted	11/9/10 4:46 PM
Capacity	200	installed	11/9/10 4:47 PM
Partitioning	none	enabled	11/9/10 4:47 PM
Capacity	200	deleted	11/9/10 4:48 PM
DualPort	none	deleted	11/9/10 4:48 PM
Capacity	200	deleted	11/9/10 4:48 PM
Capacity	400	deleted	11/9/10 4:49 PM
Capacity	400	deleted	11/9/10 4:49 PM
Capacity	200	installed	11/9/10 4:49 PM
Capacity	100	installed	11/10/10 9:40 AM
Capacity	100	installed	11/10/10 11:23 AM
Capacity	3400	Summary	12/8/10 2:07 PM
Service	none	Summary	12/8/10 2:07 PM
DualRobot	none	Summary	12/8/10 2:07 PM
Partitioning	none	Summary	12/8/10 2:07 PM
OpenVolser	none	Summary	12/8/10 2:07 PM

Description

Displays a list of all feature activation activity that has occurred over the life of the library. You can use this log to verify the validity of all features installed on the library.

Screen Fields

Feature Name

Name of the feature.

The first line of the display is the type of library (SL3000).

Feature Value

Special attributes of the feature. Options are:

- SN—Indicates that the serial number of the library is displayed in the [Feature Action](#) field. Appears on the first line of the display.
- *nnnn*—For capacity hardware activation files, the number of cells added or removed.

- none—Appears for all other features.

Feature Action

Action that was performed. Options are:

- *nnnnnnnn*—Serial number of the library. Appears on the first line of the display.
- deleted—The hardware activation file for the feature was deleted.
- disabled—The feature was disabled by an Oracle support representative.
- enabled—The feature was enabled by an Oracle support representative.
- installed—The hardware activation file for the feature was installed.
- Summary—The feature is active on the library.

Action Date

Date and time when the action was performed.

Buttons

Search

Click to search a library report for a specified text string.

Update

Click to update the report with current data.

Save

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

? (Help)

Click to display online help for the screen.

See Also

- [Hardware Activation > Current Hardware Activation Keys](#)
- [Hardware Activation > Install Activation File— Install](#)
- [Hardware Activation > Install Activation File— Compare](#)

Capacity on Demand

The SL3000 library includes RealTimeGrowth and Capacity on Demand features. RealTimeGrowth allows you to install physical storage capacity beyond your current needs. Capacity on Demand separates physical from activated capacity and allows you to pay only for the capacity you need. Then as your needs grow, you can expand storage capacity with minimal disruption to library operations. To activate additional capacity, you need only purchase and install a hardware activation file for the new capacity.

Note – Library storage capacity must be installed through the SL3000 hardware activation utility. See “Hardware Activation Files” for details.

Note – This feature controls cartridge storage cells only. All installed CAPs and tape drives are active by default.

Capacity on Demand Features and Restrictions

This section describes important features and restrictions of Capacity on Demand that will help you to plan for and use the feature in your SL3000 library.

- The minimum activated capacity is 200 storage cells.
- You can purchase additional activated capacity in increments of 25, 100, 200, 500, or 1000 cells.
- Installation of additional activated capacity results in minimal disruption to library operations. Once verified by the library controller, the additional storage cells are available immediately; you do not need to reboot the library. Depending on the host interface (HLI or FC-SCSI), there may be a brief interruption in host operations as the hosts update the new resource information. See [“Non-disruptive Capacity Changes” on page 146](#) for details.
- A library’s current activated storage capacity is equal to the capacity specified in the most recently installed hardware activation key file.

Terminology

The following terms are used to describe library capacity management:

- Physical or installed capacity – The number of storage cells physically present in the library.
- Activated capacity – The number of storage cells specified in the installed hardware activation file.
- Active cell – A storage cell that can be used for cartridge storage. By default, the total active cells this is the same as the activated capacity specified in the installed hardware activation file. You can optionally de-activate selected storage cells, making this less than the activated capacity.
- Active storage region – A rectangular area of storage cells that can be used for cartridge storage. An active storage region can be as small as a single storage cell or as large as the total activated capacity for the library.
- Inactive cell – A storage cell that is explicitly de-activated and therefore cannot be used for cartridge storage.
- Selected cell – A storage cell that cannot currently be used for cartridge storage, but will be made active automatically by the library controller when activated capacity is increased.

Active Storage Region Configuration

Active storage regions can be assigned automatically by the library controller or manually by the user. Automatic assignment by the library controller provides balanced growth of library modules.

Individual storage cells can be in either of the following states:

- Active – The cell can be used for cartridge storage.
- Inactive – The cell has been de-activated, and therefore cannot be used for cartridge storage. You can monitor the cell on library displays and reports, but requests to move cartridges to the cell are rejected by the library controller.
- Selected – The cell is not currently active, but will be activated automatically by the library controller when capacity is increased by the installation of a new hardware activation file. This state applies to non-partitioned libraries only.

Only active storage cells can be used for tape cartridge storage. Inactive storage cells cannot be used for cartridge storage, nor can they be accessed by any hosts.

Cell Activation Rules

The library controller uses the following rules when adding cells to active storage regions:

- Cell activation starts in the left upper rear of the active storage region and moves to the right lower front.
- All cells within a column are activated from top to bottom before moving to the next column.
- Columns within a panel are activated from left to right.

Non-Partitioned Libraries

Within a non-partitioned library, the library controller automatically selects all physical cells, but only activates a number of cells up to the total activated capacity of the library. Selected cells that cannot be activated due to activated capacity limits remain selected and will be activated automatically whenever additional activated capacity is installed.

When activating cells, the library controller begins at the back of the library, starting with the left-most module and working to the right. Then it moves to the front of the library, starting with the left-most module and working to the right.

To optimize cartridge placement, you can optionally designate active storage regions in the library, within which the library controller applies the rules above.

Partitioned Libraries

In partitioned libraries, the total number of storage cells allocated to all library partitions cannot exceed the activated capacity of the library.

In partitioned libraries, there is no default active storage region. You must explicitly assign storage cells to partitions, thereby configuring the active storage regions for each partition. See [“Partitioning Process” on page 204](#) for details.

When placing cartridges in storage cells, the library controller applies the predefined cell activation rules separately to each partition. See [“Cell Activation Rules” on page 145](#) for details.

De-activating Storage Capacity

You can optionally reduce the size of an active storage region by de-activating designated storage cells. A warning message is displayed if cartridges will be orphaned due to the capacity reduction.

Orphaned Cartridges in Non-Partitioned Libraries

Note – For a discussion of orphaned cartridges in partitioned libraries, see [“Orphaned Cartridges in Partitioned Libraries” on page 194](#).

In non-partitioned libraries, an orphaned cartridge is a cartridge located in an inactive storage cells. Orphaned cartridges are inaccessible to all hosts.

A cartridge can become orphaned for a variety of reasons. Following are some possible causes:

- Active storage capacity has been reduced.
- The cartridge has been moved to an inactive or inaccessible cell through manual intervention.

If the SL Console identifies an orphaned cartridge, it displays a warning message. You can then use the following tools to help you resolve and disposition the orphaned cartridge:

- Generate a report of orphaned cartridges.
- Perform an audit of the library.
- Perform a recovery move on a cartridge.

For detailed instructions on checking for and resolving orphaned cartridges, see the following procedures:

- [“Display an Active Storage Region Report” on page 158](#)
- [“Commit Active Storage Region Changes” on page 155](#)

Non-disruptive Capacity Changes

Changes to active capacity result in minimal disruptions to library operations. The specific library behavior depends on the type of host connection, as described in the following sections:

- [“Active Capacity Changes and HLI Connections” on page 146](#)
- [“Active Capacity Changes and FC-SCSI Connections” on page 147](#)

Caution – Although changes to active capacity are not disruptive to library hosts, it is recommended that you make the library unavailable to other users before committing your active storage region changes. Because the SL Console does not validate storage region boundaries against the library controller database in real-time, configuration conflicts may arise if you change active storage region boundaries while other users are performing cartridge movements or library configuration changes. See [“Synchronizing the Display With the Controller Database” on page 64](#) for details.

Active Capacity Changes and HLI Connections

With HLI libraries, you can increase active capacity without stopping host jobs or having host connections go offline. When you decrease capacity, the library goes offline only momentarily and then comes back online automatically.

Adding Active Capacity

Whenever you add active storage cells, the library stays online. The library controller sends an asynchronous message to all hosts notifying them that the library configuration has changed. ACSLS and ELS must perform an audit of the library in order to account for the new library configuration information. Hosts can continue processing jobs while the audit takes place.

Removing Active Capacity

Whenever you make any of the following types of capacity changes, the library goes offline temporarily.

- De-activate a storage cell
- Remove an empty drive slot

After the configuration change is updated in the library controller database, the library comes back online and the library controller sends an asynchronous message to all hosts notifying them that the library configuration has changed. ACSLS and ELS must perform an audit of the library in order to account for the new library configuration information. Hosts can continue processing jobs while the audit takes place.

Active Capacity Changes and FC-SCSI Connections

With FC-SCSI libraries, whenever you make any of the following changes, the library goes offline temporarily with a Unit Attention condition:

- Activate or de-activate a storage cell
- Activate or de-activate a drive
- Activate or de-activate CAP cells
- Add, change, or remove a host LUN connection

Multiple error messages may be generated, and all hosts must issue the appropriate commands to update their library configuration information. See the appropriate tape management software documentation for detailed procedures and commands. In the case of adding or removing drives, the device SCSI numbering is updated as well.

Increasing Activated Capacity

The following special considerations apply after you successfully install a capacity activation key providing additional capacity. See [Chapter 3, "Hardware Activation Files" on page 109](#) for details on installing hardware activation key files.

- The new library capacity is equal to the capacity specified in the most recently installed hardware activation file.
- You do not need to reboot the library in order to begin using the new capacity, but you must configure all affected library host applications to recognize the new capacity. See ["Non-disruptive Capacity Changes" on page 146](#) for details.
- ACSLS and ELS must perform an audit of the library in order to account for the new capacity. Hosts can continue processing jobs while the audit takes place.

- If the new activated capacity exceeds the physical capacity, a warning is displayed. No corrective action is necessary.
- If the library is not partitioned, the library controller automatically activates cells that have not been explicitly de-activated by the user previously. In this case, no user intervention is required to make the new activated capacity available. If cells have been de-activated, however, you may need to manually select cells in order to start using the additional capacity.
- If the library is partitioned, all new capacity is added as unallocated cells. You must allocate new storage cells to partitions manually in order to start using the cells; see [“Design a Partition – Base, DEM, or CEM Modules” on page 212](#) for details.

Decreasing Activated Capacity

The following special considerations apply after you successfully install a capacity hardware activation file resulting in reduced capacity. See [Chapter 3, “Hardware Activation Files” on page 109](#) for details on installing hardware activation key files.

Note – Installing reduced capacity is an exceptional situation; be sure this is what you really want to do before installing the hardware activation key file.

- A warning appears if cartridges will be orphaned as a result of the reduced capacity. See [“Orphaned Cartridges in Non-Partitioned Libraries” on page 145](#) for details.
- For non-partitioned libraries:
 - The new, reduced capacity takes effect immediately.
 - The library controller de-activates cells in reverse order of their activation – the cells activated most recently are de-activated first.
- For partitioned libraries:
 - If the total number of cells allocated to all partitions exceeds the new activated capacity, the library is automatically taken offline. You must manually de-allocate cells from partitions so the total allocation does not exceed the new activated capacity.
 - If the total number of cells allocated to all partitions is still less than the new activated capacity, the new reduced capacity takes effect immediately with no change to the existing partition allocations. The library continues operations without interruption.

Capacity Management Tasks

This section provides detailed instructions for all tasks involved in implementing and managing active storage capacity in the library.

Storage Capacity Installation Process

Following is a summary of the process used to install new library storage capacity.

1. You purchase and install a capacity hardware activation file for the library. See [“Hardware Activation File Installation Process” on page 111](#) for details.
2. The new activated capacity is available immediately. You do not need to re-boot the library.
3. In non-partitioned libraries, by default, all newly activated cells are immediately available for use. Proceed as follows:
 - If you want to use the default storage region configuration assigned by the library controller, you must configure all affected library host applications to recognize the new storage regions. See [“Non-disruptive Capacity Changes” on page 146](#) for details.
 - If you want to modify the storage region configuration from the default, see [“Define Active Storage Regions” on page 152](#).
4. In partitioned libraries, all newly activated cells are added as “unallocated,” and are therefore not available for use. You must manually allocate the new cells to partitions. See [“Partitioning Process” on page 204](#) for detailed instructions.

SL Console Active Storage Region Workspace

The **Select Active Cells** screens, and all associated popups, give you a dynamic workspace to customize your activated capacity configuration. All activated capacity configuration information is automatically saved to the active storage region workspace in SL Console memory and retained for the duration of your SL Console session. This allows you to switch among active storage region views and leave and return to the **Select Active Cells** screens any number of times without losing your configuration changes.

Information in the SL Console active storage region workspace is committed to the library controller database only through the **Apply** button on the [Select Active Cells > Select Active Cells](#) screen. The information is lost if any one of the following occurs before you have committed your updates:

- You actively log off the SL Console session.
- The SL Console session times out or the connection to the library is lost.
- You actively refresh the active storage region workspace from the current library controller database. This is done through the **Refresh** button on the **Select Active Cells** screens.

Caution – Although changes to active capacity are not disruptive to library hosts, it is recommended that you make the library unavailable to other users before committing your active storage region changes. Because the SL Console does not validate storage

region boundaries against the library controller database in real-time, configuration conflicts may arise if you change active storage region boundaries while other users are performing cartridge movements or library configuration changes. See [“Synchronizing the Display With the Controller Database”](#) on page 64 for details.

Capacity Management Tasks

Note – The following tasks apply to non-partitioned libraries only. For detailed instructions on configuring storage regions for partitioned libraries, see [“Partitioning Process” on page 204](#).

Note – The following tasks can be performed only from the standalone SL Console or the Web-launched SL Console. They cannot be performed at the local operator panel.

Task	Page
Define Active Storage Regions	152
Commit Active Storage Region Changes	155
Display an Active Storage Region Report	158
Print Active Storage Region Report Data	160
Save Active Storage Region Report Data	162
Display Active Cell Detail	163

▼ Define Active Storage Regions

Note – See [“Hardware Activation File Installation Process” on page 111](#) for information about installing activated capacity.

When you install additional activated capacity, the library controller automatically activates the number of storage cells equal to the activated capacity. It uses a set of internal rules when choosing the actual cells to activate. See [“Active Storage Region Configuration” on page 144](#) for details.

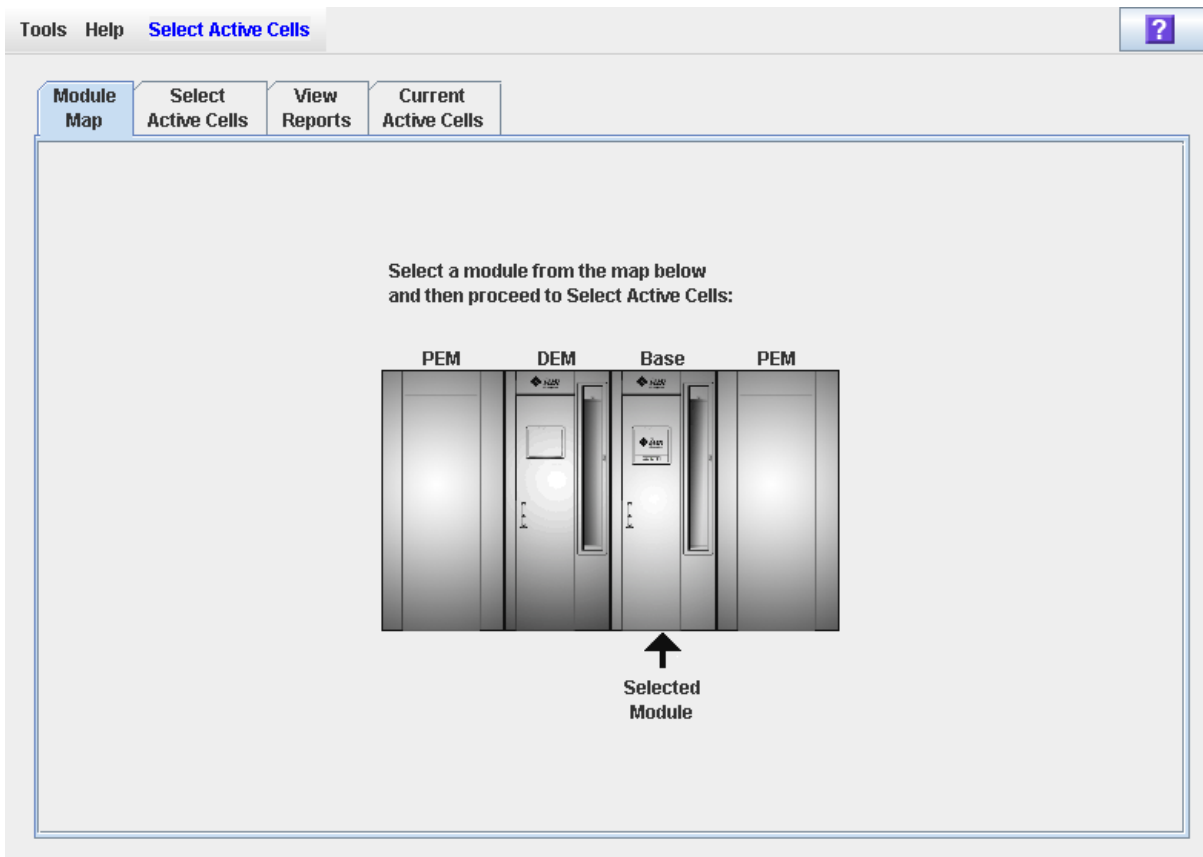
Use this procedure only if you want to do one of the following:

- Customize the active storage regions so they are different from the default configuration assigned by the library controller. For example, you can configure active storage cells so that cartridges are concentrated around the drives and the ends of the library are left for future growth.
- De-activate storage cells, so the total number of active storage cells is less than the activated capacity.
- De-select storage cells, so these cells will not be automatically activated when the library’s activated capacity is increased.

Note – If you want to use the default storage region configuration defined by the library controller, you do not need to use this procedure.

1. Select Tools > Select Active Cells.

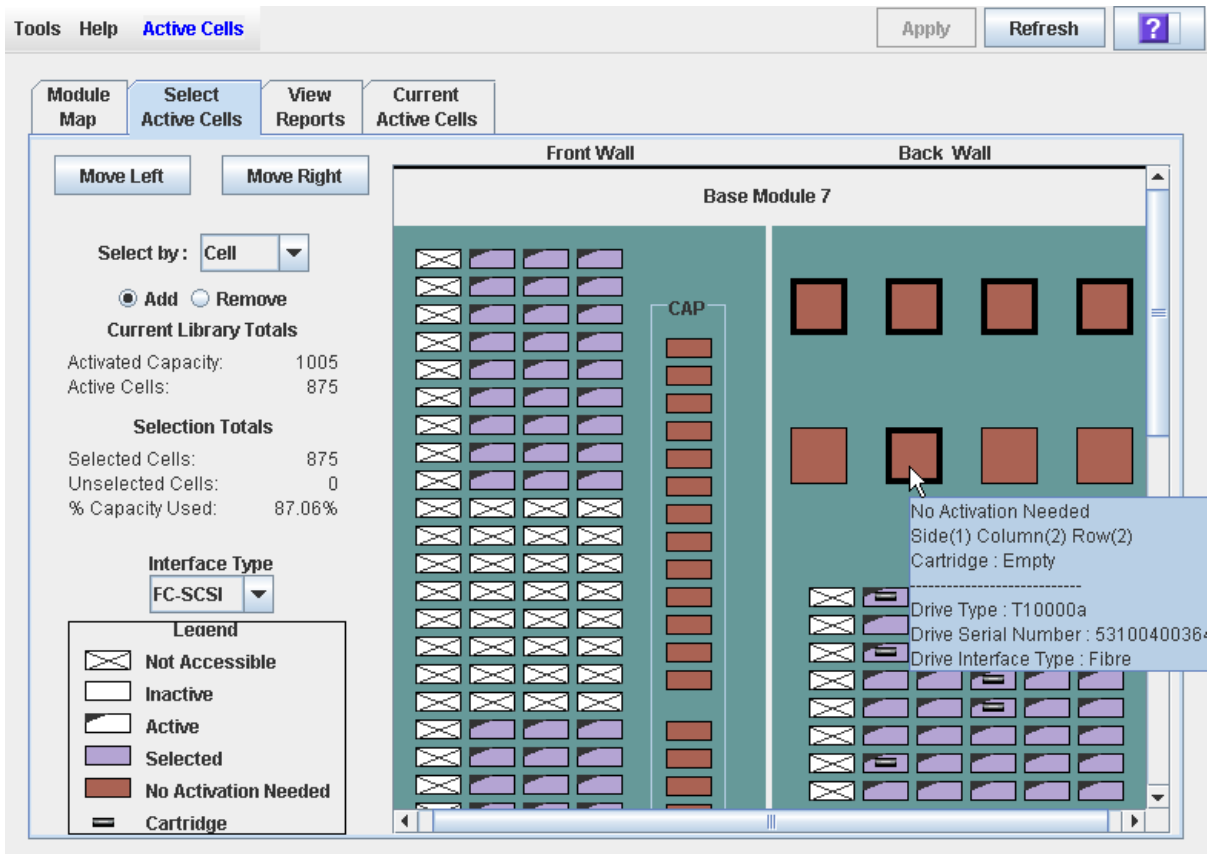
The **Module Map** screen appears.



2. Click the module for which you want to define the active storage regions.
3. Click the **Select Active Cells** tab.

The **Select Active Cells** screen appears, displaying the current configuration of the module you have selected.

Note – The first time you display this screen, the number of selected cells is equal to the physical capacity of the library, and the number of active cells is equal to the library’s total activated capacity.



Note – Click the **Move Left** or **Move Right** buttons to display a module directly adjacent to the one currently displayed.

4. Choose the **Select by** method, and click either the **Add** or **Remove** radio button.
5. Use the library map to select the storage cells you want to activate or deactivate.

Note – See [“Select Active Cells > Select Active Cells” on page 168](#) for detailed instructions on using the library map.

Your capacity configuration changes are saved to the SL Console active storage region workspace for the duration of this login session. You can make additional modifications and leave and return to the **Select Active Cells** screens any number of times without losing your changes.

6. When you are done making changes, proceed to [“Commit Active Storage Region Changes” on page 155](#) to verify and commit your changes.

▼ Commit Active Storage Region Changes

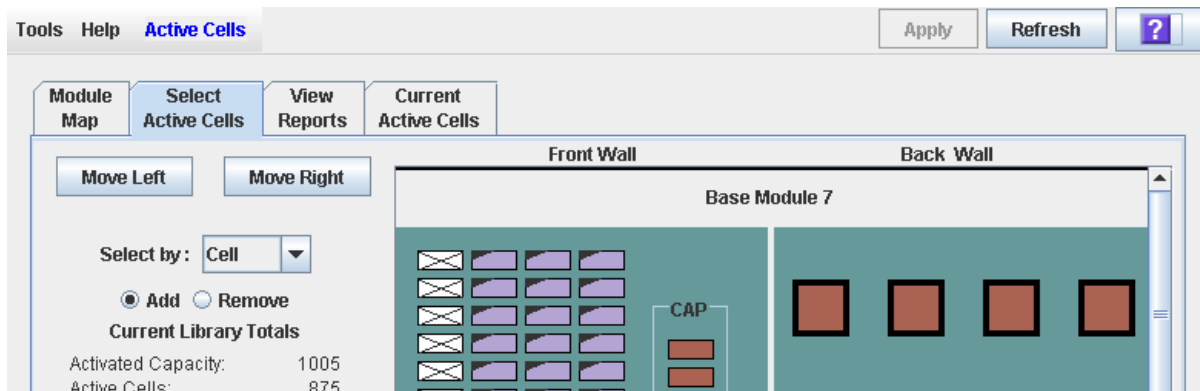
Use this procedure to verify and commit active storage region configuration changes you have made on the **Select Active Cells** screen. This procedure warns you of the following possible errors:

- The library has orphaned cartridges. See [“Orphaned Cartridges in Non-Partitioned Libraries”](#) on page 145 for details.
- Cells will be made inaccessible to library hosts.

Caution – Although changes to active capacity are not disruptive to library hosts, it is recommended that you make the library unavailable to other users before committing your active storage region changes. Because the SL Console does not validate storage region boundaries against the library controller database in real-time, configuration conflicts may arise if you change active storage region boundaries while other users are performing cartridge movements or library configuration changes. See [“Synchronizing the Display With the Controller Database”](#) on page 64 for details.

1. Perform the steps in [“Define Active Storage Regions”](#) on page 152.

The changes you have made are displayed on the **Select Active Cells** screen.

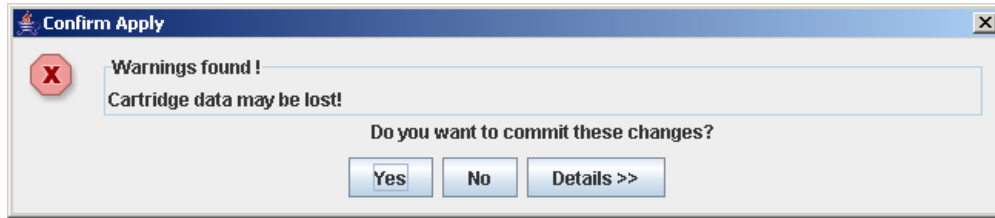


2. In the Options Bar, click **Apply**.

The boundaries of the active storage regions are verified, including the locations of all tape cartridges.

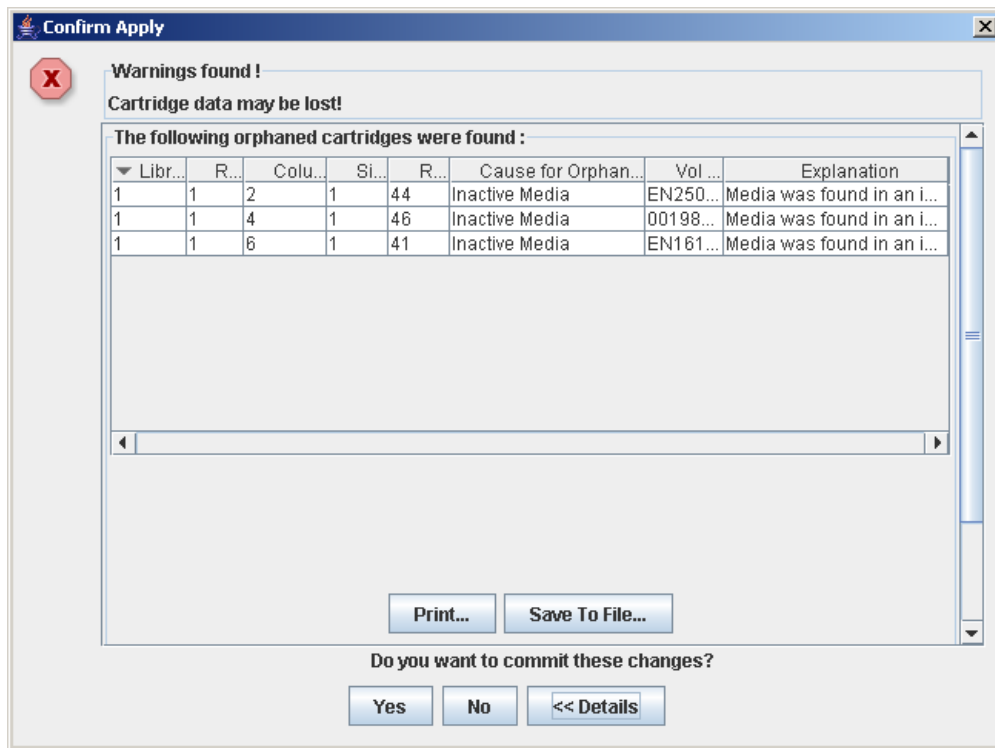
Note – This verification is performed only on the active storage region configuration defined in the **Select Active Cells** screens. It does not verify active storage regions against the library controller database; therefore it cannot identify configuration conflicts that may arise due to other users performing cartridge movements or library configuration changes—through the command line interface, other SL Console sessions, or host applications—at the same time you have made changes to active storage regions.

The **Confirm Apply** popup appears, indicating whether there are any orphaned cartridges or other problems in the active storage region configuration.



3. To display detailed warning messages explaining the reasons for any orphaned cartridges, click **Details**.

You can use the **Details** button to toggle between the expanded and collapsed views of the warning messages.



4. Optionally, in the expanded view of the warning messages you can do the following:

- Click **Print** to print the detailed message data.
- Click **Save to File** to save the detailed message data to a comma-separated file.

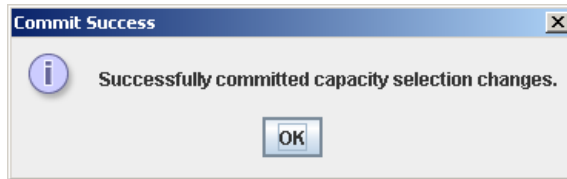
5. Proceed as follows:

- Click **No** to cancel the update.

The library controller database is not updated, but all changes you have made are retained on the **Select Active Cells** screen.

- Click **Yes** to make the following updates to the library controller database and proceed to [Step 6](#).

- White cells with a “dog-eared” left corner are made inactive.
- Purple cells without a “dog-eared” left corner are made active, up to the total activated capacity of the library. Purple cells that cannot be made active due to library activated capacity limits will remain purple and will automatically become active whenever additional activated capacity is installed.
- All other cells are left unchanged.
- **The Commit Success popup appears.**



6. Click OK to return to the Select Active Cells screen.

All newly activated cells are immediately available for use; the library does not need to be rebooted.

7. All affected library host applications must now be configured to recognize these updates. See the appropriate tape management software documentation for the procedures and commands.

▼ Display an Active Storage Region Report

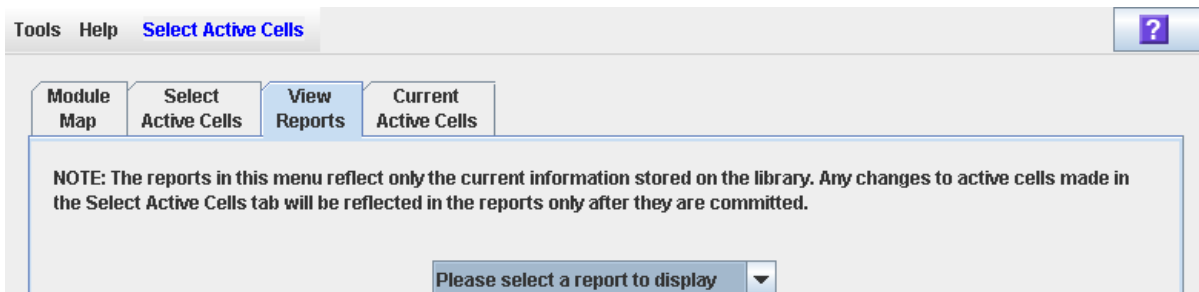
Use this procedure to display the following active storage region reports:

- Cartridge Cell and Media Summary – Displays a detailed list of all library resources and their status (active or inactive).
- Orphaned Cartridge Report – Displays a detailed list of all orphaned cartridges.

Note – The active storage region reports display data saved to the library controller database. If you have made changes to the active storage region configuration without committing the changes to the library controller, the data in these reports will differ from data shown on **Select Active Cells** screen.

1. **Select Tools > Select Active Cells, and click the View Reports tab.**

The **View Reports** screen appears.



2. **In the pull-down menu, select the report you want to display.**

The screen is updated with current data from the library controller database.

The screenshot shows a software window titled "Select Active Cells" with a menu bar containing "Tools", "Help", and "Select Active Cells". Below the menu bar are four tabs: "Module Map", "Select Active Cells", "View Reports", and "Current Active Cells". The "View Reports" tab is active. A note states: "NOTE: The reports in this menu reflect only the current information stored on the library. Any changes to active cells made in the Select Active Cells tab will be reflected in the reports only after they are committed." Below the note is a dropdown menu showing "Cartridge Cell and Media Summary". The report title is "Cell and Media Summary as of 3/7/08 11:03 AM". The report data is as follows:

Library	Rail	Column	Side	Row	Element Type	Vol Ser	Cell Status
1	1	-9	1	1	CELL		Active
1	1	-9	1	2	CELL		Active
1	1	-9	1	3	CELL		Active
1	1	-9	1	4	CELL		Active
1	1	-9	1	5	CELL		Active
1	1	-9	1	6	CELL		Active
1	1	-9	1	7	CELL		Active
1	1	-9	1	8	CELL		Active
1	1	-9	1	9	CELL		Active

At the bottom of the window are two buttons: "Print..." and "Save To File..."

3. If you want to print the report data or save it to a file, see the following procedures:

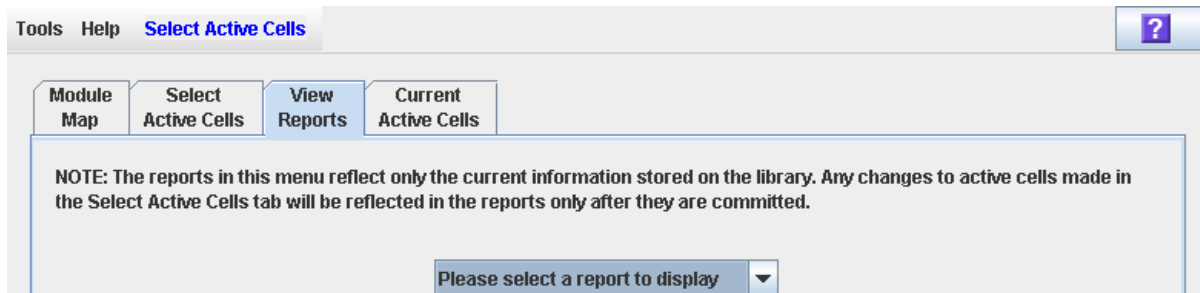
- ["Print Active Storage Region Report Data"](#) on page 160
- ["Save Active Storage Region Report Data"](#) on page 162

▼ Print Active Storage Region Report Data

Use this procedure to print an active storage region report. This procedure can be performed from any of the active storage region report screens.

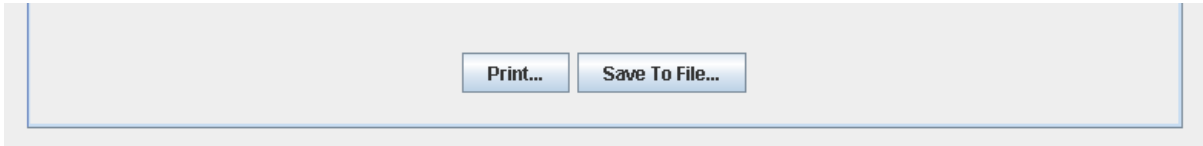
1. Select **Tools > Select Active Cells**, and click the **View Reports** tab.

The **View Reports** screen appears.



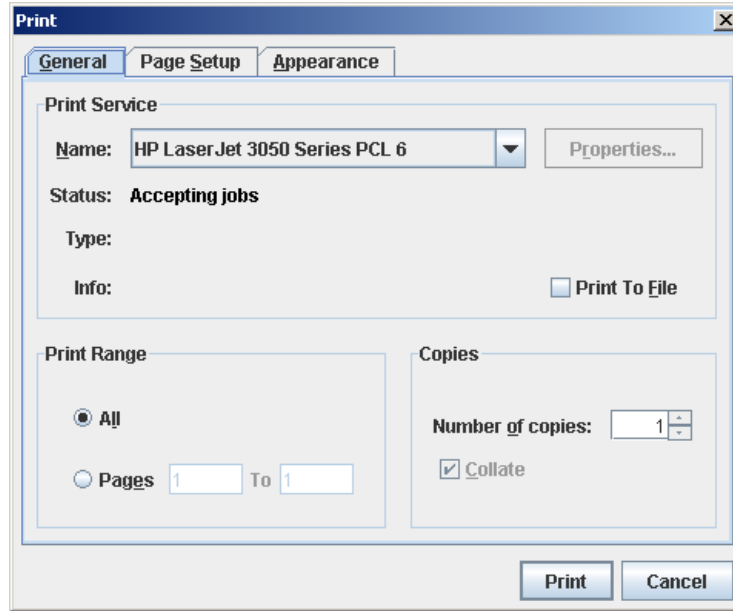
2. In the pull-down menu, select any report.

The specified report is displayed. All report screens include the **Print** and **Save to File** buttons.



3. Click Print.

The **Print** popup appears.



4. Complete the print popup, and click Print.

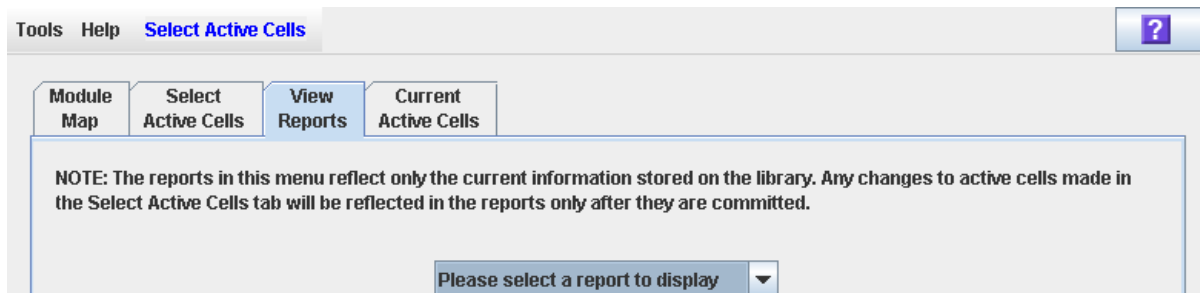
The report is printed to the selected printer.

▼ Save Active Storage Region Report Data

Use this procedure to save active storage region report data to a comma-separated file (.csv format). You can use a variety of spreadsheet applications to view the file. This procedure can be performed from any of the active storage region report screens.

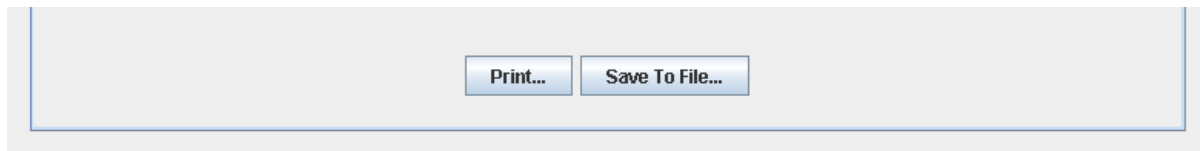
1. Select **Tools > Select Active Cells**, and click the **View Reports** tab.

The **View Reports** screen appears.



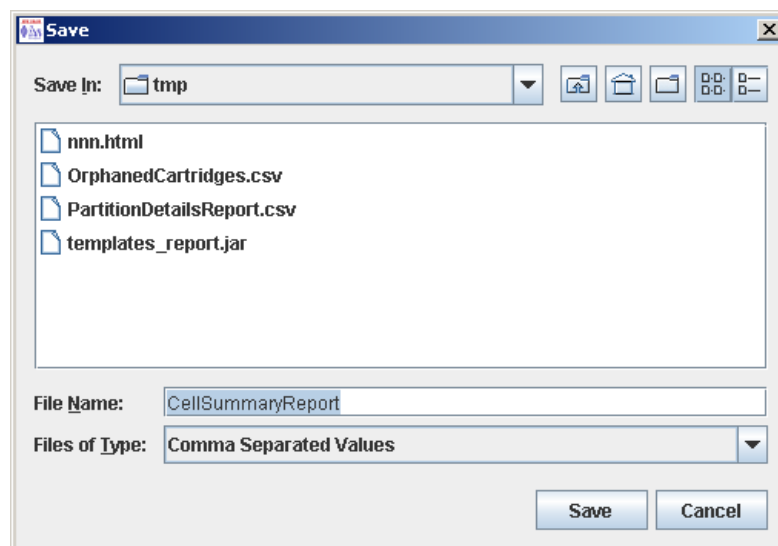
2. In the pull-down menu, select any report.

The specified report is displayed. All report screens include the **Print** and **Save to File** buttons.



3. Click **Save to File**.

The **Save** popup appears.



4. Browse to the directory where you want to save the file, and enter the file name.
5. Click **Save**.

The data is saved to the specified file.

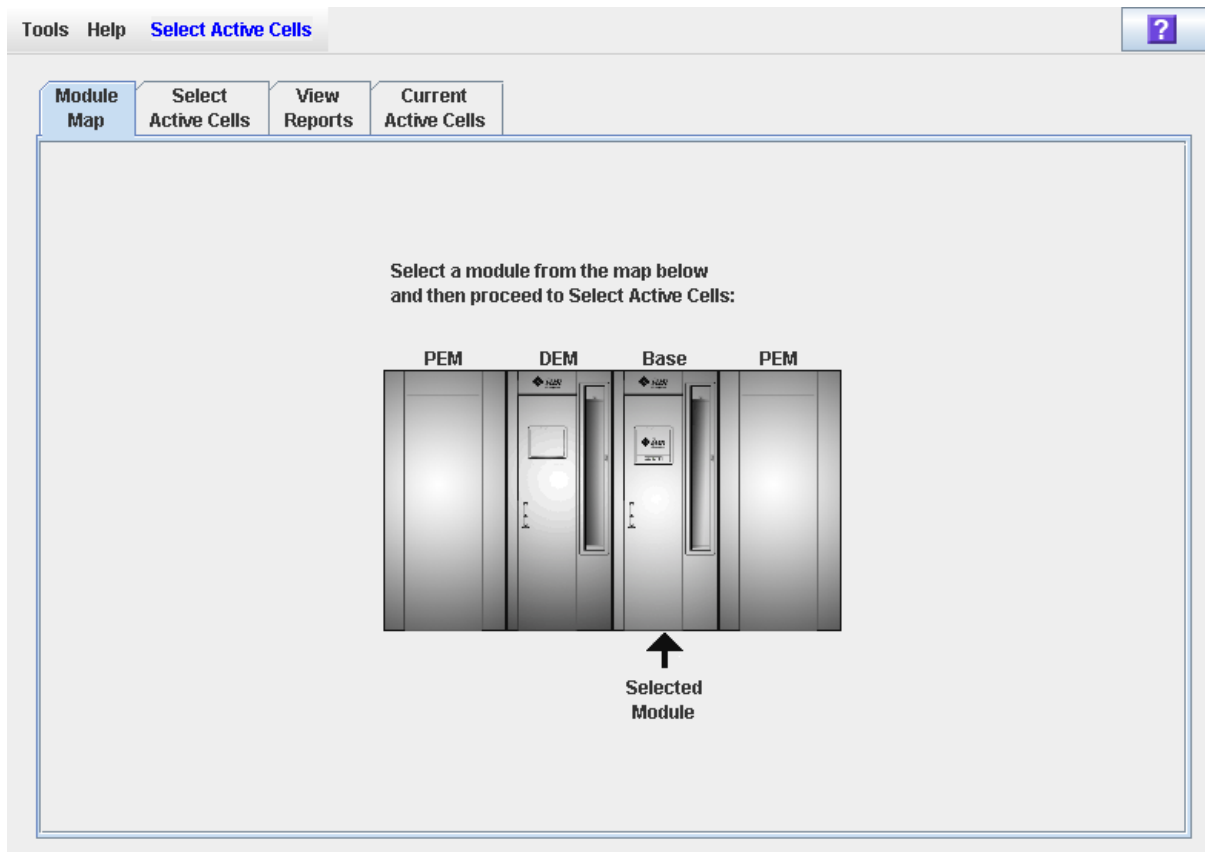
▼ Display Active Cell Detail

Use this procedure to display which storage cells are currently active, inactive, or selected for activation. You can also display detailed information about cartridge, drive, and storage cell locations.

Note – This procedure is available on the local operator panel.

1. **Select Tools > Select Active Cells.**

The **Module Map** screen appears.



2. **Click the module you want to display.**
3. **Click the Current Active Cells tab.**

The **Active Cells** screen appears, displaying the current configuration of the module you have selected.

You can mouse-over a cell or drive to display a tooltip of detailed information.

The screenshot displays the 'Active Cells' software interface. At the top, there are menu options: 'Tools', 'Help', and 'Active Cells'. On the right side of the top bar, there are 'Refresh' and '?' buttons. Below the menu is a navigation bar with tabs: 'Module Map', 'Select Active Cells', 'View Reports', and 'Current Active Cells'. The main interface is divided into several sections:

- Navigation:** 'Move Left' and 'Move Right' buttons.
- Current Library Totals:**
 - Activated Capacity: 1005
 - Active Cells: 875
- Selection Totals:**
 - Selected Cells: 875
 - Unselected Cells: 0
 - % Capacity Used: 87.06%
- Interface Type:** FC-SCSI
- Legend:**
 - Not Accessible (diagonal lines)
 - Inactive (white)
 - Active (light blue)
 - Selected (dark blue)
 - No Activation Needed (red)
 - Cartridge (black outline)
- Main View:** A grid representing storage cells, divided into 'Front Wall' and 'Back Wall' sections. A 'CAP' label is visible. A tooltip is displayed over a selected cell (dark blue) in the Front Wall section, containing the following information:
 - Active
 - Selected
 - Side(2) Column(2) Row(7)
 - Cartridge : Empty
 - SCSI Element Id:2494

Active Storage Region Screen Reference

This section includes detailed descriptions of all SL Console active storage region screens, arranged by screen navigation path. For example, **Select Active Cells—Select Active Cells—Confirm Apply** indicates the screen accessed by clicking **Tools** and then **Select Active Cells** from the Menu Bar, and then clicking the **Select Active Cells** tab, and then the **Confirm Apply** button.

Note – These screens are available for non-partitioned libraries only. See [“Partition Screen Reference” on page 252](#) for the screens used in managing capacity in partitioned libraries.

Note – Only the [Select Active Cells—Current Active Cells](#) screen is available on the local operator panel. The remaining screens can be accessed only from the standalone SL Console or the Web-launched SL Console.

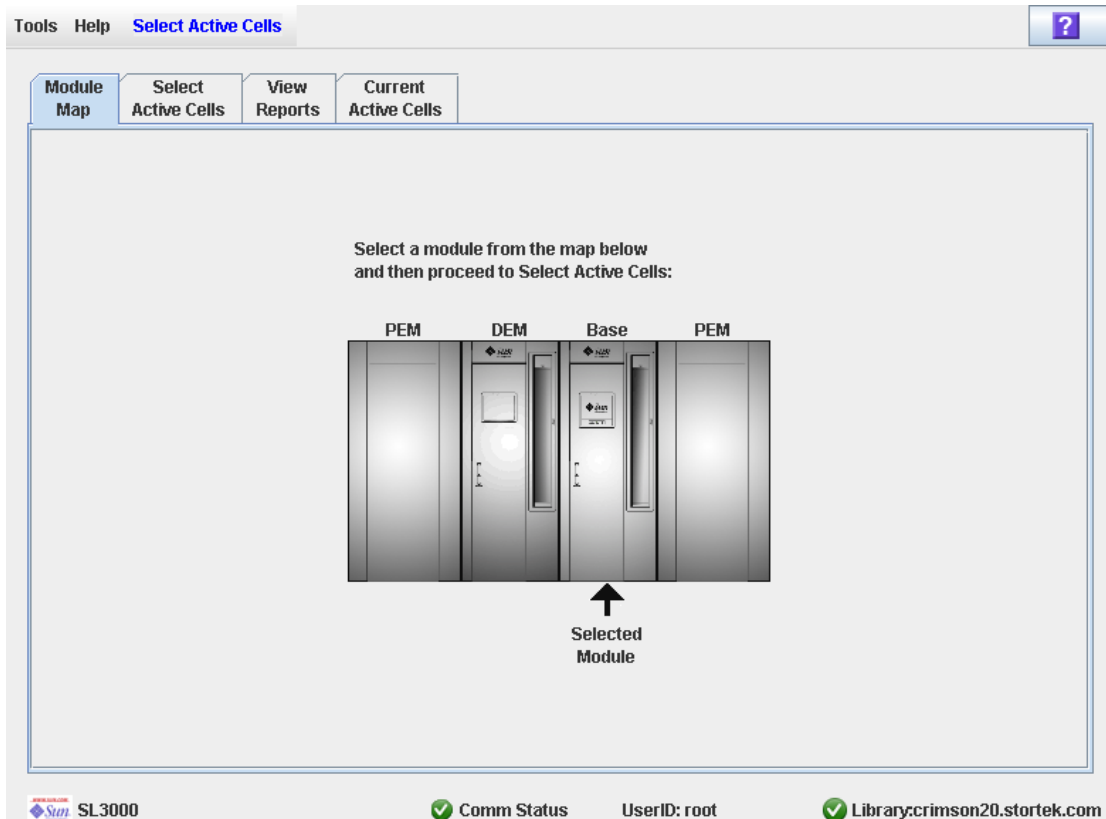
Screen	Page
Select Active Cells > Module Map	166
Select Active Cells > Select Active Cells	168
Select Active Cells > Select Active Cells—Confirm Apply	174
Select Active Cells—View Reports—Cartridge Cell and Media Summary	179
Select Active Cells—View Reports—Orphaned Cartridge Report	182
Select Active Cells—Current Active Cells	184

Note – The **Select Active Cells** screen, and all associated popups, give you a dynamic workspace to design active storage regions. All active cell information is automatically saved to the storage region workspace in SL Console memory and retained for the duration of your SL Console session. This allows you to make modifications and leave and return to the **Select Active Cells** screens any number of times without losing your changes.

Caution – Information in the SL Console active storage region workspace is saved to the library controller database only through the **Apply** button. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Apply** button, you will lose any active storage region changes you have made through the **Select Active Cells** screens and all associated popups.

Select Active Cells > Module Map

Sample Screen



Description

Allows you to select the library module for which you want to activate or de-activate cells for cartridge storage.

Screen Fields

Select a module from the map below

The screen displays an illustration of the library's actual module configuration. This information is taken directly from the library controller database.

Click the module for which you want to select storage cells, then click the **Select Active Cells** tab.

Buttons

? (Help)

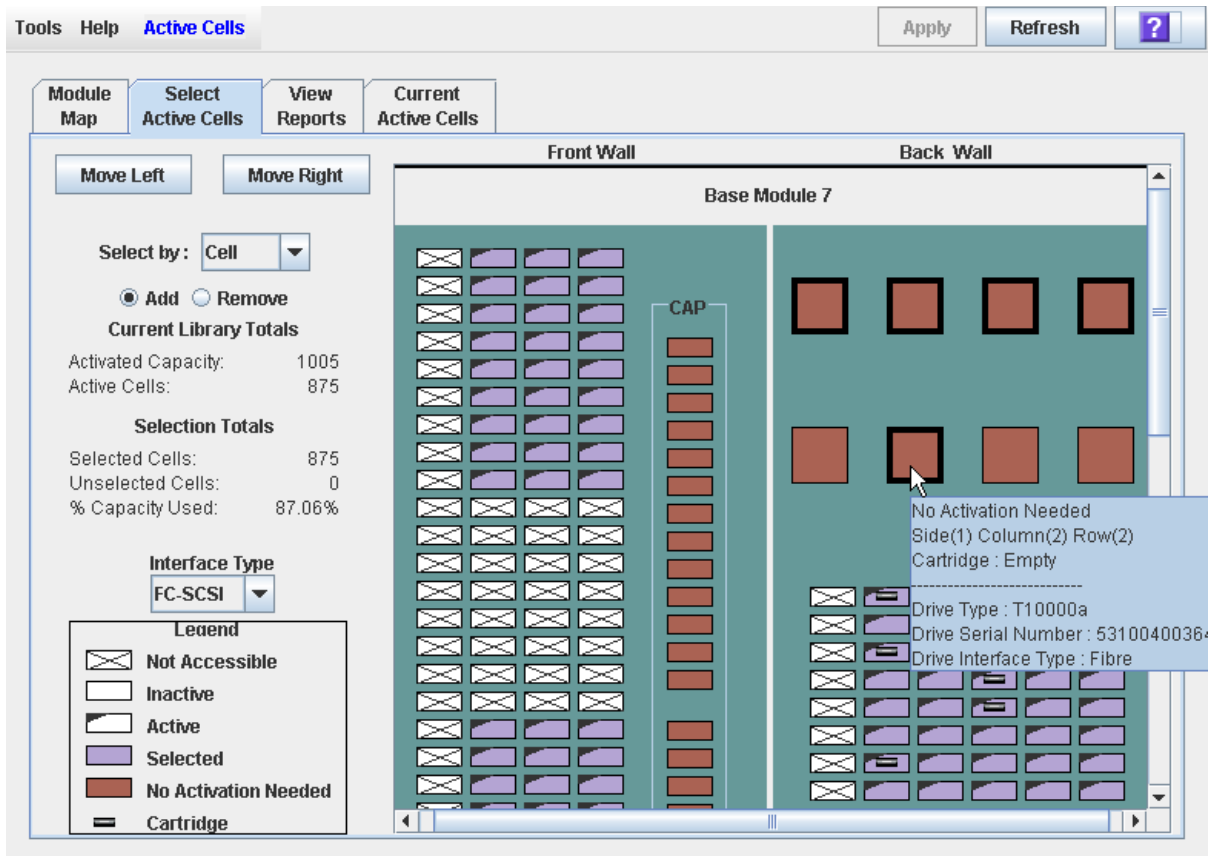
Click to display online help for the screen.

See Also

- [Select Active Cells > Select Active Cells](#)

Select Active Cells > Select Active Cells

Sample Screen



Description

Note – If you want to use the default active storage region configuration defined by the library controller, you do not need to use this screen.

Allows you to define active library storage regions by selecting the storage cells you want to activate or de-activate for use. This allows you to configure active storage cells so that cartridges are concentrated around the drives, and the ends of the library are left for future growth.

You can make any number of cells active, up to the total activated capacity of the library. Selected cells that cannot become active due to activated capacity limits will remain selected and will automatically become active whenever additional activated capacity is installed.

You can use any of the following methods to select storage cells (see [“Library Map” on page 172](#) for detailed instructions):

- Select individual cells or groups of cells
- Select an entire column within a library module
- Select a side within a library module (front or back)

- Select an entire library module
- Select all cells within the library

Caution – De-activating storage cells can result in orphaned cartridges and inaccessible data. See [“Orphaned Cartridges in Non-Partitioned Libraries” on page 145](#) for details.

Note – You can select storage cells only; installed CAPs and tape drives are always active.

Note – The **Select Active Cells** screen, and all associated popups, give you a dynamic workspace to design active storage regions. All active cell information is automatically saved to the storage region workspace in SL Console memory and retained for the duration of your SL Console session. This allows you to make modifications and leave and return to the **Select Active Cells** screens any number of times without losing your changes.

Caution – Information in the SL Console active storage region workspace is saved to the library controller database only through the **Apply** button. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Apply** button, you will lose any active storage region changes you have made through the **Select Active Cells** screens and all associated popups.

Screen Fields

Select by

Required.

Indicates the method you want to use for selecting storage cells to activate or deactivate. Options are:

- Cell – Select individual or rectangular groups of cells.
- Column – Select all cells within a column.
- Side – Select all cells within one side of a library module.
- Module – Select all cells within a library module.
- Library – Select all cells within the library.

Note – You must select either **Add** or **Remove**.

Add

Required.

Indicates you want to add cells to the active storage region. You will only be able to click inactive cells on the library map.

Remove

Required.

Indicates you want to remove cells from the active storage region. You will only be able to click active or selected cells on the library map.

Current Library Totals

Capacity

Display only.

Total activated storage capacity of the library.

Active Cells

Display only.

Total number of storage cells that have been made active. This cannot be greater than the activated **Capacity** of the library.

Selection Totals

Selected Cells

Display only.

Total number of selected and active cells. This can be greater than the activated **Capacity** of the library.

Unselected Cells

Display only.

Total number of de-selected and inactive cells.

Note – Selected Cells + Unselected Cells = library physical capacity

% Capacity Used

Display only.

Percentage of total activated capacity that has been selected for use (cannot be greater than 100%). Calculated as:

Selected Cells / (activated) Capacity

Interface Type

Required.

Type of interface to be used for the library host connection. Options are:

- HLI
- FC-SCSI

The screen displays the value assigned previously. You can leave it as is or make changes.

Note – For additional details about modifying this field, see [“Change the Library Interface Type \(Non-Partitioned Libraries\)”](#) on page 348.

Legend

Legend for the library map. The state of each library resource (storage cell, tape drive, or CAP cell) is indicated as follows:

- Not Accessible (white and x-ed out). Resource is not accessible to any host. Following are some possible reasons:
 - Storage cells have been configured for diagnostic cartridges.
 - Drive bay has no installed drive.
 - CAP has been configured for storage, not CAP operations.
- Inactive (white). Storage cell is not selected.
 - If the cell also has a “dog-eared” left corner, it is currently activated for use in the library controller database and you have selected this cell to be removed from the active storage region. The cell will be made inactive in the library controller database when you click the **Apply** button.
 - If the cell does not have a “dog-eared” left corner, it is currently inactive in the library controller database. There will be no change to the cell’s status in the library controller database when you click the **Apply** button.
- Active (“dog-eared” left corner). Indicates the status of the storage cell in the library controller database:
 - Cells with a “dog-eared” left corner are currently active.
 - Cells with no “dog-eared” left corner are currently inactive.
- Selected (purple). Storage cell is selected. Cells can be selected automatically by the library controller or manually by the user.
 - If the cell also has a “dog-eared” left corner, it is currently activated for use in the library controller database. There will be no change to the cell’s status in the library controller database when you click the **Apply** button.
 - If the cell does not have a “dog-eared” left corner, it is currently inactive in the library controller database and you have selected this cell to be added to the active storage region. When you click the **Apply** button, the cell will be made active in the library controller database, up to the total activated capacity of the library. Purple cells that cannot be activated due to activated capacity limits will remain purple and will be activated automatically whenever additional activated capacity is installed.
- No Activation Needed (brown). Resource cannot be selected on this screen because it is active by default; applies to all CAP cells and tape drives.
- Cartridge (cartridge icon). Resource contains a tape cartridge.
- Drive slots with installed drives are outlined with a thick border. Empty drive slots have a narrow border.

Library Map

Graphical representation of the current library configuration. Initial display for the current SL Console login session is from the library controller database, then the display reflects your modifications. The display includes the following information:

- Type of module currently displayed (base module, drive expansion module, access expansion module, parking expansion module.)
- Numeric module ID (1–12)
- Location of all resources (storage cells, tape drives, CAP cells) within the library

Note – Move the cursor over any resource to display a tooltip of detailed information about the cell or drive, whether it is active in the library controller database, whether it is currently selected on the screen, and the identity of any resident cartridge.

Use the library map to modify the boundaries of the active storage capacity areas. Depending on whether you have clicked the **Add** or **Remove** radio button, cells you click will be selected or de-selected.

Depending on your choice in the **Select by** field, you can perform any of the following actions.

- Select by cell – Select individual or groups of resources. Active storage cells do not need to be adjacent to one another.
 - To select an individual storage cell, double-click it.
 - To select a rectangular group of storage cells, click the cell at one corner of the rectangle, and then click the cell diagonally opposite.
- Select by column – Select an entire column within the module. Columns of active cells do not need to be adjacent to one another. Click any storage cell within the column you want to select.
- Select by side – Select all storage cells within an entire module side. Active sides do not need to be adjacent to one another. Click any storage cell within the side you want to select.
- Select by module – Select all storage cells within a module. Active modules do not need to be adjacent to one another. Click any storage cell within the module you want to select.
- Select the library – Select all storage cells in the library. Click any storage cell in the library.

Buttons

Move Left

Click to display the library module directly to the left of the one currently displayed. This button is grayed out if there is no module to the left.

Move Right

Click to display the library module directly to the right of the one currently displayed. This button is grayed out if there is no module to the right.

Apply

Click to update the library controller database with the current settings from the screen. The **Confirm Apply** popup appears, indicating whether there are any orphaned cartridges or other errors in the active storage region configuration.

Note – This button is grayed out if you have not made any changes to the **Select Active Cells** screen since the last update.

The status of the cells will be updated in the library controller database, as follows:

- White cells with a “dog-eared” left corner are made inactive.
- Purple cells without a “dog-eared” left corner are made active, up to the total activated capacity of the library. Purple cells that cannot be made active due to library activated capacity limits will remain purple and will automatically become active whenever additional activated capacity is installed.
- All other cells are left unchanged.

Refresh

Click to refresh the screen with current data from the library controller database. All unapplied active storage region changes you have made during this SL Console login session will be discarded. The **Cell Selection Refresh** popup appears, prompting you to confirm the refresh.

? (Help)

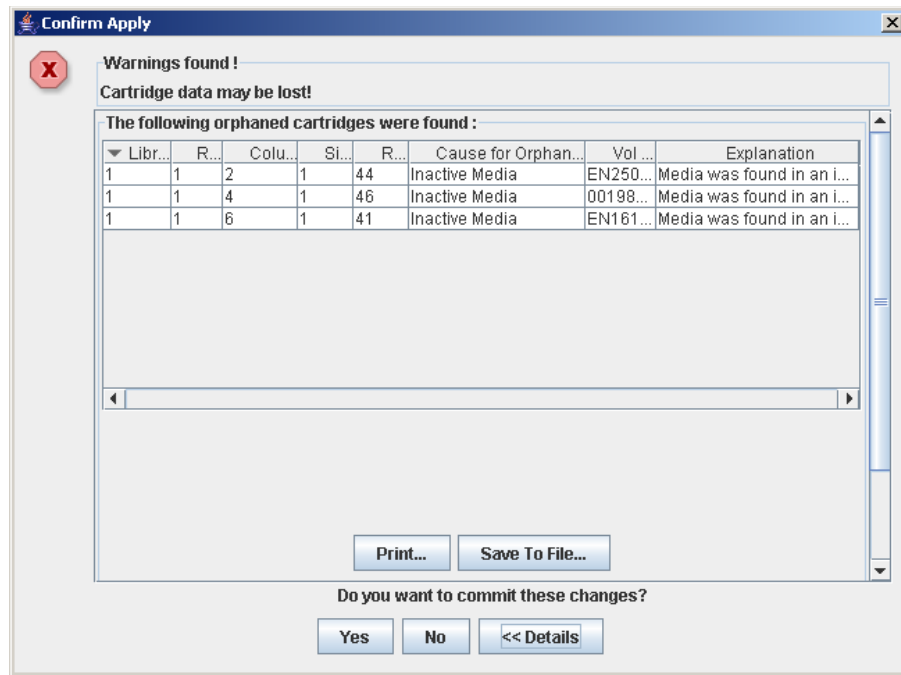
Click to display online help for the screen.

See Also

- [Select Active Cells > Module Map](#)
- [Select Active Cells > Select Active Cells—Confirm Apply](#)
- [Select Active Cells—Current Active Cells](#)

Select Active Cells > Select Active Cells—Confirm Apply

Sample Screen



Description

Displays a list of configuration errors in the defined active storage regions. This screen is a popup that appears when you click **Apply** on the [Select Active Cells > Select Active Cells](#) screen.

After viewing the error messages, you can commit all data from the **Select Active Cells** screen to the library controller database by clicking the **Yes** button.

Caution – Although changes to active capacity are not disruptive to library hosts, it is recommended that you make the library unavailable to other users before committing your active storage region changes. Because the SL Console does not validate storage region boundaries against the library controller database in real-time, configuration conflicts may arise if you change active storage region boundaries while other users are performing cartridge movements or library configuration changes. See [“Synchronizing the Display With the Controller Database”](#) on page 64 for details.

Possible errors include:

- The library has orphaned cartridges. See [“Orphaned Cartridges in Partitioned Libraries”](#) on page 194 for details.
- Storage cells have been removed from the library.

If any of these error conditions are present, the screen initially displays summary warning messages. You can view detailed messages by clicking the **Details** button.

It is recommended that you resolve all errors before committing the data to the library controller database.

Optionally, you can print the screen data or save it to a comma-separated file.

Screen Fields

Warnings found

Display only.

Summary error messages regarding the storage region configuration.

Column

Display only.

Column number where the orphaned cartridge is located. Column location is referenced from the left edge of the Base Module. "+1" is to the right; "-1" is to the left.

Side

Display only.

Module side where the orphaned cartridge is located. "1" is the back wall; "2" is the front wall.

Row

Display only.

Row number where the orphaned cartridge is located. Rows are numbered consecutively from the top down, with row "1" at the top.

Cause for Orphaned State

Display only.

Reason why the cartridge has been identified as orphaned. Options include:

- Just Activated
- Inactive Media

Vol Ser

Display only.

Volume serial number (VOLID) of the orphaned cartridge.

Explanation

Display only.

Explanation of why the cartridge is orphaned.

Some possible options are:

- Media was found in an inactive cell.

- Inactive cell with media was just activated.

Buttons

Note – To display the **Print** and **Save to File** buttons, you may need to scroll down within the inner window.

Print

Click to print the report on a selected printer.

Save to File

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

Yes

Click to confirm that you want to update the library controller database with the current settings from the **Select Active Cells**. The status of the cells are updated in the library controller database, as follows:

- White cells with a “dog-eared” left corner are made inactive.
- Purple cells without a “dog-eared” left corner are made active, up to the total activated capacity of the library. Purple cells that cannot be made active due to library activated capacity limits will remain purple and will automatically become active whenever additional activated capacity is installed.
- All other cells are left unchanged.

No

Click to cancel the update. The library controller database is not updated, but the current settings on the **Select Active Cells** are retained.

Details

Click to toggle between the expanded and collapsed views of the warning message display.

See Also

- [Select Active Cells > Select Active Cells](#)

Select Active Cells—View Reports

Sample Screen



Description

Allows you to select one of the following active storage region reports:

- Cartridge Cell and Media Summary
- Orphaned Cartridge Report

Note – The active storage region reports display data saved to the library controller database. If you have made changes to the active storage region configuration without committing the changes through the **Apply** button, the data in these reports will differ from data shown on the **Select Active Cells** screen.

Screen Fields

Please select a report to display

Required.

Click the report you want to display. The drop-down menu lists all available active storage region reports.

Buttons

Apply

Click to update the library controller database with the current settings from the screen. The **Confirm Apply** popup appears, indicating whether there are any orphaned cartridges or other errors in the active storage region configuration.

Note – This button is grayed out if you have not made any changes to the **Select Active Cells** screen since the last update.

Refresh

Click to refresh the screen with current data from the library controller database. All unapplied active storage region changes you have made during this SL Console login session will be discarded. The **Cell Selection Refresh** popup appears, prompting you to confirm the refresh.

? (Help)

Click to display online help for the screen.

See Also

- [Select Active Cells > Select Active Cells](#)
- [Select Active Cells—View Reports—Cartridge Cell and Media Summary](#)
- [Select Active Cells—View Reports—Orphaned Cartridge Report](#)

Select Active Cells—View Reports—Cartridge Cell and Media Summary

Sample Screen

Tools Help **Select Active Cells** ?

Module Map Select Active Cells **View Reports** Current Active Cells

NOTE: The reports in this menu reflect only the current information stored on the library. Any changes to active cells made in the Select Active Cells tab will be reflected in the reports only after they are committed.

Cartridge Cell and Media Summary ▼

Cell and Media Summary as of 3/7/08 11:03 AM

Library	Rail	Column	Side	Row	Element Type	Vol Ser	Cell Status
1	1	-9	1	1	CELL		Active
1	1	-9	1	2	CELL		Active
1	1	-9	1	3	CELL		Active
1	1	-9	1	4	CELL		Active
1	1	-9	1	5	CELL		Active
1	1	-9	1	6	CELL		Active
1	1	-9	1	7	CELL		Active
1	1	-9	1	8	CELL		Active
1	1	-9	1	9	CELL		Active

Print... Save To File...

Description

Displays detailed information about all library resources (storage cells, tape drives, and CAP cells) and any stored cartridges.

Note – The active storage region reports display data saved to the library controller database. If you have made changes to the active storage region configuration without committing the changes to the library controller, the data in these reports will differ from data shown on **Select Active Cells** screen.

You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Optionally, you can print the screen data or save it to a comma-separated file.

Screen Fields

Library

Display only.

Library number where the library resource is located. This is always "1".

Rail

Display only.

Rail number where the library resource is located. This is always "1".

Column

Display only.

Column number where the library resource is located. Column location is referenced from the left edge of the Base Module. "+1" is to the right; "-1" is to the left.

Side

Display only.

Module side where the library resource is located. "1" is the back wall; "2" is the front wall.

Row

Display only.

Row number where the library resource is located. Rows are numbered consecutively from the top down, with row "1" at the top.

Element Type

Display only.

Type of library resource. Options are:

- CAP
- CELL
- DRIVE

Vol Ser

Display only.

Volume serial number (VOLID) of the cartridge resident in the library resource, if applicable.

Cell Status

Display only.

Capacity status of the library resource. Applies to storage cells only. Options are:

- Active – Cell is activated for use and can be used for cartridge storage.
- Inactive – Cell is not activated for use and cannot be used for cartridge storage.

Buttons

Print

Click to print the report on a selected printer.

Save to File

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

? (Help)

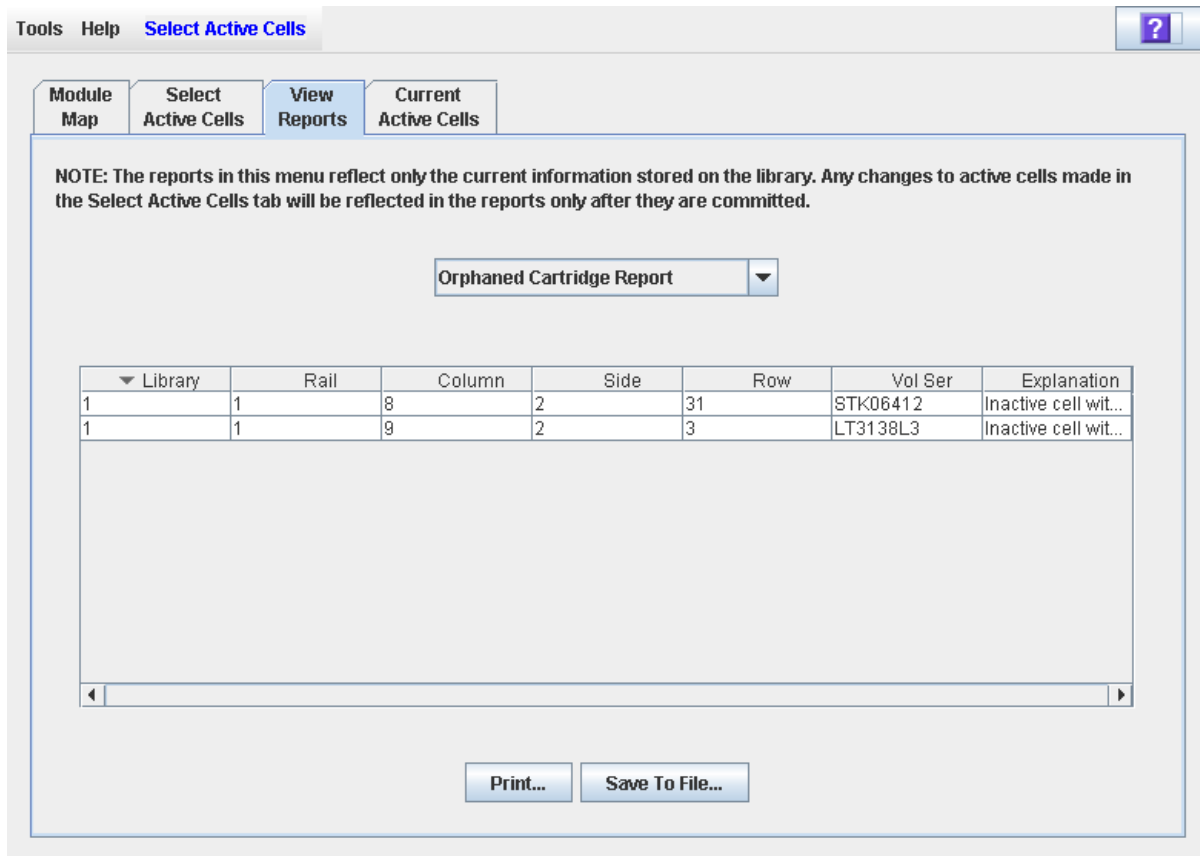
Click to display online help for the screen.

See Also

- [Select Active Cells—View Reports](#)
- [Select Active Cells—View Reports—Orphaned Cartridge Report](#)

Select Active Cells—View Reports—Orphaned Cartridge Report

Sample Screen



Description

Displays the locations and volume serial numbers (VOLIDs) of all orphaned cartridges in the library. Also identifies why the cartridge is orphaned.

Note – The active storage region reports display data saved to the library controller database. If you have made changes to the active storage region configuration without committing the changes to the library controller, the data in these reports will differ from data shown on **Select Active Cells** screen.

You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Optionally, you can print the screen data or save it to a comma-separated file.

Screen Fields

Column

Display only.

Column number where the orphaned cartridge is located. Column location is referenced from the left edge of the Base Module. "+1" is to the right; "-1" is to the left.

Side

Display only.

Module side where the orphaned cartridge is located. "1" is the back wall; "2" is the front wall.

Row

Display only.

Row number where the orphaned cartridge is located. Rows are numbered consecutively from the top down, with row "1" at the top.

Vol Ser

Display only.

Volume serial number (VOLID) of the orphaned cartridge.

Explanation

Display only.

Explanation of why the cartridge is orphaned.

Some possible options are:

- Media was found in an inactive cell.
- Inactive cell with media was just activated.

Buttons**Print**

Click to print the report on a selected printer.

Save

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

? (Help)

Click to display online help for the screen.

See Also

- [Select Active Cells—View Reports](#)
- [Select Active Cells—View Reports—Orphaned Cartridge Report](#)

Select Active Cells—Current Active Cells

Sample Screen



Description

Displays current active library storage regions. Shows which storage cells are currently active, inactive, or selected for activation.

This is the only **Select Active Cells** screen that is available on the local operator panel.

Note – This screen is display only.

Screen Fields

For detailed descriptions of the screen fields, see [“Select Active Cells > Select Active Cells”](#) on page 168.

Buttons

Refresh

Click to refresh the display with current data from the library controller database.

? (Help)

Click to display online help for the screen.

See Also

- [Select Active Cells > Select Active Cells](#)

Library Partitioning

Note – Library partitioning must be installed through the SL3000 hardware activation utility. See “Hardware Activation Files” for details.

Library partitioning allows sections of the SL3000 library to be assigned for exclusive use by specified hosts. For example, you can configure one group of storage cells and drives to be used only for Symantec operations, and another group only for Tivoli operations. This allows you to configure an SL3000 library for applications running on multiple operating systems.

Partitioning Features and Restrictions

This section describes important features and restrictions of library partitioning that will help you to configure and use partitioning in your SL3000 library.

- You can configure up to eight partitions within an SL3000 library.
- A partition can be as small as a single storage cell or tape drive, or a whole rotational or AEM CAP. Cells and drives within a partition do not need to be adjacent.
- Storage cells, CAPs, and tape drives allocated to a partition can be used only by the hosts assigned to that partition. Hosts assigned to other partitions cannot access the contents of these cells, CAPs, and drives. See [“Storage Cells and Drives” on page 194](#) for details.
- Storage cells, CAPs, and drives not allocated to any partition cannot be accessed by any hosts. For example, you might leave an area of cells unallocated, in preparation for future partitioning.
- Host-partition connections can use either the FC-SCSI or HLI (TCP/IP) interface.
- Whole rotational or AEM CAPs can be allocated for exclusive use by one partition, or they can be shared by multiple partitions. See [“Partitions and Rotational and AEM CAPs” on page 196](#) for details.
- CAPs can only be shared by partitions with the same host interface type. That is, FC-SCSI and HLI partitions cannot both share the same CAP.

- With the non-disruptive partitioning (NDP) feature, there is minimal host disruption whenever resources are allocated to a partition, and changes made to one partition do not impact other partitions or their host connections. See [“Non-Disruptive Partitioning” on page 201](#) for details.

Enabling and Disabling Partitioning

In order for you to use partitions in a library, the partitioning feature must be installed through the hardware activation utility. See [Chapter 3, “Hardware Activation Files” on page 187](#) for details.

A library with partitioning enabled can be in either of the following states:

- Partitioned – The library has at least one user-defined partition with a valid partition ID.
- Non-partitioned – The library has no user-defined partitions. A non-partitioned library behaves in the same manner as a library that does not have partitioning enabled; that is all active storage cells, drives, and rotational and AEM CAPs are accessible to all hosts.

To disable partitioning on a library, you must first delete all partitions. The library state will then change to “non-partitioned.”

Partition Planning

The partitioning feature offers great flexibility in the use of your library. It also requires careful planning, a thorough knowledge of library wall and storage cell mapping, and expertise in configuring and administering host software applications. There must be clear communication among all parties involved, including system programmers and administrators, library operators, and your Oracle service representative.

Before creating partitions, you must plan the storage area that is needed for resident tape cartridges and anticipate the number of required free cells. You must understand the boundaries of each partition and the host ownership relationships. You must verify that all tape drives and cartridges have been moved to the proper locations, according to the planned assignments.

Installing the Partitioning Feature

The following special considerations apply after you successfully install the Partitioning feature on a previously non-partitioned library.

- You can begin creating partitions immediately; you do not need to reboot the library first.
- Until you create at least one partition, the library remains in a non-partitioned state; that is all activated storage cells, drives, and rotational and AEM CAPs are accessible to all hosts.

Allocated Storage Capacity

In partitioned libraries, the total number of storage cells allocated to all library partitions cannot exceed the activated capacity of the library.

In partitioned libraries, there is no default active storage region. You must explicitly assign storage cells to partitions, thereby configuring the active storage regions for each partition. See [“Partitioning Process” on page 204](#) for details.

When assigning cartridges to storage cells, the library controller applies the predefined cell selection rules separately to each partition. See [“Cell Activation Rules” on page 145](#) for details.

Partition Configurations

You must use the standalone SL Console or Web-launched SL Console to configure library partitions; the partitioning screens are not available on the local operator panel.

To configure a partition, you must define the following information:

- [Partition Summary Information](#)
- [Host-Partition Connections](#)
- [Partition Boundaries](#)

For detailed instructions on defining library partitions, see [“Partitioning Process” on page 204](#).

Partition Summary Information

Partition summary information includes the partition ID, name, and host-partition connection type (HLI or FC-SCSI). Partition IDs must be unique and can range from 1–8.

Host-Partition Connections

Host-partition connections identify the hosts that are able to access a partition. Each partition appears to the host as a separate library. A host can control one or more partitions. In addition, it is possible for more than one host to control a single FC-SCSI partition, but it is recommended that you exercise caution in implementing this configuration, as some host applications may not allow for resource sharing.

HLI Host-Partition Connections

An HLI (Host Library Interface) partition can have up to 16 assigned hosts. You define the HLI host-partition connection configuration through the library management software (ACSL or ELS). Therefore there are no SL Console screens to display or maintain this information. See the appropriate tape management software documentation for details.

FC-SCSI Host-Partition Connections

An FC-SCSI partition can have one or more host-partition connections. The host-partition connection configuration is user-defined and consists of the following information:

- World Wide Port Name of the FC-SCSI host bus adapter
- Logical unit number (LUN) of the host

See [“Configure a Host-Partition Connection” on page 210](#) for detailed instructions on defining this information.

Partition Boundaries

Partition boundaries identify the storage cells, drives, and rotational and AEM CAPs that are part of each partition. Only unallocated cells can be added to a partition, and only allocated cells can be removed.

You can define partition boundaries in any of the following ways:

- Select individual cells or rectangular groups of cells to add or remove from a partition. Cells or cell groups do not have to be contiguous.
- Select a module column to add or remove from a partition. Columns do not have to be contiguous.
- Select an entire module side (front or back) to add or remove from a partition. Sides do not have to be contiguous.
- Select an entire module to add or remove from a partition. Modules do not have to be contiguous.

Note – It is possible to have partitions with no allocated resources.

Deleting the Partitioning Feature

You can delete the Partitioning feature by deleting the Partitioning hardware activation file from the library. See [“Delete a Hardware Activation File” on page 123](#) for detailed instructions. You must reboot the library after deleting the Partitioning activation file in order for the deletion to take effect.

Note – Deleting the Partitioning feature is an exceptional situation; be sure this is what you really want to do.

Note – The Partitioning feature cannot be deleted if it was activated by a legacy hardware activation file prior to SL3000 firmware version FRS_3.0.

Deleting the Partitioning feature has the following effects on the library configuration:

- Changes the library state to “non-partitioned.”
- Makes all activated storage cells, drives, and CAPs accessible to all hosts.
- All existing partition summary information and resource allocations are retained, but not usable. If the Partitioning activation file is later re-installed, the partition allocations are restored.

Partitions and Library Resources

Library Resource Addresses

Resource addresses uniquely identify each resource (storage cells, drives, and rotational and AEM CAPs) within the library. The SL3000 library and attached hosts use the following addressing schemes:

- [Library Internal Address](#)
- [Host SCSI Element Address](#)
- [HLI-PRC Address](#)

Each partition appears to a host as a separate library; this is reflected in the partition address.

For additional details about library resource addressing, see [Appendix A, “Library Resource Addresses”](#) on page 589.

Library Internal Address

The library internal address is used by the SL3000 library controller and the SL Console device tree to identify the physical location of each resource. The addressing scheme used by the SL3000 is a five-digit, comma-separated value, specifying the library, rail, column, side, and row, as viewed from the front of the library, facing the drive bays.

The format of the SL3000 library internal address is l,r,c,s,w where:

- l = library or partition number; this value is always “1”.
- r = rail number; this value is always “1”.
- c = column number. Column numbering is referenced from the left edge of the Base Module, as you face the inside back wall, as follows:
 - Numbering is static, allowing modules to be added without renumbering existing columns.
 - Columns within and to the right of the Base Module are numbered positively (+), in ascending sequence from left to right.
 - Columns to the left of the Base Module are numbered negatively (-), in descending sequence from right to left.
 - Base Module panels are always “1” to “6”.
 - DEM panels (if present) are always “-1” to “-6”.
 - If there is no DEM and a CEM is to the left of the Base Module, then columns “-1” to “-6” are skipped and the CEM is assigned columns “-7” to “-12”.
 - CEM columns to the right of the Base Module start with “7”.
 - Left AEM columns are always numbered “-33” to “-31”. Right AEM columns are always “31” to “33”. In other words, AEM columns are numbered as if a DEM and four CEMS are installed to the left, and four CEMs are installed to the right, of the Base Module.

- s = side. Back wall = "1"; front wall = "2".
- w = row number. Numbered consecutively from the top, down. Valid values are "1" to "52", with row "1" at the top.

Host SCSI Element Address

SCSI element addresses are used by hosts with a FC-SCSI connection to the SL3000 library. Each library resource available to a host is identified by a unique SCSI element address.

Following are rules for SCSI element numbering within partitioned libraries:

- Each SCSI element address is a single integer, up to four digits in length.
- Starting SCSI element addresses for each library resource type are as follows:
 - CAPs – 10
 - Drives – 1000
 - Storage cells – 2000
- SCSI element numbering restarts for each partition. For example, storage cell numbering starts with "2000" for each partition within a given library.
- Numbering starts at the upper-left back of the library, as viewed from the front of the library. Numbering continues to the lower-right front by frame module. Numbering within a panel goes by
- SCSI element addresses for a partition start at the lowest module, row, and column within the partition, then proceed by row until the end of the column, then increment by column until the end of the module.
- SCSI element numbering is continuous within each partition, even if cell locations for the partition are not adjacent.
- When additional resources are allocated to an existing FC-SCSI partition, the original resources are not renumbered. This helps to minimize disruption to the FC-SCSI host.
- Drive element numbering includes occupied drive slots only; empty drive slots are not assigned a SCSI element address.

SCSI Element Address Examples

A library's Base and storage expansion modules are allocated to Partition 1, and the Drive Module is allocated to Partition 2. SCSI element numbering is as follows:

- For Partition 1, the first available storage cell in the Base Module is assigned element address "2000". Numbering continues sequentially through the last available cell in the storage module, running from top-left through bottom-right. Installed drives in the Base Module are assigned sequential element addresses, starting with "1000" for the top left drive.
- For Partition 2, the first available storage cell in the Drive Module is assigned element address "2000". Numbering continues sequentially through the last available cell in the Drive Module, running from top-left through bottom-right. Installed drives in the Drives Module are assigned sequential element addresses, starting with "1000" for the top left drive.

HLI-PRC Address

The HLI-PRC (Host Library Interface-Panel, Row, Column) address is used by hosts with an HLI connection to the SL3000 library, including ACSLS and ELS. The HLI-PRC address uniquely identifies each library resource accessible to the host and is assigned by the host software.

The HLI-PRC address is an eight-digit value specifying the library, panel, row, and column where the resource is located. The format is *ll:pp:rr:cc*, where:

- *ll* = Library number; this value is always "00".
- *pp* = Panel number. Numbering is relative to the Base Module, as follows:
 - Base Module panels are always "12" and "13".
 - Modules to the left of the Base Module are numbered in descending sequence, starting with "11"; modules to the right are numbered in ascending sequence, starting with "14".
 - Rear walls are assigned even numbers; front walls are assigned odd numbers.
 - DEM panels (if present) are always "10" and "11".
 - If there is no DEM and a CEM is to the left of the Base Module, then panels "10" and "11" are skipped and the CEM is assigned panels "8" and "9". This allows you to add a DEM to the left of the Base Module at a later date without renumbering modules.
 - For AEM panel numbering, see ["HLI CAP numbering – rotational and AEM CAPs" on page 193](#).
- *rr* = Row number within the panel. Numbered consecutively from the top, down. Valid values are 0–51, with row 0 at the top.
- *cc* = Column number within the panel. Numbered consecutively from left to right, starting at the front of the module. Each panel has a maximum of six columns; therefore, valid column values are 0–5.

HLI CAP numbering – rotational and AEM CAPs

Note – ELS displays HLI-PRC addresses in hexadecimal notation. Therefore, panels 10, 11, and 12 are displayed as "0A", "0B", and "0C" respectively. ACSLS and the SL Console display HLI-PRC addresses in decimal notation.

Library CAP numbers are assigned by module, from left to right:

- Base Module CAP = 6
- DEM CAP = 5
- Rotational CAPs in CEMs to the left of the Base Module = 1–4
- Rotational CAPs in CEMs to the right of the Base Module = 7–10
- AEM CAP to the left of the Base Module = 0
- AEM CAP to the right of the Base Module = 11

Rotational CAPs contain a single column of cells with 26 rows; cells are numbered 0–25.

The AEM contains a bulk load CAP with 234 cells arranged in six columns. Column numbering starts at the rear wall and runs left to right (columns 0–2); then proceeds to the front wall and runs left to right (columns 3–5).

Storage Cells and Drives

All storage cells, tape drives, and cartridges allocated to a partition can only be accessed by host connections assigned to the partition. For example, if a group of tape drives is allocated to a partition, only the hosts assigned to that partition can use those drives.

Storage cells and drives that are not allocated to any partition cannot be accessed at all. For example, you can leave an area of cells unallocated in preparation for a planned future partition.

On the SL Console screens and reports, storage cells and drives appear in any of the following states:

- Allocated – Assigned to the current partition.
- Unallocated (or Unassigned) – Not assigned to any partition; available to be assigned to any current partition.
- Unavailable – Assigned to another partition.
- Not accessible – Not available for host operations; for example, cells reserved for diagnostic cartridges, cells that are physically blocked, and cells that are inactive.

Note – TallBots are shared resources and cannot be allocated exclusively to a partition.

To display partition assignments for storage cells and drives, see [“Partitions—Reports—Cartridge Cell and Media Summary”](#) on page 301.

Orphaned Cartridges in Partitioned Libraries

Note – For a discussion of orphaned cartridges in non-partitioned libraries, see [“Orphaned Cartridges in Non-Partitioned Libraries”](#) on page 145.

In partitioned libraries, an orphaned cartridge is a cartridge located in an unallocated cell or drive (that is, a cell or drive not allocated to any defined partition).

Caution – If a host encounters an orphaned cartridge it might treat the cartridge as scratch and overwrite the data. Therefore, it is very important to disposition orphaned cartridges properly.

A cartridge can become orphaned for a variety of reasons. Following are some possible causes:

- Partition boundaries have changed.
- A partition has been deleted.
- The cartridge has been moved to an unallocated or inaccessible cell through manual intervention.

If the SL Console identifies an orphaned cartridge, it displays a warning message. You can then use the following tools to help you resolve and disposition the orphaned cartridge:

- Generate a report of orphaned cartridges.
- Perform an audit of the library.
- Perform a recovery move on a cartridge.

For detailed instructions on checking for and resolving orphaned cartridges, see the following procedures:

- [“Verify Partition Configurations” on page 216](#)
- [“Resolve Orphaned Cartridges” on page 219](#)
- [“Commit Partition Configuration Changes” on page 220](#)

Partitions and Rotational and AEM CAPs

Note – AEM CAPs are subject to the same partitioning rules and restrictions as rotational CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

Note – The SL3000 does not support common CAPs, split CAPs, or the allocation of individual CAP cells to a partition.

When configuring CAPs, you must plan carefully for anticipated CAP usage. A partition can only use the CAPs explicitly allocated to it. There is no “common” CAP in the SL3000.

When you allocate a CAP to a partition, all cells in the CAP are allocated as a whole. It is not possible to allocate or de-allocate individual cells within a CAP. There is no “split” CAP in the SL3000.

Using CAPS in a Partitioned Library

A rotational or AEM CAP is a shared library resource – that is, it can be used by all partitions in the library. A CAP can be used by only one partition at a time, however. While a partition is using a CAP for enters or ejects, the CAP is reserved to that partition and unavailable to all others.

In order for a partition to reserve a CAP, all of the following conditions must be met:

- The CAP must be available – that is, not reserved by any other partition.
- The CAP must be empty.
- The CAP must be closed and locked.

For additional details, see [“CAP Ownership”](#) on page 197.

CAP Allocations

All CAPs in a partitioned library are unallocated by default. You allocate CAPs to partitions through the following screens:

- [“Partitions—Design \(Step 3b\)”](#) on page 276, for Base, Drive, and CEM modules
- [“Partitions—Design \(Step 3b\) – AEMs Only”](#) on page 282, for AEM modules

CAP allocations can take either of the following forms:

- Dedicated – The CAP is allocated for the exclusive use of one partition.
- Shared – The CAP is allocated for the use of more than one specified partition. See [“Shared CAPs”](#) for details.

Once a CAP is allocated, it becomes either an FC-SCSI CAP or an HLI CAP, depending on the host interface type of the first partition to which it is allocated. For example, if you allocate a previously unallocated CAP to a partition with an FC-SCSI interface, the CAP becomes an FC-SCSI CAP. Subsequent allocations of the CAP can be to other FC-SCSI partitions only. To change the CAP from FC-SCSI to HLI, you must first de-allocate the CAP from all FC-SCSI partitions, and then allocate the CAP to an HLI partition.

Note – CAP allocations are not required; it is possible to have partitions with no allocated CAP.

Note – Because FC-SCSI host applications typically do not use CAP reservations, it is recommended that you dedicate at least one CAP to each FC-SCSI partition whenever possible. This allows each partition to operate independently from the others and allows you to avoid the resource contention issues that can arise through shared CAPs.

Shared CAPs

Because a library can have more partitions than CAPs, it may be necessary to share CAPs among partitions. Only partitions with the same host interface type can share a CAP. For example, any number of FC-SCSI partitions can share a group of one or more CAPs, and any number of HLI partitions can share a different group of CAPs, but HLI and FC-SCSI partitions cannot both share any of the same CAPs.

A partition can have only dedicated CAPs or shared CAPs. For example, it is not possible for a partition to have a dedicated CAP while sharing another CAP; both CAPs must be either dedicated or shared.

Note – You must carefully manage shared CAP usage among FC-SCSI hosts in order to avoid contention. See [“CAP Ownership”](#) on page 197 for details.

CAP Auto Enter Mode

CAP auto enter mode allows a library operator to open a CAP and initiate an enter operation without issuing an explicit enter request and without an explicit reservation from a host application. Auto enter mode is available for CAPs that have been dedicated to a partition. CAPs in auto enter mode are left unlocked.

Auto enter mode is managed by the host applications. See the appropriate tape management software documentation for details.

CAP “Ownership”

A CAP can be used by only one partition at a time for enters and ejects. A partition can take ownership of a CAP in any of the following ways:

- The CAP is dedicated to one partition. In this case the partition always has exclusive ownership of the CAP.
- A host application reserves the CAP prior to an enter or eject operation. This typically applies to HLI host applications only. See [“CAP Reservations”](#) on page 198 for details.
- The user explicitly associates the partition to the CAP. This applies to FC-SCSI CAPs only. See [“FC-SCSI CAP Associations”](#) on page 199 for details.

While a partition has ownership of a CAP, the CAP is reserved exclusively to that partition and unavailable to all others. The library sends “CAP opened” and “CAP closed” messages only to the host holding the reservation.

For HLI CAPs only, when a host attempts to reserve a CAP already reserved by another partition, the library sends a message to the requesting host identifying the partition ID and host ID holding the reservation.

CAP States

A CAP must be unlocked in order for you to open it to insert or remove cartridges. When a CAP is unlocked, the light on the CAP button is turned on.

When you close a CAP, the TallBot performs an audit to determine whether there are cartridges present. During the audit the CAP is locked and the light on the CAP button is turned off. Once the audit is completed, the CAP is returned to its default state.

The following table describes the default states of the various types of CAPs within a partitioned library.

Type of CAP	Default State	Default CAP Button Light Condition	Comment
HLI – dedicated or shared	Locked	Off	Host reservation unlocks the CAP and turns the light on. See “CAP Reservations” on page 198 for details.
HLI – auto enter mode	Unlocked	On	
FC-SCSI – dedicated	Unlocked	On	
FC-SCSI – shared	Locked	Off	Partition-CAP association unlocks the CAP and turns the light on. See “FC-SCSI CAP Associations” on page 199 for details.

CAP Reservations

Both FC-SCSI and HLI hosts can make use of CAP reservations. CAP reservations give a partition exclusive ownership of a shared CAP for the duration of an enter or eject operation. When the operation is finished, the host application must release the reservation to make the CAP available to other partitions sharing the CAP. No other partitions can access the CAP until the first one has terminated the operation and released the reservation.

For a partition to reserve a CAP, the CAP must be unreserved (applies to shared CAPs only), empty, and closed.

HLI CAP Reservations

HLI host applications use a strict reservation scheme to manage CAP usage among host clients, and therefore always reserve a CAP before unlocking it or moving a cartridge to it. When an HLI host application attempts to reserve a CAP already reserved by another partition, the library controller sends a message to the requesting host identifying the partition ID and host ID holding the reservation.

Releasing CAP Reservations

In normal operations, a CAP reservation for an ACSLS or ELS host is released in the following ways:

- Enter operations – After all cartridges have been successfully entered into the library, the host explicitly terminates the enter command. The library controller releases the CAP after verifying that the CAP is closed and empty.
- Eject operations – After all cartridges have been successfully ejected, the host automatically terminates the eject operation. The library controller releases the CAP after verifying that the CAP is closed and empty.

If for some reason a CAP reservation is not released as described above, the CAP will be unavailable to all other partitions, and cartridges belonging to the first partition may remain in the CAP. In this case, it is recommended that you terminate the enter or eject from the host holding the reservation. This ensures a normal release of the CAP reservation.

Note – See the ACSLS or ELS documentation for details about terminating enters and ejects.

Overriding CAP Reservations

In some cases, you may not be able to access the host holding a reservation and therefore cannot perform a normal release of the CAP. This may be because the host has terminated or because you lack physical access or security authorization to issue commands to the host. In these cases, you can override (unreserve) the CAP reservation manually. See [“Override a CAP Reservation” on page 249](#) for the detailed procedure.

Note – Use extreme care when using the SL Console to override a CAP reservation. If you do not complete the procedure, the CAP could be left unavailable to all partitions, and/or cartridges assigned to one partition could be entered into another partition.

Note – You can use the SL Console to override a CAP reservation only in a partitioned library. If a library is not partitioned, CAP reservations must always be released through ACSLS or ELS.

FC-SCSI CAP Reservations

Most FC-SCSI host applications do not use CAP reservations. FC-SCSI host applications typically assume sole ownership of a CAP and therefore do not coordinate CAP sharing well. To avoid contention among partitions for a shared CAP, you must manually associate a partition to a CAP. See [“FC-SCSI CAP Associations” on page 199](#) for details.

FC-SCSI CAP Associations

If a FC-SCSI partition shares CAPs with other partitions, you must manually associate the partition to its CAPs prior to initiating an enter or eject operation. See [“Associate an FC-SCSI Partition to Its Shared CAPs” on page 244](#) for the detailed procedure.

A partition-CAP association gives a partition exclusive ownership of its shared CAPs, similar to a CAP reservation. This ensures that cartridges are always entered into the correct partition and prevents other partitions from taking ownership of a shared CAP that is already in use.

The following rules apply when making partition-CAP associations:

- You can associate only one partition at a time to a CAP.
- Selecting a partition causes all its allocated CAPs to be associated to it at once; you cannot select individual CAPs to be associated to the partition.
- Partition-CAP associations remain active until you explicitly remove them; the associations are not automatically removed when the enter or eject operation completes.
- Partition-CAP associations are removed during library reboots, power cycles, library door open/close operations, or CAP initializations
- Partition-CAP associations are removed if the CAP becomes allocated to a different partition through the **Design (Step 3b)** screen.
- If a partition-CAP association is removed while the CAP is open or has cartridges in it, the CAP ownership will be changed to the “default” requester (the library controller), and the CAP will be unavailable to all partitions. You must empty and close the CAP before it can be associated to any partitions.

Non-Disruptive Partitioning

The non-disruptive partitioning (NDP) feature minimizes the number of host interruptions that occur when partitions are modified. The library does not need to be taken offline for every partition change, and hosts are insulated from partition changes that do not affect them directly.

Prior to this feature, whenever a partition was changed in any way, all partitions would go offline while the library controller database was updated. As a result, library outages needed to be coordinated across all hosts connected to a partitioned library.

The specific functions of the NDP feature vary, depending on the type of host-partition connection. For details, see the following sections:

- [“NDP and HLI Partitions” on page 201](#)
- [“NDP and FC-SCSI Partitions” on page 202](#)

Caution – Although partition changes are not disruptive to library hosts, it is recommended that you make the library unavailable to other users before committing your partition workspace changes. Because the SL Console does not validate partition boundaries against the library controller database in real-time, configuration conflicts may arise if you change partition boundaries while other users are performing cartridge movements or library configuration changes. See [“Synchronizing the Display With the Controller Database” on page 64](#) for details.

NDP and HLI Partitions

With HLI partitions, you can allocate additional resources to a partition without stopping host jobs or having the partition go offline. In general, a partition goes offline only when resources are de-allocated. In all cases, neighboring partitions are always left undisturbed.

Allocating Additional Resources to a Partition

Whenever you make any of the following types of partition changes, the affected partition stays online:

- Allocate a storage cell
- Allocate a drive
- Allocate a CAP

The library controller sends an asynchronous message to all hosts connected to the partition that the library configuration has changed. The hosts experience a brief interruption as they update their library configuration information, and then they automatically continue processing jobs.

Removing Allocations from a Partition

Whenever you make any of the following types of partition changes, the affected partition goes offline briefly:

- De-allocate a storage cell
- De-allocate a drive
- Remove an empty drive slot

After the configuration change is updated in the library controller database, the partition automatically comes back online and the library controller notifies all hosts connected to the partition that a configuration change has occurred. The hosts experience a brief interruption as they update their library configuration information, and then they automatically continue processing jobs.

NDP and FC-SCSI Partitions

All changes to an FC-SCSI partition cause the affected partition to go offline with a Unit Attention condition. Neighboring partitions and their connected hosts are not disturbed.

Host Connection Changes

Host connection changes include the following activities:

- Add a host-partition connection
- Change the LUN for a host-partition connection
- Delete a host-partition connection

Whenever you change a host LUN or add a LUN connection mapping for a host, the affected partition goes offline with a LUNS Data Has Changed Unit Attention condition. The hosts connected to the partition must issue the appropriate commands to update their library configuration information. See the appropriate tape management software documentation for detailed procedures and commands.

If a host has unique ITL nexus connection mappings for each partition connection, then only the partition experiencing the connection change is affected.

Partition Configuration Changes

Partition configuration changes include the following activities:

- Allocate a storage cell
- Allocate a drive
- De-allocate a storage cell
- De-allocate a drive
- De-allocate a CAP

Whenever you make any of these changes, the affected partition goes offline with a Mode Parameters Have Changed Unit Attention condition. The hosts connected to the partition must issue the appropriate commands to update their library

configuration information; see the appropriate tape management software documentation for detailed procedures and commands. In the case of adding or removing drives, the device SCSI numbering is updated as well.

Partitioning Process

Note – Library partitioning must be installed through the SL3000 hardware activation utility. See “Hardware Activation Files” for details.

Partition Configuration Process

When configuring library partitions for the first time, it is recommended that you use the library partition screens in the following sequence:

1. **Instructions (Step 1)** – Review summary instructions for the partition configuration process.
2. **Summary (Step 2)** – Display summary partition configuration and host-partition connection information. Optionally access other screens to perform the following tasks:
 - Add Partition
 - Modify Partition
 - Delete Partition

Note – The following tasks are available for FC-SCSI host-partition connections only.

 - Add Connection
 - Modify Connection
 - Delete Connection
3. **Module Map (Step 3a)** – Select the library module for which you want to design detailed partition boundaries.
4. **Design (Step 3b)** – Display and optionally modify detailed partition boundary information. Optionally access other screens to perform the following tasks:
 - Verify Partition Configurations
 - Refresh the display with current data from the library controller database
5. **Commit (Step 4)** – Commit all changes made in the **Summary(2)** and **Design (3b)** screens, and all associated popups, to the library controller database. Optionally access other screens to perform the following task:
 - Refresh the display with current data from the library controller database

You can use the **Reports** screen at any time to display, and optionally save or print, partition configuration information from the library controller database.

SL Console Partition Workspace

The partition **Summary (Step 2)** and **Design (Step 3b)** screens, and all associated popups, give you a dynamic workspace to design your library partitions. All partition configuration information is automatically saved to the partition workspace

in SL Console memory and retained for the duration of your SL Console session. This allows you to switch among partition views and leave and return to the partition screens any number of times without losing your configuration changes.

Information in the SL Console partition workspace is committed to the library controller database only through the **Commit (Step 4)** screen. The information is lost if any one of the following occurs before you have committed your updates:

- You actively log off the SL Console session.
- The SL Console session times out or the connection to the library is lost.
- You actively refresh the SL Console workspace from the current library controller database. This is done through the **Refresh** button on the **Summary (Step 2)** and **Design (Step 3b)** screens.

Caution – Although partition changes are not disruptive to library hosts, it is recommended that you make the library unavailable to other users before committing your partition workspace changes. Because the SL Console does not validate partition boundaries against the library controller database in real-time, configuration conflicts may arise if you change partition boundaries while other users are performing cartridge movements or library configuration changes. See [“Synchronizing the Display With the Controller Database” on page 64](#) for details.

Partitioning Task Summary

Partitioning tasks are divided into the following categories:

- [“Partition Configuration Tasks” on page 207](#)
- [“Partition Management Tasks” on page 223](#)
- [“Partition Report Tasks” on page 236](#)
- [“CAP Operation Tasks” on page 243](#)

Partition Configuration Tasks

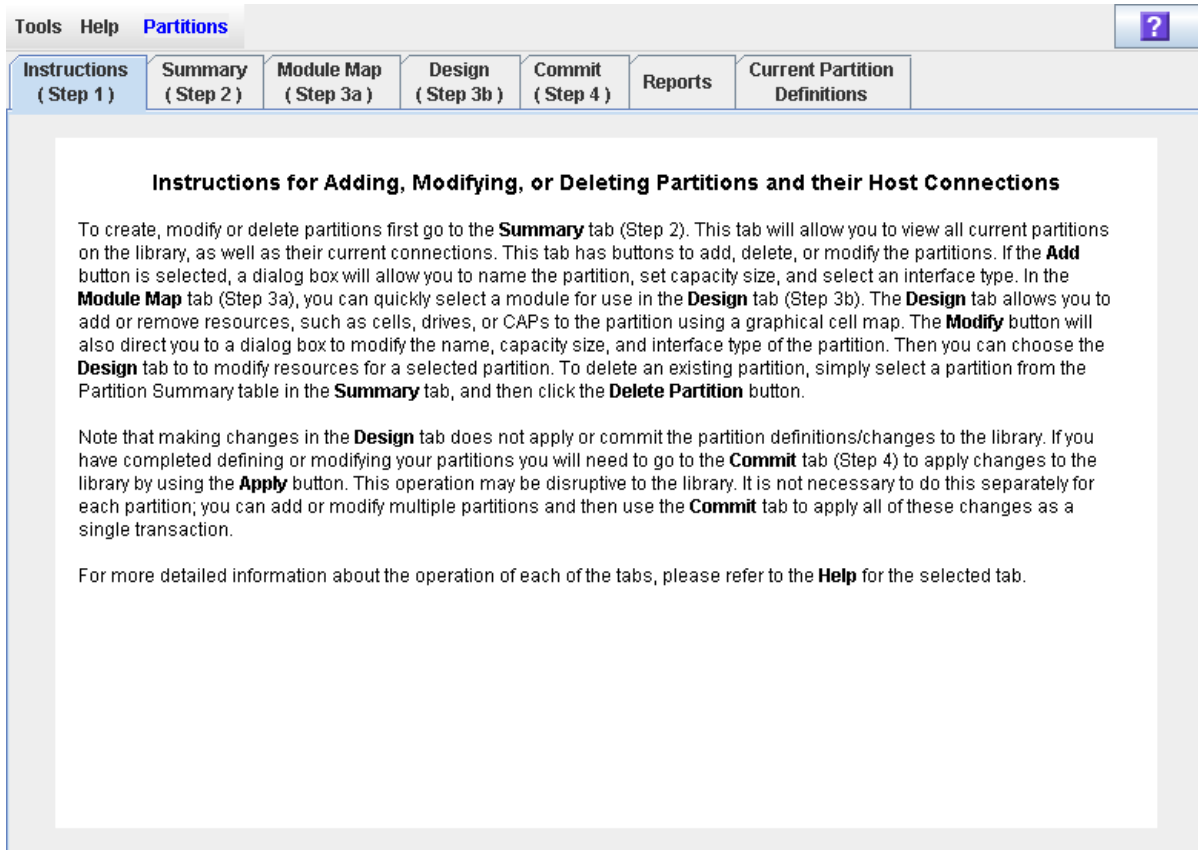
Task	Page
Review Partitioning Instructions	208
Create a Partition	209
Configure a Host-Partition Connection (FC-SCSI partitions only)	210
Design a Partition – Base, DEM, or CEM Modules	212
Design a Partition – AEM Modules	214
Verify Partition Configurations	216
Resolve Orphaned Cartridges	219
Commit Partition Configuration Changes	220

▼ Review Partitioning Instructions

Use this procedure to review the partitioning process.

1. Select Tools > Partitions.

The first time you make this selection during an SL Console login session, the **Instructions (Step 1)** screen appears automatically.



The screenshot shows a web application interface for 'Partitions'. At the top, there is a navigation bar with 'Tools', 'Help', and 'Partitions'. Below this is a tabbed interface with the following tabs: 'Instructions (Step 1)', 'Summary (Step 2)', 'Module Map (Step 3a)', 'Design (Step 3b)', 'Commit (Step 4)', 'Reports', and 'Current Partition Definitions'. The 'Instructions (Step 1)' tab is selected and displays the following content:

Instructions for Adding, Modifying, or Deleting Partitions and their Host Connections

To create, modify or delete partitions first go to the **Summary** tab (Step 2). This tab will allow you to view all current partitions on the library, as well as their current connections. This tab has buttons to add, delete, or modify the partitions. If the **Add** button is selected, a dialog box will allow you to name the partition, set capacity size, and select an interface type. In the **Module Map** tab (Step 3a), you can quickly select a module for use in the **Design** tab (Step 3b). The **Design** tab allows you to add or remove resources, such as cells, drives, or CAPs to the partition using a graphical cell map. The **Modify** button will also direct you to a dialog box to modify the name, capacity size, and interface type of the partition. Then you can choose the **Design** tab to modify resources for a selected partition. To delete an existing partition, simply select a partition from the Partition Summary table in the **Summary** tab, and then click the **Delete Partition** button.

Note that making changes in the **Design** tab does not apply or commit the partition definitions/changes to the library. If you have completed defining or modifying your partitions you will need to go to the **Commit** tab (Step 4) to apply changes to the library by using the **Apply** button. This operation may be disruptive to the library. It is not necessary to do this separately for each partition; you can add or modify multiple partitions and then use the **Commit** tab to apply all of these changes as a single transaction.

For more detailed information about the operation of each of the tabs, please refer to the **Help** for the selected tab.

2. Review the instructions on the screen before proceeding with other partitioning tasks.

▼ Create a Partition

Use this procedure to create a new library partition and assign its storage capacity. You can create up to eight partitions, with IDs from 1–8.

1. Select **Tools > Partitions**, and click the **Summary (Step 2)** tab.

The **Summary (Step 2)** screen appears.

Partition Number	Storage Cells	Drive Bays	CAPs	AEMs	CAP+AEM Cells	%Activated Capacity
1	283	16	1	0	26	9.22%
2	542	8	0	0	0	17.65%

2. Click **Add Partition**.

The **Add Partition** popup appears.

ADD A PARTITION

Select a partition ID: 3

Name:

Interface Type: Select interface type

OK Cancel

3. Select the **Partition ID** you want to add, and enter the **Name**, **Capacity**, and **Interface Type**.

Note – Partition IDs do not need to be contiguous. For example, you can create partition 2 and partition 4, with no partitions 1 or 3.

4. Click **OK**.

Your partition configuration changes are saved to the SL Console partition workspace for the duration of this login session.

To update the library controller database with all changes from this SL Console login session, see [“Verify Partition Configurations”](#) on page 216 and [“Commit Partition Configuration Changes”](#) on page 220.

▼ Configure a Host-Partition Connection

Note – This procedure applies to FC-SCSI host-partition connections only. HLI host-partition connections are configured through the host library management software (ELS or ACSLS), not through the SL Console. See the ELS or ACSLS documentation for details.

Use this procedure to configure the connection between a host and a selected partition. You must perform this procedure in order for the partition to be accessible by the host.

Each partition can have up to nine host connections. Also, each host can connect to multiple partitions.

1. Select **Tools > Partitions**, and click the **Summary (Step 2)** tab.

The **Summary (Step 2)** screen appears.

Total Library Resources

Storage Cells:	3071
Drive Bays:	24
CAPs:	5
AEMs:	2
CAP cells:	130
AEM cells:	468
Activated Capacity:	3071

Resources Allocated

Storage Cells:	825
Drive Bays:	24
CAPs:	1
AEMs:	0
CAP cells:	26
AEM cells:	0
Activated Capacity:	825

Resources Unallocated

Storage Cells:	2246
Drive Bays:	0
CAPs:	4
AEMs:	2
CAP cells:	104
AEM cells:	468
Activated Capacity:	2246

Partition Allocation Summary

Partition Number	Storage Cells	Drive Bays	CAPs	AEMs	CAP+AEM Cells	%Activated Capacity
1	283	16	1	0	26	9.22%
2	542	8	0	0	0	17.65%

----- Details For Partition 1 -----

Name: Partition 1
Interface Type: FC-SCSI

Connections

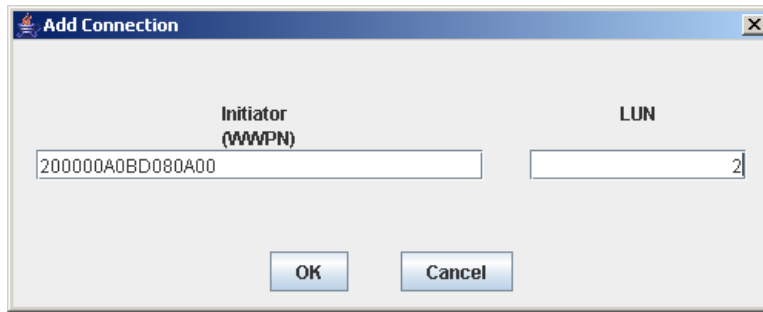
Initiator (WWPN)	LUN
20:00:00:A0:BD:08:0A:00	2

2. Click the partition to which you want to add a host connection

Note – If you select an HLI partition, all the buttons in the Details section of the screen are grayed out.

3. Click **Add Connection**.

The **Add Connection** popup appears.



The screenshot shows a dialog box titled "Add Connection". It has a title bar with a close button. The dialog contains two input fields. The first field is labeled "Initiator (WWPN)" and contains the text "200000A0BD080A00". The second field is labeled "LUN" and contains the text "2". Below the input fields are two buttons: "OK" and "Cancel".

4. Enter the Initiator (WWPN) and LUN.

Note – Each initiator connected to the library must have one library partition assigned to LUN 0. When you verify or commit partition configuration changes, the SL Console will notify you if an initiator does not meet this requirement.

5. Click OK.

▼ Design a Partition – Base, DEM, or CEM Modules

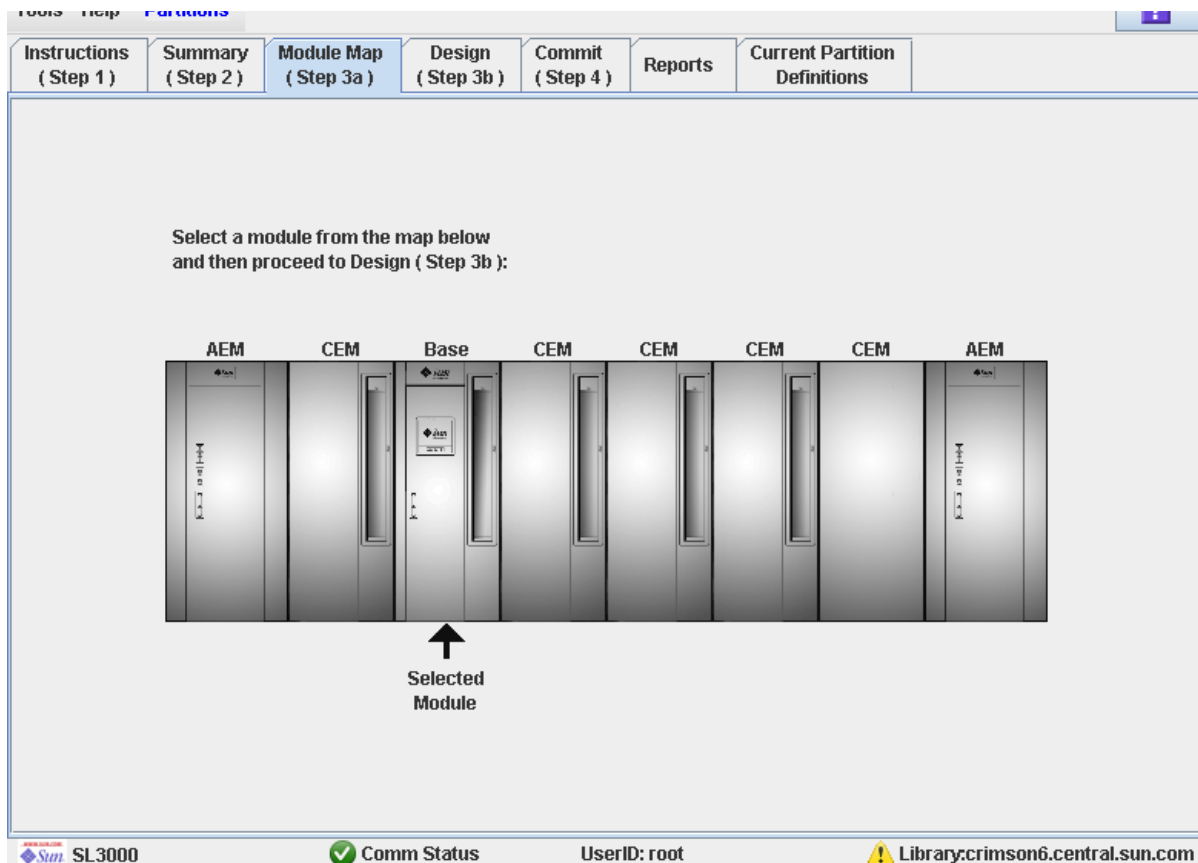
Use this procedure to add or remove library resources (storage cells, tape drives, and rotational CAPs) from a partition.

Note – This procedure applies to Base, DEM, or CEM modules. See [“Design a Partition – AEM Modules” on page 214](#) for detailed instructions on allocating or de-allocating an AEM CAP to or from a partition.

Note – Library resources can be allocated to only one partition at a time. If you want to add resources to a partition but the resources are already allocated to another partition, you must first remove the resources from the assigned partition, and then add them to the new partition.

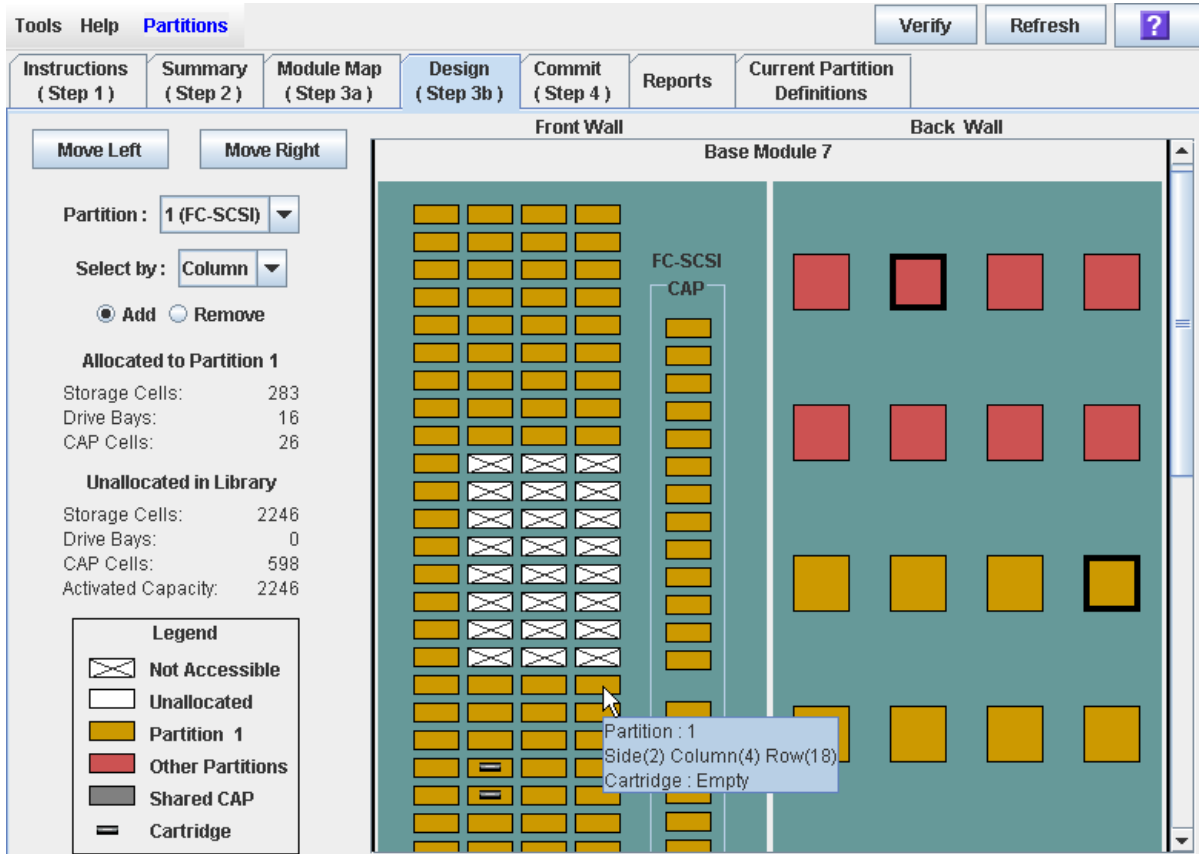
1. Select Tools > Partitions.
2. Click the Module Map (Step 3a) tab.

The Module Map (Step 3a) screen appears.



3. Click the module for which you want to design a partition.
4. Click the Design (Step 3b) tab.

The **Design (Step 3b)** screen appears, displaying the current configuration of the module you have selected.



5. In the Partition pull-down menu, select the partition you want to configure.

All screen fields are updated to reflect the current configuration for the selected partition.

Note – Click the **Move Left** or **Move Right** buttons to display a module directly adjacent to the one currently displayed.

6. Choose the Select by method, and click either the Add or Remove radio button.

7. Use the library map to select the resources you want to add or remove.

Note – See “[Partitions—Design \(Step 3b\)](#)” on page 276 for detailed instructions on using the library map.

Your partition configuration changes are saved to the SL Console partition workspace for the duration of this login session.

To update the library controller database with all changes from this SL Console login session, see “[Verify Partition Configurations](#)” on page 216 and “[Commit Partition Configuration Changes](#)” on page 220.

▼ Design a Partition – AEM Modules

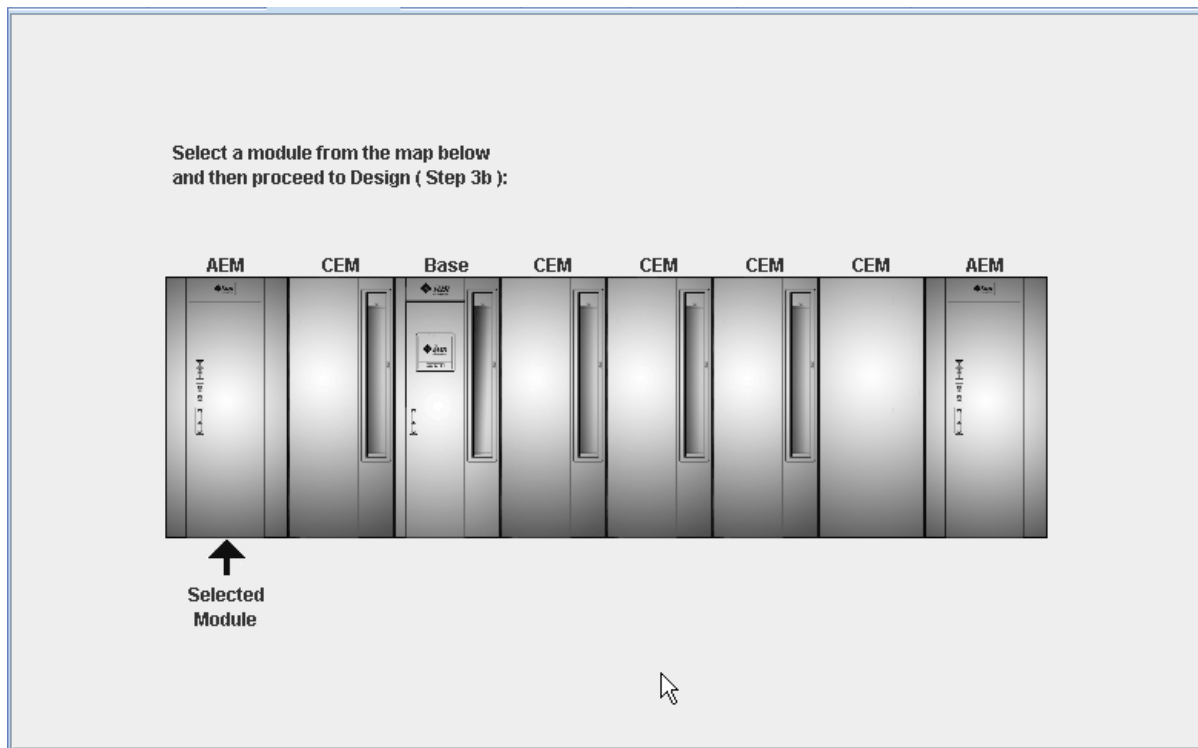
Use this procedure to add or remove an AEM CAP to or from a partition.

You can allocate or de-allocate the entire AEM at one time; it is not possible to allocate just part of an AEM to a partition. AEMs can be shared by multiple partitions that share the same host-partition interface (HLI or FC-SCSI).

Note – See “[Design a Partition – Base, DEM, or CEM Modules](#)” on page 212 for detailed instructions on adding or removing library resources in Base, DEM, or CEM modules to or from a partition.

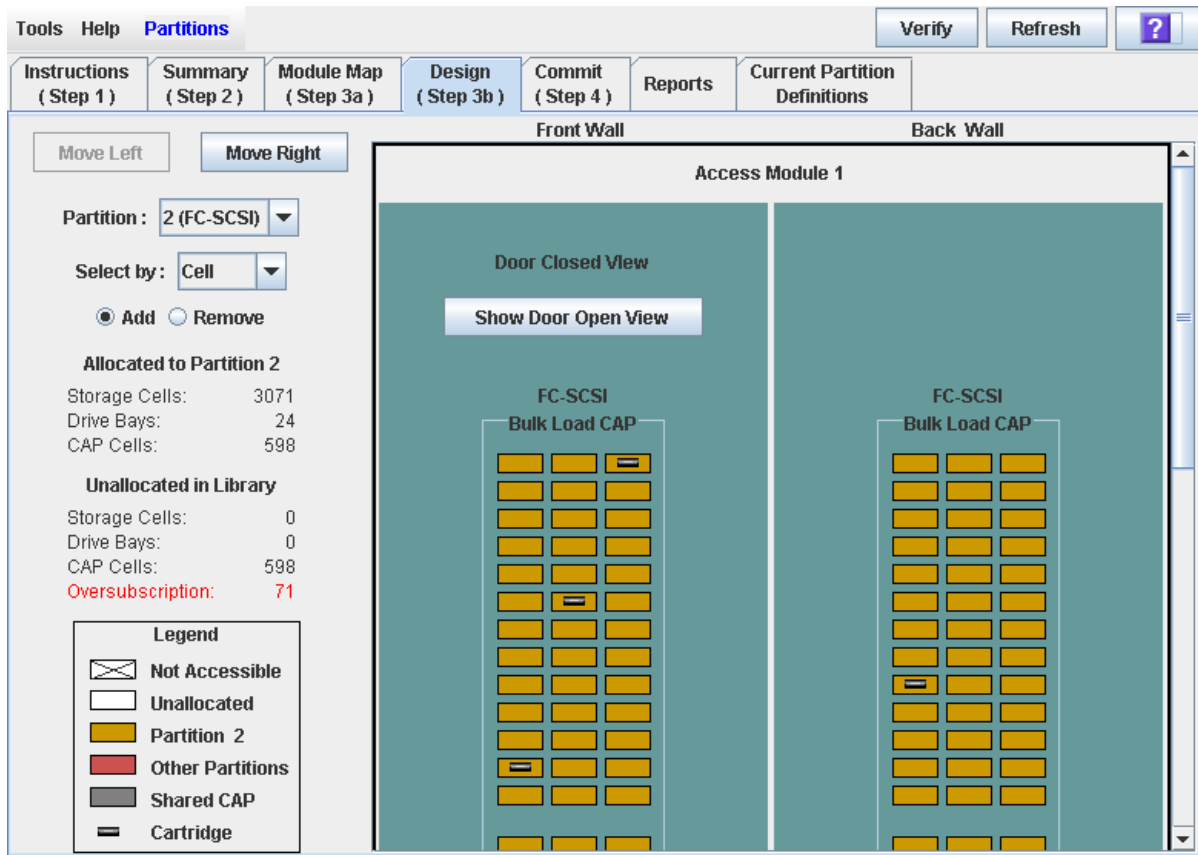
1. Select Tools > Partitions.
2. Click the Module Map (Step 3a) tab.

The Module Map (Step 3a) screen appears.



3. Click the AEM you want to allocate to a partition.
4. Click the Design (Step 3b) tab.

The **Design (Step 3b)** screen appears, displaying the current configuration of the AEM you have selected.



5. In the Partition pull-down menu, select the partition you want to configure.

All screen fields are updated to reflect the current configuration for the selected partition.

Note – Click the **Move Left** or **Move Right** buttons to display a module directly adjacent to the one currently displayed.

6. Click either the Add or Remove radio button.
7. Click anywhere on the library map to select the AEM and indicate that you want to allocate or de-allocate it to or from the partition.

Your partition configuration changes are saved to the SL Console partition workspace for the duration of this login session.

To update the library controller database with all changes from this SL Console login session, see [“Verify Partition Configurations” on page 216](#) and [“Commit Partition Configuration Changes” on page 220](#).

▼ Verify Partition Configurations

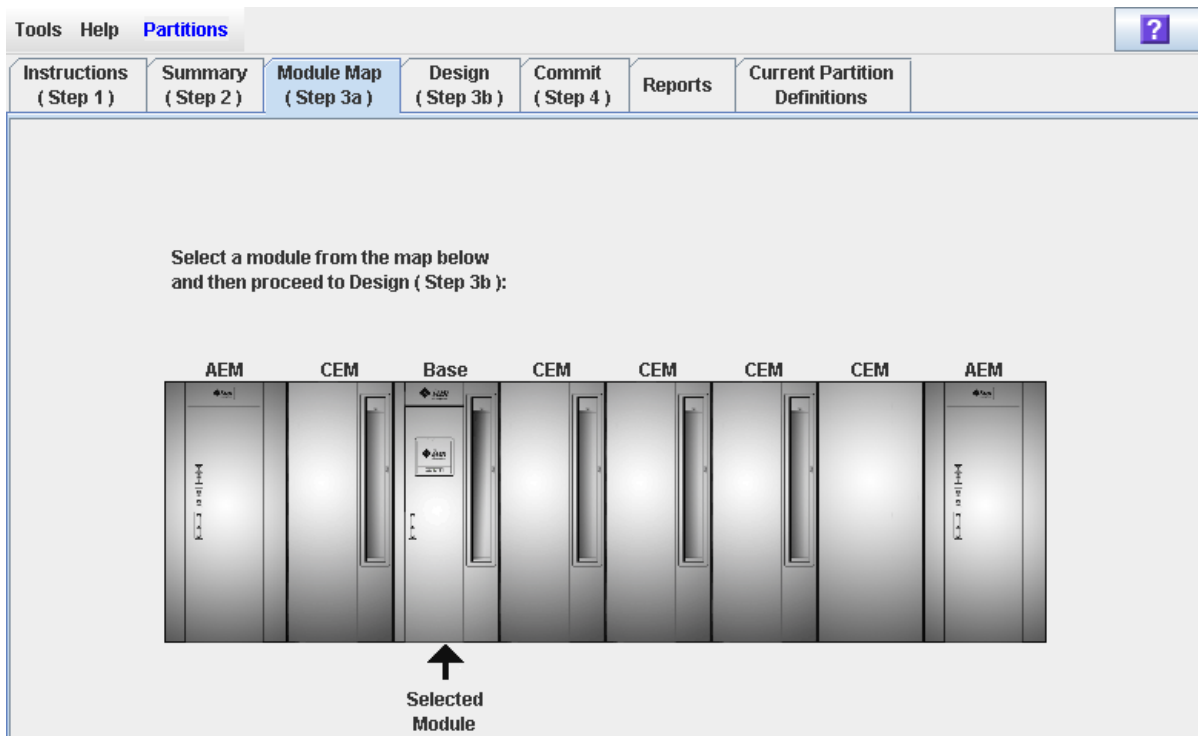
Use this procedure to verify partition configuration changes you have made during this SL Console login session. This procedure warns you of the following possible errors:

- A partition has orphaned cartridges. See [“Orphaned Cartridges in Partitioned Libraries” on page 194](#) for details.
- Library resources have been removed from a partition.
- A host connected to the library does not have a partition assigned to LUN 0.
- The library’s capacity is oversubscribed; that is total partition allocations exceed activated capacity.

Note – This procedure verifies only one partition at a time. If you need to verify multiple partitions, you must repeat this procedure separately for each partition.

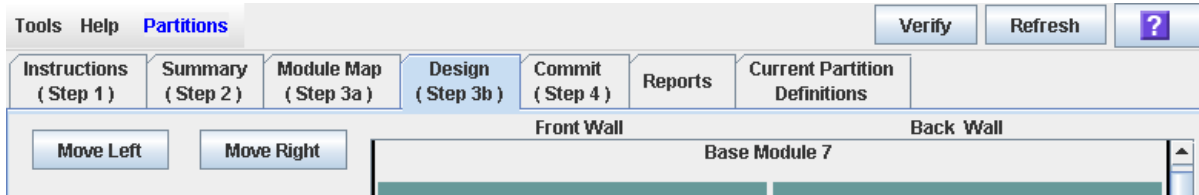
1. Select **Tools > Partitions**.
2. Click the **Module Map (Step 3a)** tab.

The **Module Map (Step 3a)** screen appears.



3. Click the module for which you want to verify a partition.
The module is highlighted on the screen.
4. Click the **Design (Step 3b)** tab.

The **Design (Step 3b)** screen appears, displaying the current configuration of the module you have selected.



5. In the **Partition** pull-down menu, select the partition you want to verify.

All screen fields are updated to reflect the current configuration for the selected partition.

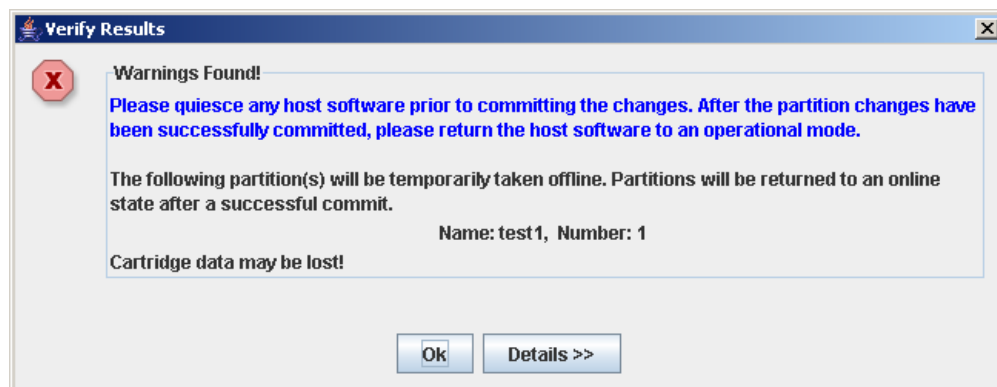
6. In the **Options Bar**, click **Verify**.

The boundaries of the selected partition are verified, including the locations of all tape cartridges.

Note – This verification is performed on the current partition configuration in the SL Console partition workspace only. It does not verify current partition boundaries against the library controller database; therefore it cannot identify configuration conflicts that may arise due to other users performing cartridge movements or library configuration changes—through the command line interface, other SL Console sessions, or host applications—at the same time you have made partition changes.

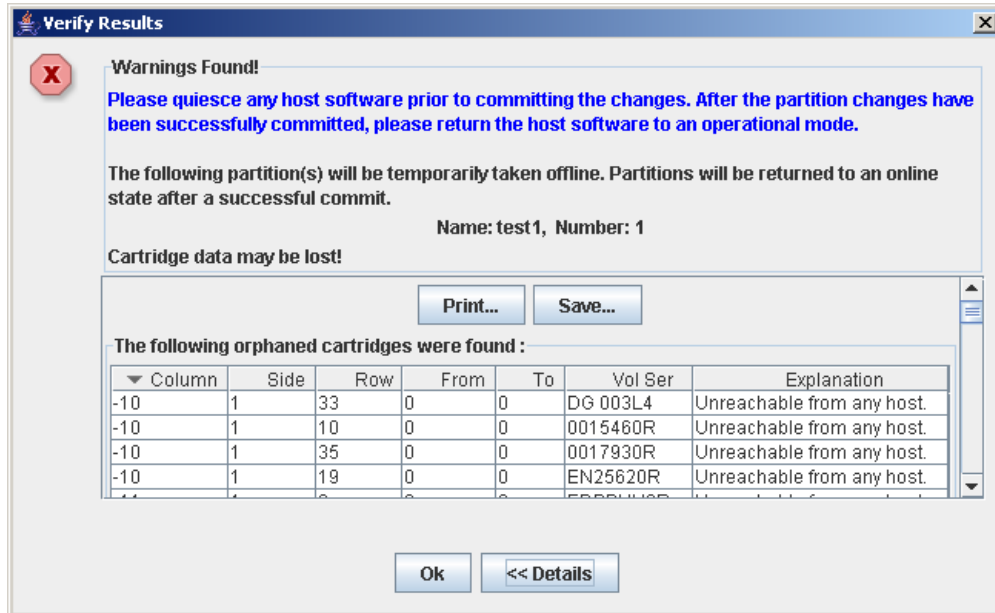
The **Verify Results** popup appears, indicating whether there are any orphaned cartridges, oversubscribed storage capacity, or other errors in the current partition configuration.

Note – If library capacity is oversubscribed (that is, total partition allocations exceed activated capacity), before you can proceed to [“Commit Partition Configuration Changes” on page 220](#), you must remove storage cells from partition allocations to bring the total allocated cells within the library’s activated capacity.



7. To display detailed warning messages explaining the reasons for any orphaned cartridges, click **Details**.

You can use the **Details** button to toggle between the expanded and collapsed views of the warning messages.



8. Optionally, in the expanded view of the warning messages you can do the following:
 - Click **Print** to print the detailed message data.
 - Click **Save** to save the detailed message data to a comma-separated file.
9. Click **OK** to dismiss the **Verify Results** popup and return to the **Design (Step 3b)** screen.

Note – It is recommended that you follow the [“Resolve Orphaned Cartridges” on page 219](#) procedure before committing your changes to the library controller database.

▼ Resolve Orphaned Cartridges

If the SL Console identifies an orphaned cartridge, it displays a warning message. You should resolve and disposition all orphaned cartridges before proceeding to [“Commit Partition Configuration Changes” on page 220](#).

You can performing any of the following actions to resolve orphaned cartridges:

- Print a report of orphaned cartridges.
- Perform an audit of the library.
- Perform a recovery move on an orphaned cartridge.

▼ Commit Partition Configuration Changes

Caution – This procedure updates the library controller database with all partition configuration changes you have made during this SL Console session. Failure to use this procedure before logging out of the current SL Console session will cause all your library configuration changes to be lost.

Caution – Although partition changes are not disruptive to library hosts, it is recommended that you make the library unavailable to other users before committing your partition workspace changes. Because the SL Console does not validate partition boundaries against the library controller database in real-time, configuration conflicts may arise if you change partition boundaries while other users are performing cartridge movements or library configuration changes. See [“Synchronizing the Display With the Controller Database” on page 64](#) for details.

Note – It is recommended that you follow the [“Resolve Orphaned Cartridges” on page 219](#) procedure before performing this procedure.

Note – You cannot perform this procedure if current library capacity is oversubscribed (that is, total partition allocations exceed activated capacity). The **Apply** button is grayed out, and before you can proceed, you must remove storage cells from partition allocations to bring the total allocated cells within the library’s activated capacity.

1. **Vary the library offline to ACSLS and ELS.**

See the appropriate tape management software documentation for the procedures and commands.

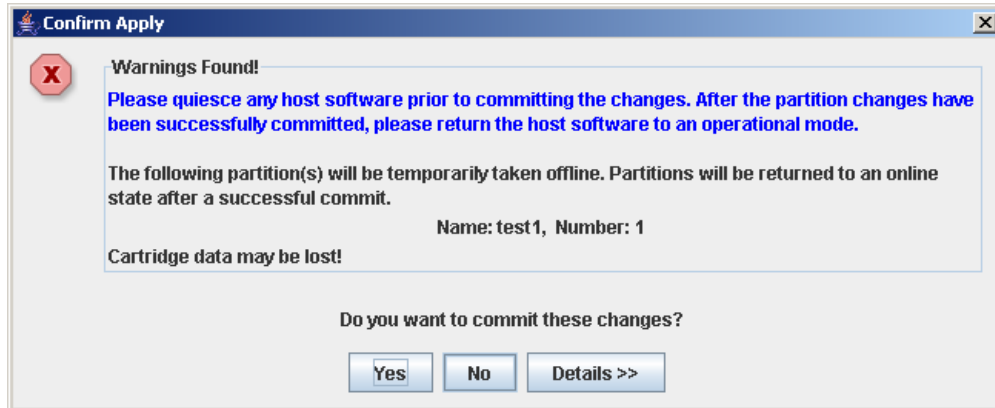
2. **Select Tools > Partitions, and click the Commit (Step 4) tab.**

The **Commit (Step 4)** screen appears.

3. **In the Options Bar, click Apply.**

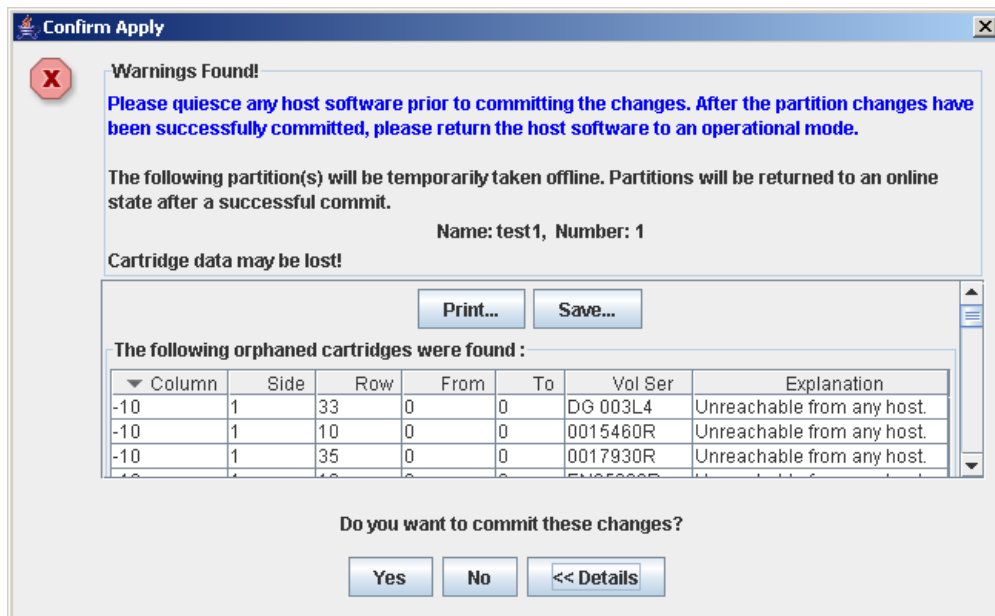
The boundaries of the selected partition are verified, including the locations of all tape cartridges.

The **Confirm Apply** popup appears, indicating whether there are any orphaned cartridges or other problems in the current partition configuration.



4. To display detailed warning messages explaining the reasons for any orphaned cartridges, click **Details**.

You can use the **Details** button to toggle between the expanded and collapsed views of the warning messages.



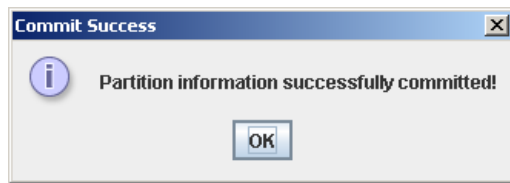
5. Optionally, in the expanded view of the warning messages you can do the following:

- Click **Print** to print the detailed message data.
- Click **Save** to save the detailed message data to a comma-separated file.

6. Proceed as follows:

- Click **No** to cancel the update. The library controller database is not updated, but all partition changes from this login session are retained in the SL Console partition workspace.
- Click **Yes** to update the library controller database.

The **Commit Success** popup appears.



Click **OK** to return to the **Commit (Step 4)** screen.

7. **All affected library host applications must now be configured to recognize these updates. See the appropriate tape management software documentation for the procedures and commands.**

Partition Management Tasks

Task	Page
Modify Partition Summary Information	224
Delete a Partition	225
Modify the Interface Type of a Host-Partition Connection	227
Modify FC-SCSI Host-Partition Connection Detail	229
Delete a FC-SCSI Host-Partition Connection	231
Refresh the SL Console Partition Workspace	233
Reallocate Library Resources	234
Make a Hardware Change to a Partitioned Library	235

▼ Modify Partition Summary Information

Use this procedure to change the name or allocated storage capacity of an existing partition.

Note – To change the host-partition connection type (HLI or FC-SCSI), see “[Modify the Interface Type of a Host-Partition Connection](#)” on page 227.

Note – You cannot change the partition ID. To assign a different Partition ID, you must delete the old partition and create a new one with the new ID.

1. Select **Tools > Partitions**, and click the **Summary (Step 2)** tab.

The **Summary (Step 2)** screen appears.

The screenshot shows the 'Partitions' tab selected in the software. The 'Summary (Step 2)' sub-tab is active. On the left, there are two sections: 'Total Library Resources' and 'Resources Allocated'. The 'Total Library Resources' section lists: Storage Cells: 3071, Drive Bays: 24, CAPs: 5, AEMs: 2, CAP cells: 130, AEM cells: 468, and Activated Capacity: 3071. The 'Resources Allocated' section lists: Storage Cells: 825, Drive Bays: 24, and CAPs: 1. The main area is titled 'Partition Allocation Summary' and contains a table with the following data:

Partition Number	Storage Cells	Drive Bays	CAPs	AEMs	CAP+AEM Cells	%Activated Capacity
1	283	16	1	0	26	9.22%
2	542	8	0	0	0	17.65%

Below the table are three buttons: 'Add Partition', 'Delete Partition', and 'Modify Partition'. At the bottom, there is a section for 'Details For Partition 1'.

2. In the **Partition Summary** section, select the partition you want to modify.
3. Click **Modify Partition**.

The **Modify a Partition** popup appears.

The 'MODIFY A PARTITION' dialog box is shown. It has a title bar with a close button. The main area is titled 'Modify Partition 1'. It contains two input fields: 'Name' with the value '111' and 'Interface Type' with a dropdown menu showing 'FC-SCSI'. At the bottom are 'OK' and 'Cancel' buttons.

4. Enter the changes you want to make.
5. Click **OK** to confirm the changes.

▼ Delete a Partition

Use this procedure to delete a partition from the library. The following changes are made to the library partition configuration:

- All resources allocated to the partition are marked available.
- All host connections for the partition are deleted.
- The partition ID is deleted.

Caution – Deleting partitions can result in orphaned cartridges and data that could be lost. See [“Orphaned Cartridges in Partitioned Libraries”](#) on page 194 for details.

Note – Deleting all partitions from the library causes the library state to change to “non-partitioned.” All active storage cells, drives, and rotational or AEM CAPs will be accessible to all hosts.

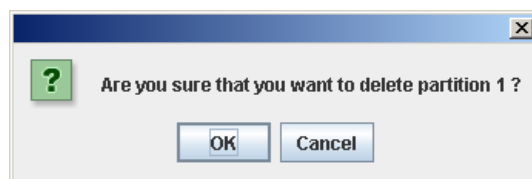
1. Select **Tools > Partitions**, and click the **Summary (Step 2)** tab.

The **Summary (Step 2)** screen appears.

Partition Number	Storage Cells	Drive Bays	CAPs	AEMs	CAP+AEM Cells	%Activated Capacity
1	283	16	1	0	26	9.22%
2	542	8	0	0	0	17.65%

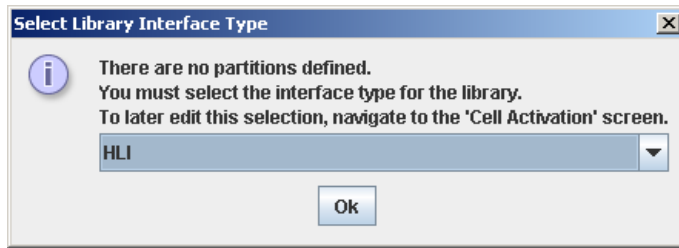
2. In the **Partition Summary** section, click the partition you want to remove.
3. Click **Delete Partition**.

A confirmation popup appears.



4. Click **OK** to confirm the deletion.
- If partitions still remain in the library, proceed to [Step 7](#).

- If no partitions remain, the **Select Library Interface Type** popup appears.



5. **Select the library interface type you want to assign for all host connections to the library. Options are:**
 - HLI
 - FC-SCSI
6. **Click OK to confirm the change.**
7. **The updates are made as follows:**

Your partition configuration changes are saved to the SL Console partition workspace for the duration of this login session.

To update the library controller database with all changes from this SL Console login session, see [“Verify Partition Configurations” on page 216](#) and [“Commit Partition Configuration Changes” on page 220](#).

If there are no partitions remaining in the library, when you commit the updates the library state will change to “non-partitioned”.

▼ Modify the Interface Type of a Host-Partition Connection

Use this procedure to change the host-partition connection type of an existing partition. You should use this procedure with caution, due to the following possible effects:

- Changing the interface type can result in the loss of active host connections.
- Changing the interface type from FC-SCSI to HLI can result in the loss of FC-SCSI connection detail.
- Because rotational and AEM CAPs cannot be shared across partition types, changing the interface type can result in the loss of existing shared CAP assignments. Dedicated CAP assignments are not affected.

Note – To change the name or allocated storage capacity of an existing partition, see [“Modify Partition Summary Information”](#) on page 224.

1. Select **Tools > Partitions**, and click the **Summary (Step 2)** tab.

The **Summary (Step 2)** screen appears.

The screenshot shows the 'Partitions' window with the 'Summary (Step 2)' tab selected. The window has a menu bar with 'Tools', 'Help', and 'Partitions'. Below the menu bar are several tabs: 'Instructions (Step 1)', 'Summary (Step 2)', 'Module Map (Step 3a)', 'Design (Step 3b)', 'Commit (Step 4)', 'Reports', and 'Current Partition Definitions'. The 'Summary (Step 2)' tab is active, displaying a 'Partition Allocation Summary' table and resource statistics.

Partition Allocation Summary						
Partition Number	Storage Cells	Drive Bays	CAPs	AEMs	CAP+AEM Cells	%Activated Capacity
1	283	16	1	0	26	9.22%
2	542	8	0	0	0	17.65%

Below the table are three buttons: 'Add Partition', 'Delete Partition', and 'Modify Partition'. Below the buttons is a section titled '----- Details For Partition 1 -----'. On the left side of the window, there are two sections: 'Total Library Resources' and 'Resources Allocated'.

Total Library Resources

Storage Cells:	3071
Drive Bays:	24
CAPs:	5
AEMs:	2
CAP cells:	130
AEM cells:	468
Activated Capacity:	3071

Resources Allocated

Storage Cells:	825
Drive Bays:	24
CAPs:	1

2. In the **Partition Summary** section, click the partition you want to modify.
3. Click **Modify Partition**.

The **Modify a Partition** popup appears.

The screenshot shows a dialog box titled 'MODIFY A PARTITION' with a close button (X) in the top right corner. The dialog box has a title bar and a main area with the following fields:

Modify Partition 1

Name:

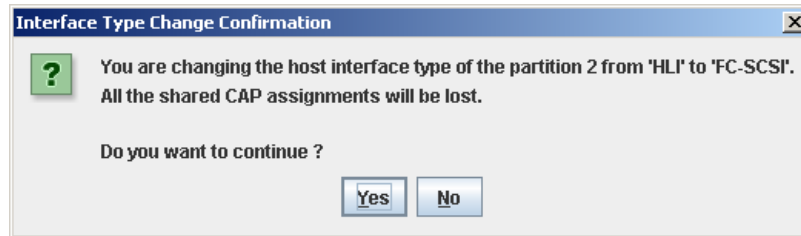
Interface Type:

At the bottom of the dialog box are two buttons: 'OK' and 'Cancel'.

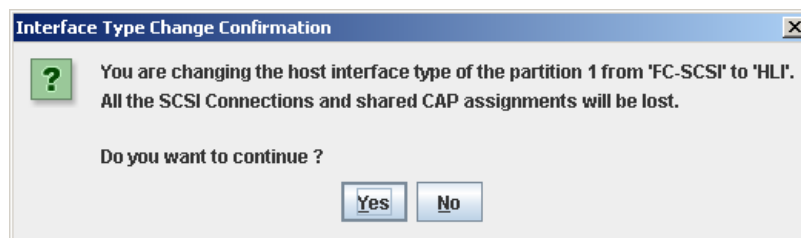
4. In the **Interface Type** pull-down, select the interface type you want to assign. Click **OK**.

5. The SL Console checks the current partition configuration in the SL Console workspace. If the partition has shared CAP allocations or, in the case of FC-SCSI partitions, host-partition connection detail, warning popups will appear. Following are sample popups that may appear.

- Changing from HLI to FC-SCSI:



- Changing from FC-SCSI to HLI:



6. Click Yes to confirm the change.

Your partition configuration changes are saved to the SL Console partition workspace for the duration of this login session.

To update the library controller database with all changes from this SL Console login session, see [“Verify Partition Configurations” on page 216](#) and [“Commit Partition Configuration Changes” on page 220](#).

▼ Modify FC-SCSI Host-Partition Connection Detail

Note – This procedure applies to FC-SCSI host-partition connections only. HLI host-partition connections are configured through the host library management software (ELS or ACSLS), not through the SL Console. See the ELS or ACSLS documentation for details.

Use this procedure to modify the host World Wide Port Name or LUN number of the library for a host-partition connection.

Note – You cannot modify the target port number for the library; it is always “0”.

1. Select Tools > Partitions, and click the Summary (Step 2) tab.

The Summary (Step 2) screen appears.

The screenshot displays the 'Partitions' summary screen with the following sections:

- Tools Help Partitions** (with Refresh and ? buttons)
- Instructions (Step 1)**, **Summary (Step 2)**, **Module Map (Step 3a)**, **Design (Step 3b)**, **Commit (Step 4)**, **Reports**, **Current Partition Definitions**
- Total Library Resources**:

Storage Cells:	3071
Drive Bays:	24
CAPs:	5
AEMs:	2
CAP cells:	130
AEM cells:	468
Activated Capacity:	3071
- Resources Allocated**:

Storage Cells:	825
Drive Bays:	24
CAPs:	1
AEMs:	0
CAP cells:	26
AEM cells:	0
Activated Capacity:	825
- Resources Unallocated**:

Storage Cells:	2246
Drive Bays:	0
CAPs:	4
AEMs:	2
CAP cells:	104
AEM cells:	468
Activated Capacity:	2246
- Partition Allocation Summary** table:

Partition Number	Storage Cells	Drive Bays	CAPs	AEMs	CAP+AEM Cells	%Activated Capacity
1	283	16	1	0	26	9.22%
2	542	8	0	0	0	17.65%
- Buttons**: Add Partition, Delete Partition, Modify Partition
- Details For Partition 1**:
 - Name: Partition 1
 - Interface Type: FC-SCSI
 - Connections** table:

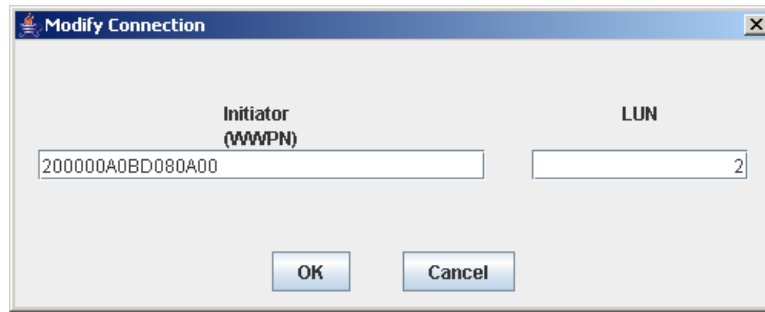
Initiator (WWPN)	LUN
20:00:00:A0:BD:08:0A:00	2
 - Buttons**: Add Connection, Delete Connection, Modify Connection

2. In the Summary section of the screen, click the partition for which you want to modify a connection.
3. In the Connections section, click the host-partition connection you want to modify.

Note – If you select an HLI partition, all the buttons in the Details section of the screen are grayed out.

4. Click Modify Connection.

The **Modify a Connection** popup appears.



5. Enter the changes you want to make.
6. Click **OK** to confirm the changes.

Your partition configuration changes are saved to the SL Console partition workspace for the duration of this login session.

To update the library controller database with all changes from this SL Console login session, see [“Verify Partition Configurations” on page 216](#) and [“Commit Partition Configuration Changes” on page 220](#).

▼ Delete a FC-SCSI Host-Partition Connection

Note – This procedure applies to FC-SCSI host-partition connections only. HLI host-partition connections are configured through the host library management software (ELS or ACSLS), not through the SL Console. See the ELS or ACSLS documentation for details.

Use this procedure to delete a host-partition connection. After you perform this procedure, the host will no longer be able to access the partition.

1. Select **Tools > Partitions**, and click the **Summary (Step 2)** tab.

The **Summary (Step 2)** screen appears.

Tools Help Partitions Refresh ?

Instructions (Step 1) Summary (Step 2) Module Map (Step 3a) Design (Step 3b) Commit (Step 4) Reports Current Partition Definitions

Total Library Resources

Storage Cells: 3071
Drive Bays: 24
CAPs: 5
AEMs: 2
CAP cells: 130
AEM cells: 468
Activated Capacity: 3071

Resources Allocated

Storage Cells: 825
Drive Bays: 24
CAPs: 1
AEMs: 0
CAP cells: 26
AEM cells: 0
Activated Capacity: 825

Resources Unallocated

Storage Cells: 2246
Drive Bays: 0
CAPs: 4
AEMs: 2
CAP cells: 104
AEM cells: 468
Activated Capacity: 2246

Partition Allocation Summary

Partition Number	Storage Cells	Drive Bays	CAPs	AEMs	CAP+AEM Cells	%Activated Capacity
1	283	16	1	0	26	9.22%
2	542	8	0	0	0	17.65%

Add Partition Delete Partition Modify Partition

----- Details For Partition 1 -----

Name: Partition 1
Interface Type: FC-SCSI

Connections

Initiator (WWPN)	LUN
20:00:00:A0:BD:08:0A:00	2

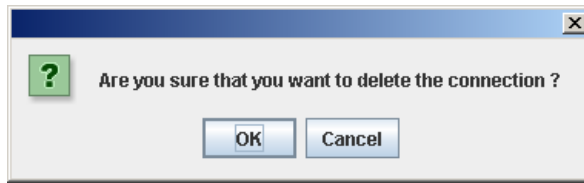
Add Connection Delete Connection Modify Connection

2. In the **Summary** section of the screen, click the partition for which you want to delete a connection.

Note – If you select an HLI partition, all the buttons in the **Details** section of the screen are grayed out.

3. In the **Connections** section, click the host-partition connection you want to delete.
4. Click **Delete Connection**.

A confirmation popup appears.



5. Click OK to confirm the deletion.

Your partition configuration changes are saved to the SL Console partition workspace for the duration of this login session.

To update the library controller database with all changes from this SL Console login session, see [“Verify Partition Configurations” on page 216](#) and [“Commit Partition Configuration Changes” on page 220](#).

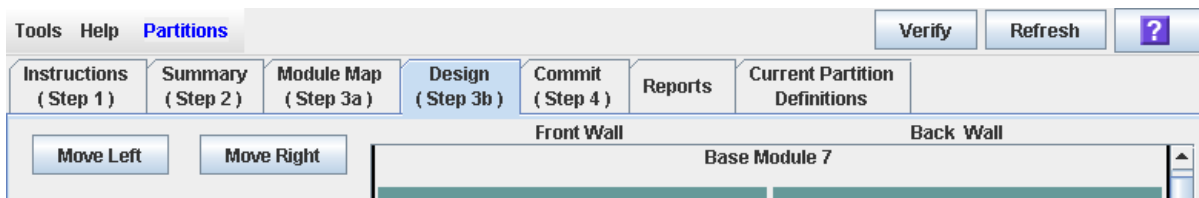
▼ Refresh the SL Console Partition Workspace

Use this procedure to refresh the SL Console partition workspace with current data from the library controller database. The current data includes all updates that other users have made to the library controller database during your login session, through the command line interface, other SL Console sessions, or host applications.

Note – After you complete this procedure, all uncommitted partition changes you have made during this SL Console login session are discarded.

1. Select **Tools > Partitions**.
2. Click one of the following tabs:
 - **Summary (Step 2)**
 - **Design (Step 3b)**

The selected screen appears.



3. In the Options Bar, click **Refresh**.

The **Partition Refresh** popup appears.



4. Click **Yes** to confirm the refresh.

All partition screen data is updated with current data from the library controller database.

▼ Reallocate Library Resources

Reallocating library resources (storage cells, tape drives, rotational or AEM CAPs, or cartridges) from one partition to another is done through one of the following screens:

- [“Partitions—Design \(Step 3b\)” on page 276](#), for Base, Drive, and CEM modules
- [“Partitions—Design \(Step 3b\) – AEMs Only” on page 282](#), for AEM modules

You must use the following two-step process:

1. Remove the resource from the partition it is currently allocated to.
2. Allocate the resource to a different partition.

See [“Design a Partition – Base, DEM, or CEM Modules” on page 212](#) for detailed instructions.

Caution – Reallocating resources can result in orphaned cartridges and data that could be lost. See [“Orphaned Cartridges in Partitioned Libraries” on page 194](#) for details.

▼ Make a Hardware Change to a Partitioned Library

Some library hardware changes, such as adding expansion modules, adding a second robot, or adding rotational CAP cells, may require the removal of all or part of an existing partitioned module. Use the following process to make such hardware changes without losing partitioning information for the sections of the library that are unchanged.

Caution – Failure to follow this procedure could result in the loss of library partition configuration information after a hardware change.

1. De-allocate all library resources (storage cells, rotational and AEM CAPs, and drives) that will be removed as part of the hardware change from the partitions they are currently allocated to.

See [“Design a Partition – Base, DEM, or CEM Modules” on page 212](#) for detailed instructions.

2. Power down the library.

See [“Power Down the Library” on page 581](#) for detailed instructions.

3. Install the hardware change.

4. Power up the library.

See [“Power Up the Library” on page 582](#) for detailed instructions.

All partition allocations for the unchanged parts of the library remain in effect.

5. Allocate the library resources that have been added due to the hardware change.

See [“Design a Partition – Base, DEM, or CEM Modules” on page 212](#) for detailed instructions.

Caution – Reallocating resources can result in orphaned cartridges and data that could be lost. See [“Orphaned Cartridges in Partitioned Libraries” on page 194](#) for details.

Partition Report Tasks

Task	Page
Display a Partition Report	237
Print Partition Report Data	239
Save Partition Report Data	240
Display Partition Detail	241

▼ Display a Partition Report

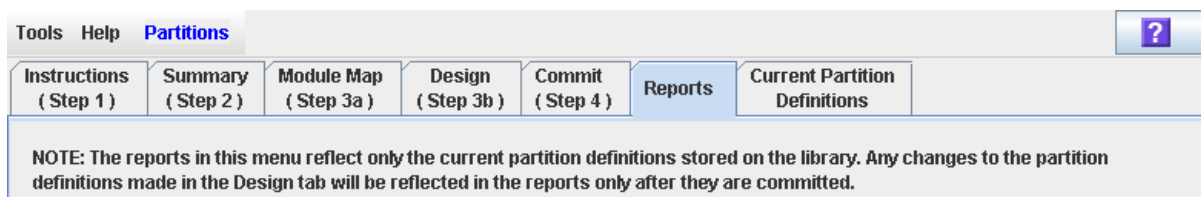
Use this procedure to display any of the following partition reports:

- Cartridge Cell and Media Summary – Displays a detailed list of all resource partition assignments.
- Host Connections Summary – Displays detailed host-partition connection information for all partitions.
- Orphaned Cartridge Report – Displays a detailed list of all orphaned cartridges.
- Partition Details – Displays detailed information for a selected partition.
- Partition Summary – Displays summary information for all partitions.

Note – The partition reports display data saved to the library controller database. If you have made partition configuration changes without committing the changes to the library controller through the **Commit (Step 4)** screen, the data in these reports will differ from data shown on the partition **Summary (Step 2)** and **Design (Step 3b)** screens.

1. Select **Tools > Partitions**, and click the **Reports** tab.

The **Reports** screen appears.



2. In the pull-down menu, select the report you want to display.

The screen is updated with current data from the library controller database.

Tools Help **Partitions** ?

Instructions (Step 1) Summary (Step 2) Module Map (Step 3a) Design (Step 3b) Commit (Step 4) **Reports** Current Partition Definitions

NOTE: The reports in this menu reflect only the current partition definitions stored on the library. Any changes to the partition definitions made in the Design tab will be reflected in the reports only after they are committed.

Partition Summary ▼

Partitions as of 7/23/09 1:30 PM

Partition ID	Partition Name	Connectic Type	Storage Cells	Media in Storage Cells	%Storage Cells w/ Media	Drives	CAP Cells	AEM Cells	Active Cells
1	one	SCSI	793	101	12.74%	16	52	0	793
2	Two	SCSI	903	55	6.09%	24	26	0	903

Print... Save To File...

3. If you want to print the report data or save it to a file, see the following procedures:

- [“Print Partition Report Data”](#) on page 239
- [“Save Partition Report Data”](#) on page 240

▼ Print Partition Report Data

Use this procedure to print a partition report. This procedure can be performed from any of the partition report screens.

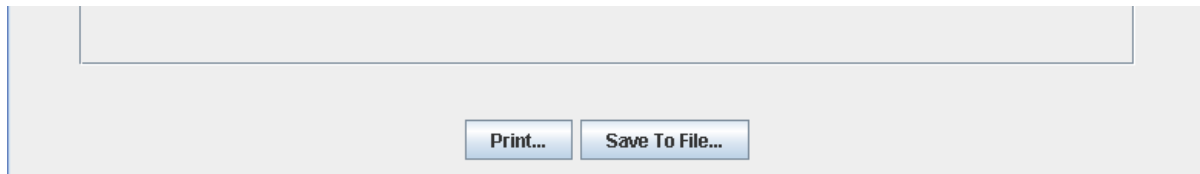
1. Select **Tools > Partitions**, and click the **Reports** tab.

The **Reports** screen appears.



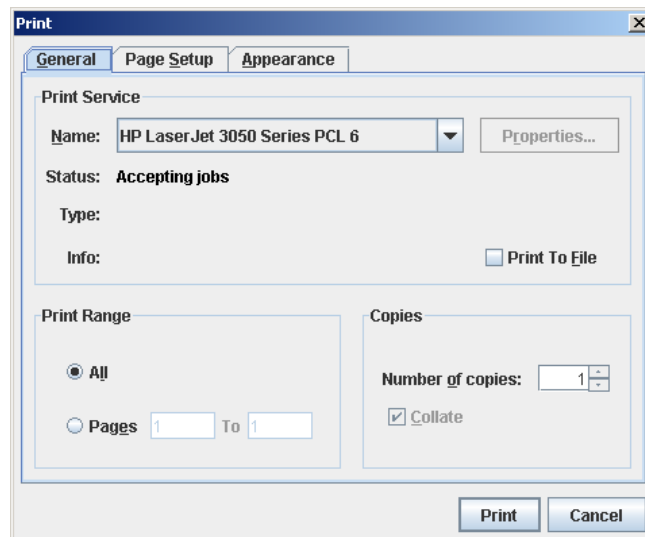
2. In the pull-down menu, select any report.

The specified report is displayed. All report screens include the **Print** and **Save to File** buttons.



3. Click **Print**.

The **Print** popup appears.



4. Complete the print popup, and click **Print**.

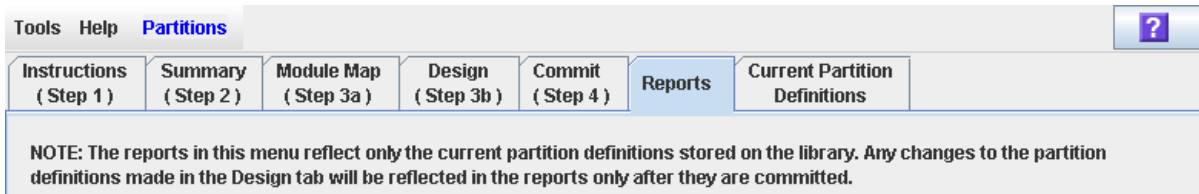
The report is printed to the selected printer.

▼ Save Partition Report Data

Use this procedure to save partition report data to a comma-separated file (.csv format). You can use a variety of spreadsheet applications to view the file. This procedure can be performed from any of the partition report screens.

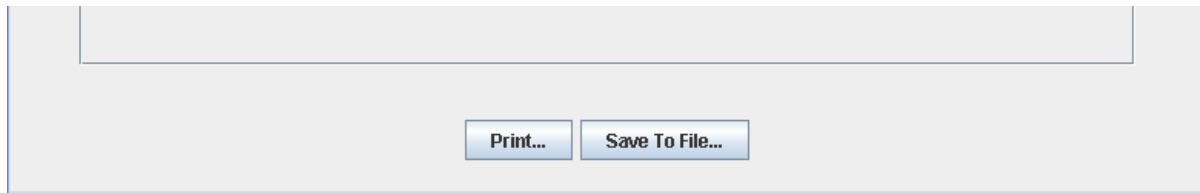
1. Select **Tools > Partitions**, and click the **Reports** tab.

The **Reports** screen appears.



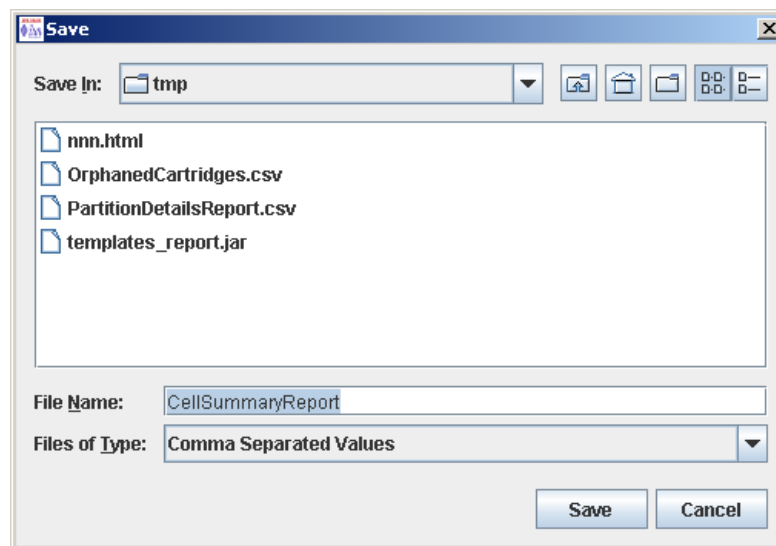
2. In the pull-down menu, select any report.

The specified report is displayed. All report screens include the **Print** and **Save to File** buttons.



3. Click **Save to File**.

The **Save** popup appears.



4. Browse to the directory where you want to save the file, and enter the file name.
5. Click **Save**.

The data is saved to the specified file.

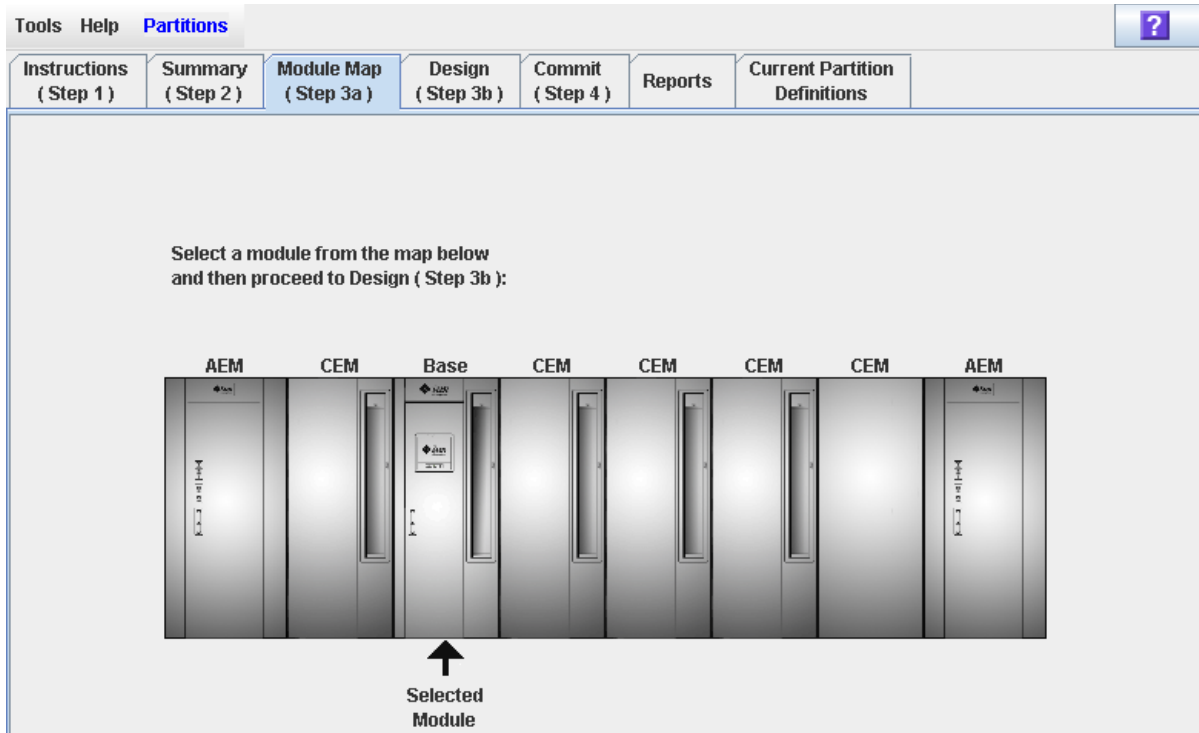
▼ Display Partition Detail

Use this procedure to display current partition boundaries and allocations. You can also display detailed information about cartridge, drive, and storage cell locations.

Note – This procedure is available on the local operator panel.

1. Select **Tools > Partitions**.
2. Click the **Module Map (Step 3a)** tab.

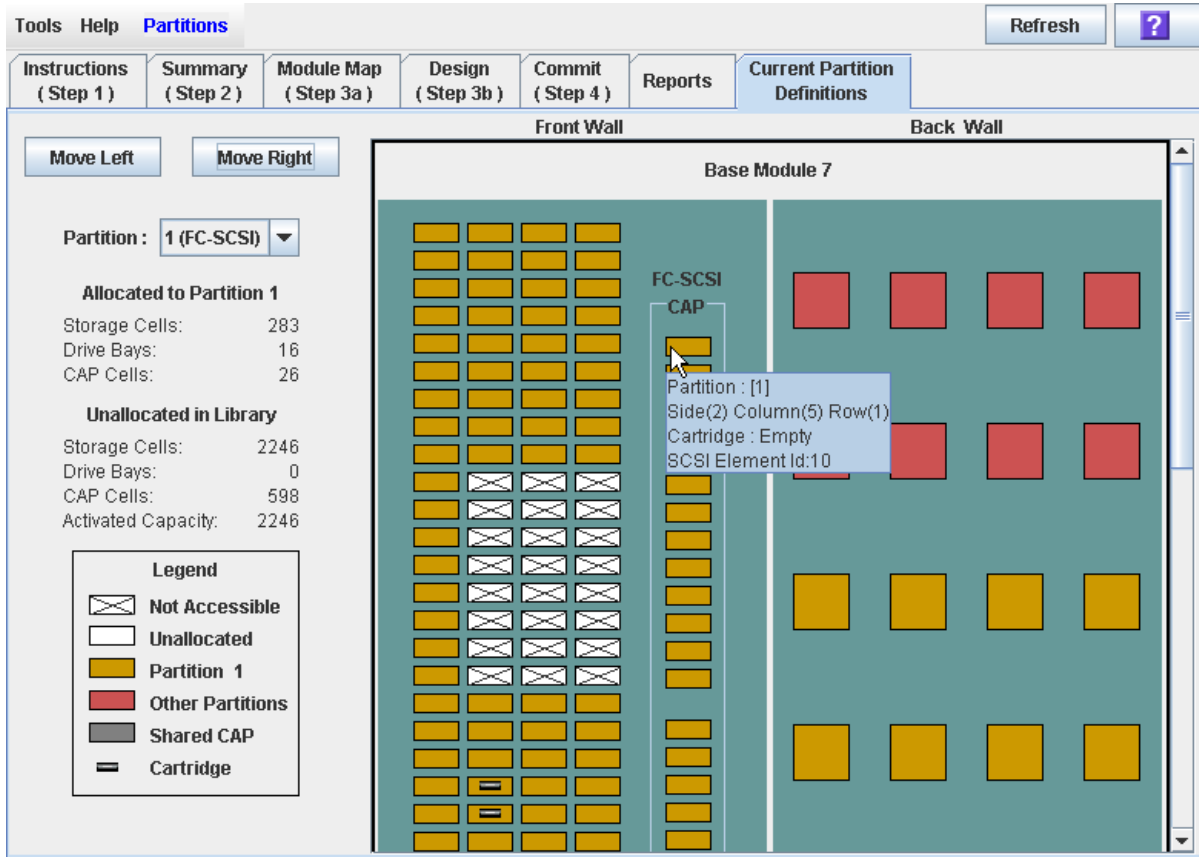
The **Module Map (Step 3a)** screen appears.



3. Click the module you want to display.
The module is highlighted on the screen.
4. Click the **Current Partition Definitions** tab.

The **Partition Definitions** screen appears, displaying the current configuration of the module you have selected.

You can mouse-over a cell to display a tooltip of detailed information about the cell.



CAP Operation Tasks

Task	Page
Associate an FC-SCSI Partition to Its Shared CAPs	244
Enter Cartridges Into a Partition	246
Eject Cartridges From a Partition	247
Remove a Partition-CAP Association	248
Override a CAP Reservation	249

▼ Associate an FC-SCSI Partition to Its Shared CAPs

Use this procedure to associate an FC-SCSI partition to its shared rotational or AEM CAPs. This procedure gives the partition exclusive ownership of its shared CAPs until you explicitly remove the association. See [“Remove a Partition-CAP Association” on page 248](#) for details.

Note – This procedure cannot be used for HLI partitions because HLI host applications always use CAP reservations.

Note – This procedure is not necessary for dedicated FC-SCSI CAPs because a partition always has ownership of its dedicated CAPs.

Note – AEM CAPs are subject to the same partitioning rules and restrictions as rotational CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

1. Select Tools > Shared CAP Assignment.

The Shared CAP Assignment screen appears.

Partition and CAP Assignment Two Step Process:

1. Select the partitions that you wish to have CAPs assigned to
2. Click 'Apply' to make the CAP assignment

Select	Partition Name	Partition ID	Connection Type	PEM	DEM	Base	PEM
<input type="checkbox"/>	Partition 1	1	scsi			X	
<input checked="" type="checkbox"/>	Partition 2	2	scsi			X	
<input checked="" type="checkbox"/>	Partition 3	3	scsi		X		

Shared CAP Assignment Rules:

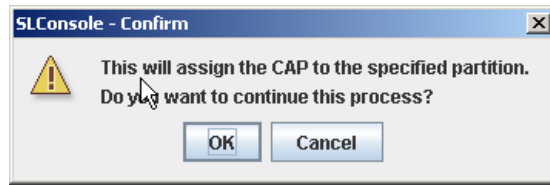
1. If the partition is grayed out but not selected, then either:
 - a. No CAPs have been assigned to the partition
 - b. Another partition who shares the same CAP has that CAP in use
 - c. CAP ownership by another partition has been assumed by default due to a cartridge being moved to the CAP
 - d. The corresponding partition is of type HLI
2. To successfully assign a partition to its CAP(s), the partition must be able to gain exclusive access to the CAPs that are assigned to it.
3. CAP Assignments do not persist across library changes for any of the following :
 - a. CAP Resets
 - b. Door Opens
 - c. Library Reboots
 - d. Partition Changes

◆ Note: If any of these activities have been performed and the assignment is not present.

2. Click the checkbox of the partitions into which you want to enter cartridges. See [“CAP Assignment” on page 318](#) for details on these screen fields.

3. Click **Apply**.

The **CAP Confirm** popup appears.



4. Click **OK**.

5. Perform the enter or eject operation. See one of the following procedures for details:

- ["Enter Cartridges Into a Partition" on page 246](#)
- ["Eject Cartridges From a Partition" on page 247](#)

▼ Enter Cartridges Into a Partition

Use this procedure to enter or bulk load cartridges into one or more partitions. Partitions can use only the rotational or AEM CAPs allocated to them.

Note – If you are entering cartridges into an FC-SCSI partition that has one or more shared rotational or AEM CAPs, you must associate the partition to its CAPs before beginning this procedure. See [“Associate an FC-SCSI Partition to Its Shared CAPs”](#) for details. Failure to do this will cause the CAP to remain locked and will prevent the partition from acquiring ownership of the CAP.

1. **Follow the steps in one of the following procedures, depending on whether you are using a rotational or AEM CAP:**
 - [“Enter Cartridges Through a Rotational CAP”](#) on page 417
 - [“Bulk Load Cartridges Through an AEM CAP”](#) on page 419
2. **At the completion of the procedure, the CAP reservation is released, as follows:**
 - If you initiated this procedure from an HLI host, the host removes the reservation, making the CAP available to other partitions.
 - If prior to performing this procedure you performed a manual partition-CAP association, you can now remove the association if the partition is finished with the CAP. See [“Remove a Partition-CAP Association”](#) for details.
 - If the FC-SCSI partition uses a dedicated CAP, the CAP remains unlocked and reserved to the partition.

▼ Eject Cartridges From a Partition

Use this procedure to eject or bulk unload cartridges from a partitioned library. Partitions can use only the rotational or AEM CAPs allocated to them.

Note – If you are entering cartridges into an FC-SCSI partition that has one or more shared rotational or AEM CAPs, you must associate the partition to its CAPs before beginning this procedure. See [“Associate an FC-SCSI Partition to Its Shared CAPs”](#) for details. Failure to do this will cause the CAP to remain locked and will prevent the partition from acquiring ownership of the CAP.

1. **Follow the steps in one of the following procedures, depending on whether you are using a rotational or AEM CAP:**
 - [“Eject Cartridges Through a Rotational CAP”](#) on page 418
 - [“Bulk Unload Cartridges Through an AEM CAP”](#) on page 421
2. **At the completion of the procedure, the CAP reservation is released, as follows:**
 - If you initiated this procedure from an HLI host, the host removes the reservation, making the CAP available to other partitions.
 - If prior to performing this procedure you performed a manual partition-CAP association, you can now remove the association if the partition is finished with the CAP. See [“Remove a Partition-CAP Association”](#) for details.
 - If the FC-SCSI partition uses a dedicated CAP, the CAP remains unlocked and reserved to the partition.

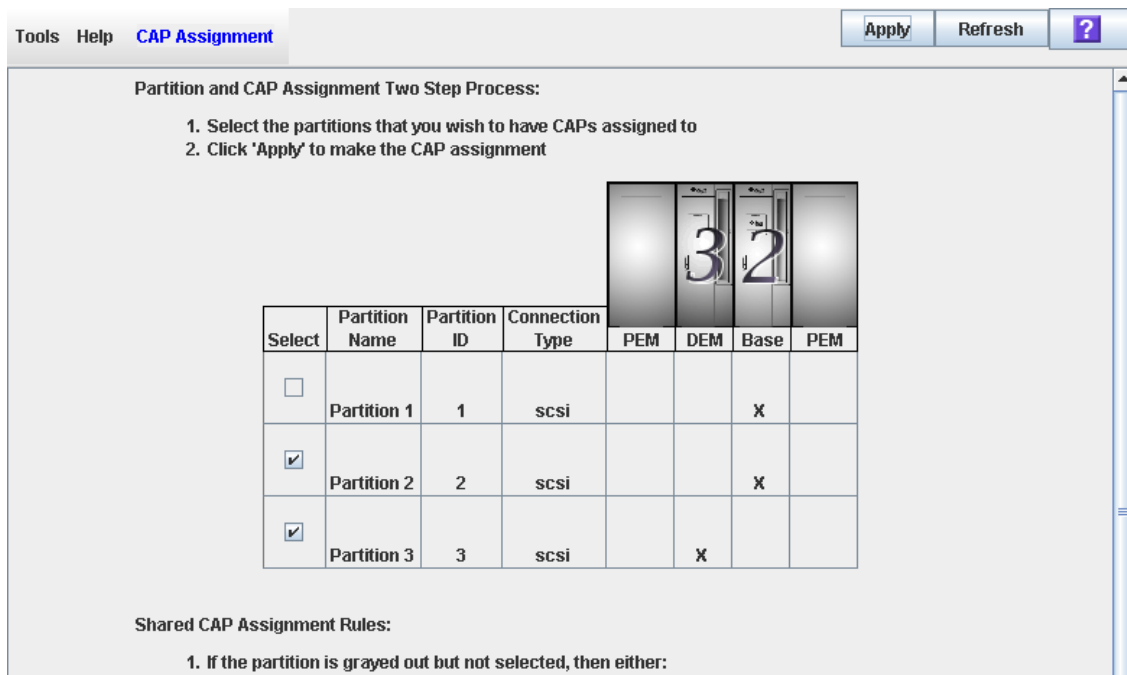
▼ Remove a Partition-CAP Association

Use this procedure after completing an enter or eject operation if you have previously associated the partition to its shared rotational or AEM CAPs. This procedure removes the partition-CAP associations previously set, making the shared CAPs available to other partitions.

Note – AEM CAPs are subject to the same partitioning rules and restrictions as rotational CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

1. Select Tools > Shared CAP Assignment.

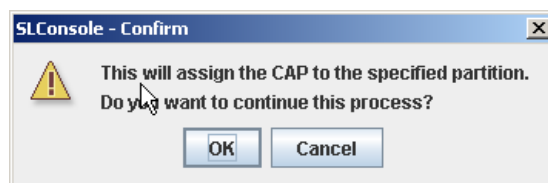
The Shared CAP Assignment screen appears.



2. Clear the checkbox of the partitions with the CAP associations. See “CAP Assignment” on page 318 for details on these screen fields.

3. Click Apply.

The CAP Confirm popup appears.



4. Click OK.

▼ Override a CAP Reservation

Use this procedure when a partition has reserved a shared rotational or AEM CAP but the reservation cannot be released through the ACSLS or ELS host.

Note – This topic applies to partitioned libraries only. If a library is not partitioned, CAP reservations must always be released through ACSLS or ELS. See the ACSLS or ELS documentation for details.

Note – You must follow all steps in this procedure. If you do not complete the procedure, the CAP could be left unavailable to all partitions, and/or cartridges assigned to one partition could be entered into another partition.

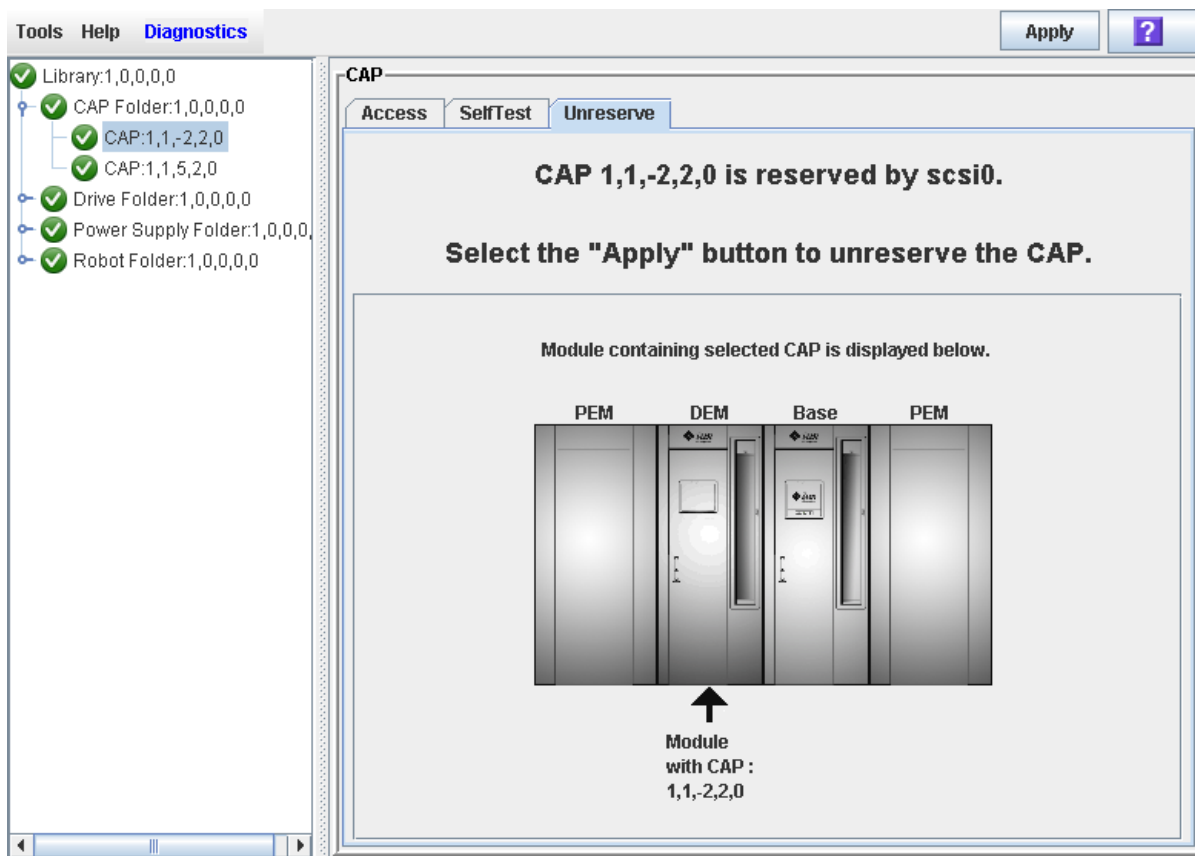
Note – AEM CAPs are subject to the same partitioning rules and restrictions as rotational CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

1. **Select Tools > Diagnostics.**
2. **Expand the CAP Folder, and click the CAP whose reservation you want to override (unreserve).**

Note – AEM CAPs are identified as follows: column “-31” for a left AEM CAP, and column “31” for a right AEM CAP.

3. **Click the Unreserve tab.**

The **Unreserve** screen appears, identifying the partition that has reserved the CAP.



4. Click Apply to override the reservation.

The **Unreserve Confirm** popup appears, indicating “This will remove the reservation from the designated host...”

- Click **OK** to continue with the override operation. The library removes the CAP reservation and sets the CAP user to “default,” which makes the CAP unavailable to all partitions.
- Click **Cancel** to cancel the override operation and return to [Step 3](#).

5. If the CAP is locked, unlock it at the SL Console. See “[Unlock a CAP or AEM Access Door](#)” on page 391 for the detailed procedure.

6. Push the CAP button to open the CAP.

- If it is empty, proceed to [Step 8](#).
- If it contains cartridges, remove them all.

7. Label the cartridges with the partition ID displayed in [Step 3](#).

8. Push the CAP button to close the CAP.

The CAP closes and locks automatically, and the CAP button light turns off.

The library audits the CAP to verify that it is empty. It then sets the CAP status to “unreserved,” which makes the CAP available to all partitions it is allocated to.

Note – You might need to refresh the CAP display to see the new CAP status.

9. **Contact a person responsible for managing the removed cartridges to determine their disposition. If they are to be re-entered into the library, they must be entered into the correct partition.**

Partition Screen Reference

This section includes detailed descriptions of all SL Console partition screens, arranged by screen navigation path. For example, **Partitions—Summary (Step 2)—Add Connection** indicates the screen accessed by clicking **Tools** and then **Partitions** from the Menu Bar, and then clicking the **Summary (Step 2)** tab, and then the **Add Connection** button.

Note – Only the [Partitions—Current Partition Definitions](#) screen is available on the local operator panel. The remaining screens can be accessed only from the standalone SL Console or the Web-launched SL Console.

Partition Screens are organized into the following categories:

- [“Partition Summary Screens” on page 253](#)
- [“Partition Design and Commit Screens” on page 273](#)
- [“Partition Report Screens” on page 298](#)
- [“Partition CAP Operation Screens” on page 317](#)

Note – The partition **Summary (Step 2)** and **Design (Step 3b)** screens, and all associated popups, give you a dynamic workspace to design your library partitions. All partition configuration information is automatically saved to the partition workspace in SL Console memory and retained for the duration of your SL Console session. This allows you to switch among partition views and leave and return to the partition screens any number of times without losing your configuration changes.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Partition Summary Screens

[Partitions—Instructions \(Step 1\)](#)

[Partitions—Summary \(Step 2\)](#)

[Partitions—Summary \(Step 2\)—Add Connection](#)

[Partitions—Summary \(Step 2\)—Delete Connection](#)

[Partitions—Summary \(Step 2\)—Modify Connection](#)

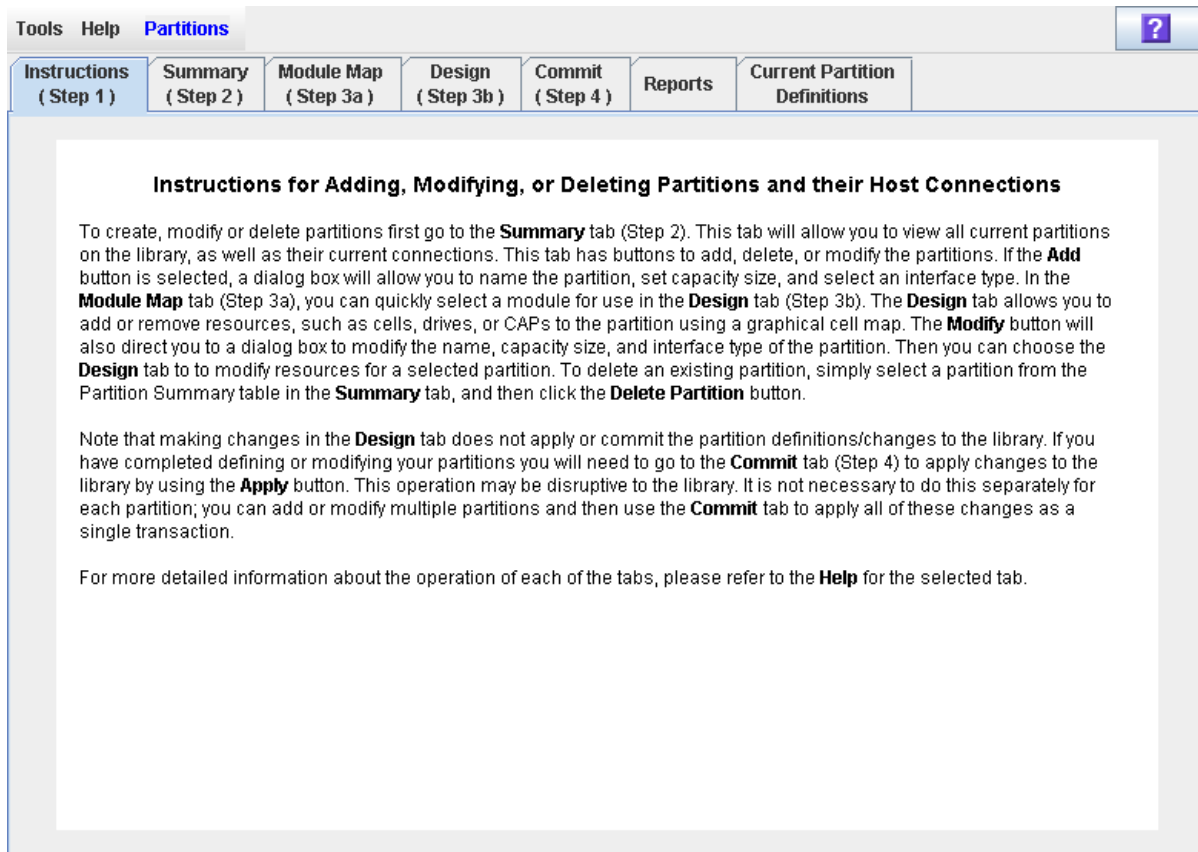
[Partitions—Summary \(Step 2\)—Add Partition](#)

[Partitions—Summary \(Step 2\)—Delete Partition](#)

[Partitions—Summary \(Step 2\)—Modify Partition](#)

Partitions—Instructions (Step 1)

Sample Screen



Description

Displays instructions for using the partition screens.

Note – This screen appears automatically the first time you select **Tools > Partitions** during an SL Console login session.

Screen Fields

None

Buttons

? (Help)

Click to display online help for the screen.

See Also

- [Partitions—Summary \(Step 2\)](#)
- [Partitions—Design \(Step 3b\)](#)

- [Partitions—Commit \(Step 4\)](#)
- [Partitions—Reports](#)

Partitions—Summary (Step 2)

Sample Screen

The screenshot displays a software interface for managing partitions. At the top, there are navigation tabs: 'Instructions (Step 1)', 'Summary (Step 2)', 'Module Map (Step 3a)', 'Design (Step 3b)', 'Commit (Step 4)', 'Reports', and 'Current Partition Definitions'. A 'Refresh' button and a help icon are also present. The main content is divided into three sections:

- Total Library Resources:** A list of resources and their counts: Storage Cells (3071), Drive Bays (24), CAPs (5), AEMs (2), CAP cells (130), AEM cells (468), and Activated Capacity (3071).
- Resources Allocated:** A list of resources and their counts: Storage Cells (825), Drive Bays (24), CAPs (1), AEMs (0), CAP cells (26), AEM cells (0), and Activated Capacity (825).
- Resources Unallocated:** A list of resources and their counts: Storage Cells (2246), Drive Bays (0), CAPs (4), AEMs (2), CAP cells (104), AEM cells (468), and Activated Capacity (2246).

The central part of the screen features a 'Partition Allocation Summary' table with columns for Partition Number, Storage Cells, Drive Bays, CAPs, AEMs, CAP+AEM Cells, and %Activated Capacity. Below this table are buttons for 'Add Partition', 'Delete Partition', and 'Modify Partition'.

Below the allocation summary is a 'Details For Partition 1' section, which includes the partition's name ('Partition 1') and interface type ('FC-SCSI'). It also contains a 'Connections' table with columns for Initiator (WWPN) and LUN. Below the connections table are buttons for 'Add Connection', 'Delete Connection', and 'Modify Connection'.

Description

Displays summary information for the library and, optionally, a selected partition.

Also includes buttons that allow you to initiate any of the following activities:

- Add a new partition
- Delete a partition from the library
- Modify partition summary information

Note – The following buttons are available for FC-SCSI host-partition connections only. HLI host-partition connections are configured through the host library management software (ELS or ACSLS), not through the SL Console. See the ELS or ACSLS documentation for details.

- Add a new host-partition connection
- Delete a host-partition connection
- Modify the configuration of a host-partition connection

Screen Fields

Partition Summary

Partition Number

Display only.

ID assigned to the partition. IDs can range from 1–8.

Storage Cells

Display only.

Total number of storage cells allocated to this partition.

Drive Bays

Display only.

Total number of tape drives allocated to this partition.

CAPs

Display only.

Total number of rotational CAPs allocated to this partition; this number represents whole CAPs, not individual CAP cells.

AEMs

Display only.

Total number of AEMs allocated to this partition; this number represents whole AEMs, not individual AEM cells.

CAP+AEM Cells

Display only.

Total number of individual rotational and AEM CAP cells allocated to this partition.

%Activated Capacity

Display only.

Percentage of the library's activated capacity that has been allocated to this partition. Calculated as:

(partition) **Allocated Storage Cells** / (total library) **Activated Capacity**

Details for Partition n

Note – The following fields display host-partition connection information for the partition currently selected in the Partition Summary table.

Name

Display only.

Name assigned to the selected partition.

Interface Type

Display only.

Type of interface assigned to the selected host-partition connection. Options are:

- HLI
- FC-SCSI

Note – The following fields are available for FC-SCSI host-partition connections only.

Connections**Initiator (WWPN)**

Display only.

World Wide Port Name of the FC-SCSI host bus adapter (HBA).

LUN

Display only.

Logical unit number of the library partition on the host. This entry must be unique on the host.

Total Library Resources**Storage Cells**

Display only.

Total physical capacity of the library.

Drive Bays

Display only.

Total number of tape drives in the library.

CAPs

Display only.

Total number of rotational CAPs in the library.

AEMs

Display only.

Total number of AEMs in the library.

CAP cells

Display only.

Total number of rotational CAP cells in the library.

AEM cells

Display only.

Total number of AEM cells in the library.

Activated Capacity

Display only.

Total activated storage capacity of the library.

Resources Allocated**Storage Cells**

Display only.

Total number of storage cells allocated to all library partitions in the **Design (Step 3b)** screen.

Drive Bays

Display only.

Total number of tape drives allocated to all library partitions.

CAPs

Display only.

Total number of rotational CAPs allocated to all library partitions.

AEMs

Display only.

Total number of AEMs allocated to all library partitions.

CAP cells

Display only.

Total number of rotational CAP cells allocated to all library partitions.

AEM cells

Display only.

Total number of AEM cells allocated to all library partitions.

Activated Capacity

Display only.

Total activated storage capacity assigned to all library partitions through the **Add Partition** or **Modify Partition** screen.

Resources Unallocated

Storage Cells

Display only.

Total number of storage cells in the library that are not allocated to any partition.

Drive Bays

Display only.

Total number of tape drives in the library that are not allocated to any partition.

CAPs

Display only.

Total number of rotational CAPs in the library that are not allocated to any library partition.

AEMs

Display only.

Total number of AEMs in the library that are not allocated to any library partition.

CAP cells

Display only.

Total number of rotational CAP cells in the library that are not allocated to any partition.

AEM cells

Display only.

Total number of AEM cells in the library that are not allocated to any partition.

Capacity

Display only.

Total activated storage capacity not assigned to any library partition through the **Add Partition** or **Modify Partition** screen. Calculated as:

(total library) **Activated Capacity** – (allocated) **Activated Capacity**

Buttons

Refresh

Click to refresh the SL Console partition workspace with current data from the library controller database. All uncommitted partition changes you have made during this SL Console login session will be discarded. The **Partition Refresh** popup appears, prompting you to confirm the refresh.

? (Help)

Click to display online help for the screen.

Add Partition

Click to add a new partition. The [Partitions—Summary \(Step 2\)—Add Partition](#) popup appears.

Delete Partition

Click to delete the currently selected partition. The [Partitions—Summary \(Step 2\)—Delete Partition](#) popup appears.

Modify Partition

Click to modify summary information for the currently selected partition. The [Partitions—Summary \(Step 2\)—Modify Partition](#) popup appears.

Note – The following buttons are available for FC-SCSI host-partition connections only.

Add Connection

Click to add a new host connection to the currently selected partition. The [Partitions—Summary \(Step 2\)—Add Connection](#) popup appears.

Delete Connection

Click to delete the currently selected host-partition connection. The [Partitions—Summary \(Step 2\)—Delete Connection](#) popup appears.

Modify Connection

Click to modify the configuration of the currently selected host-partition connection. The [Partitions—Summary \(Step 2\)—Modify Connection](#) popup appears.

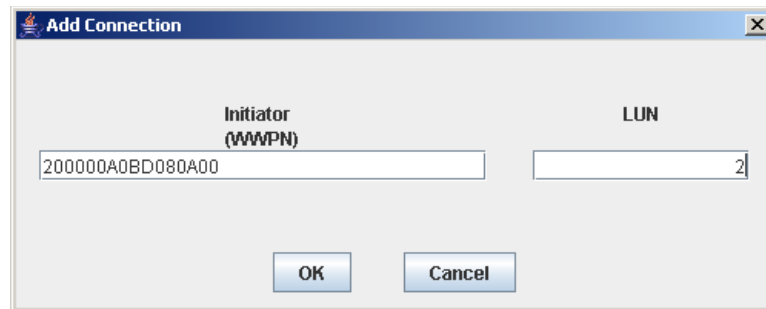
See Also

- [Partitions—Summary \(Step 2\)](#)
- [Partitions—Summary \(Step 2\)—Add Partition](#)
- [Partitions—Summary \(Step 2\)—Delete Partition](#)
- [Partitions—Summary \(Step 2\)—Modify Partition](#)
- [Partitions—Summary \(Step 2\)—Add Connection](#)

- [Partitions—Summary \(Step 2\)—Delete Connection](#)
- [Partitions—Summary \(Step 2\)—Modify Connection](#)
- [Partitions—Module Map \(Step 3a\)](#)
- [Partitions—Design \(Step 3b\)](#)
- [Partitions—Commit \(Step 4\)](#)
- [Partitions—Reports](#)

Partitions—Summary (Step 2)—Add Connection

Sample Screen



The screenshot shows a dialog box titled "Add Connection". It has a close button in the top right corner. The dialog contains two text input fields. The first field is labeled "Initiator (WWPN)" and contains the text "200000A0BD080A00". The second field is labeled "LUN" and contains the text "2". Below the input fields are two buttons: "OK" and "Cancel".

Description

Allows you to configure the connection between a host and the selected partition. Each partition can have up to nine host-partition connections.

Note – This screen is available for FC-SCSI host-partition connections only. HLI host-partition connections are configured through the host library management software (ELS or ACSLS), not through the SL Console. See the ELS or ACSLS documentation for details.

This screen is a popup that appears when you click **Add Connection** on the [Partitions—Summary \(Step 2\)](#) screen.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

Connections *n*

Display only.

Partition ID of the selected partition.

Initiator (WWPN)

Required.

World Wide Port Name of the FC-SCSI host bus adapter (HBA).

Sixteen hexadecimal digits. You can enter upper- or lower-case hex digits, but the display is always shown in all upper-case.

LUN

Required.

Logical unit number of the library partition on the host. This entry must be unique on the host. You can create up to nine unique LUNs per partition.

Note – Each initiator connected to the library must have one library partition assigned to LUN 0. When you verify or commit partition configuration changes, the SL Console will notify you if an initiator does not meet this requirement.

Buttons

OK

Click to update the SL Console partition workspace with the current screen settings and return to the previous screen.

Note – Clicking this button does not update the library controller database.

Cancel

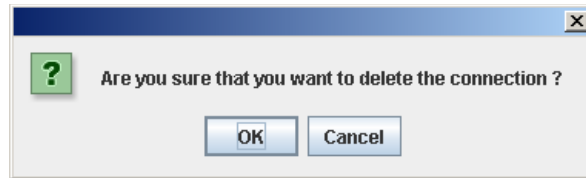
Click to discard the current screen settings and return to the previous screen.

See Also

- [Partitions—Summary \(Step 2\)](#)

Partitions—Summary (Step 2)—Delete Connection

Sample Screen



Description

Allows you to delete the selected host-partition connection.

Note – This screen is available for FC-SCSI host-partition connections only. HLI host-partition connections are configured through the host library management software (ELS or ACSLS), not through the SL Console. See the ELS or ACSLS documentation for details.

This screen is a popup that appears when you click **Delete Connection** on the [Partitions—Summary \(Step 2\)](#) screen.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

None

Buttons

OK

Click to update the SL Console partition workspace with the current screen settings and return to the previous screen.

Note – Clicking this button does not update the library controller database.

Cancel

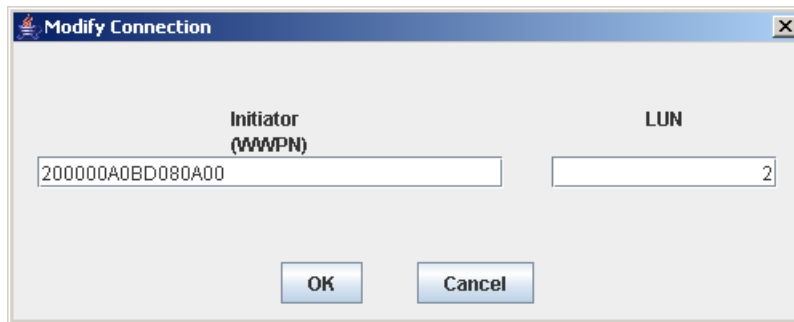
Click to discard the current screen settings and return to the previous screen.

See Also

- [Partitions—Summary \(Step 2\)](#)

Partitions—Summary (Step 2)—Modify Connection

Sample Screen



The screenshot shows a window titled "Modify Connection". It has two input fields. The first field is labeled "Initiator (WWPN)" and contains the text "200000A0BD080A00". The second field is labeled "LUN" and contains the number "2". At the bottom of the window are two buttons: "OK" and "Cancel".

Description

Allows you to modify the configuration of the selected host-partition connection.

Note – This screen is available for FC-SCSI host-partition connections only. HLI host-partition connections are configured through the host library management software (ELS or ACSLS), not through the SL Console. See the ELS or ACSLS documentation for details.

This screen is a popup that appears when you click **Modify Connection** on the [Partitions—Summary \(Step 2\)](#) screen.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

Initiator (WWPN)

World Wide Port Name of the FC-SCSI host bus adapter (HBA).

Sixteen hexadecimal digits. You can enter upper- or lower-case hex digits, but the display is always shown in all upper-case.

The screen displays the value assigned previously. You can leave it as is or make changes.

LUN

Required.

Logical unit number of the library partition on the host. This entry must be unique on the host.

Note – Each initiator connected to the library must have one library partition assigned to LUN 0. When you verify or commit partition configuration changes, the SL Console will notify you if an initiator does not meet this requirement.

Buttons

OK

Click to update the SL Console partition workspace with the current screen settings and return to the previous screen.

Note – Clicking this button does not update the library controller database.

Cancel

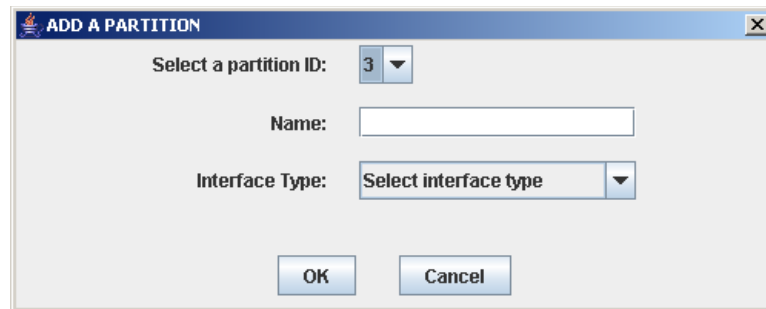
Click to discard the current screen settings and return to the previous screen.

See Also

- [Partitions—Summary \(Step 2\)](#)

Partitions—Summary (Step 2)—Add Partition

Sample Screen



The screenshot shows a dialog box titled "ADD A PARTITION". It has a close button in the top right corner. The dialog contains three main input areas: "Select a partition ID:" with a dropdown menu currently showing "3"; "Name:" with an empty text input field; and "Interface Type:" with a dropdown menu showing "Select interface type". At the bottom of the dialog are two buttons: "OK" and "Cancel".

Description

Allows you to add a new partition. You can create up to eight partitions, with IDs ranging from 1–8.

This screen is a popup that appears when you click **Add Partition** on the [Partitions—Summary \(Step 2\)](#) screen.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

Select a Partition ID

Required.

Partition ID you want to add. Options are 1–8.

The pull-down menu displays all available IDs; the default is the next available ID in numerical order.

Name

Optional.

Name you want to assign to the partition.

0–60 ASCII characters.

Interface Type

Required.

Type of interface to be used for this host-partition connection. Options are:

- HLI
- FC-SCSI

Buttons

OK

Click to update the SL Console partition workspace with the current screen settings and return to the previous screen.

Note – Clicking this button does not update the library controller database.

Cancel

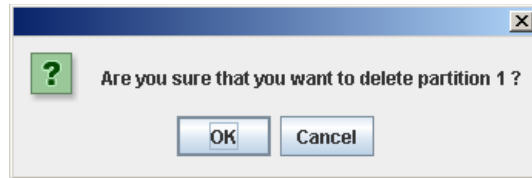
Click to discard the current screen settings and return to the previous screen.

See Also

- [Partitions—Summary \(Step 2\)](#)

Partitions—Summary (Step 2)—Delete Partition

Sample Screen



Description

Allows you to confirm that you want to delete the specified partition. All information for the partition – including host-partition connections, partition boundaries, and partition ID – are deleted from the SL Console partition workspace.

This screen is a popup that appears when you click **Delete Partition** on the [Partitions—Summary \(Step 2\)](#).

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

None

Buttons

OK

Click to update the SL Console partition workspace with the current screen settings and return to the previous screen.

Note – Clicking this button does not update the library controller database.

Cancel

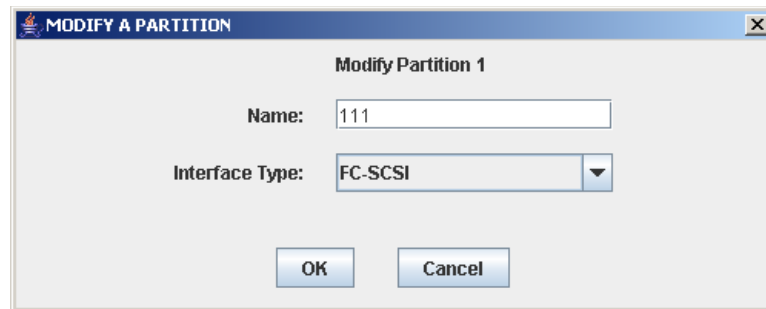
Click to discard the current screen settings and return to the previous screen.

See Also

- [Partitions—Summary \(Step 2\)](#)

Partitions—Summary (Step 2)—Modify Partition

Sample Screen



The screenshot shows a dialog box titled "MODIFY A PARTITION" with a close button in the top right corner. The main content area is titled "Modify Partition 1". It contains two input fields: "Name:" with the text "111" and "Interface Type:" with a dropdown menu showing "FC-SCSI". At the bottom of the dialog are two buttons: "OK" and "Cancel".

Description

Allows you to modify the name or host-partition connection type assigned to the selected partition.

This screen is a popup that appears when you click **Modify Partition** on the [Partitions—Summary \(Step 2\)](#) screen.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

Modify Partition *n*

Display only.

ID of the partition you want to modify.

Name

Required.

Name you want to assign to the partition.

0–60 ASCII characters.

The screen displays the value assigned previously. You can leave it as is or make changes.

The screen displays the value assigned previously. You can leave it as is or make changes.

Interface Type

Type of interface to be used for this host-partition connection. Options are:

- HLI
- FC-SCSI

The screen displays the value assigned previously. You can leave it as is or make changes.

Note – Changing the interface type can result in the loss of active host connections and shared rotational or AEM CAP allocations. See [“Modify the Interface Type of a Host-Partition Connection” on page 227](#) for details.

Buttons

OK

Click to update the SL Console partition workspace with the current screen settings and return to the previous screen.

Note – Clicking this button does not update the library controller database.

Cancel

Click to discard the current screen settings and return to the previous screen.

See Also

- [Partitions—Summary \(Step 2\)](#)

Partition Design and Commit Screens

Partitions—Module Map (Step 3a)

Partitions—Design (Step 3b)

Partitions—Design (Step 3b) - AEMs Only

Partitions—Design (Step 3b)—Verify Results

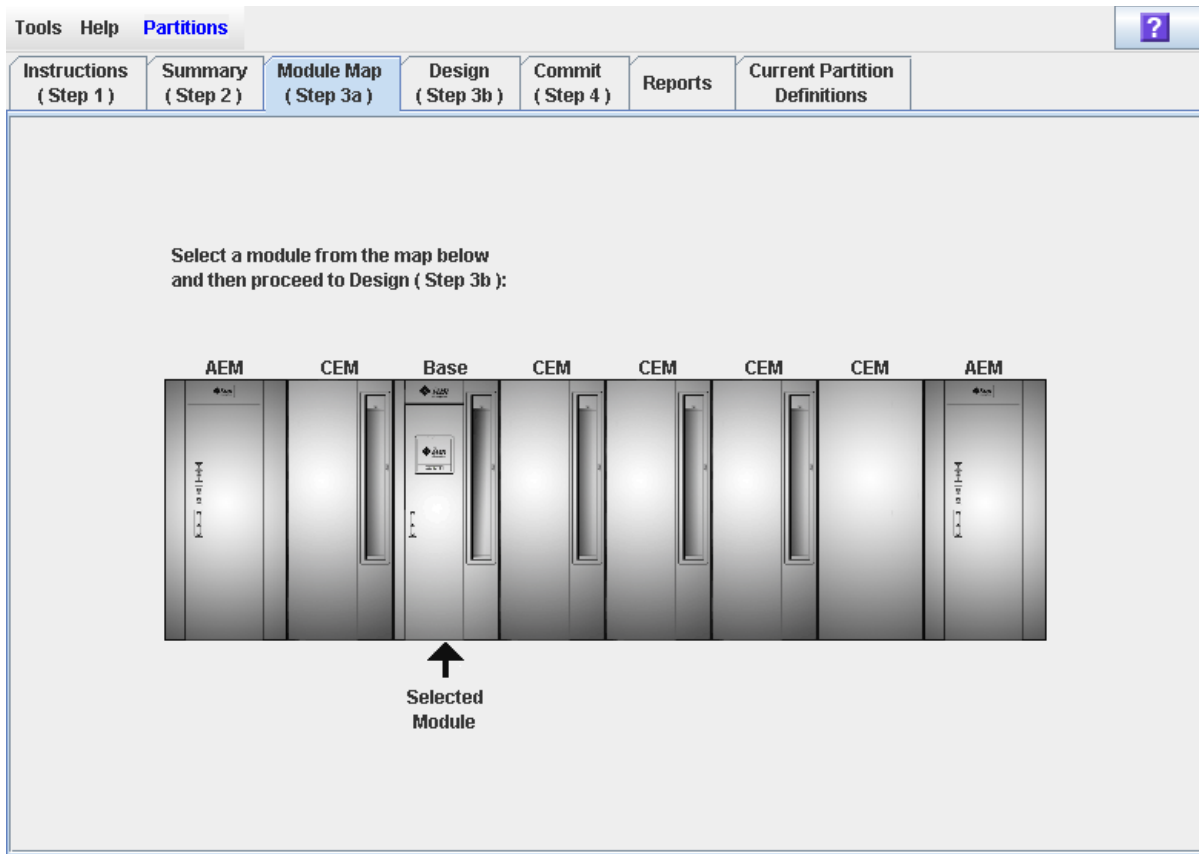
Partitions—Commit (Step 4)

Partitions—Commit (Step 4)—Confirm Apply

Partitions—Current Partition Definitions

Partitions—Module Map (Step 3a)

Sample Screen



Description

Allows you to select the library module for which you want to define partition boundaries.

Screen Fields

Select a module from the map below

Required.

The screen displays an illustration of the library's actual module configuration. This information is taken directly from the library controller database.

Click the module for which you want to design a partition, then click the **Design (Step 3b)** tab.

Buttons

? (Help)

Click to display online help for the screen.

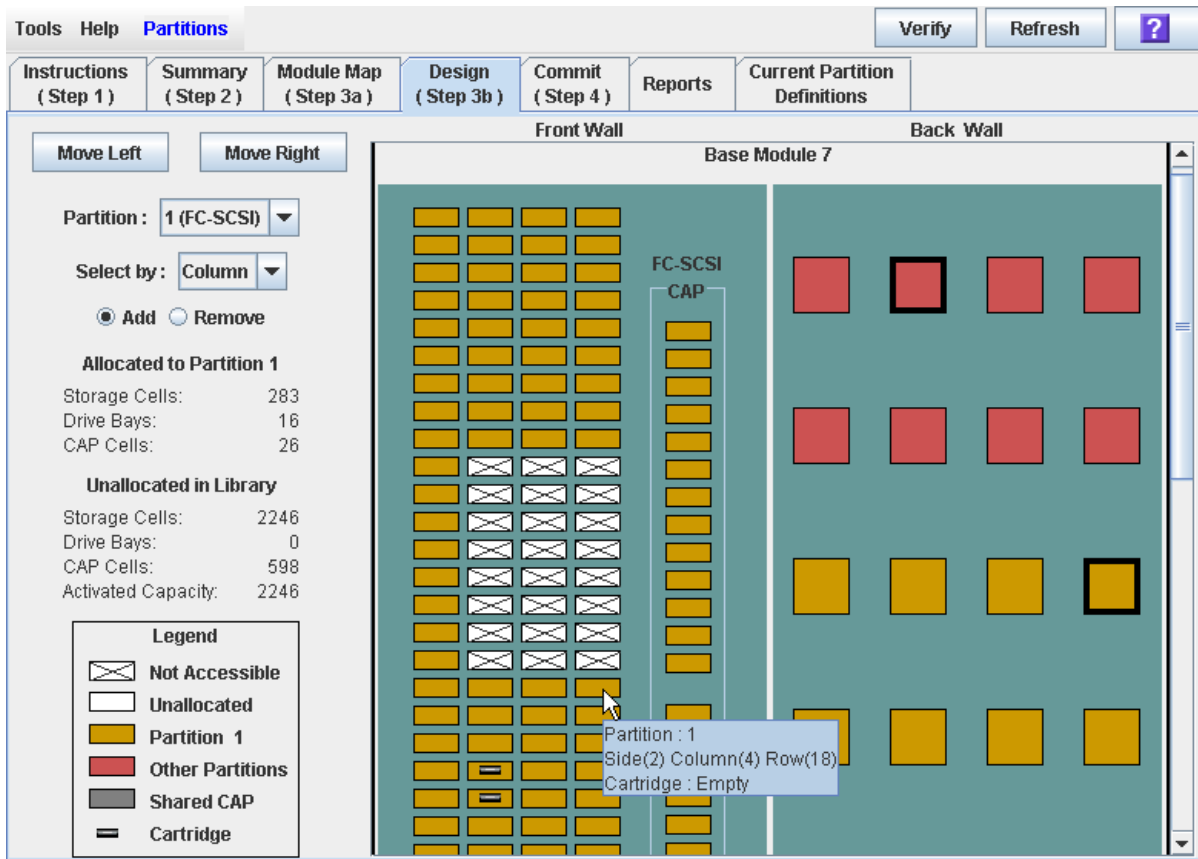
See Also

- [Partitions—Design \(Step 3b\)](#)
- [Partitions—Design \(Step 3b\) – AEMs Only](#)

Partitions—Design (Step 3b)

Note – This section describes the Design (Step 3b) screens for Base, Drive, and CEM modules. For AEM modules, see “Partitions—Design (Step 3b) – AEMs Only” on page 282.

Sample Screen



Description

Allows you to define partition boundaries by selecting the resources (storage cells, tape drives, or rotational CAPs) you want to include in the partition. You can use any of the following methods to add or remove resources from a partition (see “Library Map” on page 280 for detailed instructions):

- Select individual cells or groups of cells
- Select an entire column within a library module (top to bottom)
- Select a side within a library module (front or back)
- Select an entire library module

Note – This screen is available only if partitions have been defined for the library through the [Partitions—Summary \(Step 2\)—Add Partition](#) screen.

Caution – Changing partition boundaries can result in orphaned cartridges and data that could be lost. See [“Orphaned Cartridges in Partitioned Libraries”](#) on page 194 for details.

Note – The partition **Summary (Step 2)** and **Design (Step 3b)** screens, and all associated popups, give you a dynamic workspace to design your library partitions. All partition configuration information is automatically saved to the partition workspace in SL Console memory and retained for the duration of your SL Console session. This allows you to switch among partition views and leave and return to the partition screens any number of times without losing your configuration changes.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

Partition

Required.

Partition to which you want to add or remove resources (storage cells, tape drives, or rotational CAPs).

The pull-down menu displays all valid partition IDs for the library. It also identifies their host interface type (FC-SCSI or HLI). If no partition IDs have been defined, the menu is blank.

Note – When you select a partition, the screen is automatically updated to display data for that partition from the SL Console partition workspace.

Select by

Required.

Indicates the method you want to use for defining partition boundaries. Options are:

- Cell – Select individual or rectangular groups of resources.
- Column – Select all resources within a column.
- Side – Select all resources, except the CAP, within one side of a library module.
- Module – Select all resources, except the CAP, within a library module.

Note – You must select either **Add** or **Remove**.

Add

Required.

Indicates you want to add resources to the partition. You will only be able to click unallocated resources on the library map.

Remove

Required.

Indicates you want to remove resources from the partition. You will only be able to click allocated resources on the library map.

Allocated to Partition n

Note – The data in these fields is automatically updated from the SL Console partition workspace when you select a partition.

Storage Cells

Display only.

Total number of storage cells allocated to the selected partition, based on the currently defined partition boundaries.

Drive Bays

Display only.

Total number of tape drives allocated to the selected partition, based on the currently defined partition boundaries.

CAP Cells

Display only.

Total number of rotational and AEM CAP cells allocated to the selected partition, based on the currently defined partition boundaries.

Unallocated in Library

Note – The data in these fields is automatically updated from the SL Console partition workspace when you select a partition.

StorageCells

Display only.

Total number of storage cells in the library that are not allocated to any partition.

Drive Bays

Display only.

Total number of tape drives in the library that are not allocated to any partition.

CAP Cells

Display only.

Total number of rotational and AEM CAP cells in the library that are not allocated to any partition.

Activated Capacity

Note – This field appears only if the library has unallocated activated capacity. If allocations exceed activated capacity (an oversubscription situation), the **Oversubscription** field appears.

Display only.

Total activated capacity of the library that is not allocated to any partition.
Calculated as:

Total activated capacity – Total allocated storage cells

Oversubscription

Note – This field appears only if allocations exceed activated capacity (an oversubscription situation). If the library has unallocated activated capacity, the **Activated Capacity** field appears.

Display only.

Total activated capacity of the library that has been exceeded through partition allocations. Calculated as:

Total allocated storage cells – Total activated capacity

You must remove the excess allocations before you can commit your changes through the **Commit (Step 4)** screen.

Legend

Legend for the library map. The state of each library resource (storage cell, tape drive, or rotational CAP cell) is indicated as follows:

- Not Accessible (white and x-ed out). Resource is not accessible to any partition. Following are some possible reasons:
 - Storage cells have been configured for diagnostic cartridges.
 - Storage cells are not included in the library's activated capacity.
- Unallocated. Resource is currently not allocated to any partition and therefore available to the selected partition.
- Partition *n* (gold). Resource is allocated to the selected partition, partition *n*.
- Other Partitions (red). Resource is allocated to another partition and therefore NOT available to the selected partition.
- Shared CAP (gray background). CAP has been assigned to at least one partition. The host interface type assigned to the CAP (HLI or FC-SCSI) is displayed.
- Cartridge (cartridge icon). Resource contains a tape cartridge.
- Drive slots with installed drives are outlined with a thick border. Empty drive slots have a narrow border.

Library Map

Graphical representation of the current library configuration. Initial display for the current SL Console login session is from the library controller database, then the display reflects data from the SL Console partition workspace as you modify partition configurations. The display includes the following information:

- Type of module currently displayed (base module, drive expansion module, or parking expansion module)
- Numeric module ID (1–12)
- Host-partition connection type of a shared CAP (FC-SCSI or HLI)
- Location of all resources (storage cells, tape drives, rotational CAP cells) within the library

Note – Move the cursor over any resource to display a tooltip of detailed information about the cell or drive, its partition assignment, and the identity of any resident cartridge.

Note – If no partition IDs have been defined, the library map is display only.

Use the library map to modify the boundaries of the selected partition. Depending on whether you have clicked the **Add** or **Remove** radio button, all selected resources are either added to or removed from the partition.

Depending on your choice in the **Select by** field, you can perform any of the following actions.

- **Select by cell** – Select individual or groups of resources. Resources in a partition do not need to be adjacent to one another.
 - To select an individual resource, double-click it.
 - To select a rectangular group of resources, click the cell or drive at one corner of the rectangle, and then click the cell or drive diagonally opposite.
- **Select by column** – Select an entire column within the module. Columns in a partition do not need to be adjacent to one another. To select a column, click any resource within the column.
- **Select by side** – Select an entire side within a module, except the CAP. Sides in a partition do not need to be adjacent to one another. To select one side of a library module, click any resource in that side.
- **Select by module** – Select an entire module, except the CAP. Modules in a partition do not have to be adjacent to one another. To select a library module, click any resource in that module.

Buttons

Move Left

Click to display the library module directly to the left of the one currently displayed. This button is grayed out if there is no module to the left.

Move Right

Click to display the library module directly to the right of the one currently displayed. This button is grayed out if there is no module to the right.

Verify

Click to verify partition configuration changes you have made during this SL Console login session. The **Tools > Partitions—Design (Step 3b)—Verify Results** popup appears, indicating whether there are any orphaned cartridges or other errors in the current partition configuration.

Note – This procedure verifies only one partition at a time. If you need to verify multiple partitions, you must repeat this procedure separately for each partition.

Note – This verification is performed on the current partition configuration in the SL Console partition workspace only. It does not verify current partition boundaries against the library controller database; therefore it cannot identify configuration conflicts that may arise due to other users performing cartridge movements or library configuration changes—through the command line interface, other SL Console sessions, or host applications—at the same time you have made partition changes.

Refresh

Click to refresh the SL Console partition workspace with current data from the library controller database. All uncommitted partition changes you have made during this SL Console login session will be discarded. The **Partition Refresh** popup appears, prompting you to confirm the refresh.

? (Help)

Click to display online help for the screen.

See Also

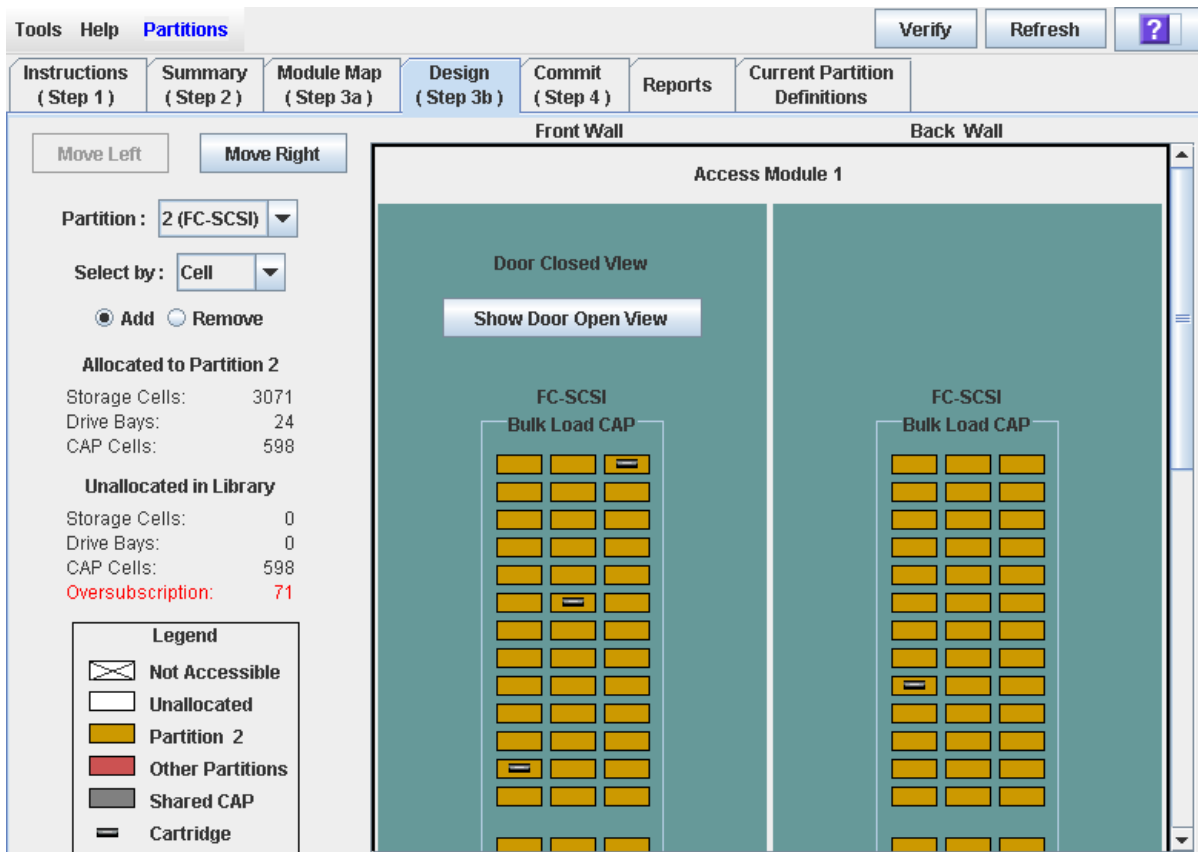
- [Partitions—Summary \(Step 2\)](#)
- [Partitions—Module Map \(Step 3a\)](#)
- [Partitions—Design \(Step 3b\) – AEMs Only](#)
- [Partitions—Design \(Step 3b\)—Verify Results](#)
- [Partitions—Commit \(Step 4\)](#)
- [Partitions—Current Partition Definitions](#)
- [Partitions—Reports](#)

Partitions—Design (Step 3b) – AEMs Only

Note – This section describes the Design (Step 3b) screen for AEM modules only. For Base, Drive, and CEM modules, see [“Partitions—Design \(Step 3b\)”](#) on page 276.

Note – This screen is available only if the library configuration includes one or more AEMs.

Sample Screen



Description

Allows you to define partition boundaries by allocating all cells in an AEM to a partition. As with rotational CAPs, multiple partitions can share an AEM CAP, if the partitions have the same host interface type (HLI or FC-SCSI).

Note – This screen is available only if partitions have been defined for the library through the [Partitions—Summary \(Step 2\)—Add Partition](#) screen.

Caution – Changing partition boundaries can result in orphaned cartridges and data that could be lost. See [“Orphaned Cartridges in Partitioned Libraries”](#) on page 194 for details.

Note – The partition **Summary (Step 2)** and **Design (Step 3b)** screens, and all associated popups, give you a dynamic workspace to design your library partitions. All partition configuration information is automatically saved to the partition workspace in SL Console memory and retained for the duration of your SL Console session. This allows you to switch among partition views and leave and return to the partition screens any number of times without losing your configuration changes.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

Partition

Required.

Partition to which you want to add or remove AEM CAP cells.

The drop-down menu displays all valid partition IDs for the library. It also identifies their host interface type (FC-SCSI or HLI). If no partition IDs have been defined, the menu is blank.

Note – When you select a partition, the screen is automatically updated to display data for that partition from the SL Console partition workspace.

Select by

Required.

Indicates the method you want to use for defining partition boundaries. Regardless of the option you choose, all cells within the AEM will be selected at once.

Note – You must select either **Add** or **Remove**.

Add

Required.

Indicates you want to add the AEM to the partition. This option is valid only if the AEM is currently unallocated.

Remove

Required.

Indicates you want to remove the AEM from the partition. This option is valid only if the AEM is currently allocated.

Allocated to Partition n

Note – The data in these fields is automatically updated from the SL Console partition workspace when you select a partition.

Storage Cells

Display only.

Total number of storage cells allocated to the selected partition, based on the currently defined partition boundaries.

Drive Bays

Display only.

Total number of tape drives allocated to the selected partition, based on the currently defined partition boundaries.

CAP Cells

Display only.

Total number of rotational and AEM CAP cells allocated to the selected partition, based on the currently defined partition boundaries.

Unallocated in Library

Note – The data in these fields is automatically updated from the SL Console partition workspace when you select a partition.

Storage Cells

Display only.

Total number of storage cells in the library that are not allocated to any partition.

Drive Bays

Display only.

Total number of tape drives in the library that are not allocated to any partition.

CAP Cells

Display only.

Total number of rotational and AEM CAP cells in the library that are not allocated to any partition.

Activated Capacity

Note – This field appears only if the library has unallocated activated capacity. If allocations exceed activated capacity (an oversubscription situation), the **Oversubscription** field appears.

Display only.

Total activated capacity of the library that is not allocated to any partition.
Calculated as:

Total activated capacity – Total allocated storage cells

Oversubscription

Note – This field appears only if allocations exceed activated capacity (an oversubscription situation). If the library has unallocated activated capacity, the **Activated Capacity** field appears.

Display only.

Total activated capacity of the library that has been exceeded through partition allocations. Calculated as:

Total allocated storage cells – Total activated capacity

You must remove the excess allocations before you can commit your changes through the **Commit (Step 4)** screen.

Legend

Legend for the library map. The state of each AEM CAP cell is indicated as follows:

- Not Accessible (white and x-ed out). Resource is not accessible to any partition. Following are some possible reasons:
 - Storage cells have been configured for diagnostic cartridges.
 - Storage cells are not included in the library's activated capacity.
- Unallocated. Resource is currently not allocated to any partition and therefore available to the selected partition.
- Partition *n* (gold). Resource is allocated to the selected partition, partition *n*.
- Other Partitions (red). Resource is allocated to another partition and therefore NOT available to the selected partition.
- Shared AEM CAP (gray background). AEM CAP has been assigned to at least one partition. The host interface type assigned to the AEM CAP (HLI or FC-SCSI) is displayed.
- Cartridge (cartridge icon). Resource contains a tape cartridge.

AEM Map

Graphical representation of the current AEM configuration. Initial display for the current SL Console login session is from the library controller database, then the display reflects data from the SL Console partition workspace as you modify partition configurations. The display includes the following information:

- Type of module currently displayed; for AEMs, this is always "Access Module".
- Numeric module ID (1–12)

- Current module view indicator (“Door Closed View” or “Door Open View”)
- Host interface type of the partition(s) to which the AEM is allocated (FC-SCSI or HLL)
- CAP type; for AEMs, this is always “Bulk Load CAP”.
- Location of all storage cells within the AEM

Note – Move the cursor over any resource to display a tooltip of detailed information about the cell or drive, its partition assignment, and the identity of any resident cartridge.

Note – If no partition IDs have been defined, the library map is display only.

Use the library map to modify the partition allocation of the AEM. Depending on whether you have clicked the **Add** or **Remove** radio button, the entire AEM is either added to or removed from the partition.

Buttons

Move Left

Click to display the library module directly to the left of the one currently displayed. This button is grayed out if there is no module to the left.

Move Right

Click to display the library module directly to the right of the one currently displayed. This button is grayed out if there is no module to the right.

Note – The “Door Closed View” is the default AEM view. You can use the next two buttons to toggle between the alternate views.

Show Door Open View

Click to display the layout of the AEM CAP cells as if the AEM access door were open and you are looking directly at the interior of the AEM.

Show Door Closed View

Click to show display the layout of the AEM CAP cells as if the AEM access door were closed and you are “looking through” the front access door panel to the interior of the AEM.

Verify

Click to verify partition configuration changes you have made during this SL Console login session. The **Tools > Partitions—Design (Step 3b)—Verify Results** popup appears, indicating whether there are any orphaned cartridges or other errors in the current partition configuration.

Note – This procedure verifies only one partition at a time. If you need to verify multiple partitions, you must repeat this procedure separately for each partition.

Note – This verification is performed on the current partition configuration in the SL Console partition workspace only. It does not verify current partition boundaries against the library controller database; therefore it cannot identify configuration conflicts that may arise due to other users performing cartridge movements or library configuration changes—through the command line interface, other SL Console sessions, or host applications—at the same time you have made partition changes.

Refresh

Click to refresh the SL Console partition workspace with current data from the library controller database. All uncommitted partition changes you have made during this SL Console login session will be discarded. The **Partition Refresh** popup appears, prompting you to confirm the refresh.

? (Help)

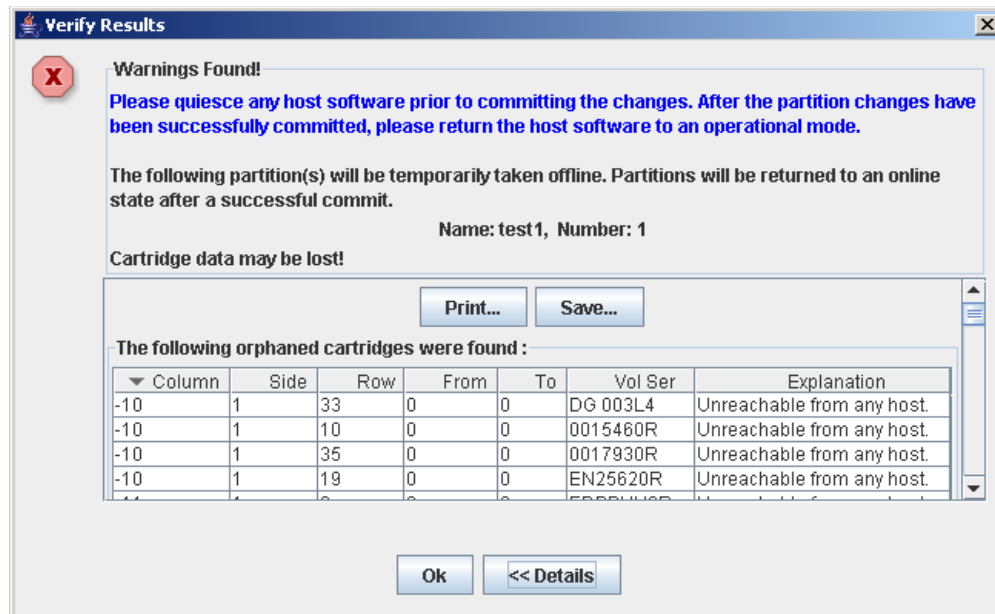
Click to display online help for the screen.

See Also

- [Partitions—Summary \(Step 2\)](#)
- [Partitions—Module Map \(Step 3a\)](#)
- [Partitions—Design \(Step 3b\)](#)
- [Partitions—Design \(Step 3b\)—Verify Results](#)
- [Partitions—Commit \(Step 4\)](#)
- [Partitions—Current Partition Definitions](#)
- [Partitions—Reports](#)

Partitions—Design (Step 3b)—Verify Results

Sample Screen



Description

Displays a list of configuration errors in the current SL Console partition workspace.

This screen is a popup that appears when you click **Verify Results** on the [Partitions—Design \(Step 3b\)](#) screen.

Possible errors include:

- A partition has orphaned cartridges. See [“Orphaned Cartridges in Partitioned Libraries”](#) for details.
- Library resources have been removed from a partition.
- A host-partition connection does not have a partition assigned to LUN 0 (applies to FC-SCSI connections only).

If any of these error conditions are present, the screen initially displays summary warning messages. You can view detailed messages by clicking the **Details** button.

It is recommended that you resolve all errors before committing the data to the library controller database.

Optionally, you can print the screen data or save it to a comma-separated file.

Note – The partition **Summary (Step 2)** and **Design (Step 3b)** screens, and all associated popups, give you a dynamic workspace to design your library partitions. All partition configuration information is automatically saved to the partition workspace in SL Console memory and retained for the duration of your SL Console session. This allows you to switch among partition views and leave and return to the partition screens any number of times without losing your configuration changes.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Screen Fields

Note – The screen fields are the same as those displayed in the [Partitions—Commit \(Step 4\)—Confirm Apply](#) popup.

Warnings found

Display only.

Summary error messages regarding the partition configuration.

The library is oversubscribed. Please unallocate *nnn* storage cells.

Display only.

Indicates that the total partition allocations currently exceed the library's activated capacity. *nnn* is the number of cells you must remove from partition allocations. The **Apply** button on the **Commit (Step 4)** screen remains deactivated until the total allocated cells is within the library's activated capacity.

The following hosts will need re-audited

Display only.

World Wide Port Names (WWPNs) of any hosts that should re-audit their library partition. This may be because library resources have been deleted from the partition.

The following hosts do not have Lun 0 set

Display only.

World Wide Port Names (WWPNs) of any hosts that have not defined any library partitions as LUN 0 on the host. This error applies to FC-SCSI host-partition connections only.

The following orphaned cartridges were found

Display only.

Detailed information regarding all orphaned cartridges in the current partition configuration. Includes library, rail, column, side, and row location of the cartridge, cartridge volume serial number (VOLID), and probable causes and explanations why the cartridge is orphaned.

Buttons

Print

Click to print the report on a selected printer.

Save

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

OK

Click to cancel the update. The library controller database is not updated, but all partition changes from this login session are retained in the SL Console partition workspace.

Details

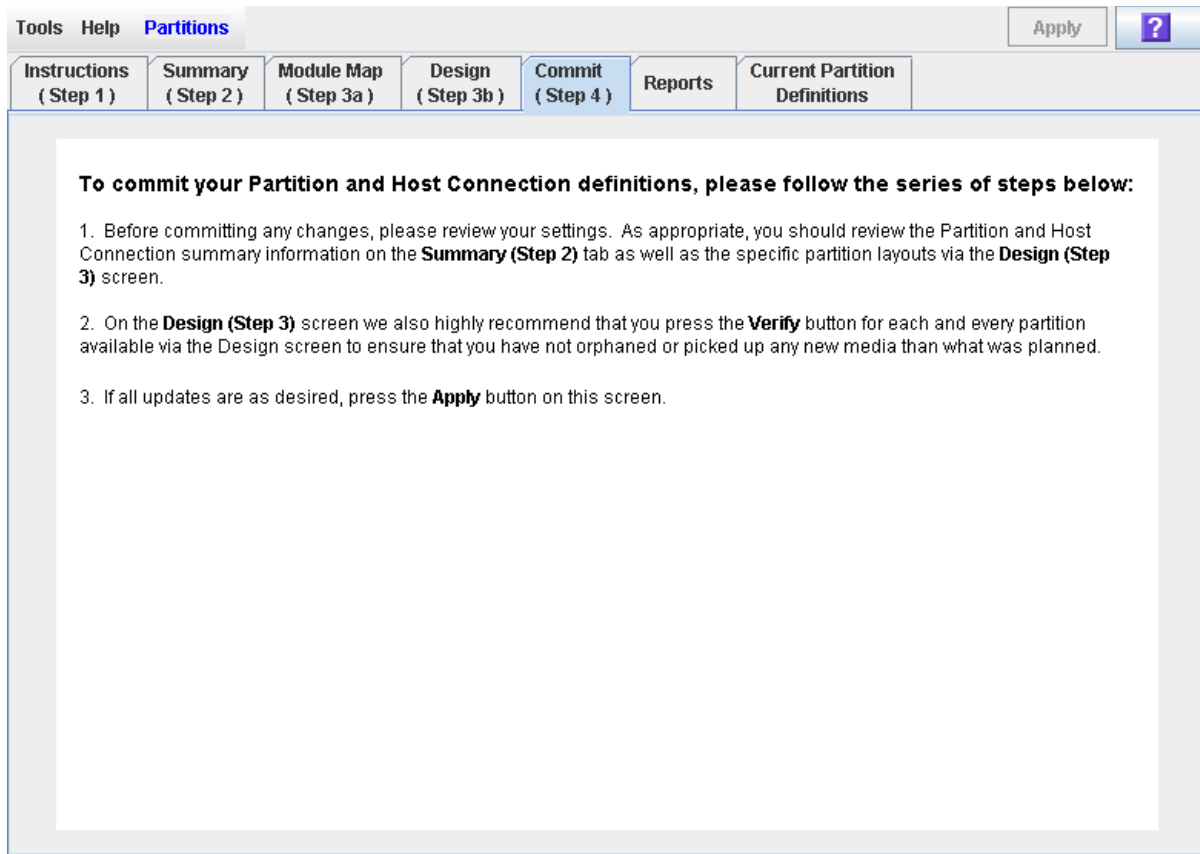
Click to toggle between the expanded and collapsed views of the warning message display.

See Also

- [Partitions—Design \(Step 3b\)](#)
- [Partitions—Commit \(Step 4\)—Confirm Apply](#)

Partitions—Commit (Step 4)

Sample Screen



Description

Allows you to commit all data from the current SL Console partition workspace to the library controller database. The following data will be committed for all partitions:

- Partition summary information
- Host-partition connection configuration information
- Partition boundary details

Caution – Although partition changes are not disruptive to library hosts, it is recommended that you make the library unavailable to other users before committing your partition workspace changes. Because the SL Console does not validate partition boundaries against the library controller database in real-time, configuration conflicts may arise if you change partition boundaries while other users are performing cartridge movements or library configuration changes. See [“Synchronizing the Display With the Controller Database”](#) on page 64 for details.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Caution – It is recommended that you follow the [Resolve Orphaned Cartridges](#) procedure before using this screen.

Caution – This screen updates the library controller database with all partition configuration changes you have made during this SL Console session. Failure to use this screen before logging out of the current SL Console session will cause all your library configuration changes to be lost.

Screen Fields

None

Buttons

Apply

Click to update the library controller database with the current settings from the SL Console partition workspace. The **Tools > Partitions—Commit (Step 4)—Confirm Apply** popup appears, indicating whether there are any orphaned cartridges or other errors in the current partition configuration.

Note – This button is grayed out if total partition allocations currently exceed the library's activated capacity. To activate the button, you must remove storage cells from partition allocations to bring the total allocated cells within the library's activated capacity.

Note – This button is grayed out if you have not made any changes to the SL Console partition workspace since the last commit.

? (Help)

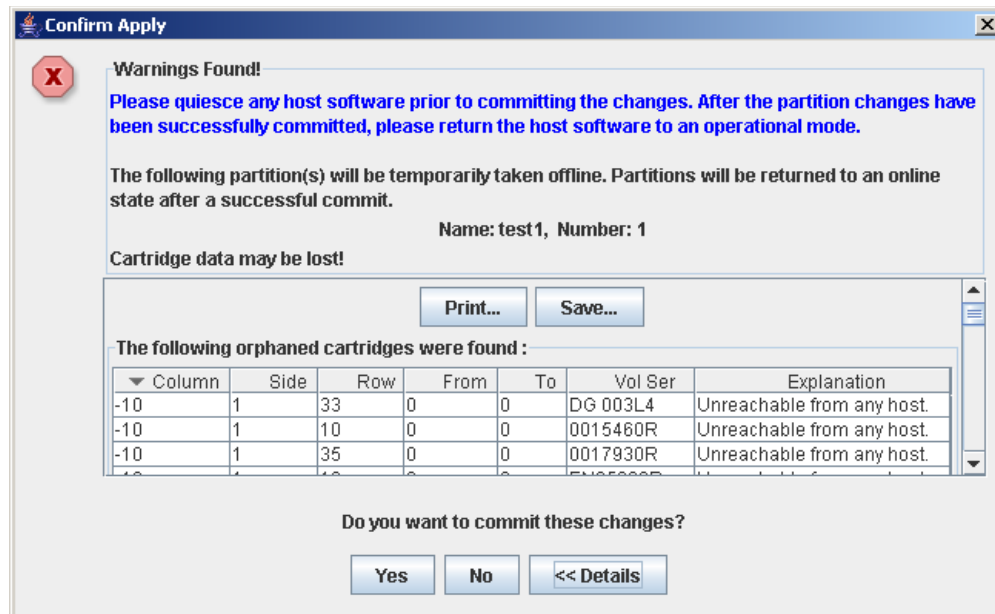
Click to display online help for the screen.

See Also

- [Partitions—Summary \(Step 2\)](#)
- [Partitions—Design \(Step 3b\)](#)
- [Partitions—Design \(Step 3b\)—Verify Results](#)
- [Partitions—Commit \(Step 4\)—Confirm Apply](#)
- [Partitions—Reports](#)

Partitions—Commit (Step 4)—Confirm Apply

Sample Screen



Description

Displays a list of configuration errors in the current SL Console partition workspace. This screen is a popup that appears when you click **Apply** on the [Partitions—Commit \(Step 4\)](#) screen.

After viewing the error messages, you can commit all data in the SL Console partition workspace to the library controller database by clicking the **Yes** button.

Possible errors include:

- A partition has orphaned cartridges. See [“Orphaned Cartridges in Partitioned Libraries”](#) for details.
- Library resources have been removed from a partition.
- A host-partition connection does not have a partition assigned to LUN 0 (applies to FC-SCSI connections only).

If any of these error conditions are present, the screen initially displays summary warning messages. You can view detailed messages by clicking the **Details** button.

It is recommended that you resolve all errors before committing the data to the library controller database.

Optionally, you can print the screen data or save it to a comma-separated file.

Caution – Information in the SL Console partition workspace is saved to the library controller database only through the **Commit (Step 4)** screen. If your SL Console session ends or you refresh the workspace data before you have committed your updates through

the **Commit (Step 4)** screen, you will lose any partition changes you have made through the **Summary (Step 2)** and **Design (Step 3b)** screens and all associated popups.

Caution – Screen Fields

Note – The screen fields are the same as those displayed in the [Partitions—Design \(Step 3b\)—Verify Results](#) popup.

Warnings found

Display only.

Summary error messages regarding the partition configuration.

The library is oversubscribed. Please unallocate *nnn* storage cells.

Display only.

Indicates that the total partition allocations currently exceed the library's activated capacity. *nnn* is the number of cells you must remove from partition allocations. The **Apply** button on the **Commit (Step 4)** screen remains deactivated until the total allocated cells is within the library's activated capacity.

The following hosts will need re-audited

Display only.

World Wide Port Names (WWPNs) of any hosts that should re-audit their library partition. This may be because library resources have been deleted from the partition.

The following hosts do not have Lun 0 set

Display only.

World Wide Port Names (WWPNs) of any hosts that have not defined any library partitions as LUN 0 on the host. This error applies to FC-SCSI host-partition connections only.

The following orphaned cartridges were found

Display only.

Detailed information regarding all orphaned cartridges in the current partition configuration. Includes library, rail, column, side, and row location of the cartridge, cartridge volume serial number (VOLID), and probable causes and explanations why the cartridge is orphaned.

Buttons

Print

Click to print the report on a selected printer.

Save

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

Yes

Click to confirm that you want to update the library controller database with the current settings from the SL Console workspace.

No

Click to cancel the update. The library controller database is not updated, but all partition changes from this login session are retained in the SL Console partition workspace.

Details

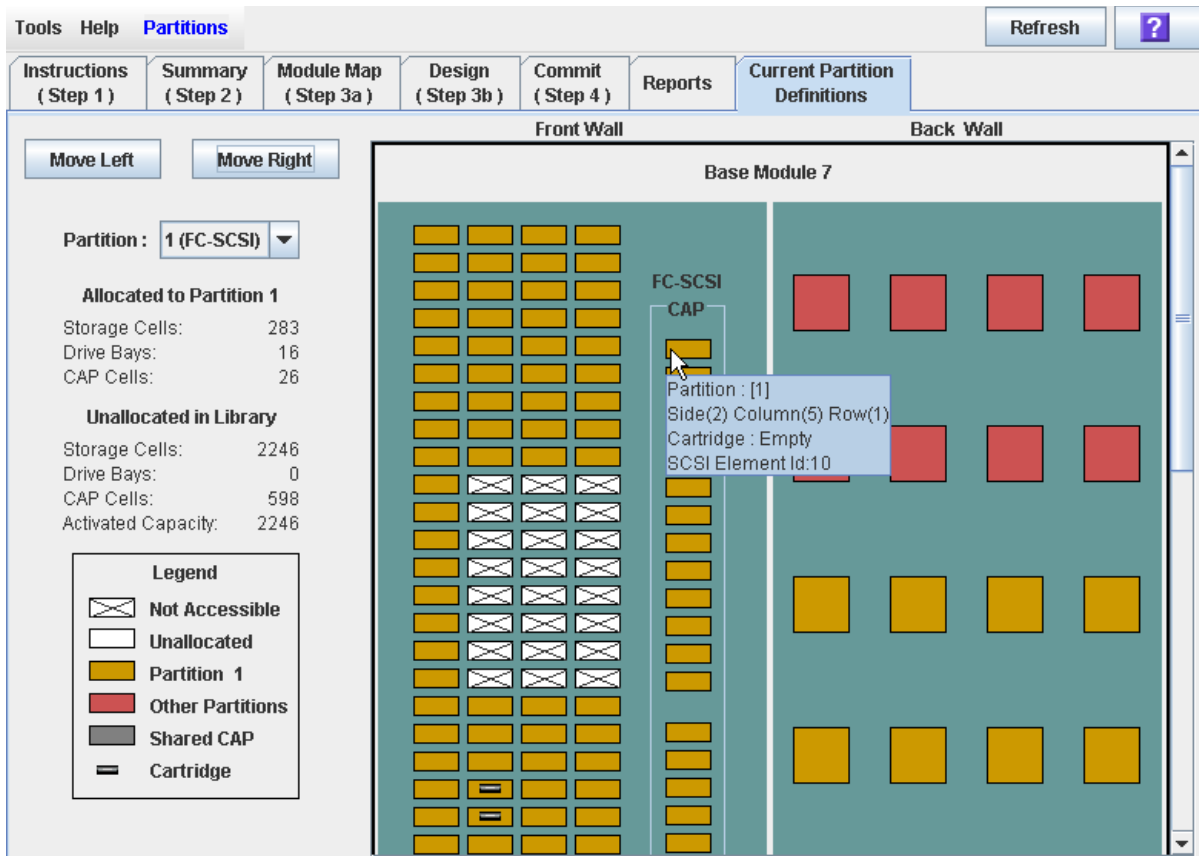
Click to toggle between the expanded and collapsed views of the warning message display.

See Also

- [Partitions—Commit \(Step 4\)](#)
- [Partitions—Design \(Step 3b\)—Verify Results](#)

Partitions—Current Partition Definitions

Sample Screen



Description

Displays current partition boundaries and allocations. This is the only Partitions screen that is available on the local operator panel.

Note – This screen is display only.

Screen Fields

For detailed descriptions of the screen fields, see one of the following sections:

- “Partitions—Design (Step 3b)” on page 276, for Base, Drive, and CEM modules
- “Partitions—Design (Step 3b) - AEMs Only” on page 282, for AEMs

Buttons

Refresh

Click to refresh the display with current data from the library controller database.

? (Help)

Click to display online help for the screen.

See Also

- [Partitions—Design \(Step 3b\)](#)
- [Partitions—Design \(Step 3b\) – AEMs Only](#)

Partition Report Screens

Screen	Page
Partitions—Reports	299
Partitions—Reports—Cartridge Cell and Media Summary	301
Partitions—Reports—Host Connections Summary	304
Partitions—Reports—Orphaned Cartridge Report	307
Partitions—Reports—Partition Details	310
Partitions—Reports—Partition Summary	314

Partitions—Reports

Sample Screen



Description

Allows you to select one of the following library partition reports:

- Cartridge Cell and Media Summary
- Host Connections Summary
- Orphaned Cartridge Report
- Partition Details
- Partition Summary

Note – The partition reports display data saved to the library controller database. If you have made partition configuration changes without committing the changes to the library controller through the **Commit (Step 4)** screen, the data in these reports will differ from data shown on the partition **Summary (Step 2)** and **Design (Step 3b)** screens.

Screen Fields

Please select a report to display

Required.

Click the report you want to display. The drop-down menu lists all available library partition reports.

Buttons

Refresh

Click to refresh the SL Console partition workspace with current data from the library controller database. All uncommitted partition changes you have made during this SL Console login session will be discarded. The **Partition Refresh** popup appears, prompting you to confirm the refresh.

? (Help)

Click to display online help for the screen.

See Also

- [Partitions—Summary \(Step 2\)](#)
- [Partitions—Design \(Step 3b\)](#)
- [Partitions—Commit \(Step 4\)](#)
- [Partitions—Reports—Cartridge Cell and Media Summary](#)
- [Partitions—Reports—Host Connections Summary](#)
- [Partitions—Reports—Orphaned Cartridge Report](#)
- [Partitions—Reports—Partition Details](#)
- [Partitions—Reports—Partition Summary](#)

Partitions—Reports—Cartridge Cell and Media Summary

Sample Screen

Tools Help **Partitions** ?

Instructions (Step 1) Summary (Step 2) Module Map (Step 3a) Design (Step 3b) Commit (Step 4) **Reports** Current Partition Definitions

NOTE: The reports in this menu reflect only the current partition definitions stored on the library. Any changes to the partition definitions made in the Design tab will be reflected in the reports only after they are committed.

Cartridge Cell and Media Summary ▼

Cell and Media Summary as of 7/23/09 1:27 PM

▼ Column	Side	Row	Partition ID	Partition Name	Element Type	Vol Ser	Cell Status	HLI / SCSI Address
-11	1	1	1	one	CELL		Active	2000
-11	1	2	1	one	CELL	1188900R	Active	2001
-11	1	3	1	one	CELL	LT3145L3	Active	2002
-11	1	4	1	one	CELL	DVT018T1	Active	2003
-11	1	5	1	one	CELL		Active	2004
-11	1	6	1	one	CELL		Active	2005
-11	1	7	1	one	CELL		Active	2006
-11	1	8	1	one	CELL		Active	2007
-11	1	9	1	one	CELL		Active	2008
-11	1	10	1	one	CELL		Active	2009
-11	1	11	1	one	CELL		Active	2010
-11	1	12	1	one	CELL		Active	2011
-11	1	13	1	one	CELL		Active	2012
-11	1	14	1	one	CELL		Active	2013

Print... Save To File...

Description

Displays detailed information about all library resources (storage cells, tape drives, and rotational or AEM CAP cells) and any stored cartridges.

Note – The partition reports display data saved to the library controller database. If you have made partition configuration changes without committing the changes to the library controller through the **Commit (Step 4)** screen, the data in these reports will differ from data shown on the partition **Summary (Step 2)** and **Design (Step 3b)** screens.

Note – AEM CAP cells are identified as follows: left AEM CAP cells are in columns “-33” to “-31”; right AEM CAP cells are in columns “31” to “33”.

Note – You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Optionally, you can print the screen data or save it to a comma-separated file.

Screen Fields

Column

Display only.

Column number where the library resource is located. Column location is referenced from the left edge of the Base Module. "+1" is to the right; "-1" is to the left.

Side

Display only.

Module side where the library resource is located. "1" is the back wall; "2" is the front wall.

Row

Display only.

Row number where the library resource is located. Rows are numbered consecutively from the top down, with row "1" at the top.

Partition ID

Display only.

Partition ID to which the library resource is allocated, if applicable.

Partition Name

Display only.

Name of the partition to which the library resource is allocated, if applicable. If the library has no defined partitions, "Non-Partitioned Library" is displayed.

Element Type

Display only.

Type of library resource. Options are:

- CAP (rotational or AEM)
- CELL
- DRIVE

Vol Ser

Display only.

Volume serial number (VOLID) of the cartridge resident in the library resource, if applicable.

Cell Status

Display only.

Capacity status of the library resource. Applies to storage cells only. Options are:

- Active – Cell is activated for use based on assigned capacity; can be used for cartridge storage.
- Inactive – Cell is not activated for use; cannot be used for cartridge storage.

HLI/SCSI Address

Display only.

Host address of the library resource. Format of the entry depends on the host-partition connection type (HLI or FC-SCSI).

- HLI – Format is eight digits in the following format. See [“HLI-PRC Address” on page 193](#) for additional details.

ll – Library number; always 0

pp – Column number

rr – Row number

cc – Column number

- FC-SCSI – Format is four digits. See [“Host SCSI Element Address” on page 192](#) for details.

Buttons

Print

Click to print the report on a selected printer.

Save to File

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

? (Help)

Click to display online help for the screen.

See Also

- [Partitions—Reports—Host Connections Summary](#)
- [Partitions—Reports—Orphaned Cartridge Report](#)
- [Partitions—Reports—Partition Details](#)
- [Partitions—Reports—Partition Summary](#)

Partitions—Reports—Host Connections Summary

Sample Screen

Tools Help **Partitions** ?

Instructions (Step 1) Summary (Step 2) Module Map (Step 3a) Design (Step 3b) Commit (Step 4) **Reports** Current Partition Definitions

NOTE: The reports in this menu reflect only the current partition definitions stored on the library. Any changes to the partition definitions made in the Design tab will be reflected in the reports only after they are committed.

Host Connections Summary

Host Connections as of 5/10/10 11:01 AM

Partition ID	Partition Name	Connection Type	Storage Cells	Media in Storage Cells	%Storage Cells w/ Media	Drives	CAP Cells	AEM Cells	Active Cells
1	Partition 1 -...	SCSI	216	21	9.72%	8	0	0	216
2	Partition 2 -...	HLI	60	0	0%	0	0	0	60

Host Connections (HLI Partitions do not have Host Connections)

Initiator WWPN	LUN	Partition ID
12:34:56:78:90:12:34:50	2	1
98:76:54:32:D1:09:87:65	3	1

Print... Save To File...

Description

Displays detailed information about all host-partition connections for the library.

Note – The partition reports display data saved to the library controller database. If you have made partition configuration changes without committing the changes to the library controller through the **Commit (Step 4)** screen, the data in these reports will differ from data shown on the partition **Summary (Step 2)** and **Design (Step 3b)** screens.

You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Optionally, you can print the screen data or save it to a comma-separated file.

Screen Fields

Partitions

Note – The screen fields in this section also appear on the [Partitions—Reports—Partition Summary](#) report.

Partition ID

Display only.

ID of the partition (1–8).

Partition Name

Display only.

Name of the partition.

Connection Type

Display only.

Type of interface used by the host-partition connection. Options are:

- HLI
- FC-SCSI

Storage Cells

Display only.

Total number of storage cells allocated to the partition.

Media in Storage Cells

Display only.

Total number of tape cartridges resident in the partition's storage cells.

% Storage Cells w/ Media

Display only.

Percentage of storage cells containing tape cartridges. Calculated as **Media in Storage Cells / Storage Cells**.

Drives

Display only.

Total number of drives allocated to the partition.

CAP Cells

Display only.

Total number of rotational CAP cells allocated to the partition.

AEM Cells

Display only.

Total number of AEM CAP cells allocated to the partition.

Active Cells

Display only.

Total storage cell capacity assigned to the partition in the **Add Partition** screen.

Host Connections

Initiator WWPN

Display only.

World Wide Port Name of an FC-SCSI host bus adapter (HBA) with a connection to the partition.

LUN

Display only.

Logical unit number of the library partition on the host.

Partition ID

Display only.

Partition ID to which the host has a connection.

Buttons

Print

Click to print the report on a selected printer.

Save to File

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

? (Help)

Click to display online help for the screen.

See Also

- [Partitions—Reports—Cartridge Cell and Media Summary](#)
- [Partitions—Reports—Orphaned Cartridge Report](#)
- [Partitions—Reports—Partition Details](#)
- [Partitions—Reports—Partition Summary](#)

Partitions—Reports—Orphaned Cartridge Report

Sample Screen

Tools Help **Partitions** ?

Instructions (Step 1) Summary (Step 2) Module Map (Step 3a) Design (Step 3b) Commit (Step 4) **Reports** Current Partition Definitions

NOTE: The reports in this menu reflect only the current partition definitions stored on the library. Any changes to the partition definitions made in the Design tab will be reflected in the reports only after they are committed.

Orphaned Cartridge Report

Column	Side	Row	Vol Ser	Explanation
6	1	46	DVT092T1	Unreachable from any h...
3	1	28	LT3181L3	Unreachable from any h...
-4	2	33	0018290R	Unreachable from any h...
-3	2	26	DVT113T1	Unreachable from any h...
3	1	24	ENG043L3	Unreachable from any h...
2	2	34	8TK335L3	Unreachable from any h...
-5	2	23	DVT110L3	Unreachable from any h...
-6	1	20	ENG015T1	Unreachable from any h...
7	2	12	LT3154L3	Unreachable from any h...
2	1	13	PQ1340L1	Unreachable from any h...
2	1	36	0000621S	Unreachable from any h...
-3	2	30	000037L1	Unreachable from any h...
-3	2	2	LT3182L3	Unreachable from any h...
-7	2	20	DVT095T1	Unreachable from any h...
6	1	14	EDW107L1	Unreachable from any h...
-9	2	14	DVT065L2	Unreachable from any h...
2	2	24	LT3155L3	Unreachable from any h...

Print... Save To File...

Description

Displays the locations and volume serial numbers (VOLIDs) of all orphaned cartridges in the library. Also identifies why the cartridge is orphaned.

Note – The partition reports display data saved to the library controller database. If you have made partition configuration changes without committing the changes to the library controller through the **Commit (Step 4)** screen, the data in these reports will differ from data shown on the partition **Summary (Step 2)** and **Design (Step 3b)** screens.

You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Optionally, you can print the screen data or save it to a comma-separated file.

Screen Fields

Column

Display only.

Column number where the orphaned cartridge is located. Column location is referenced from the left edge of the Base Module. "+1" is to the right; "-1" is to the left.

Side

Display only.

Module side where the orphaned cartridge is located. "1" is the back wall; "2" is the front wall.

Row

Display only.

Row number where the orphaned cartridge is located. Rows are numbered consecutively from the top down, with row "1" at the top.

Vol Ser

Display only.

Volume serial number (VOLID) of the orphaned cartridge.

Explanation

Display only.

Explanation of why the cartridge is orphaned.

Because this report is produced from the library controller database, the only option is:

- Unreachable from any host

Buttons**Print**

Click to print the report on a selected printer.

Save to File

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

? (Help)

Click to display online help for the screen.

See Also

- [Partitions—Reports—Cartridge Cell and Media Summary](#)
- [Partitions—Reports—Host Connections Summary](#)
- [Partitions—Reports—Partition Details](#)

- [Partitions—Reports—Partition Summary](#)

Partitions—Reports—Partition Details

Sample Screen

Tools Help **Partitions** ?

Instructions (Step 1) Summary (Step 2) Module Map (Step 3a) Design (Step 3b) Commit (Step 4) **Reports** Current Partition Definitions

NOTE: The reports in this menu reflect only the current partition definitions stored on the library. Any changes to the partition definitions made in the Design tab will be reflected in the reports only after they are committed.

Partition Details

Partition ID: 1

Details for Partition 1 as of 12/17/08 3:49 PM

Name	Value
Partition Name	Partition 1
Partition ID	1
Connection Type	HLI
Assigned Cells	390
Available Cells	1058
Occupied Cells	64
Active (Capacity Licensed) Cells	390
Assigned Drive Bays	8
Available Drive Bays	0
Number of Drives	0
Occupied Drives	0
Assigned CAP cells	0
Available CAP cells	52
Occupied CAP cells	0
Assigned AEM cells	0
Available AEM cells	0
Occupied AEM cells	0
% Cell Capacity (Assigned Cells/Total Cells)	20.17%

Print... Save To File...

Description

Displays detailed information for a selected partition.

Note – The partition reports display data saved to the library controller database. If you have made partition configuration changes without committing the changes to the library controller through the **Commit (Step 4)** screen, the data in these reports will differ from data shown on the partition **Summary (Step 2)** and **Design (Step 3b)** screens.

You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Optionally, you can print the screen data or save it to a comma-separated file.

Screen Fields

Partition Name

Display only.

Name of the partition.

Partition ID

Display only.

ID of the partition (1–8).

Bar Code

Display only.

Bar code format assigned to the partition.

Connection Type

Display only.

Type of interface used by the host-partition connection. Options are:

- HLI
- FC-SCSI

Assigned Cells

Display only.

Total number of storage cells allocated to the partition.

Available Cells

Display only.

Total number of storage cells in the library available for allocation to the partition.

Occupied Cells

Display only.

Total number of storage cells in the partition with tape cartridges present.

Activated Capacity

Display only.

Total storage cell capacity assigned to the partition in the **Add Partition** screen.

Assigned Drive Bays

Display only.

Total number of drive bays allocated to the partition.

Available Drive Bays

Display only.

Total number of drive bays in the library available for allocation to the partition.

Number of Drives

Display only.

Total number of installed tape drives allocated to the partition.

Occupied Drives

Display only.

Total number of installed tape drives in the partition with tape cartridges present.

Assigned CAP cells

Display only.

Total number of rotational CAP cells allocated to the partition through dedicated or shared CAPs.

Available CAP cells

Display only.

Total number of rotational CAP cells in the library available for allocation to the partition. This number includes all rotational and AEM CAP cells in the following:

- CAPs not allocated to any partition.
- CAPs not currently allocated to this partition, but allocated to other partitions with the same host interface type as this one.

This number excludes all rotational and AEM CAP cells in the following:

- CAPs currently allocated to this partition.
- CAPs allocated to partitions with a different host interface type.

Occupied CAP cells

Display only.

Total number of rotational CAP cells in the partition with tape cartridges present.

Assigned AEM cells

Display only.

Total number of AEM CAP cells allocated to the partition through dedicated or shared AEMs.

Available AEM cells

Display only.

Total number of AEM CAP cells in the library available for allocation to the partition. This number includes all AEM cells in the following:

- AEMs not allocated to any partition.
- AEMs not currently allocated to this partition, but allocated to other partitions with the same host interface type as this one.

This number excludes all AEM cells in the following:

- AEMs currently allocated to this partition.
- AEMs allocated to partitions with a different host interface type.

Occupied AEM cells

Display only.

Total number of AEM CAP cells in the partition with tape cartridges present.

% Cell Capacity (Assigned Cells/Total Cells)

Display only.

Percentage of storage cells in the library allocated to this partition. Calculated as:

Number of cells allocated to the partition / Total physical capacity of the library

Buttons

Print

Click to print the report on a selected printer.

Save to File

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

? (Help)

Click to display online help for the screen.

See Also

- [Partitions—Reports—Cartridge Cell and Media Summary](#)
- [Partitions—Reports—Host Connections Summary](#)
- [Partitions—Reports—Orphaned Cartridge Report](#)
- [Partitions—Reports—Partition Summary](#)

Partitions—Reports—Partition Summary

Sample Screen

Tools Help **Partitions** ?

Instructions (Step 1) Summary (Step 2) Module Map (Step 3a) Design (Step 3b) Commit (Step 4) **Reports** Current Partition Definitions

NOTE: The reports in this menu reflect only the current partition definitions stored on the library. Any changes to the partition definitions made in the Design tab will be reflected in the reports only after they are committed.

Partition Summary

Partitions as of 7/23/09 1:30 PM

Partition ID	Partition Name	Connectic Type	Storage Cells	Media in Storage Cells	%Storage Cells w/ Media	Drives	CAP Cells	AEM Cells	Active Cells
1	one	SCSI	793	101	12.74%	16	52	0	793
2	Two	SCSI	903	55	6.09%	24	26	0	903

Print... Save To File...

Description

Displays summary information for all partitions in the library.

Note – The partition reports display data saved to the library controller database. If you have made partition configuration changes without committing the changes to the library controller through the **Commit (Step 4)** screen, the data in these reports will differ from data shown on the partition **Summary (Step 2)** and **Design (Step 3b)** screens.

You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Optionally, you can print the screen data or save it to a comma-separated file.

Screen Fields

Note – These screen fields also appear on the [Partitions—Reports—Host Connections Summary](#) report.

Partition ID

Display only.

ID of the partition (1–8).

Partition Name

Display only.

Name of the partition.

Connection Type

Display only.

Type of interface used by the host-partition connection. Options are:

- HLI
- FC-SCSI

Storage Cells

Display only.

Total number of storage cells allocated to the partition.

Media in Storage Cells

Display only.

Total number of tape cartridges resident in the partition's storage cells.

% Storage Cells w/ Media

Display only.

Percentage of storage cells containing tape cartridges. Calculated as **Media in Storage Cells / Storage Cells**.

Drives

Display only.

Total number of drives allocated to the partition.

CAP Cells

Display only.

Total number of rotational CAP cells allocated to the partition.

AEM Cells

Display only.

Total number of AEM CAP cells allocated to the partition.

Active Cells

Display only.

Total storage cell capacity assigned to the partition in the **Add Partition** screen.

Buttons

Print

Click to print the report on a selected printer.

Save to File

Click to save the report to a designated comma-separated text file (.csv extension). Comma-separated files can be opened by a variety of spreadsheet and database programs.

? (Help)

Click to display online help for the screen.

See Also

- [Partitions—Reports—Cartridge Cell and Media Summary](#)
- [Partitions—Reports—Host Connections Summary](#)
- [Partitions—Reports—Orphaned Cartridge Report](#)
- [Partitions—Reports—Partition Details](#)

Partition CAP Operation Screens

[CAP Assignment](#)

[Diagnostics > CAP—Unreserve](#)


CAP Assignment

Sample Screen

Tools Help **CAP Assignment** Apply Refresh ?

Partition and CAP Assignment Two Step Process:

1. Select the partitions that you wish to have CAPs assigned to
2. Click 'Apply' to make the CAP assignment



Select	Partition Name	Partition ID	Connection Type	PEM	DEM	Base	PEM
<input type="checkbox"/>	Partition 1	1	scsi			X	
<input checked="" type="checkbox"/>	Partition 2	2	scsi			X	
<input checked="" type="checkbox"/>	Partition 3	3	scsi		X		

Shared CAP Assignment Rules:

1. If the partition is grayed out but not selected, then either:
 - a. No CAPs have been assigned to the partition
 - b. Another partition who shares the same CAP has that CAP in use
 - c. CAP ownership by another partition has been assumed by default due to a cartridge being moved to the CAP
 - d. The corresponding partition is of type HLI
2. To successfully assign a partition to its CAP(s), the partition must be able to gain exclusive access to the CAPs that are assigned to it.
3. CAP Assignments do not persist across library changes for any of the following :
 - a. CAP Resets
 - b. Door Opens
 - c. Library Reboots
 - d. Partition Changes

Description

Allows you to perform either of the following actions:

- For shared FC-SCSI CAPs only, you can perform partition-CAP associations prior to using the CAP to enter or eject cartridges to or from a partition. Partition-CAP associations reserve a shared FC-SCSI CAP for the exclusive use of the selected partition. All shared CAPs are modified in the same way; it is not possible to modify control of just one shared CAP.
- For all FC-SCSI CAPs (shared or dedicated), you can give control of a CAP to the library controller for diagnostic operations.

Modifications made with this screen remain in effect until they are explicitly removed.

Note – This screen is not available if the library has no FC-SCSI CAPs.

Note – This screen is used for both rotational and AEM CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

The following rules apply when using this screen:

- You can use this screen for shared FC-SCSI CAPs only. You cannot use this screen for HLI partitions because HLI host applications always use CAP reservations.
- You do not need to use this screen for dedicated CAPs because a partition always has ownership of its dedicated CAPs.
- You can associate only one partition at a time to a CAP.
- Selecting a partition causes all its allocated CAPs to be associated to it at once; you cannot select individual CAPs to be associated to the partition.
- Partition-CAP associations remain active until you explicitly remove them; the associations are not automatically removed when the enter or eject operation completes.
- Partition-CAP associations are removed during library reboots, power cycles, library door open/close operations, or CAP initializations
- Partition-CAP associations are removed if the CAP becomes allocated to a different partition through the **Design (Step 3b)** screen.
- If a partition-CAP association is removed while the CAP is open or has cartridges in it, the CAP ownership will be changed to the “default” requester (the library controller), and the CAP will be unavailable to all partitions. You must empty and close the CAP before it can be associated to any partitions.

See [“Enter Cartridges Into a Partition” on page 246](#) and [“Eject Cartridges From a Partition” on page 247](#) for complete details on using this screen in conjunction with the **CAP Open** button.

Screen Fields

Select

Select one or more partitions for which you want to enter or eject cartridges, as follows:

- Click the checkbox to select the partition; the screen is updated as follows:
 - All CAPs allocated to that partition are marked with the partition number on the module map.
 - All other partitions sharing CAPs with that partition are grayed out.
- Clear the checkbox to de-select the partition.

Partitions that are grayed out cannot be selected. A partition may be grayed out for any of the following reasons:

- No CAPs have been allocated to the partition.
- The partition has an HLI host-connection type.
- The CAP is currently in use by another partition that shares the CAP.

- The CAP is currently in use by the “default” user (library operator).

Partition Name

Display only.

Name assigned to the partition.

Partition ID

Display only.

ID assigned to the partition. IDs can range from 1–8.

Connection Type

Display only.

Type of interface assigned to the host-partition connection. Options are:

- HLI
- FC-SCSI

Library module map

Display only.

The screen displays an illustration of the library’s actual module configuration. This information is taken directly from the library controller database.

The CAP allocations for each partition are indicated, as follows:

- An “X” in a library module column indicates the CAP in that module is allocated to the partition in that row.
- No “X” in a library module column indicates the CAP in that module is not allocated to the partition in that row.

Buttons**Apply**

Click to update the library controller database with the current settings from this screen. The **CAP Confirm** popup appears, prompting you to confirm the update.

Refresh

Click to refresh the SL Console partition workspace with current data from the library controller database. All uncommitted partition changes you have made during this SL Console login session will be discarded. The **Partition Refresh** popup appears, prompting you to confirm the refresh.

? (Help)

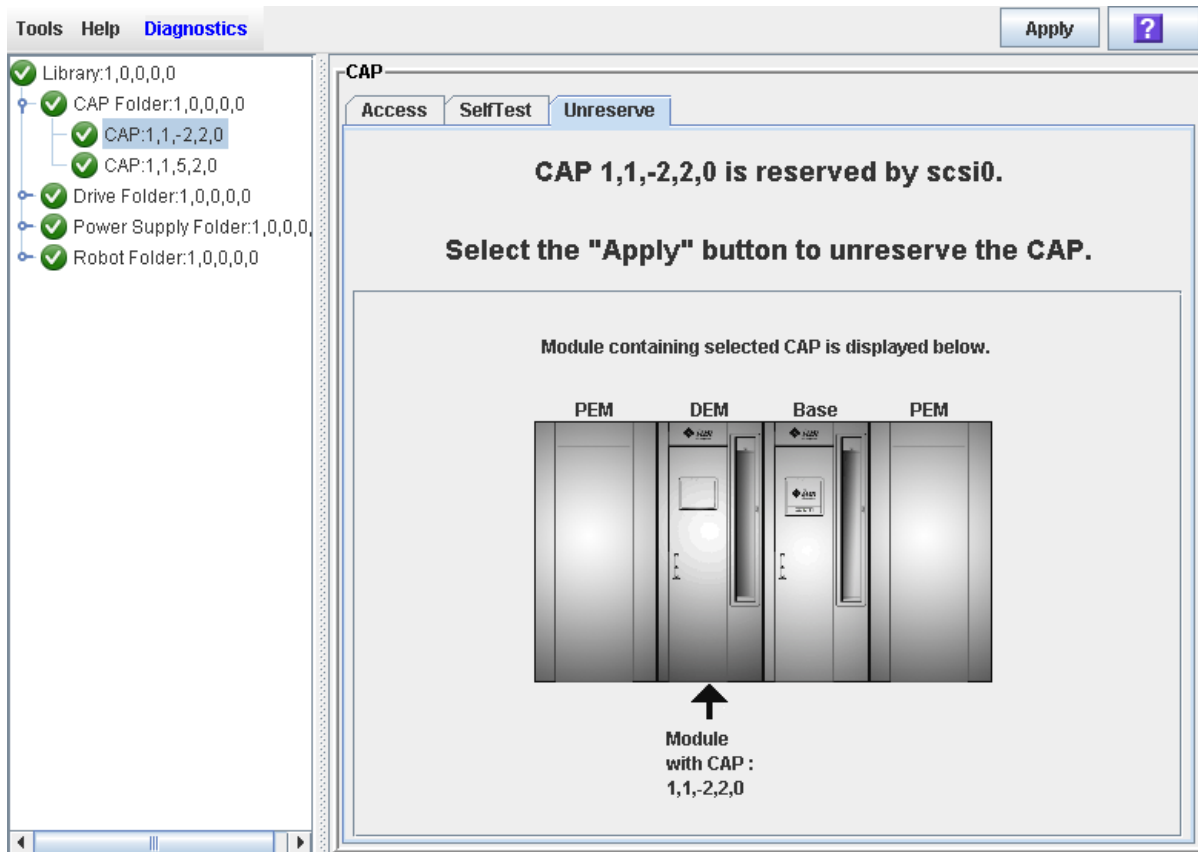
Click to display online help for the screen.

See Also

- [Partitions—Design \(Step 3b\)](#)

Diagnostics > CAP—Unreserve

Sample Screen



Description

Allows you to override a CAP reservation that has been initiated by a host. This causes the library controller to remove the CAP reservation and set the CAP user to "default," which makes the rotational or AEM CAP unavailable to all partitions.

After overriding the reservation you will need to open the CAP and remove any cartridges. After you close the CAP, the library controller will lock and audit the CAP to verify that it is empty. It will then set the CAP status to "unreserved," which makes the CAP available to all partitions.

Note – For FC-SCSI CAPs, overriding a CAP reservation breaks any partition-CAP association, even if the CAP is dedicated to the FC-SCSI partition. You must explicitly associate the partition to the CAP again before the partition can use the CAP.

Note – This screen is used for both rotational and AEM CAPs. Throughout this section, the term "CAP" refers to both types of CAPs.

See ["Override a CAP Reservation" on page 249](#) for the detailed procedure.

Screen Fields

CAP CAP_id is *status*.

Display only.

Status of the selected CAP. Possible options are:

- reserved by *host_name* – A CAP operation has been initiated by the specified host; you can use this screen to unreserve the CAP.
- reserved by default – A CAP operation has been initiated at the SL Console; you cannot use this screen to unreserve the CAP.
- not reserved – The CAP is not reserved; you do not need to unreserve the CAP.

Module containing selected CAP is displayed below

Display only.

The screen displays an illustration of the library's actual module configuration. This information is taken directly from the library controller database.

The CAP you have selected is marked by an arrow.

Buttons

Apply

Click to override the host CAP reservation. The **CAP Confirm** popup appears, prompting you to confirm the update.

Note – This button is active only if the CAP status is "reserved by *host_name*".

? (Help)

Click to display online help for the screen.

See Also

- [CAP Assignment](#)

Library Management

Automated Mode of Operation

When in automated mode of operation, the library automatically mounts and dismounts cartridges without physical intervention by a person.

Automated operations include the following activities:

- Mounting and dismounting cartridges
- Entering and ejecting cartridges through a rotational or optional AEM CAP
- Logging library events
- Drive cleaning

Cartridge Mount and Dismount Activities

The primary function of the library is the automated mounting and dismounting of cartridges. Host mount and dismount commands are accepted by the library controller and translated into robotic commands that are performed by the TallBots.

Mount Sequence

A simplified mount sequence involves the following steps:

1. A host requests that a specific volume serial number (VOLID or volser) be mounted in a drive.
2. The library controller transmits to the host that the VOLID is located within the library and a drive is available to satisfy the mount request.
3. The library assumes responsibility for the mount.
4. The host command is translated by the library controller into motion commands for the TallBot.
5. The cartridge is taken from its storage cell and placed in the drive.
6. The library returns status to the host that the mount operation is completed.
7. The drive performs the read/write activity directed by the host.

Dismount Sequence

A simplified dismount sequence involves the following steps:

1. A host requests that a specific VOLID be dismounted from a drive.
2. The library controller transmits to the host that the VOLID is located in the drive and the library is available to satisfy the dismount request.
3. The library assumes responsibility for the dismount.
4. The host command is translated by the library controller into mechanical commands for the TallBot.
5. The cartridge is taken from the drive and placed into its home cell.
6. The library returns status to the host that the dismount operation is completed.

Determining When the Library is Not in Automated Mode

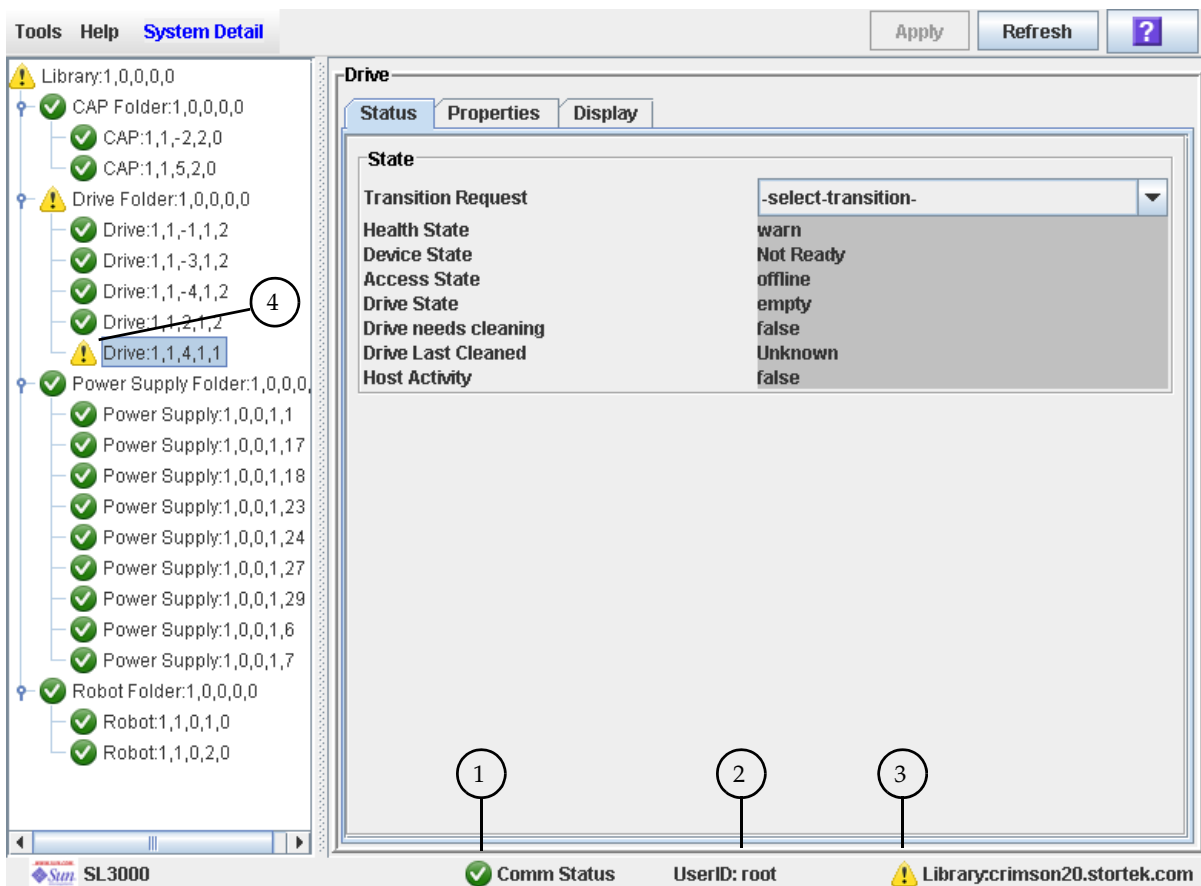
The library is not in automated mode when it is not able to accept host requests. The following conditions indicate that the library is not in automated mode:

- A library main access door is open.
- The TallBot does not automatically mount and dismount cartridges.
- The device tree in the SL Console indicates that there is a problem with the library.



Library and Device Status





The SL Console screen displays health indicators for each of the following devices:

- Library
- Rotational and AEM CAPs
- Drives
- Power supplies
- Robot(s)
- AEM safety doors



The following table describes the health monitor indicators.

Indicator	Description
1	<p>Comm Status</p> <p>Current status of the communication channel between the SL Console and the library controller. Possible icons are:</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <p>Normal communications. The heartbeat monitor flashes periodically when the SL Console is communicating normally with the library controller.</p> </div> <div style="display: flex; align-items: center;">  <p>A warning. This icon appears when the server response takes longer than 10 seconds.</p> </div> </div>

Indicator	Description
	 An error. This icon appears when the server response takes longer than 30 seconds.
2	Userid Userid currently logged in to the SL Console.
3	Library Library to which the SL Console is connected, and a graphical representation of the current health of the library and its devices. Possible icons are:  All library devices are functioning normally.  A warning. One or more devices in the library is offline or operating in a degraded state.  An error. One or more devices in the library has experienced a failure.
4	Device health icon Current status of the indicated device. If a device type indicator is yellow or red, you can expand the device folder to display the individual device health icons and then display details on the specific devices that are experiencing abnormal conditions.

The library health indicator (3) also reflects status alerts, which are messages about significant issues with the library firmware or configuration status. These messages can be displayed and managed on the **Status Module** screen, if Service is active on the library. See [“Status Alert Messages” on page 332](#) for details.

If there are multiple problems with a device or status alert conditions, the health indicator reflects the one that is most severe. For example, if the library has been varied offline (a “yellow” condition) and a CAP has experienced a failure (a “red” condition), the library health indicator will be red. Fixing the CAP problem will cause the library health indicator to change to yellow. The indicator will not return to green until the library has also been varied online.

Communications Failures

If the SL Console loses communication with the library controller, after about 30–60 seconds, the heartbeat monitor turns gray, then red, and the following error message appears:

```
Heartbeat message not received from the library controller.
```

You must log off from the SL Console and then log on again to restore communication.

Host Interface Type

The SL3000 supports the following control path interface options:

- HLI (TCP/IP) – TCP/IP protocol using Ethernet 10/100 Base-T and CAT-5 cables
- FC-SCSI – SCSI-3 protocol and command set over a physical Fibre Channel interface

See [“Library Control Path” on page 52](#) for details.

Non-Partitioned Libraries

In non-partitioned libraries, all hosts must use the same interface type to connect to the library.

You can display the interface type on the **System Detail > Status > General** screen.

You can change the interface type through the [Select Active Cells > Select Active Cells](#) screen.

Partitioned Libraries

In partitioned libraries, both the FC-SCSI and HLI host interface types can be used; each partition must use one or the other. When you create a new partition, you specify which interface type it uses. All hosts within a partition use the same interface type.

For complete details, see [“Host-Partition Connections” on page 189](#).

Special Library Configuration Options

The **Library Configuration** screen provides the following configuration options. In partitioned libraries, these options can be configured separately for each partition.

Barcode Presentation

Note – This option applies only to FC-SCSI libraries or partitions.

This feature controls which part of a cartridge barcode the library passes to FC-SCSI host applications. Options are:

- all – All eight barcode characters are passed to host applications.
- left6 – Only the six VOLID characters, which are on the left side of the barcode, are passed to host applications. The domain and type characters, which are the two characters on the right, are not passed. This is the default setting.

See the following sections for details:

- [“Barcode Presentation” on page 414](#)
- [“Configure Barcode Presentation in a Non-Partitioned FC-SCSI Library” on page 423](#)
- [“Configure Cartridge Barcode Presentation for an FC-SCSI Partition” on page 425](#)

SCSI FastLoad

Note – This option applies only to FC-SCSI libraries or partitions.

This feature controls the criteria by which cartridge mounts are considered complete. Options are:

- Checked – Turns SCSI FastLoad on. A cartridge mount is considered complete as soon as the drive indicates that it has accepted the cartridge.
- Unchecked – Turns SCSI FastLoad off. A cartridge mount is considered complete only after the cartridge has been loaded and threaded in the drive and the drive indicates that it is ready for read/write operations. This is the default setting.

See the following sections for details:

- [“SCSI FastLoad Feature” on page 465](#)
- [“Configure SCSI FastLoad in a Non-Partitioned Library” on page 468](#)
- [“Configure SCSI FastLoad for a Partition” on page 470](#)

Library Auto Clean

Note – This option applies to FC-SCSI and HLI libraries or partitions.

This feature controls the management of cleaning cartridge and drive clean functions. Options are:

- **Checked**—Turns library auto clean on. All cleaning cartridge and drive clean functions are managed by the library controller.
- **Unchecked**—Turns library auto clean off. All cleaning cartridge and drive clean functions are managed by host applications, such as ACSLS or ELS, or by direct-attach applications, such as Symantec and NetBackup.

See the following sections for details:

- [“Library Auto Clean” on page 444](#)
- [“Host-Managed Tape Cleaning” on page 445](#)

Status Alert Messages

Note – This feature is available only if the Service is active on the library.

The library Status Module provides a centralized mechanism for displaying and managing library status alerts, which are messages about significant issues with the library firmware or configuration. Status alerts also appear in the library Event Log, but they may become “buried” in the volume of messages there. The **Status Module** screen highlights significant messages, making it easier for you to identify and resolve certain problems.

Following are examples of status alert messages that may appear on the Status Module screen:

- Redundant robots have been installed, but the Dual Robot hardware activation key is not active
- An invalid partition configuration has been detected

The **Status Module** screen does not include messages about device issues, because details about them are displayed in the respective device status screens (**CAP Status**, **Drive Status**, etc.)

A status alert message also causes the library health indicator to change to yellow or red, depending on the severity of the issue. See [“Library and Device Status” on page 327](#) for details.

Related Procedures

See the following procedures for details about managing status alert messages:

- [“Display Library Status Alerts” on page 335](#)
- [“Clear Library Status Alerts” on page 338](#)

Library Management Tasks

Task	Page
Display Library Status	334
Display Library Status Alerts	335
Clear Library Status Alerts	338
Display Library Events Statistics	356
Display HLI Port Status	340
Display HLI Port Status	340
Display Library Configuration Properties	343
Display Library Controller Properties	346
Display Drive Controller Properties	347
Change the Library Interface Type (Non-Partitioned Libraries)	348
Display the "Last 24 Hours" Library Energy Monitor Report	350
Display the "Last Month" Library Energy Monitor Report	352
Display the "Last Year" Library Energy Monitor Report	354

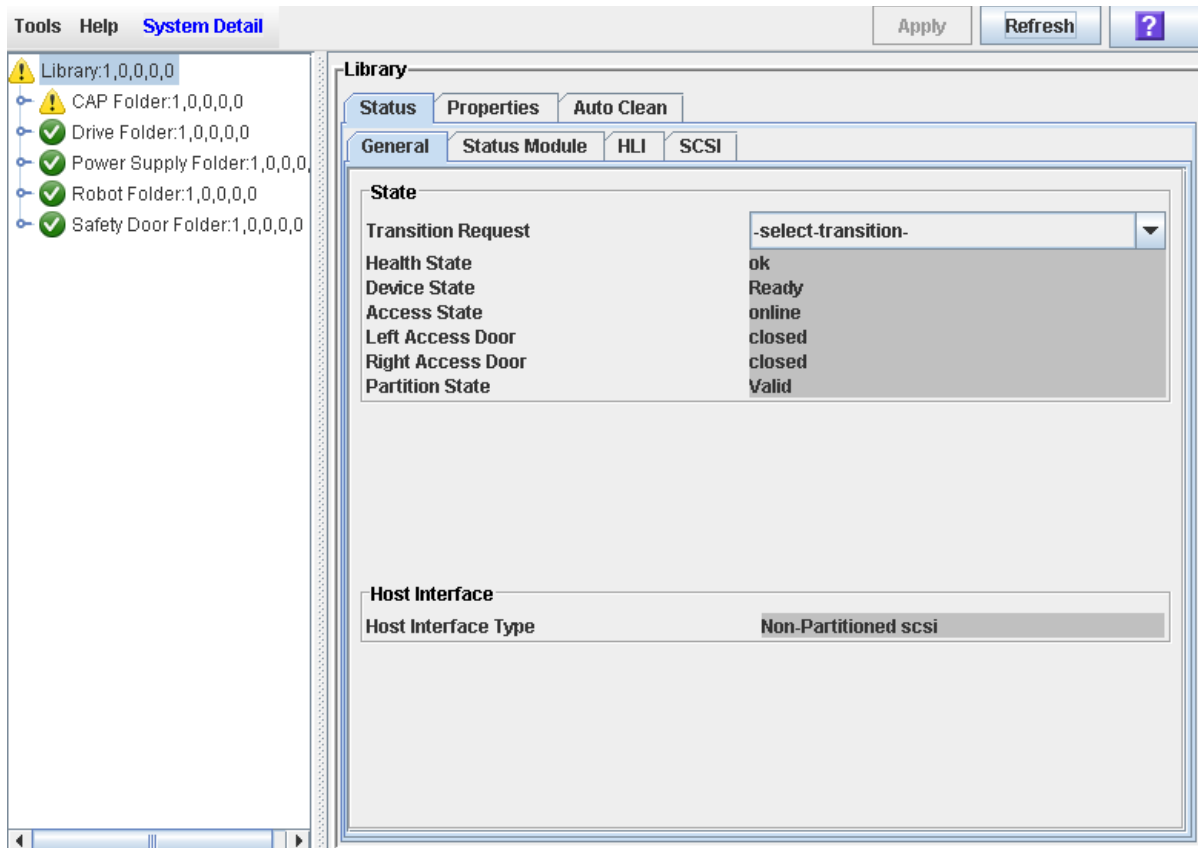
▼ Display Library Status

Use this procedure to view the current operational state of the library. These values are updated whenever there is host activity, background operations, or operator activity.

Note – This information is also available through **Reports > Library Details**. See [“Display a Library Report” on page 86](#) for detailed instructions.

1. Select **Tools > System Detail**, and click the **Library** folder.
2. Click the **Status** tab, and then the **General** tab.

The screen displays the current status of the library.



▼ Display Library Status Alerts

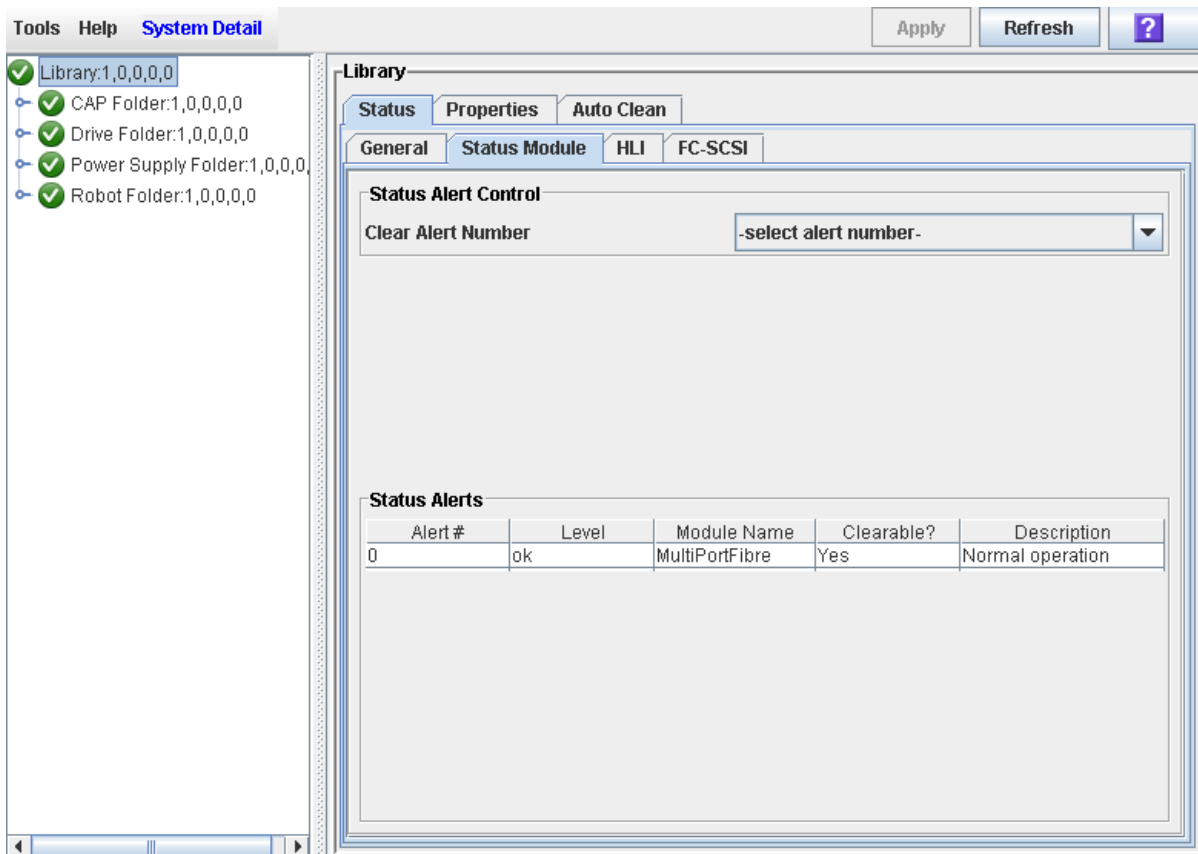
Note – This feature is available only if Service is active on the library.

Note – If Service is not active on the library, then this screen will be blank except for a message indicating that the “Service activation is not valid.”

Use this procedure to display library status alerts, which can help you to identify whether there are any current or pending issues with the library firmware or configuration. You might perform this procedure whenever the library health indicator has changed from green, to yellow or red, indicating a warning or error.

1. Select Tools > System Detail, and click the Library folder.
2. Click the Status tab, and then the Status Module tab.

The screen displays all library status alerts.



Screen Fields

Clear Alert Number

Optional.

Status alert message you want to clear from the display.

The pull-down displays numbers 0–20. Although you can select any one of these, only the numbers that correspond to clearable alert messages shown in the display will actually cause a message to be cleared.

Alert #

Display only.

Sequential number assigned to the status alert message.

Level

Display only.

Severity level of the status alert message. Options are:

- OK – The firmware module is functioning normally.
- Information – Information message; the firmware module is functioning normally.
- Warning – The firmware module is operating in a degraded state; may indicate a future failure is possible.
- Error – The firmware module has experienced a failure.

Module Name

Display only.

Library controller firmware module that is affected by the message.

Clearable?

Display only.

Indicates whether the status alert message can be manually cleared from the display. Options are:

- Yes – Message can be cleared, and the firmware module status will be returned to OK.
- No – Message cannot be cleared. Generally, OK and Information messages cannot be cleared.

Description

Display only.

Full description of the status alert message.

Buttons**Apply**

Click to clear the selected alert message from the Status Module display. The firmware module status is returned to OK, and the library health indicator is updated.

Note – If the alert message is updated periodically, it will reappear with the next update cycle.

Refresh

Click to refresh the display with current data from the library controller database.

▼ Clear Library Status Alerts

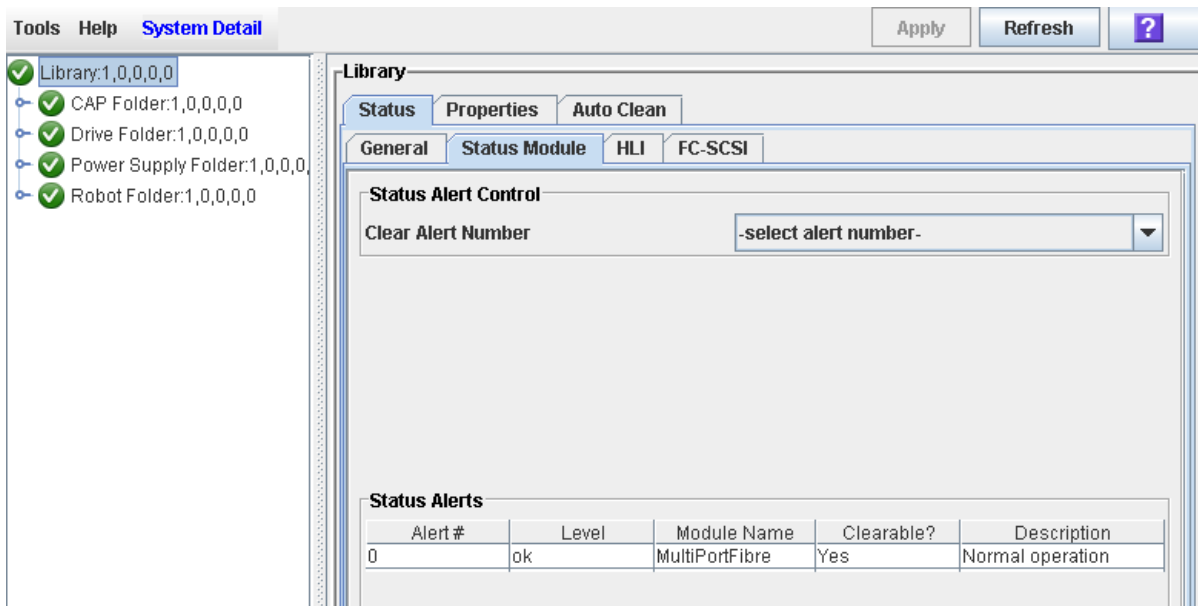
Note – This feature is available only if Service is active on the library.

Use this procedure to clear a library firmware status alert. Not all alerts can be cleared.

Note – Clearing an alert only removes it from this screen display. It does not resolve the underlying issue.

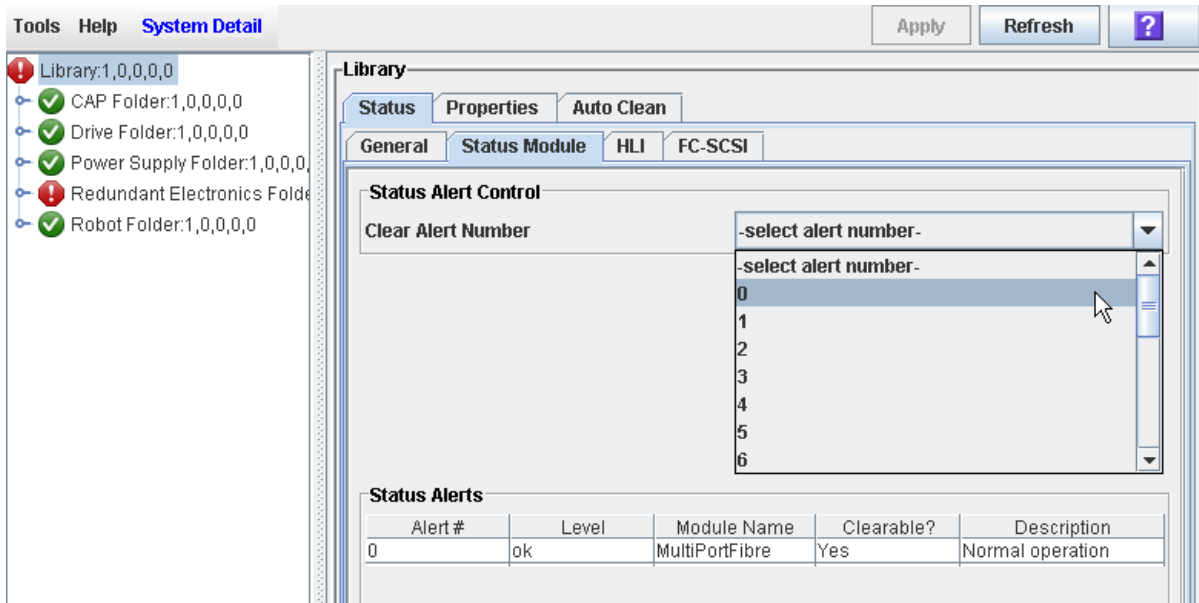
1. Select Tools > System Detail, and click the Library folder.
2. Click the Status tab, and then the Status Module tab.

The screen displays all library status alerts.



3. On the Clear Alert Number pull-down, select the alert number that you want to clear from the display, and Click Apply.

Note – Although you can select any alert number, only alerts marked as “Clearable” can actually be cleared.



The alert is removed from the Status Module display. The library health indicator returns to green if there are no other device or status alerts.

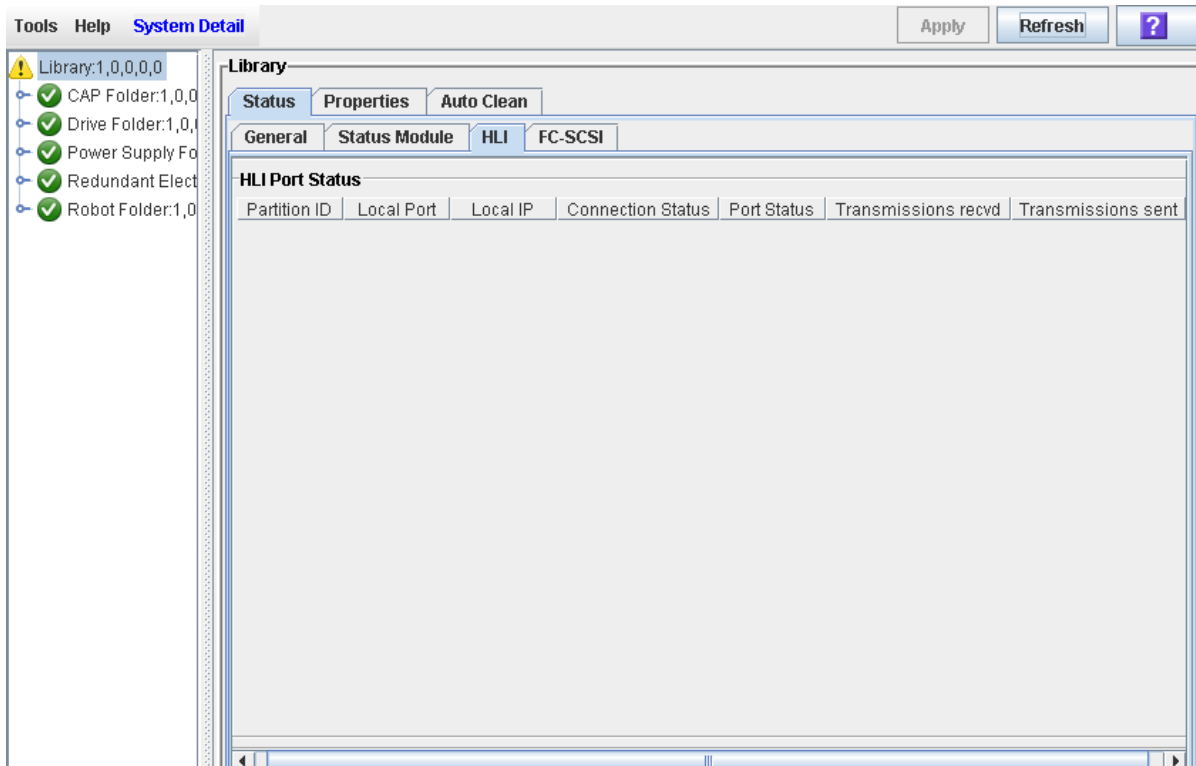
Note – If the alert is subject to periodic updates, it will reappear at the next update cycle.

▼ Display HLI Port Status

Use this procedure to display the current status of all host LMU (library management unit) HLI interface ports on the library. Information includes the local TCP/IP socket, local IP, connection status, port status, transmission sent and received from the time of connection.

1. Select **Tools > System Detail**, and click the **Library** folder.
2. Click the **Status** tab, and then the **HLI** tab.

The screen displays the current status and activity of all HLI ports on the library.



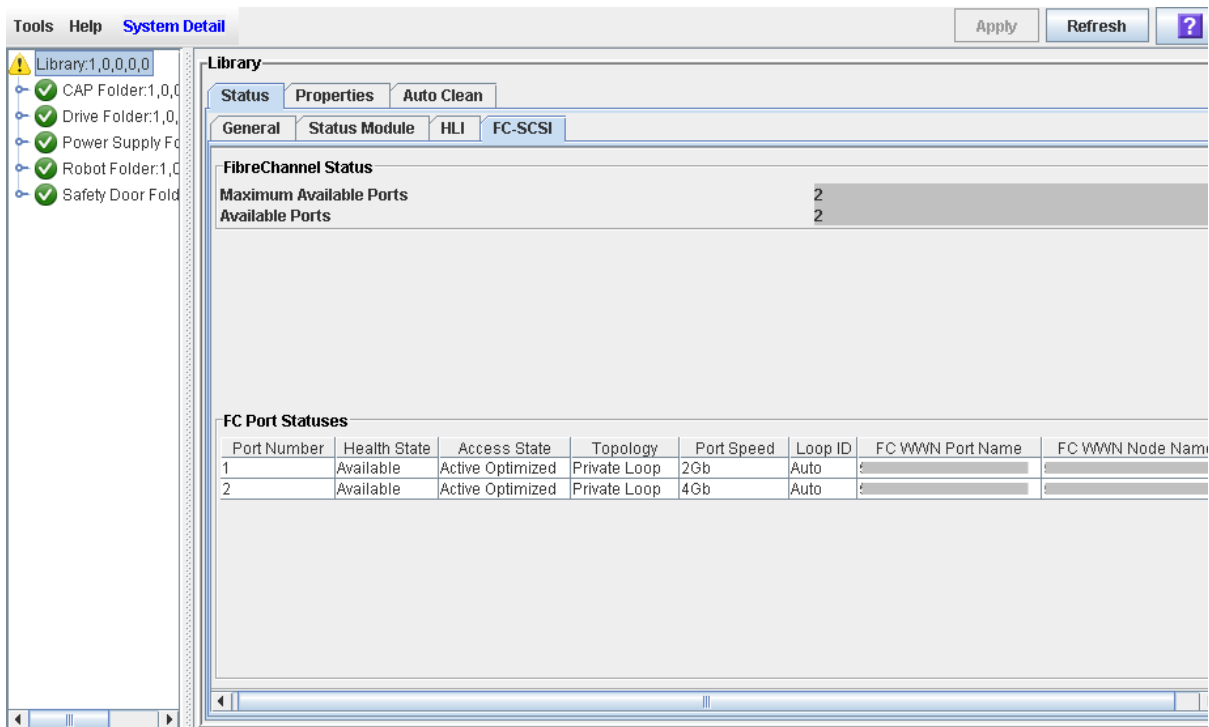
▼ Display FC-SCSI Port Status

Use this procedure to display the current status of all host FC-SCSI interface ports on the library. Detailed information is shown by port number.

If the Multi Port Fibre feature has been activated on the library, then detail is shown for all ports.

1. Select **Tools > System Detail**, and click the **Library** folder.
2. Click the **Status** tab, and then the **SCSI** tab.

The screen displays the current status and properties of all FC-SCSI ports on the library.



Screen Fields

Maximum Available Ports

Total number of host-library ports the library is enabled to use. Options are:

- 1 – Library is enabled for one port
- 2 – Library is enabled for two ports. Indicates the library Multi Port Fibre feature is enabled.

Available Ports

Total number of host-library ports that are installed in the library. Options are:

- 1 – Standard FC-SCSI card is installed; this provides one port
- 2 – FC-SCSI multi-port card is installed; this provides two ports

Port Number

Unique port identifier. This a digit from 1 to 4.

Health State

Current health state of the port. Options are:

- Available – The port is enabled and available for host connections.
- Disabled – The port is not enabled for operations.
- Not Activated – The port is not activated because the Multi Port Fibre Channel feature has not been enabled on the library.

Access State

Current accessibility state of the port. Options are:

- Active/Optimized – The port is operating normally.
- Unavailable – The port may be disconnected or experiencing a failure.

Topology

Topology of the port connection. Options are:

- Private Loop
- Public Loop
- Point to Point
- Fabric
- Unknown – The port may be disconnected, not enabled, or experiencing a failure.

Port Speed

Speed of the port connection. Options are:

- 2 Gb – 2 gigabits per second
- 4 GB – 4 gigabits per second
- 8 Gb – 8 gigabits per second
- 0 Gb – indicates the library controller is unable to communicate with the port

Loop ID

Loop ID for the port.

FC WWN Port Name

World Wide Port Name (WWPN) for the port.

FC WWN Node Name

World Wide Node Name (WWNN) for the node that the port is on.

▼ Display Library Configuration Properties

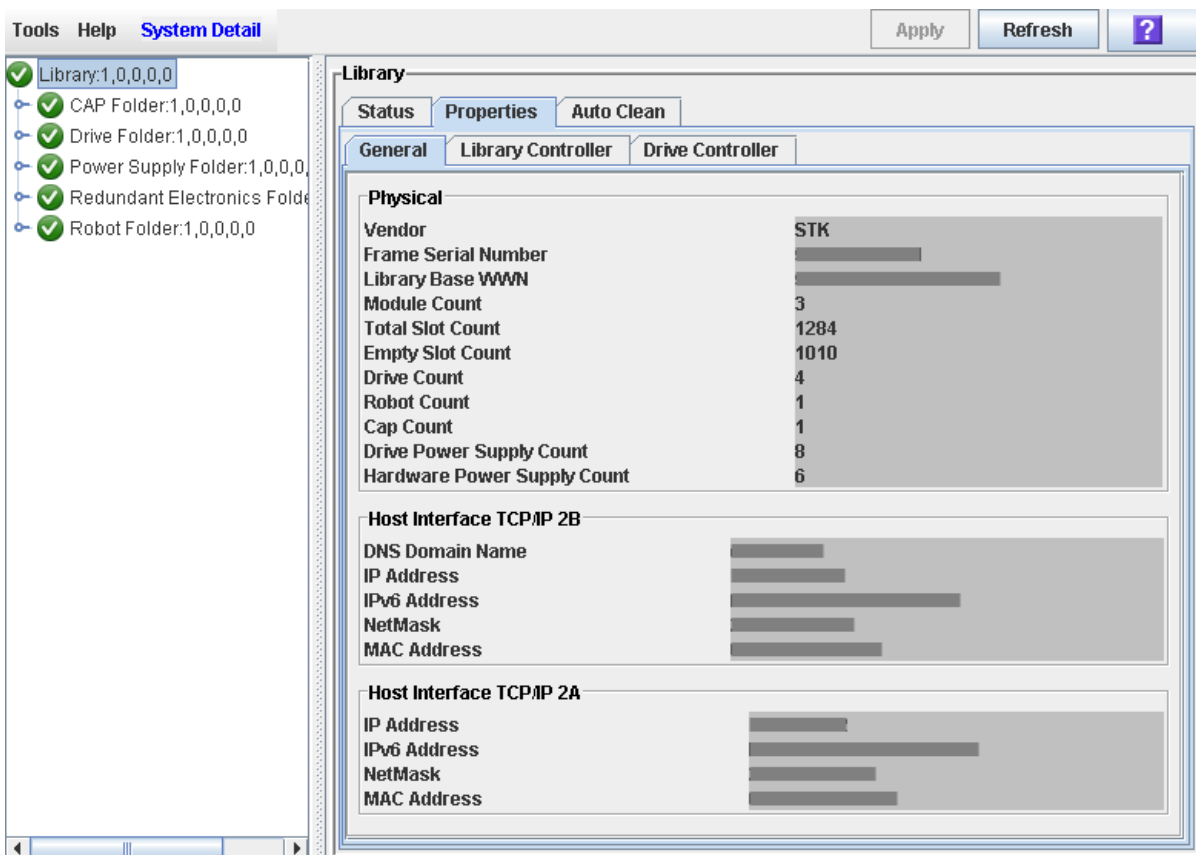
Use this procedure to display the physical, mechanical, and logical configuration of the library. Some of the information can be set up automatically during library initialization, while other information can be defined by the user.

This screen also displays details for the TCP/IP host interface, including the library DNS domain name, IP address, netmask, and MAC address.

Note – This information is also available through **Reports > Library Information**. See [“Display a Library Report”](#) on page 86 for detailed instructions.

1. Select **Tools > System Detail**, and click the **Library** folder.
2. Click the **Properties** tab, and then the **General** tab.

The screen displays detailed information about the library.



Screen Fields

Vendor

Vendor is STK, for Oracle StorageTek.

Frame Serial Number

Serial number of the library base module.

Library Base WWN

World Wide Node Name (WWNN) for the library.

Module Count

Total number of modules in the library.

Total Slot Count

Total number of physical storage cells installed in the library. Includes data cartridge cells as well as reserved system cells. Not all of these cells may be enabled for use, however. See [“Display Current Hardware Activation Files” on page 122](#) for details on displaying the number of cells that are actually enabled.

Empty Slot Count

Total number of unoccupied data storage cells.

Drive Count

Total number of drives installed.

Robot Count

Total number of robots installed.

Cap Count

Total number of CAPs (cartridge access ports). This includes rotational and AEM CAPs.

Drive Power Supply Count

Total number of drive power supplies installed.

Hardware power Supply Count

Total number of power supplies installed for library robotics and electronics.

Host Interface TCP/IP 2B

These fields apply to the standard TCP/IP port.

DNS Domain Name

DNS domain name assigned to the library.

IP Address

IPv4 (IP version 4) address for the port, if applicable.

IPv6 Address

IPv6 (IP version 6) address for the port, if applicable.

NetMask

Netmask defined for the subnet that the port is on.

MAC Address

MAC address for the port.

Host Interface TCP/IP 2A

These fields have values only if the Dual TCP/IP feature is installed and enabled on the library. They apply to the optional TCP/IP port.

IP Address

IPv4 (IP version 4) address for the port, if applicable.

IPv6 Address

IPv6 (IP version 6) address for the port, if applicable.

NetMask

Netmask defined for the subnet that the port is on.

MAC Address

MAC address for the port.

▼ Display Library Controller Properties

View details of the library controller, including the serial number and firmware versions.

Note – This information is also available through **Reports > Library Information**. See [“Display a Library Report”](#) on page 86 for detailed instructions.

1. Select **Tools > System Detail**, and click the **Library** folder.
2. Click the **Properties** tab, and then the **Library Controller** tab.

The screenshot shows a software interface with a menu bar (Tools, Help, System Detail) and buttons for Apply, Refresh, and a help icon. A tree view on the left shows the following structure:

- Library:1,0,0,0,0
 - CAP Folder:1,0,0,0,0
 - Drive Folder:1,0,0,0,0
 - Power Supply Folder:1,0,0,0,0
 - Robot Folder:1,0,0,0,0

The main window displays the 'Library' section with tabs for Status, Properties, and Auto Clean. The 'Library Controller' tab is active, showing the following information:

Library Controller

Model	SL3000
FRU Serial Number	HBCR 74000293

Code Version

Name	Executing Version	Flash Version
build_version	FRS_2.31 (5.12.00)	FRS_2.31 (5.12.00)
controller.cramfs	5.11.12	5.11.12
disk.hbc.plmage	5.10.71	5.10.71
jre.cramfs	4.83.07	4.83.07
kernel.plmage	4.75.15	4.75.15
libs.cramfs	4.87.10	4.87.10
snmp.tarball	5.11.22	5.11.22
u-boot.bin	1.00.10	1.00.10

▼ Display Drive Controller Properties

View details of the drive controller, including the serial number and current firmware versions.

Note – This information is also available through **Reports > Library Information**. See [“Display a Library Report” on page 86](#) for detailed instructions.

1. Select **Tools > System Detail**, and click the **Library** folder.
2. Click the **Properties** tab, and then the **Drive Controller** tab.

The Drive Controller screen appears.

The screenshot shows a software interface with a menu bar (Tools, Help, System Detail) and buttons for Apply, Refresh, and a help icon. On the left is a tree view with folders: Library:1,0,0,0,0 (warning icon), CAP Folder:1,0,0,0,0 (checkmark), Drive Folder:1,0,0,0,0 (checkmark), Power Supply Folder:1,0,0,0,0 (warning icon), and Robot Folder:1,0,0,0,0 (checkmark). The main area is titled 'Library' and has tabs for Status, Properties, and Auto Clean. Under Properties, there are sub-tabs for General, Library Controller, and Drive Controller. The Drive Controller tab is active, showing 'Drive Controller Properties' with 'FRU Serial Number' set to 'HBT 74000462'. Below this is a 'Code Version' table.

Name	Executing Version	Flash Version
disk.hbt.plmage	4.53.43	4.53.43
drive.cramfs	4.55.18	4.55.18
kernel.plmage	4.48.72	4.48.72
libs.cramfs	4.49.10	4.49.10
u-boot.bin	1.00.06	1.00.06

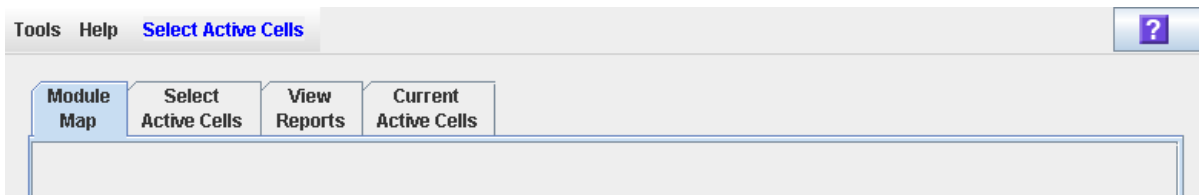
▼ Change the Library Interface Type (Non-Partitioned Libraries)

Use this procedure to change the interface type that all hosts use to connect to the library.

Note – This procedure applies to non-partitioned libraries only. To change interface types in a partitioned library, see [“Modify the Interface Type of a Host-Partition Connection”](#) on page 227. [“Modify the Interface Type of a Host-Partition Connection”](#) on page 227

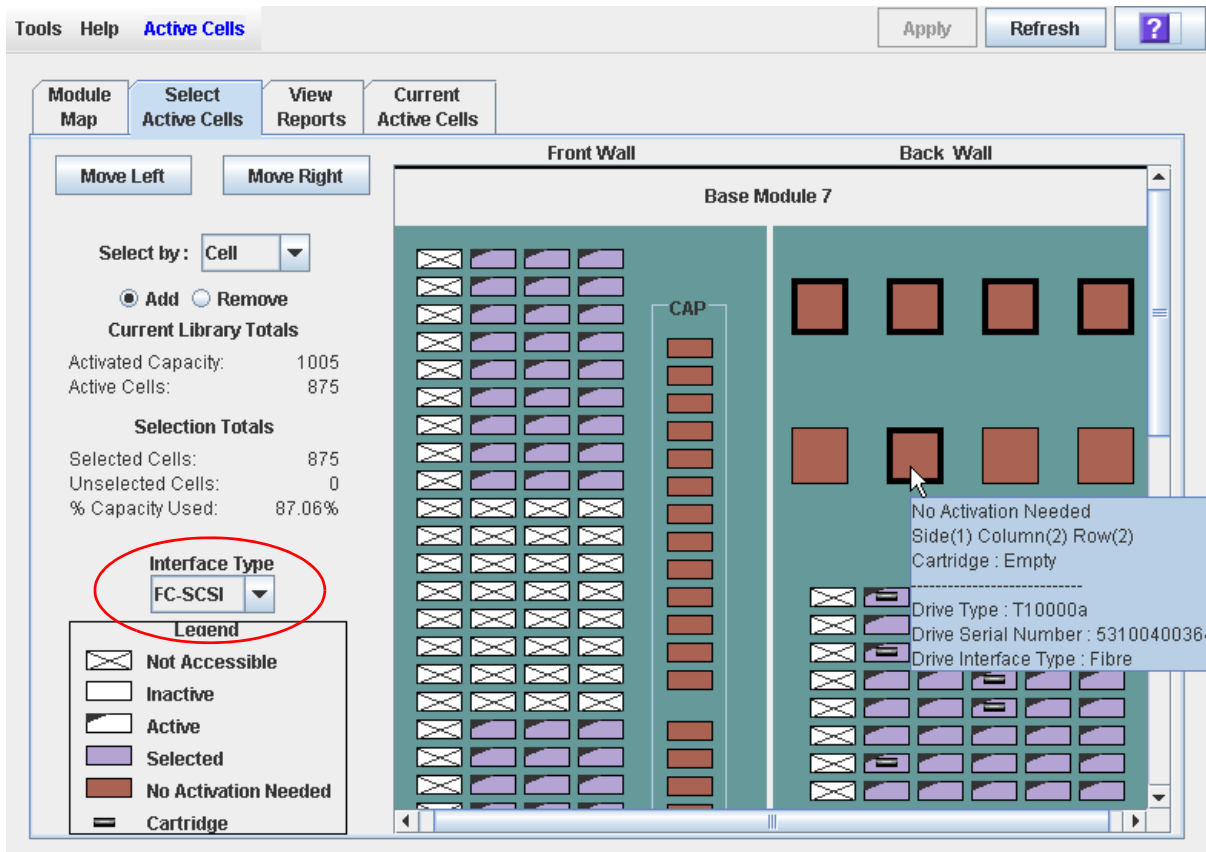
1. Select **Tools > Select Active Cells**.

The **Module Map** screen appears.



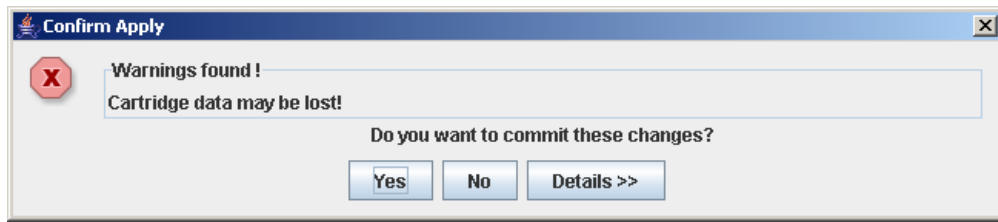
2. Click the **Select Active Cells** tab.

The **Select Active Cells** screen appears, displaying the interface type currently assigned to the library.



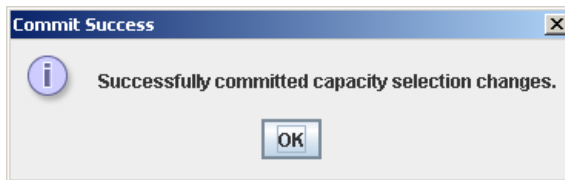
3. In the Interface Type pull-down, select the interface type you want to assign. Click Apply.

The **Confirm Apply** popup appears.



4. Click Yes to update the library controller database.

The **Commit Success** popup appears.



5. Click OK to return to the Select Active Cells screen.

The new interface type is active immediately; the library does not need to be rebooted.

▼ Display the “Last 24 Hours” Library Energy Monitor Report

Note – This feature is available starting with SL3000 firmware version FRS_2.30 and SL Console version FRS_4.30.

The Last 24 Hours Energy Monitor Report displays minute-by-minute energy and average power usage for the entire library over the last 24 hours. This report helps you to monitor your power and energy usage and identify periods of peak and low usage during the day.

By default, the report is sorted in chronological order. Optionally, you can change the sort order, and rearrange and resize the columns. See [“Modifying the Screen Layout” on page 64](#).

To create a chart from this report, you can save the data to a comma-separated (.csv) file and then import the .csv file into a charting application. For details, see [“Save Library Report Data to a File”](#).

For related reports, see the following:

- [“Display the “Last Month” Library Energy Monitor Report” on page 352](#)
- [“Display the “Last Year” Library Energy Monitor Report” on page 354](#)

1. **Select Tools > Reports.**

2. **Expand the Statistics folder, and click Energy Monitor - Last 24 Hours.**

date	kWh	kW
Wed Mar 18 07:17:11 MDT 20...	0.005199	0.31194
Wed Mar 18 07:18:11 MDT 20...	0.005121	0.30726
Thu Mar 19 02:46:45 MDT 20...	0.005121	0.30726
Thu Mar 19 02:47:45 MDT 20...	0.005199	0.31194
Thu Mar 19 02:48:45 MDT 20...	0.005121	0.30726
Thu Mar 19 02:49:45 MDT 20...	0.005121	0.30726
Thu Mar 19 02:50:45 MDT 20...	0.005199	0.31194
Thu Mar 19 02:51:45 MDT 20...	0.005121	0.30726
Thu Mar 19 02:52:45 MDT 20...	0.005043	0.30258
Thu Mar 19 02:53:45 MDT 20...	0.005199	0.31194
Thu Mar 19 02:54:45 MDT 20...	0.005121	0.30726
Thu Mar 19 02:55:45 MDT 20...	0.005121	0.30726
Thu Mar 19 02:56:45 MDT 20...	0.005043	0.30258
Thu Mar 19 02:57:45 MDT 20...	0.005199	0.31194
Thu Mar 19 02:58:45 MDT 20...	0.005121	0.30726
Thu Mar 19 02:59:45 MDT 20...	0.005121	0.30726
Thu Mar 19 03:00:45 MDT 20...	0.005199	0.31194
Thu Mar 19 03:01:45 MDT 20...	0.005043	0.30258
Thu Mar 19 03:02:45 MDT 20...	0.005121	0.30726
Thu Mar 19 03:03:45 MDT 20...	0.005199	0.31194
Thu Mar 19 03:04:45 MDT 20...	0.005121	0.30726
Thu Mar 19 03:05:45 MDT 20...	0.005121	0.30726
Thu Mar 19 03:06:45 MDT 20...	0.005121	0.30726
Thu Mar 19 03:07:45 MDT 20...	0.005121	0.30726
Thu Mar 19 03:08:45 MDT 20...	0.005121	0.30726
Thu Mar 19 03:09:45 MDT 20...	0.005199	0.31194
Thu Mar 19 03:10:45 MDT 20...	0.005043	0.30258
Thu Mar 19 03:11:45 MDT 20...	0.005121	0.30726
Thu Mar 19 03:12:45 MDT 20...	0.005199	0.31194

Screen Fields

Date

Date and time of the measurements.

kWh

Energy used by the entire library during the identified one-minute interval, measured in kilowatt-hours.

kW

Average power used by the entire library during the identified one-minute interval, measured in kilowatts.

▼ Display the “Last Month” Library Energy Monitor Report

Note – This feature is available starting with SL3000 firmware version FRS_2.30 and SL Console version FRS_4.30.

The Last Month Energy Monitor Report displays energy and average power usage for the entire library, measured in 15-minute intervals over the last 32 days. This report helps you to analyze your power and energy usage and identify periods of peak and low usage during the last month.

By default, the report is sorted in chronological order. Optionally, you can change the sort order, and rearrange and resize the columns. See [“Modifying the Screen Layout” on page 64](#).

To create a chart from this report, you can save the data to a comma-separated (.csv) file and then import the .csv file into a charting application. For details, see [“Save Library Report Data to a File”](#).

For related reports, see the following:

- [“Display the “Last 24 Hours” Library Energy Monitor Report” on page 350](#)
- [“Display the “Last Year” Library Energy Monitor Report” on page 354](#)

1. **Select Tools > Reports.**

2. **Expand the Statistics folder, and click Energy Monitor - Last Month.**

The screenshot shows the SL3000 console interface. The top menu bar includes 'Tools', 'Help', and 'Reports'. Below the menu is a toolbar with 'Search', 'Update', 'Save', and a help icon. The left sidebar shows a tree view under 'Statistics' with 'Energy Monitor - Last month' selected. The main display area shows a table with the following data:

date	kWh	kW
Wed Feb 04 03:15:00 MST 2...	0.3947082497179508	1.5788329988718033
Wed Feb 04 03:30:00 MST 2...	0.3683271203190088	1.4733084812760353
Wed Feb 04 03:45:00 MST 2...	0.3423339445143938	1.3693357780575752
Wed Feb 04 04:00:00 MST 2...	0.3948634266853333	1.5794537067413332
Wed Feb 04 04:15:00 MST 2...	0.3948634285479784	1.5794537141919136
Wed Feb 04 04:30:00 MST 2...	0.3947858382016421	1.5791433528065684
Wed Feb 04 04:45:00 MST 2...	0.3948634266853333	1.5794537067413332
Wed Feb 04 05:00:00 MST 2...	0.3947858363389969	1.5791433453559875
Wed Feb 04 05:15:00 MST 2...	0.3949410207569599	1.5797640830278397
Wed Feb 04 05:30:00 MST 2...	0.3947858382016421	1.5791433528065684
Wed Feb 04 05:45:00 MST 2...	0.3947858400642872	1.5791433602571487
Wed Feb 04 06:00:00 MST 2...	0.3962600752711296	1.5850403010845184
Wed Feb 04 06:15:00 MST 2...	0.3933891896158457	1.5735567584633827
Wed Feb 04 06:30:00 MST 2...	0.3947858363389969	1.5791433453559875
Wed Feb 04 06:45:00 MST 2...	0.3948634322732687	1.5794537290930748
Wed Feb 04 07:00:00 MST 2...	0.3947858382016421	1.5791433528065684
Wed Feb 04 07:15:00 MST 2...	0.39478584192693233	1.5791433677077293
Wed Feb 04 07:30:00 MST 2...	0.394630653783679	1.578522615134716
Wed Feb 04 07:45:00 MST 2...	0.3945530615746975	1.57821224629879
Wed Feb 04 08:00:00 MST 2...	0.3945530615746975	1.57821224629879
Wed Feb 04 08:15:00 MST 2...	0.3945530634373425	1.57821225374937
Wed Feb 04 08:30:00 MST 2...	0.3947082497179508	1.5788329988718033
Wed Feb 04 08:45:00 MST 2...	0.3945530652999878	1.5782122611999512
Wed Feb 04 09:00:00 MST 2...	0.3945530597120524	1.5782122388482096
Wed Feb 04 09:15:00 MST 2...	0.39455306716263294	1.5782122686505318
Wed Feb 04 09:30:00 MST 2...	0.39463065564632416	1.5785226225852966
Wed Feb 04 09:45:00 MST 2...	0.3944754768162966	1.5779019072651863
Wed Feb 04 10:00:00 MST 2...	0.3945530634373425	1.57821225374937
Wed Feb 04 10:15:00 MST 2...	0.3944754730010063	1.5779018923610251

Screen Fields

Date

Date and time of the measurements.

kWh

Energy used by the entire library during the identified 15-minute interval, measured in kilowatt-hours.

kW

Average power used by the entire library during the identified 15-minute interval, measured in kilowatts.

▼ Display the “Last Year” Library Energy Monitor Report

Note – This feature is available starting with SL3000 firmware version FRS_2.30 and SL Console version FRS_4.30.

The Last Year Energy Monitor Report displays energy and average power usage for the entire library, measured in one-day intervals over the last 365 days. This report helps you to analyze your power and energy usage and identify periods of peak and low usage during the year.

By default, the report is sorted in chronological order. Optionally, you can change the sort order, and rearrange and resize the columns. See [“Modifying the Screen Layout” on page 64](#).

To create a chart from this report, you can save the data to a comma-separated (.csv) file and then import the .csv file into a charting application. For details, see [“Save Library Report Data to a File”](#).

For related reports, see the following:

- [“Display the “Last 24 Hours” Library Energy Monitor Report” on page 350](#)
- [“Display the “Last Month” Library Energy Monitor Report” on page 352](#)

1. **Select Tools > Reports.**

2. **Expand the Statistics folder, and click Energy Monitor - Last Year.**

▼ date	Total ...	Avg kW	Max k...	Min k...	Avg k...	Max k...	Min kW	Avg kW
Mon Jan...	9.59241...	0.42132...	0.28010...	0.39968...	0.399684	1.68528...	1.12042...	1.59873...
Tue Jan...	37.4590...	0.39199...	0.38780...	0.39019...	1.560793	1.56797...	1.55121...	1.56079...
Wed Jan...	37.3773...	0.39618...	0.28142...	0.38934...	1.557389	1.58472...	1.12569...	1.55738...
Thu Jan...	30.6320...	0.40580...	0.11010...	0.39271...	1.276336	1.62321...	0.44040...	1.57087...
Fri Jan ...	38.5581...	0.40626...	0.29539...	0.40164...	1.606588	1.62507...	1.18156...	1.60658...
Sat Jan ...	38.8808...	0.40673...	0.40324...	0.40500...	1.620037	1.62693...	1.61297...	1.62003...
Sun Jan...	38.8788...	0.40657...	0.40324...	0.40498...	1.61995	1.62631...	1.61297...	1.61995...
Mon Jan...	38.8507...	0.40642...	0.37794...	0.40469...	1.618783	1.62569...	1.51179...	1.61878...
Tue Jan...	23.8950...	0.40650...	0.13330...	0.39825...	0.995629	1.62600...	0.53320...	1.59300...
Wed Jan...	38.8105...	0.40665...	0.32425...	0.40427...	1.617108	1.62662...	1.29702...	1.61710...
Thu Jan...	38.8672...	0.40704...	0.37903...	0.40486...	1.619468	1.62818...	1.51613...	1.61946...
Fri Jan ...	38.8813...	0.40665...	0.40332...	0.40501...	1.620057	1.62662...	1.61328...	1.62005...
Sat Jan ...	38.8746...	0.40673...	0.40332...	0.40494...	1.619775	1.62693...	1.61328...	1.61977...
Sun Jan...	38.8472...	0.40657...	0.37779...	0.40465...	1.618637	1.62631...	1.51117...	1.61863...
Mon Jan...	38.8693...	0.40657...	0.40339...	0.40488...	1.619556	1.62631...	1.61359...	1.61955...
Tue Jan...	32.8508...	0.40650...	0.05485...	0.40062...	1.368786	1.62600...	0.21942...	1.60248...
Wed Jan...	17.6045...	0.40626...	0.18955...	0.40010...	0.733521	1.62507...	0.75822...	1.60041...
Thu Jan...	38.9586...	0.41069...	0.37794...	0.40581...	1.623277	1.64276...	1.51179...	1.62327...
Fri Jan ...	39.1723...	0.41177...	0.40394...	0.40804...	1.63218	1.64711...	1.61576...	1.63218...
Sat Jan ...	38.9317...	0.40735...	0.40401...	0.40553...	1.622158	1.62942...	1.61607...	1.62215...
Sun Fe...	38.7684...	0.40595...	0.40060...	0.40383...	1.615353	1.62383...	1.60242...	1.61535...
Mon Fe...	38.6471...	0.40518...	0.37306...	0.40257...	1.61103	1.62073...	1.49224...	1.61029...
Tue Feb...	37.8255...	0.39835...	0.34233...	0.39401...	1.576066	1.59342...	1.36933...	1.57606...
Wed Feb...	37.5432...	0.39618...	0.28933...	0.39107...	1.564301	1.58472...	1.15735...	1.56430...
Thu Feb...	31.4626...	0.39563...	0.31548...	0.39328...	1.310942	1.58255...	1.26194...	1.57313...
Fri Feb ...	18.4864...	0.39579...	0.34217...	0.39332...	0.770268	1.58317...	1.36871...	1.57331...
Sat Feb ...	19.3462...	0.39571...	0.02630...	0.38692...	0.806095	1.58286...	0.10521...	1.54770...
Sun Fe...	21.3349...	0.42411...	0.08387...	0.410288	0.888957	1.69646...	0.33550...	1.641152
Mon Fe...	40.4488...	0.424658	0.338066	0.421343	1.695371	1.698632	1.352764	1.695372

Screen Fields

Date

Date of the measurements.

Total kWh

Total energy used by the entire library during the day, measured in kilowatt-hours.

Avg kW

Average power used by the entire library during the day, measured in kilowatts.

Max kWh

Maximum 15-minute-period energy value for the day.

Min kWh

Minimum 15-minute-period energy value for the day.

Avg kWh

Average of all 15-minute-period energy values for the day.

Max kW

Maximum 15-minute-period power value for the day.

Min kW

Minimum 15-minute-period power value for the day.

Avg kW

Average of all 15-minute-period power values for the day.

▼ Display Library Events Statistics

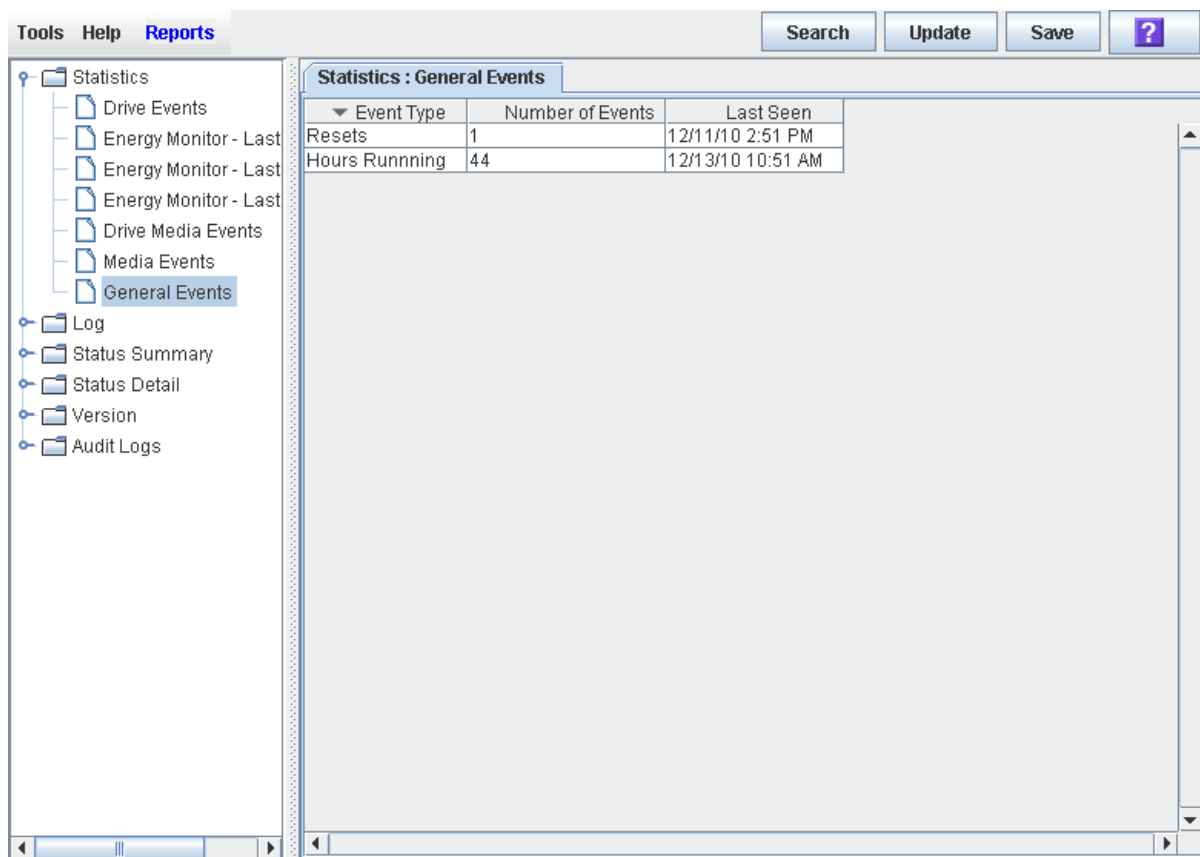
Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

The General Events Statistics Report displays summary statistics about overall library operations. For each event, the report lists the type, number of occurrences, and the date and time of the last such event.

You can change the sort order of the screen, and rearrange and resize the columns. See [“Modifying the Screen Layout” on page 64](#).

1. Select **Tools > Reports**.
2. Expand the **Statistics** folder, and click **General Events**.

The **General Events** screen is displayed.



Screen Fields

Event Type

Type of library event being tracked.

Hours Running always appears as the last entry in the display.

Number of Events

Total number of events of this type that have been recorded for the library.

For the **Hours Running** entry, this is the number of hours the library has been running continuously .

Last Seen

Date and time of the most recent occurrence of the event.

For the **Hours Running** entry, this is the current date and time.

Redundant Electronics Management

Note – The information in this chapter applies only to libraries in which the Redundant Electronics feature has been installed and activated.

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

Note – This feature is available to hosts using the HLI (TCP/IP) interface and to FC-SCSI hosts using ACSLS tape management software. It is NOT available to hosts using a native FC-SCSI interface. See the *SL3000 FRS_3.0 Release Notes* for details on the ACSLS and ELS software versions that are required.

The optional SL3000 Redundant Electronics feature provides failover protection in HLI libraries. If the library controller experiences errors, it automatically switches operations to an alternate library controller, with minimal disruption to library and host operations. This allows your Oracle support representative to replace the faulty card while the library continues normal operations.

The Redundant Electronics feature also provides minimal disruption of library operations during firmware upgrades.

Note – The SL3000 offers redundancy in a variety of components, including TallBots and power systems. The term “Redundant Electronics” refers specifically to redundancy in the library and drive controller components.

Activating Redundant Electronics

The Redundant Electronics feature requires all of the following hardware components:

- Active library controller (HBCr) card
- Alternate library controller (HBCr) card
- Active drive controller (HBT) card
- Alternate drive controller (HBT) card

Your Oracle support representative must install the necessary hardware and activate the feature by installing a hardware activation file. See [Chapter 3, “Hardware Activation Files”](#) on page 109 for details.

Redundant Electronics Operations

The library controller (HBCr) and drive controller (HBT) cards installed across from one another in the card cage are partnered with one another into a “cardset”. Each HBCr card determines its role whenever the card is reset or rebooted. If the HBCr card is the active controller and its partner HBT card is installed, the controller loads active code and assumes the role of active controller. If the HBCr card is the alternate and its partner HBT card is installed, it loads standby code. The HBT card assumes the same role – active or alternate – as its partner HBCr card.

Role of the Active Controller

The active library controller behaves for the most part like the library controller in a non-redundant library. It accepts connections and processes requests from HLI hosts and the SL Console and command line interface (CLI).

In addition to these functions, the active library controller in a library with Redundant Electronics continually monitors the status of the alternate library controller. If the active controller determines that the alternate is not healthy and able to become active, then it will not allow an automated or manual failover.

Role of the Alternate Controller

The alternate library controller accepts HLI host connections, but processes only the `set host path group` and `force switchover` requests; all other requests are sent to the active controller.

The alternate controller continually monitors the status of the active controller. If the alternate controller determines that the active one is not functioning normally, it initiates an automatic failover. See [“Automatic Failover Initiation”](#) on page 362 for details.

Role of the Drive Controllers

The two drive controller cards (HBTA and HBTB) are partnered with the library controller cards installed across from one another in the card cage. The active drive controller communicates with the library drives. The alternate drive controller does not run until its partner library controller card becomes the active controller.

IP Addresses

Each library controller card requires its own unique IP address. If the Dual TCP/IP feature is active on the library, then each card requires two unique IP addresses: one for the primary port (2B) and one for the secondary (2A) port. Therefore, a library equipped with both Redundant Electronics and Dual TCP/IP requires four unique IP addresses.

When you use the SL Console to log into a library, you need to connect to the primary port on the active controller. The SL Console does not allow you to connect to the alternate controller, and if you attempt to do so an error message is displayed.

After an automatic failover or manual switch, the IP address or DNS alias you need to specify changes because the previously active controller is now the alternate, and vice versa.

How Failover Works

In a failover, control of the library is switched from the current active controller to the alternate. The alternate library and drive controller cards become active, and the active ones become alternate. Each library controller and its partnered drive controller are always switched as a pair.

A failover can be initiated either automatically or manually. This section describes characteristics of all failovers. See the following sections for additional details specific to the automatic and manual processes:

- [“Automatic Failover Initiation” on page 362](#)
- [“Manual Switch” on page 363](#)

Failover Process

The failover process is minimally disruptive to library operations, usually taking only a few minutes. The process is summarized as follows:

1. Failover is initiated automatically or manually.
2. The status of the alternate controllers is checked. The alternate library and drive controllers must be operating normally in order for failover to proceed. If any of the following conditions exist, then the failover cannot proceed:
 - The alternate library or drive controller is in a fault state.
 - The alternate library or drive controller card is in the eject state.
 - The standby code is not running on the alternate library or drive controller cards.
 - A firmware download is in progress.
 - A card initialization is in progress.
3. If functional, the active library controller attempts to complete all in-process jobs and copy the cartridge database to the alternate controller card.
4. Once all in-process jobs have completed or timed out, the card roles are switched.
5. Active software is brought up on the alternate controller, and this controller becomes the active one.
6. Standby software is brought up on the previously active controller, if possible, and this controller becomes the alternate. If the standby software cannot be brought up on this controller, the controller enters a fault state.

What Happens to Connections

The failover process is minimally disruptive to host operations. The following changes occur to various connections:

- Tape management software (Symantec or Virtual Storage Manager, for example) users do not see an interruption.
- HLI host applications (ACSLs and ELS) queue requests during the failover process, and then submit them to the library controller once the failover is complete. For ACSLS, the queuing and retry affects mount and dismount requests only. See the ACSLS and ELS documentation for details.
- SL Console and CLI connections are terminated. Users must re-establish connections to the library using the IP address of the new active library controller (the former alternate controller). See [“Log In to the Library After a Failover” on page 375](#) for detailed instructions.

In-transit Cartridge Recovery

Any cartridges that are in-transit at the time a failover is initiated are returned to their home slots, if possible. If a cartridge cannot be moved to its home slot, it is moved to a library system cell, and the host must return the cartridge to its home cell.

Audits

The cartridge location database resides on the active controller only and is not mirrored on the alternate. If the database can be copied to the alternate prior to the failover, then a cartridge audit is not necessary afterwards. Usually it is possible to copy the database in the following circumstances:

- A manual switch
- The active drive controller (HBTA) card is pulled or failed

Usually it is not possible to copy the database if there is a sudden hard failure in the active library controller.

If an audit must be done after the failover, it is done in the background, while other jobs are processed. As a result, you may notice that library operations take slightly longer to perform until the audit is complete. In addition, if a particular request requires information about a location that has not yet been audited, the location will be audited first, causing a slight delay in processing the request.

Automatic Failover Initiation

An automatic failover can be initiated by either the active or alternate library controller.

The active library controller initiates an automatic failover in any of the following situations:

- It determines that its partner drive controller (HBTA) card is not installed.
- It does not receive communication from its partner drive controller (HBTA) card within a defined time-out period.
- It detects a catastrophic internal software error.

The alternate library controller initiates an automatic failover if it determines that the active controller is not responsive.

Manual Switch

You may want to perform a manual switch in the following circumstances, in order to verify that the alternate cards are functioning normally:

- After initial installation of the alternate library and drive controller cards
- After a firmware upgrade
- Periodically (once a month or once a quarter, for example)

Each library controller and its partnered drive controller are always switched as a pair. It is not possible to manually switch only the library controllers and not the drive controllers, for example.

Manual Switch Initiation

A manual switch can be initiated through any of the following connections:

- Host tape management (ACSL or ELS) console – From either the active or alternate library controller.
- Remote SL Console – From the active library controller only. Since the SL Console cannot log into the alternate library controller, you cannot use the SL Console to initiate a manual switch from the alternate. Also, the manual switch function is not available from the local operator panel.
- CLI – From either the active or alternate library controller. This function is available to your Oracle support representative only.

Before initiating a manual switch, you should verify that the alternate library and drive controllers are running normally. See the following topics for additional information on card status:

- [“SL Console Displays” on page 364](#)
- [“Display Redundant Electronics Detail” on page 369](#)

See [“Manually Switch Redundant Electronics Cards” on page 373](#) for detailed instructions on initiating a manual switch from the SL Console.

Monitoring Status of the Controllers

LEDs and Controls

The LEDs and controls are the same on all four cards. Following are descriptions.

LED	Color	Definition
Active	Green	Card is functioning as the active, running active code.

LED	Color	Definition
Standby	Amber	Card is functioning as the alternate, running standby code.
Fault	Red	Card has experienced a serious error.
Eject OK	Blue	Card can be safely removed. Your Oracle support representative can initiate a card eject through the CLI.

SL Console Displays

You can display the status of all four controller cards through the SL Console.

Card Positions

Some SL Console displays identify the individual library controller cards as HBCA and HBCB and the drive controller cards as HBTA and HBTB. For both types of cards, the A or B suffix indicates the card's position within the card cage, as viewed from the back of the machine, as follows:

- A – Bottom card slot
- B – Top card slot

Card Statuses

The possible statuses of the controller cards are described below.

Status	Applies to	Definition
Duplex: software ready; switch possible	Active library controller only	Card is functioning normally.
Not installed	All cards	Card is not installed in the machine.
ok	Active or alternate drive controller	Card is functioning normally.
Pre-standby: software not ready	Alternate library controller only	Card is loading standby code and is not ready to be used in an automatic failover or manual switch.
Standby: software ready	Alternate library controller only	Card is functioning normally and can be used in the event of an automatic failover or manual switch.

See the following topics for additional details:

- [“Display Redundant Electronics Summary Information” on page 367](#)
- [“Display Redundant Electronics Detail” on page 369](#)

Event Log Entries

Significant library and drive controller activities, such as deteriorated health, errors, failovers, and card ejects are logged to the Event Log. Routine activities, such as a card monitoring the status of its partner, are not.

Redundant Electronics and Firmware Upgrades

Firmware upgrades for libraries with the Redundant Electronics feature are minimally disruptive to library operations. New code is loaded and unpacked simultaneously on the active and alternate controller cards and on all devices. The code is then activated, and the active and alternate controllers and most devices are reinitialized; under most circumstances, TallBot initialization is bypassed.

The loading, unpacking, and activation of code are not disruptive to library operations until the library is rebooted. During the reboot process (which takes approximately 10 minutes), the HLI host applications (ACSLs and ELS) queue all mount and dismount requests. Once the reboot is complete, the queued requests are submitted to the library controller.

| Redundant Electronics Management Tasks

Task	Page
Display Redundant Electronics Summary Information	367
Display Redundant Electronics Detail	367
Manually Switch Redundant Electronics Cards	367
Log In to the Library After a Failover	375

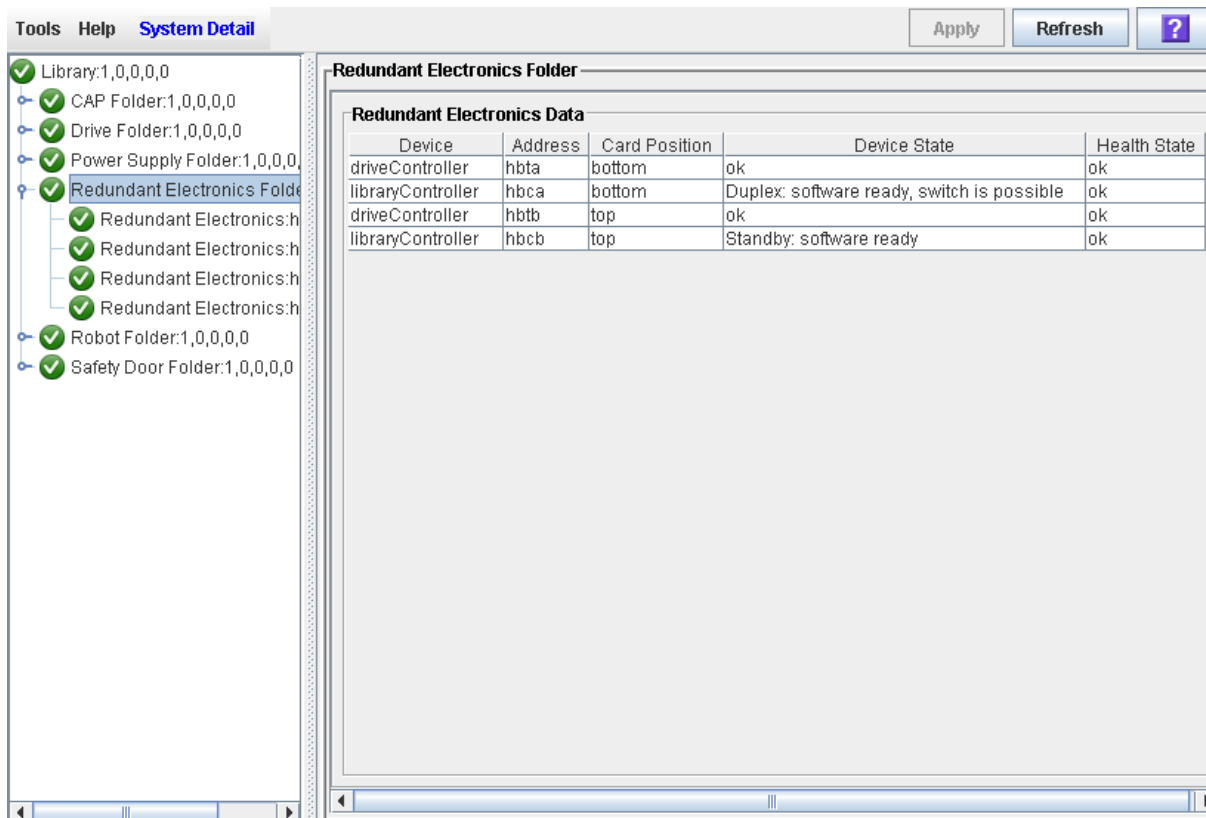
▼ Display Redundant Electronics Summary Information

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

Use this procedure to display summary information about all Redundant Electronics cards in the library.

1. Select **Tools > System Detail**, and click the **Redundant Electronics folder**.

The **Redundant Electronics Summary** screen appears.



Screen Fields

Device

Options are:

Type of card. Options are:

- libraryController – Library controller card
- driveController – Drive controller card

Address

The card's address within the library. Options are:

- hbca – Library controller, A (bottom) slot
- hbcb – Library controller, B (top) slot

- hbta – Drive controller, A (bottom) slot
- hbtb – Drive controller, B (top) slot

Card Position

Position of the card within the card cage, as viewed from the back of the machine. Options are:

- bottom – Bottom card slot; also referred to as the A slot
- top – Top card slot; also referred to as the B slot

Device State

Current operating state of the card. Options are:

- Duplex: software ready; switch possible – Card is functioning normally. Used only for an active HBC card in a library with Redundant Electronics.
- Initializing State 0 – Internal hardware manager state which may be seen during initialization.
- Initializing State 1 – Internal hardware manager state which may be seen during initialization.
- Not installed – Card is not installed in the machine. The library has the Redundant Electronics feature activated, but the alternate HBC or HBT card is not installed.
- ok – Card is functioning normally. Used only for HBT cards.
- Pre-simplex: software not ready – Card is loading code. Used only for an HBC card in a library without Redundant Electronics.
- Pre-standby: software not ready – Card is loading standby code and is not ready to be used in the event of an automatic failover or manual switch. Used only for an alternate HBC card in a library with Redundant Electronics.
- Simplex: software ready – Card is functioning normally. Used only for an HBC card in a library without Redundant Electronics.
- Standby: software ready – Card is functioning normally and can be used in the event of an automatic failover or manual switch. Used only for an alternate HBC card in a library with Redundant Electronics.
- Unknown: unknown value – The active HBC card cannot communicate with the alternate and does not have any information about the alternate's status.

Health State

Current health of the card. Options are:

- error – Card has experienced a fault, such as it is in the Not Installed state.
- warn – Card is in a degraded state, such as the card has been ejected or its alternate is not yet in the Standby state.
- ok – Card is functioning normally

▼ Display Redundant Electronics Detail

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

Use this procedure to display detailed status information for the active and alternate library controller and drive controller cards.

Note – If Redundant Electronics is not enabled on this library, the display shows as much detail as is applicable.

1. Select Tools > System Detail.
2. Expand the Redundant Electronics folder, and click the card you want to display. Cards are as follows:
 - hbca – Library controller, A (bottom) slot
 - hbcb – Library controller, B (top) slot
 - hbta – Drive controller, A (bottom) slot
 - hbtb – Drive controller, B (top) slot

The screen displays the current status of the selected card.

The screenshot shows the SL Console interface with the 'System Detail' window open. The left sidebar shows a tree view of system components, with 'Redundant Electronics:hbca' selected. The main window displays the 'Redundant Electronics Status' for the selected card.

Redundant Electronics Status	
Device	libraryController
Card Type	hbca
IP Address:2B	10.80.104.48
IP Address:2A	N/A
Position	bottom
Device State	Duplex: software ready, switch is possible
Health State	ok

Alternate Card Status	
Alternate HBC Communicating	true

Screen Fields

Device

Type of card. Options are:

- libraryController – Library controller card
- driveController – Drive controller card

Card Type

The card's address within the library. Options are:

- hbca – Library controller, A (bottom) slot
- hbcb – Library controller, B (top) slot
- hbta – Drive controller, A (bottom) slot
- hbtb – Drive controller, B (top) slot

IP Address: 2B

IP address of the 2B port on the selected library controller card. The 2B port is the primary port for host communications.

If no card is installed, this field displays N/A.

Note – This field applies only to library controller (HBCr) cards. Drive controller (HBT) cards do not have a 2B or 2A port and therefore always display N/A.

IP Address: 2A

IP address of the 2A port on the specified HBCr card. The 2A port is the secondary port for host communications.

If no card is installed, this field displays N/A.

Note – This field applies only to library controller (HBCr) cards. Drive controller (HBT) cards do not have a 2B or 2A port and therefore always display N/A.

Position

Position of the card within the card cage, as viewed from the back of the machine. Options are:

- Left – Bottom card slot; also referred to as the A side
- Right – Top card slot; also referred to as the B side

Device State

Current operating state of the card. Options are:

- Duplex: software ready; switch possible – Card is functioning normally. Used only for an active HBC card in a library with Redundant Electronics.

- Initializing State 0 – Internal hardware manager state which may be seen during initialization.
- Initializing State 1 – Internal hardware manager state which may be seen during initialization.
- Not installed – Card is not installed in the machine. The library has the Redundant Electronics feature activated, but the alternate HBC or HBT card is not installed.
- ok – Card is functioning normally. Used only for HBT cards.
- Pre-simplex: software not ready – Card is loading code. Used only for an HBC card in a library without Redundant Electronics.
- Pre-standby: software not ready – Card is loading standby code and is not ready to be used in the event of an automatic failover or manual switch. Used only for an alternate HBC card in a library with Redundant Electronics.
- Simplex: software ready – Card is functioning normally. Used only for an HBC card in a library without Redundant Electronics.
- Standby: software ready – Card is functioning normally and can be used in the event of an automatic failover or manual switch. Used only for an alternate HBC card in a library with Redundant Electronics.
- Unknown: unknown value – The active HBC card cannot communicate with the alternate and does not have any information about the alternate's status.

Health State

Current health of the card. Options are:

- error – Card has experienced a fault, such as it is in the Not Installed state.
- warn – Card is in a degraded state, such as the card has been ejected or its alternate is not yet in the Standby state.
- ok – Card is functioning normally

Alternate HBC Communicating

Current communications status of the alternate library controller (HBCB) card. Options are:

- true – Alternate HBCr card is successfully communicating with the active card.
- false – Alternate HBCr card is not communicating with the active card.
- N/A – Alternate HBCr card is not installed; or the selected card is not a library controller.

Software Switch Allowed

Indicator of whether an automatic failover or manual switch is possible, given the current status of the alternate library and drive controller cards. Options are:

- true – Automatic failover or manual switch is possible.
- false – Automatic failover or manual switch is not possible.

- N/A – Alternate HBCr card is not installed; or the selected card is not a library controller

▼ Manually Switch Redundant Electronics Cards

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

Use this procedure to switch the active and alternate controller cards. Each library controller and its partnered drive controller are always switched as a pair. The current alternate library and drive controller cards become active, and the active ones become alternate.

Before performing this procedure you should verify that the **Software Switch Allowed** indicator on the Redundant Electronics Status Detail screen is “true”. See [“Display Redundant Electronics Detail” on page 369](#) for detailed instructions.

Note – You will be logged off the library as part of this procedure. Once the switch completes, in order to log back into the library, you must specify the IP address or DNS alias of the new active library controller card.

1. Select **Tools > Diagnostics** and select **Redundant Electronics**.

The Redundant Electronics Switch screen appears.



2. Click **Apply** to begin the switch process.

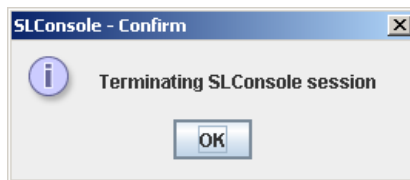
- If the alternate library and drive controller cards are operating normally, the **Confirm** dialog appears, prompting you to confirm that you want to proceed with the switch.



- If there is a problem with the alternate library and drive controller cards, an error message is displayed and you are not allowed to continue with the switch.

3. Click Yes to begin the switch process.

The switch process begins, and a popup appears indicating that your SL Console session will be terminated.



- 4. Click OK to dismiss the message and log off the SL Console.**
- 5. Wait until the switch is complete before logging back into the library. In addition, you must specify the IP address or DNS alias of the new active controller in order to log in. See [“Log In to the Library After a Failover” on page 375](#) for detailed instructions.**

▼ Log In to the Library After a Failover

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

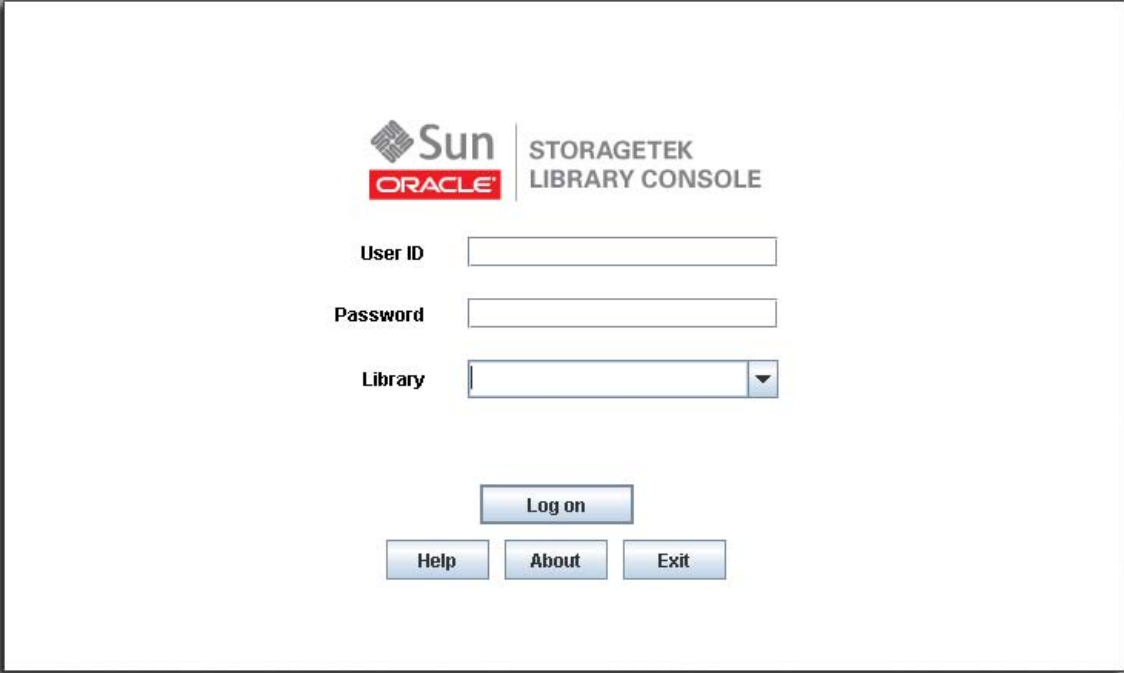
Use this procedure to log in to the library after an automatic failover or manual switch. You need to log in by connecting to the library controller that was the alternate prior to the failover or switch.

1. Obtain the IP address or DNS alias of the new active library controller.

This was the alternate library controller prior to the failover or switch.

2. Bring up the SL Console. See “General SL Console Usage Tasks” on page 73 for a list of procedures to do this.

The SL Console Login screen appears.



The screenshot shows the Sun Oracle Storagetek Library Console login interface. At the top left is the Sun Oracle logo. To its right, the text 'STORAGETEK LIBRARY CONSOLE' is displayed. Below the logo, there are three input fields: 'User ID', 'Password', and 'Library'. The 'Library' field is a dropdown menu. Below the input fields, there are four buttons: 'Log on', 'Help', 'About', and 'Exit'.

3. Enter your login information, and click Log on.

User ID: *SLC_login*

Password: *password*

Library: *library_ID*

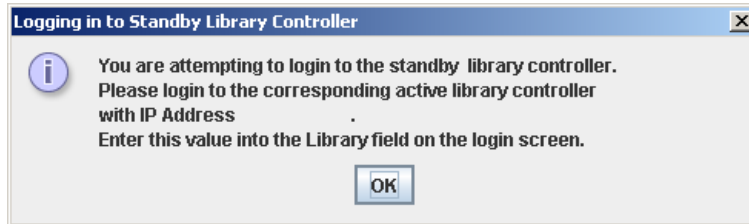
where:

- *SLC_login* is the SL Console user ID.
- *password* is the password assigned to this user ID.

- *library_ID* is the library to which you want to connect, expressed in either of the following ways:
 - IP address of the library
 - DNS alias of the library

Note – The user ID you use determines the screens you can access. See “[SL Console Security](#)”.

4. If you are attempting to log into the wrong controller, then the following dialog appears. You cannot use the SL Console to log into the alternate controller.



Click **OK** and return to [Step 3](#), this time entering the information for the correct controller.

Rotational and AEM CAP Management

CAP Operations

Note – This section describes general CAP activities applying to all libraries. For information specific to CAP activities in partitioned libraries, see [“Partitions and Rotational and AEM CAPs” on page 196](#).

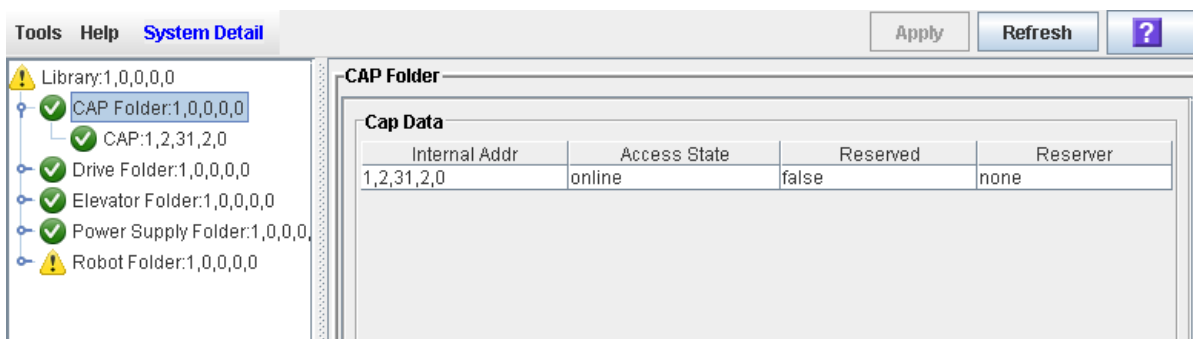
Note – Most CAP functions described in this section apply to AEMs as well as regular CAPs. In cases where there is a distinction between the two, the term “rotational CAP” is used to refer to regular CAPs.

CAPs (cartridge access ports) allow a library operator to enter or eject cartridges to or from the library. You can use the CAPs only when the library is in automated mode.

Rotational CAPs

One rotational CAP is always present in the base module. Optionally, the drive expansion module and cartridge expansion module can also each have one rotational CAP.

Each rotational CAP contains two removable 13-slot magazines, allowing for a total of 26 cartridges to be imported or exported at one time through each CAP.



AEM CAPs

See [“AEM Operations” on page 381](#) for a detailed description of AEM CAPs.

CAP Open Sequence

Opening a rotational or AEM CAP involves the following steps:

1. A host issues a command to unlock the CAP.
2. The CAP status is updated to “unlocked.”
3. The library operator presses the CAP button.
4. The CAP status is updated to “open.”
5. For rotational CAPs, the CAP motor is activated, and the CAP rotates outward to expose the magazines (rotational CAPs).

For AEM CAPs, once the **Enter** LED is illuminated, the library operator can lift the latch and open the AEM access door (AEM CAPs).

CAP Close Sequence

Closing a rotational or AEM CAP involves the following steps:

1. For rotational CAPs, the library operator presses the CAP button on the key pad. The CAP motor is activated, and the CAP rotates inward to close the CAP.

For AEM CAPs, the library operator closes the AEM access door and secures the latch.

2. The library operator presses the CAP button to start the close sequence.
3. The CAP status is updated to “closed” and “locked.”
4. The TallBot audits all CAP slots.

CAP Auto Enter Mode

Note – CAP auto enter mode applies only to HLI libraries; it is not supported in FC-SCSI libraries.

CAP auto enter mode allows a library operator to open a rotational or AEM CAP and initiate an enter operation without issuing an explicit enter request and without an explicit reservation from a host application. When in auto mode, a CAP is left unlocked and its LED is lit. The CAP is locked only during cartridge enter, eject, or audit operations.

Auto enter mode is managed by the host applications. See the appropriate tape management software documentation for details. To place a CAP in auto enter mode, you must enter the appropriate tape management command to unlock the CAP.

To initiate an enter operation using an automatic CAP, you only need to press the **CAP Open** button on the key pad. Auto enter mode does not affect CAP operations for ejecting cartridges, so you must always issue an explicit eject command to eject cartridges through the CAP.

Manual CAP Mode

Manual mode is the most secure method of CAP operations.

When in manual mode, a rotational or AEM CAP is locked by default and its LED is not lit. To initiate an enter or eject operation using a manual CAP, you must enter an explicit enter or eject request before pressing the CAP Open button on the key pad.

CAP States

A CAP must be unlocked in order for you to open it to insert or remove cartridges. When a CAP is unlocked, the light on the CAP button is turned on.

When you close a CAP, the TallBot performs an audit to determine whether there are cartridges present. During the audit the CAP is locked and the light on the CAP button is turned off. Once the audit is completed, the CAP is returned to its default state.

The following table describes the default states of the various types of CAPs within a non-partitioned library.

Type of CAP	Default State	Default CAP Button Light Condition
HLI – manual mode	Locked	Off
HLI – auto enter mode	Unlocked	On
FC-SCSI	Unlocked	On

CAP Assignment Mode

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

Note – This feature applies only to libraries with FC-SCSI host connections; it is not applicable to libraries that have only HLI (TCP/IP) host connections.

Note – This procedure applies to non-partitioned libraries only; it is not applicable to partitioned libraries.

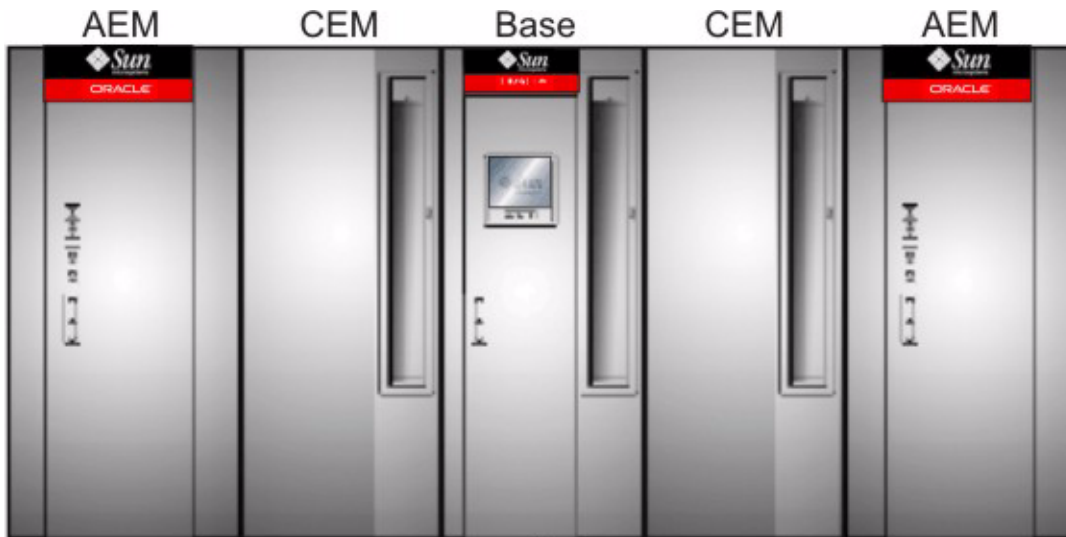
The CAP assignment mode controls whether library CAPs can be used for normal host operations or for manual operations, such as recovery moves. Prior to performing a recovery move to or from a CAP, you must change the library CAP assignment mode to “diagnostics”. This makes all library CAPs unavailable to library hosts and available to SL Console control. For detailed instructions on setting the CAP assignment mode, see [“Change the CAP Assignment Mode for an FC-SCSI Library” on page 394](#).

CAP Priorities for Cartridge Ejects by FC-SCSI Hosts

When you initiate an eject operation from an HLI host, you are able to specify the CAP to use. The SCSI interface, however, does not provide this level of control. The interface essentially aggregates all CAPs and AEMs in the library and treats them as one large CAP. When you initiate an eject operation from an FC-SCSI host, the TallBot places cartridges in CAPs, working from left to right, starting first with rotational CAPs, and then moving to AEMs, if applicable.

For example, assume an FC-SCSI library with the following configuration:

- Base module, with standard rotational CAP
- Two CEMs, with optional rotational CAPs
- Two AEMs



L206_228

Note – The following example assumes either a non-partitioned library, or a partitioned library in which all CAPs and AEMs are shared by all hosts. For partitioned libraries, the CAP priority is dependent on how CAPs are allocated to partitions.

For an eject operation of 350 cartridges, the TallBot would fill CAP cells in the following order:

	Module	Number of Cartridges	Total Cartridges
1	Left CEM	26	26
2	Base Module	26	52
3	Right CEM	26	78
4	Left AEM	234	312
5	Right AEM	38	350

Using CAPS in a Partitioned Library

Note – This topic applies to partitioned libraries only. See [“Partitioning Task Summary” on page 206](#) for details about defining library partitions.

A rotational or AEM CAP is a shared library resource – that is, it can be used by all partitions in the library. A CAP can be used by only one partition at a time, however. While a partition is using a CAP for enters or ejects, the CAP is reserved to that partition and unavailable to all others.

In order for a partition to reserve a CAP, all of the following conditions must be met:

- The CAP must be available – that is, not reserved by any other partition.
- The CAP must be empty.
- The CAP must be closed and locked.

Additional CAP Information

See the following sections of this manual for complete details about rotational and AEM CAPs.

Section	Type of Information	Page
“AEM Operations”	Usage information that applies specifically to AEM CAPs	381
“Rotational and AEM CAP Management Tasks”	Procedures for displaying CAP status and properties	384
“Cartridge Management Tasks”	Procedures for using CAPs to load and unload cartridges	416
“Partitions and Rotational and AEM CAPs”	Partition configuration information relating to CAPs	196

AEM Operations

The AEM (access expansion module) allows a library operator to perform bulk loads or unloads of up to 234 cartridges at a time to or from the library. The AEM also allows for non-disruptive maintenance of a library TallBot.

Note – AEMs share many of the same features and functions as rotational CAPs, but they also have some unique characteristics. This section describes what is unique to AEMs.

AEM Access Door

The AEM access door is the external door you open to bulk load or unload cartridges to or from the library. The front panel of the access door includes the following components:

- Three LEDs: Wait, Enter, and Unlocked
- Two locks:
 - Service Access – Can be opened only by an Oracle support representative. Opening this lock releases the access door deadbolt.
 - Deadbolt Override – For “fast access” to the inside of the AEM by a library operator. This action has the same effects on library operations as opening the main library access door.
- “Operator Request CAP” button – For normal access to the inside of the AEM, to load or unload cartridges. Pressing this button releases the access door deadbolt.

- Latch – Opens and closes the access door. The latch can be opened only after you release the deadbolt or use the deadbolt override.

AEM Safety Door

The safety door is the internal “garage” door, which lowers to separate the AEM from the rest of the library. This door allows for safe access to the inside of the AEM, either for a library operator to load or unload cartridges, or for an Oracle support representative to perform service on the TallBot or other AEM components.

The safety door is lowered when you press the “Operator Request CAP” button on the AEM access door or when an Oracle support representative uses the Service Access lock. The safety door is not lowered if you perform an AEM “fast access” by unlocking the Deadbolt Override lock.

The safety door is automatically raised when you close the AEM access door. The TallBot then enters the AEM and conducts an audit of all AEM cells. A full audit of an AEM should take less than three minutes.

AEM CAP Functions

Each AEM CAP contains 18 removable 13-slot cartridge magazines on the front and back walls, for a total of 234 cartridge slots. The magazines are arranged in a 3 X 3 configuration on each wall. The magazines are the same as those used in rotational CAPs.

In terms of cartridge loads and unloads, the library controller treats each AEM as a very large CAP. See [“CAP Operations” on page 377](#) for information on CAP functions that apply to AEMs.

Partitions and AEMs

With regard to library partitioning, AEM CAPs are subject to the same rules and restrictions as rotational CAPs. They can be allocated for exclusive use by one partition, or they can be shared by multiple partitions with the same host interface type. See [“Partitions and Rotational and AEM CAPs” on page 196](#) for details.

Non-disruptive Maintenance

The AEM allows an Oracle support representative to safely access and service a library TallBot without having to take the library offline. If a TallBot is defective, it parks itself in the AEM. The library remains online, and if redundant TallBot are installed, the library can continue normal operations through the remaining functional TallBot.

An Oracle support representative can use a special key to unlock the Service Access lock on the access door. This causes the AEM safety door to lower, sectioning off the AEM from the rest of the library. Once the safety door is fully down, the Oracle support representative can open the AEM access door and safely perform maintenance on the defective TallBot or other AEM components, while the library remains online. The AEM itself is taken offline during the maintenance period, causing cartridge load/unload functions to be suspended.

When maintenance is complete, the Oracle support representative closes the access door, the safety door raises, the TallBot is re-initialized and performs an audit of the AEM CAP cartridge slots, and then the AEM is brought back online.

Additional AEM Information

See the following sections of this manual for complete details about AEMs.

Section	Type of Information
“CAP Operations”	Usage information that applies to both rotational CAPs and AEM CAPs
“Rotational and AEM CAP Management Tasks”	Procedures for displaying AEM CAP status and properties
“Cartridge Management Tasks”	Procedures for using AEM CAPs to load and unload cartridges
“AEM Safety Door Management Tasks”	Procedures for displaying status and properties of the AEM safety door (“garage” door)
“Partitions and Rotational and AEM CAPs”	Partition configuration information relating to both rotational and AEM CAPs
“AEM Safety Door Utility Tasks”	Procedures for rebooting the AEM safety door (“garage” door)
“Manual Operation Tasks”	Procedures for “fast access” to the AEM
TABLE B-1, “Access Expansion Module Walls” on page 612	Detailed diagram of the wall layouts

Rotational and AEM CAP Management Tasks

Task	Page
Display Rotational and AEM CAP Summary Information	385
Display Current Rotational or AEM CAP Status	386
Display Rotational or AEM CAP Properties	389
Unlock a CAP or AEM Access Door	391
Lock a CAP or AEM Access Door	393
Change the CAP Assignment Mode for an FC-SCSI Library	394

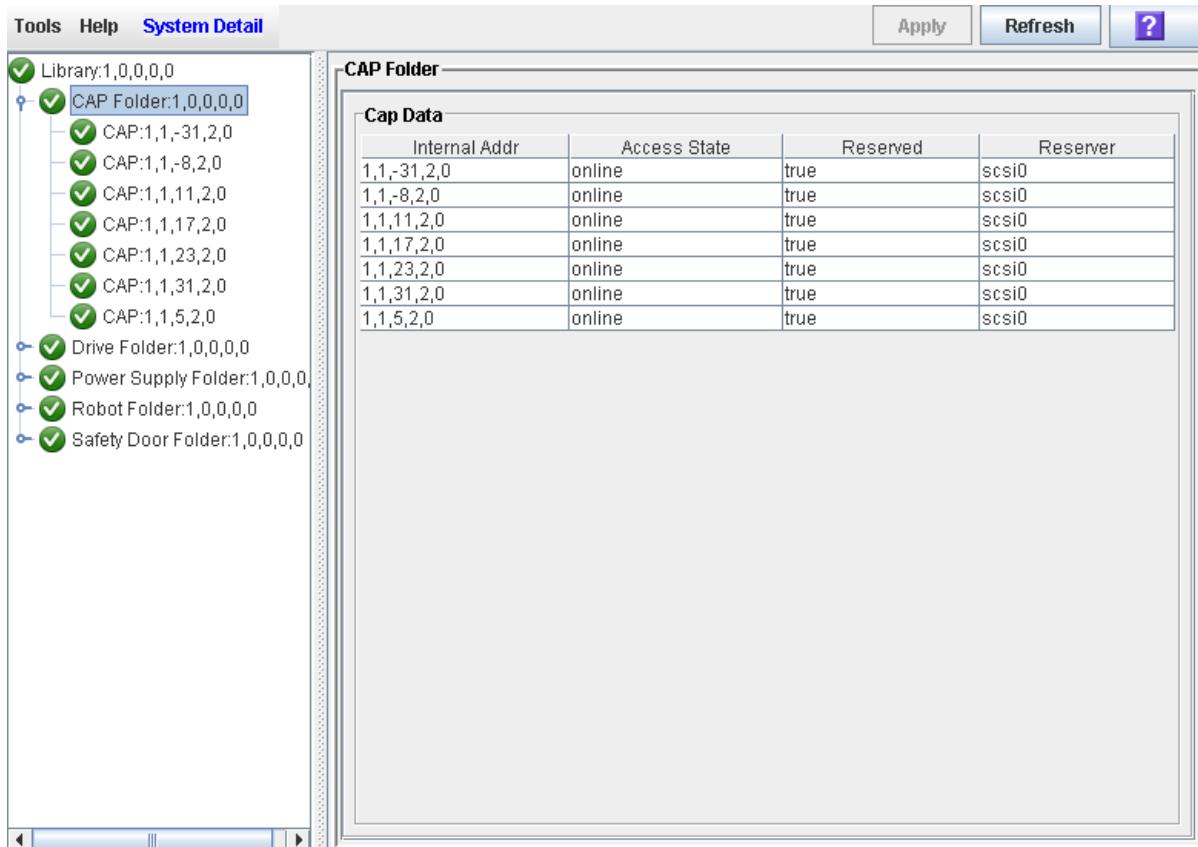
▼ Display Rotational and AEM CAP Summary Information

Use this procedure to display summary information for all rotational and AEM CAPs in the library.

Note – This information is also available through **Reports > CAP Summary**. See [“Display a Library Report”](#) on page 86 for detailed instructions.

1. **Select Tools > System Detail, and click the CAP folder.**

The screen lists all the library rotational and AEM CAPs and their locations.



The screenshot shows a software interface with a menu bar (Tools, Help, System Detail) and buttons (Apply, Refresh, ?). On the left is a tree view with the following items:

- Library:1,0,0,0
 - CAP Folder:1,0,0,0
 - CAP:1,1,-31,2,0
 - CAP:1,1,-8,2,0
 - CAP:1,1,11,2,0
 - CAP:1,1,17,2,0
 - CAP:1,1,23,2,0
 - CAP:1,1,31,2,0
 - CAP:1,1,5,2,0
 - Drive Folder:1,0,0,0
 - Power Supply Folder:1,0,0,0
 - Robot Folder:1,0,0,0
 - Safety Door Folder:1,0,0,0

The main area is titled "CAP Folder" and contains a table labeled "Cap Data":

Internal Addr	Access State	Reserved	Reserver
1,1,-31,2,0	online	true	scsi0
1,1,-8,2,0	online	true	scsi0
1,1,11,2,0	online	true	scsi0
1,1,17,2,0	online	true	scsi0
1,1,23,2,0	online	true	scsi0
1,1,31,2,0	online	true	scsi0
1,1,5,2,0	online	true	scsi0

▼ Display Current Rotational or AEM CAP Status

Use this procedure to display the current operational state of a rotational or AEM CAP.

Note – This information is also available on the **CAP Details** report. See [“Display a Library Report” on page 86](#) for detailed instructions.

Note – Status information on the AEM safety door, which is the internal “garage” door that lowers to separate the AEM from the rest of the library, is displayed on the **Safety Door Status** screen. See [“Display AEM Safety Door Status” on page 397](#) for detailed instructions.

Note – This screen is used for both rotational and AEM CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

1. Select **Tools > System Detail**.
2. Expand the **CAP Folder**, and click the **CAP** you want to display.

Note – AEM CAPs are identified as follows: column “-31” for a left AEM CAP, and column “31” for a right AEM CAP.

3. Click **Status**.

The screen displays the current status of the selected CAP.

- For rotational CAPs:

The screenshot displays a software window titled "System Detail" with a menu bar containing "Tools", "Help", and "System Detail". On the right side of the window, there are buttons for "Apply", "Refresh", and a help icon. The main content area is divided into two panes. The left pane shows a tree view of system folders, with "CAP:1,1,11,2,0" selected. The right pane shows the "CAP" properties, which are organized into two sections: "CAP Status" and "CAP Cartridges".

CAP Status

Transition Request	-select-transition-
Health State	ok
Device State	Ready
Access State	online
Locked	false
Mode	idle
CAP Door	closed
Reserved	true
Reserver	scsi0
Association	scsi0

CAP Cartridges

Cartridge	Location
EN19350R	1,1,11,2,7
EN28670R	1,1,11,2,16
EN39540R	1,1,11,2,26

- For AEM CAPs:

Tools Help System Detail Apply Refresh ?

Library:1,0,0,0,0

- ✓ CAP Folder:1,0,0,0,0
 - ✓ CAP:1,1,-31,2,0
 - ✓ CAP:1,1,-8,2,0
 - ✓ CAP:1,1,11,2,0
 - ✓ CAP:1,1,17,2,0
 - ✓ CAP:1,1,23,2,0
 - ✓ CAP:1,1,31,2,0
 - ✓ CAP:1,1,5,2,0
- ✓ Drive Folder:1,0,0,0,0
- ✓ Power Supply Folder:1,0,0,0,0
- ✓ Robot Folder:1,0,0,0,0
- ✓ Safety Door Folder:1,0,0,0,0

-CAP-

Status Properties

CAP Status

Transition Request

Health State ok

Device State Ready

Access State online

Locked false

Mode idle

CAP Door closed

Reserved true

Reserver scsi0

Association scsi0

CAP Cartridges

Cartridge	Location
0005740R	1,1,31,1,31
M002910R	1,1,31,2,39
0010800R	1,1,32,2,21
M054900R	1,1,33,1,32
0010050R	1,1,33,2,15
0005170R	1,1,33,2,19
M009640R	1,1,33,2,39

▼ Display Rotational or AEM CAP Properties

Use this procedure to display static information for a rotational or AEM CAP, including the serial number and number of cells.

Note – This information is also available through **Reports > CAP Details**. See [“Display a Library Report” on page 86](#) for detailed instructions.

Note – For AEM CAPs, this information is also displayed on the **Safety Door Properties** screen. See [“Display AEM Safety Door Properties” on page 398](#) for detailed instructions.

Note – This screen is used for both rotational and AEM CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

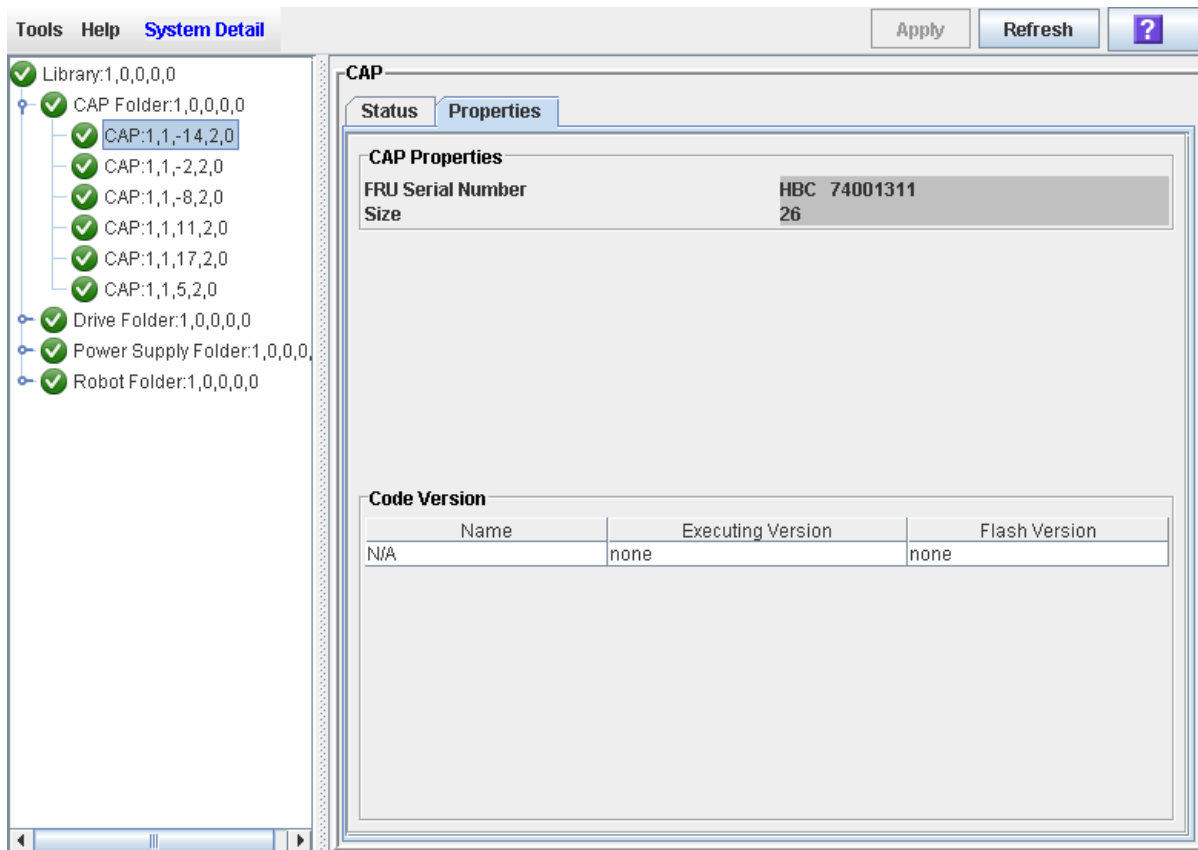
1. Select **Tools > System Detail**.
2. Expand the **CAP Folder**, and click the **CAP** you want to display.

Note – AEM CAPs are identified as follows: column “-31” for a left AEM CAP, and column “31” for a right AEM CAP.

3. Click **Properties**.

The **CAP Properties** screen appears.

- For rotational CAPs:



- For AEM CAPs:

Tools Help System Detail Apply Refresh ?

Library:1,0,0,0,0
 CAP Folder:1,0,0,0,0
 CAP:1,1,-31,2,0
 CAP:1,1,31,2,0
 CAP:1,1,5,2,0
 Drive Folder:1,0,0,0,0
 Power Supply Folder:1,0,0,0,0
 Robot Folder:1,0,0,0,0
 Safety Door Folder:1,0,0,0,0

-CAP

Status Properties

CAP Properties

FRU Serial Number PUX 96000063
 Size 234

Code Version

Name	Executing Version	Flash Version
aem.cramfs	5.12.14	5.12.14
disk.hbz.plmage	5.10.71	5.10.71
kernel.plmage	4.75.15	4.75.15
libs.cramfs	4.87.10	4.87.10
u-boot.bin	1.00.10	1.00.10

SL3000 Comm Status UserID: root Library:crimson11.central.sun.com

▼ Unlock a CAP or AEM Access Door

Normally a CAP or AEM access door is unlocked from a host. Use this procedure when you need to perform the unlock operation manually at the SL Console.

Note – If the CAP is reserved by a host, the host must release the CAP reservation before you can use this procedure.

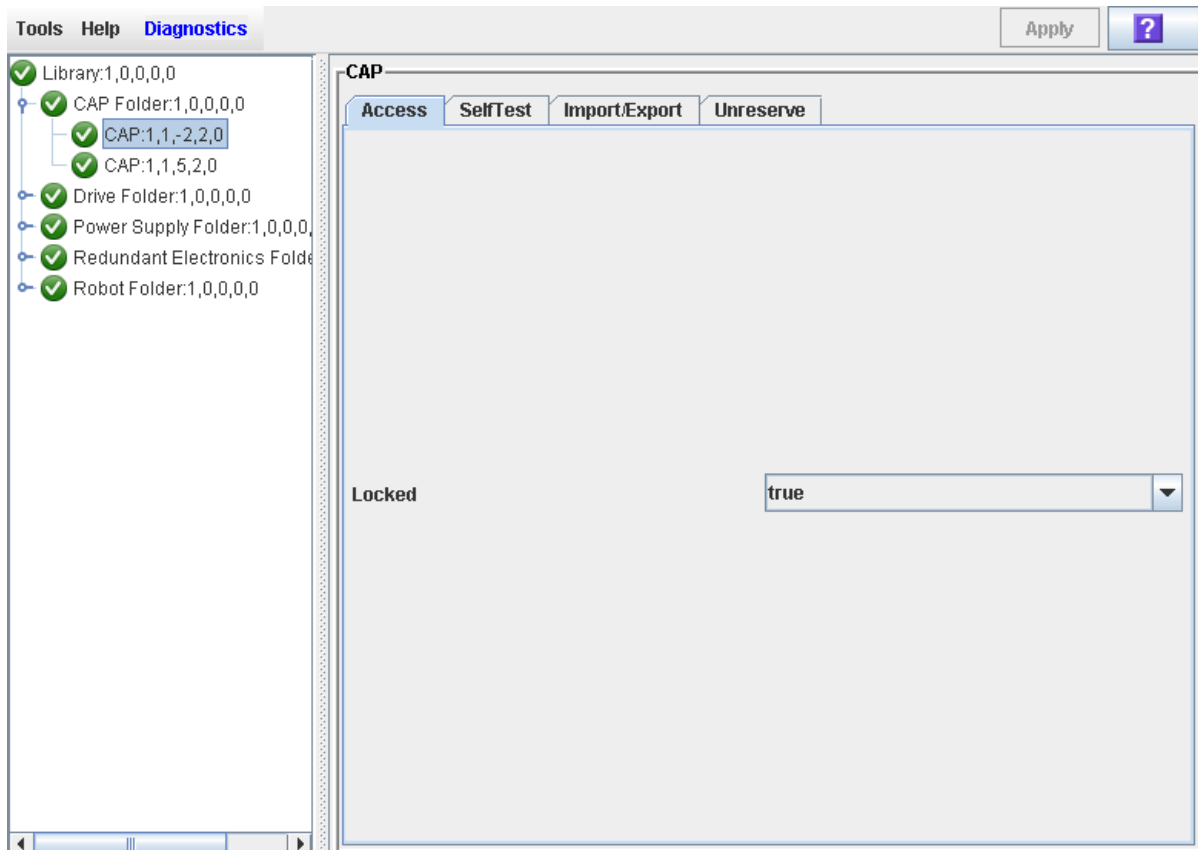
Note – This screen is used for both rotational and AEM CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

1. Select Tools > Diagnostics.
2. Expand the CAP Folder, and click the CAP you want to modify.

Note – AEM CAPs are identified as follows: column “-31” for a left AEM CAP, and column “31” for a right AEM CAP.

3. Click the Access tab.

The Access screen appears.



4. In the Locked pull-down, click false. Click the Apply button.

The **Confirm** popup appears.



5. Click **OK**.

The CAP door unlocks, and the CAP button light turns on.

Note – The CAP status changes to “unlocked” in the host library management software.

Note – The CAP or AEM is reserved by the library and inaccessible to all library hosts until you close and lock the CAP or AEM access door. See [“Lock a CAP or AEM Access Door”](#) on page 393 for details.

▼ Lock a CAP or AEM Access Door

Normally a CAP or AEM access door is locked from a host. Use this procedure when you need to perform the lock operation manually at the SL Console.

Note – This procedure applies only to HLI CAPs.

Note – This screen is used for both rotational and AEM CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

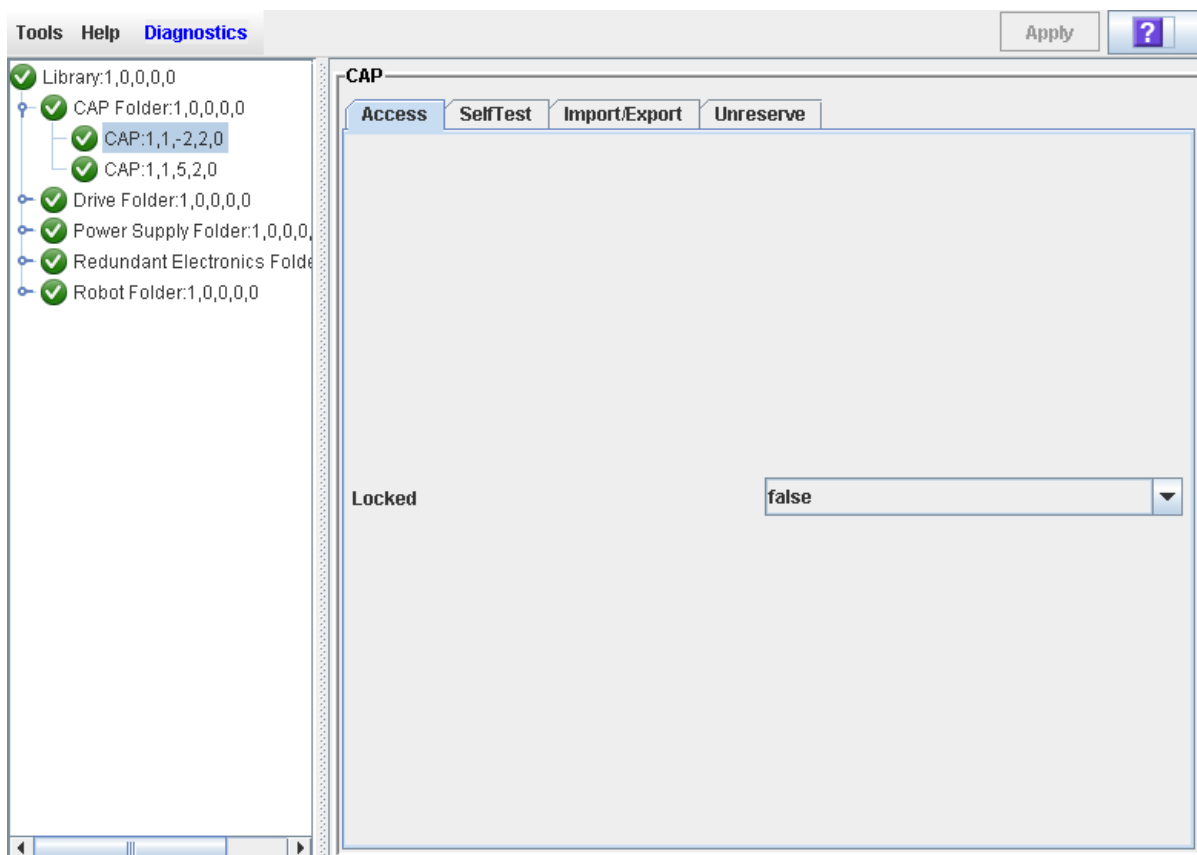
Note – If you unlock a CAP or AEM access door (see [“Unlock a CAP or AEM Access Door” on page 391](#) for details.), the CAP or AEM is reserved by the library and unavailable to all hosts until you perform this procedure.

1. Select **Tools > Diagnostics**.
2. Expand the **CAP Folder**, and click the **CAP** you want to modify.

Note – AEM CAPs are identified as follows: column “-31” for a left AEM CAP, and column “31” for a right AEM CAP.

3. Click the **Access** tab.

The **Access** screen appears.



4. In the **Locked** field, click **True**. Click the **Apply** button.

The CAP locks, and the CAP button light turns off.

▼ Change the CAP Assignment Mode for an FC-SCSI Library

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

Use this procedure to change the CAP assignment mode for all CAPs in an FC-SCSI library. The CAP assignment mode controls whether library CAPs can be used for normal host operations or for diagnostic moves. For additional information, see [“CAP Assignment Mode” on page 379](#).

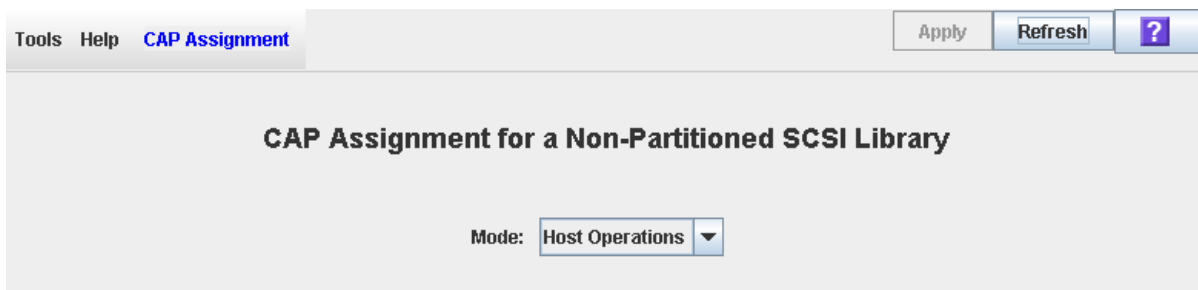
Note – This procedure applies only to libraries with FC-SCSI host connections; it is not applicable to libraries that have only HLI (TCP/IP) host connections.

Note – This procedure applies to non-partitioned libraries only; it is not applicable to partitioned libraries.

Note – This screen is used for both rotational and AEM CAPs. Throughout this section, the term “CAP” refers to both types of CAPs.

1. Verify that all library CAPs are in the following condition:
 - Available – that is, not reserved by any host,
 - Empty, and
 - Closed and locked.
2. If you are changing the CAPs to diagnostics mode, quiesce the library to all hosts. See the appropriate tape management software documentation for the procedures and commands.
3. Select Tools > CAP Assignment.

The CAP Assignment screen appears. The pull-down displays the current assignment mode setting for all CAPs in the library.

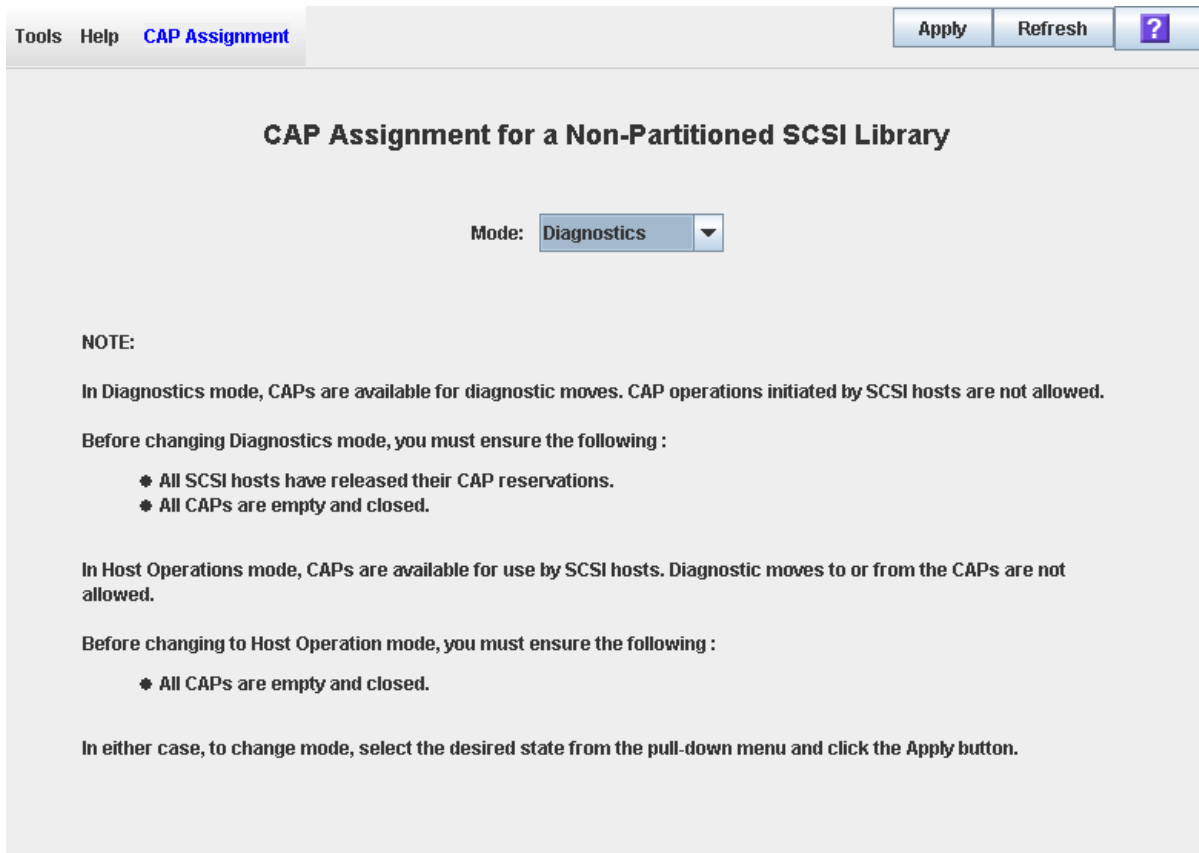


4. In the pull-down, select the mode you want to assign, and click Apply.

Options are:

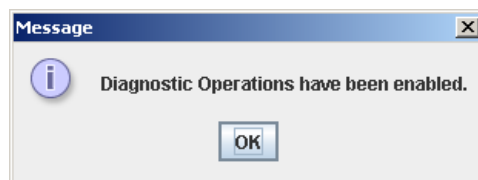
- Diagnostics – Makes all CAPs available for diagnostic operations. Select this if you want to perform manual cartridge moves, such as moving cleaning or diagnostic cartridges from the CAPs to system cells.

- Host Operations – Makes all CAPs available for normal host operations. Select this if you want to return the library to normal tape mount/dismount operations.



5. Click Apply.

A confirmation popup appears. The new CAP mode is effective immediately; the library does not need to be rebooted.



6. Click OK to dismiss the popup.

AEM Safety Door Management Tasks

Task	Page
Display AEM Safety Door Status	397
Display AEM Safety Door Properties	398

▼ Display AEM Safety Door Status

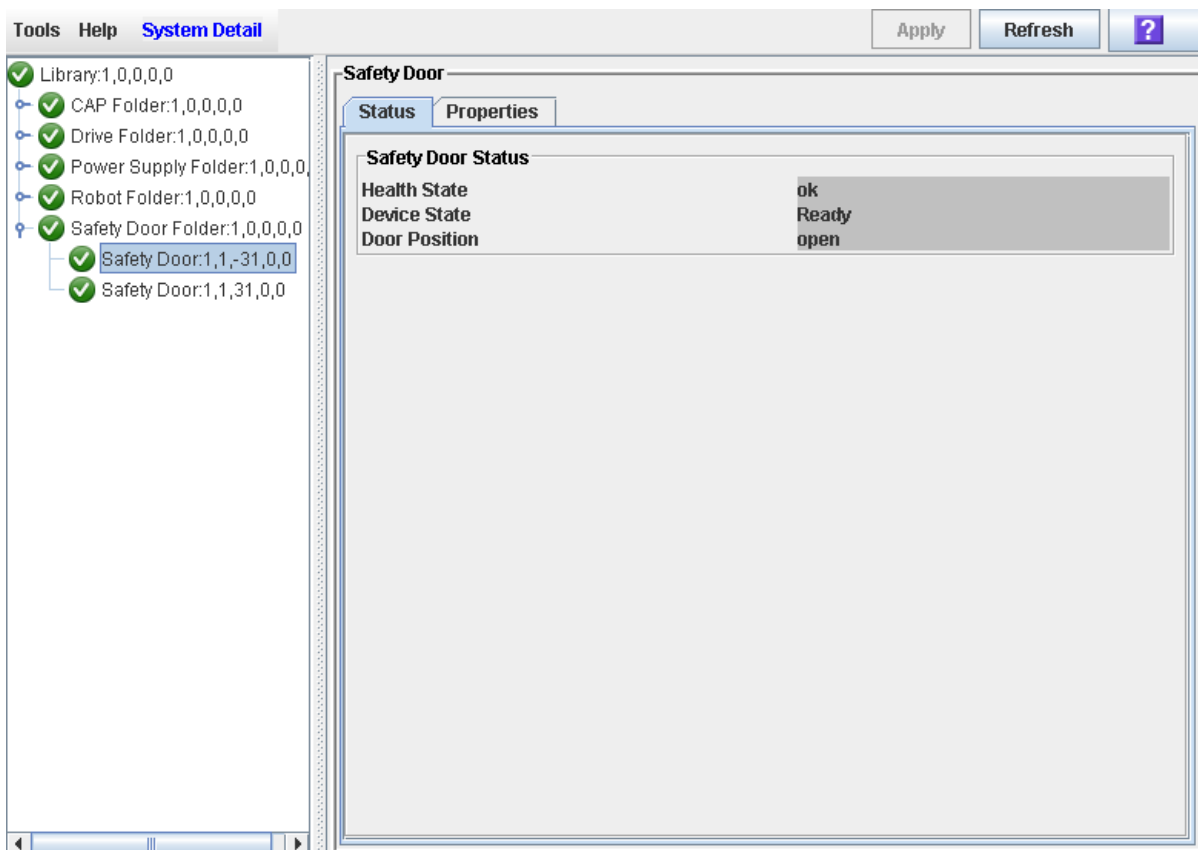
Use this procedure to display the current state of an AEM safety door. The safety door is the internal “garage” door, which lowers to separate the AEM from the rest of the library.

Note – Status information on the AEM access door, which is the door you open to bulk load or unload cartridges to or from the library, is displayed on the **CAP Status** screen. See [“Display Current Rotational or AEM CAP Status”](#) on page 386 for detailed instructions.

1. Select **Tools > System Detail**.
2. Expand the **Safety Door Folder**, and click the safety door you want to display.
3. Click **Status**.

The **Safety Door Status** screen appears.

“Door open” indicates that the safety door is up and the TallBot is free to move in and out of the AEM. “Door closed” indicates that the safety door is down and it is safe for you to open the AEM access door.



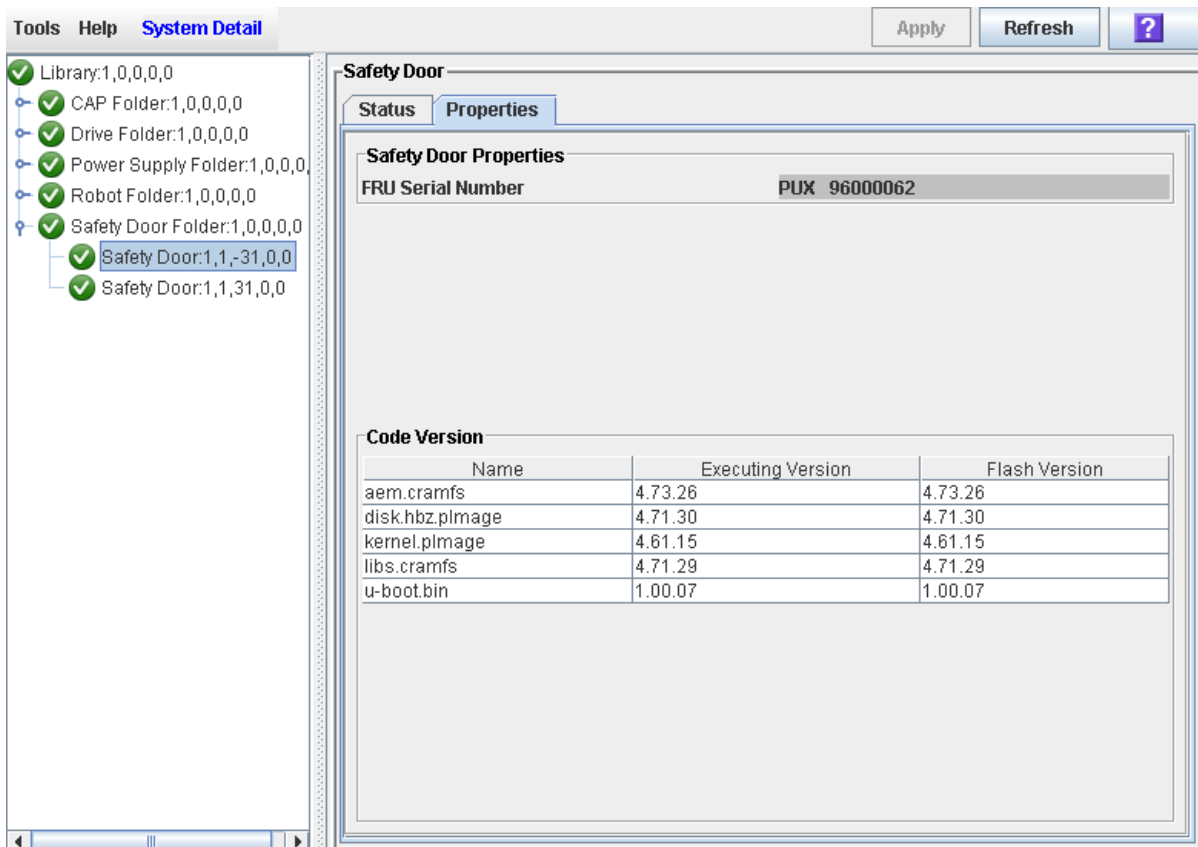
▼ Display AEM Safety Door Properties

Use this procedure to display detailed information for an AEM safety door, including the serial number and current firmware versions. The safety door is the internal “garage” door that lowers in preparation for you to open the AEM access door.

Note – This information is also available through the **CAP Properties** screen and the **CAP Details** report. See [“Display Rotational or AEM CAP Properties” on page 389](#) and [“Display a Library Report” on page 86](#) for detailed instructions.

1. Select **Tools > System Detail**.
2. Expand the **Safety Door Folder**, and click the safety door you want to display.
3. Click **Properties**.

The **Safety Door Properties** screen appears.



The screenshot shows the 'System Detail' window with the 'Safety Door' folder expanded. The 'Properties' tab is selected, displaying the 'Safety Door Properties' section with the FRU Serial Number 'PUX 96000062'. Below this is a 'Code Version' table with columns for Name, Executing Version, and Flash Version.

Name	Executing Version	Flash Version
aem.cramfs	4.73.26	4.73.26
disk.hbz.plmage	4.71.30	4.71.30
kernel.plmage	4.61.15	4.61.15
libs.cramfs	4.71.29	4.71.29
u-boot.bin	1.00.07	1.00.07

Drive Management

You can install up to 56 drives within one library, as follows:

- Up to 24 in the Base Module
- Up to 32 in a Drive Expansion Module (DEM)

See [“Tape Drives” on page 43](#) for a list of supported tape drives.

Drive Identification

The library uses the following addressing schemes for each library drive:

- Library internal address – For all drives. Assigned by the library controller based on the library, rail, column, side, and row location of the drive.
- HLI-PRC address (Host LMU Interface-Panel, Row, Column) – For TCP/IP host connections only. Assigned by host applications.
- Host SCSI element address – For FC-SCSI host connections only. Assigned by host applications.
- Drive bay address – For all drives. Assigned by the library controller based on the physical slot in which the drive is installed.
- dynamic World Wide Name – For Fibre Channel connections only. Assigned by the library controller, according to the slot into which the drive is installed.

See [Appendix A, “Library Resource Addresses” on page 589](#) for details on drive identification and addressing schemes.

Drive States

A drive can be in either of the following states:

- Online – The drive is available for read/write operations.
- Offline – The drive is not available for read/write operations.

Drive Management Tasks

Task	Page
Display Drive Summary Information	401
Display Drive Status	403
Display Drive Properties	404
Display Drive VOP	405
Display Drive LED Status	407
Display Drive Tray Status	408
Display the Drive Events Report	409
Display the Drive Media Events Report	411

▼ Display Drive Summary Information

Use this procedure to display summary information for all drives in the library.

If you need to perform a manual mount to a drive, this procedure displays a mapping of all addresses for each library drive:

- Firmware (internal address)
- Host software (HLI-PRC address)
- Hardware (drive bay)

The following information is also displayed:

- Access State – online, offline
- Drive State:
 - Empty
 - Unloaded – cartridge is present
 - Ready – cartridge is loaded
 - NotCommunicating
 - rewindUnload –drive is busy rewinding and unloading
- Drive Type
- Drive serial number
- Current code version
- Drive interface type

Note – This information is also available through **Reports > Drive Summary**. See [“Display a Library Report” on page 86](#) for detailed instructions.

1. Select **Tools > System Detail**, and click the **Drive** folder.

The screen lists the library drives and displays their locations. The internal address, drive bay, and HLI-PRC address are detailed.

Tools Help System Detail Apply Refresh ?

Library: 1,0,0,0,0
 CAP Folder:
 Drive Folder
 Power Supp
 Redundant
 Robot Folde

Drive Folder

Drive Data

Internal Addr	HLI-PRC Addr	Bay	Access State	Drive State	Drive Type	Drive S/N	Drive Node WWN	Code Ver	I/F Type
1,1-1,1,1	0,10,3,0	25	online	empty	lbnUltrium3	1200019429	50:01:04:f0:00:ae:04:4f	93G0	Fibre
1,1-2,1,1	0,10,2,0	26	online	empty	HpUltrium3	HU10615171	50:01:04:f0:00:ae:04:52	M21S-009.598	Fibre
1,1-3,1,2	0,10,5,0	31	online	empty	HpUltrium3	HU10546L46	50:01:04:f0:00:ae:04:61	L29S-008.753	Fibre
1,1-4,1,2	0,10,4,0	32	online	empty	lbnUltrium2	1100224556	50:01:04:f0:00:ae:04:64	62P0	Fibre

Comm Status UserID: test Library: crimson13.central.sun.com

▼ Display Drive Status

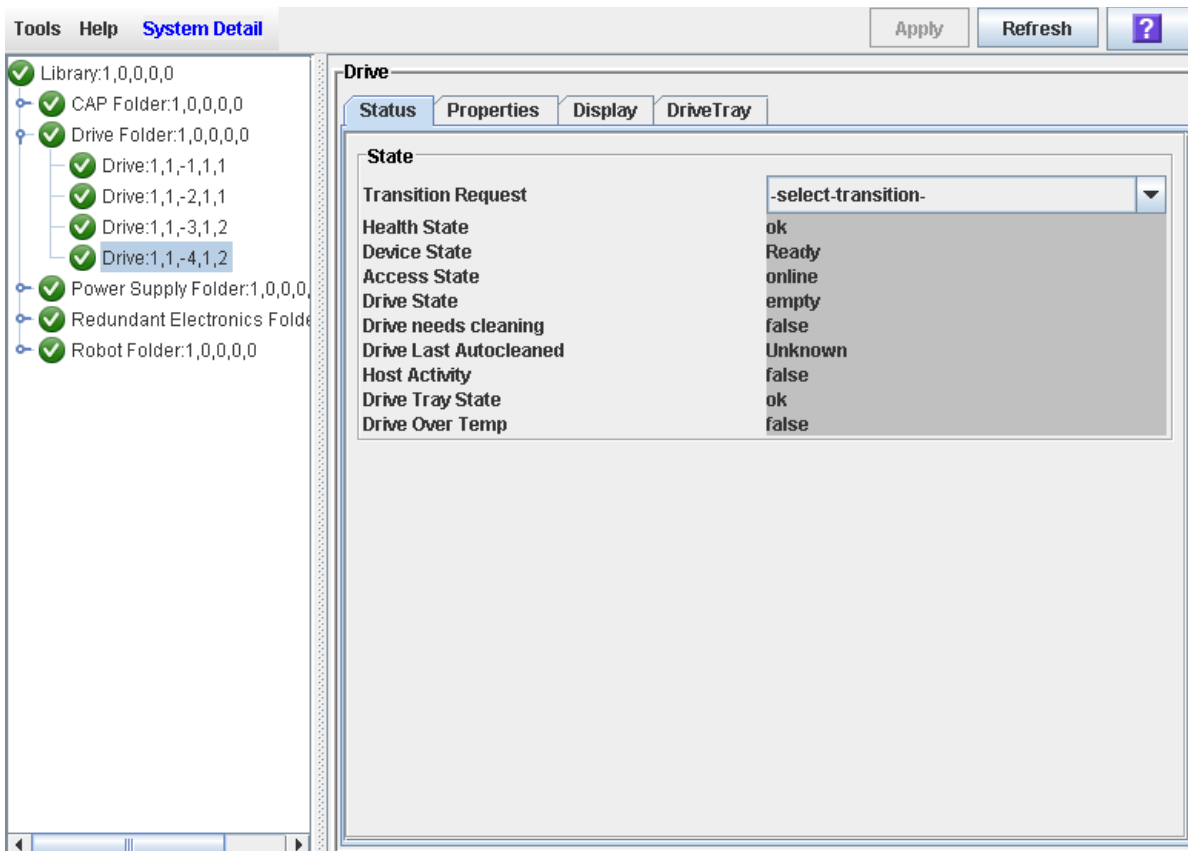
Use this procedure to display the current operational state of a drive. The information includes:

- Current drive and drive tray status information
- Whether the drive is loaded
- Cartridge VOLID if the drive is loaded
- Drive cleaning information
- Host activity

Note – This information is also available through **Reports > Drive Details**. See [“Display a Library Report” on page 86](#) for detailed instructions.

1. Select **Tools > System Detail**
2. Expand the **Drive Folder**, and click the drive you want to display.
3. Click **Status**.

The screen displays the current status of the selected drive.



▼ Display Drive Properties

View detailed drive configuration information, including the drive type and serial number and port configuration.

Note – This information is also available through **Reports > Drive Details**. See [“Display a Library Report”](#) on page 86 for detailed instructions.

1. Select **Tools > System Detail**.
2. Expand the **Drive Folder**, and click the drive you want to display.
3. Click **Properties**.

The **Drive Properties** screen appears.

The screenshot shows the 'System Detail' window with the 'Drive' folder expanded. The 'Drive:1,1,-1,1,1' drive is selected. The 'Properties' tab is active, showing the following information:

General	
Drive Type	IbmUltrium3
Code Version	93G0
Vendor	IBM
Serial Number	1200019429
Interface Type	Fibre

Drive Configuration	
World Wide Name Node	50:01:04:f0:00:ae:04:4f
Port A World Wide Name	50:01:04:f0:00:ae:04:50
Port A Enabled	true
Port A Loop ID	auto
Port A Speed (GB)	N/A
Port A Link status	Uninitialized
Port B World Wide Name	N/A
Port B Enabled	false
Port B Loop ID	auto
Port B Speed (GB)	N/A
Port B Link status	N/A

▼ Display Drive VOP

Note – This procedure is for Oracle StorageTek T10000 and T9840D drives only.

Use this procedure to display the Virtual Operator Panel (VOP) for T10000 and T9840D drives.

1. Select **Tools > System Detail**.
2. Expand the **Drive Folder**, and click the drive you want to display.
3. Click **Display**.

The drive VOP information appears in the Drive Virtual Op Panel section.

The screenshot shows the Oracle StorageTek System Detail window. The left pane shows a tree view with the following items:

- Library:1,0,0,0,0 (red error icon)
- CAP Folder:1,0,0,0,0 (red error icon)
- Drive Folder:1,0,0,0,0 (green checkmark icon)
 - Drive:1,1,1,1,5 (green checkmark icon, selected)
 - Drive:1,1,2,1,1 (green checkmark icon)
 - Drive:1,1,2,1,3 (green checkmark icon)
 - Drive:1,1,3,1,3 (green checkmark icon)
 - Drive:1,1,3,1,5 (green checkmark icon)
- Power Supply Folder:1,0,0,0,0 (green checkmark icon)
- Robot Folder:1,0,0,0,0 (green checkmark icon)

The right pane shows the 'Drive' details for the selected drive. The 'Display' tab is active, showing the following information:

Network Data	
Gateway Data	129.080.101.254
Ip Address	129.080.101.027
Ip Source	fixed
Mac Address	00:10:4f:08:53:a6
Subnet Mask	255.255.254.000

Drive Virtual Op Panel	
Drive Display Data	Online
Drive Encryption Status Led	

Drive Led Status	
Loaded	off
Online	on
Needs Clean	off
Trace Available	off

▼ Display Drive Network Data

Use this procedure to display IP and MAC address data for a library drive.

1. Select **Tools > System Detail**.
2. Expand the **Drive Folder**, and click the drive you want to display.
3. Click **Display**.

The data appears in the **Network Data** section.

The screenshot shows the 'System Detail' window with the 'Drive' folder expanded. The 'Display' tab is selected, showing network data for the selected drive. The data is organized into three sections: Network Data, Drive Virtual Op Panel, and Drive Led Status.

Network Data	
Gateway Data	129.080.101.254
Ip Address	129.080.101.027
Ip Source	fixed
Mac Address	00:10:4f:08:53:a6
Subnet Mask	255.255.254.000

Drive Virtual Op Panel	
Drive Display Data	Online
Drive Encryption Status Led	

Drive Led Status	
Loaded	off
Online	on
Needs Clean	off
Trace Available	off

▼ Display Drive LED Status

Use this procedure to display current statuses of a selected drive's LEDs, including loaded, online, cleaning, and trace available statuses.

1. Select **Tools > System Detail**.
2. Expand the **Drive Folder**, and click the drive you want to display.
3. Click **Display**.

The data appears in the Drive Led Status section.

The screenshot shows the 'System Detail' window with the 'Drive' folder expanded. The 'Display' tab is selected, showing the following data:

Network Data	
Gateway Data	129.080.101.254
Ip Address	129.080.101.027
Ip Source	fixed
Mac Address	00:10:4f:08:53:a6
Subnet Mask	255.255.254.000

Drive Virtual Op Panel	
Drive Display Data	Online
Drive Encryption Status Led	

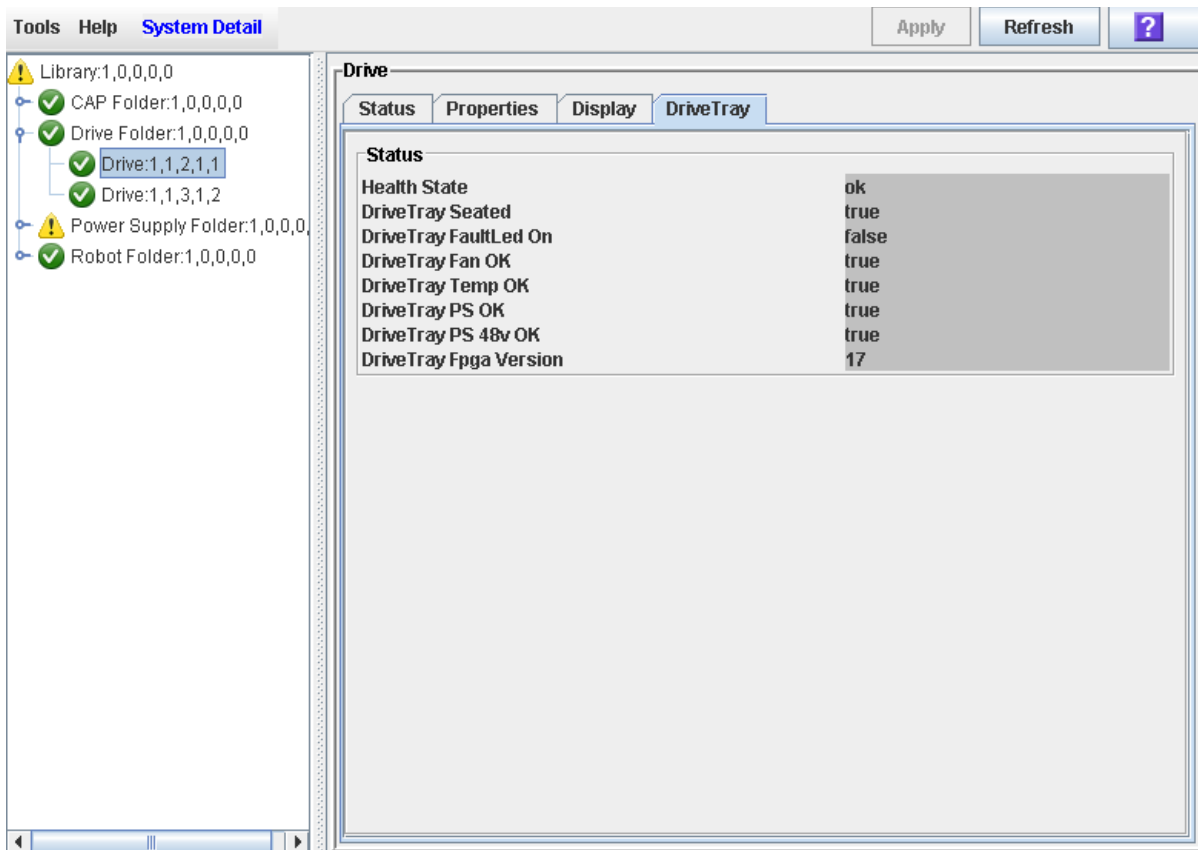
Drive Led Status	
Loaded	off
Online	on
Needs Clean	off
Trace Available	off

▼ Display Drive Tray Status

Use this procedure to display the current status of a drive tray.

1. Select **Tools > System Detail**.
2. Expand the **Drive Folder**, and click the drive you want to display.
3. Click **DriveTray**.

The **Status** screen appears.



▼ Display the Drive Events Report

Note – This feature is available starting with SL3000 firmware version FRS_2.30 and SL Console version FRS_4.30.

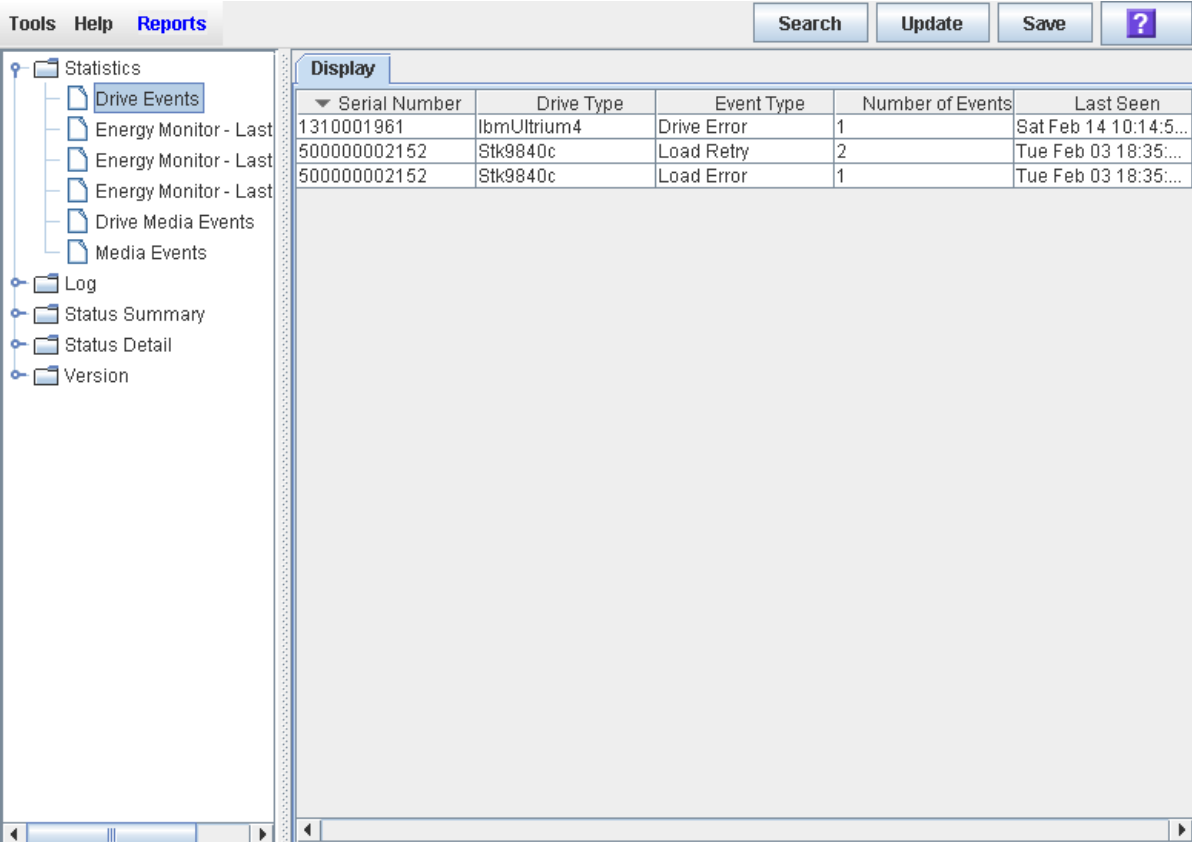
The Drive Events Report summarizes drive events and errors that have occurred on library drives. The report is updated whenever there is a drive event not related to media. You can use the report to help identify and diagnose faulty drives.

For each drive that has experienced events, the report lists the type of drive, type of error, the number of occurrences, and the date and time of the last such event. The report can display up to 70 entries.

By default, the report is sorted in drive serial number order. Optionally, you can change the sort order, and rearrange and resize the columns. See [“Modifying the Screen Layout” on page 64](#).

Note – For media errors associated with drives, see [“Display the Drive Media Events Report” on page 411](#).

1. Select **Tools > Reports**.
2. Expand the **Statistics** folder, and click **Drive Events**.



The screenshot shows the SL Console interface with the Reports window open. The left sidebar shows a tree view under 'Statistics' with 'Drive Events' selected. The main window displays a table with the following data:

Serial Number	Drive Type	Event Type	Number of Events	Last Seen
1310001961	lbnUltrium4	Drive Error	1	Sat Feb 14 10:14:5...
500000002152	Stk9840c	Load Retry	2	Tue Feb 03 18:35:...
500000002152	Stk9840c	Load Error	1	Tue Feb 03 18:35:...

Screen Fields

Serial Number

Serial number of the drive.

Drive Type

Brand and model of the drive.

Event Type

Type of event being tracked. All of these events indicate problems with the drive, not the media. Options are:

- Drive Error – Drive had a general problem.
- Load Error – Drive was unable to load the cartridge.
- Load Retry – Drive required retries to load the cartridge.

Number of Events

Total number of events of this type that have been recorded for this drive.

Last Seen

Date and time of the most recent occurrence of the error.

▼ Display the Drive Media Events Report

Note – This feature is available starting with SL3000 firmware version FRS_2.30 and SL Console version FRS_4.30.

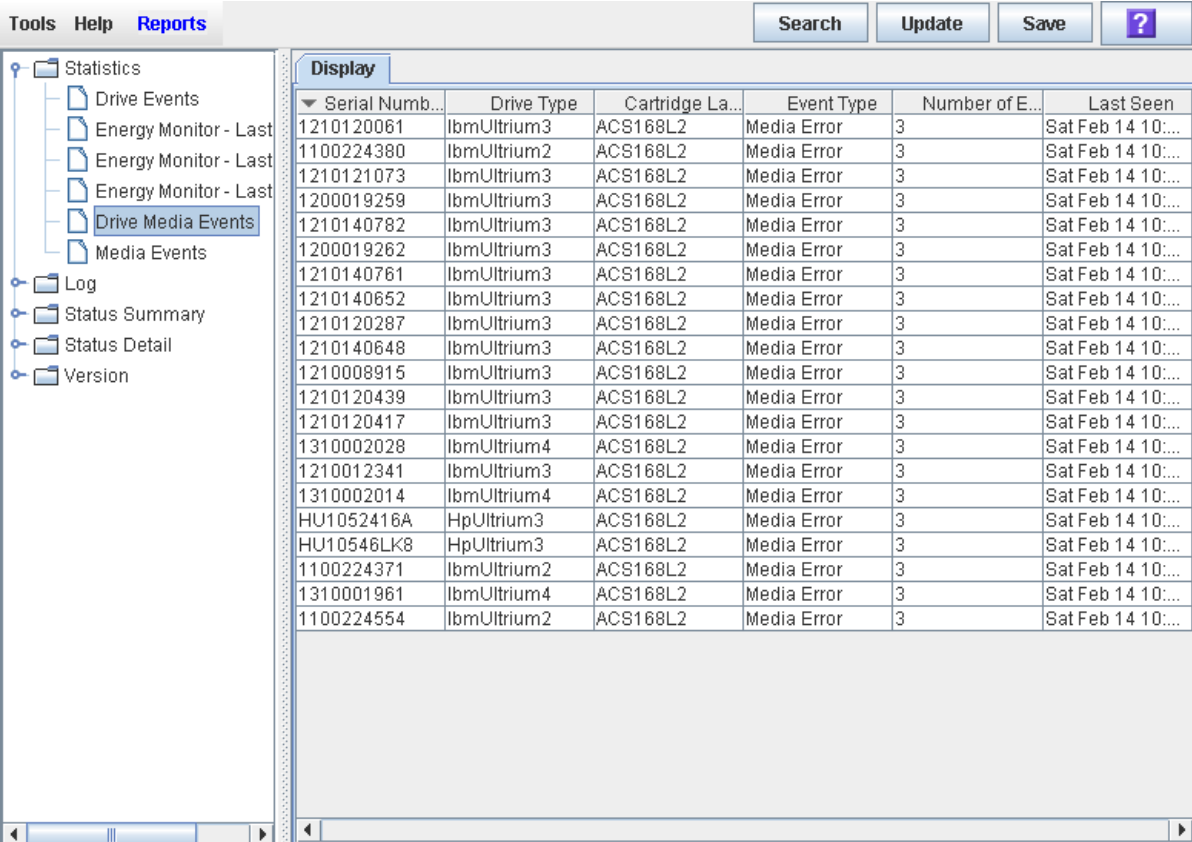
The Drive Media Events Report summarizes media events that have occurred on library drives. The report is updated whenever a media event or error occurs. You can use the report to help identify and diagnose faulty drives or cartridges.

For each drive that has experienced media events, the report lists the VOLID of the cartridge, the type of event, the number of occurrences, and the date and time of the last such event. The report can display up to 500 entries.

By default, the report is sorted in drive serial number order. Optionally, you can change the sort order, and rearrange and resize the columns. See [“Modifying the Screen Layout”](#) on page 64.

Note – For cartridge errors not necessarily associated with drives, see [“Display the Media Events Report”](#) on page 440.

1. Select **Tools > Reports**.
2. Expand the **Statistics** folder, and click **Drive Media Events**.



Serial Number	Drive Type	Cartridge Label	Event Type	Number of Events	Last Seen
1210120061	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1100224380	IbmUltrium2	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210121073	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1200019259	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210140782	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1200019262	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210140761	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210140652	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210120287	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210140648	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210008915	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210120439	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210120417	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1310002028	IbmUltrium4	ACS168L2	Media Error	3	Sat Feb 14 10:...
1210012341	IbmUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1310002014	IbmUltrium4	ACS168L2	Media Error	3	Sat Feb 14 10:...
HU1052416A	HpUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
HU10546LK8	HpUltrium3	ACS168L2	Media Error	3	Sat Feb 14 10:...
1100224371	IbmUltrium2	ACS168L2	Media Error	3	Sat Feb 14 10:...
1310001961	IbmUltrium4	ACS168L2	Media Error	3	Sat Feb 14 10:...
1100224554	IbmUltrium2	ACS168L2	Media Error	3	Sat Feb 14 10:...

Screen Fields

Serial Number

Serial number of the drive.

Drive Type

Brand and model of the drive.

Cartridge Label

VOLID of the cartridge that has experienced an event.

Event Type

Type of media event being tracked. Options are:

- Media Error – The drive indicated there was a problem with the media; this could possibly also indicate a problem with the drive.

Number of Events

Total number of events of this type that have been recorded for this cartridge on this drive.

Last Seen

Date and time of the most recent occurrence of the event.

Cartridge Management

All library cartridges must have a readable external label. See [Appendix C, “Cartridge Handling”](#) for details.

The ELS and ACSLS host software applications do not support unlabeled cartridges and will not allow them to be entered through the CAP. If you place an unlabeled cartridge in a CAP, the host leaves it there and you must remove it from the CAP.

If you place an unlabeled cartridge into a storage cell manually, the TallBot leaves it there during a hardware audit and does not attempt to place another cartridge into the slot. During an ACSLS or ELS audit, however, the host moves the cartridge to the CAP for ejection from the library.

The library controller will not allow you to mount an unlabeled or unknown type cartridge into any tape drive.

Entering Cartridges

You can enter up to 26 cartridges at one time through each rotational CAP. You can bulk load up to 234 cartridges through each AEM CAP.

Before entering a cartridge into the library, you must verify that it is labeled properly. Insert each cartridge in a CAP slot so that the customer label (if present) is facing you, the hub gear is facing down, and the cartridge label is facing you. Cartridges may be placed in any CAP slot, in any order; the TallBot audits all CAP slots when the CAP door is closed.

Note – The CAP design prevents you from placing a T9840 or T10000 cartridge in the CAP, upside-down. It does not, however, prevent you from placing an LTO cartridge in the CAP upside-down.

The TallBot’s bar-code scanner reads cartridge labels only during enter operations, since the VOLIDs are new and must be added to the library controller database. The TallBot does not need to read cartridge labels during ejects.

When a cartridge is entered into the library, it is either assigned a home cell by the host or mounted on a drive, depending on the reason why it was entered. The location of a stored cartridge is recorded in the library controller database, using the library internal address format (see [“Library Internal Address” on page 591](#)). The location is also transmitted to the host for inclusion in the host’s cartridge database.

Ejecting Cartridges

You can eject up to 26 cartridges at one time through each rotational CAP. You can bulk unload up to 234 cartridges through each AEM CAP.

To eject a cartridge, you must specify the VOLID of the cartridge you want to remove from the library. The TallBot moves to the storage location indicated in the library controller database, removes the cartridge from the slot, and places the cartridge in a CAP slot. See [“CAP Priorities for Cartridge Ejects by FC-SCSI Hosts” on page 379](#) for details on the order in which CAPs are used in FC-SCSI libraries. After the CAP is opened, the cartridge and its location are deleted from the library controller database and the host database.

Note – The TallBot does not read cartridge labels during eject operations.

Locating Cartridges

The SL Console allows you to display the library internal address of any cartridge. You can locate a cartridge based on any of the following criteria:

- VOLID – See [“Locate a Cartridge by VOLID” on page 433](#) for details.
- Library internal address – See [“Locate a Cartridge by Address” on page 434](#) for details.
- Host address (FC-SCSI or HLI) – See [“Locate a Cartridge by Address” on page 434](#) for details.

This utility is especially useful when you need to perform a manual mount of a cartridge. The library management software (ELS or ACSLS) provides the VOLID and the HLI-PRC or FC-SCSI address of the cartridge and the drive bay address of an available drive. Before you enter the library, write down the VOLID, cartridge location, and the drive slot location.

Barcode Presentation

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

Note – This feature applies only to libraries with FC-SCSI host connections; it is not applicable to libraries that have only HLI (TCP/IP) host connections.

The barcode presentation feature allows you to specify which part of a standard cartridge barcode the library passes to FC-SCSI host applications.

Standard cartridge barcodes are eight characters in length, in 6+2 format, where:

- The first six characters indicate the unique volume ID (VOLID). For example, “NGD084”.
- The last two characters indicate the media type and domain. For example, “L1” for LTO Gen 1 or “T1” for T10000. These characters are referred to as the media/domain suffix.

Normally the library passes only the six VOLID characters to a host. This applies to both HLI and FC-SCSI connections. Some FC-SCSI host applications, however, may need the full eight-character barcode in order to uniquely identify a cartridge. The barcode presentation feature supports this requirement by allowing you to configure the library or partition to provide this information in all library/host communications.

This feature does not affect how cartridge labels are displayed in library reports and screens. Nor does it affect which part of the label you must use when submitting a request through the SL Console or CLI. The full eight-character barcode is always used in these cases.

For detailed instructions on setting the barcode presentation feature, see the following procedures:

- [“Configure Barcode Presentation in a Non-Partitioned FC-SCSI Library” on page 423](#)
- [“Configure Cartridge Barcode Presentation for an FC-SCSI Partition” on page 425](#)

Recovery Moves

Using the recovery move diagnostic function, you can move a cartridge from one location to another. For example:

- You can return a cartridge to its original location from a CAP cell, drive, or another storage cell location.
- You might decide to group cartridges by data type or to move them closer to their assigned drives.
- You can eject a cleaning or diagnostic cartridge that has expired.
- You can enter a new cleaning or diagnostic cartridge and move it to a reserved storage cell.

A cartridge currently in a storage cell can be moved only to a CAP, a system cell, or another storage cell, not to a drive. A cartridge currently in a drive, CAP, or system cell can be moved to any other unoccupied location in the library. See the following procedures for complete details:

- [“Move a Specified Cartridge by VOLID” on page 436](#)
- [“Move a Cartridge From a Specified Location” on page 438](#)

Before moving any cartridge, it is helpful to display or print a report showing where cartridges are currently located and which storage cells are unoccupied. See one of the following procedures for detailed instructions:

- [“List Library Cartridges” on page 430](#)

Cartridge Management Tasks

Task	Page
Enter Cartridges Through a Rotational CAP	417
Eject Cartridges Through a Rotational CAP	418
Bulk Load Cartridges Through an AEM CAP	419
Bulk Unload Cartridges Through an AEM CAP	418
Configure Barcode Presentation in a Non-Partitioned FC-SCSI Library	423
Configure Cartridge Barcode Presentation for an FC-SCSI Partition	425
Display Library Cartridge Information in Tabular Format	427
List Library Cartridges	430
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Display the Media Events Report	440

▼ Enter Cartridges Through a Rotational CAP

Use this procedure to enter cartridges into the library through a rotational CAP.

Note – This procedure applies to non-partitioned libraries. For partitioned libraries, see [“Enter Cartridges Into a Partition” on page 246](#).

Note – For detailed instruction on loading cartridges through an AEM CAP, see [“Bulk Load Cartridges Through an AEM CAP” on page 419](#).

1. **Initiate the enter operation at the host. See the appropriate tape management software documentation for the procedures and commands.**

Note – If the CAP is in auto enter mode, you can skip this step and proceed directly to [Step 2](#).

2. **Push the CAP button to open the CAP.**

The CAP door opens.

Caution – *Possible Equipment Damage*. DO NOT force the CAP to open or close.

3. **Place the cartridges in the CAP.**

Insert the cartridges so that the customer label (if present) is facing up, the hub gear is facing down, and the cartridge label is facing you.

You can enter the cartridges directly into the magazines while the magazines are in the CAP; or you can remove the magazines from the CAP, insert cartridges into the magazines, and then replace the cartridge-filled magazines into the CAP.

Note – Cartridges may be placed in any CAP slot, in any order; the TallBot audits all CAP slots when the CAP door closes.

Caution – *Possible Media Damage*. While cartridges that do not contain external labels or are placed upside-down can be entered, this is not advisable. It presents problems when an audit is performed. Likewise, cartridges that contain unreadable or damaged labels should not be entered.

4. **Push the CAP button to close the CAP.**

The CAP closes and locks automatically, and the CAP button light turns off.

Caution – *Possible Equipment Damage*. DO NOT force the CAP to open or close.

5. **The TallBot audits the CAP and then moves the cartridges from the CAP to storage slots within the appropriate partition.**

When all cartridges have been moved from the CAP, the library recognizes that the CAP is empty and the CAP is returned to its default state.

▼ Eject Cartridges Through a Rotational CAP

Use this procedure to eject cartridges from the library through a rotational CAP.

Note – This procedure applies to non-partitioned libraries. For partitioned libraries, see [“Eject Cartridges From a Partition” on page 247](#).

Note – For detailed instruction on unloading cartridges through an AEM CAP, see [“Bulk Unload Cartridges Through an AEM CAP” on page 421](#).

1. **Initiate the eject operation at the host. See the appropriate tape management software documentation for the procedures and commands.**

You must specify the VOLIDs of the cartridges you want to remove from the library. For HLI hosts, you can specify the CAPs to use. For FC-SCSI hosts, the library uses CAPs in a pre-defined order; see [“CAP Priorities for Cartridge Ejects by FC-SCSI Hosts” on page 379](#) for details.

2. **The TallBot places the cartridges into the CAPs.**

When all the requested cartridges have been placed in CAPs, or all CAPs are full, the CAPs are unlocked.

3. **Push the CAP button to open the CAP.**

The CAP door opens.

Caution – *Possible Equipment Damage*. DO NOT force the CAP to open or close.

4. **Remove the cartridges from the CAP.**

You can remove the cartridges directly from the magazines while the magazines are in the CAP; or you can take the magazines out of the CAP, remove the cartridges from the magazines, and then replace the empty magazines in the CAP.

Note – If you do not replace the magazines in the CAP, the cells will be marked “absent” by the library controller.

5. **Push the CAP button to close the CAP.**

The CAP closes and locks automatically, and the CAP button light turns off.

Caution – *Possible Equipment Damage*. DO NOT force the CAP to open or close.

If more cartridges need to be exported, the TallBot continues filling the necessary CAPs. Wait until the CAP door is unlocked and repeat [Step 3](#) through [Step 5](#).

The eject operation ends automatically when all specified cartridges have been ejected.

6. **The TallBot audits the CAP to verify that it is empty.**

The CAP is then returned to its default state.

▼ Bulk Load Cartridges Through an AEM CAP

Use this procedure to load cartridges into the library through an AEM CAP. You can load up to 234 cartridges at a time.

Note – This procedure applies to non-partitioned libraries. For partitioned libraries, see [“Enter Cartridges Into a Partition” on page 246](#).

Note – For detailed instruction on entering cartridges through a rotational CAP, see [“Enter Cartridges Through a Rotational CAP” on page 417](#).

1. **Initiate the enter operation at the host. See the appropriate tape management software documentation for the procedures and commands.**

Note – If the AEM CAP is in auto enter mode, you can skip this step and proceed directly to [Step 2](#).

The **Unlocked** light on the AEM access door is lit.

2. **Push the AEM CAP button.**

The **Wait** light on the AEM access door starts blinking as all in-process jobs are finished. The robot is cleared from the AEM, and the safety door comes down. Depending on the level of activity in the library, this may take several minutes.

Once the safety door is completely down and the AEM is sealed, the **Wait** light stops blinking and the **Enter** light goes on solid.

3. **Lift the latch, and open the door.**

Caution – *Possible Equipment Damage*. DO NOT force the AEM access door to open or close.

4. **Place the cartridges in the AEM CAP.**

Insert the cartridges so that the customer label (if present) is facing up, the hub gear is facing down, and the cartridge label is facing you.

You can enter the cartridges directly into the magazines while the magazines are in the CAP; or you can remove the magazines from the CAP, insert cartridges into the magazines, and then replace the cartridge-filled magazines into the CAP.

Note – Cartridges may be placed in any CAP slot, in any order; the TallBot audits all CAP slots when the CAP door closes.

Caution – *Possible Media Damage*. While cartridges that do not contain external labels or are placed upside-down can be entered, this is not advisable. It presents problems when an audit is performed. Likewise, cartridges that contain unreadable or damaged labels should not be entered.

Caution – *Possible Equipment Damage*. When replacing magazines on the AEM walls, make sure you seat them correctly.

5. **Close and latch the AEM access door.**

Caution – *Possible Equipment Damage*. DO NOT force the AEM access door to open or close.

6. **Push the AEM CAP button.**

The **Enter** light goes off, and the **Wait** light starts blinking.

The safety door goes up.

7. **The robot moves into the AEM, audits the AEM CAP, and then moves the cartridges from the AEM CAP to available storage cells.**

When all cartridges have been moved from the AEM CAP, the library recognizes that the AEM is empty and it is returned to its default state.

▼ Bulk Unload Cartridges Through an AEM CAP

Use this procedure to unload cartridges from the library through an AEM CAP. You can unload up to 234 cartridges at a time.

Note – For eject operations initiated from an FC-SCSI host, AEM CAPs are used only after all rotational CAPs have been filled. See [“CAP Priorities for Cartridge Ejects by FC-SCSI Hosts” on page 379](#) for complete details.

Note – This procedure applies to non-partitioned libraries. For partitioned libraries, see [“Eject Cartridges From a Partition” on page 247](#).

Note – For detailed instruction on ejecting cartridges through a rotational CAP, see [“Eject Cartridges Through a Rotational CAP” on page 418](#).

1. **Initiate the eject operation at the host. See the appropriate tape management software documentation for the procedures and commands.**

You must specify the VOLIDs of the cartridges you want to remove from the library. For HLI hosts, you can specify the AEM CAPs to use. For FC-SCSI hosts, the library uses rotational and AEM CAPs in a pre-defined order; see [“CAP Priorities for Cartridge Ejects by FC-SCSI Hosts” on page 379](#) for details.

2. **The TallBot places the cartridges into the AEM cells.**

When all the requested cartridges have been placed in the AEM, the AEM is unlocked and the **Unlocked** light on the AEM access door is lit.

3. **Push the AEM CAP button.**

The **Wait** light on the AEM access door starts blinking as all in-process jobs are finished. The TallBot is cleared from the AEM, and the safety door comes down. Depending on the level of activity in the library, this may take several minutes.

Once the safety door is completely down and the AEM is sealed, the **Wait** light stops blinking and the **Enter** light goes on solid.

4. **Lift the latch, and open the door.**

Caution – *Possible Equipment Damage.* DO NOT force the CAP to open or close.

5. **Remove the cartridges from the AEM CAP.**

You can remove the cartridges directly from the magazines while the magazines are in the AEM; or you can take the magazines out of the AEM, remove the cartridges from the magazines, and then replace the empty magazines in the AEM.

Caution – *Possible Equipment Damage.* When replacing magazines on the AEM walls, make sure you seat them correctly.

Note – If you do not replace the magazines in the AEM, the cells will be marked “absent” by the library controller.

6. **Close and latch the AEM access door.**

Caution – Possible Equipment Damage. DO NOT force the AEM access door to open or close.

7. Push the AEM CAP button.

The **Enter** light goes off, and the **Wait** light starts blinking.

The safety door goes up.

8. If more cartridges need to be exported, the TallBot continues filling the necessary AEMs. Wait until the AEM Unlocked light is lit and repeat [Step 3](#) through [Step 6](#).

The eject operation ends automatically when all specified cartridges have been ejected.

The TallBot moves into the AEM and audits the AEM CAP to verify that it is empty. The AEM CAP is then returned to its default state.

Note – The audit of the AEM CAP should take less than three minutes.

▼ Configure Barcode Presentation in a Non-Partitioned FC-SCSI Library

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

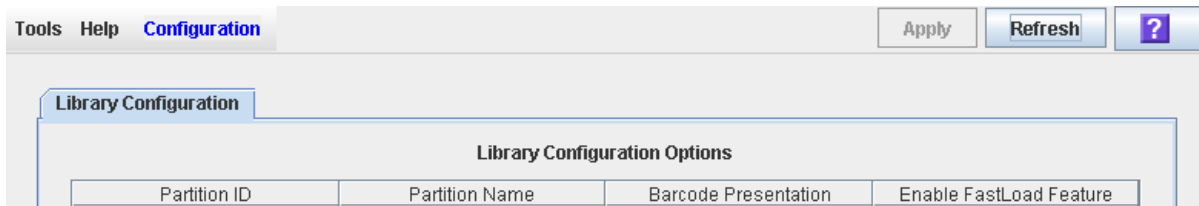
Use this procedure to configure the cartridge barcode presentation format for an FC-SCSI library. This specifies which part of a cartridge barcode the library passes to host applications that use the FC-SCSI interface.

Note – This procedure applies only to libraries with FC-SCSI host connections; it is not applicable to libraries that have only HLLI (TCP/IP) host connections.

Note – This procedure applies to non-partitioned libraries only. For partitioned libraries, see [“Configure Cartridge Barcode Presentation for an FC-SCSI Partition”](#) on page 425.

1. Select Tools > Configuration.

The Library Configuration screen appears.



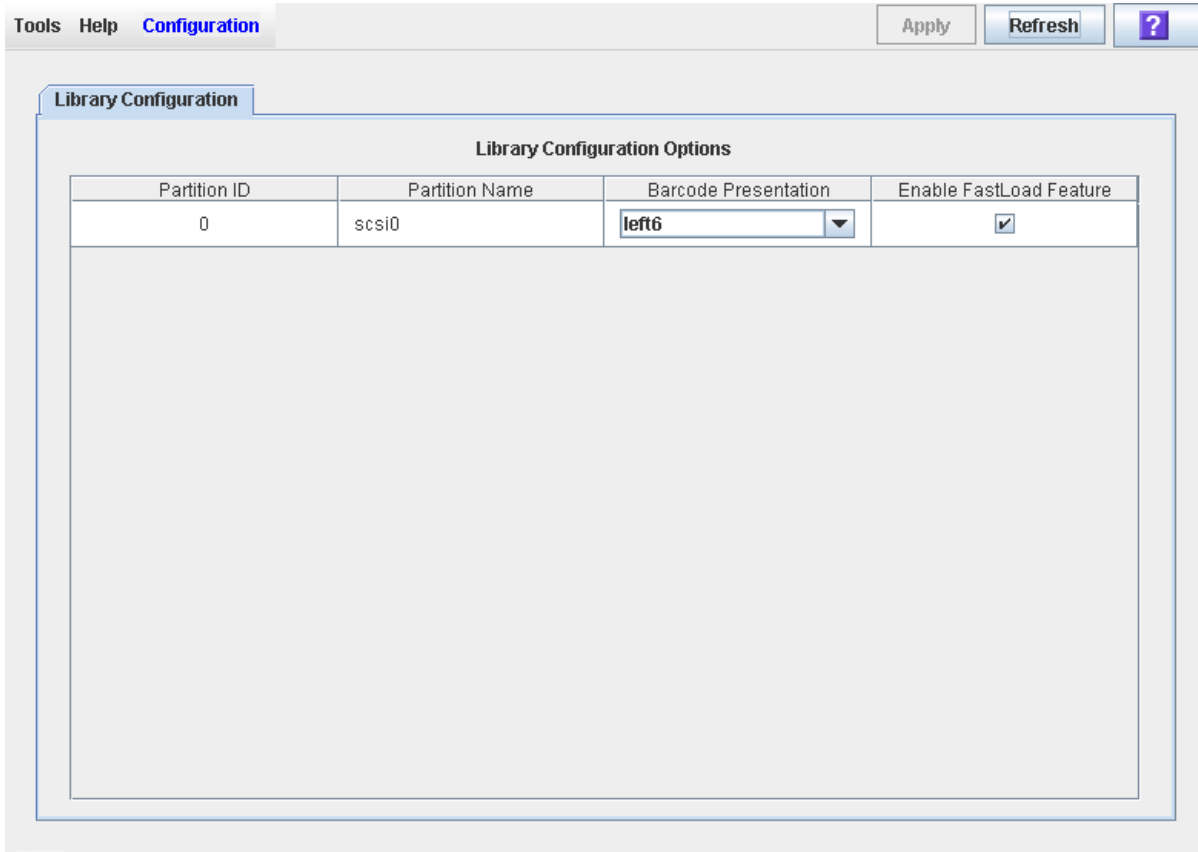
2. In the Barcode Presentation pull-down, select the presentation format you want to use for the entire library.

Note – The Partition Name “scsi0” indicates a non-partitioned library.

Options are:

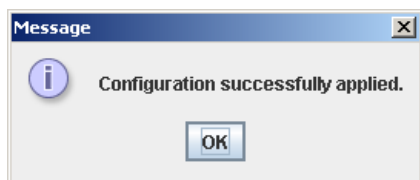
- all – All eight barcode characters are passed to host applications.

- left6 – Only the six VOLID characters, which are on the left side of the barcode, are passed to host applications. The domain and type characters, which are the two characters on the right, are not passed. This is the default setting.



3. Click Apply.

A confirmation popup appears. The new barcode presentation setting is effective immediately; the library does not need to be rebooted.



4. Click OK to dismiss the popup.

▼ Configure Cartridge Barcode Presentation for an FC-SCSI Partition

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

Use this procedure to configure the cartridge barcode presentation format for an FC-SCSI partition. This specifies which part of a cartridge barcode the library passes to host applications accessing the partition. For details on this feature, see [“Barcode Presentation” on page 414](#).

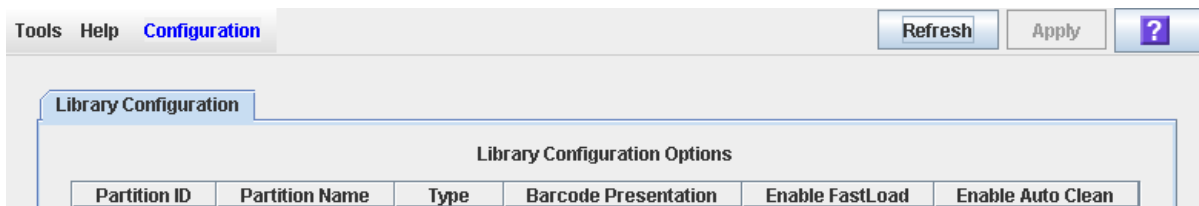
You can assign different presentation methods to each library partition.

Note – This procedure applies only to libraries with FC-SCSI host connections; it is not applicable to libraries that have only HLI (TCP/IP) host connections.

Note – This procedure applies to partitioned libraries only. For non-partitioned libraries, see [“Configure Barcode Presentation in a Non-Partitioned FC-SCSI Library” on page 423](#).

1. Select Tools > Configuration.

The **Library Configuration** screen appears.

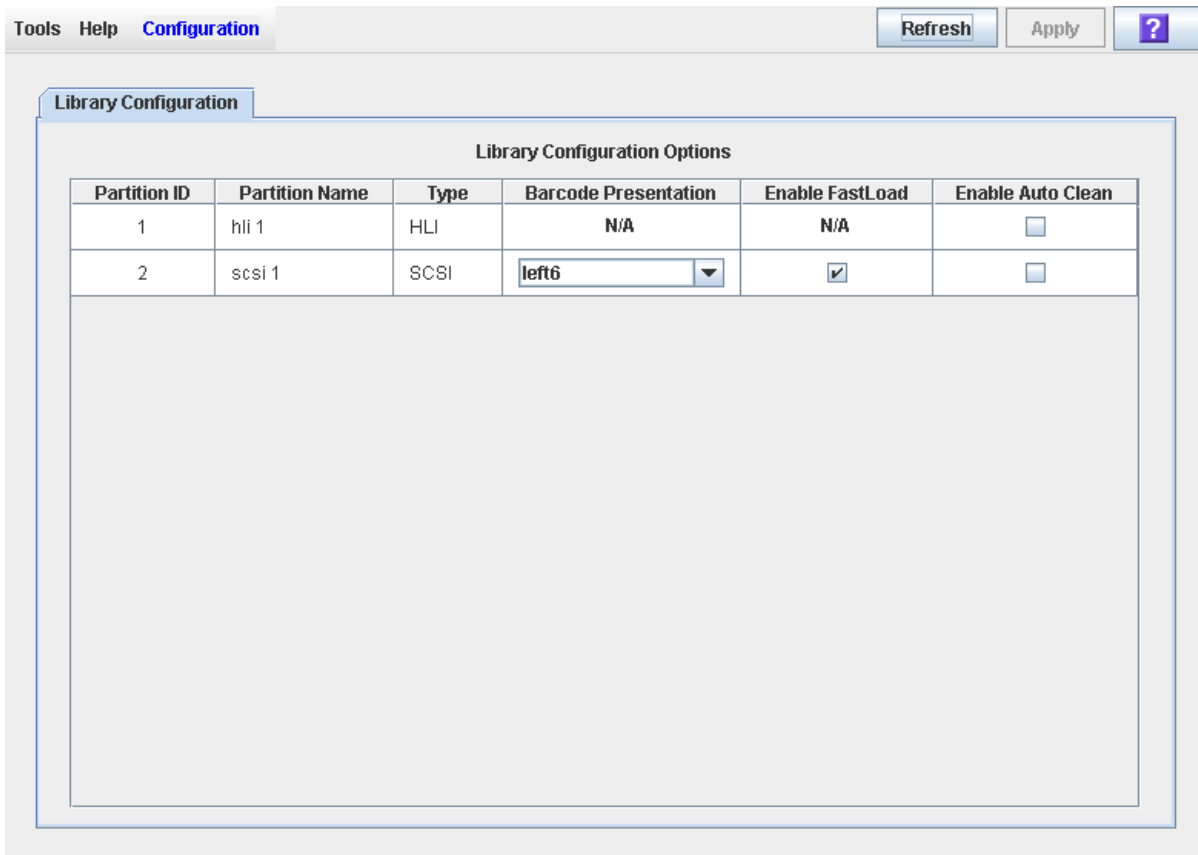


2. In the partition Barcode Presentation pull-down, select the presentation format you want to use for that partition. You can use multiple pull-downs to select settings for more than one partition at a time.

Options are:

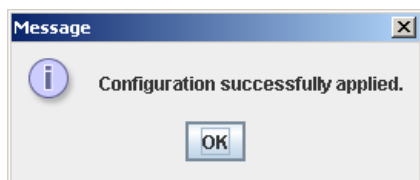
- all – All eight barcode characters are passed to host applications.

- left6 – Only the six VOLID characters, which are on the left side of the barcode, are passed to host applications. The domain and type characters, which are the two characters on the right, are not passed. This is the default setting.



3. Click Apply.

A confirmation popup appears. The new barcode presentation settings are effective immediately; the library does not need to be rebooted.



4. Click OK to dismiss the popup.

▼ Display Library Cartridge Information in Tabular Format

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

Use this procedure to display detailed information about all library cartridges in a sortable, tabular format. Information includes the cartridge VOLIDs, locations, and media types. You can use this report for a variety of purposes, such as:

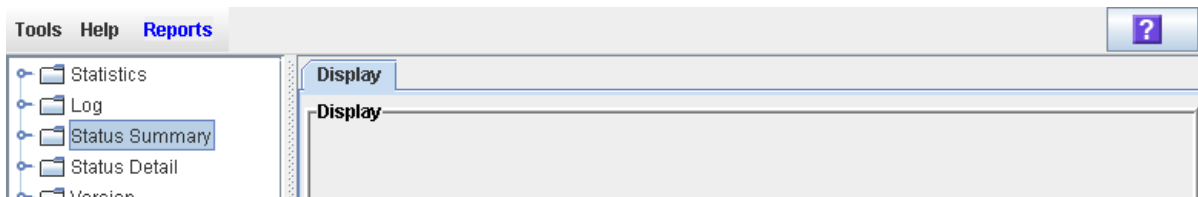
- Locate cartridges by library internal address
- Verify that all cartridges in the library have valid, readable barcode labels
- Identify cleaning and diagnostic cartridges
- Identify cartridge media types in a mixed-media library

Note – You can modify the layout and display of this screen. See [“Modifying the Screen Layout” on page 64](#) for details.

Note – To display most of the same data in a straight text format, see [“List Library Cartridges” on page 430](#).

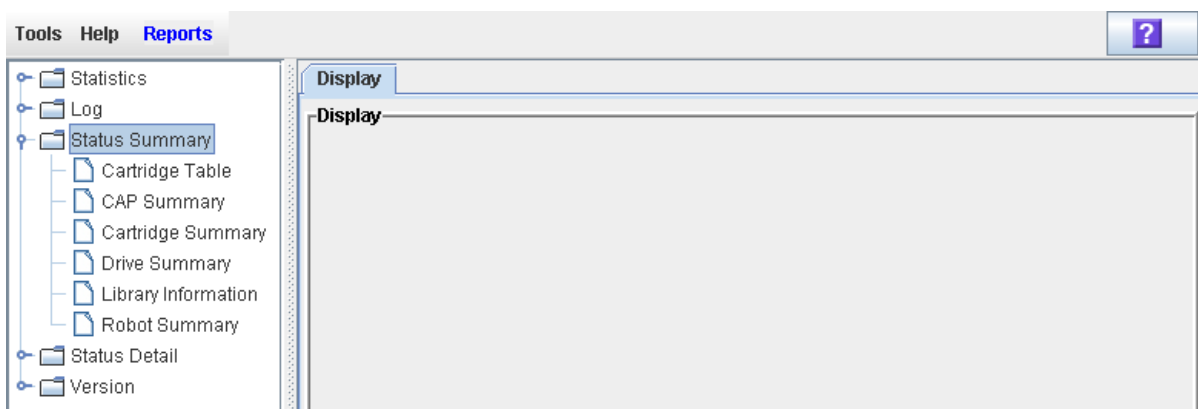
1. Select Tools > Reports.

All library report options are listed in the navigation bar.



2. Expand the Status Summary folder.

All Status Summary reports are listed.



3. Click Cartridge Table.

The Cartridge Table Report is displayed. See “Screen Fields” below for a detailed description of each screen field.

lib	rail	col	side	row	Location Type	Media Type	Type	Label	Custom Label
1	1	13	2	24	cell	9840_R	data	EN40700R	
1	1	17	2	45	cell	T10000	data	ENG000T1	
1	1	-12	2	31	cell	T10000	data	ENG002T1	
1	1	15	2	31	cell	T10000	data	ENG003T1	
1	1	8	1	5	cell	T10000	data	ENG004T1	
1	1	26	2	34	cell	T10000	data	ENG005T1	
1	1	13	1	42	cell	T10000	data	ENG006T1	
1	1	7	1	13	cell	T10000	data	ENG007T1	
1	1	20	2	28	cell	T10000	data	ENG008T1	
1	1	-12	2	37	cell	T10000	data	ENG009T1	
1	1	21	1	44	cell	T10000	data	ENG011T1	
1	1	-18	1	3	cell	T10000	data	ENG012T1	
1	1	18	1	14	cell	T10000	data	ENG013T1	
1	1	11	1	29	cell	T10000	data	ENG014T1	
1	1	-22	1	2	cell	LtoGen3_400GB	data	ENG030L3	
1	1	-7	1	20	cell	LtoGen3_400GB	data	ENG031L3	
1	1	-14	1	29	cell	LtoGen3_400GB	data	ENG035L3	
1	1	15	2	49	cell	LtoGen3_400GB	data	ENG037L3	
1	1	-8	2	50	cell	LtoGen3_400GB	data	ENG038L3	
1	1	-22	1	6	cell	LtoGen3_400GB	data	ENG039L3	
1	1	7	2	17	cell	LtoGen2_200GB	data	ENG051L2	
1	1	27	2	17	cell	LtoGen2_200GB	data	ENG053L2	
1	1	-28	2	35	cell	LtoGen2_200GB	data	ENG054L2	
1	1	-22	1	1	cell	LtoGen2_200GB	data	ENG055L2	
1	1	22	2	23	cell	LtoGen3_400GB	data	ENG061L3	
1	1	-20	1	33	cell	LtoGen3_400GB	data	ENG062L3	
1	1	19	2	21	cell	LtoGen3_400GB	data	ENG064L3	
1	1	-17	2	3	cell	LtoGen3_400GB	data	ENG065L3	
1	1	-23	2	7	cell	LtoGen3_400GB	data	ENG066L3	

4. If you want to search the report data or save it to a file, see the following procedures:
 - “Search a Library Report” on page 88
 - “Save Library Report Data to a File” on page 90

Screen Fields

lib, rail, col, side, row

Library, rail, column, side, and row. Together these values identify the library internal address where the cartridge is located.

For a detailed description of the library internal address format, see “Library Internal Address” on page 591 “Internal Address” on page 664.

Location Type

Type of library location where the cartridge is located. Options are:

- CAP – Rotational or AEM CAP cell
- cell – Regular storage cell
- drive – Loaded in a tape drive
- sysCell – System (reserved) cell; cleaning or diagnostic cartridges are typically stored in these cells

Media Type

Type of media in the cartridge. For example, Lto Gen3_400GB, 9840_R, T10000.

Type

Domain, or usage type, of the cartridge. Options are:

- clean – Cleaning cartridge
- data – Data cartridge
- diagnostic – Diagnostic cartridge

Label

Unique VOLID of the cartridge. Standard VOLIDs are eight characters in length.

A value of #UREAD indicates the barcode label is unreadable. Possible reasons for this are as follows:

- The label is missing, damaged, or upside-down. In this case, the **Custom Label** field also indicates #UREAD.
- The label has a non-standard format, such as a ten-character VOLID, or an unrecognized cartridge domain or media type indicator. In this case, the non-standard VOLID is displayed in the **Custom Label** field.

The library controller does not allow you to mount an unlabeled or unknown type cartridge into any tape drive.

Custom Label

Non-standard VOLID of the cartridge, if applicable (requires the Open Format Volser feature). Possible entries for this field are as follows:

- Blank – The cartridge has a readable, standard eight-character VOLID cartridge label, as indicated in the **Label** field.
- #UREAD – The cartridge label is truly not readable, possibly because it is missing, damaged, or upside-down.
- Any other value – Indicates the non-standard VOLID of the cartridge.

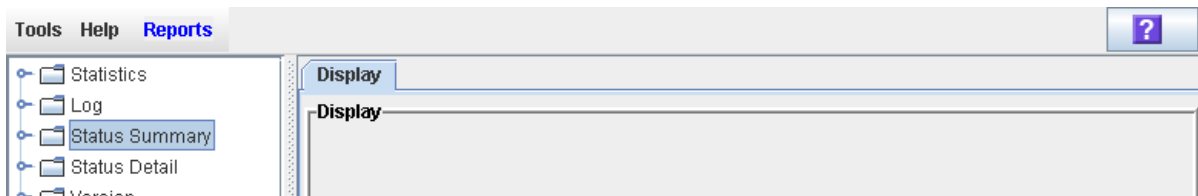
▼ List Library Cartridges

Use this procedure to display information about all library cartridges, including their VOLIDs, locations, and media types.

Note – To display the same data in a tabular format, see [“Display Library Cartridge Information in Tabular Format”](#) on page 427

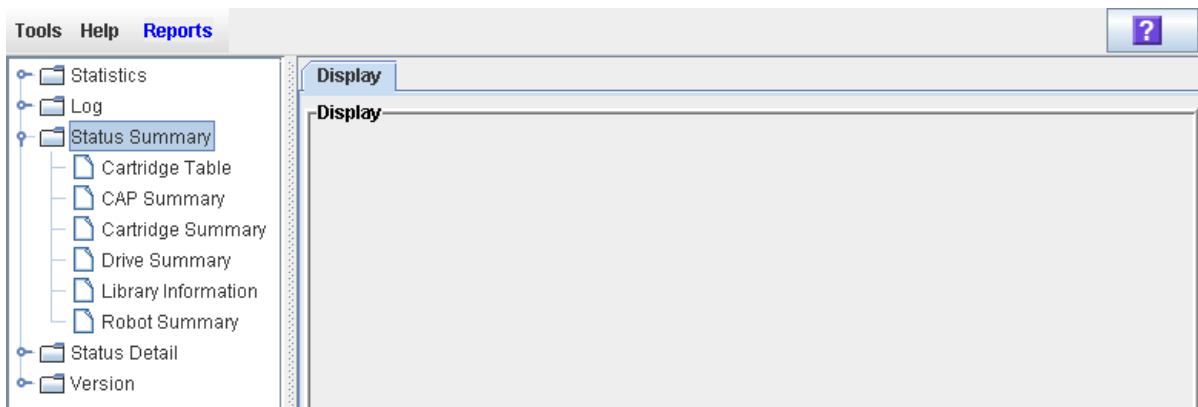
1. Select Tools > Reports.

All library report options are listed in the navigation bar.



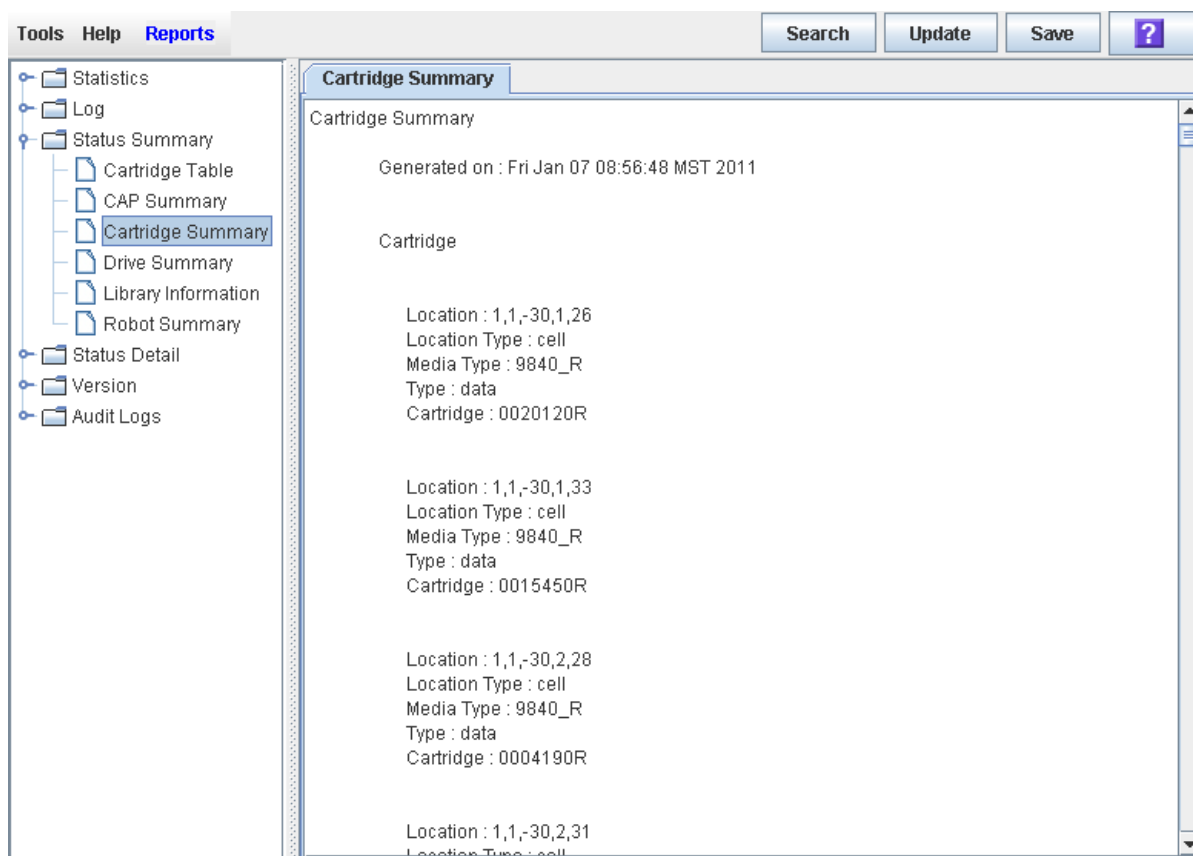
2. Expand the Status Summary folder.

All Status Summary reports are listed.



3. Click Cartridge Summary.

The Cartridge Summary Report is displayed. See “Screen Fields” below for a detailed description of each screen field.



4. If you want to search the report data or save it to a file, see the following procedures:

- “Display a Library Report” on page 86
- “Save Library Report Data to a File” on page 90

Screen Fields

Location

Library, rail, column, side, and row. Together these values identify the library internal address where the cartridge is located.

For a detailed description of the library internal address format, see “Library Internal Address” on page 591 “Internal Address” on page 664.

Location Type

Type of library location where the cartridge is located. Options are:

- CAP – Rotational or AEM CAP cell
- cell – Regular storage cell
- drive – Loaded in a tape drive

- sysCell – System (reserved) cell; cleaning or diagnostic cartridges are typically stored in these cells

Media Type

Type of media in the cartridge. For example, Lto Gen3_400GB, 9840_R, T10000.

Type

Domain, or usage type, of the cartridge. Options are:

- clean – Cleaning cartridge
- data – Data cartridge
- diagnostic – Diagnostic cartridge

Cartridge

Unique VOLID of the cartridge. Standard VOLIDs are eight characters in length.

A value of #UREAD indicates the barcode label is unreadable. Possible reasons for this are as follows:

- The label is missing or damaged.
- The label has a non-standard format, such as a ten-character VOLID, or an unrecognized cartridge domain type or media type indicator.

The library controller does not allow you to mount an unlabeled or unknown type cartridge into any tape drive.

▼ Locate a Cartridge by VOLID

Use this procedure to display the current location of a cartridge with a specified volume ID. The location can be displayed in one of the following formats:

- Library internal address
- HLI-PRC address (HLI hosts only)

1. Select **Tools > Diagnostics**, and click the **Library** folder.

2. Click the **Search** tab.

The **Library Search** screen appears.

3. In the **Search Type** pull-down, click **VOLID**.

4. Enter the **VOLID**, **Requester**, and **Cartridge Type**.

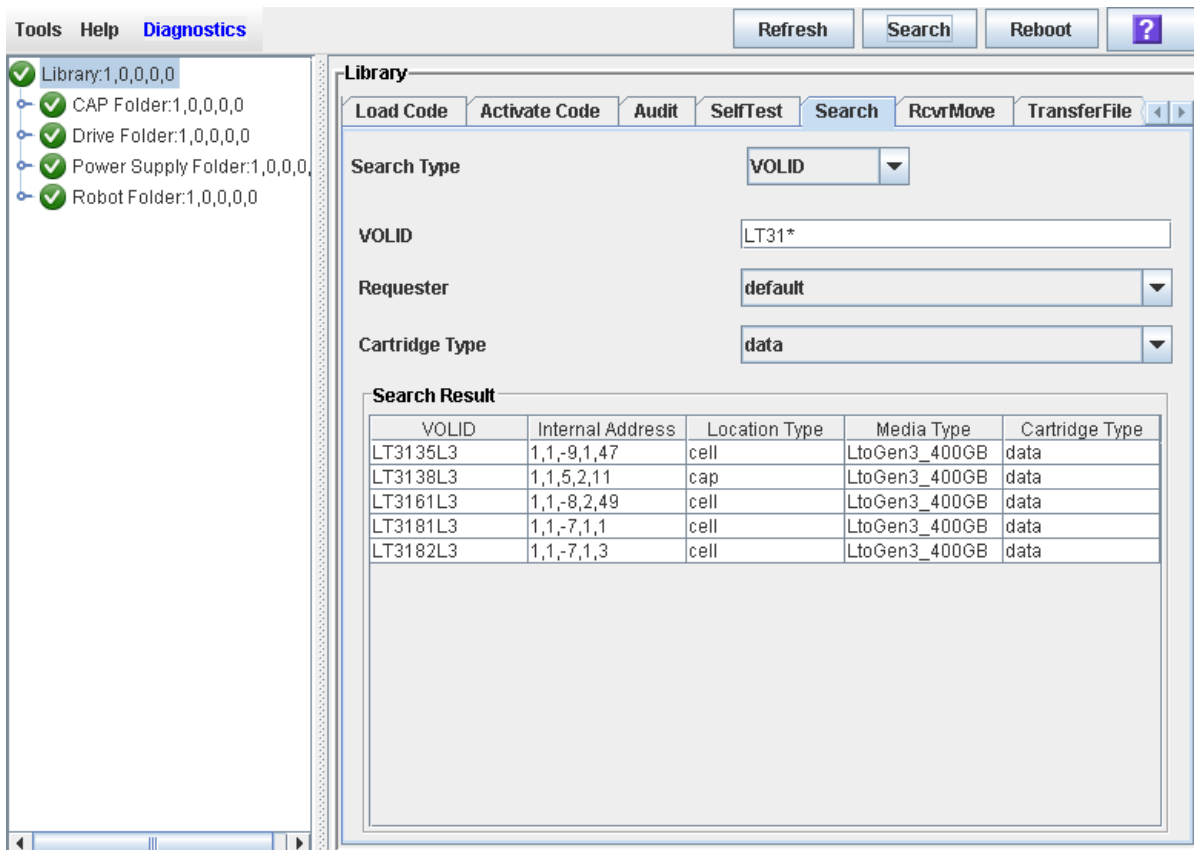
The **Requester** controls the address format that will be displayed for the cartridge location.

- To display the library internal address, click **default**.
- To display the HLI-PRC address, click **hli0** or **hli1**.

Note – You can use wildcards in the **VOLID** field.

5. Click **Search**.

The screen displays all cartridges meeting the search criteria.



The screenshot shows the 'Library Search' interface. The left sidebar lists folders: Library:1,0,0,0,0 (checked), CAP Folder:1,0,0,0,0 (checked), Drive Folder:1,0,0,0,0 (checked), Power Supply Folder:1,0,0,0,0 (checked), and Robot Folder:1,0,0,0,0 (checked). The main panel has tabs: Load Code, Activate Code, Audit, SelfTest, Search (selected), RcvrMove, and TransferFile. Search criteria are: Search Type: VOLID, VOLID: LT31*, Requester: default, Cartridge Type: data. The Search Result table is as follows:

VOLID	Internal Address	Location Type	Media Type	Cartridge Type
LT3135L3	1,1,-9,1,47	cell	LtoGen3_400GB	data
LT3138L3	1,1,5,2,11	cap	LtoGen3_400GB	data
LT3161L3	1,1,-8,2,49	cell	LtoGen3_400GB	data
LT3181L3	1,1,-7,1,1	cell	LtoGen3_400GB	data
LT3182L3	1,1,-7,1,3	cell	LtoGen3_400GB	data

▼ Locate a Cartridge by Address

Use this procedure to display detailed information for cartridges with a specified location. Wildcards allow you to display all cartridges in a specified general area (for example, in a specified panel, row, or column). You can specify the location using one of the following formats:

- Library internal address
- HLI-PRC address (HLI hosts only)
- FC-SCSI address (FC-SCSI hosts only)

1. **Select Tools > Diagnostics, and click the Library folder.**

2. **Click the Search tab.**

The **Library Search** screen appears.

3. **In the Search Type pull-down, click Location.**

Note – The default Search Type is VOLID.

The screen is updated to display fields allowing you to search by location.

4. **In the Location pull-down, select the type of match you want to perform in the search.**

5. **In the Requester pull-down, select the type of address format you want to use for the search.**

6. **In the Location field, enter the parameters for the search.**

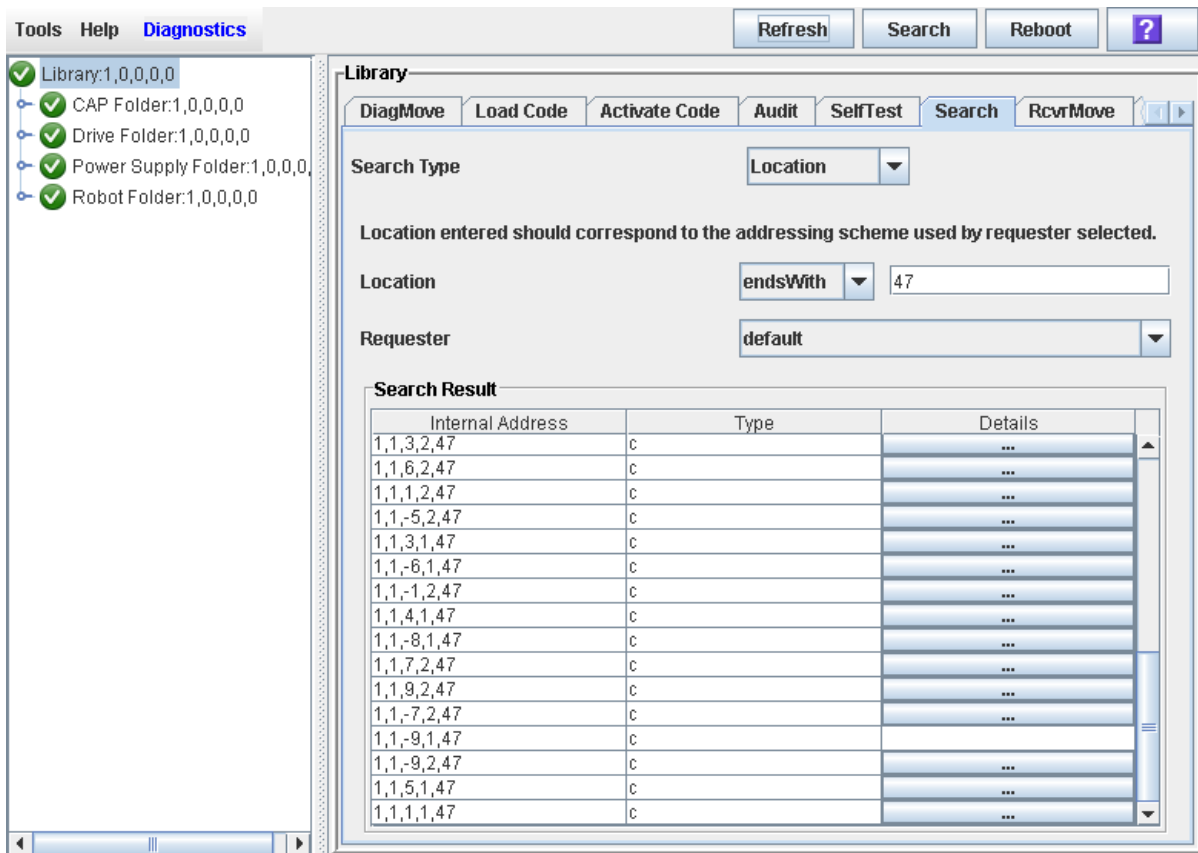
The format you use must correspond to the **Requester** you have specified. For example:

- Use the library internal address format if **Requester** is “default”.
- Use the HLI-PRC address if **Requester** is an HLI host.
- Use the FC-SCSI address if **Requester** is an FC-SCSI host.

Note – You cannot use wildcards in this field.

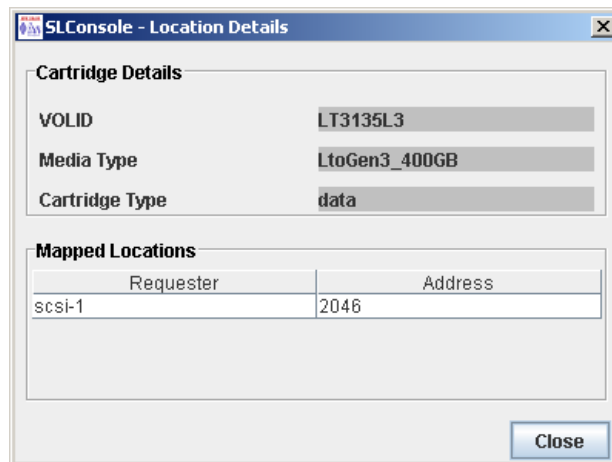
7. **Click the Search button.**

The screen displays all locations meeting the search criteria.



- To see details about a cartridge or to view a location mapping, click the ... button in the Details column.

The Location Details screen appears.



- Click Close to dismiss the popup.

▼ Move a Specified Cartridge by VOLID

Use this procedure to move a cartridge with a specified VOLID to a specified location within the library.

Note – This procedure updates the cartridge’s location in the library controller database, but not in the host database. Therefore after performing this procedure, you must perform an audit from the host software to update the host database. Failure to do so will cause future mount requests from the host software to fail.

Caution – Use caution when performing this procedure in partitioned libraries. You could inadvertently move a cartridge from one partition to another, allowing the new partition to overwrite data on the cartridge.

1. **Select Tools > Diagnostics, and click the Library folder.**

2. **Click the RcvrMove tab.**

The Recovery Move screen appears.

3. **In the Source Location Mode field, click VOLID.**

The screen is updated with the appropriate **Source Location** fields.

4. **In the VOLID field, specify the VOLID of the cartridge you want to move.**

5. **In the Destination Location Type pull-down menu, select the type of location where you want to move the cartridge to. Options are:**

- CAP
- Storage Slots
- Drive
- Reserved Slots
- The following restrictions apply:
 - The destination can be a drive only if the source is a CAP or reserved slot.
 - For you to move a cartridge to a drive, the cartridge media type must be compatible with the drive type.
 - You cannot move a cartridge to a location that is already occupied.
 - Although not strictly enforced, it is recommended that only diagnostic or cleaning cartridges be moved to reserved slots.

6. **In the Destination Location table, specify the library internal address of the destination location by making the appropriate selections in the following pull-down menus:**

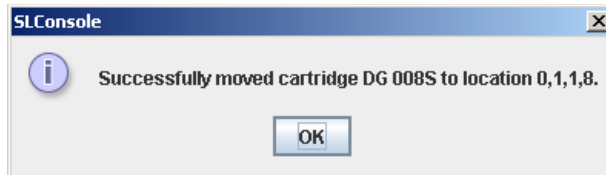
The following special selections are available on the pull-down menus:

- Min—First element of that location type—in the library
- Max—Last element of that location type—in the library

Caution – If the library is partitioned, make sure to keep the cartridge in the same partition it is currently allocated to. Moving a cartridge to a cell allocated to a different partition could result in a host treating the cartridge as scratch and overwriting the data. Moving the cartridge to an unallocated cell will result in the cartridge being inaccessible to all hosts.

7. **Click the Start button in the Options Bar.**

The robot moves the cartridge. A success message popup appears when the operation is complete.



8. **Click OK.**

9. **To verify the new location, you can display a Cartridge Summary Report. See ["List Library Cartridges"](#) on page 430 for details. For example:**

10. **To update the new cartridge location in the host database, initiate a library audit from the host software. See the appropriate tape management software documentation for the procedures and commands.**

▼ Move a Cartridge From a Specified Location

Use this procedure to move a cartridge from one specified location to another within the library.

Note – This procedure updates the cartridge’s location in the library controller database, but not in the host database. Therefore after performing this procedure, you must perform an audit from the host software to update the host database. Failure to do so will cause future mount requests from the host software to fail.

Caution – Use caution when performing this procedure in partitioned libraries. You could inadvertently move a cartridge from one partition to another, allowing the new partition to overwrite data on the cartridge.

1. **Select Tools > Diagnostics, and click the Library folder.**

2. **Click the RcvrMove tab.**

The Recovery Move screen appears.

3. **In the Source Location Mode field, click Location.**

The screen is updated with the appropriate **Source Location** fields.

4. **In the Source Location Type pull-down menu, select the cartridge’s current location type. Options are:**

- CAP
- Slot
- Drive
- Reserved Slots

5. **In the Source Location table, specify the library internal address of the source location by making the appropriate selections in the following pull-down menus:**

The following special selections are available on the pull-down menus:

- Min—First element of that location type—in the library
- Max—Last element of that location type—in the library

6. **In the Destination Location Type pull-down menu, select the type of location where you want to move the cartridge to. Options are:**

- CAP
- Storage Slots
- Drive
- Reserved Slots
- The following restrictions apply:
- The destination location can be a drive only if the source is a CAP or reserved slot.

- For you to move a cartridge to a drive, the cartridge media type must be compatible with the drive type.
 - You cannot move a cartridge to a location that is already occupied.
 - Although not strictly enforced, it is recommended that only diagnostic or cleaning cartridges be moved to reserved slots.
7. **In the Destination Location table, specify the library internal address of the destination location by making the appropriate selections in the following pull-down menus:**

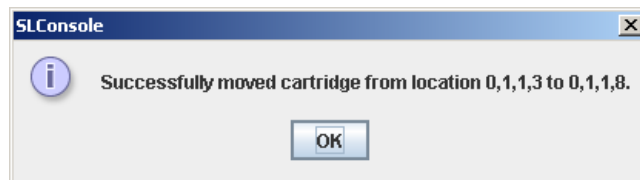
The following special selections are available on the pull-down menus:

- Min—First element of that location type—in the library
- Max—Last element of that location type—in the library

Caution – If the library is partitioned, make sure to keep the cartridge in the same partition it is currently allocated to. Moving a cartridge to a cell allocated to a different partition could result in a host treating the cartridge as scratch and overwriting the data. Moving the cartridge to an unallocated cell will result in the cartridge being inaccessible to all hosts.

8. **Click the Start button in the Options Bar.**

The robot moves the cartridge, and then a success message popup appears.



9. **Click OK.**
10. **To verify the new location, you can display a Cartridge Summary Report. See ["List Library Cartridges"](#) on page 430 for details. For example:**
11. **To update the new cartridge location in the host database, initiate a library audit from the host software. See the appropriate tape management software documentation for the procedures and commands.**

▼ Display the Media Events Report

Note – This feature is available starting with SL3000 firmware version FRS_2.30 and SL Console version FRS_4.30.

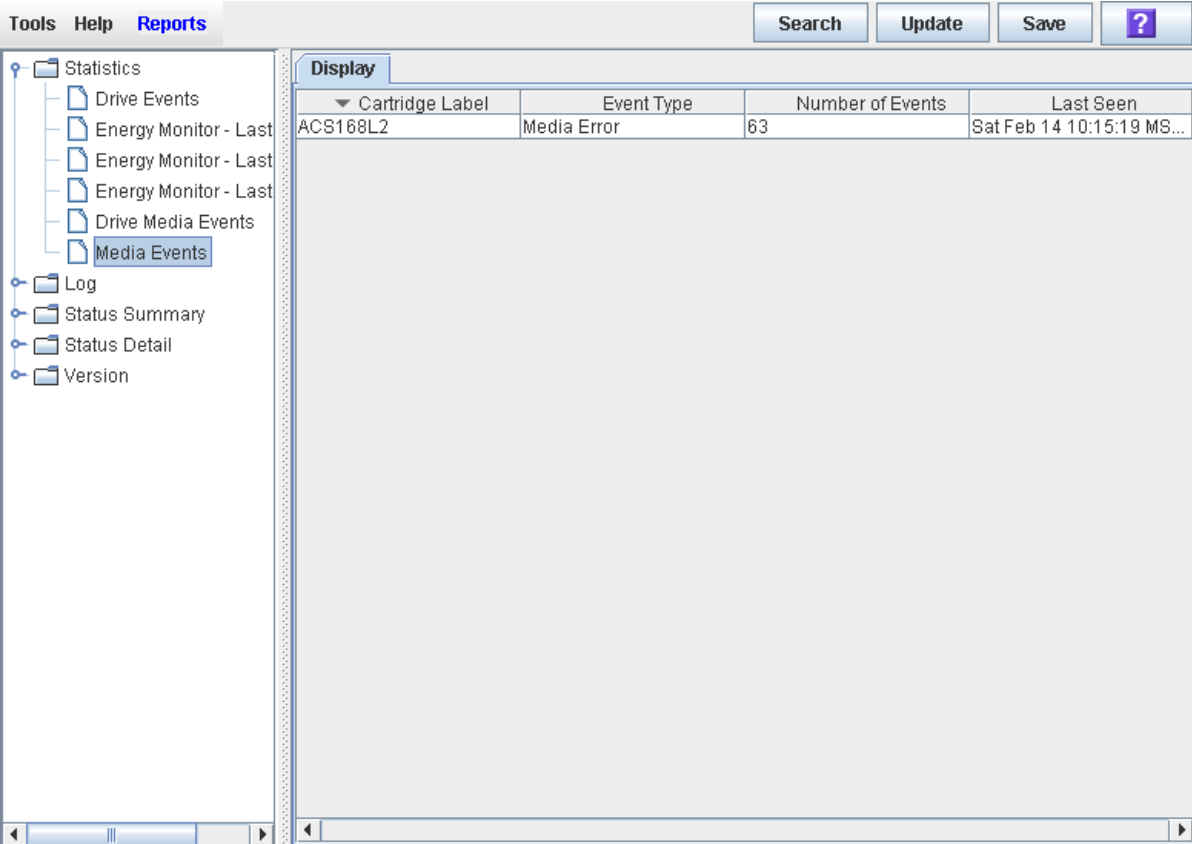
The Media Events Report summarizes library cartridge media events. The report is updated whenever a media event or error occurs on any drive. You can use the report to help identify and diagnose faulty cartridges.

For each cartridge that has experienced media events, the report lists the VOLID of the cartridge, the type of event, the number of occurrences, and the date and time of the last such event. The report can display up to 2000 entries.

By default, the report is sorted in VOLID order. Optionally, you can change the sort order, and rearrange and resize the columns. See [“Modifying the Screen Layout” on page 64](#).

Note – For cartridge events associated with particular drives, see [“Display the Drive Media Events Report” on page 411](#).

1. Select **Tools > Reports**.
2. Expand the **Statistics** folder, and click **Media Events**.



The screenshot shows the 'Reports' window in the SL3000 console. The 'Statistics' folder is expanded, and 'Media Events' is selected. The 'Display' tab is active, showing a table with the following data:

Cartridge Label	Event Type	Number of Events	Last Seen
ACS168L2	Media Error	63	Sat Feb 14 10:15:19 MS...

Screen Fields

Cartridge Label

VOLID of the cartridge that has experienced an event.

Event Type

Type of media event being tracked. Options are:

- Media Error – The drive indicated there was a problem with the media; this could possibly also indicate a problem with the drive.
- Misbuckle Error – The drive was unable to grab the buckle of the media and could not thread the tape. The media is likely damaged.

Number of Events

Total number of events of this type that have been recorded for this cartridge.

Last Seen

Date and time of the most recent occurrence of the event.

Drive Cleaning

Library tape drives require periodic cleaning to prevent read/write errors. A drive is cleaned by mounting a compatible cleaning cartridge in response to a cleaning request from the drive.

The SL3000 allows you to manage drive cleaning in either of the following ways.

- **Library Auto Clean**—All cleaning cartridge and drive clean functions are managed by the library controller. Check your tape management software documentation to determine whether this method is recommended for your library.

See [“Library Auto Clean” on page 444](#) for a detailed description of this feature.

- **Host-Managed Tape Cleaning**—All cleaning cartridge and drive clean functions are managed by host applications, such as ACSLS or ELS, or by direct-attach applications, such as Symantec and NetBackup. This method is available for HLI libraries and partitions.

See [“Host-Managed Tape Cleaning” on page 445](#) for additional information.

Note – These methods are mutually exclusive. In non-partitioned libraries, you must choose one method or the other for the entire library. In partitioned libraries, the method can be assigned by partition, but each partition must use only one method.

Note – This chapter describes the library auto clean feature only. If you want to manage drive cleaning using the host tape management software (ACSLs or ELS), see [“Host-Managed Tape Cleaning” on page 445](#) for additional information.

Library Auto Clean

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

The library auto clean feature allows all drive clean functions to be managed by the library controller. You can import cleaning cartridges into the library, where they are stored in reserved system cells. As soon as a drive indicates that it needs cleaning, the library controller automatically selects a compatible cleaning cartridge from the system cells and mounts it on the drive. When the cleaning activity is completed, the library controller dismounts the cartridge and returns it to a system cell.

With the auto clean feature, the library tracks cleaning cartridge usage and notifies you when cleaning cartridges have expired or have reached a user-defined usage threshold. You can automatically export cleaning cartridges from the library, in bulk, by expiration date, or by selected cartridge volume ID (VOLID or volser).

In partitioned libraries, auto clean can be configured for the entire library or for individual library partitions.

See [“Special Considerations” on page 445](#) for additional details about library auto clean operations.

Note – Library auto clean differs from drive cleaning managed by ACSLS or ELS; see [“Host-Managed Tape Cleaning” on page 445](#) to compare the two methods.

Library Auto Clean Process Summary

Following is a summary of the actions you should take to configure and use the library auto clean feature.

1. Enable library auto clean. In partitioned libraries, the feature can be enabled or disabled separately for each partition. See [“Configure Library Auto Clean” on page 451](#) for details.
2. Configure the maximum usage warning threshold for each cleaning cartridge type. See [“Define Cleaning Cartridge Warning Thresholds” on page 452](#) for details.
3. Import cleaning cartridges into the library. The cartridges are placed in reserved system cells. See [“Import Cleaning Cartridges” on page 454](#) for details.

Note – When using the library auto clean feature, do NOT use ACSLS or ELS to enter cleaning cartridges into the library. ACSLS and ELS store cleaning cartridges in regular storage cells, and the library controller does not have access to these cells for the auto clean function.

4. Have the library controller manage drive cleaning as required.
5. Monitor status of cleaning cartridges and drives. See the following procedures for details:
 - [“Display Cleaning Cartridges” on page 459](#)
 - [“Display Drive Cleaning Status” on page 461](#)

6. Export cleaning cartridges from the library as necessary. You can use any of the following methods:

- Export all cartridges
- Export expired cartridges
- Export selected cartridges

See [“Export Cleaning Cartridges” on page 456](#) for details.

See [“Drive Cleaning Tasks” on page 450](#) for a list of all tasks related to drive cleaning.

Special Considerations

Following are details and special considerations about the library auto clean feature.

Host Interactions

With the auto clean feature, the library controller initiates a drive clean operation immediately upon receipt of a cleaning request from the drive, which typically occurs when the drive dismounts a data cartridge. While the drive is being cleaned, the data cartridge dismount remains pending to the host. The host is not notified that the data cartridge dismount is complete until the drive clean operation has finished and the cleaning cartridge has been returned to a system cell.

While a drive is being cleaned, it is marked as busy to all hosts. If an FC-SCSI host requests the drive while the drive is being cleaned, the request is rejected.

Unsuccessful Cleaning Operations

If the library controller cannot locate a non-expired cleaning cartridge that is compatible with the drive, the library controller sends messages to the system Event Log and the **Status Module** screen. See [“Library Events” on page 479](#) and [“Status Alert Messages” on page 332](#) for details.

After a cleaning cartridge has been mounted on a drive, if the drive indicates that the cartridge is unusable, the library controller automatically returns the cartridge to a reserved system cell and selects another cartridge to fulfill the cleaning request.

Use of Reserved System Cells

When cleaning cartridges are imported into the library, the library distributes the cartridges as evenly as possible among the sides of the library. Cleaning cartridges can be stored in any available system cell.

The reserved system cells are not assigned to partitions. Therefore a cleaning cartridge can be used to clean compatible drives allocated to any library partition.

Host-Managed Tape Cleaning

The host tape management software (ACSLs or ELS) can be used to manage drive cleaning in HLI libraries or partitions. Following is a summary of the actions you should take in order to use host-managed cleaning. For full details, see the ACSLS or ELS documentation.

Note – This method differs from the library auto clean feature; see [“Library Auto Clean” on page 444](#) to compare the two methods.

1. Disable the library auto clean function. In partitioned libraries, you can do this on a per-partition basis. See [“Configure Library Auto Clean” on page 451](#) for details.

Library auto clean must be disabled in order for ACSLS or ELS to receive notification from the library when drives need cleaning.

2. Enable automatic cleaning within the tape management software.
 - For ELS, see the `MNTD AUTOCLN(ON)` command in the *ELS System Programmer's Guide* for instructions on enabling the cleaning function.
 - For ACSLS, automatic cleaning is enabled by default. For details, see the `AUTO_CLEAN` variable, which is set by the `acsss_config` utility, in the *ACSLs Administrator's Guide*.
3. Use the applicable ACSLS or ELS commands to enter cleaning cartridges into the library.

Do NOT use the SL Console **Import/Export** screen to enter cleaning cartridges, as the library controller will store the cartridges in reserved system cells. ACSLS and ELS do not have access to these cells.

4. Have the tape management software manage drive cleaning as required.
5. Use the applicable ACSLS or ELS commands to monitor status of cleaning cartridges and drives.
6. Use the applicable ACSLS or ELS commands to eject cleaning cartridges from the library.

You cannot use the SL Console **Import/Export** screen to eject host-managed cleaning cartridges.

Cleaning Cartridge Management

You must ensure that the library contains a sufficient number of cleaning cartridges that are compatible with each drive type in your library. See the drive manufacturers' documentation for compatibility requirements.

The library auto clean feature requires that cleaning cartridge volume IDs (VOLIDs or volsers) be eight characters in length, with "CLN" as the first three characters. The library Import/Export function only accepts cleaning cartridges that have labels with this format.

With the library auto clean feature, cleaning cartridges are stored in reserved system cells which are controlled by the library and are not accessible to library host applications. The number of system cells available for cleaning cartridge storage varies, depending on the configuration of your SL3000 library. See ["Reserved System Cells" on page 615](#) for details.

Importing and Exporting Cleaning Cartridges

In order for cleaning cartridges to be available for the library auto clean feature, they must be entered into the library with the SL Console Import function. See ["Import Cleaning Cartridges" on page 454](#) for detailed instructions.

Any cleaning cartridges entered with the host tape management software (ACSLs or ELS) are stored in data cells and cannot be used for the library auto clean feature.

To remove cleaning cartridges from the library, you must use the SL Console Export function. See ["Export Cleaning Cartridges" on page 456](#) for detailed instructions. You can choose to export all cartridges, selected cartridges, or all expired cartridges.

Note – The command line interface (CLI) also provides cleaning cartridge import and export commands accessible to your Oracle support representative.

Cartridge Usage Count

Cleaning cartridges have a limited life span. See the drive manufacturers' documentation for maximum recommended usage for each type of cleaning cartridge.

When you import a cleaning cartridge into the library, the library controller considers the cartridge to be new and sets the usage count to zero. Therefore, if you import a used cleaning cartridge, the usage count for that cartridge will not be accurate.

Each time a cleaning cartridge is mounted on a drive, the library controller increments the usage count for that cartridge. See ["Display Cleaning Cartridges" on page 459](#) to display the current usage count.

Warning Threshold

You can use the cleaning cartridge warning threshold to notify you when a cleaning cartridge is nearing time for replacement. You can selectively activate or deactivate the warning threshold feature for each cleaning cartridge type. By default, the feature is deactivated for all.

To activate the feature, you can assign a threshold to a selected cartridge type. See [“Define Cleaning Cartridge Warning Thresholds” on page 452](#) for details. The warning threshold is based on the cartridge usage count. You should set the warning threshold lower than the cartridge’s maximum recommended usage to allow time to replace the cartridge.

When a cleaning cartridge’s usage count reaches the threshold you have defined, the library controller updates the cartridge’s status to “warning” and sends messages to the system Event Log and the **Status Module** screen. (See [“Library Events” on page 479](#) and [“Status Alert Messages” on page 332](#) for details.) The messages are repeated each time the cleaning cartridge is used, until it is exported from the library or expires.

Cleaning Cartridge Expiration

Cleaning cartridges are expired based on information from the drives. If a drive is not able to use a cleaning cartridge—due to reaching the end of tape, for example—the drive sends a “drive expired” notification to the library controller. The library controller dismounts the cartridge from the drive and returns it to a system cell, updates the cartridge’s status to “expired”, and sends messages to the system Event Log and the **Status Module** screen. (See [“Library Events” on page 479](#) and [“Status Alert Messages” on page 332](#) for details.)

The library controller does not use expired cleaning cartridges for cleaning operations. Expired cartridges should be replaced as soon as possible. When you export an expired cleaning cartridge from the library, you must be sure to remove it from the CAP. If you leave an expired cartridge in the CAP, it could inadvertently be re-entered into the library by another user.

Note – Although the library controller keeps track of cleaning cartridge usage, it does not expire cleaning cartridges on the basis of the usage count.

Cleaning Cartridge Status

You can use the SL Console to display the status of a cleaning cartridge at any time. A cleaning cartridge can have any of the following statuses:

- OK—The cartridge is usable for cleaning.
- warning—The usage count has reached or exceeded the warning threshold defined for this cartridge type.
- expired—The cartridge has expired, based on information from the drives.

See [“Display Cleaning Cartridges” on page 459](#) for details.

Manual Cleaning

Drive cleaning is normally managed either by the library auto clean feature or by the host tape management software (ACSLs or ELS). However, there may be occasions when you need to perform a manual clean.

Caution – Cleaning a drive before it is due is not recommended. Excessive drive cleaning can wear out a drive head prematurely.

See the drive manufacturer's documentation for information on whether manual cleaning is allowed. Some drive types allow manual cleaning at any time, while others do not allow cleaning to be initiated unless a usage threshold has been met. In the latter case, the library controller may allow you to mount a cleaning cartridge on a drive, but the drive will not actually perform the cleaning operation.

To verify whether a drive needs cleaning, you can display the drive's cleaning status and the date when it was last cleaned. See ["Display Drive Cleaning Status" on page 461](#) for details.

To locate the correct type of cleaning cartridge for a particular drive, you can generate a list of available cleaning cartridges and their types. See ["Display Cleaning Cartridges" on page 459](#) for details.

Drive Cleaning Tasks

Task	Page
Configure Library Auto Clean	451
Define Cleaning Cartridge Warning Thresholds	452
Import Cleaning Cartridges	454
Export Cleaning Cartridges	456
Display Cleaning Cartridges	459
Display Drive Cleaning Status	461
Clean a Drive Manually	463

▼ Configure Library Auto Clean

Use this procedure to enable or disable the library auto clean feature. If the library is partitioned, library auto clean can be enabled or disabled for individual partitions.

1. Select Tools > Configuration.

The **Library Configuration Options** screen appears.

Partition ID	Partition Name	Type	Barcode Presentation	Enable FastLoad	Enable Auto Clean
1	hli0	HLI	N/A	N/A	<input type="checkbox"/>
2	scsi1	SCSI	left6	<input type="checkbox"/>	<input type="checkbox"/>

2. Set the Enable Auto Clean checkbox for the partition you want to configure. Options are:

- Checked – Turns library auto clean on. The library controller will manage all drive cleaning functions.
- Unchecked – Turns library auto clean off. Drive cleaning must be managed through the host library management software (ACSLs or ELS). This is the default setting.

Note – If the library is partitioned, there is one checkbox for each partition, allowing you to enable or disable library auto clean separately for each partition. If the library is not partitioned, there is only one checkbox (labeled **Partition 1**), which applies to the whole library.

3. Click Apply.

The library configuration is updated, and the feature settings are available immediately.

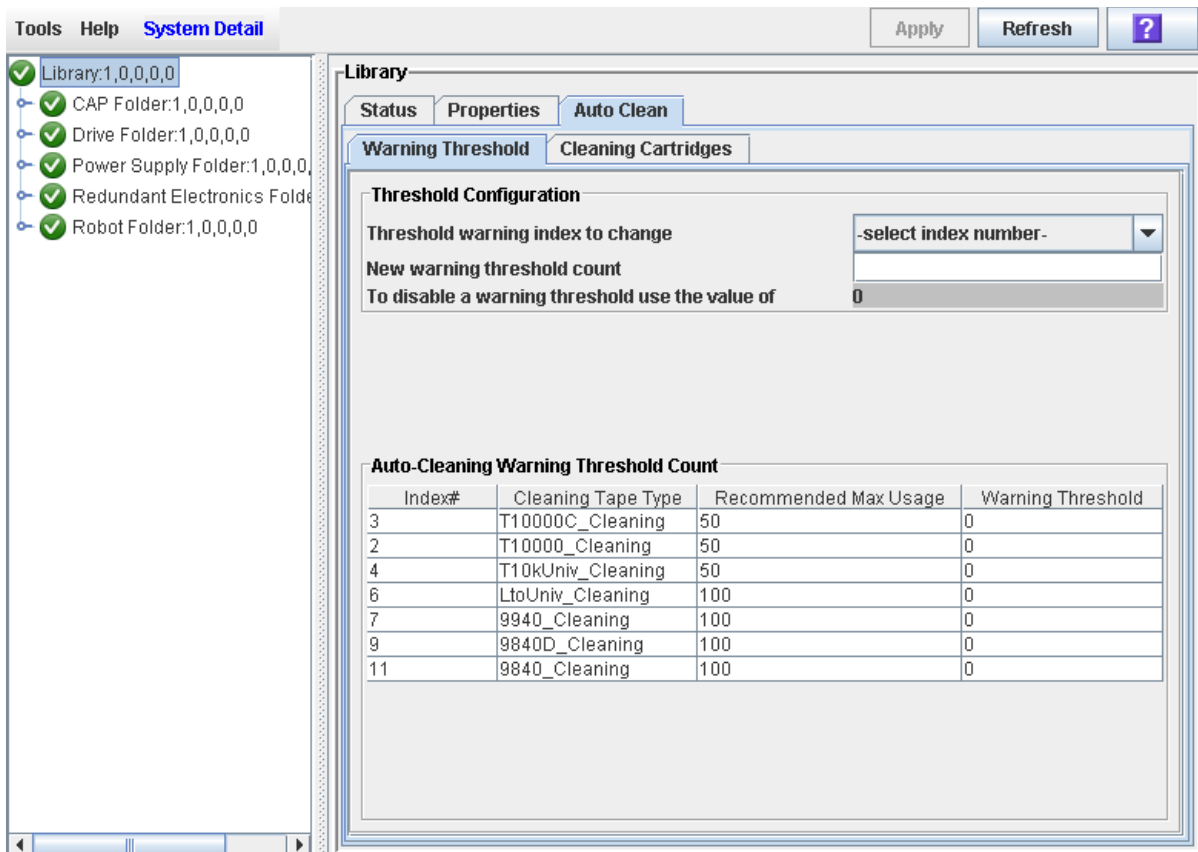
▼ Define Cleaning Cartridge Warning Thresholds

Use this procedure to assign usage warning thresholds to selected cleaning cartridge types.

Note – This procedure applies only to libraries or partitions that have the library auto clean feature enabled.

1. Select **Tools > System Detail**, and select the library folder on the device tree.
2. Click **Auto Clean** and then **Warning Threshold**.

The **Warning Threshold** screen appears.



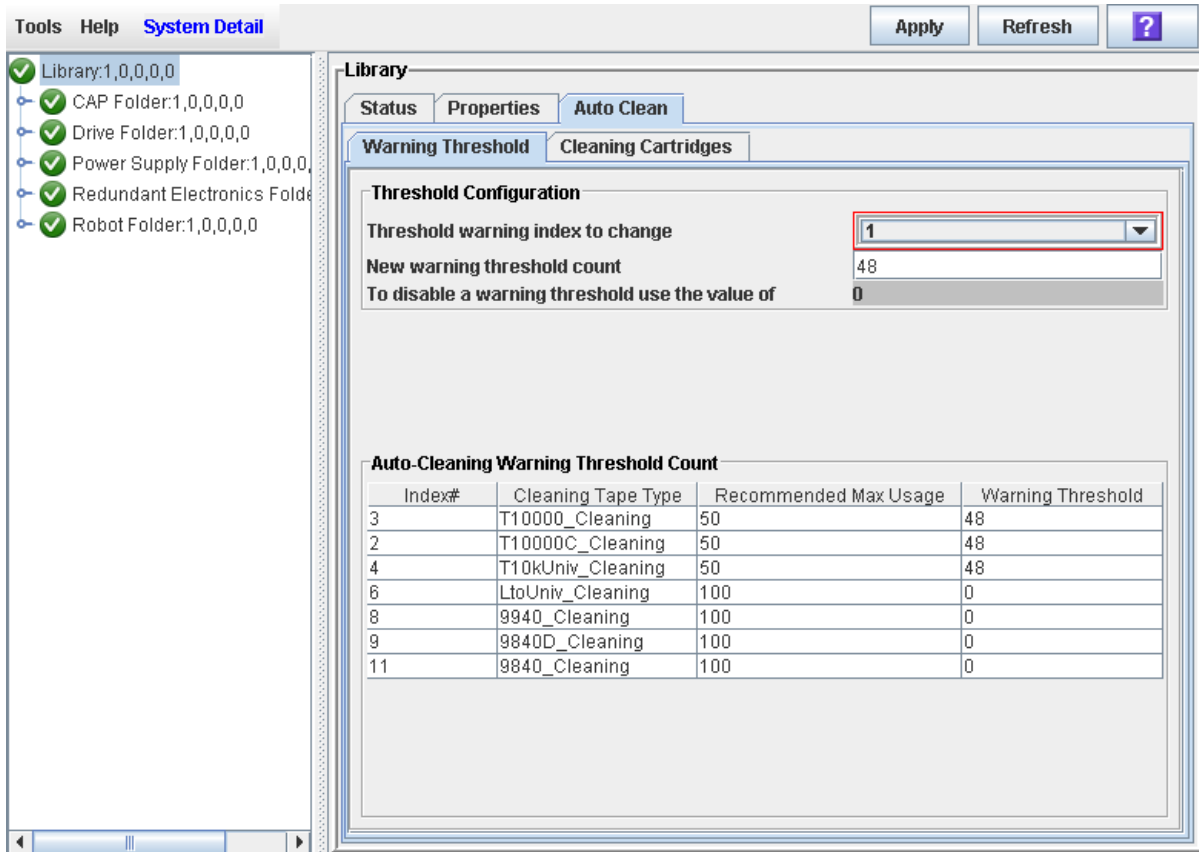
3. Complete the screen fields as follows:

- In the **Threshold warning index to change** pull-down, select the index number of the cleaning cartridge type you want to configure.

The numbers in the pull-down refer to the **Index** entries in the table on the bottom part of the screen.

- In the **New warning threshold count** field, enter the warning threshold you want to assign to the cartridge type. An entry of 0 deactivates the warning threshold feature for that cartridge type. The default is 0.

Note – You should set the threshold lower than the cartridge’s recommended maximum usage to allow time to replace the cartridge. The **Recommended Max Usage** values on this screen are pre-defined, based on the manufacturers’ published recommendations. See your drive manufacturers’ documentation for additional information.



4. Click Apply.

The new threshold value is assigned to the cartridge type, and the **Warning Threshold** value on the screen is updated.

▼ Import Cleaning Cartridges

Use this procedure to enter cleaning cartridges into the library through a specified CAP. The library controller reserves the CAP for the entire operation. The cleaning cartridges are distributed as evenly as possible in reserved system cells, and their usage counts are set to 0. Only one cleaning or diagnostic cartridge import or export operation can be performed at a time.

Note – This procedure applies only to libraries or partitions that have the library auto clean feature enabled.

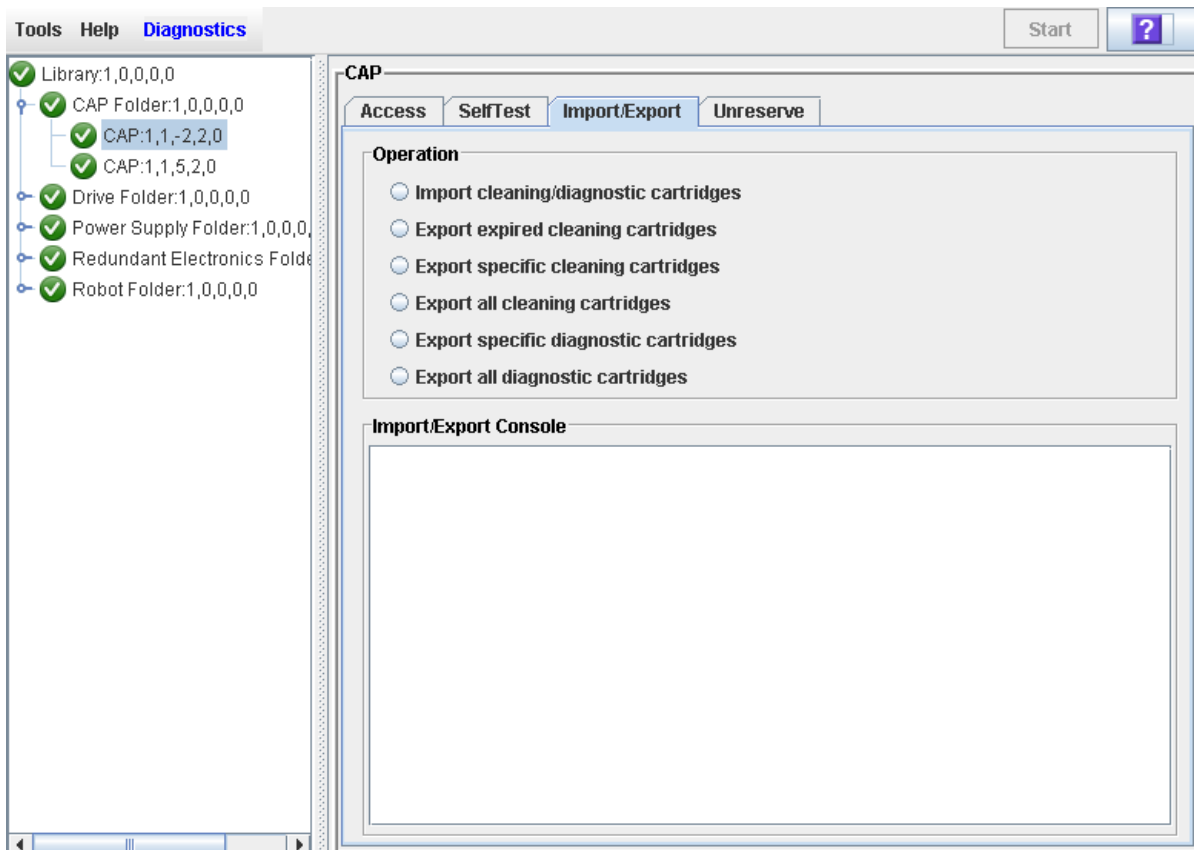
Note – Only rotational CAPs, not AEM CAPs, can be used for this procedure.

Before beginning this procedure, verify that the following conditions are met:

- The CAP is empty, available for use (not reserved by a host), and closed and locked.
- The library has enough empty reserved system cells to store the cleaning cartridges you want to import. At least one system cell on each side of the library must be left open for TallBot recovery or library initialization.

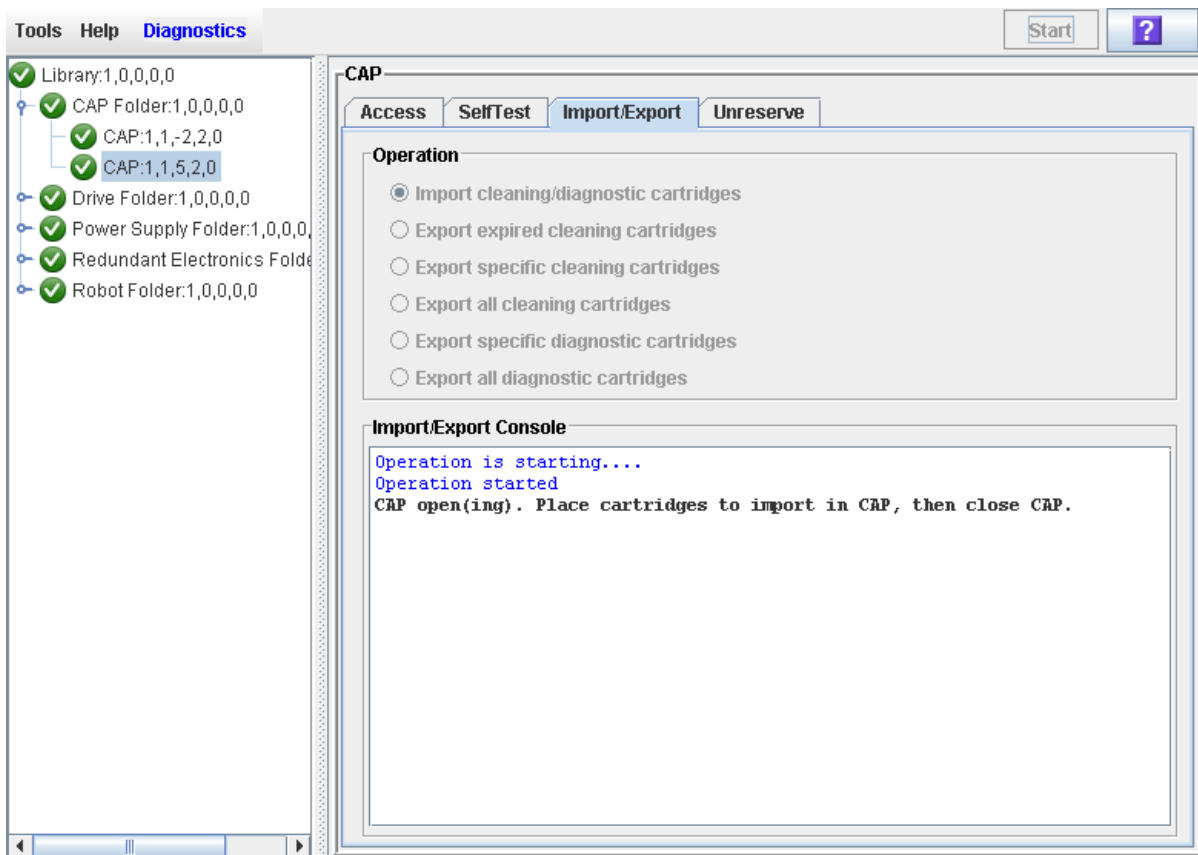
1. Select **Tools > Diagnostics**.
2. Expand the **CAP Folder**, highlight the **CAP** you want to use, and then select the **Import/Export** tab.

The **Import/Export** screen appears.



3. Select **Import Cleaning/Diagnostic cartridges**, and then click **Start**.

The import operation begins, and the **Import/Export** screen displays the ongoing status.



4. The library controller reserves the CAP and unlocks and opens the CAP door.

If the library is partitioned and the CAP is associated to an FC-SCSI partition, the library controller associates the CAP to the default requestor for the duration of the import operation.

5. Load the cleaning cartridges into the CAP.

For detailed instructions, see ["Enter Cartridges Through a Rotational CAP" on page 417](#).

6. After you close the door, the cleaning cartridges are moved to available system cells.

Any data cartridges or cleaning cartridges with invalid labels are ignored and left in the CAP.

7. When all cleaning cartridges have been moved from the CAP, the library controller proceeds as follows:

- If the CAP is empty, the library controller releases the CAP reservation and re-associates the CAP to the original FC-SCSI partition, if applicable.
- If cartridges are left in the CAP, the CAP door is opened, and the **Import/Export** screen displays a message that the cartridges need to be removed.

▼ Export Cleaning Cartridges

Use this procedure to export cleaning cartridges from the library through a specified CAP. The library controller reserves the CAP for the entire operation. The cleaning cartridges are retrieved from reserved system cells and placed in the CAP for removal. Only one cleaning cartridge import or export operation can be performed at a time.

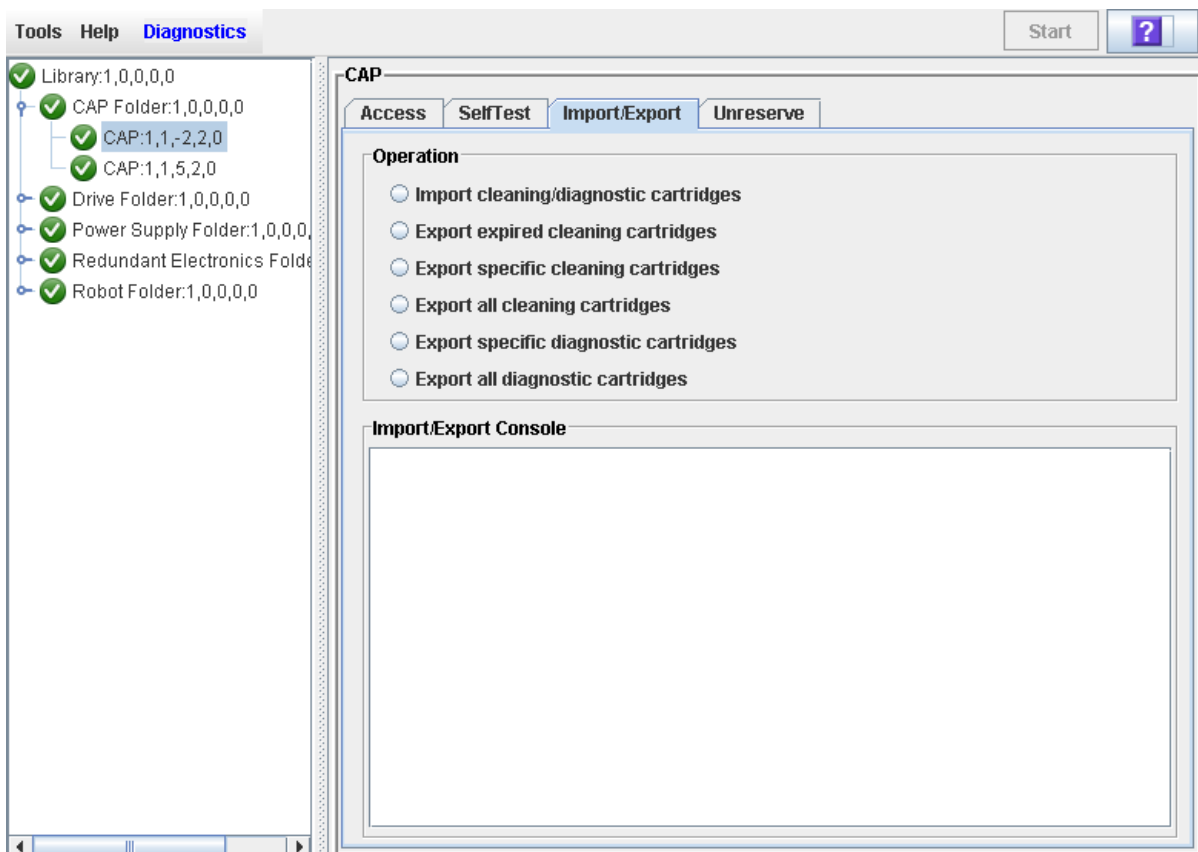
Note – This procedure applies only to libraries or partitions that have the library auto clean feature enabled.

Note – Only rotational CAPs, not AEM CAPs, can be used for this procedure.

Before beginning this procedure, verify that the CAP is empty, available for use (not reserved by a host), and closed and locked.

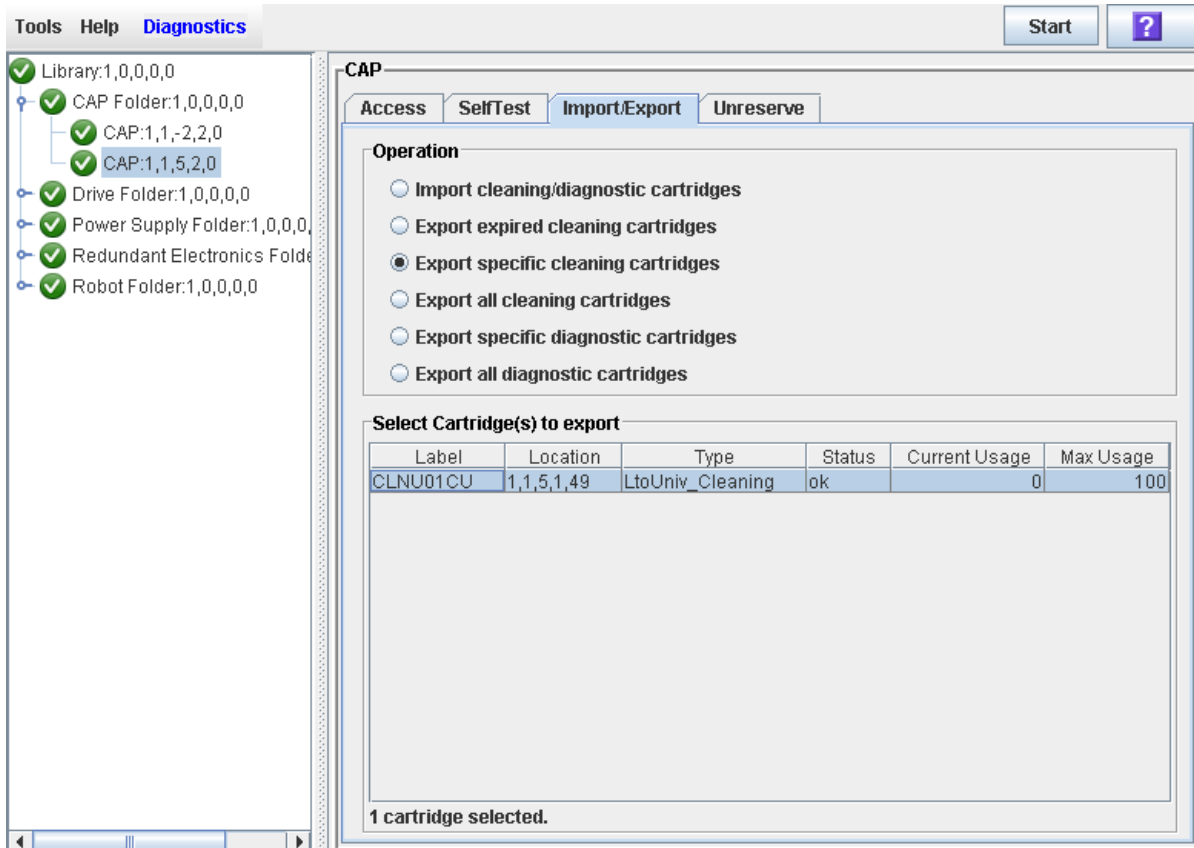
1. Select **Tools > Diagnostics**.
2. Expand the **CAP Folder**, highlight the CAP you want to use, and then select the **Import/Export** tab.

The **Import/Export** screen appears.



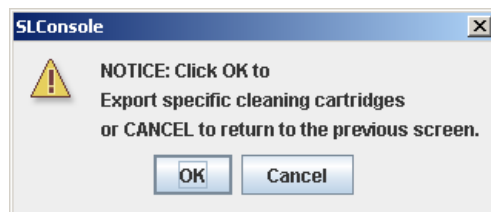
3. Select the type of export operation you want to perform. You have the following options:
 - Export expired cleaning cartridges—Automatically exports all cleaning cartridges with a status of “expired”. To display a list of expired cartridges, see [“Display Cleaning Cartridges” on page 459](#).

- Export specific cleaning cartridges—Allows you to specify the cleaning cartridges you want to eject. The screen displays a list of all cleaning cartridges in the library, and you can select one or more for export.
- Export all cleaning cartridges—Exports all cleaning cartridges from the library.



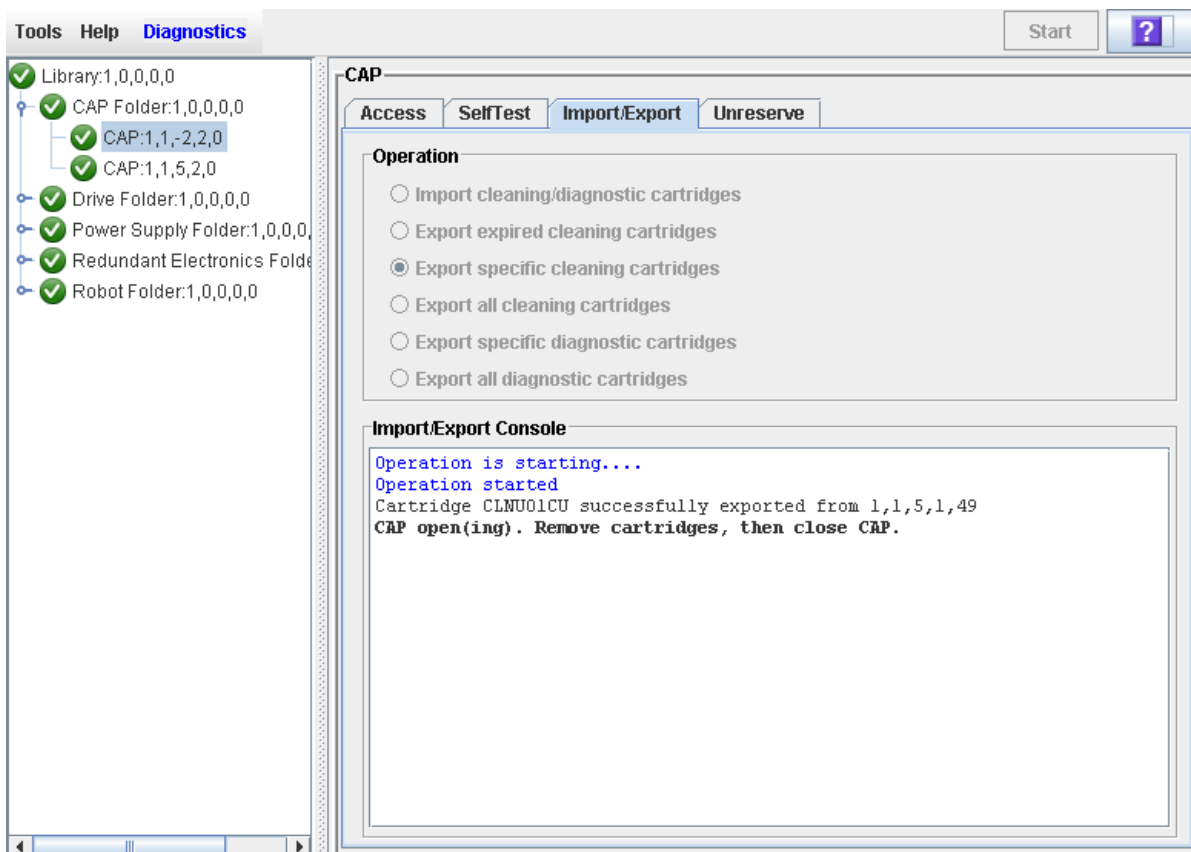
4. Click Start.

A confirmation popup appears.



5. Click OK to continue.

The export operation begins, and the **Import/Export** screen displays the ongoing status.



6. The export operation proceeds as follows:
 - a. If the library is partitioned and the CAP is associated to an FC-SCSI partition, the library controller associates the CAP to the default requestor for the duration of the export operation.
 - b. The library controller reserves the CAP.
 - c. The cleaning cartridges are moved to the CAP, according to your request.
 - d. The Import/Export screen displays a message when the CAP is ready to be unloaded.
7. Remove the cartridges from the CAP.

For detailed instructions, see [“Eject Cartridges Through a Rotational CAP” on page 418.](#)
8. When you close the CAP door, the library controller proceeds as follows:
 - If the CAP is empty, the library controller releases the CAP reservation and re-associates the CAP to the original partition, if applicable.
 - If cartridges are left in the CAP, the CAP door is opened, and the **Import/Export** screen displays a message that the cartridges need to be removed.

▼ Display Cleaning Cartridges

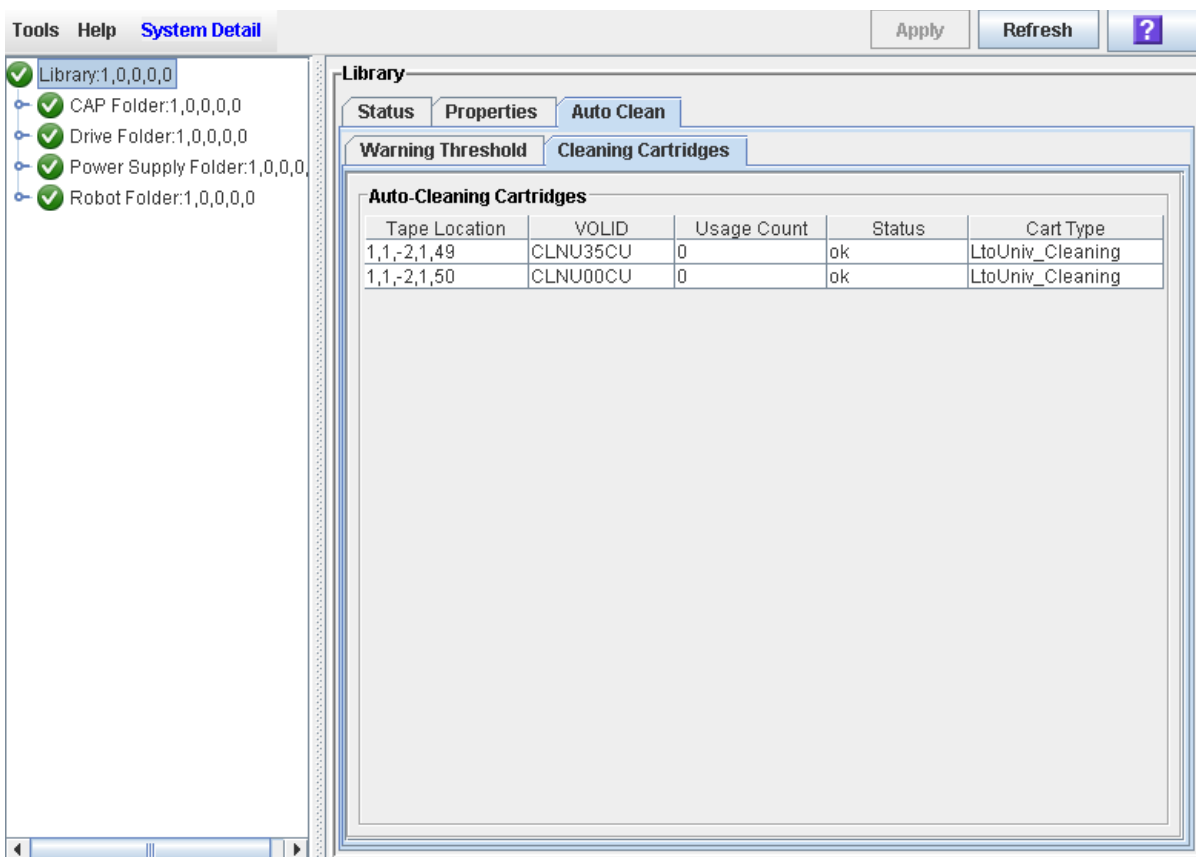
Use this procedure to display detailed information about all cleaning cartridges stored in reserved system cells. In particular, you can use this procedure to monitor the status and usage count for all cleaning cartridges under library control.

A cleaning cartridge may not appear on this screen in the following cases:

- The cartridge is in use.
- The cartridge is in transit.
- The cartridge was entered into the library using the host tape management software (ACSL or ELS). See your tape management software documentation for details about managing these cartridges.

1. Select **Tools > System Detail**, and select the library folder on the device tree.
2. Click **Auto Clean** and then **Cleaning Cartridges**.

The **Library Cleaning Cartridges** screen appears.



Screen Fields

Tape Location

Library, rail, column, side, and row. Together these values identify the library internal address where the cartridge is located.

All cartridges in this report are located in reserved system cells.

VOLID

Volume ID (VOLID or volser) of the cartridge. The first three characters are always "CLN".

Usage Count

Number of times the cartridge has been used for cleaning. When a cleaning cartridge is imported into the library, its usage count is set to 0. Each time the cartridge is mounted on a drive, its usage count is incremented.

Status

Current status of the cartridge. Options are:

- expired—The cartridge has expired, based on information from the drives (see ["Cleaning Cartridge Expiration" on page 448](#)). This cartridge is not usable and should be replaced as soon as possible.

This status supersedes the "warning" status; therefore, if a cartridge is both expired and has reached or exceeded its usage count threshold, only "expired" is displayed.

- OK—The cartridge is usable for cleaning.
- warning—The usage count has reached or exceeded the warning threshold defined for this cartridge type (see ["Warning Threshold" on page 447](#)). The cartridge can still be used for cleaning, but you may want to replace it at your earliest convenience.

Cart Type

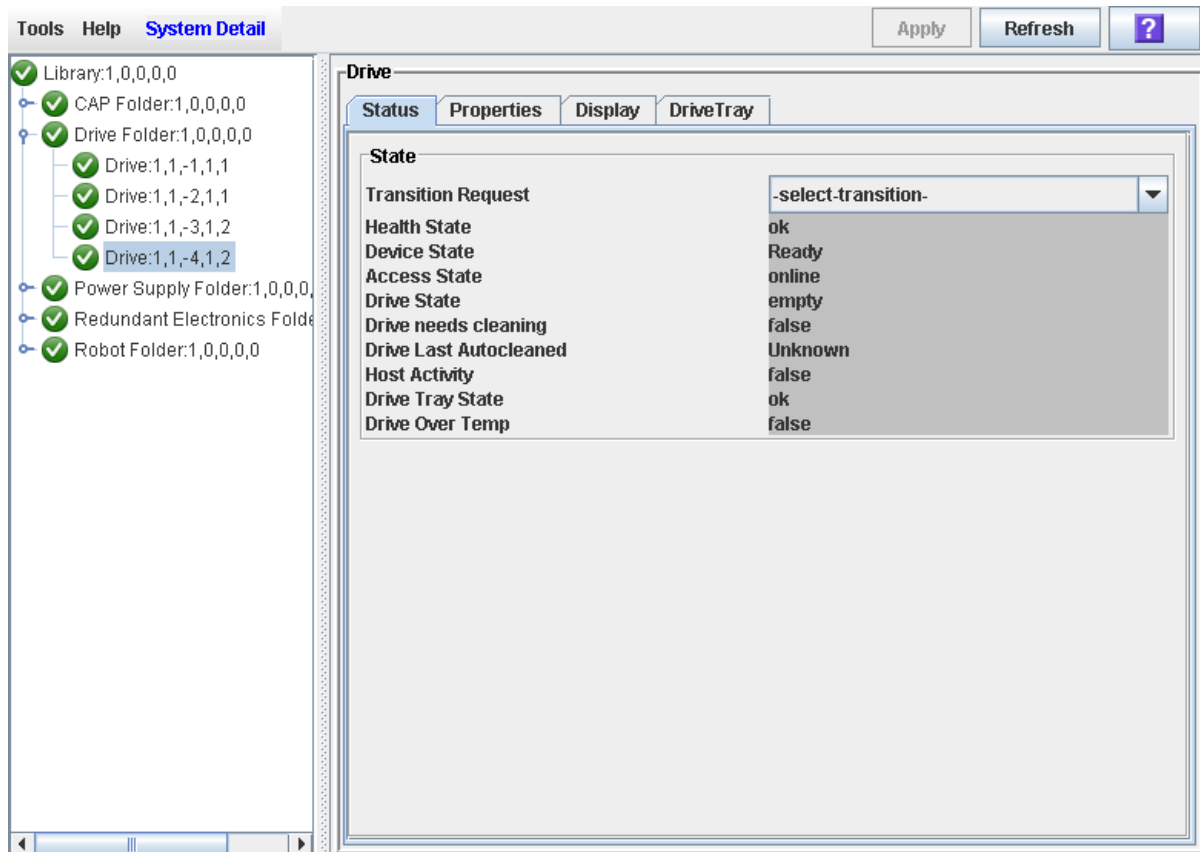
Type of cleaning cartridge. You should have an adequate supply of usable cleaning cartridges for each type of drive in the library. See the drive manufacturer's documentation for cleaning cartridge requirements.

▼ Display Drive Cleaning Status

Use this procedure to display the current cleaning status of a drive.

1. Select **Tools > System Detail**.
2. Expand the **Drive Folder**, and highlight the drive you want to display.

The **Drive Status** screen appears.



Screen Fields

The following screen fields relate to drive cleaning.

Drive needs cleaning

Indicates whether the drive has issued an unfulfilled cleaning request. Options are:

- true—Drive needs cleaning.
- false—Drive does not need cleaning.

Drive Last Autocleaned

Date and time when the drive was last cleaned using the library auto clean feature.

If the library auto clean feature is not enabled, or if the drive was last cleaned using the host tape management software (ACSL or ELS), the field indicates "Unknown".

▼ Clean a Drive Manually

Drive cleaning is normally managed either by the library auto clean feature or by the host tape management software (ACSLs or ELS). However, there may be occasions when you need to perform a manual clean.

Caution – Cleaning a drive before it is due is not recommended. Excessive drive cleaning can wear out a drive head prematurely.

1. Display the drive status to verify that it needs cleaning. See [“Display Drive Cleaning Status” on page 461](#) for detailed instructions.

2. Display a list of cleaning cartridges. See [“Display Cleaning Cartridges” on page 459](#) for detailed instructions.

Your library could contain more than one type of drive. You must verify that there is a compatible cleaning cartridges for the drive.

3. Move a compatible cleaning cartridge from a system cell to the drive that needs cleaning. See [“Move a Cartridge From a Specified Location” on page 438](#) for detailed instructions.

4. Display the status of the cleaning operation on the Drive Clean Status Console. See [“Display Drive Cleaning Status” on page 461](#) for detailed instructions.

5. When the cleaning operation is complete, move the cleaning cartridge from the drive back to a system cell. See [“Move a Cartridge From a Specified Location” on page 438](#) for detailed instructions.

Robot and Power Supply Management

TallBots

The library TallBot moves cartridges throughout the library storage slots, tape drives, and CAPs. It also performs audits of the library.

The TallBot is included with the Base Module and is accessible from the front of the rack, or through the optional Access Expansion Module (AEM). The three main components of the TallBot are:

- X table assembly – Provides 180-degree lateral motion.
- Z drive assembly – Provides vertical motion.
- Hand assembly – Includes the following components:
 - Grippers to carry cartridges.
 - Laser bar-code scanner to calibrate position and read cartridge labels.
 - Proximity sensor to detect empty storage cells and unlabeled cartridges.

See [“Robot Monitoring Tasks” on page 467](#) for details about displaying and managing TallBot status and other information.

SCSI FastLoad Feature

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

Note – This feature applies only to libraries with FC-SCSI host connections; it is not applicable to libraries that have only HLI (TCP/IP) host connections.

SCSI FastLoad is an optional feature which can enable faster mount/dismount operations for libraries or partitions with FC-SCSI host connections.

Normally with the SCSI interface, a cartridge mount is considered complete only when the drive indicates that it is ready for read/write operations. This can result in the TallBot standing idle for several seconds between mount/dismount requests while it waits for the cartridge to load and thread in the drive.

When SCSI FastLoad is enabled, a cartridge mount is considered complete as soon as the drive indicates that it has accepted the cartridge. As soon as the TallBot puts the cartridge in the drive, the TallBot is released and the library returns a success status to the host. The TallBot is immediately available to process the next library request.

The advantage of the FastLoad feature is that it allows for faster activity in the library. However, if a cartridge fails to load after the TallBot has been released, it is up to the FC-SCSI host to move the cartridge from the drive back to the source element.

In a partitioned library, the FastLoad feature can be enabled or disabled separately for each FC-SCSI partition.

For detailed instructions on enabling the FastLoad feature, see the following procedures:

- [“Configure SCSI FastLoad in a Non-Partitioned Library” on page 468](#)
- [“Configure SCSI FastLoad for a Partition” on page 470](#)

Robot Procedures

For detailed TallBot management procedures, see [“Robot Monitoring Tasks” on page 467](#).

Power Supplies

The SL3000 provides full redundancy for tape drives, robotics units, and electronics. The following redundancy options are available:

- N+1
- 2N
- 2N+1

Note – The second power distribution unit (PDU) supports N+1 for tape drives and electronics only, not robotics.

The following power source options are available:

- 120–127 VAC, single phase (not available with the redundant robotics feature)
- 200–240 VAC, single phase

See [“Power Options” on page 49](#) for additional details.

Power Supply Procedures

For detailed power supply procedures, see [“Power Supply Monitoring Tasks” on page 475](#).

Robot Monitoring Tasks

Task	Page
Configure SCSI FastLoad in a Non-Partitioned Library	468
Configure SCSI FastLoad for a Partition	470
Display Robot Summary Information	472
Display Robot Status	473

▼ Configure SCSI FastLoad in a Non-Partitioned Library

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

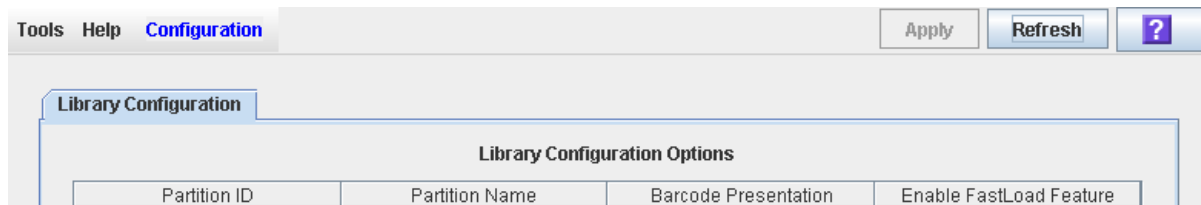
Use this procedure to configure the SCSI FastLoad feature for an FC-SCSI library. For details on this feature, see [“SCSI FastLoad Feature” on page 465](#).

Note – This procedure applies only to libraries with FC-SCSI host connections; it is not applicable to libraries that have only HLI (TCP/IP) host connections.

Note – This procedure is used for non-partitioned libraries only. For partitioned libraries, see [“Configure SCSI FastLoad for a Partition” on page 470](#).

1. Select Tools > Configuration.

The Library Configuration screen appears.



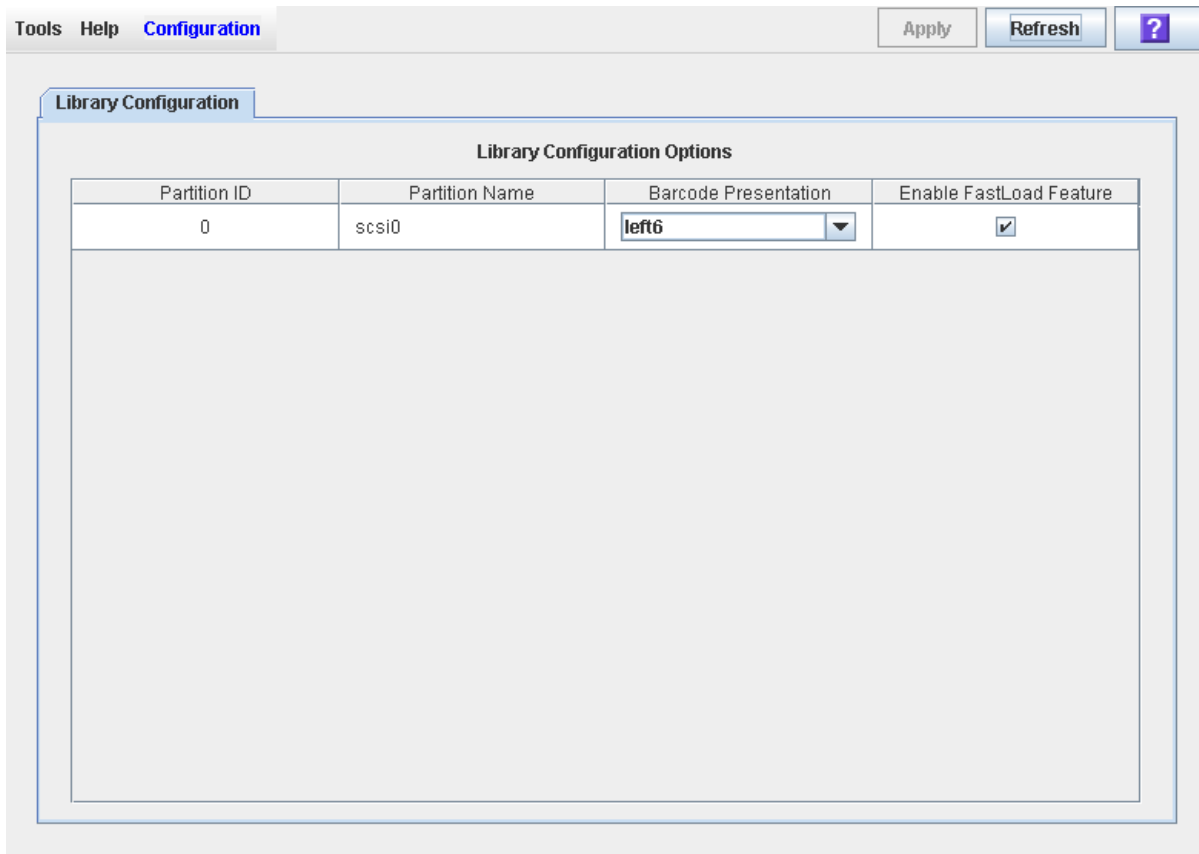
2. Use the Enable FastLoad Feature checkbox to indicate whether you want to enable the FastLoad feature for the entire library.

Note – The Partition Name “scsi0” indicates a non-partitioned library.

Checkbox settings are as follows:

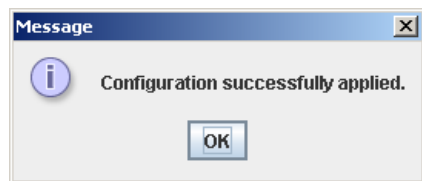
- Checked – Turns SCSI FastLoad on. A cartridge mount is considered complete as soon as the drive indicates that it has accepted the cartridge.

- Unchecked – Turns SCSI FastLoad off. A cartridge mount is considered complete only after the cartridge has been loaded and threaded in the drive and the drive indicates that it is ready for read/write operations. This is the default setting.



3. Click Apply.

A confirmation popup appears. The new SCSI FastLoad feature setting is effective immediately; the library does not need to be rebooted.



4. Click OK to dismiss the popup.

▼ Configure SCSI FastLoad for a Partition

Note – This feature is available starting with SL3000 firmware version FRS_2.33 and SL Console version FRS_4.47.

Use this procedure to configure the SCSI FastLoad feature for an FC-SCSI library. For details on this feature, see [“SCSI FastLoad Feature” on page 465](#).

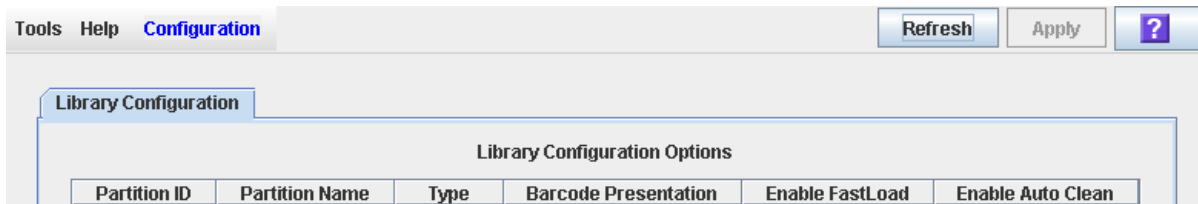
You can enable or disable SCSI FastLoad separately for each partition.

Note – This procedure applies only to libraries with FC-SCSI host connections; it is not applicable to libraries that have only HLI (TCP/IP) host connections.

Note – This procedure is used for partitioned libraries. For non-partitioned libraries, see [“Configure SCSI FastLoad in a Non-Partitioned Library” on page 468](#).

1. Select Tools > Configuration.

The **Library Configuration** screen appears.

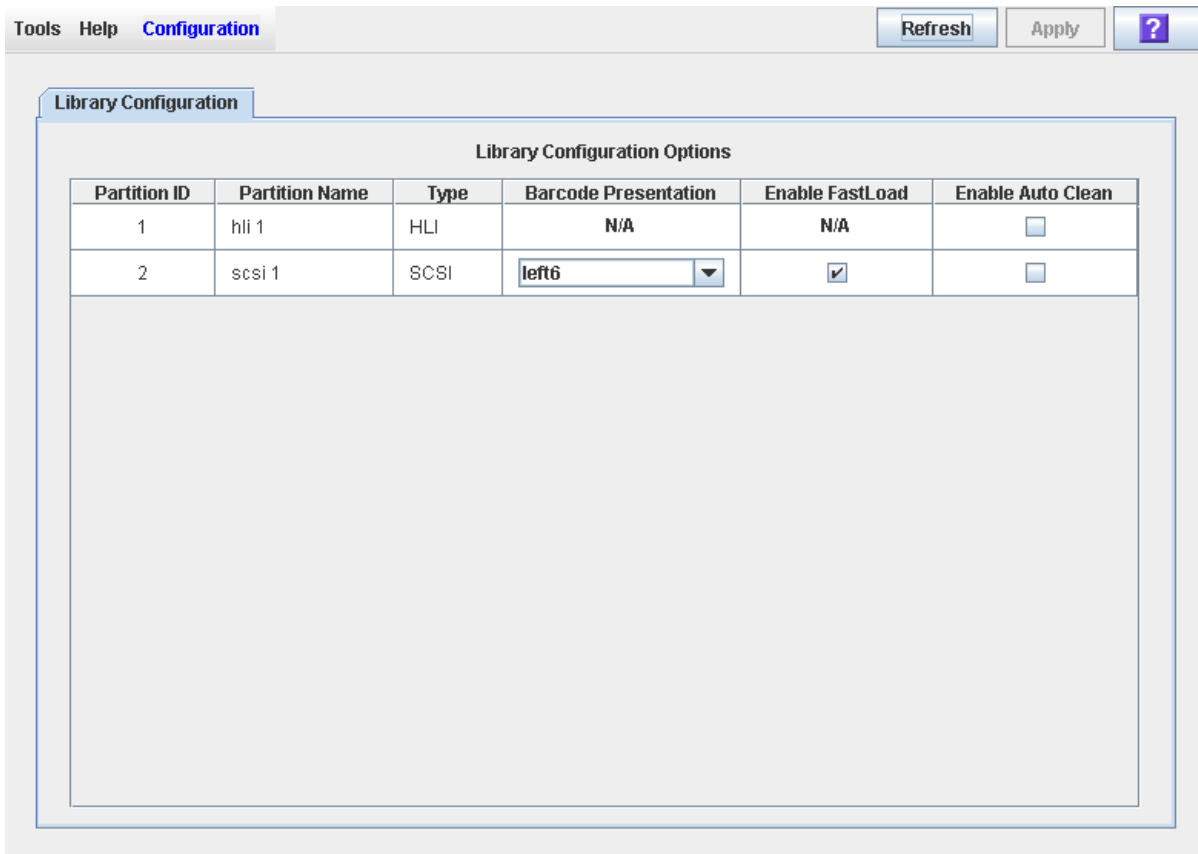


2. Use the Enable FastLoad Feature checkbox for each partition to indicate whether you want to enable the FastLoad feature. You can use multiple checkboxes to indicate settings for more than one partition at a time.

Checkbox settings are:

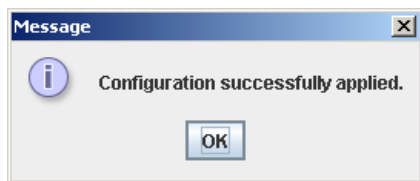
- **Checked** – Turns SCSI FastLoad on. A cartridge mount is considered complete as soon as the drive indicates that it has accepted the cartridge.

- Unchecked – Turns SCSI FastLoad off. A cartridge mount is considered complete only after the cartridge has been loaded and threaded in the drive and the drive indicates that it is ready for read/write operations. This is the default setting.



3. Click Apply.

A confirmation popup appears. The new SCSI FastLoad settings are effective immediately; the library does not need to be rebooted.



4. Click OK to dismiss the popup.

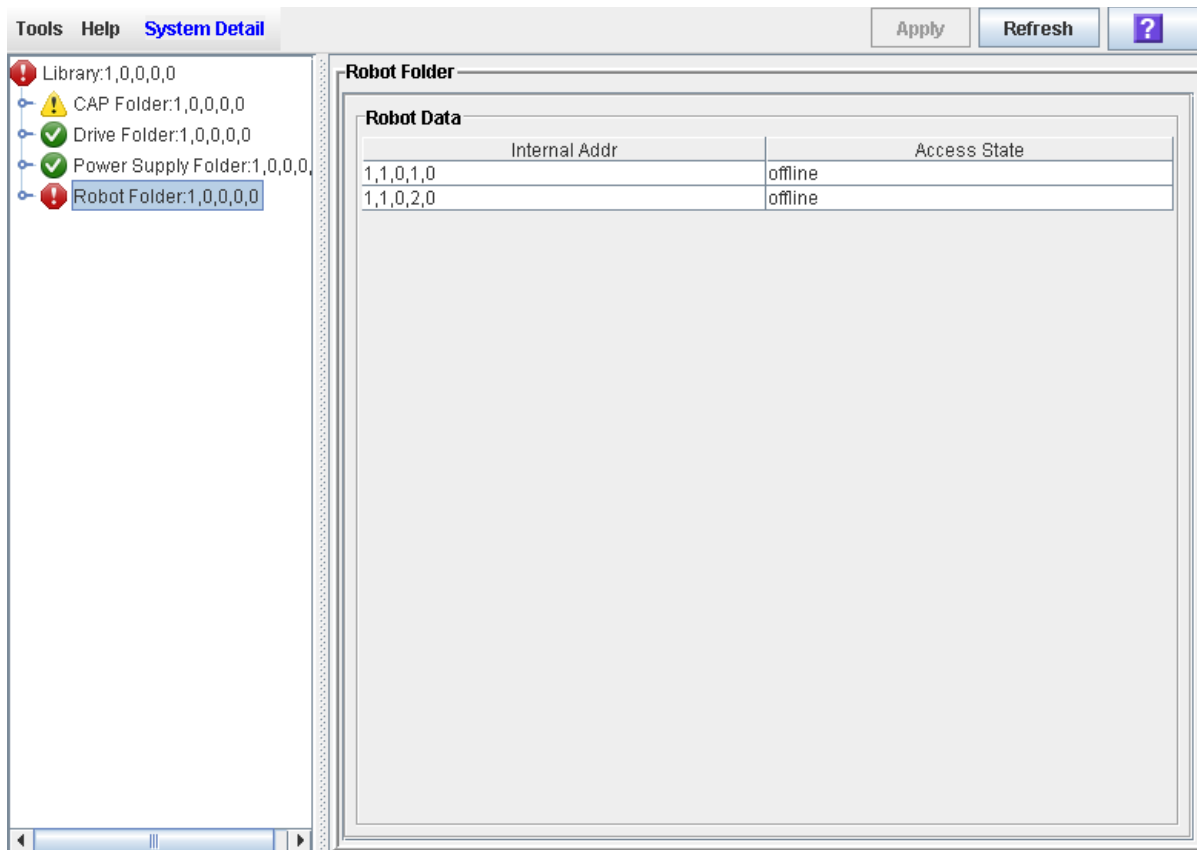
▼ Display Robot Summary Information

Use this procedure to display summary information for the library TallBots.

Note – This information is also available through **Reports > Robot Summary**. See [“Display a Library Report”](#) on page 86 for detailed instructions.

1. Select **Tools > System Detail**.
2. Click the **Robot folder** on the device tree.

The **Robot Data** screen appears.



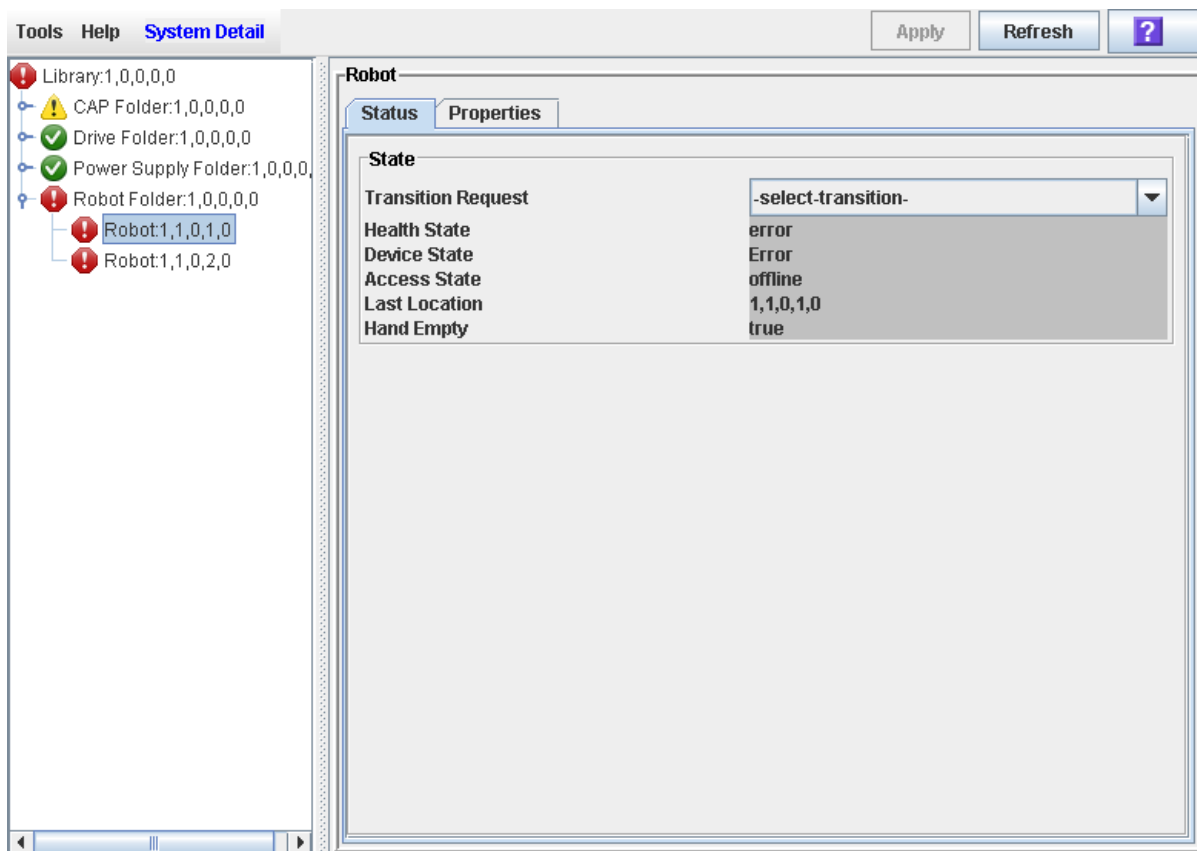
▼ Display Robot Status

Use this procedure to display the current operational state of a TallBot.

Note – This information is also available through **Reports > Robot Details**. See [“Display a Library Report” on page 86](#) for detailed instructions.

1. Select **Tools > System Detail**.
2. Expand the **Robot Folder**, and click the robot you want to display.
3. Click **Status**.

The screen displays the current status of the selected TallBot.



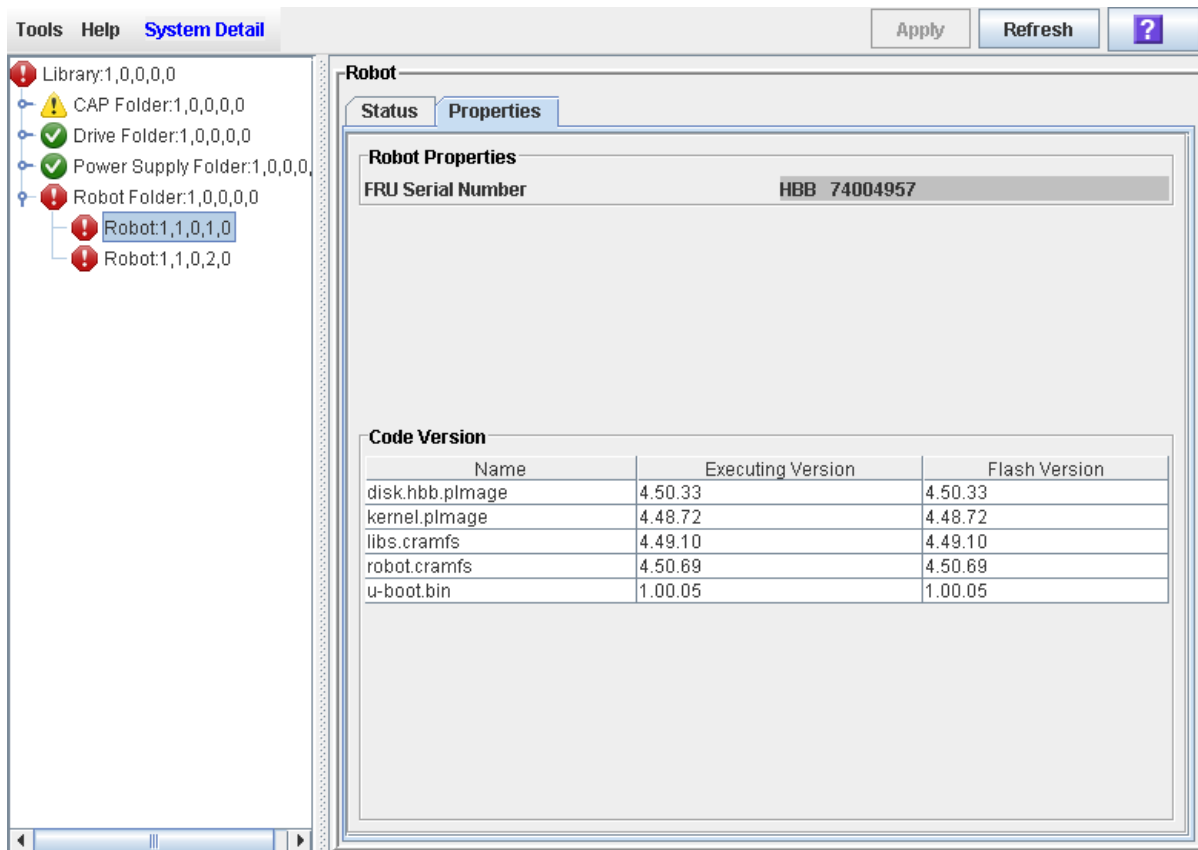
▼ Display Robot Properties

Use this procedure to display detailed TallBot configuration information, including the serial number and current firmware levels.

Note – This information is also available through **Reports > Robot Details**. See [“Display a Library Report”](#) on page 86 for detailed instructions.

1. Select **Tools > System Detail**.
2. Expand the **Robot Folder**, and click the robot you want to display.
3. Click **Properties**.

The **Robot Properties** screen appears.



Power Supply Monitoring Tasks

Task	Page
Display Power Supply Summary Information	476
Display Power Supply Detail	477

▼ Display Power Supply Summary Information

The Power Supply Data screen displays summary information for all power supplies in the library. You can use this screen to monitor the status of the power supplies.

By default, the display is sorted by power supply internal address. Optionally, you can change the sort order, and rearrange and resize the columns. See [“Modifying the Screen Layout” on page 64](#).

1. Select **Tools > System Detail**.
2. On the **Library tree**, click the **Power Supply Folder**.
3. The **Power Supply Data** screen is displayed.

Tools Help System Detail Apply Refresh ?

Library:1,0,0,0,0
CAP Folder:1,0,0,0,0
Drive Folder:1,0,0,0,0
Power Supply Folder:1,0,0,0,0
Power Supply:1,0,0,1,1
Power Supply:1,0,0,1,17
Power Supply:1,0,0,1,18
Power Supply:1,0,0,1,23
Power Supply:1,0,0,1,24
Power Supply:1,0,0,1,27
Power Supply:1,0,0,1,29
Power Supply:1,0,0,1,6
Power Supply:1,0,0,1,7
Robot Folder:1,0,0,0,0

Power Supply Folder

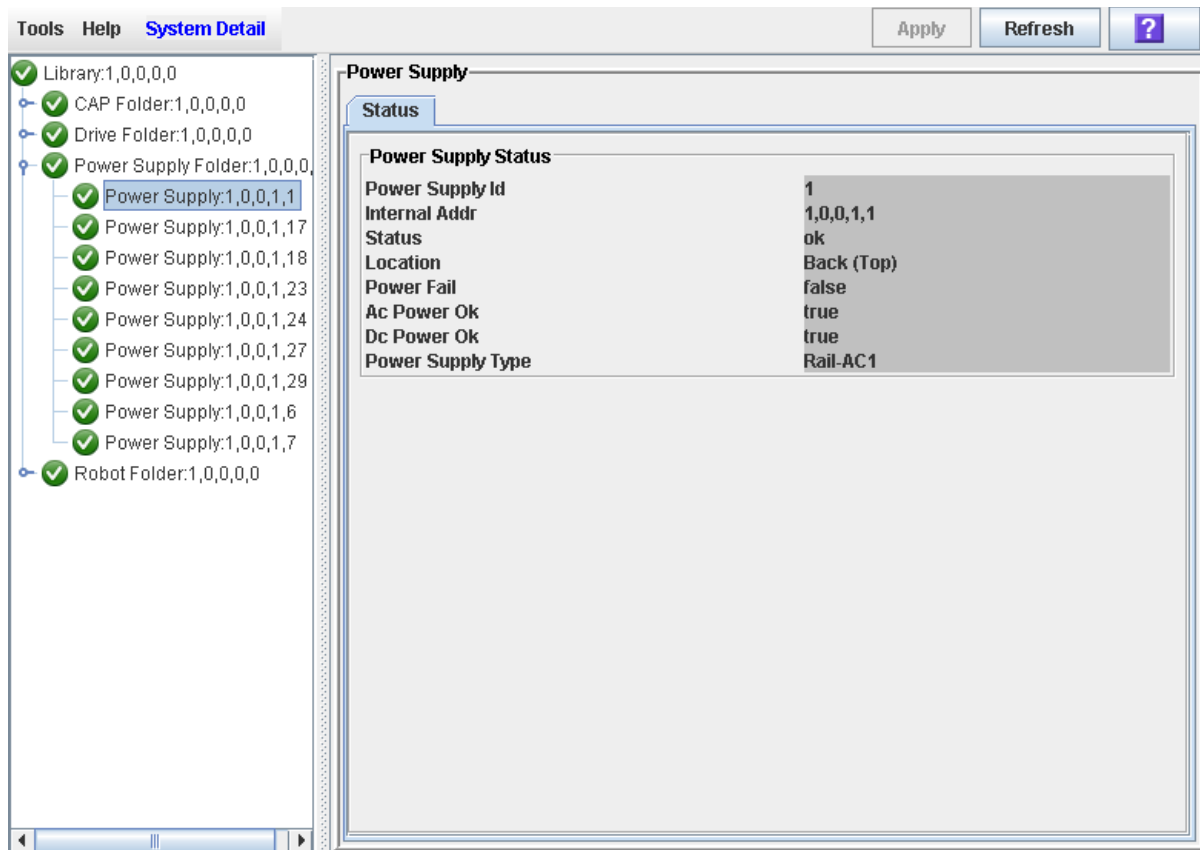
Power Supply Data

Internal Addr	Power Supply Id	Location	Health State	Power Supply Type
1,0,0,1,1	1	Back (Top)	ok	Rail-AC1
1,0,0,1,6	6	Back (Bottom)	ok	Drive-AC1
1,0,0,1,7	7	Back (Bottom)	ok	Drive-AC1
1,0,0,1,17	17	Back (Bottom)	ok	Drive-AC1
1,0,0,1,18	18	Back (Bottom)	ok	Drive-AC1
1,0,0,1,23	23	Back (Upper Left)	ok	ECM-PS1-AC1
1,0,0,1,24	24	Back (Lower Left)	ok	ECM-PS2-AC1
1,0,0,1,27	27	Back (Bottom)	ok	PDU1-AC1
1,0,0,1,29	29	Back (Bottom)	ok	PDU3-AC1

▼ Display Power Supply Detail

The Power Supply Status screen displays detailed information for a selected power supply. You can use this screen to determine whether the power supply is in need of maintenance or replacement.

1. Select **Tools > System Detail**.
2. On the **Library** tree, expand the **Power Supply Folder**.
3. Click the power supply you want to display.
4. The **Power Supply Status** screen is displayed.



SL Console Diagnostics and Utilities

Library Events

The library controller continually monitors library operations and logs all events. Events are stored under three headings:

- Communication events – Includes host-to-library, library-to-library, and library-to-drive communications.
- Error event – Each error event is assigned a four-digit (hexadecimal) action code.
- Warning events – Indicate a loss of performance or conditions that may be indicative of future, fatal errors.

Event Monitors

You or your Oracle support representative can use the SL Console monitors to review library events. You can spool the event monitor information to a text file.

The following information can help to diagnose the cause of the event:

- Date/time stamp – Identifies when the event occurred.
- Action codes – Identifies the command that was issued, such as “load drive”.
- Result codes – Identifies the result of the requested action. See [“List a Result Code” on page 499](#) to look up a result code.
- Known service plan (KSP) diagnosis – Identifies the mechanism or component responsible for the task or fault.

Note – There is no option to clear the event log.

Library Firmware Upgrades

The library firmware resides on the library controller. The initial firmware is installed at the factory. When new firmware is released, you must use the code load utility to upgrade the firmware on the library and associated devices (rotational or AEM CAP and TallBot).

Note – Library firmware does not contain drive code upgrades.

Firmware Upgrade Process

The process for loading firmware code on the library controller is as follows:

1. Locate the firmware upgrade package (.jar file) on the Oracle download site. See [“Firmware Download Site” on page 480](#).
2. Download the code to a folder on your local PC or workstation.
3. Download the firmware package from your PC or workstation to the library controller. This process also unpacks the package after downloading to make it ready for activation. See [“Download Code to the Library Controller” on page 501](#).
4. Activate the downloaded code on the library controller. See [“Activate Code on the Library Controller” on page 507](#).
5. Reboot the library to make the code operational. See [“Download Code to the Library Controller” on page 501](#).

Firmware Download Site

The SL3000 library firmware package is a .jar (Java Archive) file. The file is available at the Oracle E-Delivery website at the following URL:

<http://edelivery.oracle.com/>

Multiple Versions of Firmware

You can store up to two versions of the SL3000 firmware in the library controller flash memory. This provides the following advantages:

- It allows the library to continue normal operations, running one version of firmware, while you download and unpack an upgrade package. Then you can activate the upgrade at a time that is convenient for library users.
- It allows you to revert to a previous version of firmware without having to download and unpack the code package again.

Upgrades and Redundant Electronics

Note – This feature is available starting with SL3000 firmware version FRS_3.0 and SL Console version FRS_5.00.

Firmware upgrades for libraries with the Redundant Electronics feature are minimally disruptive to library operations. New code is loaded simultaneously on the active and alternate controller cards and on all devices. The code is then

activated, and the active and alternate controllers and most devices are reinitialized; under most circumstances, TallBot initialization is bypassed. During the upgrade process, the library continues normal operations without interruption.

See [Chapter 7, “Redundant Electronics Management” on page 359](#) for details about this feature.

Related Procedures

For detailed firmware upgrade procedures, see [“Library Utility Tasks” on page 500](#).

Library Self-Tests

The self-test diagnostic utility is intended to help diagnose basic problems with the library. A self-test is typically run after the library is installed. It can be run whenever necessary.

The library self-test routines can be run in either non-disruptive or disruptive mode. In non-disruptive mode, all cartridges used in the test are returned to their original locations. Disruptive mode may leave cartridges in a different location from where they started.

Library self-tests involve the following process:

1. Checks the communication path between the library controller, drives, and TallBots.
2. Performs get and put operations to check the health of the TallBots and rotational or AEM CAPs. This includes get and put operations from a reserved system cell to a random empty:
 - Storage cell
 - CAP cell
3. Performs a full library audit.
4. Performs mounts and dismounts of diagnostic cartridges for all the drives installed in the library.

Note – The self-test will not start unless a diagnostic cartridge is found in the system cells.

Note – The self-test is repeated for each drive type if a compatible diagnostic cartridge is found in the system cells. If a diagnostic cartridge is not found for a drive type, the mount/dismount operation is skipped for the drive.

Related Procedures

- For detailed procedures, see [“Library Utility Tasks” on page 500](#).

Diagnostic Cartridge Management

Library self-tests and some other diagnostic activities require the use of diagnostic cartridges. You must ensure that the library contains a sufficient number of diagnostic cartridges for these activities.

The library requires that diagnostic cartridge volume IDs (VOLIDs or volsers) be eight characters in length, with "DG" as the first two characters. The library Import/Export function only accepts diagnostic cartridges that have labels with this format.

Diagnostic cartridges are stored in reserved system cells which are controlled by the library and are not accessible to library host applications. The number of system cells available for diagnostic cartridge storage varies, depending on the configuration of your SL3000 library. See ["Reserved System Cells" on page 615](#) for details.

Importing and Exporting Diagnostic Cartridges

In order for diagnostic cartridges to be available for library diagnostic activities, they must be entered into the library with the SL Console Import function. See ["Import Diagnostic Cartridges" on page 528](#) for detailed instructions.

Any diagnostic cartridges entered with the host tape management software (ACSL or ELS) are stored in data cells and cannot be used for library diagnostic activities.

To remove diagnostic cartridges from the library, you must use the SL Console Export function. See ["Export Diagnostic Cartridges" on page 531](#) for detailed instructions. You can choose to export all diagnostic cartridges or selected ones.

Note – The command line interface (CLI) also provides diagnostic cartridge import and export commands accessible to your Oracle support representative.

Related Procedures

For detailed procedures, see ["Diagnostic Cartridge Management Tasks" on page 527](#).

Audits

An audit is the process of reading and cataloging cartridges within a library, verifying the locations of cartridges, or validating a range of slot locations. The library controller maintains a cartridge database that contains the following information for all the cartridges in the library:

- Volume ID (VOLID or volser)
- Current location (in library internal address format)
- Verified status (true or false)

The library audits all cartridge locations in the storage and reserved areas at the following times:

- After one or both access doors have been opened and closed.
- An audit request is made through the SL Console.
- A host request to audit the library is entered.

You can use the SL Console to perform the following types of audits:

- [Physical Audit](#)
- [Verified Audit](#)

Caution – System-level problems may occur if a host’s cartridge record does not match what is in the library controller cartridge database.

Physical Audit

In a physical audit, the TallBot visits cartridge locations and verifies the VOLID of resident cartridges, and the library controller updates the cartridge database. This audit changes the “verified” status of the cartridge locations to “True.” Audit times vary according to the size of the library. Audits take approximately 1/2 second per cartridge slot, per TallBot.

The library performs a physical audit at the following times.

- At library power-up, or when a library access door has been opened and closed. This is always a full audit of the entire library.
- In libraries with an AEM, whenever the AEM access door is closed. This is a full audit of the AEM.
- When initiated manually from the SL Console. There are two types of manually initiated physical audits:
 - Entire library audit – The TallBot visits all cells (storage, rotational and AEM CAP, and drive), catalogs the VOLIDs and locations, and updates the library controller cartridge database. This audit is a background process and so does not interrupt online library operations. See “[Audit the Entire Library](#)” on page 537 for details.

- Specific range audit – The TallBot visits only a specific range of cells (storage, rotational or AEM CAP, and drive) and updates the library controller cartridge database. The audit information is displayed on the SL Console while the audit is performed. See [“Audit a Range of Cells” on page 539](#) for details.

Verified Audit

A verified audit validates the status of a specific cartridge location or range of locations (including rotational and AEM CAPs and drives) in the cartridge database. If a cartridge address has a verified status of “false” then a physical audit of that location is performed and the cartridge database is updated. The progress of the audit is displayed in the Audit Console section of the SL Console. See [“Perform a Verified Audit” on page 541](#) for details.

Related Procedures

For detailed procedures, see [“Audit Tasks” on page 536](#).

Robot Diagnostic Moves

Diagnostic moves are used to monitor or diagnose a problem with a TallBot. The move can be performed with or without cartridges.

Successful diagnostic moves do not rearrange the cartridges in the storage cells; cartridges are returned to their original locations after the diagnostic move is completed. However, some diagnostic move failures can cause cartridges to be left in new locations.

A diagnostic move involves the following elements:

- [Target Address Range](#)
- [Pool Address Range](#)
- [Move Access Order](#)
- [Robot Selection](#)

Target Address Range

The target address range defines the location parameters in a library within which the get operation is performed in a diagnostic move. There are two types of access orders for a target address:

- [“Sequential Access Order” on page 487](#)
- [“Random Access Order” on page 487](#)

Following are valid target address types:

- Storage cells – Reserves storage locations as the target/pool range
- CAP – Reserves cells in a rotational or AEM CAP as the target/pool range.
- Drive and Storage cells – Reserves drives and storage cells as the target/pool range.
- System cells – Reserves system cells, which contain cleaning or diagnostic cartridges, as the target/pool range.
- All – Reserves storage cells, system cells, rotational or AEM CAP cells and drives as the target/pool range.

Note – Selecting the Storage, CAP, drive, system, or All option does reserve all the associated locations as the target range. However, only the location currently being accessed by the TallBot for a get/put operation is unavailable to the host.

Pool Address Range

The pool address range locations are used to supply cartridges required for diagnostic moves to and from the target address range. A pool address is also used in a get operation if a target address does not contain a cartridge. There is no specified access order within the pool address range. The pool address ranges does not include drive locations.

Note – The pool address ranges cannot contain drive locations.

Move Access Order

Sequential Access Order

In a sequential access order diagnostic move, the TallBot performs a get operation starting with the first location in the target address ranges and then continues visiting the locations sequentially through the range until it completes the requested number of moves.

Note – If you choose not to move cartridges the get/put operations are not performed. The TallBot just positions itself at the target and pool addresses.

Random Access Order

In a random access order diagnostic move, the TallBot randomly picks a location in the target address range to get a cartridge. The TallBot can also visit the same location in the in the target address range multiple times to get a cartridge. The random access routine ends after the requested number of moves is complete.

If you choose not to move cartridges the get/put operations are not performed. The TallBot just positions itself at the target and pool addresses.

Robot Selection

The TallBot for the diagnostic move is selected based on the minimum and maximum ranges you set for the target and pool addresses. Multiple robots maybe selected if the address range requires it.

Diagnostic Move Control Functions

The following options are available to manage the moves currently open:

To	Select Menu Option	Notes
Start	File > Start Sequence	
Pause	File > Pause Sequence	Stops all diagnostic moves, but maintains the current location in the access order.
Stop	File > Stop Sequence	Stops a running or paused exerciser.
Resume	File > Start Sequence	Resumes a paused exerciser starting with the last known location in the target address range.
Clear the messages displayed in the monitor window	File > Clear Output Window	Erases the previous message lines and continues to fill the screen with new messages.
Spool	Spool File > Start Spooling	Directs the move output to a file.
Stop spooling the exerciser output to a file	Spool File > Stop Spooling	Stops directing the move output to the spool file.

Note – If multiple diagnostic moves are open, then each move has its own monitor screen.

Related Procedures

For detailed procedures, see [“TallBot Utility Tasks” on page 553](#).

Troubleshooting

Before you run diagnostic tests, check the following areas of the library using the troubleshooting tips in the following table:

TABLE 13-1 Troubleshooting Table

Problem	What to do
Service Required (amber) LED is constantly on.	<p>Perform the following procedure:</p> <p>Using the SL Console, check the health of the library and the attached devices (drives, rotational and AEM CAPs, and TallBots). See “StorageTek Library Console” on page 61 for more details about operations.</p> <p>To perform a health check:</p> <ol style="list-style-type: none">1. Log in to the SL Console application.2. Access the System Detail module, View > System Detail.3. Check the device tree for the following indicators:<ul style="list-style-type: none">• Device Healthy• Device Error <p>The Status (for example, online/offline) and Statistics (for example, uptime, downtime, errors and warnings) tabs provide more information on the health of the library and devices.</p> <p>Other checks:</p> <ul style="list-style-type: none">• Make sure that cartridges are fully seated and properly oriented in their storage cells.• Inspect the X table for any foreign objects or debris; remove them if found.
CAP Open LED is on and blinking.	Open the rotational or AEM CAP and make sure that the cartridges in the CAP cells are properly seated.
The SL Console does not display modified data or information remains static.	Check the SL Console Heartbeat icon.

TABLE 13-1 Troubleshooting Table (Continued)

Problem	What to do
Robot Fault or Library Fault Amber LED is constantly on.	<ol style="list-style-type: none">1. Check the SL Console for any displayed error messages. Write down the error messages reported.2. Open the front door. Observe and note the state of the cartridges, hand, and tape drives.3. .Make sure that cartridges are fully seated and properly oriented in their storage cells.4. Make sure that packing materials have been removed.5. Inspect the library floor for any objects or debris; remove them.6. Check the status of the tape drives.7. Close the front door.8. Make sure that the tape drives are fully seated and locked forward by pushing and pulling on the rear of the drive tray. Any motion of the tray indicates that it requires reseating and locking down.
Tape drive is unable to eject a cartridge.	Manually remove the cartridge from the tape drive. “Remove a Cartridge from a Tape Drive” on page 791.
The client computer cannot communicate with the library or tape drives.	<ol style="list-style-type: none">1. Make sure that cables are securely attached to their connectors on the rear of the library, the tape drives, and the client computer.2.
The library is unable to communicate with the drives.	<ol style="list-style-type: none">1. Make sure that cables are securely attached to their connectors on the rear of the library, the drives, and the client computer.
Drive status on the SL Console displays Not communicating.	
Repeated or excessive drive cleanings or cleaning messages.	<ol style="list-style-type: none">1. Replace the cleaning cartridge with a new cleaning cartridge.2. Run the Library Self-Test and note if errors are reported for the drive.3. Run any client computer-based drive diagnostic tests.

Diagnostic Support Files

The following diagnostic support files are maintained on the library in order to aid in troubleshooting and diagnosing problems:

- [MIB File](#)
- [Library Log Snapshot File](#)

Depending on circumstances, your Oracle support representative may request you to transfer one or both of these files to Oracle for further evaluation, or he or she may do this him or herself.

MIB File

The management information base (MIB) file is a small network management protocol (SNMP) database used to manage your library devices. This file can be saved as a text file. See [“Transfer the Library MIB File” on page 516](#) for detailed instructions.

Library Log Snapshot File

Note – This feature is available starting with SL3000 firmware version FRS_2.30 and SL Console version FRS_4.30.

Your Oracle support representative can use privileged CLI commands to generate an encrypted snapshot of the library event log. You cannot view or edit this file. This file is available for only 15 minutes from the time it is generated. See [“Transfer the Library Log Snapshot File” on page 519](#) for detailed instructions.

Related Procedures

For detailed procedures, see [“Library Utility Tasks” on page 500](#).

Diagnostic and Utility Tasks

Library diagnostic and utility tasks are divided into the following categories:

- “Event Monitor Tasks” on page 493
- “Library Utility Tasks” on page 500
- “Diagnostic Cartridge Management Tasks” on page 527
- “Audit Tasks” on page 536
- “Rotational and AEM CAP Utility Tasks” on page 543
- “Drive Utility Tasks” on page 549
- “TallBot Utility Tasks” on page 553
- “AEM Safety Door Utility Tasks” on page 570

Event Monitor Tasks

Task	Page
Display an Event Monitor	494
Spool Event Monitor Data to a File	495
Display Multiple Monitors	496
List a Device Status Code	497
List a Result Code	499

▼ Display an Event Monitor

Event monitor information is dynamically updated depending upon occurrence of the selected events. The information sent during an e-mail, print, save, or spool operation reflects the data (and format) shown on-screen at the time the operation is requested.

Note – Event monitors are useful tools for root cause analysis of errors. If the library is experiencing reproducible errors, you can open an event monitor and spool all events to a file to capture the data. Later, you can send the file to your Oracle support representative for analysis.

Note – To monitor multiple events, see [“Display Multiple Monitors” on page 496](#).

1. **Select Tools > Monitors.**
2. **Expand the Permanent Monitors folder.**
The library monitors you have access to are displayed.
3. **Click the event monitor you want to use, and then click Open from the Options Bar.**
The system displays the associated data collected for the event.
4. **Use these options to manage the information displayed on the screen for the event selected:**

Select	To
Monitor > Pause	Pause the continuous display of data related to the event selected
Monitor > Resume	Resume displaying the events
Monitor > Stop	Permanently stop the continuous display of data related to the event selected
Monitor > Clear	Clear the event monitor display

5. **To close a monitor, click the X in the upper right corner of the window.**

▼ Spool Event Monitor Data to a File

Use this procedure to spool and save event monitor data to a file. You can send the file to your Oracle support representative to assist in diagnosing problems.

1. Select Tools > Monitors.

2. Expand the Permanent Monitors folder.

The library monitors you have access to are displayed.

3. Click the event monitor you want to use, and then click Open from the Options Bar.

The system displays the an event monitor window.

4. In the event monitor window, select Spool File > Start Spooling.

The Save popup appears.

5. Browse to the directory where you want to save the file. In the File Name field, enter the file name, and click Save.

All event data is spooled to the specified file.

6. To stop spooling, select Monitor > Stop Spooling.

Following is a sample of the spool file:

```
2008-05-29T11:23:27.448 0,1,0,0      root  default      internal      281
warn  0  rb_Reboot::reboot(): Resetting drive [0,3,4,9]
2008-05-29T11:23:27.760 0,1,0,0      root  default      internal      281
info  0  Service Beacon is ACTIVE: Current Health Event indicates Drive 04 in
Module 03 is not operational
2008-05-29T11:23:53.211 0,1,0,0      root  default      internal      281
info  0  Service Beacon is ACTIVE: Current Health Event indicates Drive 04 in
Module 03 is operational
```

▼ Display Multiple Monitors

You can open and manage multiple event monitors using these selections from the Options Bar:

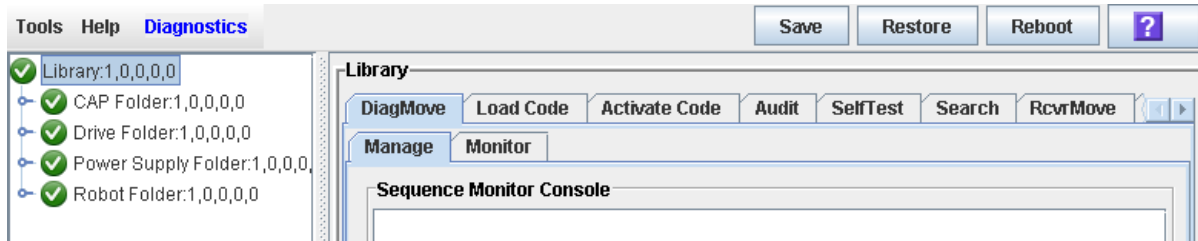
To	Select
Custom arrange the open monitors on screen	Window > Arrange
Arrange the event monitor windows horizontally	Window > Tile Horizontal
Arrange the event monitor windows vertically	Window > Tile Vertical
Stack the event monitors	Window > Cascade

▼ List a Device Status Code

Use this procedure to list device status codes and their descriptions.

1. Select **Tools > Diagnostics**.
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



3. Click the **Search** tab.

The **Library Search** screen appears.

4. In the **Search Type** pull-down, click **Device Status**.
5. Complete the **Device Status** field, as follows:
 - To search for a specific device status code, enter the complete code; wildcards or partial codes are not accepted.
 - To list all device status codes, click the **List All** checkbox.
6. Click **Search** in the **Options Bar**.

The screen lists the specified device status codes and their descriptions.

The screenshot shows a software interface with a menu bar (Tools, Help, Diagnostics) and buttons for Search, Reboot, and a help icon. A left-hand pane shows a tree view of folders and drives, all with green checkmarks. The main area is titled 'Library' and contains several tabs: DiagMove, Load Code, Activate Code, Audit, SelfTest, Search, and RcvrMove. The 'Search' tab is active, showing a 'Search Type' dropdown set to 'Device Status'. Below this is a text input field for 'Device Status' and a checked 'List All' checkbox. The 'Search Result' section contains a table with two columns: 'Device Status' and 'Description'.

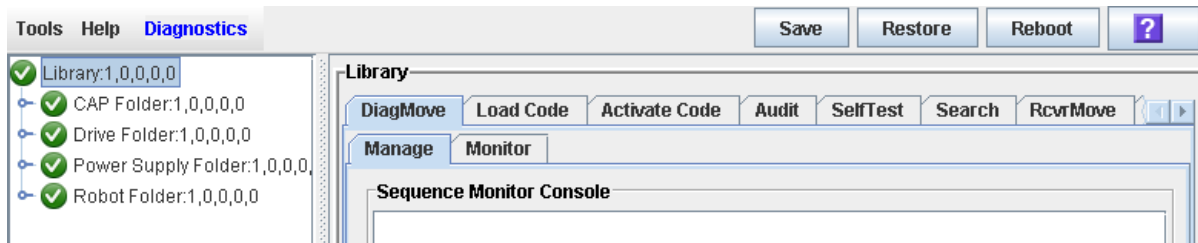
Device Status	Description
000	Ok
001	Invalid Request
501	Can not move on rail
502	Can not find target
503	Can not complete reach operation
504	Cartridge stuck in location
505	Location empty
506	Reach not safe
507	Label miscompare
508	Location unusable
509	Can not move wrist
510	Location full/obstructed
511	Vision inoperative
512	Can not be operative
513	Hit an obstruction on rail
514	Needs to be reset
515	No cartridge in hand
516	Hand is full
601	Drive not unloaded
602	Drive empty
603	Cartridge present in drive
604	Drive not functional
605	Media error
606	Read-only not supported

▼ List a Result Code

Use this procedure to list result codes and their descriptions.

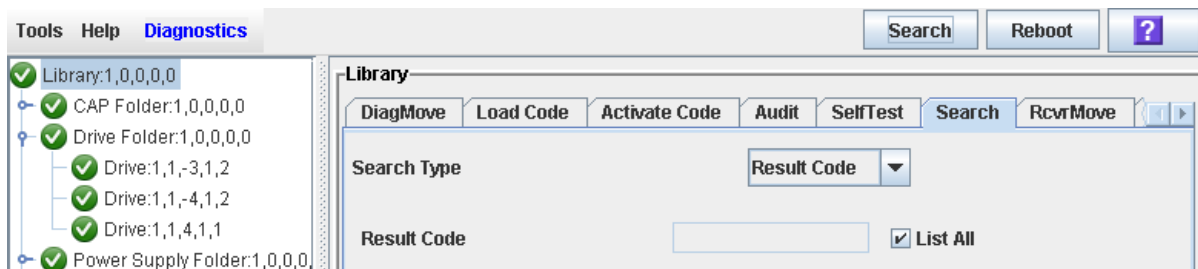
1. Select **Tools > Diagnostics**.
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



3. Click the **Search** tab.

The **Library Search** screen appears.



4. In the **Search Type** pull-down, click **Result Code**.
5. Complete the **Result Code** field, as follows:
 - To search for a code, enter the complete code; wildcards or partial codes are not accepted.
 - To list all codes, click the **List All** checkbox.

Library Utility Tasks

Task	Page
Download Code to the Library Controller	501
Activate Code on the Library Controller	507
Reboot the Library	501
Transfer the Library MIB File	516
Transfer the Library Log Snapshot File	519
Perform a Non-Disruptive Library Self-Test	521
Perform a Disruptive Library Self-Test	524

▼ Download Code to the Library Controller

Use this procedure to download and unpack library firmware upgrades on the library controller.

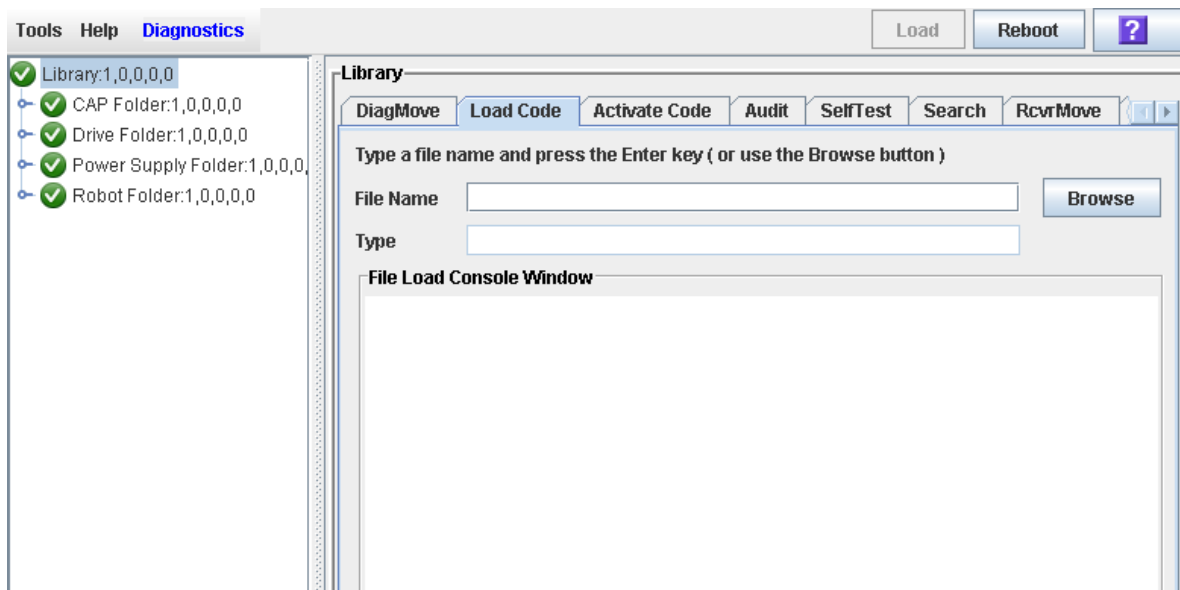
After completing this procedure, you can choose a convenient time to activate the code on the library. See [“Activate Code on the Library Controller” on page 507](#) for detailed instructions.

Note – This procedure is not used for downloading drive firmware updates.

Note – You can perform this procedure from the standalone SL Console or Web-launched SL Console only. It is not available at the local operator panel.

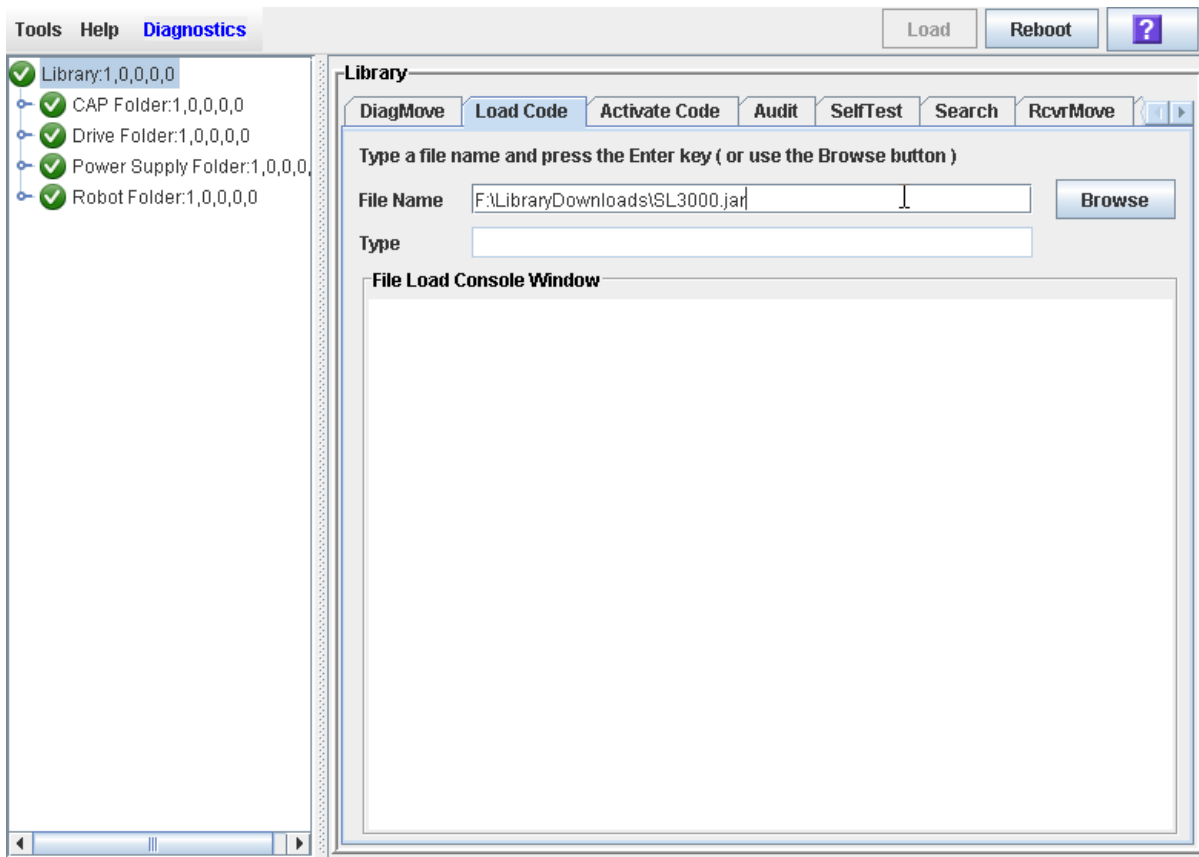
1. Locate the firmware upgrade package (.jar file) on the Oracle download site. See [“Firmware Download Site” on page 480](#).
2. Download the code to a folder on your local PC or workstation.
3. Log into the SL Console.
4. Select Tools > Diagnostics, and click the Library folder.
5. Click the Load Code tab.

The Load Code screen appears.

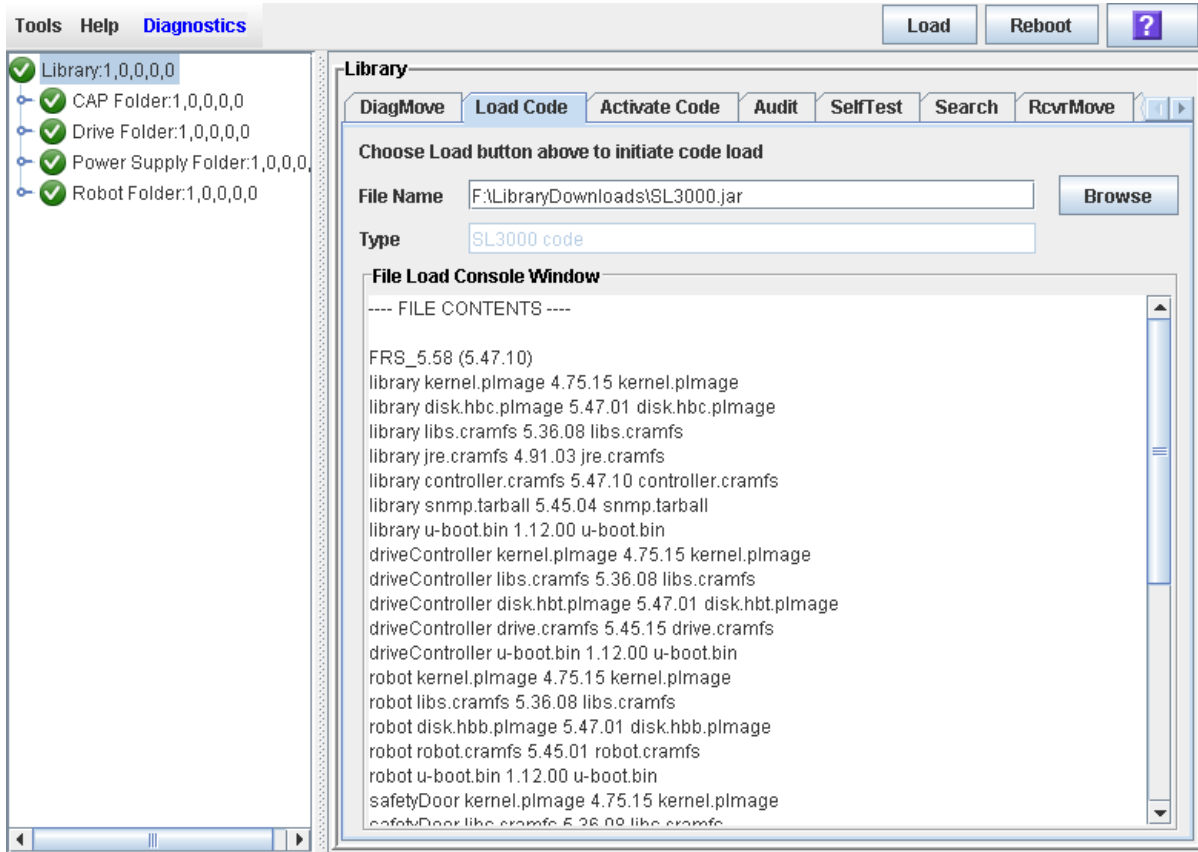


6. In the File Name field, enter the full path of the firmware package you want to download, and press Enter. Optionally, you can click Browse and navigate to the file location on your local PC or workstation.

The SL3000 library firmware package is a .jar (Java Archive) file.

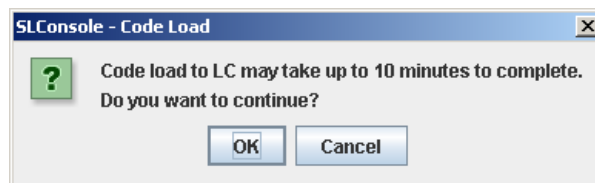


7. The contents of the file is displayed. Review the contents and file name to verify that you have specified the correct firmware package.



8. Click the Load button on the Options Bar.

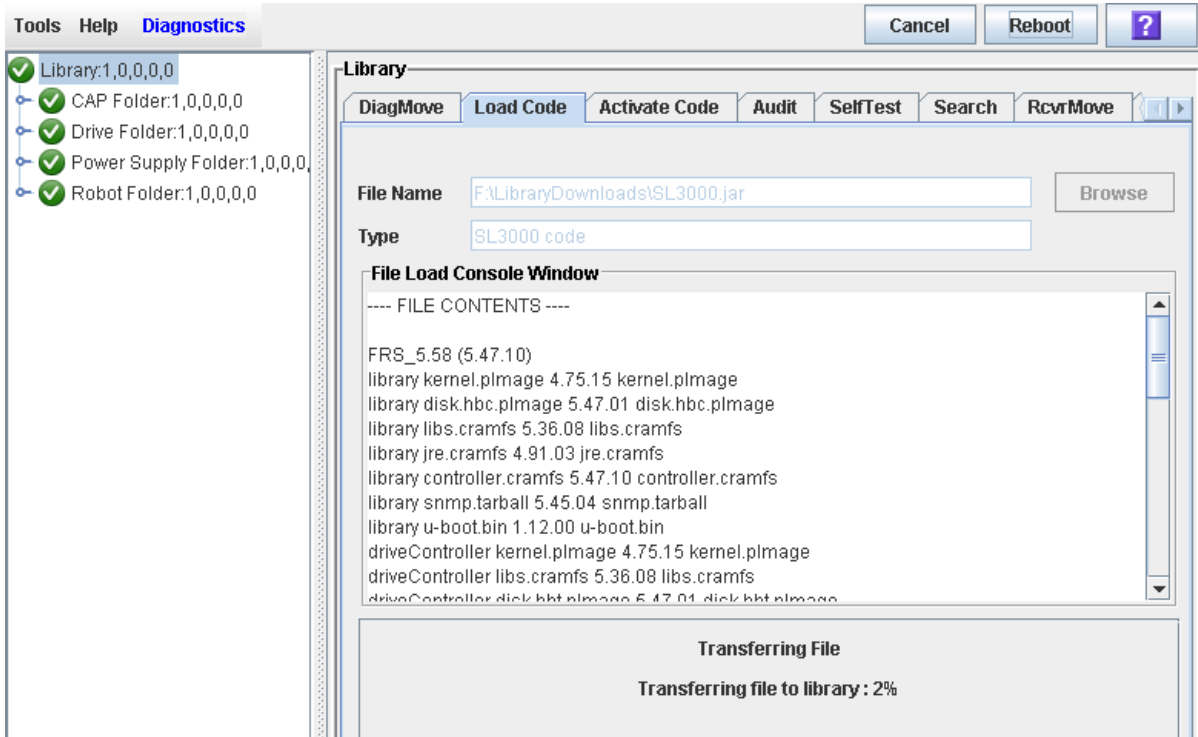
The Code Load confirmation appears.



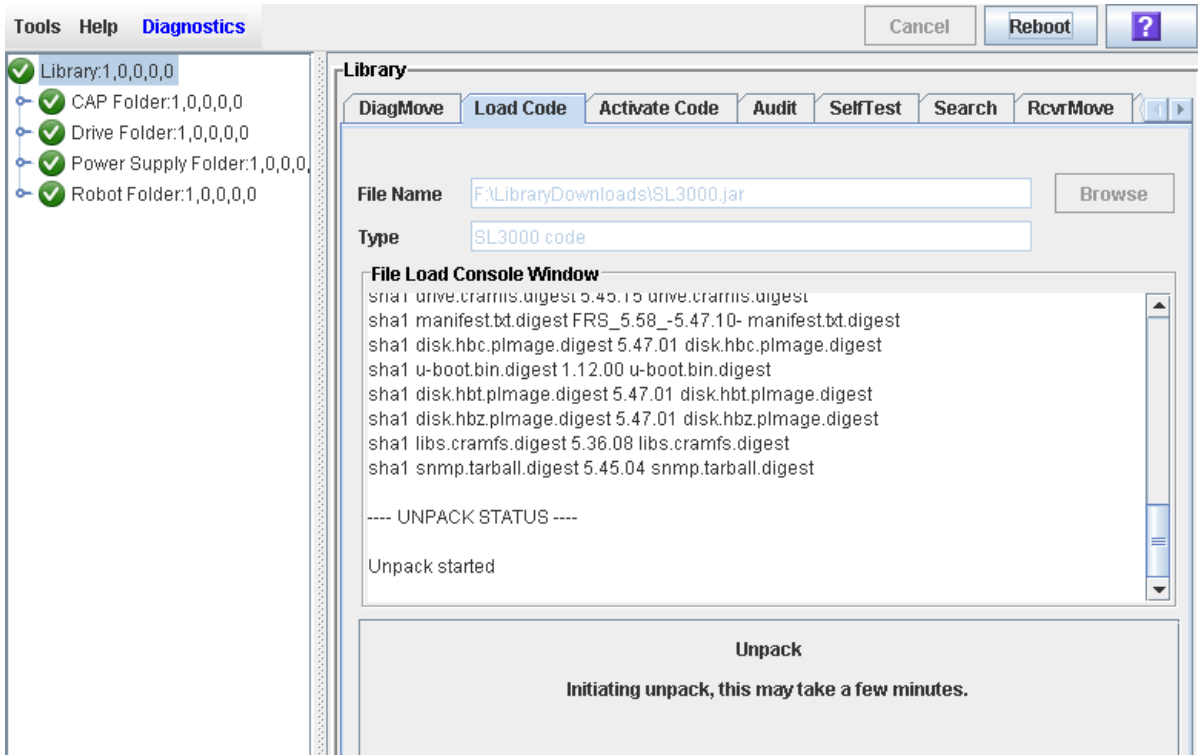
9. Click OK to confirm the download.

Note – The download process could take up to ten minutes.

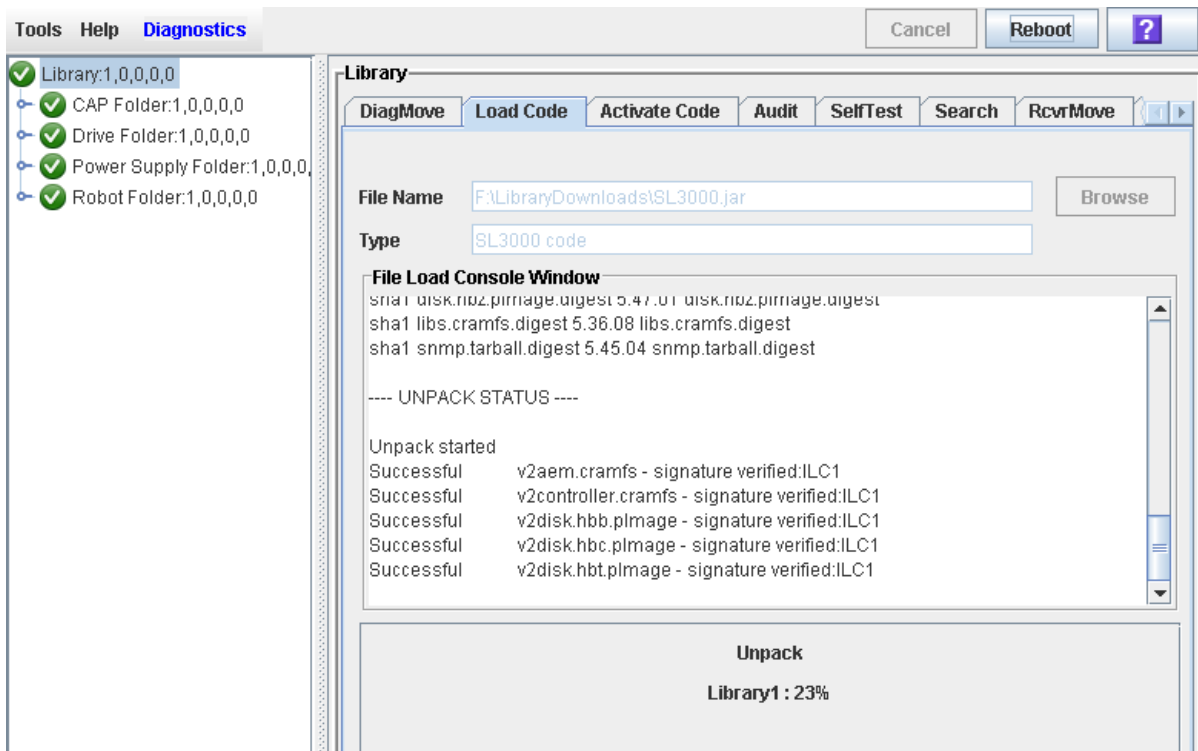
10. The system begins downloading the code to the library controller. The File Load Console Window section of the screen indicates the progress of the file transfer.



11. When the code is fully transferred to the library controller, the code unpack process begins.

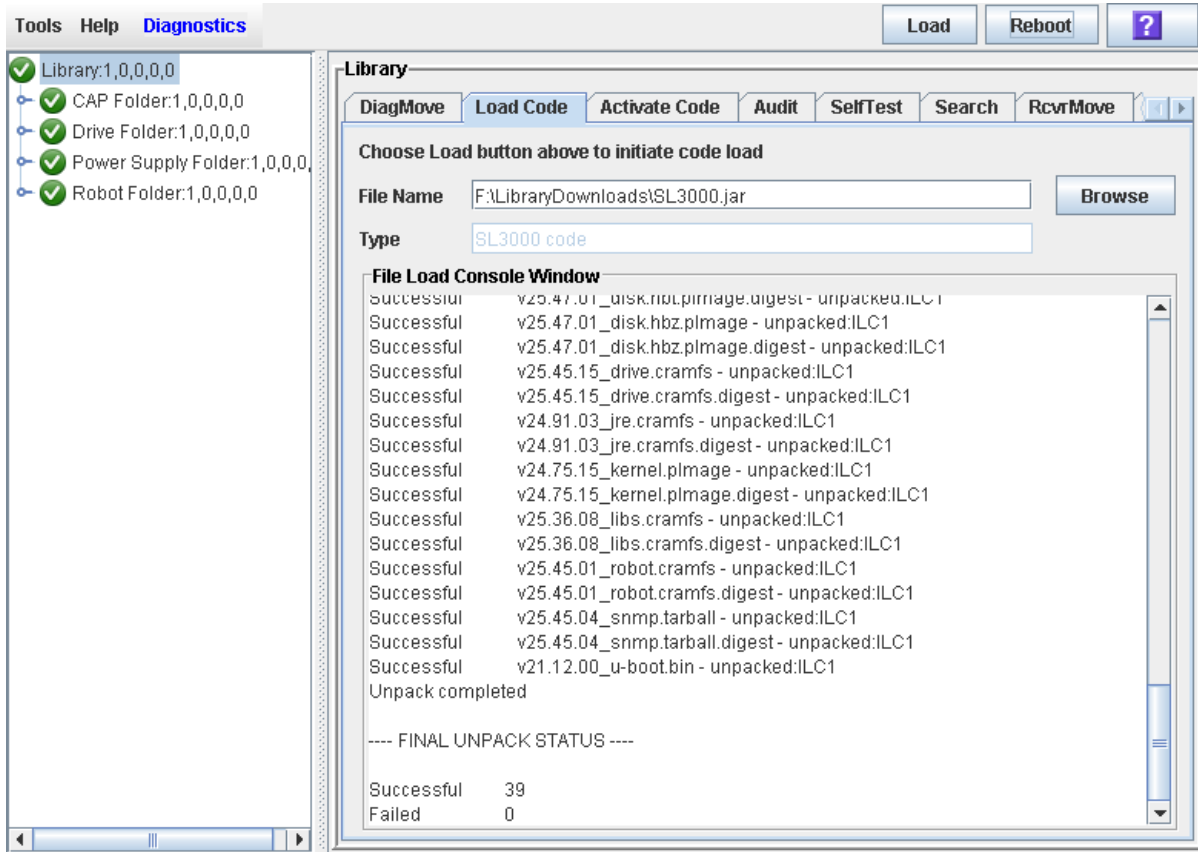


12. The screen indicates the progress of the unpack.



13. The screen indicates when the unpack process is complete.

In the **Failed** field, you should see 0. If there are any failures indicated, contact your Oracle support representative for assistance.



14. After the package is successfully unpacked, you can activate the code immediately or wait until a later time. See [“Activate Code on the Library Controller” on page 507](#) for detailed instructions.

▼ Activate Code on the Library Controller

Use this procedure to activate a version of library firmware currently residing in the library controller flash memory. Up to two versions of firmware can be resident in memory at one time, but only one can be active. The active version is identified as “running”.

Prior to performing this procedure you must download and unpack the code you want to activate. See [“Download Code to the Library Controller” on page 501](#) for detailed instructions.

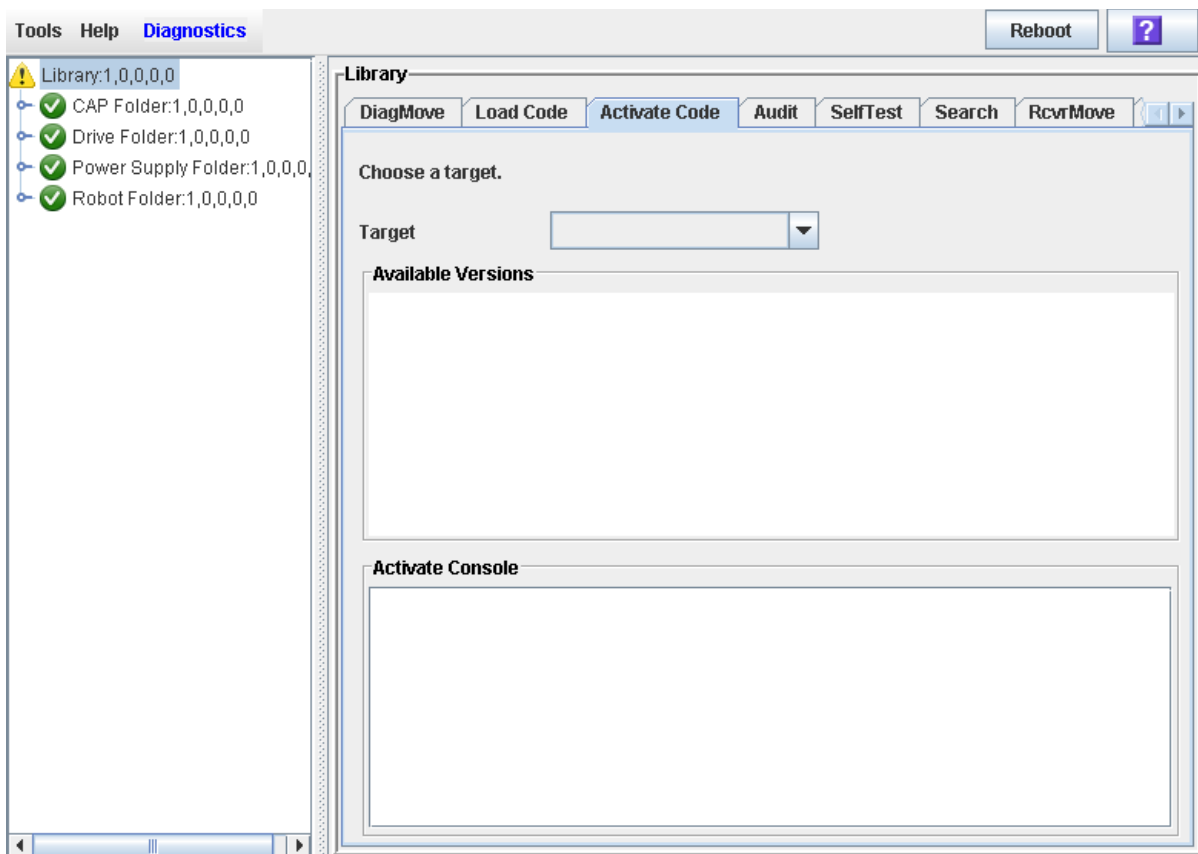
This procedure involves a reboot of the library. You should schedule it for a time that is convenient for users.

You can restore the earlier firmware version if required.

Note – You can perform this procedure from the standalone SL Console or Web-launched SL Console only. It is not available at the local operator panel.

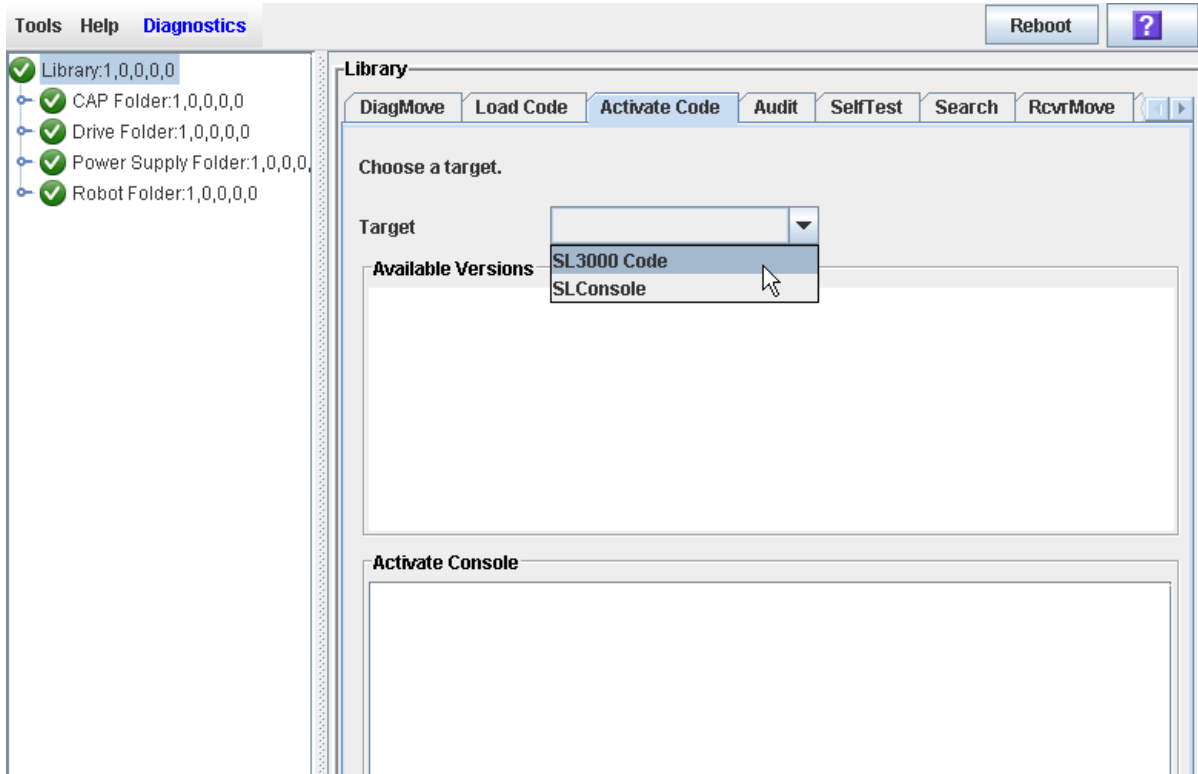
1. Select **Tools > Diagnostics**, and click the **Library** folder.
2. Click the **Activate Code** tab.

The **Activate Code** screen appears.



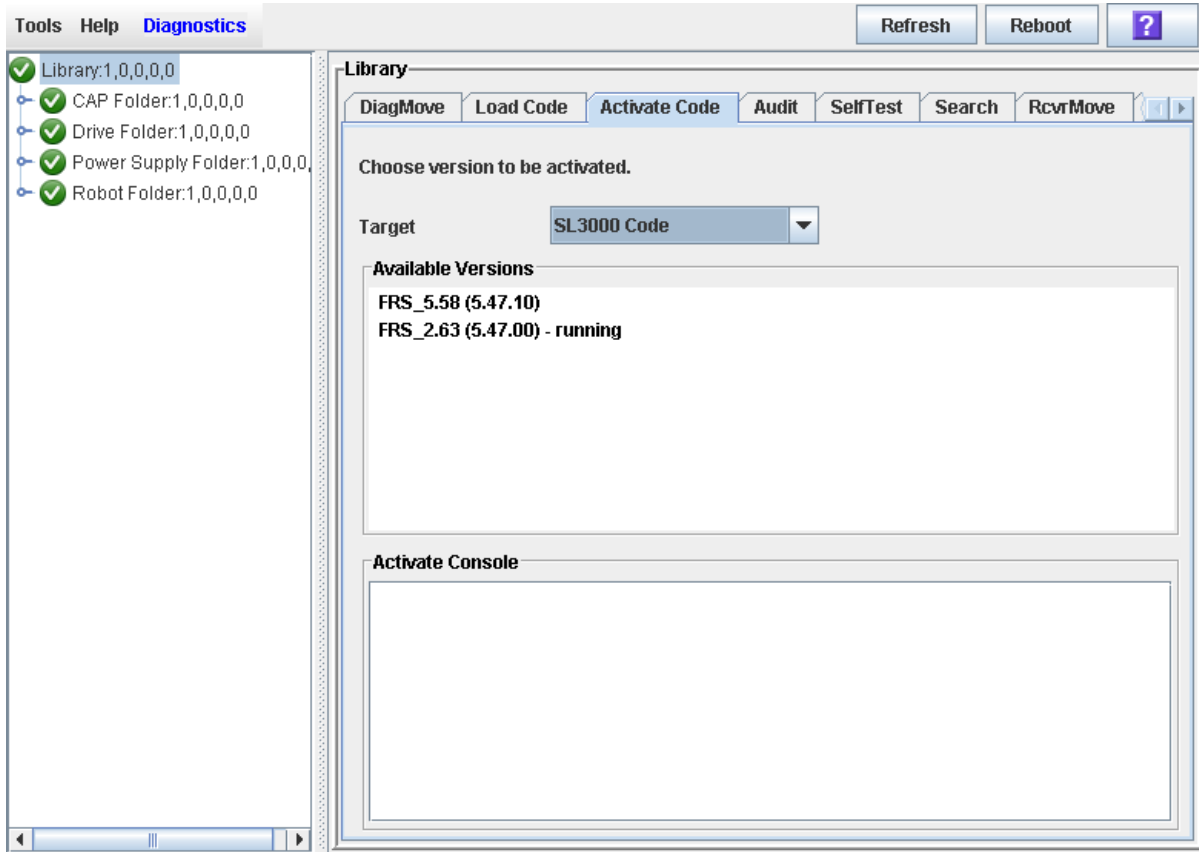
3. In the **Target** pull-down, select the code package you want to activate.

The pull-down may display a library firmware package and an SL Console package. For this procedure, select the firmware package (SL3000 Code).

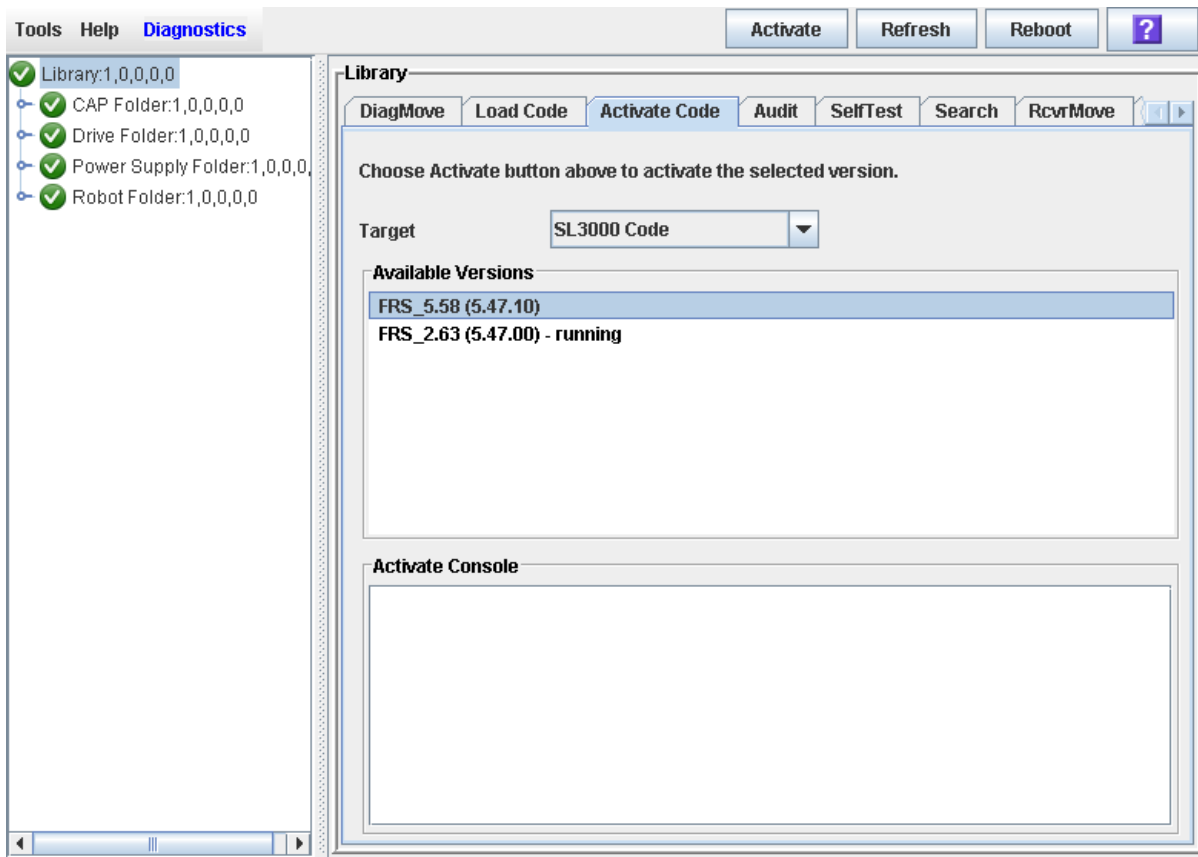


4. The Available Versions section of the screen displays the versions currently residing in flash memory.

The version identified as "running" is the currently active code. You cannot select this version again to activate.

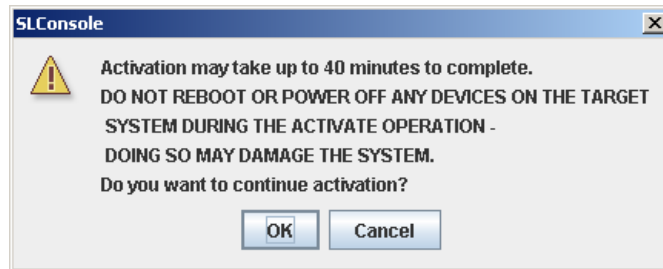


5. Select the code version you want to activate.



6. Click the Activate button in the Options Bar.

The **Activation Confirmation** dialog appears, verifying that you want to continue with the process.

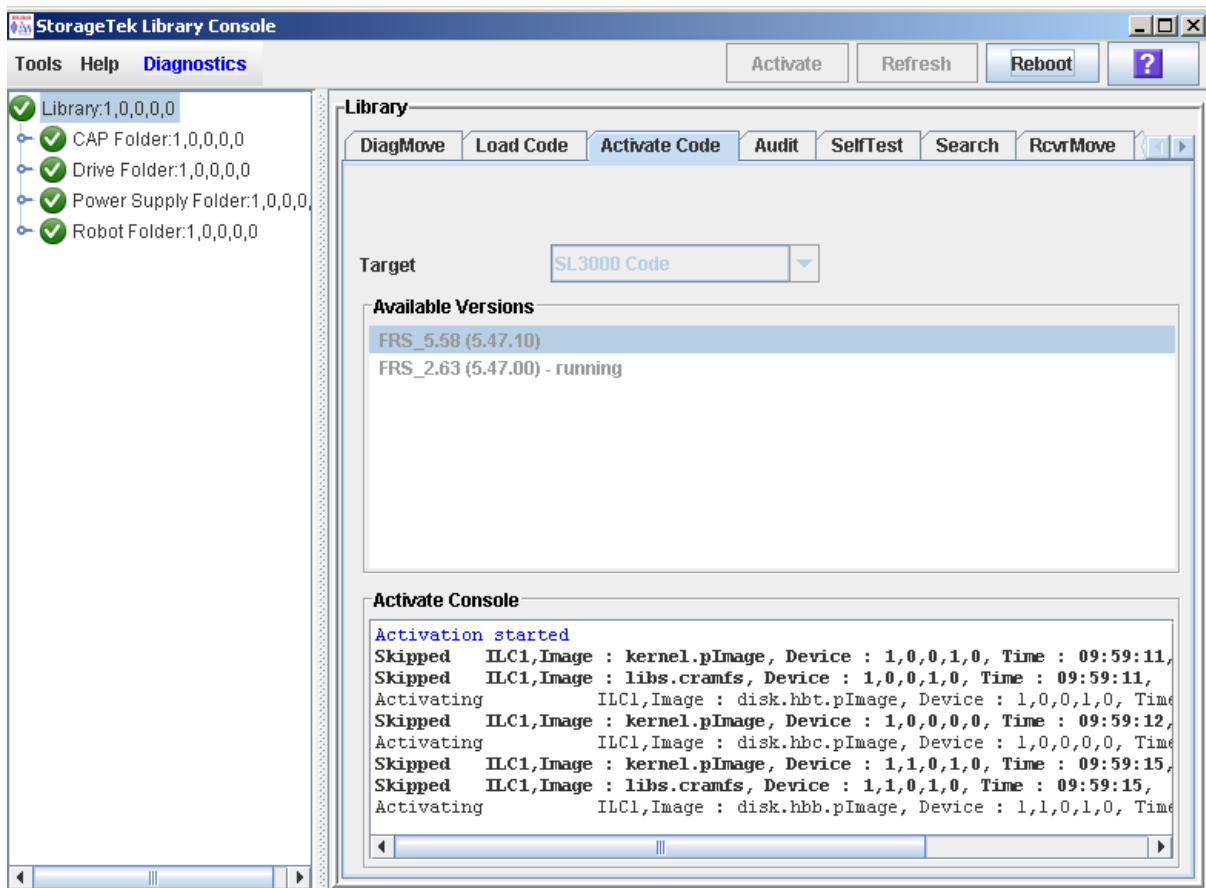


7. Click OK to begin the activation.

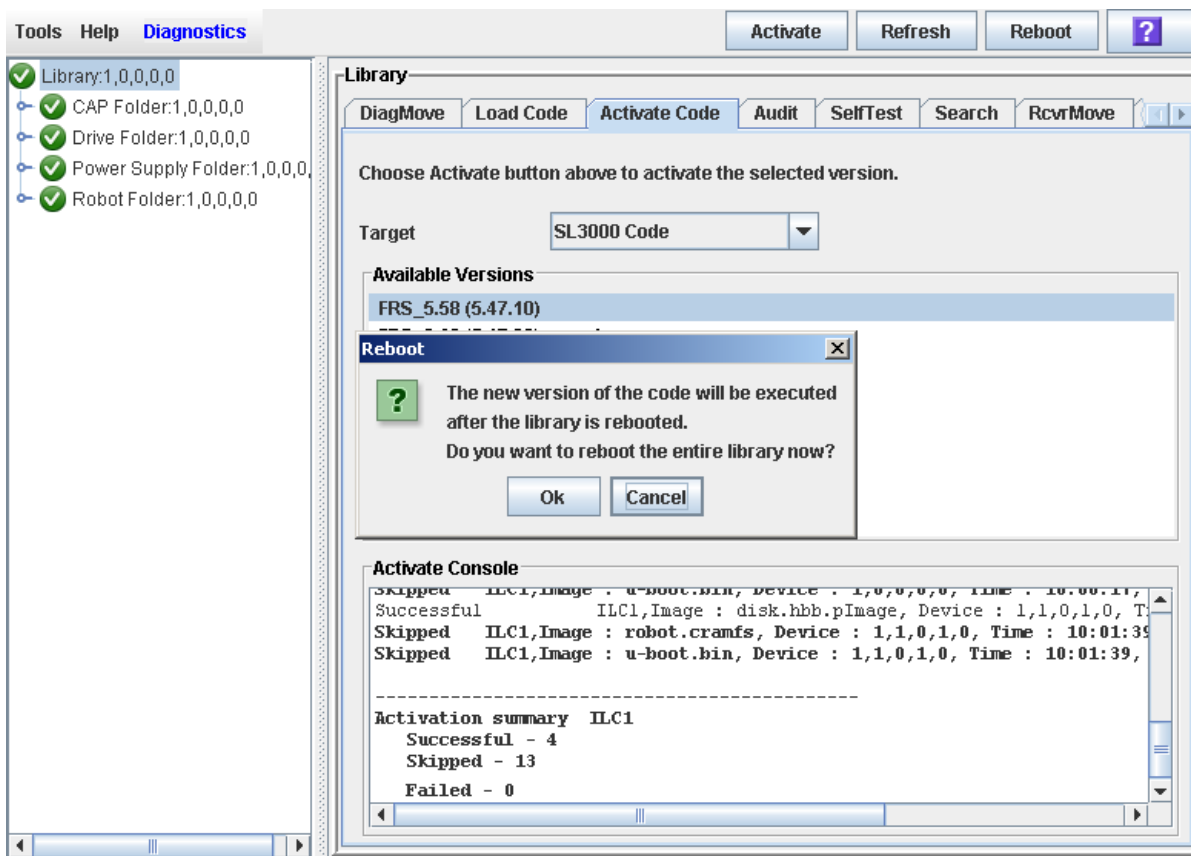
If you click **Cancel**, the process terminates and returns to [Step 5](#).

The code activation process begins, and the **Activate Console** section of the screen displays the status of the process.

Caution – POTENTIAL INTERNAL FILE CORRUPTION. Do not reboot any devices in the library or execute any operations on the library while code is being activated.



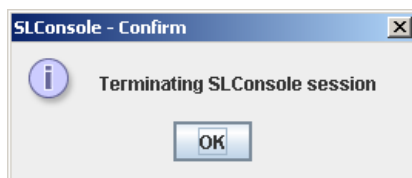
- When the activation process is finished, a dialog appears, prompting you to reboot the library.



- Click OK to reboot the library.

If you click **Cancel**, the process terminates; you will need to reboot the library at a later time. See [“Download Code to the Library Controller”](#) on page 501 for detailed instructions.

The reboot process begins, and a popup appears indicating that your SL Console session will be terminated.



- Click OK to terminate the SL Console session.

You are logged off the library.

- When the library initialization has completed, you can log in again to the library through the SL Console login screen.

The SL Console gets all library configuration data from the library controller. Therefore, you should be careful when logging in to the SL Console before the library has fully initialized. You may see warnings that configuration data is not yet available, in which case you need to exit and log in again at a later time.

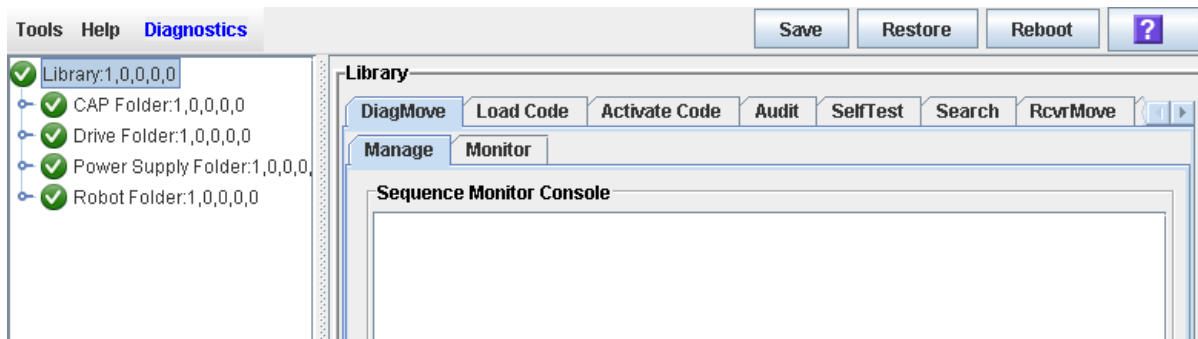
Additionally, if a library audit is performed as part of initialization, until the audit is complete, any configuration data displayed may not be completely up-to-date and accurate.

▼ Reboot the Library

Use this procedure to reboot the library. This process involves reloading the firmware from flash memory and restarting the library controller.

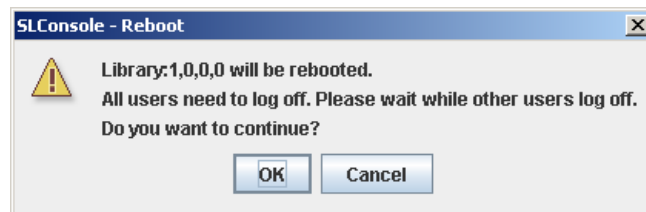
1. Select **Tools > Diagnostics**.
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



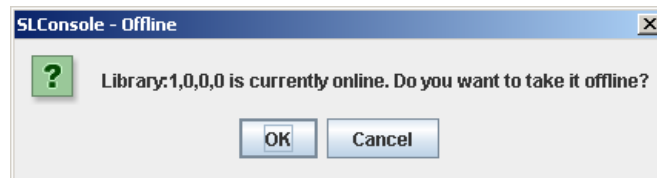
3. Click **Reboot** in the Options Bar.

The **Reboot** confirmation popup appears.



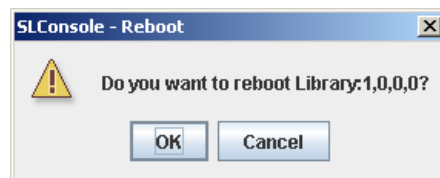
4. Click **OK** to continue.

If the library is online, the **Offline** confirmation popup appears.



5. Click **OK** to vary the library offline.

The **Reboot** confirmation popup appears



6. Click **OK** to continue.

The SL Console termination popup appears.

7. Click **OK** to terminate this SL Console session.

You are logged off the SL Console.

The library controller reboots the library. This may take several minutes.

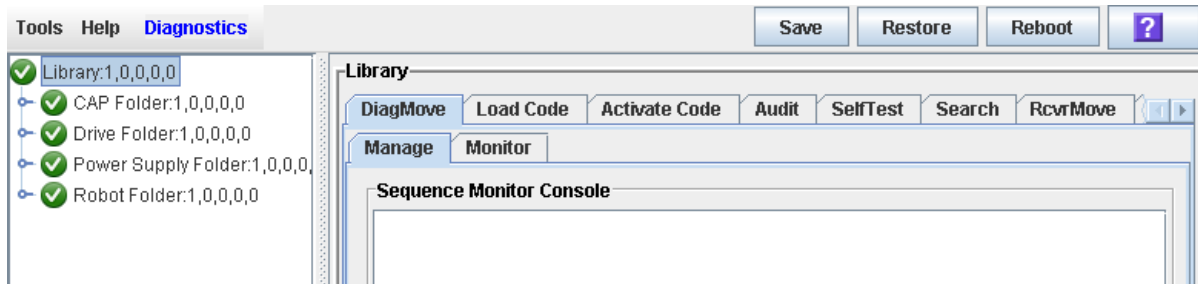
Note – You will not be able to log back in to the SL Console until the library has fully initialized.

▼ Transfer the Library MIB File

Use this procedure to copy the public SNMP management information base (MIB) file to a specified location on your local PC or workstation. The file is saved as a text file. You can e-mail the file to your Oracle support representative to help diagnose problems with the library.

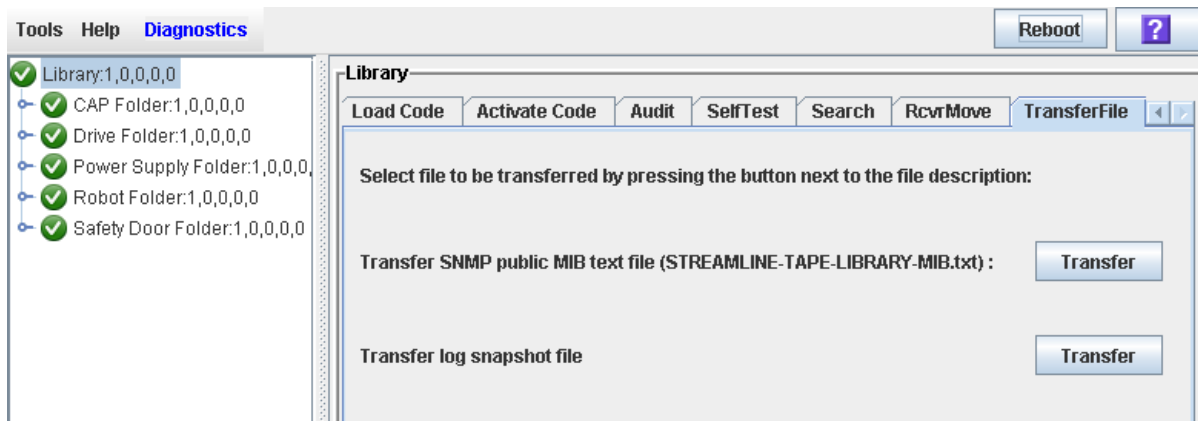
1. Select **Tools > Diagnostics**,
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



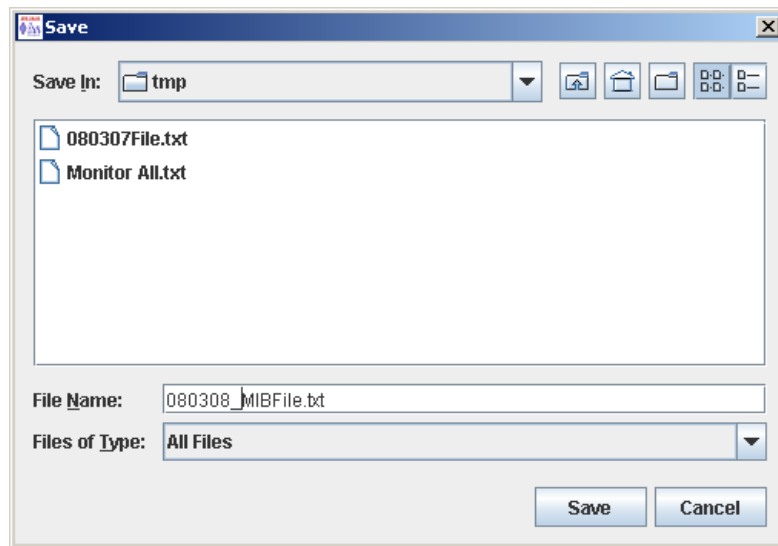
3. Click the **TransferFile** tab.

The file transfer screen appears.



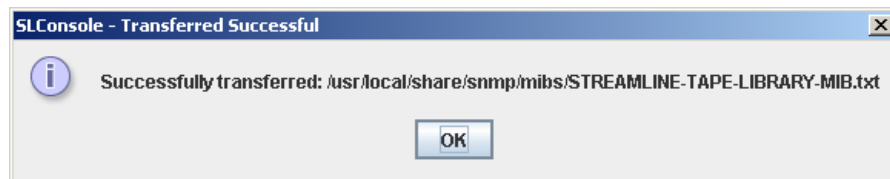
4. In the **Transfer SNMP public MIB text file** field, click the **Transfer** button.

The Save popup appears.



5. Browse to the directory where you want to save the file, and enter the file name in the File Name field. Be sure to give it a .txt suffix.
6. Click Save.

The data is saved to the specified file, and the **Transferred Successful** popup appears.



7. Click OK to dismiss the popup.

Following is a partial sample of the MIB file output.

```

-- *****
--          STREAMLINE-TAPE-LIBRARY-MIB (1.3.6.1.4.1.1211.1.15)
--
-- Copyright (c) 2005, 2010, Oracle and/or its affiliates. All rights
reserved.
--
-- *****

STREAMLINE-TAPE-LIBRARY-MIB DEFINITIONS ::= BEGIN
IMPORTS
    enterprises, Counter32, Integer32 FROM SNMPv2-SMI
    --OBJECT-TYPE FROM RFC-1212
    OBJECT-GROUP, NOTIFICATION-GROUP, MODULE-COMPLIANCE FROM SNMPv2-CONF
    TEXTUAL-CONVENTION FROM SNMPv2-TC
    OBJECT-TYPE, MODULE-IDENTITY, NOTIFICATION-TYPE FROM SNMPv2-SMI;

streamlineTapeLibrary MODULE-IDENTITY
    LAST-UPDATED "201010280000Z" -- Oct 28, 2010
    ORGANIZATION "Oracle"
    CONTACT-INFO "Please contact Oracle/Sun Support:
                  http://www.sun.com/contact/support.jsp"
    DESCRIPTION "The MIB module for StreamLine Tape Library.
                  Copyright (c) 2005-2010,
                  Oracle. All Rights Reserved."
    ...
-- *****
--
-- Generic traps: 1-10
--
-- *****

slTrapError NOTIFICATION-TYPE
    OBJECTS
        {
            slTrapLibrarySerialNumber,
            slTrapDeviceId,
            slTrapDeviceTime,
            slTrapDeviceAddress,
            slTrapDeviceUserName,
            slTrapDeviceInterfaceName,
            slTrapDeviceActivity,
            slTrapDeviceRequestId,
            slTrapDeviceSeverity,
            slTrapDeviceResultCode,
            slTrapDeviceFreeFormText
        }
    STATUS current
    DESCRIPTION "An error trap - a device condition which is critical to
machine operation was encountered"
    ::= { slSnmplibNotifications 1 }

```

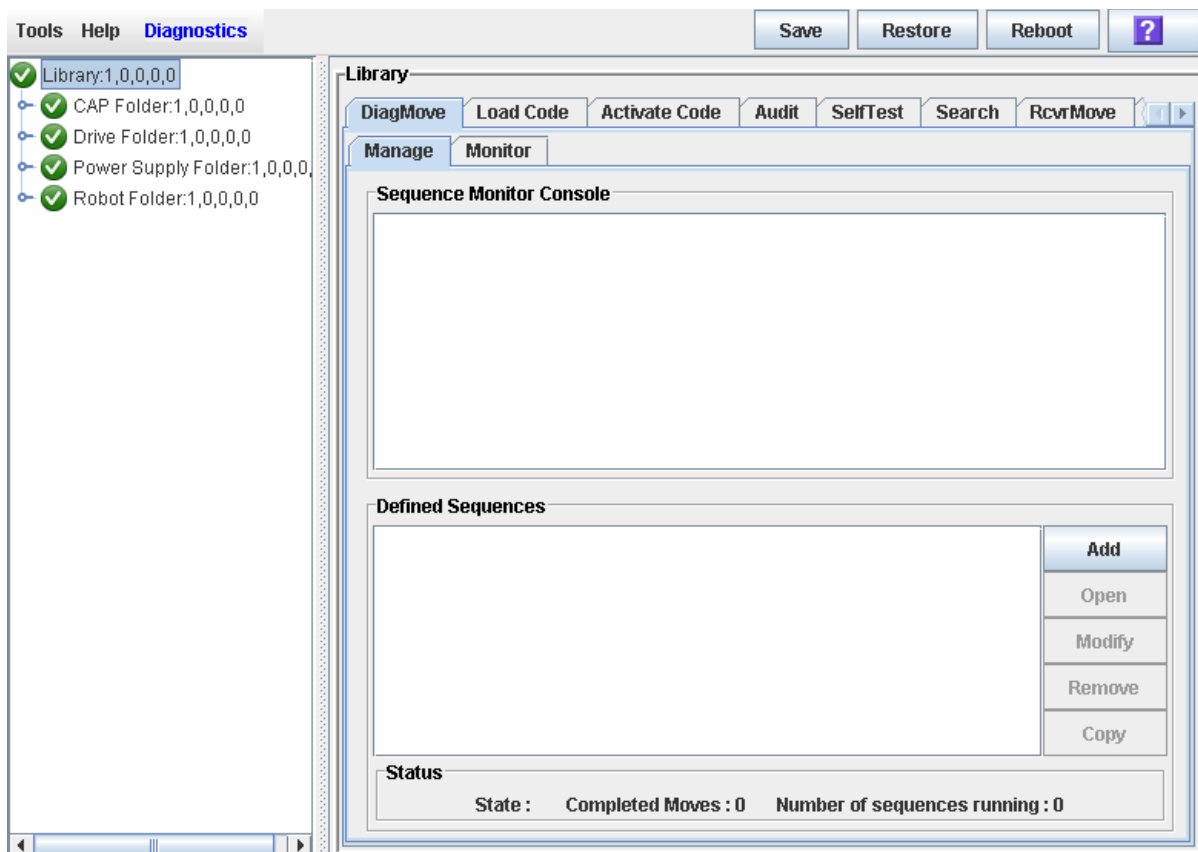
▼ Transfer the Library Log Snapshot File

Note – Use this procedure only under the direction of your Oracle support representative. Your Oracle support representative must have generated a library log snapshot file within the previous 15 minutes.

Use this procedure to copy the library log snapshot file to a specified location on your local PC or workstation. The file is saved in an encrypted format, and you cannot view or edit it. You can e-mail the file to your Oracle support representative to help diagnose problems with the library.

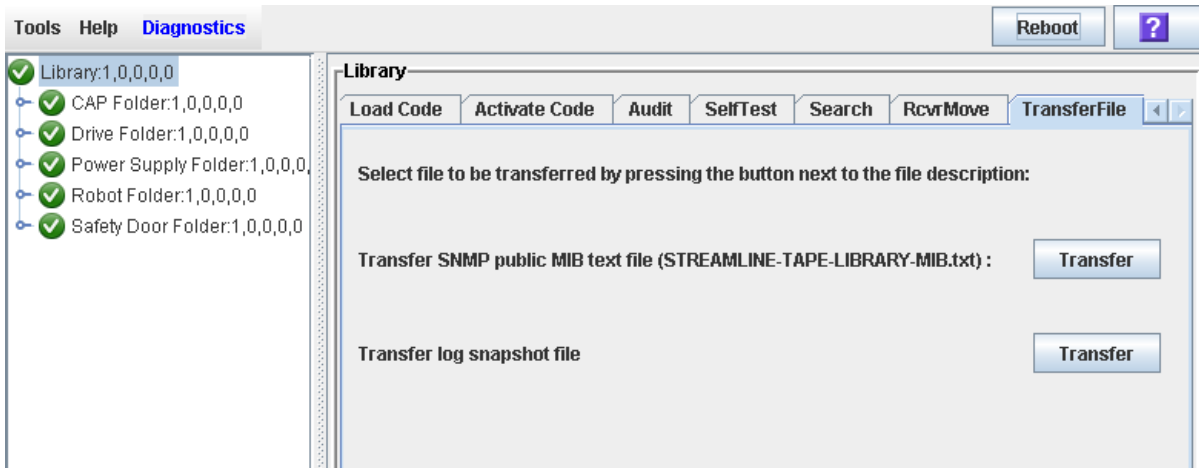
1. Select **Tools > Diagnostics**,
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



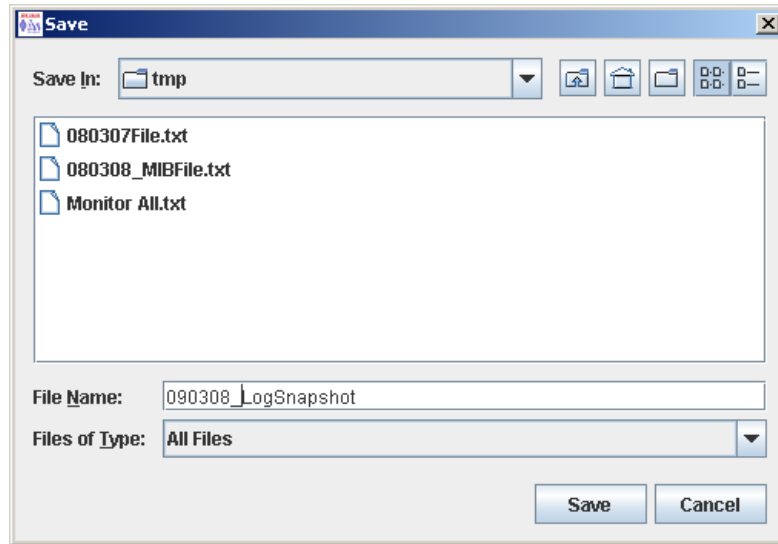
3. Click the **TransferFile** tab.

The file transfer screen appears.



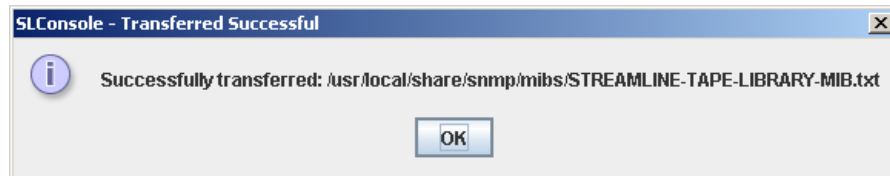
4. In the Transfer log snapshot file field, click the Transfer button.

The Save popup appears.



5. Browse to the directory where you want to save the file, and enter the file name in the File Name field.
6. Click Save.

The data is saved to the specified file, and the **Transferred Successful** popup appears.



7. Click OK to dismiss the popup.

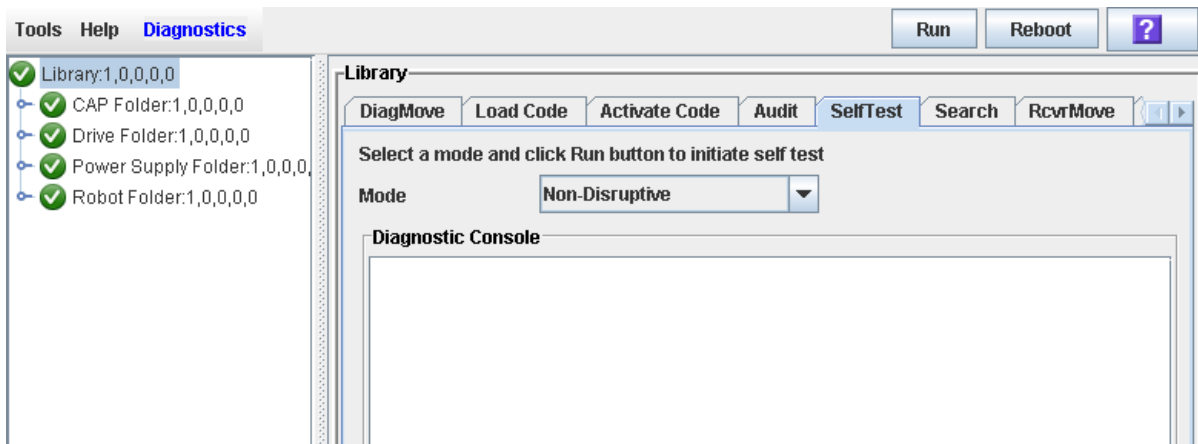
▼ Perform a Non-Disruptive Library Self-Test

Use this procedure to perform a non-disruptive library self-test, which can be used to help diagnose operational problems with the library.

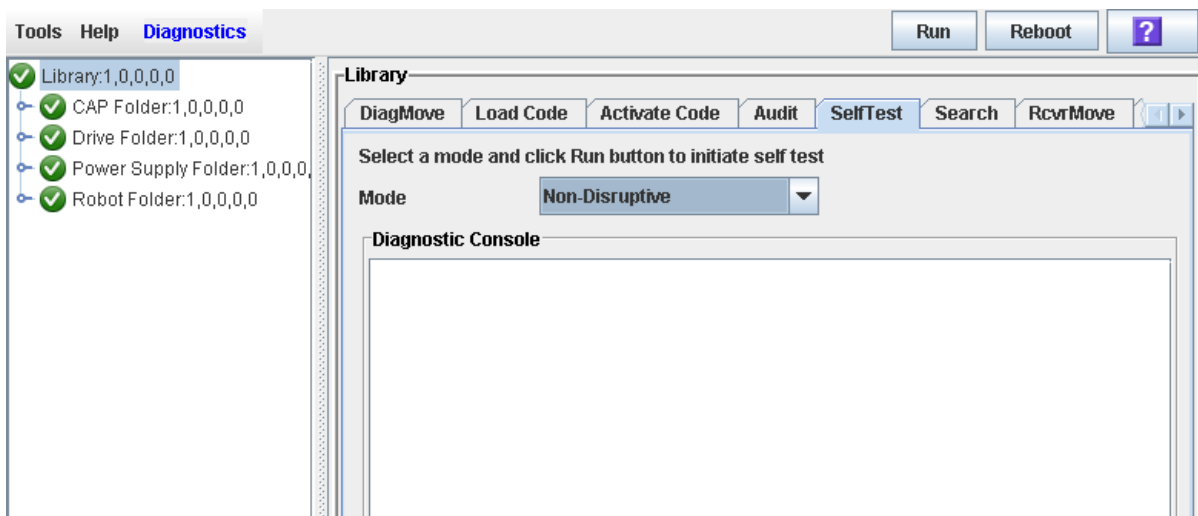
In order for the test to run completely, the proper diagnostic cartridges for library drives must be present in the library. To verify this, see [“List Library Cartridges”](#) on page 430.

1. Select **Tools > Diagnostics**, and click the **Library** folder.
2. Click the **SelfTest** tab.

The **Self Test** screen appears.

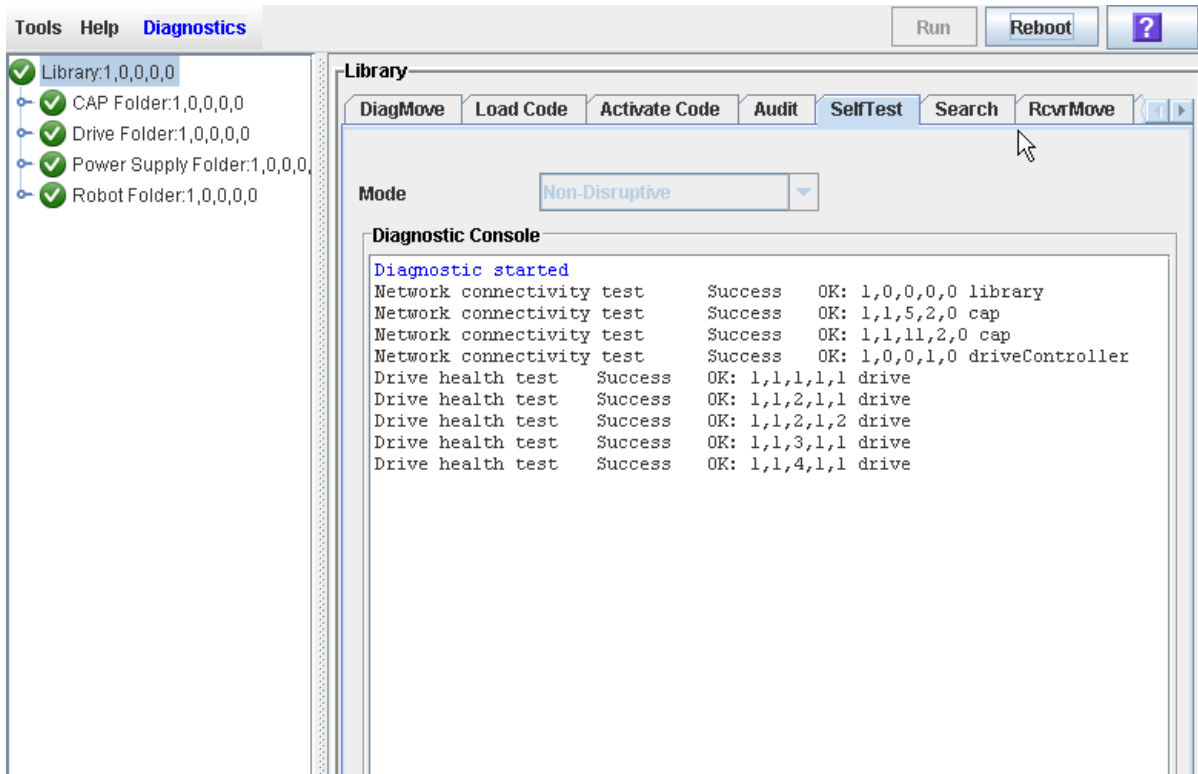


3. In the **Mode** pull-down, select **Non-Disruptive**.

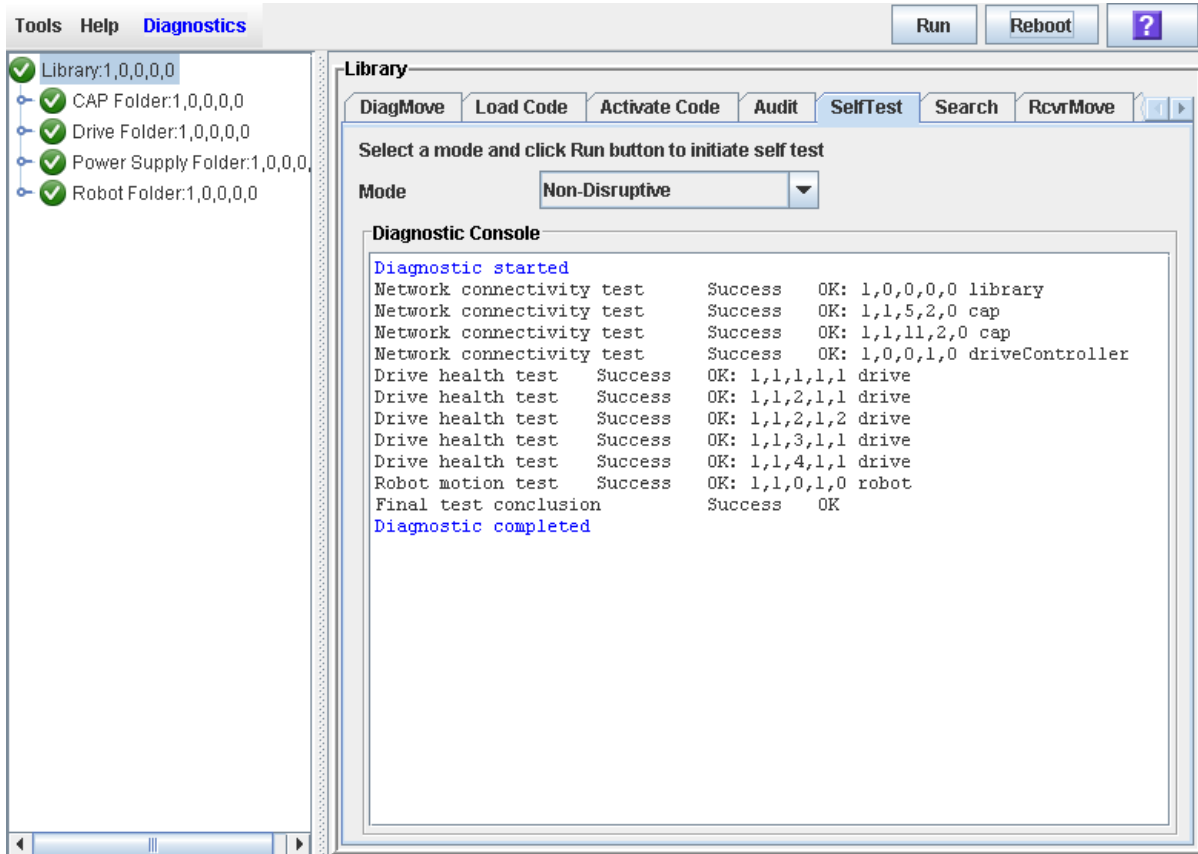


4. Click **Run** to start the test.

The test begins, and the Diagnostic Console section of the screen displays the status of the various diagnostic tests as they are performed.



- When the test completes, the results of the test are displayed in the Diagnostic Console.



▼ Perform a Disruptive Library Self-Test

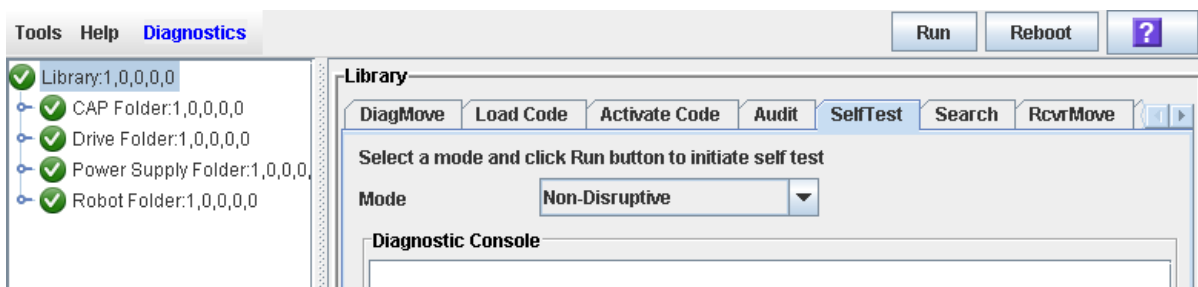
Use this procedure to perform a disruptive library self-test, which can be used to help diagnose operational problems with the library.

In order for the test to run completely, the proper diagnostic cartridges for library drives must be present in the library. To verify this, see [“List Library Cartridges” on page 430](#).

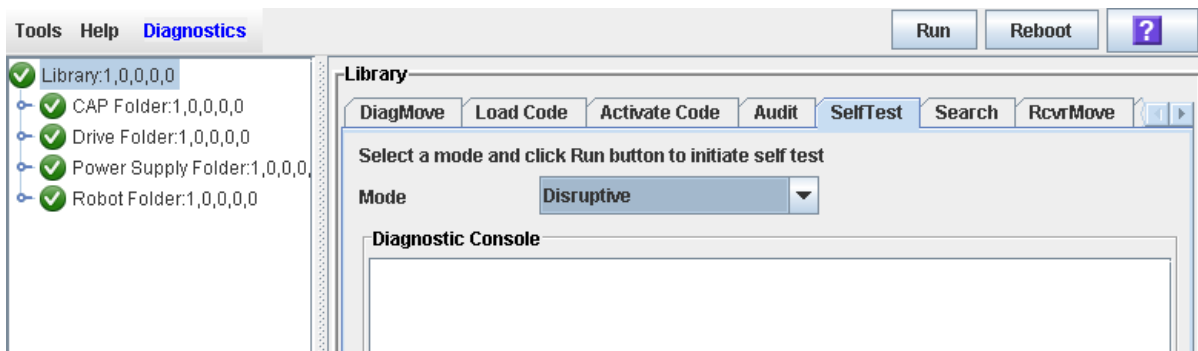
Prior to performing this procedure, the library must be varied offline to all hosts. See [“Vary the Library Offline” on page 577](#) for detailed instructions.

1. Select Tools > Diagnostics, and click the Library folder.
2. Click the Self Test tab.

The Self Test screen appears.

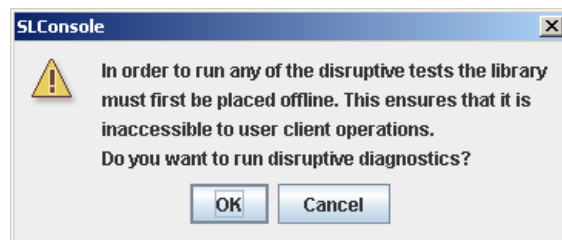


3. In the Mode pull-down, select Disruptive.



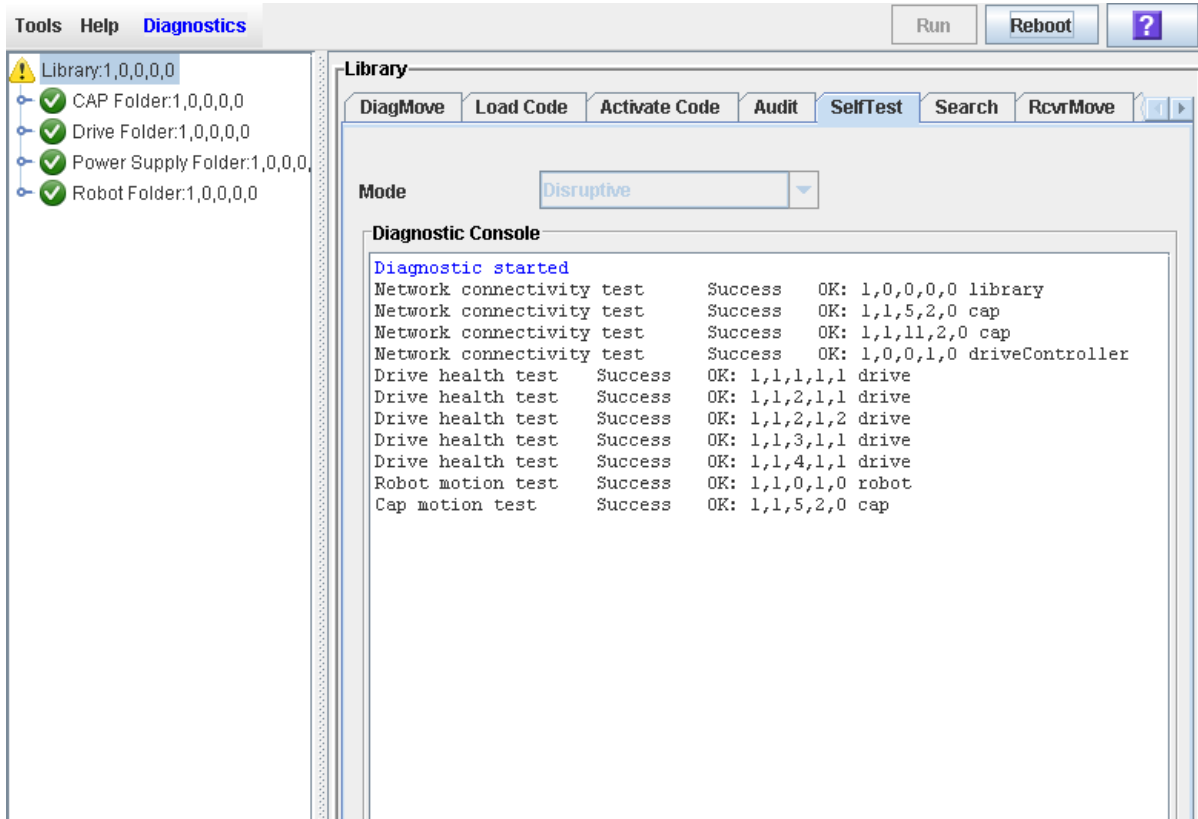
4. Click Run.

A popup appears to confirm that you have already varied the library offline to all hosts.

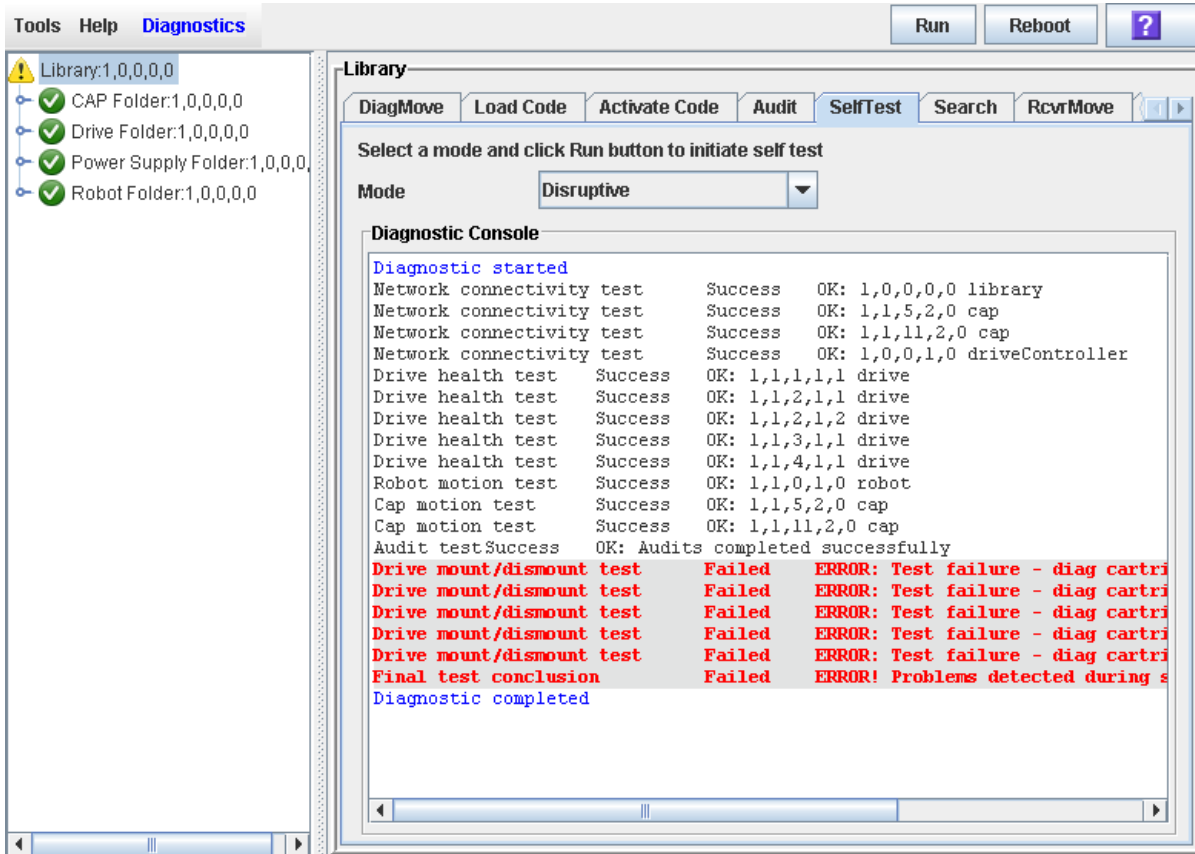


5. Click OK to begin the test.

The test begins, and the Diagnostic Console section of the screen displays the status of the various diagnostic tests as they are performed.



- When the test completes, the results of the test are displayed in the Diagnostic Console.



- Vary the library online to resume normal operations.

See “Vary the Library Online” on page 579 for detailed instructions.

Diagnostic Cartridge Management Tasks

Task	Page
Import Diagnostic Cartridges	528
Export Diagnostic Cartridges	531
Display Diagnostic Cartridge Information	534

▼ Import Diagnostic Cartridges

Use this procedure to enter diagnostic cartridges into the library through a specified CAP. The library controller reserves the CAP for the entire operation. The diagnostic cartridges are distributed as evenly as possible in reserved system cells. Only one diagnostic or cleaning cartridge import or export operation can be performed at a time.

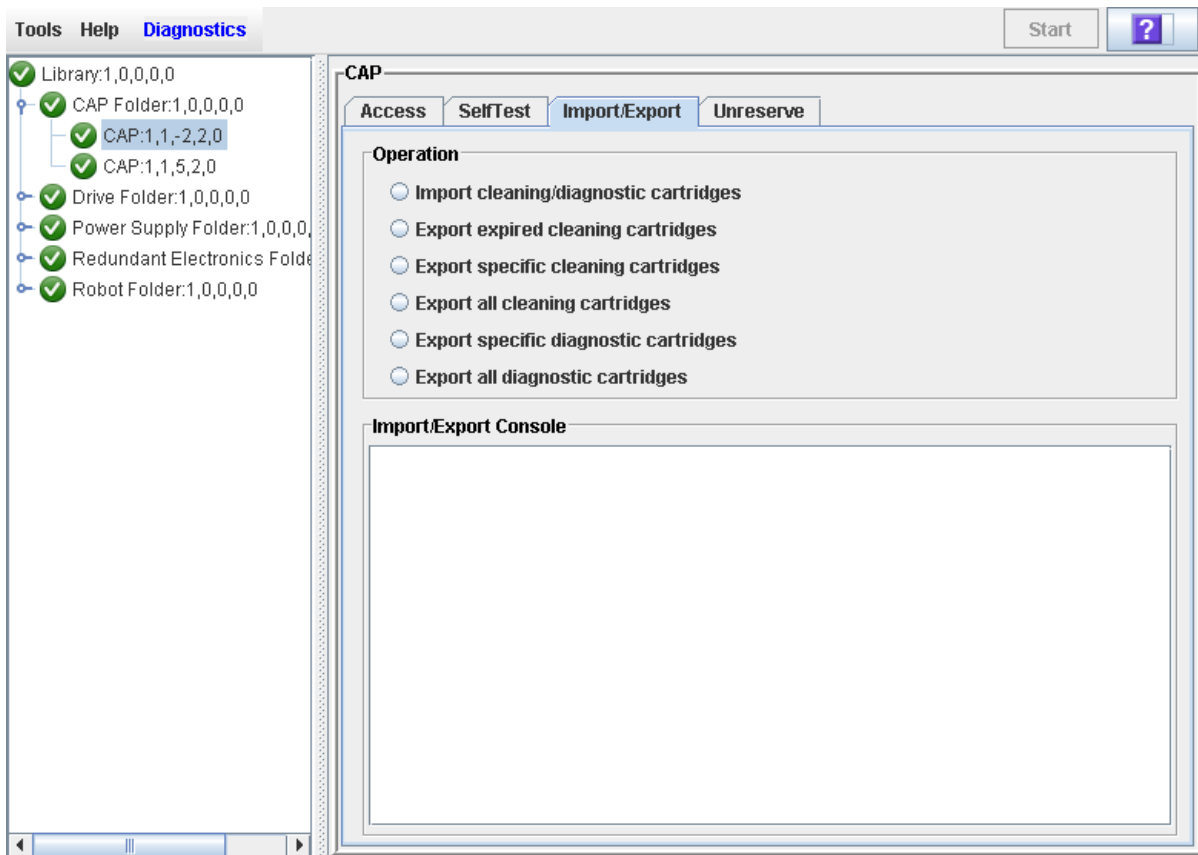
Note – You can also import cleaning cartridges with the diagnostic cartridges. See [“Import Cleaning Cartridges” on page 454](#) for details about importing cleaning cartridges.

Note – Only rotational CAPs, not AEM CAPs, can be used for this procedure.

Before beginning this procedure, verify that the following conditions are met:

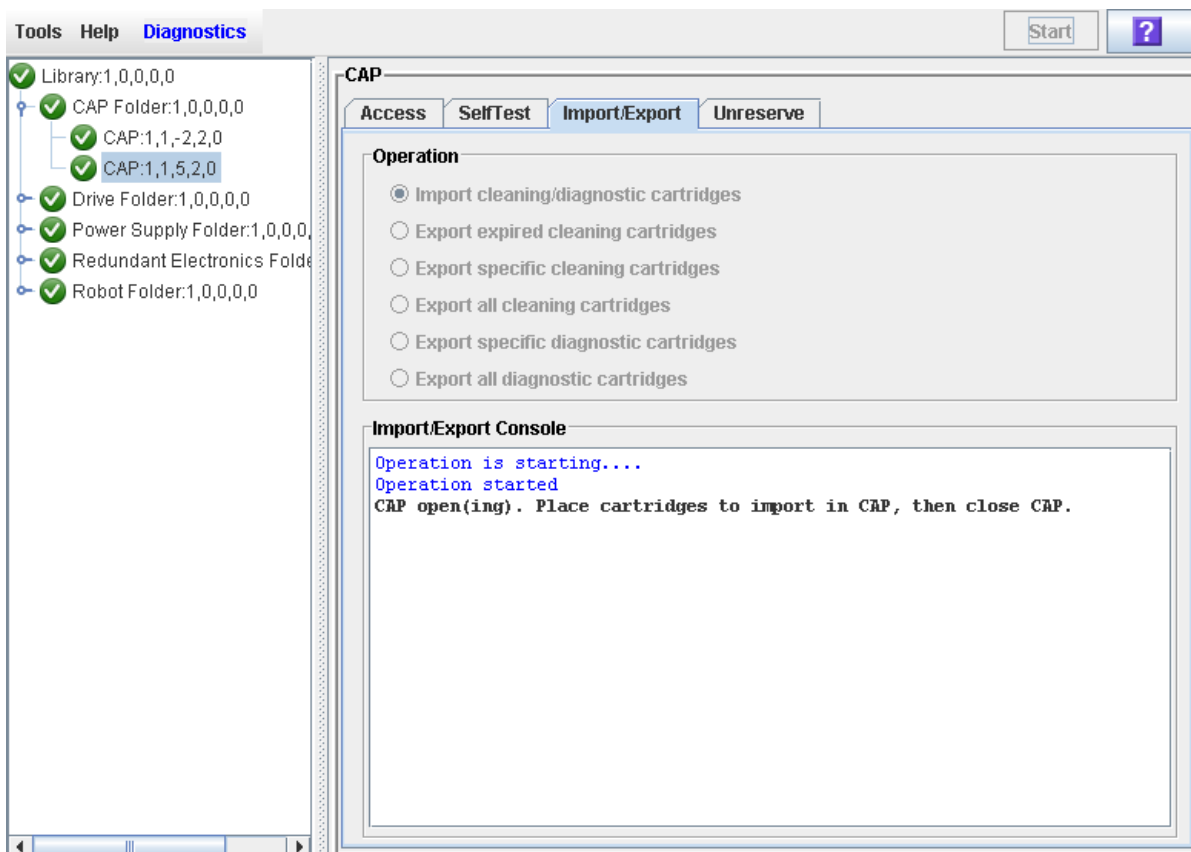
- The CAP is empty, available for use (not reserved by a host), and closed and locked.
 - The library has enough empty reserved system cells to store the diagnostic cartridges you want to import. At least one system cell on each side of the library must be left open for TallBot recovery or library initialization.
1. **Select Tools > Diagnostics.**
 2. **Expand the CAP Folder, highlight the CAP you want to use, and then select the Import/Export tab.**

The **Import/Export** screen appears.



3. Select **Import Cleaning/Diagnostic cartridges**, and then click **Start**.

The import operation begins, and the **Import/Export** screen displays the ongoing status.



4. The library controller reserves the CAP and unlocks and opens the CAP door.

If the library is partitioned and the CAP is associated to an FC-SCSI partition, the library controller associates the CAP to the default requestor for the duration of the import operation.

5. Load the diagnostic cartridges into the CAP.

For detailed instructions, see [“Enter Cartridges Through a Rotational CAP” on page 417](#).

6. After you close the door, the diagnostic cartridges are moved to available system cells.

Any data cartridges or diagnostic cartridges with invalid labels are ignored and left in the CAP.

7. When all diagnostic cartridges have been moved from the CAP, the library controller proceeds as follows:

- If the CAP is empty, the library controller releases the CAP reservation and re-associates the CAP to the original FC-SCSI partition, if applicable.
- If cartridges are left in the CAP, the CAP door is opened, and the **Import/Export** screen displays a message that the cartridges need to be removed.

▼ Export Diagnostic Cartridges

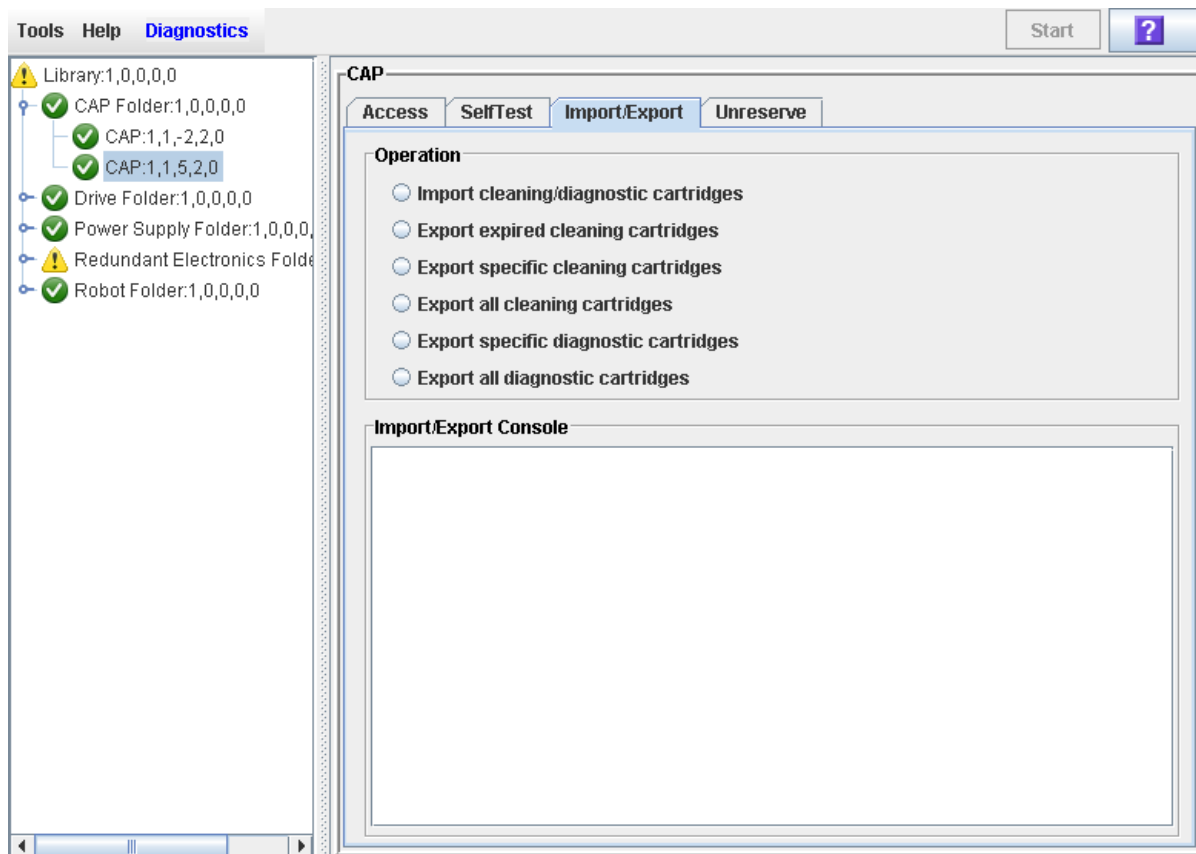
Use this procedure to export diagnostic cartridges from the library through a specified CAP. The library controller reserves the CAP for the entire operation. The diagnostic cartridges are retrieved from reserved system cells and placed in the CAP for removal. Only one diagnostic cartridge import or export operation can be performed at a time.

Note – Only rotational CAPs, not AEM CAPs, can be used for this procedure.

Before beginning this procedure, verify that the CAP is empty, available for use (not reserved by a host), and closed and locked.

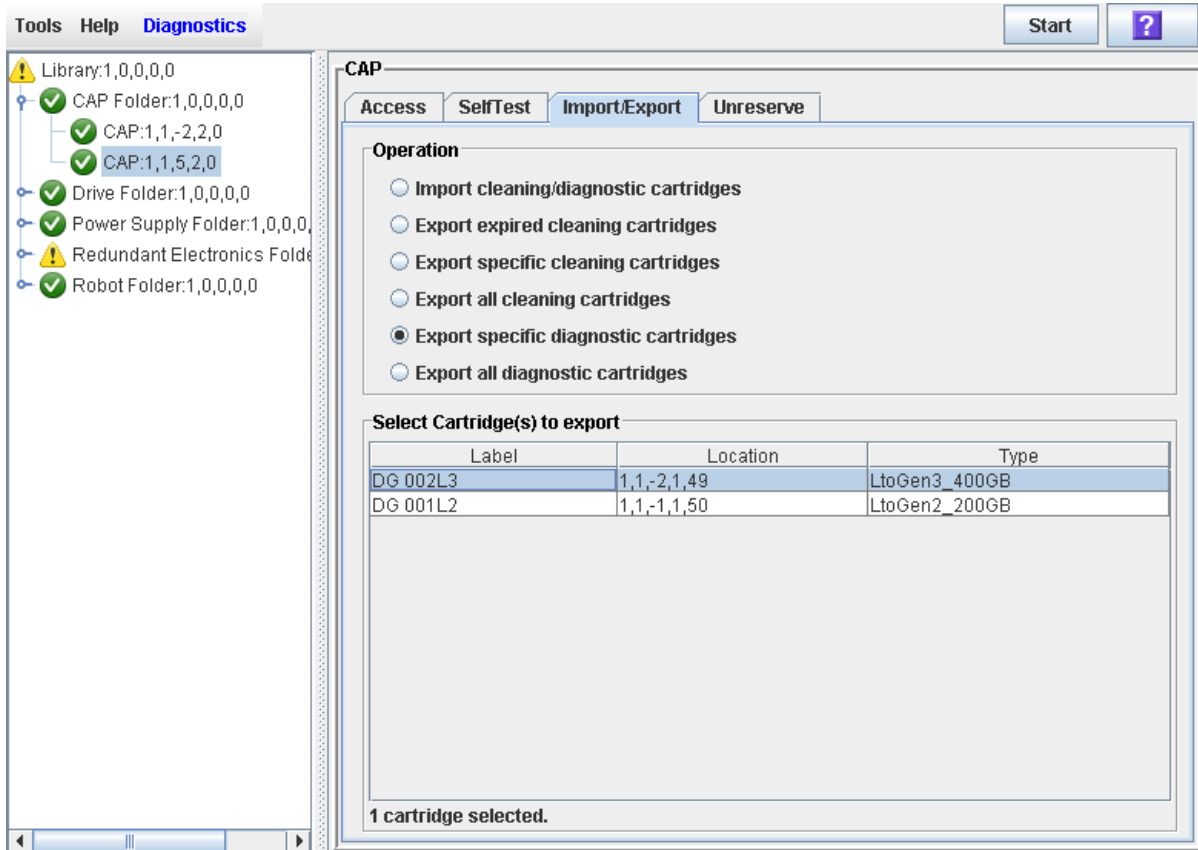
1. Select **Tools > Diagnostics**.
2. Expand the **CAP Folder**, highlight the **CAP** you want to use, and then select the **Import/Export** tab.

The **Import/Export** screen appears.



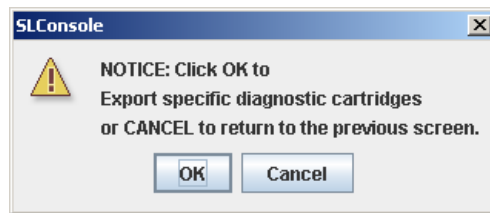
3. Select the type of export operation you want to perform. You have the following options:
 - Export specific diagnostic cartridges—Allows you to specify the diagnostic cartridges you want to eject. The screen displays a list of all diagnostic cartridges in the library, and you can select one or more for export.

- Export all diagnostic cartridges—Exports all diagnostic cartridges from the library.



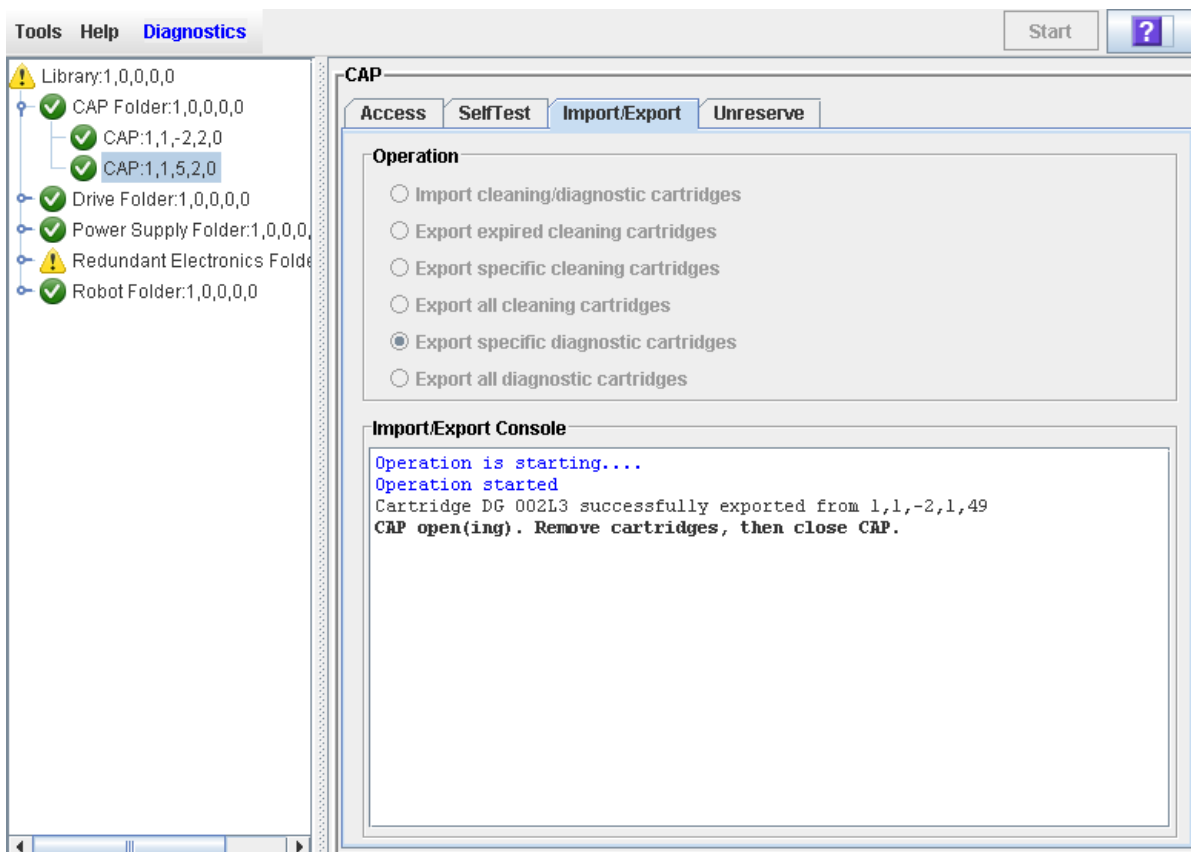
4. Click Start.

A confirmation popup appears.



5. Click OK to continue.

The export operation begins, and the **Import/Export** screen displays the ongoing status.



6. The export operation proceeds as follows:
 - a. If the library is partitioned and the CAP is associated to an FC-SCSI partition, the library controller associates the CAP to the default requestor for the duration of the export operation.
 - b. The library controller reserves the CAP.
 - c. The diagnostic cartridges are moved to the CAP, according to your request.
 - d. The Import/Export screen displays a message when the CAP is ready to be unloaded.
7. Remove the cartridges from the CAP.

For detailed instructions, see [“Eject Cartridges Through a Rotational CAP” on page 418.](#)
8. When you close the CAP door, the library controller proceeds as follows:
 - If the CAP is empty, the library controller releases the CAP reservation and re-associates the CAP to the original FC-SCSI partition, if applicable.
 - If cartridges are left in the CAP, the CAP door is opened, and the **Import/Export** screen displays a message that the cartridges need to be removed.

▼ Display Diagnostic Cartridge Information

You can use any of the following SL Console reports and searches to display information about diagnostic cartridges:

- [Cartridge Table Report](#)
- [Cartridge Summary](#)
- [Cartridge Search by VOLID](#)

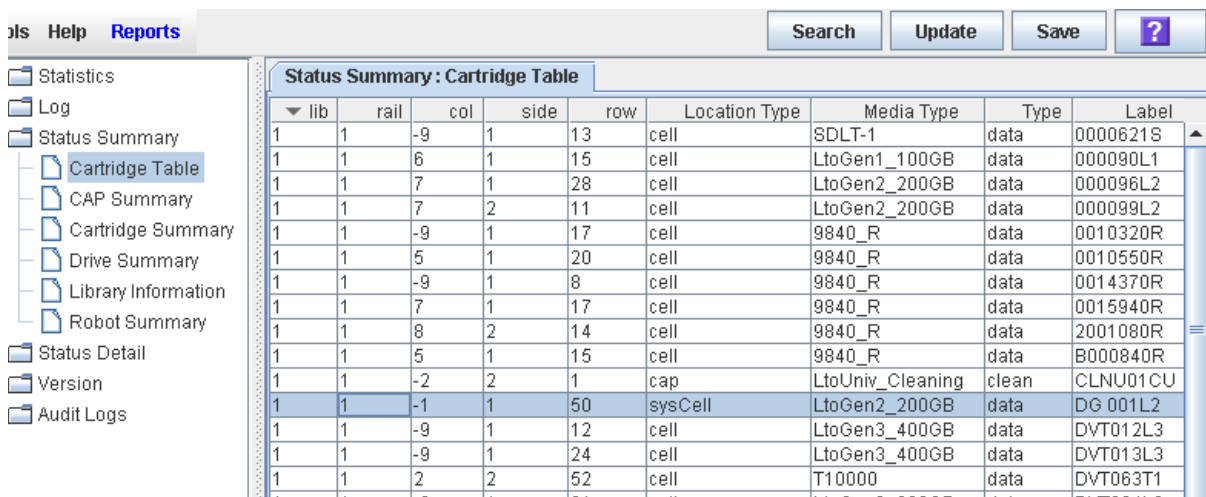
Cartridge Table Report

- **Select Tools > >Reports >Status Summary > Cartridge Table**

See [“Display Library Cartridge Information in Tabular Format”](#) on page 427 for the full procedure.

The Cartridge Table report displays detailed information about all library cartridges in a sortable, tabular format. By default, this report is sorted in cartridge volume ID (VOLID or volser) order. You can scroll directly to the cartridges that begin with “DG” to see detail about all diagnostic cartridges.

Following is a sample:



lib	rail	col	side	row	Location Type	Media Type	Type	Label
1	1	-9	1	13	cell	SDLT-1	data	0000621S
1	1	6	1	15	cell	LtoGen1_100GB	data	000090L1
1	1	7	1	28	cell	LtoGen2_200GB	data	000096L2
1	1	7	2	11	cell	LtoGen2_200GB	data	000099L2
1	1	-9	1	17	cell	9840_R	data	0010320R
1	1	5	1	20	cell	9840_R	data	0010550R
1	1	-9	1	8	cell	9840_R	data	0014370R
1	1	7	1	17	cell	9840_R	data	0015940R
1	1	8	2	14	cell	9840_R	data	2001080R
1	1	5	1	15	cell	9840_R	data	B000840R
1	1	-2	2	1	cap	LtoUniv_Cleaning	clean	CLNU01CU
1	1	-1	1	50	sysCell	LtoGen2_200GB	data	DG 001L2
1	1	-9	1	12	cell	LtoGen3_400GB	data	DVT012L3
1	1	-9	1	24	cell	LtoGen3_400GB	data	DVT013L3
1	1	2	2	52	cell	T10000	data	DVT063T1

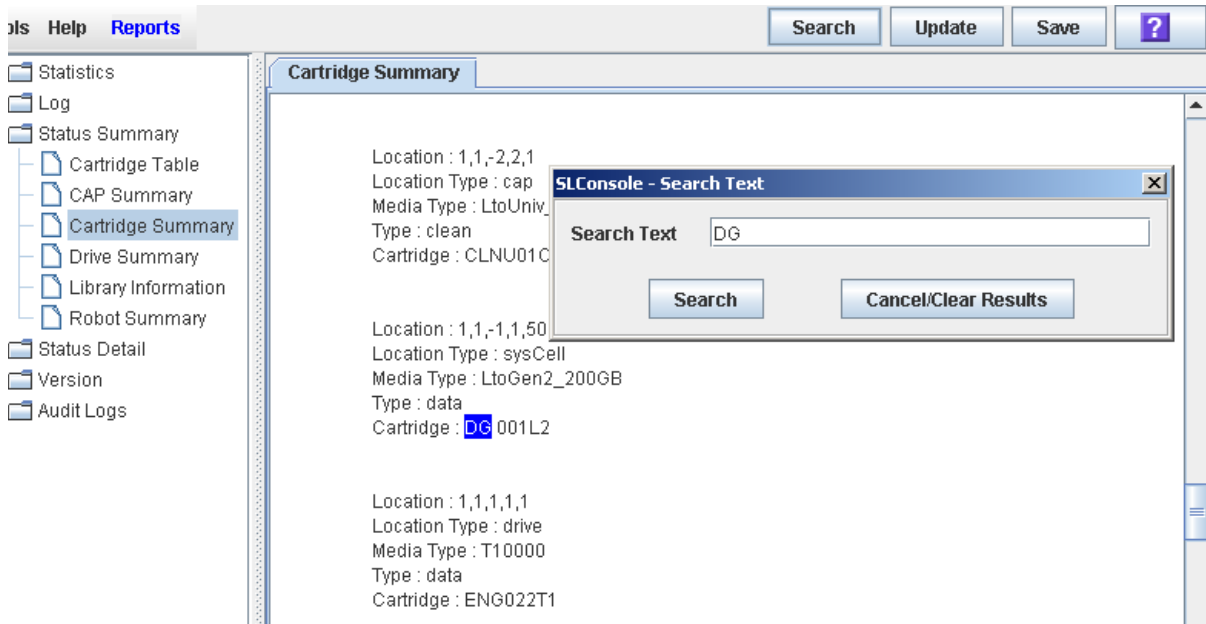
Cartridge Summary

- **Select Tools > >Reports >Status Summary > Cartridge Summary**

See [“List Library Cartridges”](#) on page 430 for the full procedure.

The Cartridge Summary displays detailed information about all library cartridges in a text format. By default, this report is sorted in location order. You can search for cartridges that begin with “DG” to see detail about diagnostic cartridges.

Following is a sample:



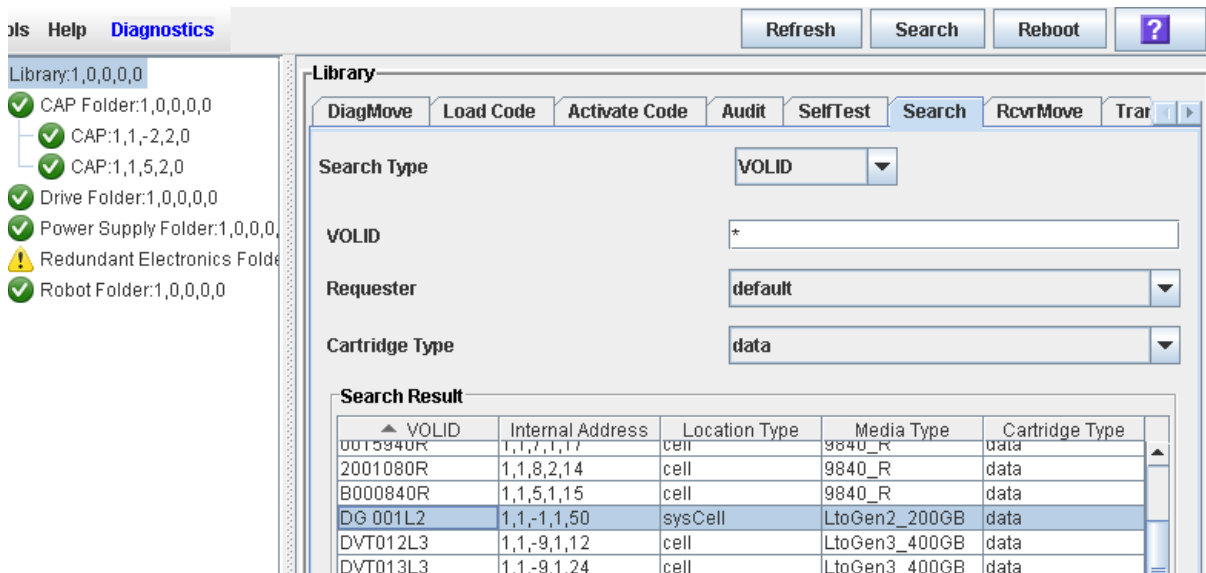
Cartridge Search by VOLID

- Select Tools>>Diagnostics > Library > Search.

See “Locate a Cartridge by VOLID” on page 433 for the full procedure.

This search displays detailed information about all library cartridges. By default the results are sorted in location order. You can change the sort order to VOLID and then scroll directly to the cartridges that begin with “DG” to see detail about all diagnostic cartridges.

Following is a sample:



Audit Tasks

Task	Page
Audit the Entire Library	537
Audit a Range of Cells	539
Perform a Verified Audit	541

▼ Audit the Entire Library

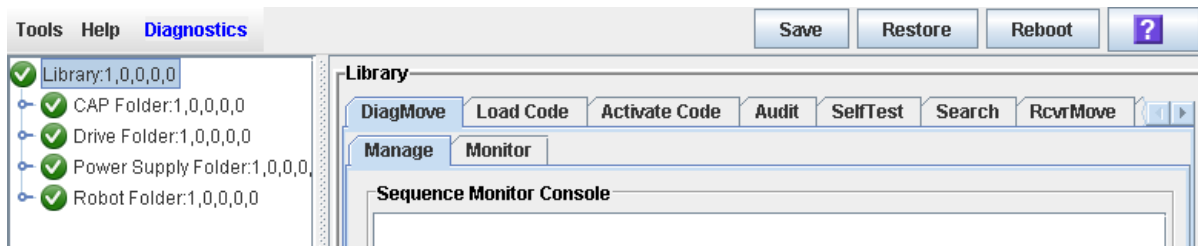
During this audit the TallBot visits all the storage cells, catalogs the VOLIDs and locations, and updates the library controller database.

Note – Although this audit is a background process and does not interrupt library operations, it does require sharing of TallBot resources. Therefore, it is not recommended that you run this audit during peak activity periods.

Note – You cannot stop this audit once it has initiated. The audit will take approximately 1/2 second per cartridge slot.

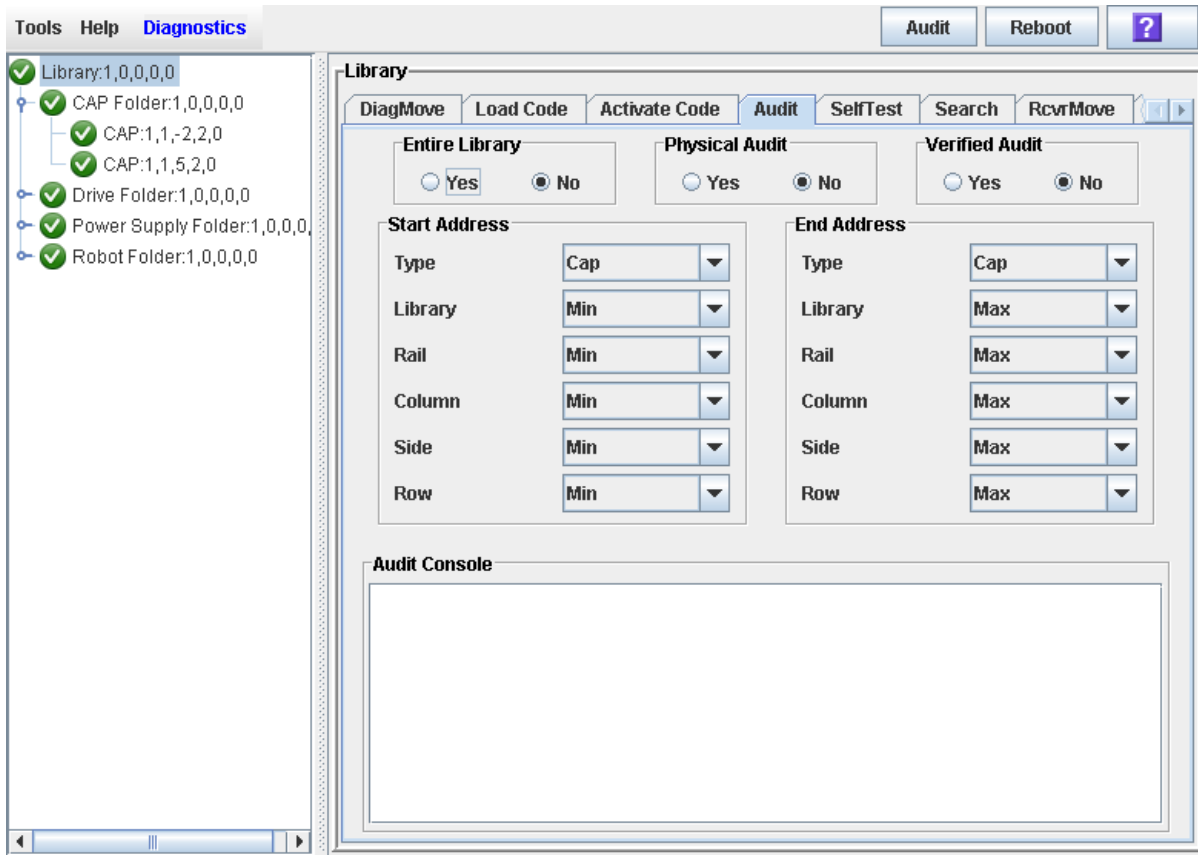
1. Select Tools > Diagnostics.
2. Click the Library folder on the device tree.

The Library screen appears.



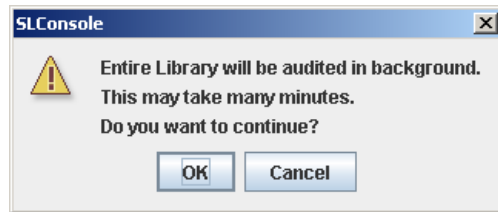
3. Click the Audit tab.

The **Library Audit** screen appears.



4. In the **Entire Library** field, click **Yes**. Then click the **Audit** button in the **Options Bar**.

A confirmation popup appears.



5. Click **OK** to perform the audit as a background process or **Cancel** to cancel the audit.

Note – Once you click **OK**, you cannot stop the audit; it will run until completion.

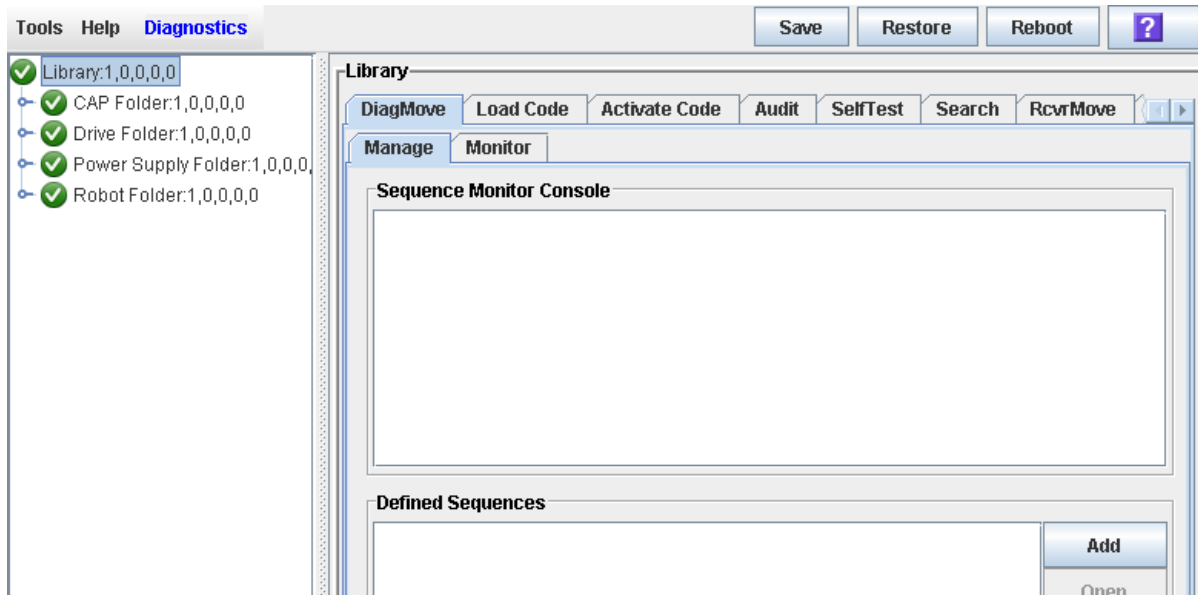
6. You can view the **Cartridge Summary** report after a few hours for the latest cartridge locations and **VOLIDs**. See [“Display a Library Report”](#) on page 86 for details.

▼ Audit a Range of Cells

During this audit the TallBot visits only a specific range of storage cells (including the cap and drives) and updates the library controller database.

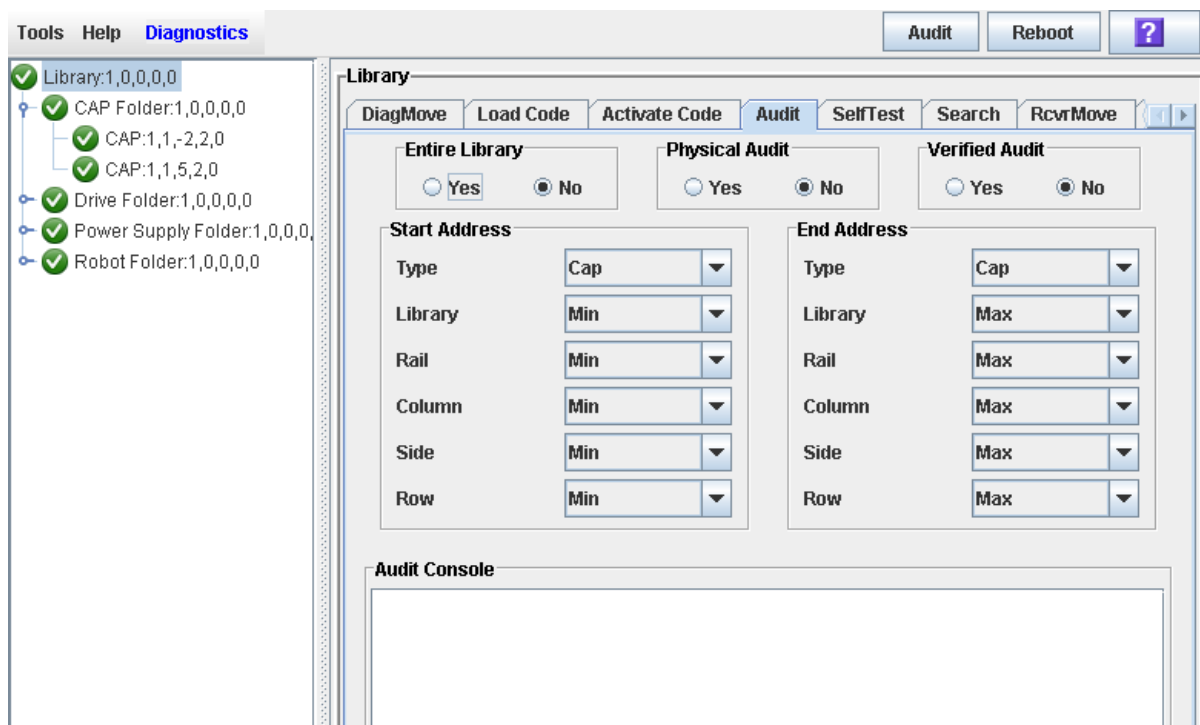
1. Select **Tools > Diagnostics**.
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



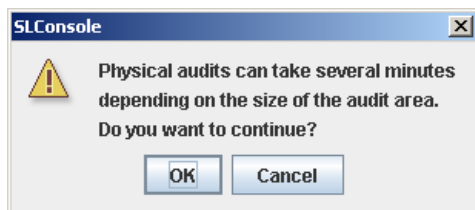
3. Click the **Audit** tab.

The **Library Audit** screen appears.



- In the Entire Library field, click No. In the Physical Audit field, click Yes. In the Verified Audit field, click No.
- In the Start Address and End Address fields, select the device types you want to audit and the starting and ending library internal address locations. See [“Library Internal Address” on page 591](#) for a detailed explanation of this address format.
- Click the Audit button in the Options Bar.

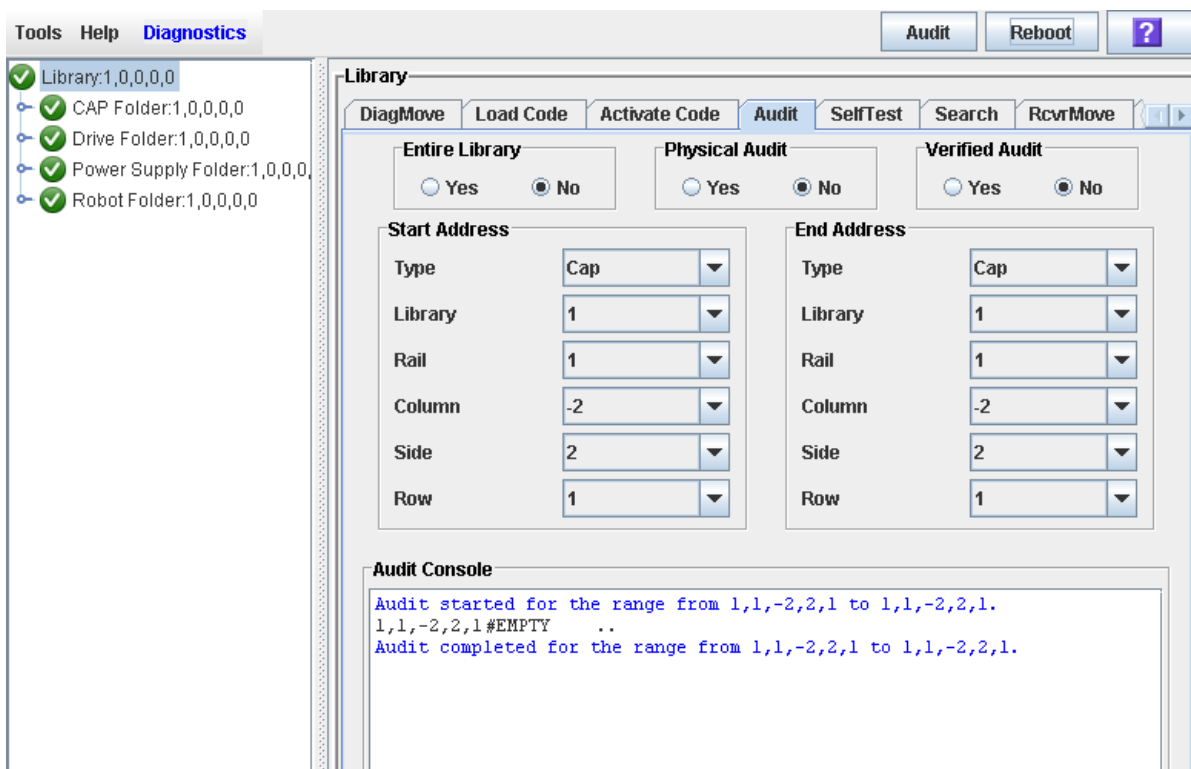
A confirmation popup appears.



- Click OK to perform the audit as a background process or Cancel to cancel the audit.

Note – Once you click OK, you cannot stop the audit; it will run until completion.

- The Audit Console section displays the progress of the audit.



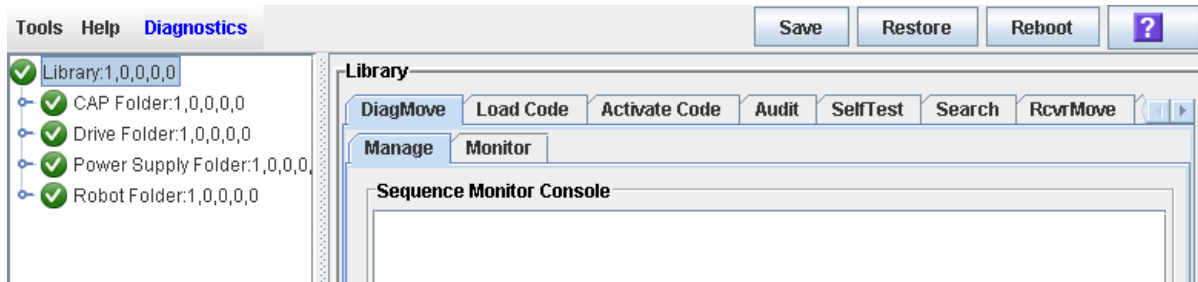
Note – You can also view the Cartridge Summary report for the latest cartridge locations and VOLIDs. See [“Display a Library Report” on page 86](#) for details.

▼ Perform a Verified Audit

A verified audit validates the status of a specific cartridge location or a range of locations (including rotational and AEM CAPs and drives) in the library controller database. If a cartridge address has a verified status of “false” then a physical audit of that location is performed and the library controller database is updated.

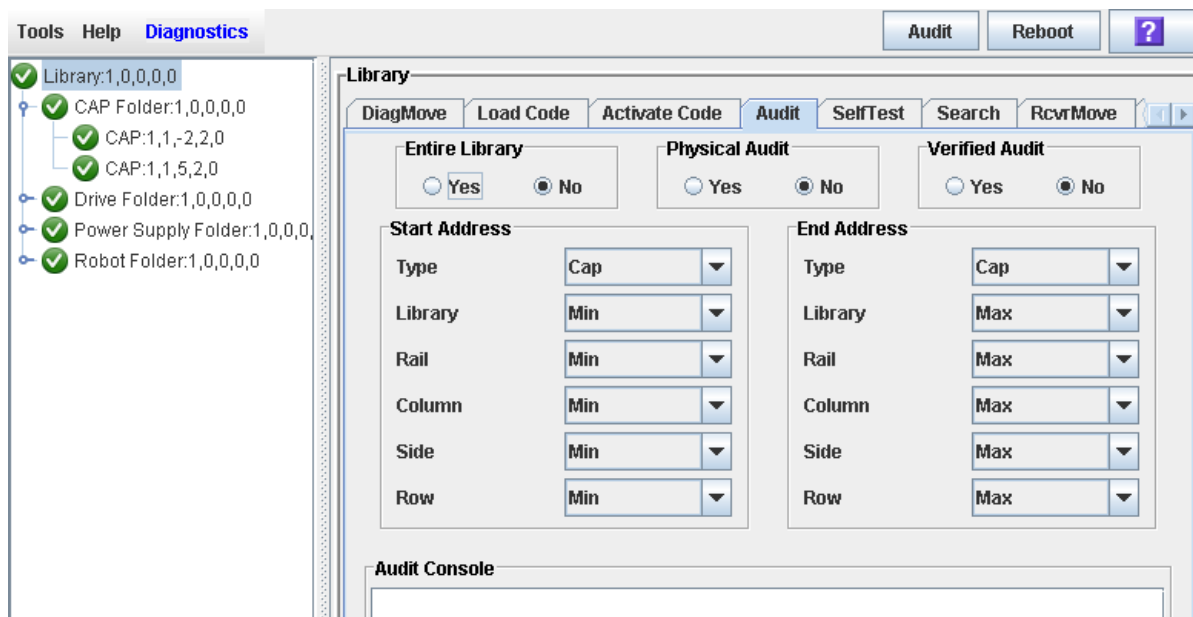
1. Select **Tools > Diagnostics**.
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



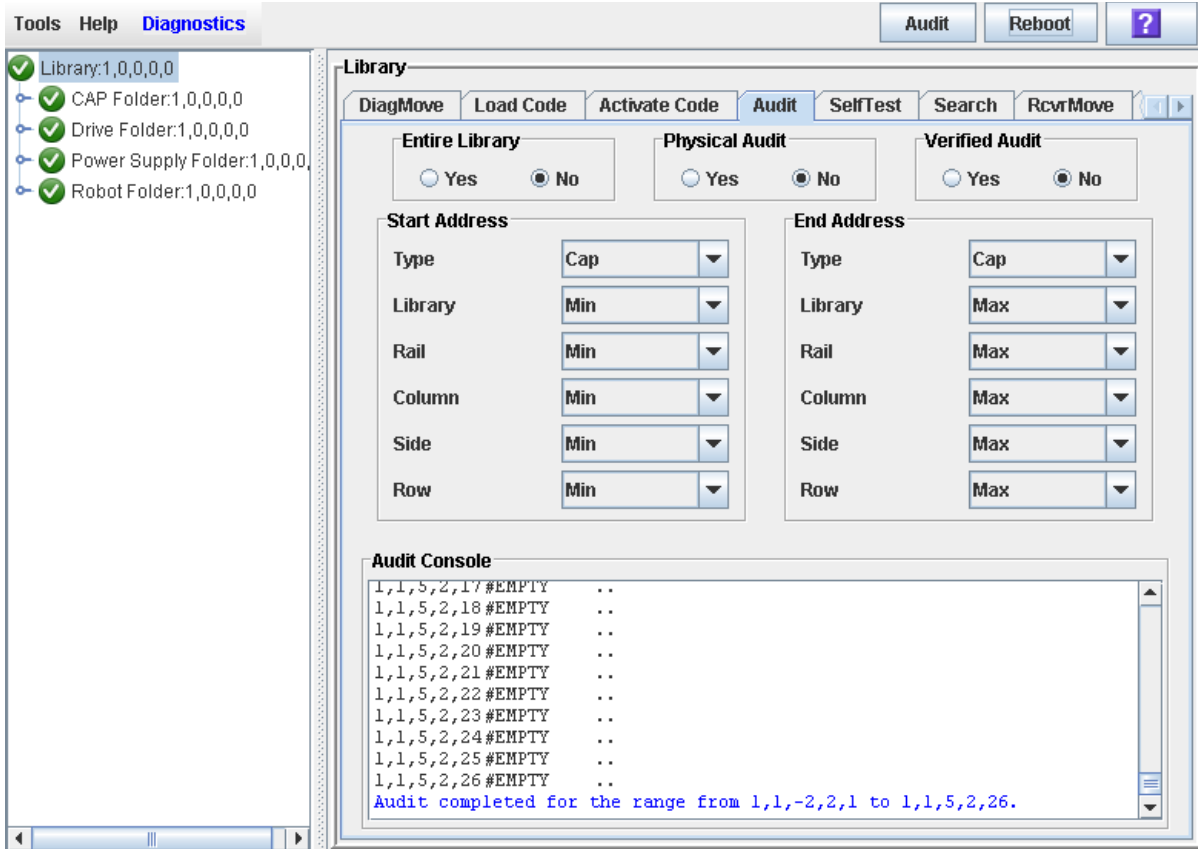
3. Click the **Audit** tab.

The **Library Audit** screen appears.



4. In the **Entire Library** field, click **No**. In the **Physical Audit** field, click **No**. In the **Verified Audit** field, click **Yes**.
5. In the **Start Address** and **End Address** fields, select the device types you want to audit and the starting and ending library internal address locations. See [“Library Internal Address” on page 591](#) for a detailed explanation of this address format.
6. Click the **Audit** button in the **Options Bar**.

The **Audit Console** section displays the progress of the audit.



Rotational and AEM CAP Utility Tasks

Task	Page
Perform a Self-Test on a Rotational or AEM CAP	544
Vary a Rotational or AEM CAP Offline	545
Vary a Rotational or AEM CAP Online	547

▼ Perform a Self-Test on a Rotational or AEM CAP

Note – At present, the CAP self-tests perform the same routines as the library self-test. Specific rotational and AEM CAP self-tests will be available at a later date.

1. **Select Tools > Diagnostics.**
2. **Expand the CAP folder, and click the CAP you want to test.**

Note – AEM CAPs are identified as follows: column “-31” for a left AEM CAP, and column “31” for a right AEM CAP.

3. **Click the SelfTest tab.**
4. **In the Mode pull-down menu, click Non-Disruptive.**
5. **Click the Run button from the Options Bar.**

Status messages are displayed as the self-test is run. A Diagnostic completed message appears when the test finishes.

▼ Vary a Rotational or AEM CAP Offline

Use this procedure to vary a rotational or AEM CAP offline through the SL Console.

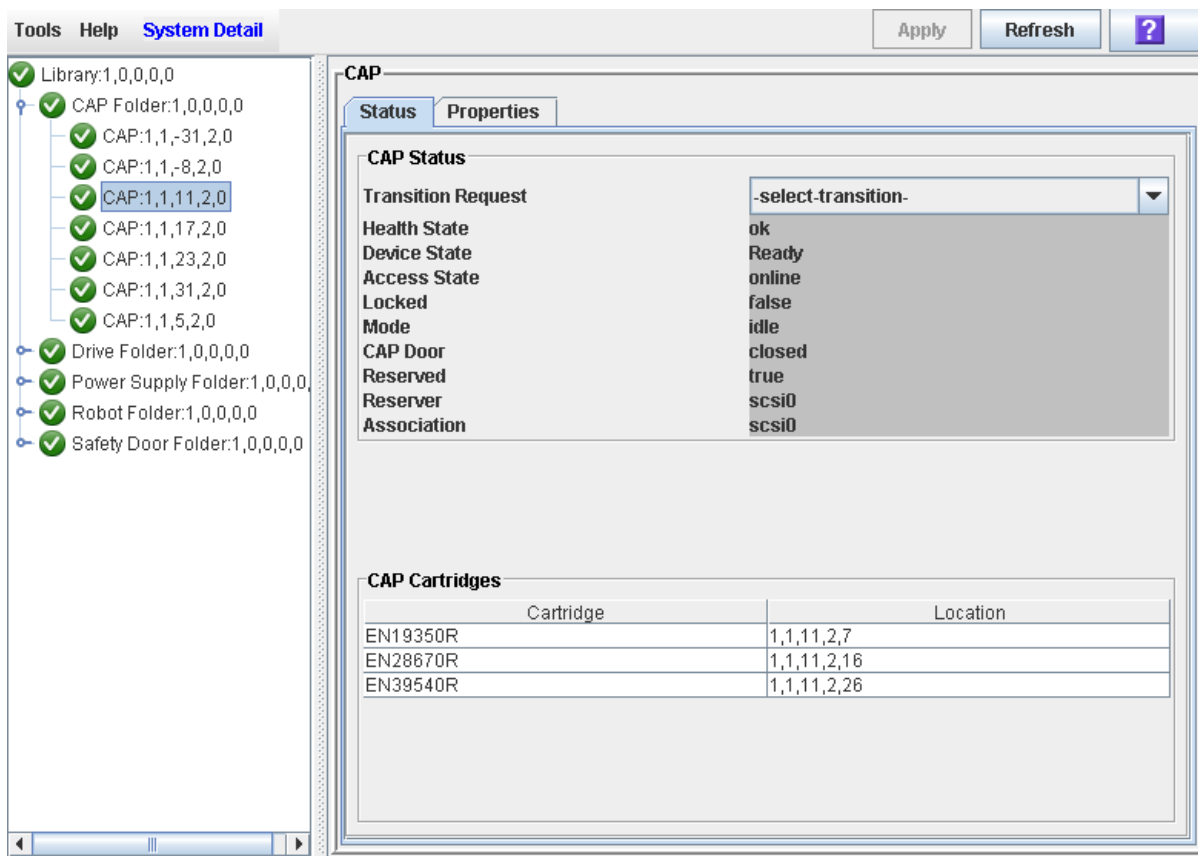
Note – You should use this procedure only if you are not using ACSLS or ELS tape management software, or if their servers are not able to communicate with the library. ACSLS and ELS are not notified when the state of the library or its components are changed through the SL Console, possibly leading to disruption in library operations. For instructions on changing the state of the library and its components through ACSLS or ELS, see the appropriate tape management software documentation.

1. Select **Tools > System Detail**.
2. Expand the **CAP Folder**, and click the CAP you want to modify.

Note – AEM CAPs are identified as follows: column “-31” for a left AEM CAP, and column “31” for a right AEM CAP.

3. Click the **Status** tab.

The screen displays the current status of the CAP.



4. In the **Transition Request** field, click **Take Offline**. Click **Apply**.

All outstanding jobs for the CAP are completed, and then the CAP status is changed, as follows:

- Health State: Warn

- Device State: Not accessible (HLI host connections); Not ready (SCSI host connections)
- Access State: Offline

▼ Vary a Rotational or AEM CAP Online

Use this procedure to vary a rotational or AEM CAP online through the SL Console.

Note – You should use this procedure only if you are not using ACSLS or ELS tape management software, or if their servers are not able to communicate with the library. ACSLS and ELS are not notified when the state of the library or its components are changed through the SL Console, possibly leading to disruption in library operations. For instructions on changing the state of the library and its components through ACSLS or ELS, see the appropriate tape management software documentation.

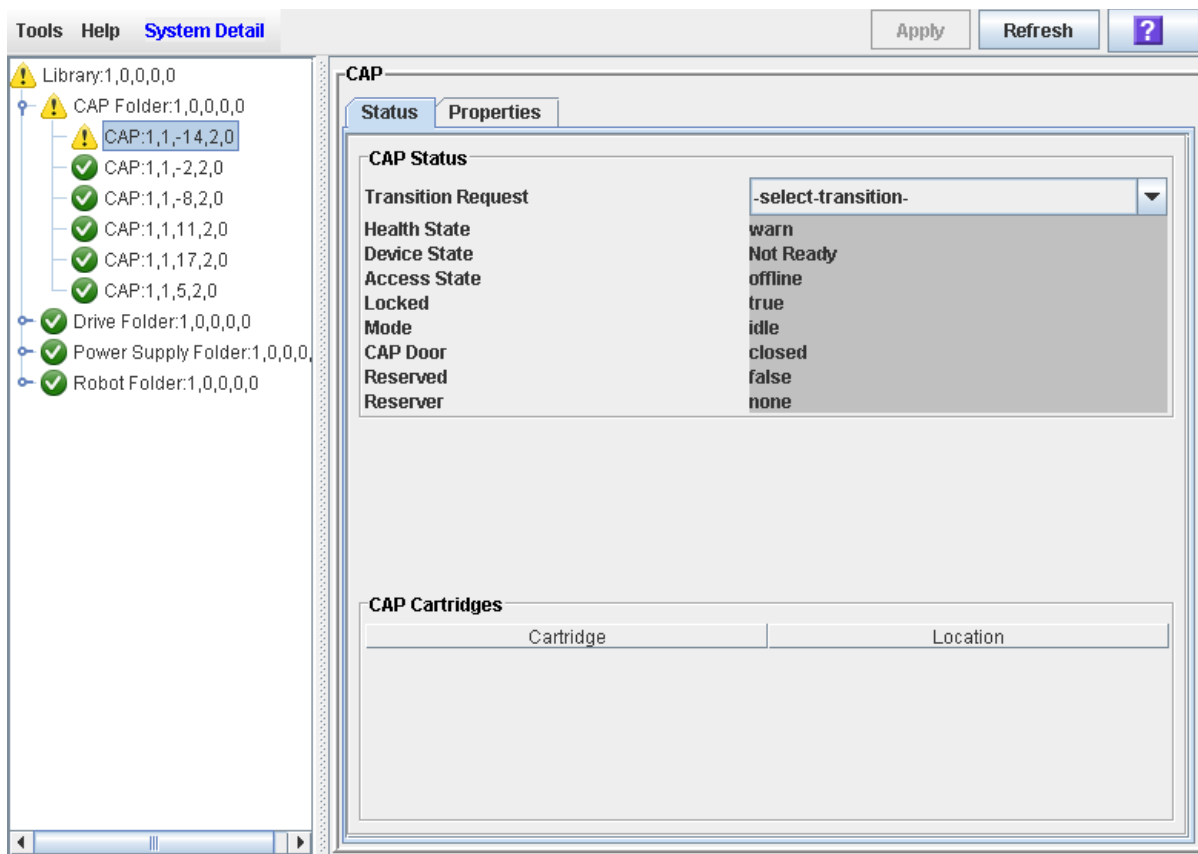
Note – Library devices that are offline in an error state cannot go online; the error condition must be cleared first.

1. Select **Tools > System Detail**.
2. Expand the **CAP Folder**, and click the **CAP** you want to modify.

Note – AEM CAPs are identified as follows: column “-31” for a left AEM CAP, and column “31” for a right AEM CAP.

3. Click the **Status** tab.

The screen displays the current status of the CAP.



4. In the **Transition Request** field, click **Bring online**. Click **Apply**.

The CAP status is updated, as follows:

- Health State: ok
- Device State: Ready
- Access State: Online

Drive Utility Tasks

Task	Page
Perform a Drive Self-Test	550
Vary a Drive Offline	551
Vary a Drive Online	552

▼ Perform a Drive Self-Test

1. Select Tools > Diagnostics.
2. Expand the Drive Folder, and click the drive you want to test.
3. Click the SelfTest tab.
4. In the Mode pull-down, click Non-Disruptive.
5. Click the Run button from the Options Bar.

Status messages are displayed as the self-test is run. A Diagnostic completed message appears when the test finishes.

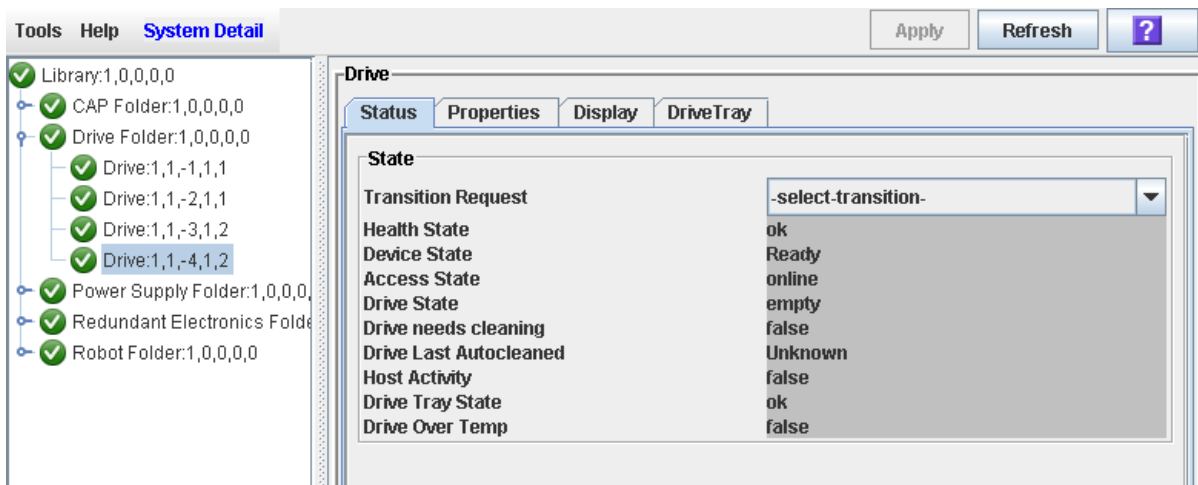
▼ Vary a Drive Offline

Use this procedure to vary a drive offline through the SL Console.

Note – You should use this procedure only if you are not using ACSLS or ELS tape management software, or if their servers are not able to communicate with the library. ACSLS and ELS are not notified when the state of the library or its components are changed through the SL Console, possibly leading to disruption in library operations. For instructions on changing the state of the library and its components through ACSLS or ELS, see the appropriate tape management software documentation.

1. Select **Tools > System Detail**.
2. Expand the **Drive Folder**, and click the drive you want to modify.
3. Click the **Status** tab.

The screen displays the current status of the drive.



4. In the **Transition Request** field, click **Take Offline**. Click **Apply**.

All outstanding jobs for the drive are completed, and then the drive status is changed, as follows:

- Health State: Warn
- Device State: Not accessible (HLI host connections); Not ready (SCSI host connections)
- Access State: Offline

▼ Vary a Drive Online

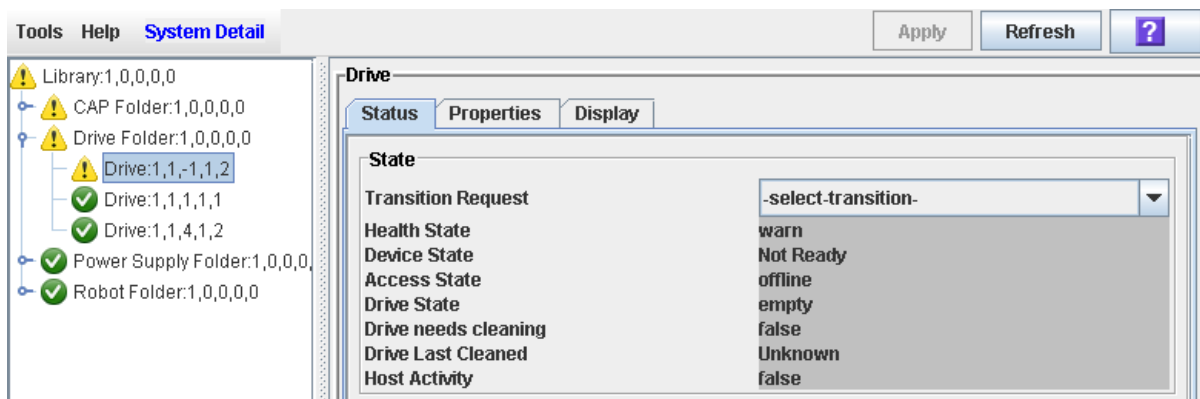
Use this procedure to vary a drive online through the SL Console.

Note – You should use this procedure only if you are not using ACSLS or ELS tape management software, or if their servers are not able to communicate with the library. ACSLS and ELS are not notified when the state of the library or its components are changed through the SL Console, possibly leading to disruption in library operations. For instructions on changing the state of the library and its components through ACSLS or ELS, see the appropriate tape management software documentation.

Note – Library devices that are offline in an error state cannot go online; the error condition must be cleared first.

1. Select Tools > System Detail.
2. Expand the Drive Folder, and click the drive you want to modify.
3. Click the Status tab.

The screen displays the current status of the drive.



4. In the Transition Request field, click Bring online. Click Apply.

The drive status is updated, as follows:

- Health State: ok
- Device State: Ready
- Access State: Online

TallBot Utility Tasks

Task	Page
Perform a TallBot Self-Test	554
Vary a TallBot Offline	555
Vary a TallBot Online	556
Define a Diagnostic Move	557
Manage Diagnostic Move Definitions	561
Save a Diagnostic Move to a File	563
Start a Diagnostic Move	566
Monitor and Control Open Diagnostic Moves	568

▼ Perform a TallBot Self-Test

Note – To perform a TallBot self-test, diagnostic cartridges must be available in the library.

1. **Select Tools > Diagnostics.**
2. **Expand the Robot Folder, and click the robot you want to test.**
3. **Click the SelfTest tab.**
4. **In the Mode pull-down, click Non-Disruptive.**
5. **Click the Run button from the Options Bar.**

Status messages are displayed as the self-test is run. A Diagnostic completed message appears when the test finishes.

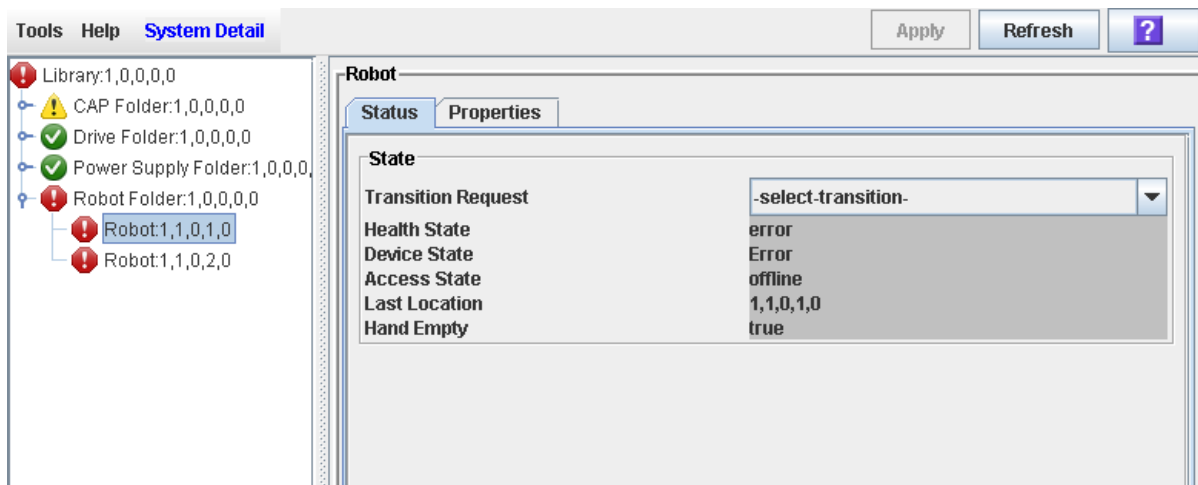
▼ Vary a TallBot Offline

Use this procedure to vary a TallBot offline through the SL Console.

Note – You should use this procedure only if you are not using ACSLS or ELS tape management software, or if their servers are not able to communicate with the library. ACSLS and ELS are not notified when the state of the library or its components are changed through the SL Console, possibly leading to disruption in library operations. For instructions on changing the state of the library and its components through ACSLS or ELS, see the appropriate tape management software documentation.

1. Select **Tools > System Detail**.
2. Expand the **Robot Folder**, and click the **TallBot** you want to modify.
3. Click the **Status** tab.

The screen displays the current status of the TallBot.



4. In the **Transition Request** field, click **Take Offline**. Click **Apply**.

All outstanding jobs for the TallBot are completed, and then the TallBot status is changed, as follows:

- Health State: Warn
 - Device State: Not accessible (HLI host connections); Not ready (SCSI host connections)
 - Access State: Offline
5. The TallBot is moved to the end of the rail and is not usable by the library. If the library is using the redundant TallBot feature, the second TallBot will take all requests.

▼ Vary a TallBot Online

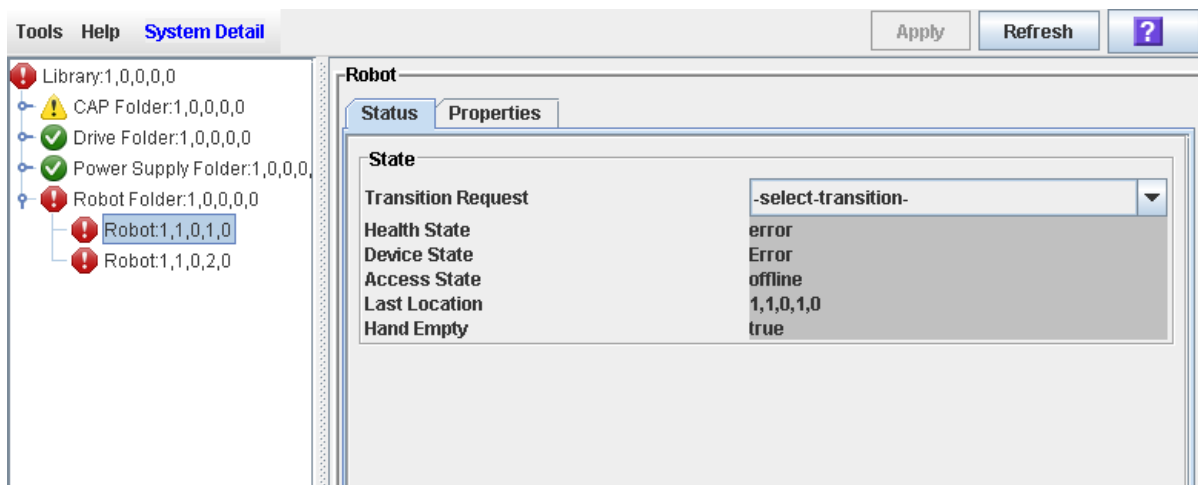
Use this procedure to vary a TallBot online through the SL Console.

Note – You should use this procedure only if you are not using ACSLS or ELS tape management software, or if their servers are not able to communicate with the library. ACSLS and ELS are not notified when the state of the library or its components are changed through the SL Console, possibly leading to disruption in library operations. For instructions on changing the state of the library and its components through ACSLS or ELS, see the appropriate tape management software documentation.

Note – Library devices that are offline in an error state cannot go online; the error condition must be cleared first.

1. Select Tools > System Detail.
2. Expand the Robot Folder, and click the TallBot you want to modify.
3. Click the Status tab.

The screen displays the current status of the TallBot.



4. In the Transition Request field, click Bring Online. Click Apply.

The TallBot status is updated, as follows:

- Health State: ok
- Device State: Ready
- Access State: Online

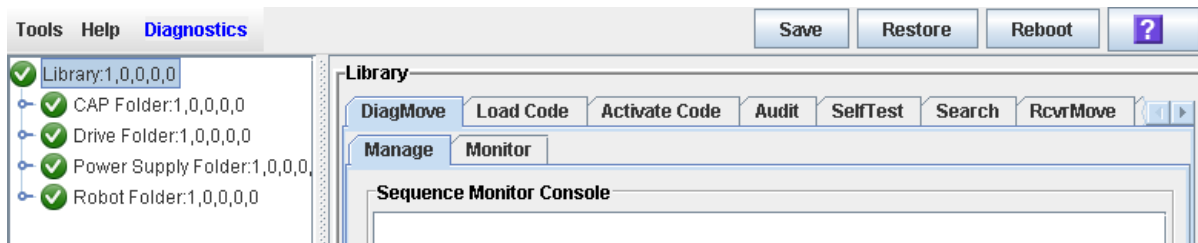
▼ Define a Diagnostic Move

Multiple diagnostic move routines can be set up and run simultaneously, as long as the target and pool address ranges do not overlap.

Note – This procedure requires sharing of TallBot resources; therefore, it is not recommended that you run it during peak activity periods.

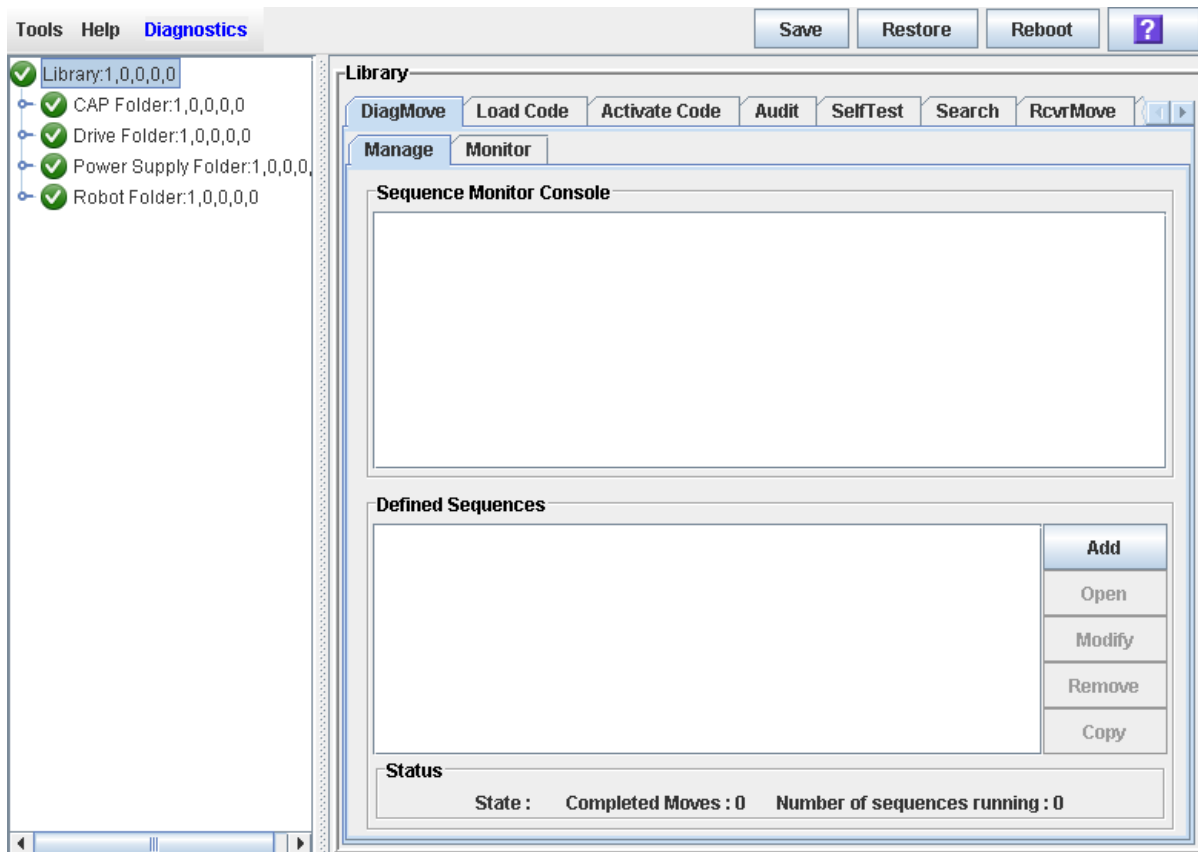
1. Select **Tools > Diagnostics**.
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



3. Click the **DiagMove** tab and then the **Manage** tab.

The **Diagnostic Move Manage** screen appears.



4. In the **Defined Sequence** section, click **Add**.

The **TARGET** screen appears.

The screenshot shows a dialog box titled "SLConsole - Sequence" with a close button (X) in the top right corner. The main heading is "Enter TARGET address range:". Below this, a note states: "All slots within this range will be accessed according to the Access Order specified in the last dialog box." The "Selection Mode" section contains six radio button options: "All" (selected), "Drive", "Cap", "Storage Slots", "Drive & Storage Slots", and "System Slots". The "Minimum Address" and "Maximum Address" sections each contain five dropdown menus for "Library", "Rail", "Column", "Side", and "Row". The "Minimum Address" dropdowns are set to "Min" and the "Maximum Address" dropdowns are set to "Max". At the bottom, there are "Next >" and "Cancel" buttons.

5. Complete the **TARGET** screen as follows. See [“Target Address Range” on page 486](#) for details.

- In the **Selection Mode** field, click the type of cells you want to diagnose.
- In the **Minimum Address** and **Maximum Address** fields, select the library internal address of the starting and ending locations of the cells you want to diagnose.

6. Click **Next**.

The **SOURCE** screen appears.

The screenshot shows a dialog box titled "SLConsole - Sequence" with a close button (X) in the top right corner. The main heading is "Enter SOURCE address range:". Below this, a note states: "Locations within this range will be used to supply cartridges and/or empty slots required for diagnostic moves to/from the Target Address Range. There is no specified access order within the Source Address Range." The "Selection Mode" section contains four radio button options: "All", "Cap", "Storage Slots" (selected), and "System Slots". The "Minimum Address" and "Maximum Address" sections each contain five dropdown menus for "Library", "Rail", "Column", "Side", and "Row". The "Minimum Address" dropdowns are set to "Min" and the "Maximum Address" dropdowns are set to "Max". At the bottom, there are "< Previous", "Next >", and "Cancel" buttons.

7. Complete the SOURCE screen as follows. See [“Pool Address Range” on page 486](#) for details.

- In the **Selection Mode** field, click the appropriate cartridge pool address type.
- In the **Minimum Address** and **Maximum Address** fields, select the library internal addresses of the starting and ending locations of the cartridge pool you want to use.

8. Click Next.

The **Sequence** screen appears.

SLConsole - Sequence

Name: DM_0

Move Count: 10

Access Order: Sequential

Move Type: Robot & Cartridge Robot Only

Disable pre-move cartridge compatibility check (faster):

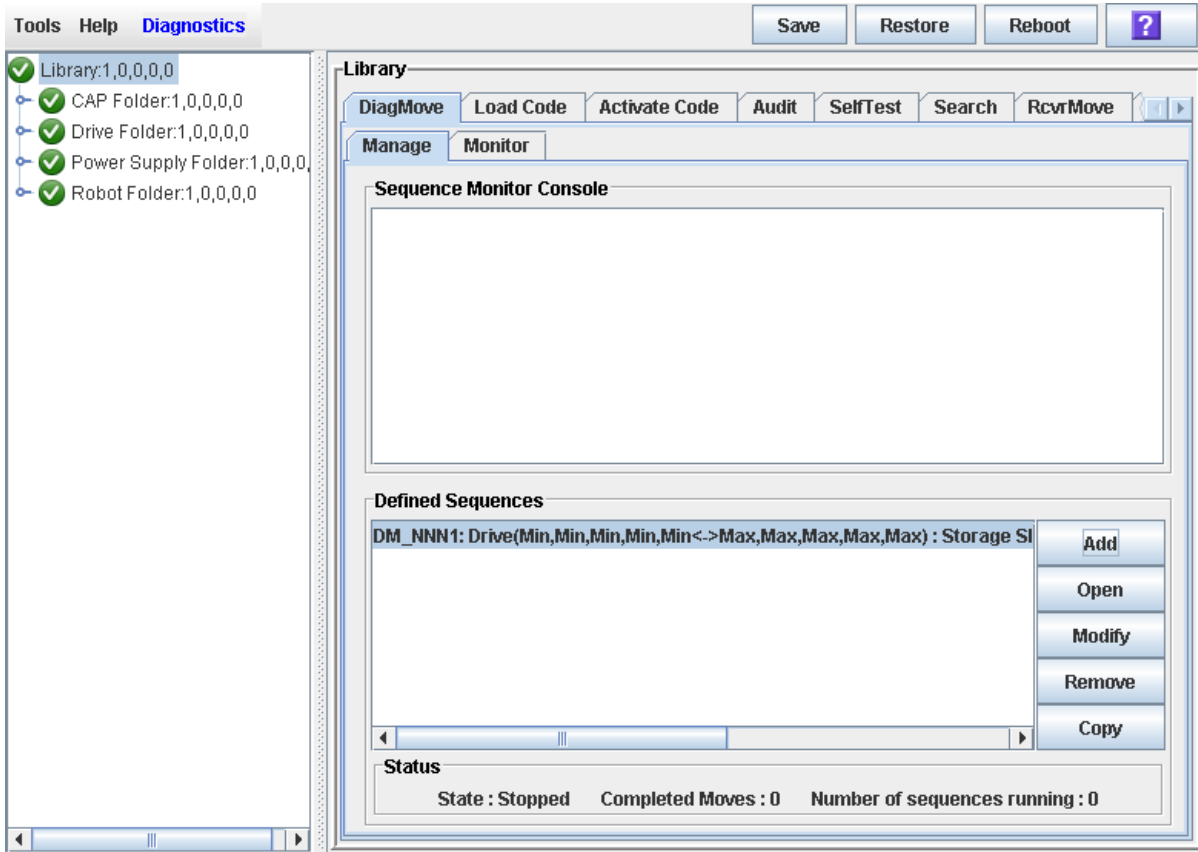
< Previous Finish Cancel

9. Complete the Sequence screen as follows. See [“Move Access Order” on page 487](#) for details.

- Name of the diagnostic move
- Move Count (specify a number between 1 and 5000)
- Access order (Sequential or Random)
- Move Type (Robot and Cartridge or Robot Only)
- Disable pre move cartridge compatibility check

10. Click Finish to complete the setup.

The **Diagnostic Move Manage** screen appears. The diagnostic sequence you have just defined is listed in the **Defined Sequences** section.

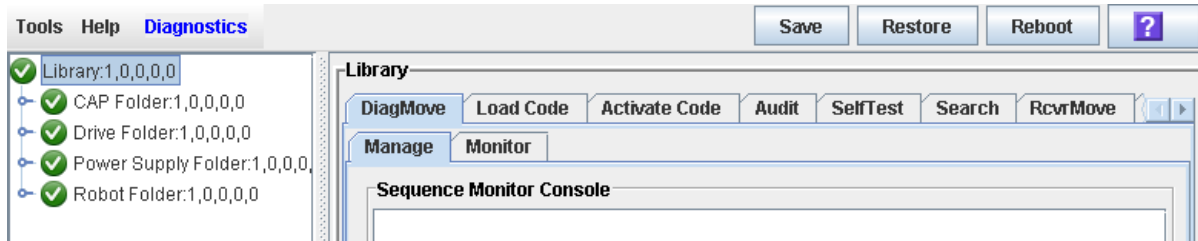


▼ Manage Diagnostic Move Definitions

Use this procedure to manage diagnostic move sequence definitions.

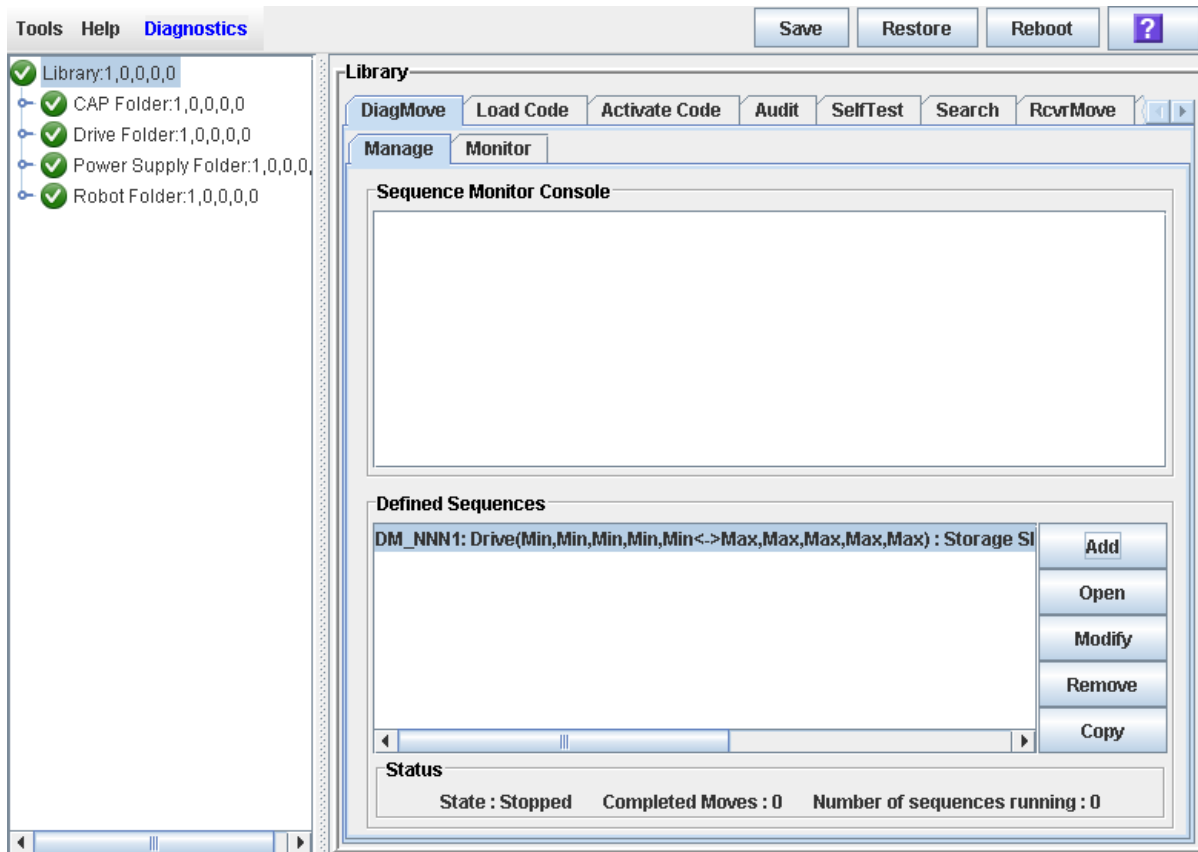
1. Select **Tools > Diagnostics**.
2. Click the **Library** folder on the device tree.

The **Library** screen appears.



3. Click the **DiagMove** tab and then the **Manage** tab.

The **Diagnostic Move Manage** screen appears.



4. From the **Defined Sequences** section, select any of the following options:

Select Option	To	Notes
Add	Define a diagnostic move	
Open	Start a diagnostic move	Multiple diagnostic moves may be open at a time, so long as the target and pool address ranges setup for the moves do not overlap.
Modify	Modify options for a diagnostic move	This diagnostic move routine must not be open or if open must be in a "Stopped" state.
Remove	Remove a diagnostic move	This diagnostic move routine must not be open.
Copy	Copy an existing diagnostic move	Copy a diagnostic move definition, make changes if necessary, and assign a different name.

5. To manage the diagnostic moves currently open, see ["Monitor and Control Open Diagnostic Moves"](#) on page 568.

▼ Save a Diagnostic Move to a File

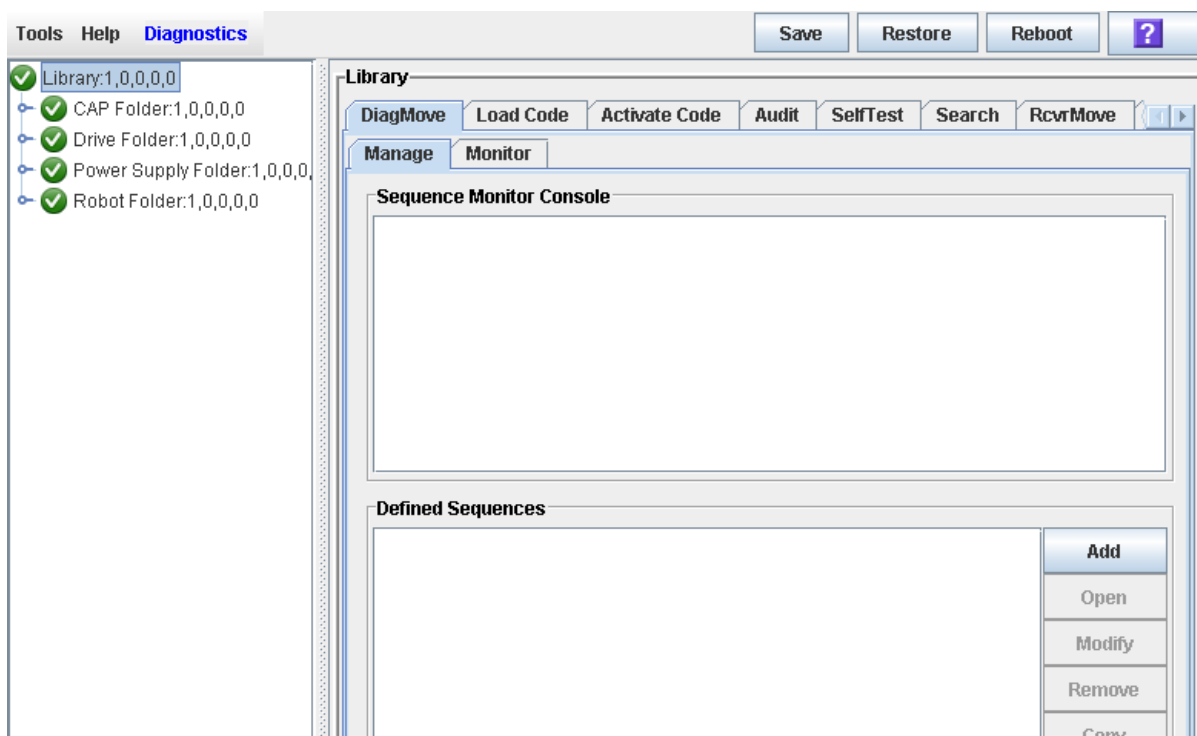
Use this procedure to save a defined diagnostic move to a local file on your workstation or PC. The file is saved as a JavaBean component represented as an XML 1.0 document (.xml).

Possible uses for the saved file are:

- Can be used to restore a move that has been deleted from the library.
- Can be copied to a different library for use there.

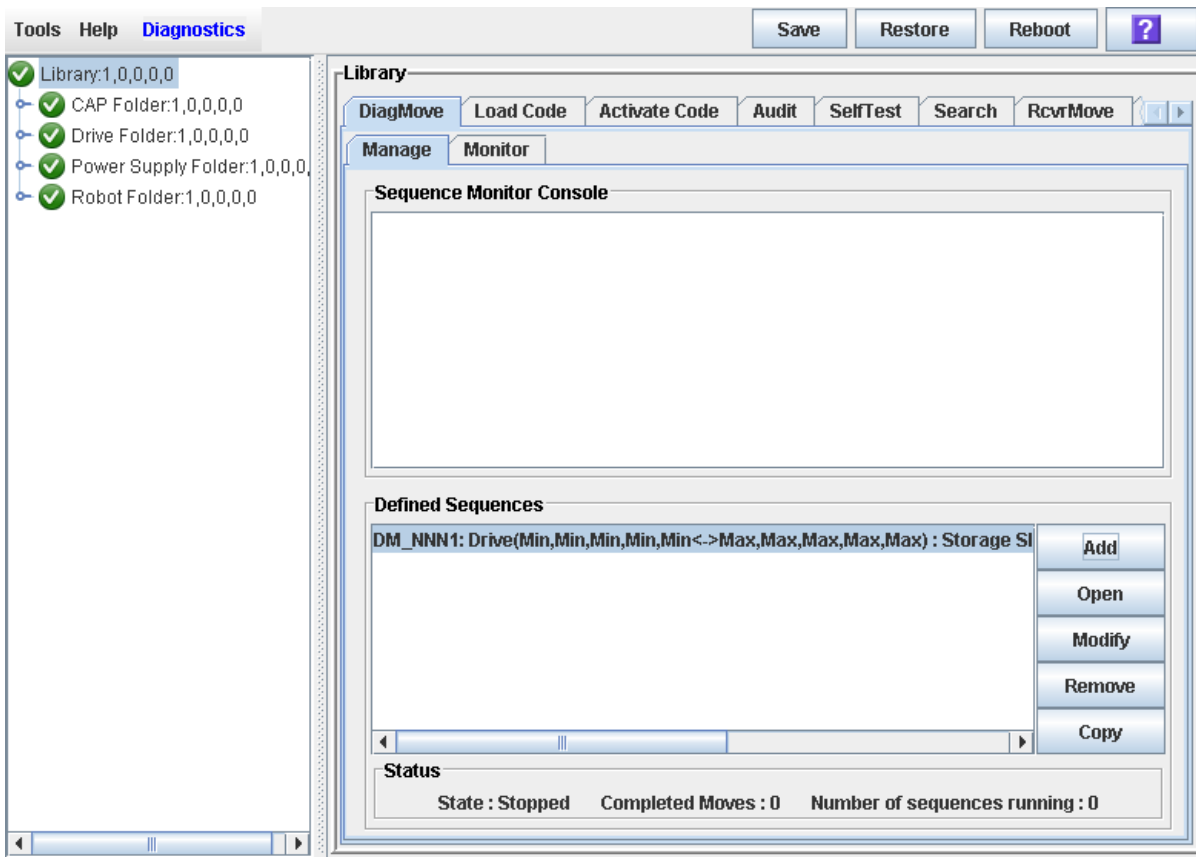
1. **Select Tools > Diagnostics.**
2. **Click the Library folder on the device tree.**

The **Library** screen appears.



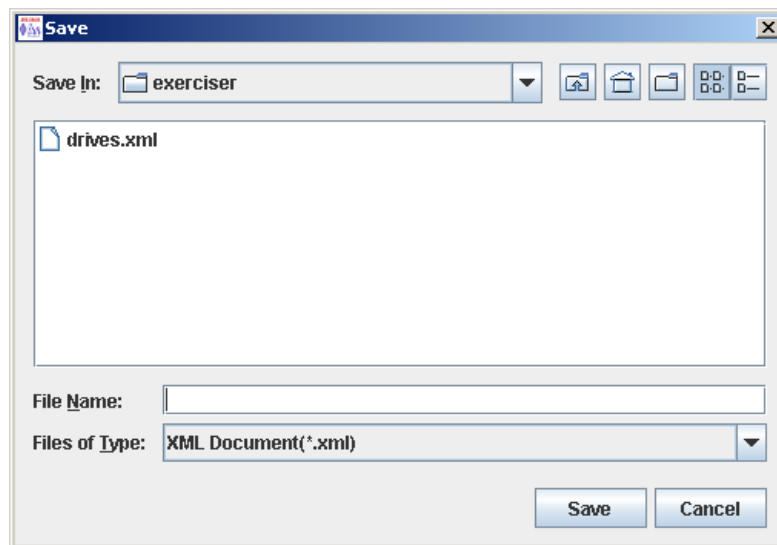
3. **Click the DiagMove tab and then the Manage tab.**

The Diagnostic Move Manage screen appears.



4. Click the diagnostic move you want to save, and then click the Save button in the Options Bar.

The Save popup appears.



5. Browse to the directory where you want to save the file. In the File Name field, enter the file name.

6. Click Save.

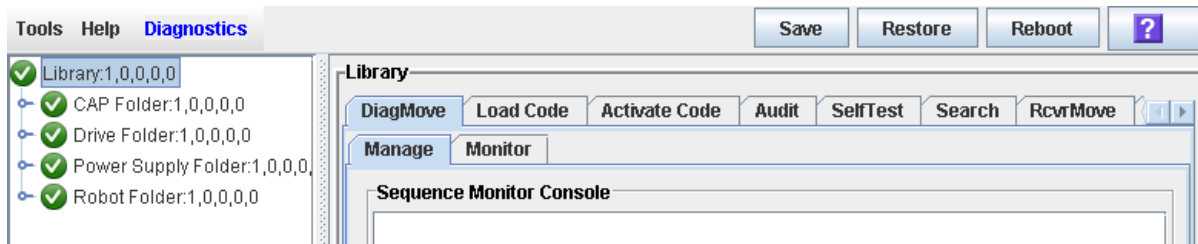
The data is saved to the specified file. Following is a sample excerpt:

```
<?xml version="1.0" encoding="UTF-8"?>
<java version="1.5.0_11" class="java.beans.XMLDecoder">
  <object
class="com.stortek.ats.elib.opel.model.SequenceBeanList">
  <string>FRS_4.10</string>
  <string>SL500</string>
  <void method="add">
    <object
class="com.stortek.ats.elib.opel.model.SequenceBeanList$Sequence
Bean">
  <void property="accessOrder">
    <string>Sequential</string>
  </void>
  <void property="moveCartridge">
    <boolean>true</boolean>
  </void>
  <void property="moveCount">
    <int>10</int>
  </void>
  <void property="name">
    <string>DriveDiagMove1</string>
  </void>
  . . .
  <void property="targetType">
    <string>Drive</string>
  </void>
</object>
</void>
</object>
</java>
```

▼ Start a Diagnostic Move

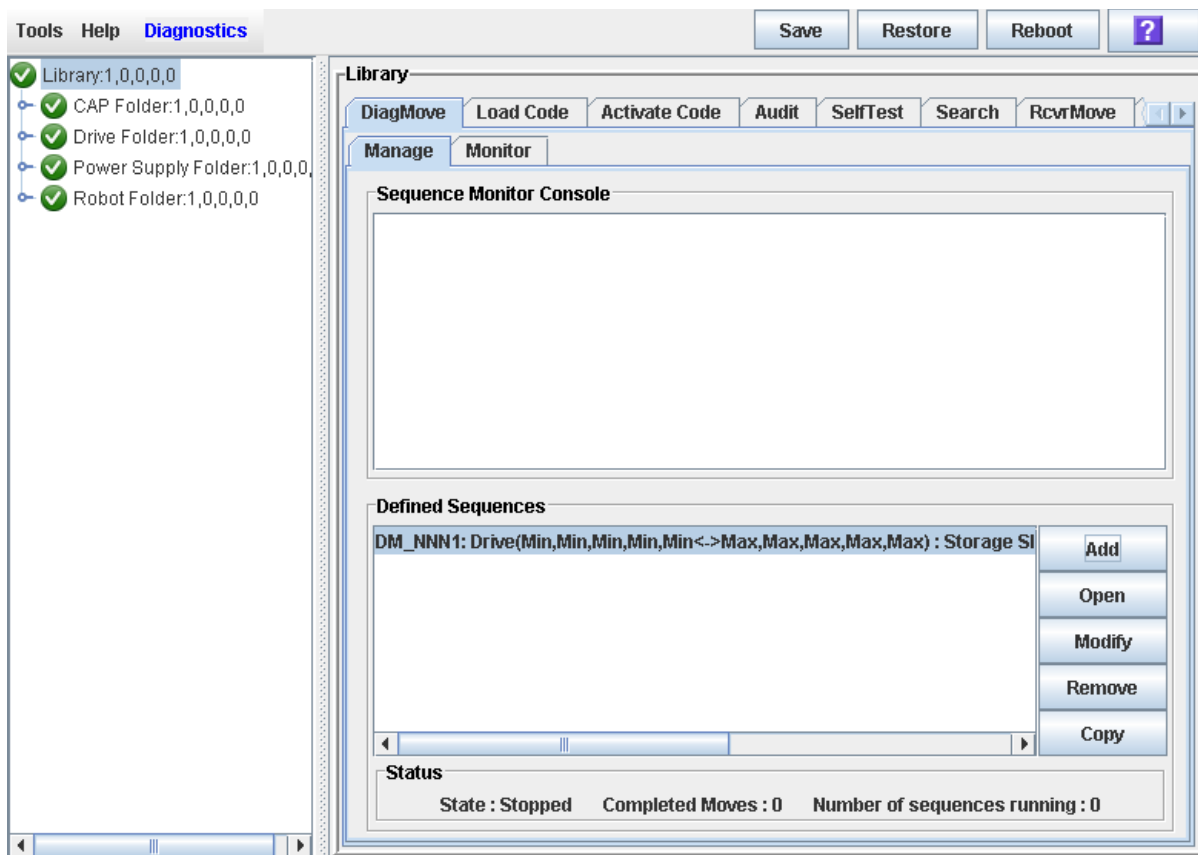
1. Select Tools > Diagnostics.
2. Click the Library folder on the device tree.

The Library screen appears.



3. Click the DiagMove tab and then the Manage tab.

The Diagnostic Move Manage screen appears.



4. From the Defined Sequences section click a diagnostic move and then click Open.

The Monitor window is activated.

You can repeat this step to open multiple moves, as long as the target and pool address ranges for the moves do not overlap.

A monitor window is displayed for each move you open.

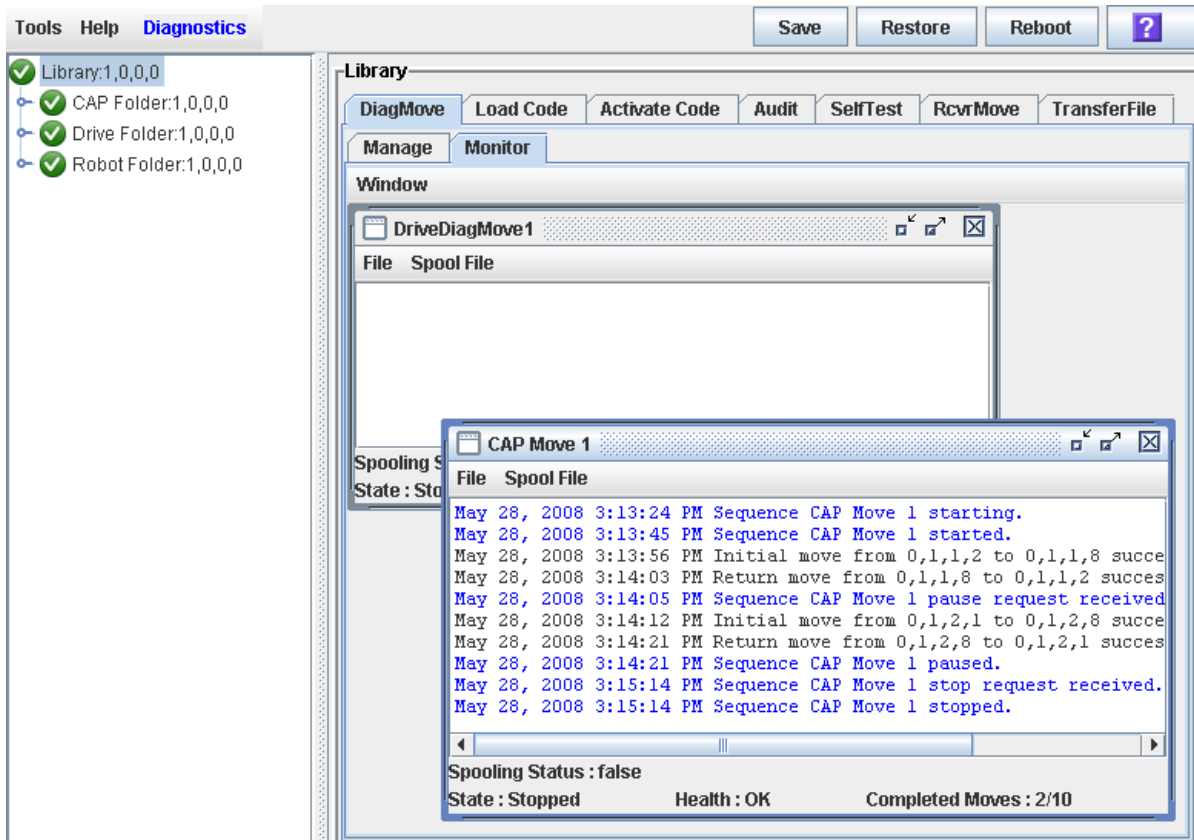
5. From each monitor window, select File > Start Sequence to start the move.

▼ Monitor and Control Open Diagnostic Moves

Use this procedure to control and monitor the status of one or more open diagnostic moves.

1. See [“Start a Diagnostic Move” on page 566](#) for instructions on starting one or more diagnostic moves.
2. Click the Monitor tab.

The Monitor screen appears, with one monitor window for each open move.



Each monitor window has the following status indicators:

Status Indicators	Description	Valid Values
Spooling Status	Indicates if the move output is being spooled to a file	True, False
State	Current execution state of the move	Running, pausing, paused, stopping, stopped
Health	Current health state of the move	OK, warning, error
Completed moves	Number of moves completed in the requested move count	

3. Use the File menu in each Monitor window to perform any of the following functions:

Select Option	To	Notes
File > Start Sequence	Start	
File > Pause Sequence	Pause	Stops all diagnostic moves, but maintains the current location in the access order.
File > Stop Sequence	Stop	Stops a running or paused move.
File > Start Sequence	Resume	Resumes a paused move starting with the last known location in the target address range.
File > Clear Output Window	Clear the messages displayed in the monitor window	Erases the previous message lines and continues to fill the screen with new messages.
Spool File > Start Spooling	Spool	Directs the move output to a file.
Spool File > Stop Spooling	Stop spooling the move output to a file	Stops directing the move output to the spool file.

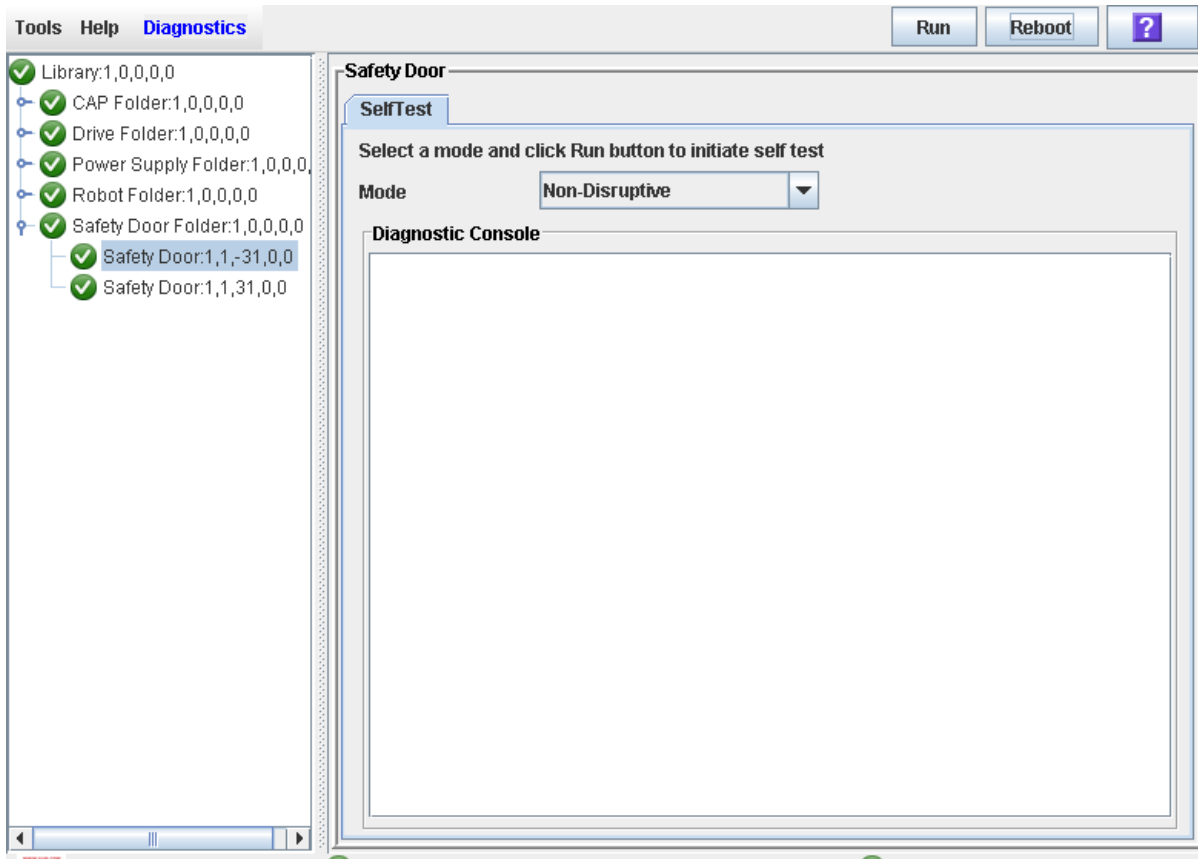
AEM Safety Door Utility Tasks

Task	Page
Reboot an AEM Safety Door	571

▼ Reboot an AEM Safety Door

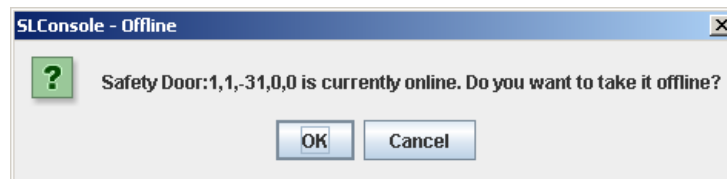
Use this procedure to reboot an AEM safety door. You may need to do this to clear errors if the AEM safety door has experienced an abnormal condition.

1. Select **Tools > Diagnostics**.
2. Expand the **Safety Door Folder**, and click the AEM safety door you want to reboot.



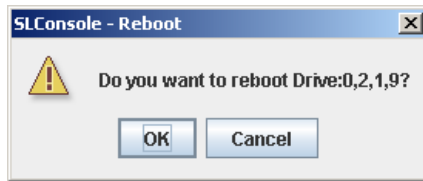
3. Click **Reboot** in the Options Bar.

If the safety door is online, the **Offline Confirm** popup appears.



4. Click **OK** to vary the safety door offline.

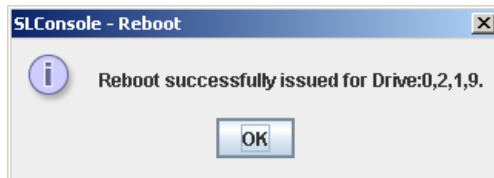
The **Reboot Confirm** popup appears.



5. **Click OK.**

The library controller reboots the safety door. The safety door is re-initialized, and the TallBot audits the AEM CAP.

The **Reboot Success** popup appears.



6. **Click OK to dismiss the popup.**

Manual Operations

When in manual mode of operation, the library is unavailable for host access. This may be because the library has experienced an unrecoverable error or a library component requires service or installation. When the library is in this mode, cartridge mounts and dismounts require human intervention.

Library Safety

Thoroughly review the safety precautions in this section before attempting to enter the library. It is essential that you follow proper safety procedures at all times.

General Safety Precautions

Warning – To prevent accidental closure of the access door while someone is in the library, it is recommended that when you unlock the access door, you lock it open and retain the key on your person.

Before entering the library, be sure you:

- Know the location of the emergency door unlocking mechanisms. See [“SL3000 Door Interlocks” on page 574](#).
- Leave the access door open whenever working inside the library. There is a switch on each door frame that disconnects DC power and signal lines to the library’s motors when an access door is opened. See [“SL3000 Servo Power Interrupt” on page 574](#).
- Know the location of the mechanical door releases. See [“Mechanical Door Releases” on page 574](#).
- Know the physical restrictions. See [“Physical Restrictions” on page 575](#).

SL3000 Door Interlocks

Door safety interlocks are located behind the front access doors of the Base Module and DEM. To open either access door, an access key is required.

Door safety interlocks are constantly monitored by the library controller. During normal operation, if an access door is opened an Emergency Robotics Stop condition is initiated and all library motors are immediately disabled. This prevents motors from operating while a library door is open. If the library is varied offline, opening the access door disconnects DC voltages to the rails and the power bus.

The door switches are also monitored when the library is powered off. A battery supplies power for the circuitry to detect a door opening/closing event while the library is powered off.

When a Base Module and DEM are connected together, opening an access door to either module automatically suspends operations within the entire library (the two door switches are connected in series).

SL3000 Servo Power Interrupt

An additional safety feature is the servo power interrupt (SPI). If the library controller detects that a library motor is out-of-range, it will generate an SPI to turn off drive voltage to the faulty motor. This prevents a servo runaway condition until the cause of the problem can be determined.

Mechanical Door Releases

Each lock handle on the access doors of the Base Module and DEM includes a mechanical release which is painted yellow (see [FIGURE 14-1](#).) This release serves as a safeguard in case a person is inside the library and the access door is accidentally closed and locked. When you push the release, it unlocks and opens the door.

FIGURE 14-1 Mechanical Door Release



L206_233

Interior Lighting

The interior of the library is always illuminated by white LEDs on the ceiling.

Physical Restrictions

The library does not allow much free room for movement. You must be mindful of the restricted space at all times.

- Be careful not to snag your clothing on the plastic arrays that house the cartridges (only 0.4 m [18 in.] of aisle clearance).
- Be careful not to bump your head or body against the arrays.
- To gain access to a cartridge, you may have to move a TallBot, in which case you must avoid damaging the TallBot's electronic components.
- If you are loading or unloading a cartridge manually, your hands must remain clear of the drive's mechanical and electronic load components.

Manual Operation Tasks

Task	Page
Vary the Library Offline	577
Vary the Library Online	577
Power Down the Library	577
Power Up the Library	577
Open the Library Main Access Door	577
Close and Lock the Library Main Access Door	585
Perform an AEM "Fast Access"	586
Close the AEM Access Door After a "Fast Access"	587

▼ Vary the Library Offline

Use this procedure to vary the library offline through the SL Console.

Note – You should use this procedure only if you are not using ACSLS or ELS tape management software, or if their servers are not able to communicate with the library. ACSLS and ELS are not notified when the state of the library or its components are changed through the SL Console, possibly leading to disruption in library operations. For instructions on changing the state of the library and its components through ACSLS or ELS, see the appropriate tape management software documentation.

You may need to use this procedure at the following times:

- Before powering down the library
- Before opening a library access door
- When the library is inoperative and requires maintenance

1. Vary all library drives offline.

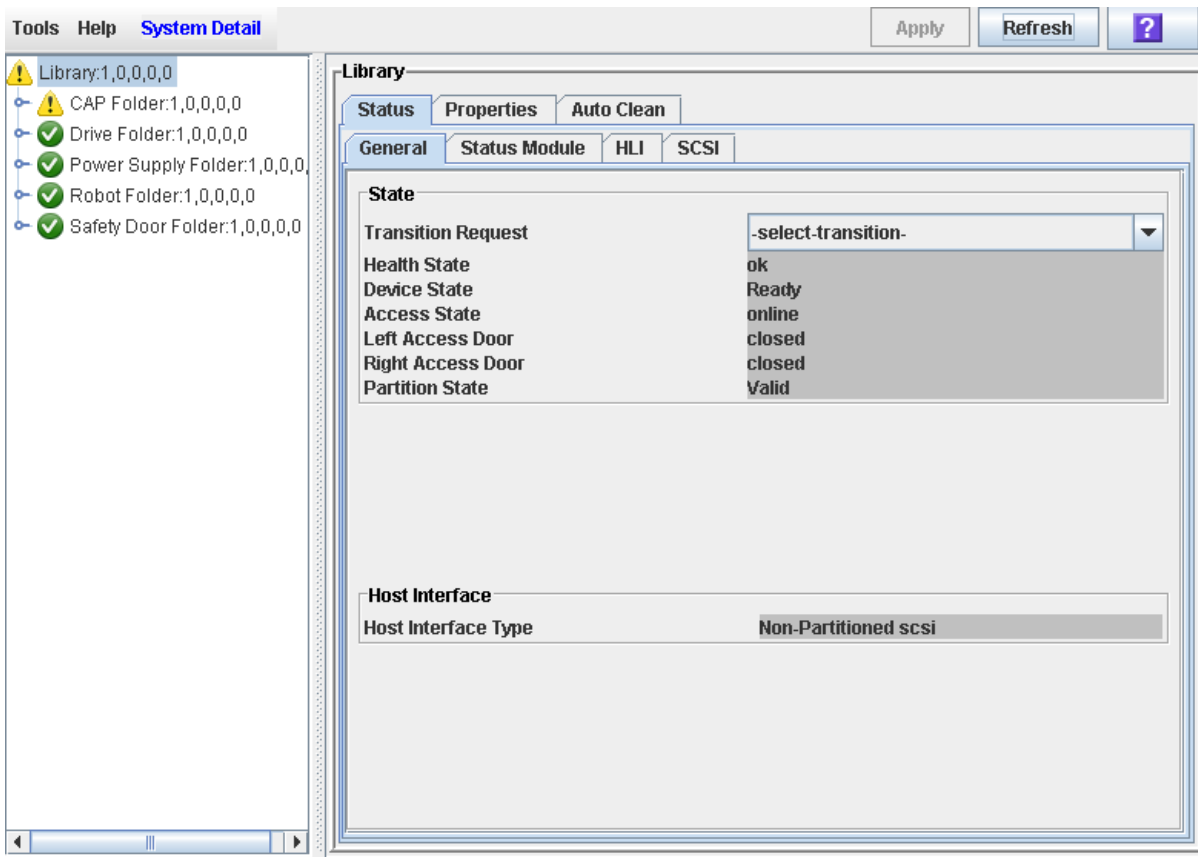
See [“Vary a Drive Offline” on page 551](#) for details.

2. Select Tools > System Detail.

3. Click the Library folder on the device tree.

4. Click the Status tab, and then the General tab.

The current status of the library is displayed.



5. In the Transition Request field, click Take offline. Click Apply.

All outstanding library jobs are completed, and then the library status is changed, as follows:

- Health State: Warn
- Device State: Not accessible (HLI host connections); Not ready (SCSI host connections)
- Access State: Offline

▼ Vary the Library Online

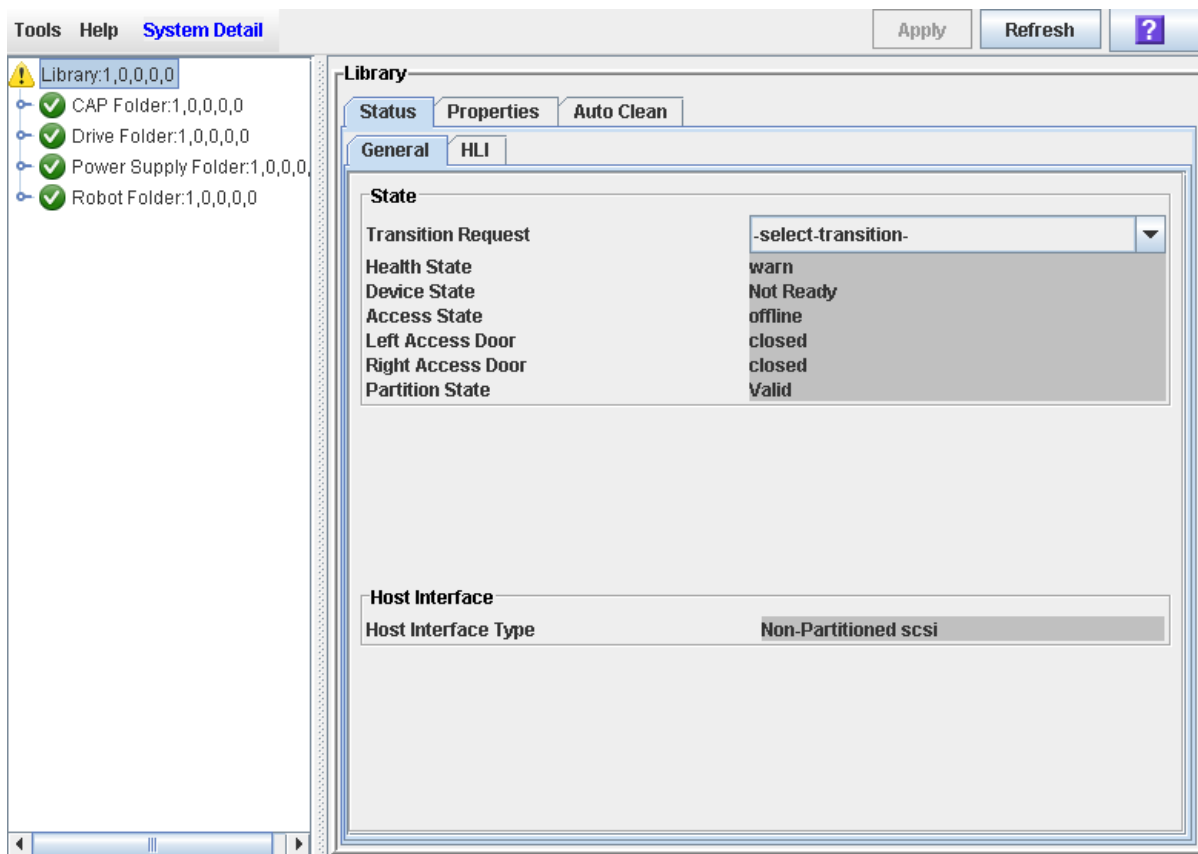
Use this procedure to vary the library online through the SL Console.

Note – You should use this procedure only if you are not using ACSLS or ELS tape management software, or if their servers are not able to communicate with the library. ACSLS and ELS are not notified when the state of the library or its components are changed through the SL Console, possibly leading to disruption in library operations. For instructions on changing the state of the library and its components through ACSLS or ELS, see the appropriate tape management software documentation.

Note – LTO Ultrium drives are automatically brought online when you bring the library online.

1. Select Tools > System Detail.
2. Click the Library folder on the device tree.
3. Click the Status tab, and then the General tab.

The screen displays the current status of the library.



4. In the Transition Request field, click Bring online.
5. Click Apply.

The library status is updated, as follows:

- Health State: ok

- Device State: Ready
 - Access State: Online
6. **If applicable, vary the library online to ACSLS and ELS hosts. See the ACSLS and ELS documentation for detailed procedures.**

▼ Power Down the Library

Use this procedure to power down the library.

1. **Vary all library drives offline.**

See [“Vary a Drive Offline” on page 551](#) for details.

2. **Vary the library offline.**

See [“Vary the Library Offline” on page 577](#) for details.

3. **Open the rear doors of the Base Module and DEM (if present).**
4. **Turn off the power enable switches.**
5. **If necessary, turn off the circuit breakers on the PDUs.**

▼ Power Up the Library

Use this procedure to power up the library. If the access doors have been opened and closed, a full audit of the library will be performed.

1. **Open the rear doors of the Base Module and DEM (if present).**
2. **If necessary, turn on the circuit breakers on the PDUs.**
3. **Turn on the power enable switches.**
4. **The library goes through the initialization sequence, as follows:**
 1. Library controller code is activated.
 2. The library controller performs electronic discovery of library components:
 - a. Determines the AC power configuration (N+1 or 2N).
 - b. Verifies tape drive controller function.
 - c. Checks optional functions (for example, a local operator panel).
 - d. Establishes communication and configuration of the TallBot controller.
 - e. Polls all tape drives and determines their locations.
 - f. Queries all rotational and AEM CAPs:
 - If a CAP door is fully open, the door will be left open.
 - If the state of a CAP door is undetermined, it is updated to closed and locked.
 3. The TallBot performs the physical discovery process:
 - a. The TallBot sweeps the entire library to determine the library size.
 - b. The TallBot scans the module identification block in each module.
 - c. Depending on this information, the library is auto configured.
 4. If one of the access doors was opened and closed, a library audit will begin, as follows:
 - a. The TallBot targets on each column of arrays (from the top, down).
 - b. The TallBot scans up each column, recording the VOLIDs of all cartridges.
 - c. The location of each VOLID is recorded in the library controller database.
 - d. Storage cells without cartridges are flagged as empty.
 - e. If a cartridge is found in a rotational or AEM CAP, the CAP is closed and locked.

Note – This audit does not update the host cartridge databases. See the appropriate tape management software documentation for details about updating the host databases.
5. **Vary the library online.**

See [“Vary the Library Online” on page 579](#) for detailed instructions.

The SL Console gets all library configuration data from the library controller. Therefore, you should be careful when logging in to the SL Console before the library has fully initialized. You may see warnings that configuration data is not yet available, in which case you need to exit and log in again at a later time. Additionally, if a library audit is performed as part of initialization, until the audit is complete, any configuration data displayed may not be completely up-to-date and accurate.

▼ Open the Library Main Access Door

Use this procedure to open the main doors of the library.

Warning – To prevent accidental closure of the access door while someone is in the library, it is recommended that when you unlock the access door, you lock it open and retain the key on your person.

1. Vary all library drives offline.

See [“Vary a Drive Offline” on page 551](#) for details.

2. Vary the library offline.

See [“Vary the Library Offline” on page 577](#) for details.

3. Insert the key into the door lock, and turn the key to unlock the door.
4. Pull up on the door latch to release it, and open the door.
5. Turn the key in the lock, to lock the door open, and then remove the key from the lock and keep it with you. This will prevent the door from being closed while you are in the library.
6. Enter the library.

▼ Close and Lock the Library Main Access Door

Use this procedure to close and lock the main doors of the library.

1. Verify that there are no loose items in the library.
2. If the access doors were locked open, insert the key into the door lock, and turn the key, to unlock the door.
3. Push the door closed and make sure it latches securely.
4. Turn the key in the lock, to lock the door closed.
5. Remove the key from the lock and keep it in a safe place.
6. If the library has been powered down, power it up.

See [“Power Up the Library” on page 582](#) for details.

Note – Because the access doors have been opened, the library will go through a full audit.

▼ Perform an AEM “Fast Access”

Use this procedure to gain emergency access to the AEM.

Caution – This procedure has the same effects on library operations as opening the main library access door. It causes an abrupt interruption of library activity and should be used only in exceptional circumstances, such as an AEM component failure. This procedure does not lower the internal AEM safety door.

Note – When the AEM access door is closed, a full audit of the library is initiated. See [“Close the AEM Access Door After a “Fast Access”” on page 587.](#)

1. **Insert the library access door key in the Deadbolt Override lock, and unlock the door by turning the key clockwise.**

Note – The key cannot be removed from the lock while it is in the unlocked position.

2. **Lift the AEM access door latch, and open the door.**

Caution – *Possible Equipment Damage.* DO NOT force the AEM access door to open or close.

All power to the rails is killed, and the TallBots are stopped immediately.

All in-process jobs are stopped abruptly, and the TallBots and AEM CAPs are brought offline.

Caution – The AEM safety door is not lowered.

▼ Close the AEM Access Door After a “Fast Access”

Use this procedure to close the AEM access door and re-initialize the library after performing an AEM “fast access.”

Note – This procedure initiates a full audit of the library.

1. Close and latch the AEM access door.

Caution – *Possible Equipment Damage*. DO NOT force the AEM access door to open or close.

2. Lock the door by turning the key counter-clockwise in the Deadbolt Override lock.

- The library re-initializes.
- The TallBots go through their initialization sequence.
- A full audit of the library is conducted.
- The AEM CAP is brought online and returned to its default state.

Library Resource Addresses

This appendix describes the following library addressing schemes:

- [Library Internal Address](#) – Used by the library controller.
- [HLI-PRC Locations](#) – Used by hosts with TCP/IP connections to the library.
- [FC-SCSI Element Locations](#) – Used by hosts with FC-SCSI connections to the library.
- [Drive Hardware Numbers](#) – Physical array slot into which a drive is installed.
- [Drive Dynamic World-Wide Names](#) – Automatically generated by the library controller for installed drives.

These schemes are used to locate all library resources, including:

- Cartridge storage cells
- Tape drive slots
- Installed drives
- Reserved system cells
- Rotational and AEM CAP cells

CenterLine Technology

The SL3000 modular design uses CenterLine technology to help balance the work load and improve performance of the library. The left side of the Base Module – which is the only required module – serves as the centerline. You can add other modules to the left and right of the Base Module. Columns to the right of the centerline have positive (+) numbers, while columns to the left have negative (-) numbers.

FIGURE A-1 Centerline and Column Addressing

Center

Line



Negative (-) Numbered Columns

Positive (+) Numbered Columns

Drives

-4, -3, -2, -1 1, 2, 3, 4

Cartridges

-12, -11, -10, -9, -8, -7 -6, -5, -4, -3, -2, -1 1, 2, 3, 4, 5, 6 7, 8, 9, 10, 11, 12

Library Internal Address

Storage Cells

There are five components to the SL3000 library internal addressing scheme:

1. **Library number:** always "1."
2. **Rail number:** always "1."
3. **Column number:** the horizontal location. Column numbering starts from the left edge of the back wall of the Base Module, as viewed from the front of the library. Columns to the right of this edge, whether within the Base Module itself or in modules connected to the right, are numbered positively (+), from left to right, starting with +1. Columns in modules connected to the left of the Base Module are numbered negatively (-), from right to left, starting with -1.
4. **Side:** the back wall = 1, the front wall = 2.
5. **Row:** the vertical position. Row numbering runs from top to bottom and can range from 1 to 52.

Note – For any library, the actual numbering of columns and rows depends on the modules installed and the configuration of drives vs. storage cells. See [TABLE A-1 on page 592](#) for details.

Library Internal Address Example – Base Module

As an example of using the library internal addressing scheme, refer to [TABLE A-1 on page 592](#), drive hardware number 13 would be 1, 1, +4, 1, 4, as follows:

1. Library number = 1
2. Rail number = 1
3. Column number = +4
4. Side = 1
5. Row = 4

TABLE A-1 Base Module – Rear Wall Locations (viewed from front of library)

Row	1	+2	+3	+4		
+1	Drive 4	Drive 3	Drive 2	Drive 1		
+2	Drive 8	Drive 7	Drive 6	Drive 5		
+3	Drive 12	Drive 11	Drive 10	Drive 9		
+4	Drive 16	Drive 15	Drive 14	Drive 13		
	+1	+2	+3	+4	+5	+6
+24	Storage cells	Storage cells	Storage cells	Storage cells	Storage cells	Storage cells
~						
+35						
+36	Storage cells	Storage cells	Storage cells	Storage cells	Storage cells	Storage cells
~						
+48						
+49	No array	Top two =	4-cell	4-cell ID	4-cell	4-cell
~		Drop off	Diagnostic/		Diagnostic/	Diagnostic/
+52		Bottom =	Cleaning		Cleaning	Cleaning
		Swap				

Note – Perspective is from the front of the library.

As a second example, the location for the two drop-off cells on this wall are...

1. Library number = 1
2. Rail number = 1
3. Column number = +2
4. Side = 1
5. Rows = 49 and 50

...which translates to 1, 1, +2, 1, 49 and 1, 1, +2, 1, 50.

Library Internal Address Example – DEM

See [TABLE A-2 on page 594](#) for drive hardware number 27. As an example of using the library internal addressing scheme, this drive location would be...

1. Library number = 1
2. Rail number = 1
3. Column number = -3
4. Side = 1
5. Row = 1

...which translates to 1, 1, -3, 1, 1.

As a second example, the location for the four-cell array that can contain diagnostic cartridges on this wall are...

1. Library number = 1
2. Rail number = 1
3. Column number = -4
4. Side = 1
5. Rows = 49 through 52

...which translates to 1, 1, -4, 1, 49 through 1, 1, -4, 1, 52.

TABLE A-2 Drive Expansion Module – Rear Wall Locations (viewed from front of library)

-4		-3	-2		-1	Row
Drive 28		Drive 27	Drive 26		Drive 25	1
Drive 32		Drive 31	Drive 30		Drive 29	2
-6	-5	-4	-3	-2	-1	
Storage cells	Storage cells	Storage cells	Storage cells	Storage cells	Storage cells	13
						~
						23
Storage cells	Storage cells	Storage cells	Storage cells	Storage cells	Storage cells	24
						~
						35
Storage cells	Storage cells	Storage cells	Storage cells	Storage cells	Storage cells	36
						~
						48
No array	Top 2 = Drop off	4-cell Diagnostic/ Cleaning	4-cell ID	4-cell Diagnostic/ Cleaning	4-cell Diagnostic/ Cleaning	49
	Bottom = Swap					~
						52

Note – Perspective is from the front of the library.

Reserved System Cells

A total of two cells are reserved within the Base Module only for drop-off locations, and one cell is reserved as a swap cell. All remaining system cells can be used for diagnostic or cleaning cartridges; these are listed in [TABLE A-3 on page 595](#).

There are a total of 12 cells for diagnostic or cleaning cartridges in the Base Module; there are a total of 12 or 15 cells for diagnostic or cleaning cartridges in the DEM. These are also listed in [TABLE A-3 on page 595](#).

There are no system cells in a CEM or PEM.

TABLE A-3 Reserved System Cells

Cell Locations	Module Type	Use	Location
1, 1, 2, 1, 49 – 50	Base module	Drop off cells (Reserved)	Back wall of the Base Module
1, 1, -4, 1, 49 – 50	DEM	Cleaning/Diagnostics Cartridges	Back wall of the DEM
1, 1, 2, 1, 51	Base module	Swap cell (Reserved)	Back wall of the Base Module
1, 1, -5, 1, 51	DEM	Cleaning/Diagnostics Cartridges	Back wall of the DEM
1, 1, 5, 1, 49 – 52 1, 1, 6, 1, 49 – 52	Base module	Cleaning/Diagnostics Cartridges	Back wall of the Base Module
1, 1, -1, 1, 49 – 52 1, 1, -2, 1, 49 – 52	DEM	Cleaning/Diagnostics Cartridges	Back wall of the DEM

Note – Do not place data cartridges in a system cell. These cells are masked from the customer’s database (that is, an online TallBot will never go to these cells).

CAP Cells

Cell locations within the CAPs follow a similar notation scheme as other locations within the library:

1. **Library number:** (always “1”)
2. **Rail number:** (always “1”)
3. **Column number:** the horizontal location. This is referenced from the left edge (as you face the inside front) of the Base Module. From this point, columns are numbered as positive (+), consecutively, from left-to-right, throughout all modules connected to the right side of the Base Module.

Conversely, if a module is attached to the left of the Base Module, column locations are numbered as minus (-), consecutively, from right to left, throughout all modules.

4. **Side:** (always “2” [front wall]).
5. **Row:** the vertical position, as referenced from the top cell in the column. Cells are numbered from 1 – 13 for the top magazine and 14 – 26 for the lower magazine. Magazine handles are located at the tops of each CAP magazine.

Note – The magazine handle is not counted as a cell.

Library Internal Address Examples – CAP Cells

The fourth CAP cell down in a Base Module would be...

1. Library number = 1
2. Rail number = 1
3. Column number = +5
4. Side = 2
5. Row = 4

...which translates to 1, 1, +5, 2, 4.

The sixth CAP cell down in a DEM would be...

1. Library number = 1
2. Rail number = 1
3. Column number = -2
4. Side = 2
5. Row = 6

...which translates to 1, 1, -2, 2, 6.

HLI-PRC Locations

Storage Cells

The host library interface-panel, row, column (HLI-PRC) location (address) is an eight-digit, comma-separated value (LL, PP, RR, CC) representing **L**SM, **P**anel, **R**ow, **C**olumn. This addressing scheme is used by HLI clients, including ACSLS and ELS, to represent cartridge storage cells accessible to those HLI clients.

Note – The SL3000 library internal address identifies the physical location of the cartridge in the library and the HLI-PRC refers to the address assigned by the host software.

The cell location appears in the following format:

L	L	P	P	R	R	C	C
---	---	---	---	---	---	---	---

where,

- *LL*: LSM number (always “00”)
- *PP*: Panel (relative to the Base Module – descending numbers on the left and ascending numbers to the right; even numbers = rear walls, odd numbers = front walls)
 - Base Module = panels 12 & 13
 - DEM added to the left = panels 10 & 11
 - Exception: If a CEM is added to the left of a Base Module instead of a DEM, that module’s panel numbering will be 8 & 9 (see [“HLI-PRC Storage Cell Locations – Example Three”](#) on page 599). This allows for a DEM to be installed at a later date without the necessity of re-numbering the modules.
 - module added to the right = panels 14 & 15
- *RR*: Row in the panel (a number from 0 – 51)
Note the difference here. Library internal address rows begin with “1” and HLI-PRC rows begin with “0.”
- *CC*: Column in the row (numbered left to right, from the front of the module)

Note – *CC*: Columns in the panel (a number from 0 – 5).
Note the difference here. Library internal address columns begin with “1” and HLI-PRC rows begin with “0.”

HLI-PRC Storage Cell Locations – Example One

For an example of how this numbering scheme is formulated, refer to [TABLE A-4](#).

TABLE A-4 Host Library Interface Cell Locations – Example One

Drive Expansion Module						Base Module					
Rear Wall = Panel 10						Rear Wall = Panel 12					
Cartridge Column Numbers →						Cartridge Column Numbers →					
0	1	2	3	4	5	0	1	2	3	4	5
0	1	2	3	4	5	0	1	2	3	4	5
Cartridge Column Numbers →						Cartridge Column Numbers →					
Front Wall = Panel 11						Front Wall = Panel 13					

Note – Perspective is from the front of the library.

In example one, the library is composed of two modules. The cell location of a cartridge on the rear wall of the Base Module at Column 5, Row 24, would translate to the following:

LL = 00, PP = 12, RR = 24, CC = 05; or 00, 12, 24, 05

HLI-PRC Storage Cell Locations – Example Two

Adding a module to the left of the library described in Example One illustrates the “left descending” numbering scheme. Refer to [TABLE A-5](#) to see how this works.

TABLE A-5 Host Library Interface Cell Locations – Example Two

Cartridge Expansion Module						Drive Expansion Module						Base Module					
Rear Wall = Panel 8						Rear Wall = Panel 10						Rear Wall = Panel 12					
Cartridge Column Numbers →						Cartridge Column Numbers →						Cartridge Column Numbers →					
0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
Cartridge Column Numbers →						Cartridge Column Numbers →						Cartridge Column Numbers →					
Front Wall = Panel 9						Front Wall = Panel 11						Front Wall = Panel 13					

Note – Perspective is from the front of the library.

In this example, a CEM has been added to the left of the DEM. Its panels are now numbered 8 and 9. Add another module to the left of this library and its panels become 6 & 7.

Conversely, adding a module to the right of the Base Module would make that module’s panel numbers 14 & 15, and so forth.

HLI-PRC Storage Cell Locations – Example Three

For an exception to continuous panel numbering, a third example is presented in [TABLE A-6](#). In this library, two CEMs have been added to the left of a Base Module. Notice that, without a DEM, panel numbering to the left of the Base Module is now 8 & 9, instead of 10 & 11.

This illustrates:

- The one exception to the consecutive panel numbering scheme
- That if a DEM is installed in the future, no panel numbering will change for the existing modules

TABLE A-6 Host Library Interface Cell Locations – Example Three

Cartridge Expansion Module						Cartridge Expansion Module						Base Module					
Rear Wall = Panel 6						Rear Wall = Panel 8						Rear Wall = Panel 12					
Cartridge Column Numbers →						Cartridge Column Numbers →						Cartridge Column Numbers →					
0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
0	1	2	3	4	5	0	1	2	3	4	5	0	1	2	3	4	5
Cartridge Column Numbers →						Cartridge Column Numbers →						Cartridge Column Numbers →					
Front Wall = Panel 7						Front Wall = Panel 9						Front Wall = Panel 13					

Note – Perspective is from the front of the library.

Note – This numbering scheme benefits customers greatly since adding a module does not require any change to their existing panel configurations.

Although the host tape management software follows a five-digit numbering scheme like that in the SL3000 address, there are significant differences in cell designations, rotational and AEM CAP behavior, and other operational considerations as described below.

If you need to locate a cartridge’s HLI-PRC location, see [“Locate a Cartridge by VOLID” on page 433](#). This procedure displays the cartridge information in both library internal address and HLI-PRC address formats.

Drive Slots

For the drives, HLI-PRC locations are different from the notation you will see with cartridge storage cells. [TABLE A-7](#) illustrates how this numbering scheme works, as viewed from the rear of the library.

TABLE A-7 Host Library Interface Tape Drive Locations

Base Module				Drive Expansion Module			
Rear Panel =12				Rear Panel = 10			
13	22	31	40	253	262	71	280
57	66	75	84	297	306	315	324
911	1010	119	128	3311	3410	359	368
1315	1414	1513	1612	3715	3814	3913	4012
1719	1818	1917	2016	4119	4218	4317	4416
2123	2222	2321	2420	4523	4622	721	4820
				4927	5026	5125	5224
				5331	5430	5529	5628

Note –

Perspective is from the rear of the library.

The superscript numbers (in bold) represent the HLI-PRC locations (which translate into the Row number).

The standard number notation represents the drive hardware number.

- The standard numbers correspond with the physical numbering of the drives.
- The superscript numbers (in bold) correspond with the HLI-PRC (Row) locations.
- HLI-PRC numbering is sequential from right-to-left – from 0 to 3 – for the first (top) row of the first module.
- HLI-PRC sequential numbering scheme restarts, right-to-left – from 0 to 3 – in the next module.
- The Column number is always 0.

HLI-PRC Drive Locations – Example One

Drives use drive numbers in place of row and column locations. The drive number is assigned to the position taken by a cell's row, and the position taken by a cell's column is always "00". For example, tape drive hardware number 20 is equivalent to this HLI-PRC location:

Library = 00

Panel = 12

Drive = 16

Column = 00

HLI-PRC Drive Locations – Example Two

As a second example, going from an HLI-PRC location to a hardware location, tape drive 00, 10, 25, 00 is equivalent to tape drive hardware number 51.

CAP Cells

CAP HLI-PRC locations are different from the notation used for cartridge storage cells. CAPs use CAP numbers in place of panel numbers.

Rotational CAPs

- Library = always 00
- CAPs = 01–10, as follows:
 - Left side CEMs = 01 – 04, from left to right
 - DEM = 05
 - Base Module = 06
 - Right side CEMs = 06 – 10, from left to right
- Rows = 00–25
- Column = always 00

AEM CAPs

- Library = always 00
- AEM CAPs = 00 or 11, as follows:
 - Left side AEM = 00
 - Right side AEM = 11
- Rows = 00–38
- Columns = 00–05

FC-SCSI Element Locations

Since the SL3000 offers a Fibre Channel SCSI (FC-SCSI) control interface, you must be aware of SCSI element numbering for storage cells, CAPs, and installed drives. SCSI element numbers are assigned according to the following scheme:

- For storage elements – Numbering runs top-to-bottom, left-to-right, beginning at the back wall (as viewed from the front of the library, numbered 2000) and continuing with the same scheme at the front walls (also viewed from the front).
- For rotational CAP elements (import/export elements) – Numbering runs top-to-bottom, left-to-right, beginning with element number 10 at the left-most module's CAP.
- Tape drives (data transfer elements) – Numbering runs top-to-bottom, left-to-right, as viewed from the front of the library. Only installed drives are included in the numbering sequence; vacant slots are skipped. Numbering starts in the Base Module, at the top-left installed drive and runs to the bottom-right. It then moves to the top-left slot in the DEM and runs to the bottom-right slot.
- If additional storage modules are added to the library, all element numbers are reassigned. If a module is added to the left of the existing library modules, numbering would re-start with the left-most rear cell. If a module is added to the right of existing modules, the top, left, front cell would increment by the number of additional cells in the new module.

The following cells are not assigned SCSI storage element IDs. As such, they are never seen by the host as storage cells. Customer cartridges must never be placed in these cells.

- The bottom four rows on the rear wall of the Base Module.
- The bottom four rows on the rear wall of the DEM.
- All CAPs; CAPs are assigned CAP element IDs.
- In single TallBot library, the front and rear left-most columns.
- In a dual TallBot library with PEMs, the three front and rear left-most columns and three front and rear right-most columns.
- All module identification label cells.

[FIGURE A-2](#) and [FIGURE A-3 on page 603](#) illustrate SCSI element numbering for a sample SL3000 library with the following configuration:

- Four modules
- 166 activated cartridge storage cells
- 36 tape drives

[FIGURE A-2](#) represents the back walls of the library, and [FIGURE A-3](#) represents the front walls.

Note – The library in these examples is not partitioned. For details about SCSI element numbering for partitions, see [“Host SCSI Element Address” on page 192](#).

FIGURE A-2 FC-SCSI Element Locations – Back Walls (as viewed from the front)

Cartridge Expansion Module		Drive Expansion Module (Center Line)				Base Module (Center Line)				Cartridge Expansion Module	
2000	2010	1022	1023	1024	1025	1000	1001	1002	1003	2060	2070
2001	2011	1026	Empty	1027	1028	1004	1005	1006	1007	2061	2071
2002	2012	1029	1030	Empty	1031	1008	1009	1010	1011	2062	2072
2003	2013	1032	1033	1034	1035	1012	1013	1014	1015	2063	2073
2004	2014	2020	2026	2032	2038	1016	Empty	1017	1018	2064	2074
2005	2015	2021	2027	2033	2039	1019	1020	1021	Empty	2065	2075
2006	2016	2022	2028	2034	2040	2044	2048	2052	2056	2066	2076
2007	2017	2023	2029	2035	2041	2045	2049	2053	2057	2067	2077
2008	2018	2024	2030	2036	2042	2046	2050	2054	2058	2068	2078
2009	2019	2025	2031	2037	2043	2047	2051	2055	2059	2069	2079

Note – Tape drives begin numbering from the center line (left wall of the Base Module). Empty tape drive slots are not counted.

FIGURE A-3 FC-SCSI Element Locations – Front Walls (as viewed from the front)

Cartridge Expansion Module		Drive Expansion Module (Center Line)				Base Module (Center Line)				Cartridge Expansion Module	
2080	2090	2100	2107	(CAP) 10		2123	2130	(CAP) 36		2146	2156
2081	2091	2101	2108			2124	2131			2147	2157
2082	2092	2102	2109			2125	2132			2148	2158
2083	2093	2103	2110	~		2126	2133	~		2149	2159
2084	2094	2104	2111			2127	2134			2150	2160
2085	2095	Door Latch	2112			Door Latch	2135			2151	2161
2086	2096		2113	35			2136	51		2152	2162
2087	2097		2114	2117	2120		2137	2140	2143	2153	2163
2088	2098	2105	2115	2118	2121	2128	2138	2141	2144	2154	2164
2089	2099	2106	2116	2119	2122	2129	2139	2142	2155	2155	2165

Note – Perspective is looking through the front of the library. Cartridge storage cell locations are consecutive, skipping locations for the door latches. CAP cells are unique and sequential, from the left-to-right, as viewed through the front of the library

Drive Hardware Numbers

The hardware number of a drive is strictly internal to the library, defined by the electrical wiring to the drive slot. These numbers are printed on decals on the interior of the rear doors of the library modules.

[TABLE A-8](#) illustrates this numbering scheme for the Base Module, as viewed from the rear of the module. [TABLE A-9 on page 605](#) illustrates the numbering for the DEM.

TABLE A-8 Base Module Tape Drive Numbering – Hardware

Array Number		Drive Trays			
1	Drive 1	Drive 2	Drive 3	Drive 4	
	Drive 5	Drive 6	Drive 7	Drive 8	
Array Number		Drive Trays			
2	Drive 9	Drive 10	Drive 11	Drive 12	
	Drive 13	Drive 14	Drive 15	Drive 16	
Array Number		Drive Trays			
3	Drive 17	Drive 18	Drive 19	Drive 20	
	Drive 21	Drive 22	Drive 23	Drive 24	

Note – Numbers shown are referenced from the rear of the Base Module.

TABLE A-9 Drive Expansion Module Tape Drive Numbering – Hardware

Array Number		Drive Trays		
1	Drive 25	Drive 26	Drive 27	Drive 28
	Drive 29	Drive 30	Drive 31	Drive 32
Array Number		Drive Trays		
2	Drive 33	Drive 34	Drive 35	Drive 36
	Drive 37	Drive 38	Drive 39	Drive 40
Array Number		Drive Trays		
3	Drive 41	Drive 42	Drive 43	Drive 44
	Drive 45	Drive 46	Drive 47	Drive 48
Array Number		Drive Trays		
4	Drive 49	Drive 50	Drive 51	Drive 52
	Drive 53	Drive 54	Drive 55	Drive 56

Note – Numbers shown are referenced from the rear of the DEM.

Drive Dynamic World-Wide Names

Drive dynamic World-Wide Names (dWWN), or Fibre Channel addresses, are automatically generated by the library controller during library initialization. dWWNs are assigned to library drive slots rather than devices. If a drive is replaced, the new drive receives the same name as the one it replaced, thereby eliminating the need for system re-configuration. There are three World Wide Names reserved for each drive slot: Node, Port A, and Port B.

Note – The dWWN feature is usually enabled at installation time. The library and tape drives all must have firmware that supports the dynamic World Wide Naming feature. When dWWN is enabled, all drives must be at the proper firmware level. If a drive has down-level firmware, it remains in the “configuring” state and is unavailable for host use.

B

Wall Diagrams

This appendix provides diagrams and tables detailing the following:

- [“Base Module Walls” on page 608](#)
- [“Drive Expansion Module Walls” on page 609](#)
- [“Cartridge Expansion Module Walls” on page 610](#)
- [“Parking Expansion Module Walls” on page 611](#)
- [“Access Expansion Module Walls” on page 612](#)
- [“Configuration Block” on page 613](#)
- [“Row Numbering” on page 614](#)
- [“Reserved System Cells” on page 615](#)

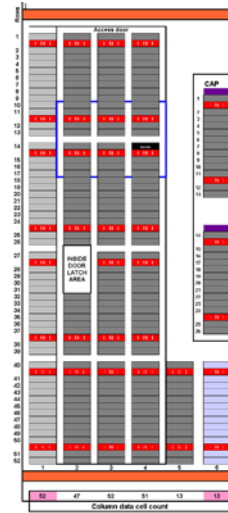
FIGURE B-1 Base Module Walls

Base Module

Front Wall

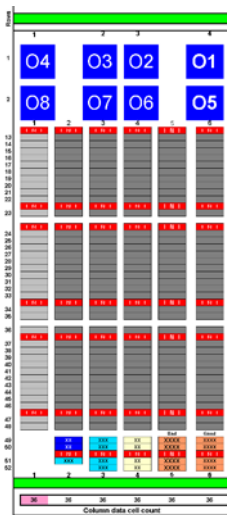


- 140 data cartridge cells
- With 26-cell rotational CAP
- With operator panel or window

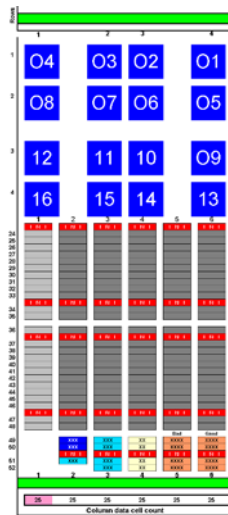


- 163 data cartridge cells
- With 26-cell rotational CAP
- With window cartridge array

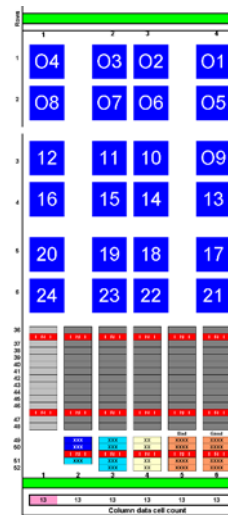
Rear Wall



- 8 tape drive slots
- 180 data cartridges



- 16 tape drive slots
- 125 data cartridges



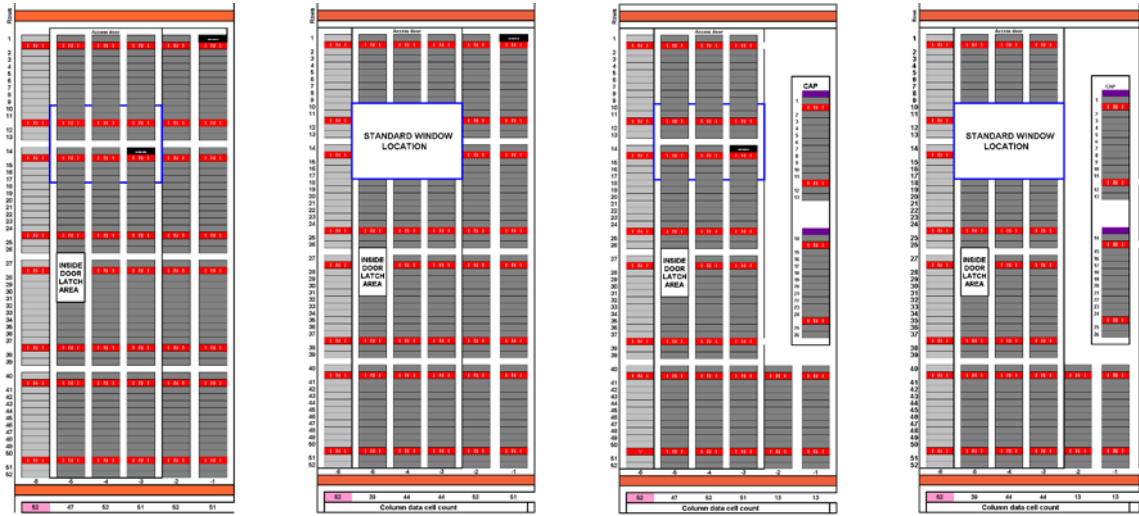
- 24 tape drive slots
- 65 data cartridges

Note – The light gray cells are not accessible unless an adjacent module is installed on that side.

FIGURE B-2 Drive Expansion Module Walls

Drive Expansion Module

Front Wall



- 253 cartridge cells
- With window cartridge array
- No rotational CAP
- 230 cartridge cells
- With operator panel or window
- No rotational CAP
- 176 cartridge cells
- With 26-cell rotational CAP
- With window cartridge array
- 153 cartridge cells
- With 26-cell rotational CAP
- With operator panel or window

Rear Wall

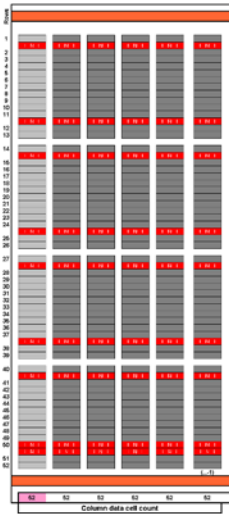


- 8 tape drive slots
- 180 data cartridges
- 16 tape drive slots
- 125 data cartridges
- 24 tape drive slots
- 65 data cartridges
- 32 tape drive slots
- 0 data cartridges

Note – The light gray cells are not accessible unless an adjacent module is installed on that side.

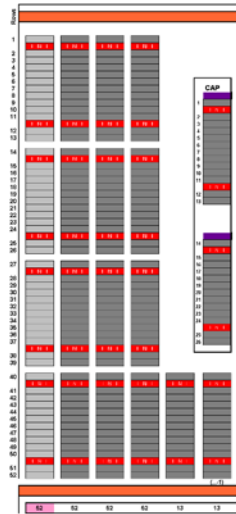
FIGURE B-3 Cartridge Expansion Module Walls

Left Cartridge Expansion Module



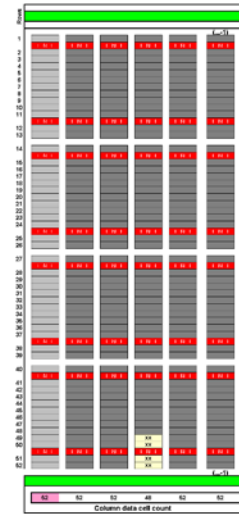
Front Wall

- 260 cartridge cells



Front Wall

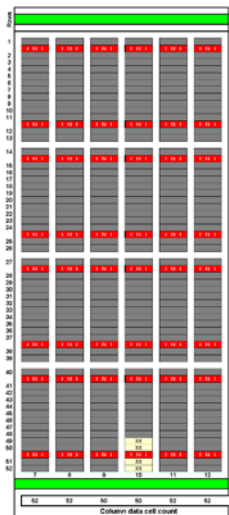
- 182 cartridge cells
- With 26-cell rot. CAP



Rear Wall

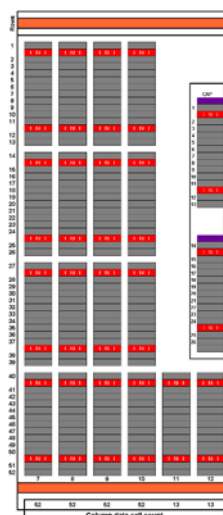
- 256 cartridge cells

Right Cartridge Expansion Module



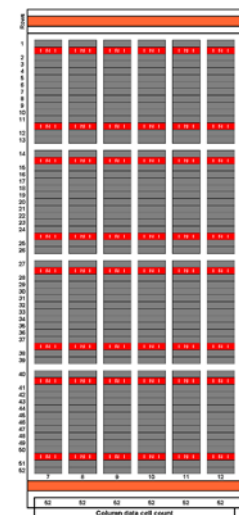
Rear Wall

- 308 cartridge cells



Front Wall

- 234 cartridge cells
- With 26-cell rot CAP



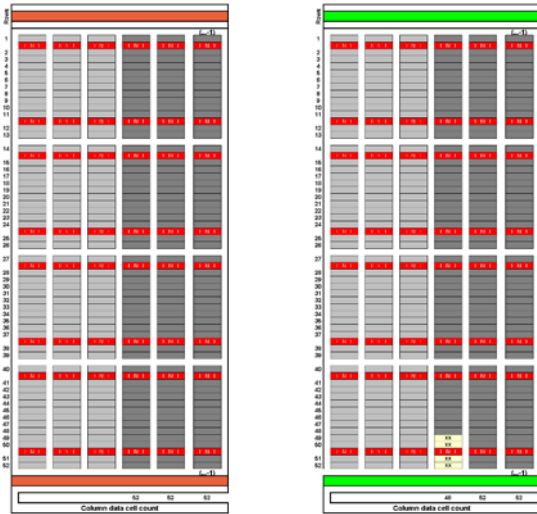
Front Wall

- 312 cartridge cells

Note – The light gray cells are not accessible unless an adjacent module is installed on that side.

FIGURE B-4 Parking Expansion Module Walls

Left Parking Expansion Module



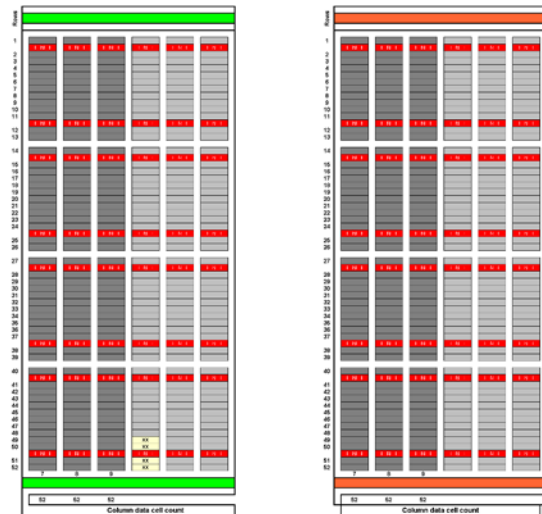
Front Wall

- 156 cartridge cells

Rear Wall

- 152 cartridge cells

Right Parking Expansion Module



Rear Wall

- 156 cartridge cells

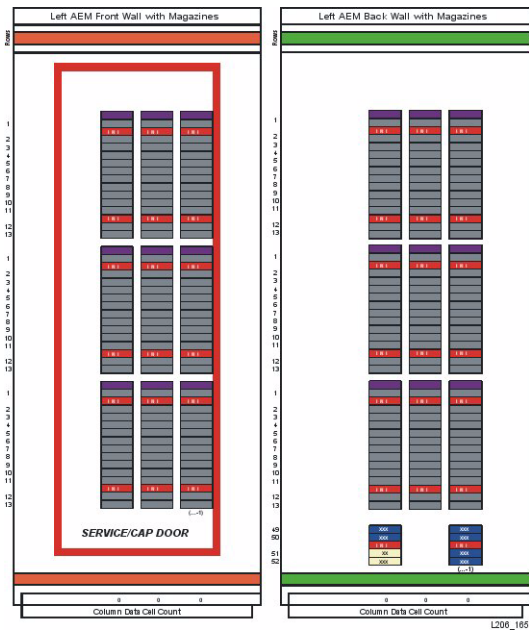
Front Wall

- 156 cartridge cells

Note – Six columns of arrays – three rear-wall and three front-wall – on both the left and right sides – are not accessible to allow for a defective robotics unit.

TABLE B-1 Access Expansion Module Walls

Left Access Expansion Module

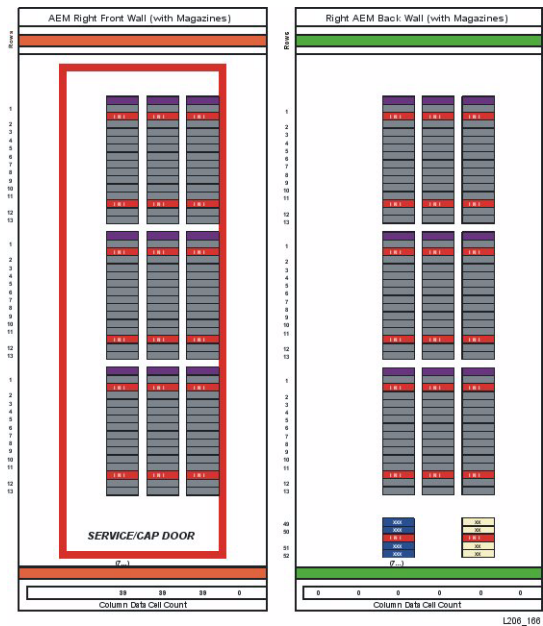


Front Wall

Rear Wall

- 117 AEM CAP cells
- 117 AEM CAP cells

Right Access Expansion Module



Rear Wall

Front Wall

- 117 AEM CAP cells
- 117 AEM CAP cells









Configuration Block

Each module in the SL3000 library has a configuration block on the lower rear wall in column 4, rows 49, 50, 51, and 52. This block identifies the:

- Type of module
- Back wall configuration
- Front wall configuration
- Options for that module

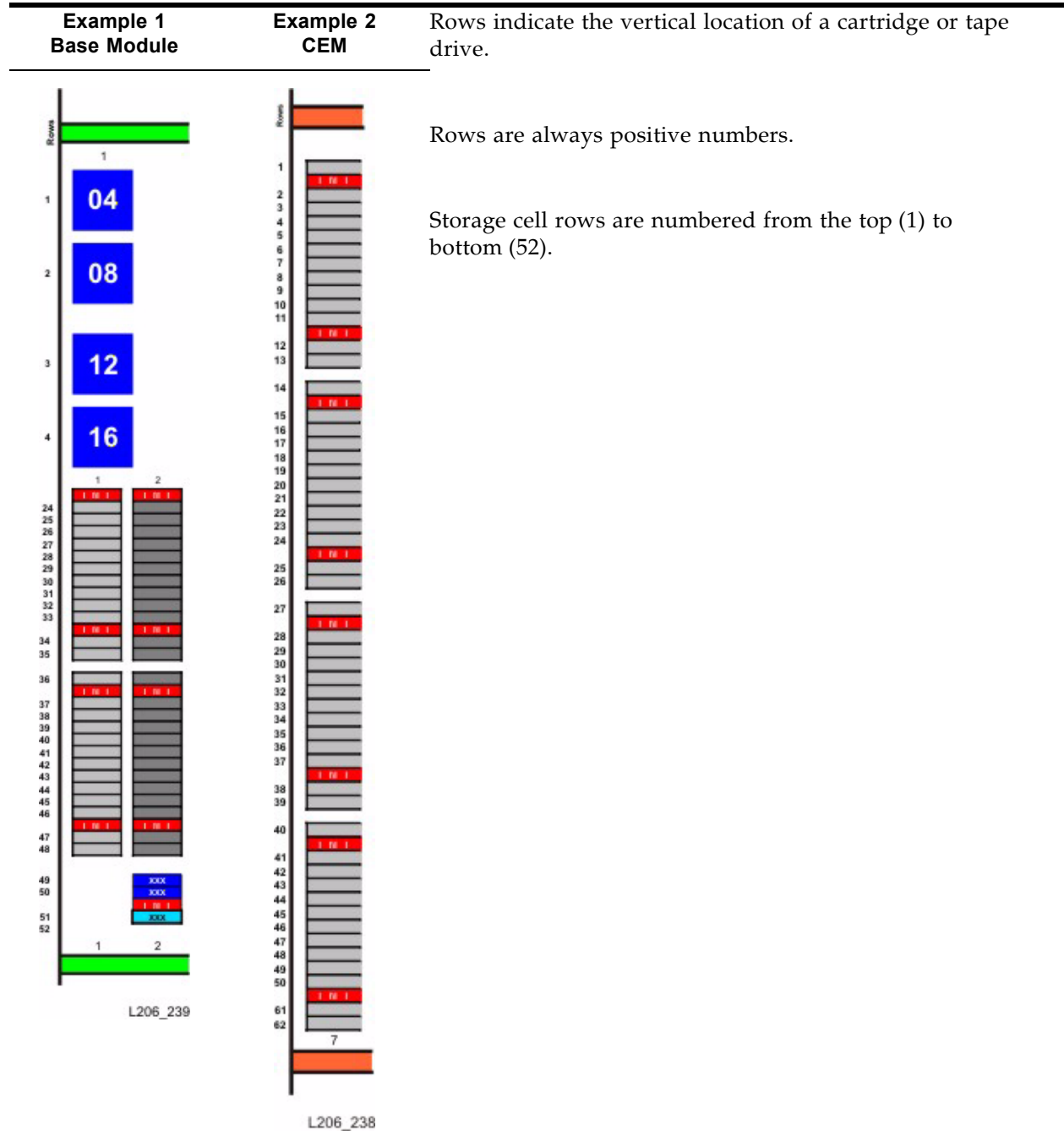
During library initialization, the robotic assembly visits this configuration block to determine the configuration of the module.

FIGURE B-5 Configuration Block

<p>BASE DRIVE MODULE 01</p>  	<p>Module types:</p> <ul style="list-style-type: none"> • Base Module • DEM • CEM • PEM • AEM
<p>BACK WALL : 1 DRV ARRAY = 8 DRIVES</p>  	<p>Back wall configuration:</p>
<p>FRONT WALL : CART ACCESS PORT</p>  	<p>Target</p> <p>Front wall configuration:</p>
<p>OPTION : OP PANEL OR WINDOW</p>  	<p>Options:</p> <ul style="list-style-type: none"> • Local operator panel • Window • Cartridge arrays

Row Numbering

FIGURE B-6 Row Numbering



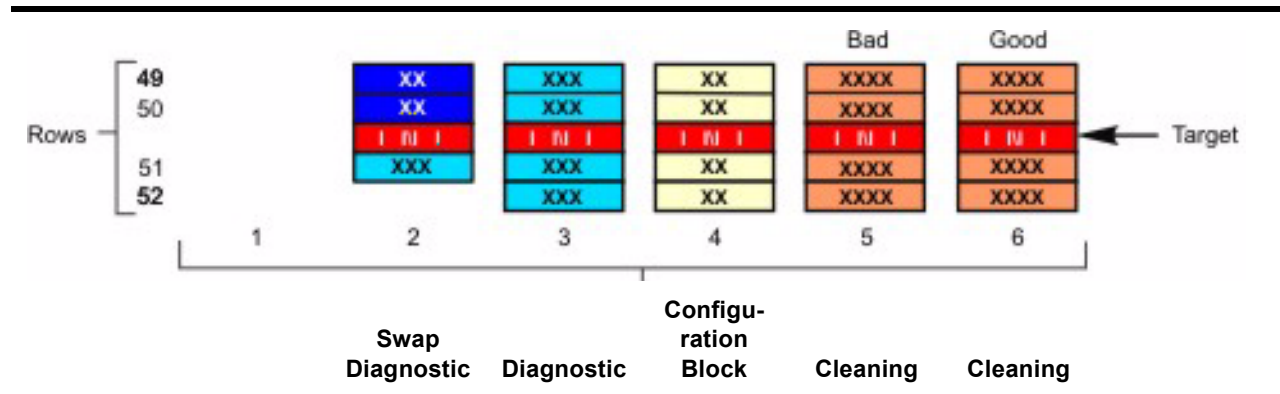
Reserved System Cells

Both the Base Module and the Drive Expansion Module have reserved system cells on the lower rear wall. These cells provide special functions for the library and tape drives.

FIGURE B-7 shows an example of these cells:

1. Swap cells (2) in column 2, rows 49 and 50.
2. Diagnostic cell (1) in column 2, row 51.
3. Diagnostic cell (4) in column 3, rows 49, 50, 51, and 52.
4. Configuration block in column 4, rows 49, 50, 51, and 52.
5. Cleaning cartridges (4) in column 5, rows 49, 50, 51, and 52.
6. Cleaning cartridges (4) in column 6, rows 49, 50, 51, and 52.

FIGURE B-7 Reserved system cells



Cartridge Handling

This appendix provides information on labeling and handling tape cartridges used in Oracle StorageTek libraries.

Cartridge Requirements

Library cartridges must meet specifications defined in *American National Standard Magnetic Tape and Cartridge for Information Interchange*. Refer to your drive vendor's publication and Web site for specific cartridge requirements and specifications.

Colored cartridges are approved only if the measured reflection density is greater than 0.1 as measured by an X-rite 404G color reflection densitometer. For more information about colored cartridges, contact your Oracle support representative

Colored measurements are:

Bandwidth	ANSI Status T Wide band (380 to 780 nm)
Measuring range	Density (0.00 to 2.50) D
Accuracy	±0.02 D
Repeatability	±0.01 D
Aperture diameter	3.4 mm (0.13in.)

For more information about colored cartridges, contact your Oracle support representative.

Valid Cartridge Labels

Library cartridges must be labeled with a valid external label. Several standard Code 39 bar code labels are supported by the library.

Note – Unlabeled cartridges are not supported. See [“Unlabeled Cartridges” on page 622](#).

Pre-labeled cartridges are available from Oracle Corporation. For information on ordering these cartridges, see [“Ordering Cartridges and Labels” on page 623](#).

If you do not order pre-labeled cartridges, see [“Apply a Label to a Cartridge” on page 624](#) for detailed instructions on labeling the cartridges correctly. Oracle does not supply cartridge labels. For a supplier of labels only, see [“Ordering Cartridges and Labels” on page 623](#).

To display detailed cartridge information, see the following procedures:

- [“Display Library Cartridge Information in Tabular Format” on page 427](#)
- [“List Library Cartridges” on page 430](#)

Media Domain and Media ID

The media domain and media ID together identify a cartridge’s media and usage to the library. They allow you to mix tape drive types and media types in a library. The media ID label corresponds to the tape drive or transport capable of using the cartridge. The media domain reflects the cartridge usage: data, cleaning, diagnostic.

Cleaning and Diagnostic Cartridges

Cleaning cartridges have CLN in the VOLID; diagnostic cartridges have DG in the VOLID

Each cleaning and diagnostic kit includes one labeled cleaning cartridge and one labeled diagnostic cartridge, with a volume ID (volume serial number or VOLID) of 0 for each. Extra cleaning and diagnostic labels are sent with each library.

Cleaning and diagnostic cartridges cannot be used as scratch cartridges or initialized by software utilities.

Caution – PROCEDURE ERROR: When you enter a cleaning cartridge, the software considers it to be new, and sets the usage counter to zero. DO NOT RE-ENTER A CLEANING CARTRIDGE THAT LIBRARY EJECTS THROUGH THE CAP.

Cartridge Codes

The SL3000 library supports the following types of barcode labels:

- For T9840 drives, 1/2-inch labels supplied by Trioptic (Engineered Data Products/Colorflex) or Tricode (American Eagle/Writeline). Both versions require a separate Media ID Type, which is one character.
- For T10000 drives, labels with eight characters, the last two of which are the required Media ID Domain and the Media ID Type characters.

- For LTO drives, labels with eight characters, the last two of which are the required Media ID Domain and the Media ID Type characters.

Oracle StorageTek Tape Drives and Cartridges

Cartridge labels for Oracle StorageTek T9840 (models C and D) and T10000 tape drives are listed in [TABLE C-1](#). These tape drives also support encryption.

TABLE C-1 Oracle StorageTek Cartridge Codes

Media ID	Cartridge Type	Drive Type
VOLID + R	Data	T9840
VOLID + R (Green background)	VolSafe Data	T9840C
VOLID + R (Purple background)	VolSafe Data	T9840D
VOLID + T1	Data	T10000 A/B
VOLID + T2	Data	T10000 C
VOLID + TS	Sport Data	T10000 A/B
DG (blank space) VOLID + R	Diagnostic	T9840
DG (blank space) VOLID + T1	Diagnostic	T10000 A/B
DG (blank space) VOLID + T2	Diagnostic	T10000 C
DG (blank space) VOLID + TS	Sport Diagnostic	T10000 A/B
CLN (blank space) VOLID + CC	Cleaning	T10000 C
CLN (blank space) VOLID + CL	Cleaning	T10000 A/B/C
CLN (blank space) VOLID + CT	Cleaning Sport Cleaning	T10000 A/B
CLN (blank space) VOLID + U	Cleaning	T9840 (all except T9840D)
CLN (blank space) VOLID + Y	Cleaning	T9840D

LTO Tape Drives and Cartridges

Note – LTO technology was initially developed by IBM, Hewlett-Packard, and Quantum. LTO is an “open format” technology, which means that users have multiple sources of product and media.

LTO cartridge labels have eight characters. The last two characters are the media ID (L3, L4, L5, LT, LU, or LV). CLN or DG are the first characters on the cleaning or diagnostic labels. LTO4 and LTO5 tape drives also support encryption.

Note –

TABLE C-2 LTO Cartridge Codes

Media ID	Type of Cartridge
L3	Generation 3 data cartridge
L4	Generation 4 data cartridge
L5	Generation 5 data cartridges
LT	Write once read many times (WORM)—400 GB, LTO Gen 3 drive only This feature prevents the user from altering or erasing information from the tape. For more information, go to your vendor Web site and do a search on WORM.
LU	Write once read many times (WORM)—800 GB, LTO Gen 4 drive only
LV	Write once read many times (WORM)— 1500 GB, LTO Gen 5 drive only
CLN (blank space) + CU	Universal cleaning cartridge Oracle recommends using the CLN + CU universal label instead of a vendor-unique label (CLN + C1 for Hewlett-Packard or CLN + C2 for IBM).
DG (blank space) + VOLID	Diagnostic cartridge (apply a DG label to a blank data cartridge to be used for library diagnostic tests)

Handling Cartridges

Improper handling of cartridges can result in a loss of data or damage to a library component. To handle a cartridge correctly:

- Do not carry several cartridges loosely in a container. The leader blocks can snag on other cartridges and become unlatched.

Note – LTO Ultrium cartridges have leader blocks. T9840 cartridges do not.

- Make sure that the leader block is latched every time you pick up a cartridge.
- Keep cartridges clean.
- Inspect a cartridge before each use and never put a damaged cartridge into a drive or library.
- Never release a leader block and pull tape from a cartridge.
- Never open a cartridge.
- Do not handle tape that is outside the cartridge; the tape edge might be damaged.
- Do not expose the tape or cartridge to direct sunlight or moisture.
- Do not expose a recorded cartridge to magnetic fields; this might destroy data on the tape.

Inspecting a Cartridge

A defective or dirty cartridge can damage a tape drive. Always inspect a cartridge before you insert it into a tape drive or a library. Look for:

- Cracked or broken cartridge
- Broken leader
- Broken leader latch
- Damaged write-protect switch
- Liquid in the cartridge
- Labels not firmly or neatly attached or extending over the cartridge edge
- Any other obvious damage

Inserting a Cartridge in a Drive or Cell

A defective or dirty cartridge can damage a drive. Always inspect a cartridge before you insert it into a drive or into a tape library. Look for:

- Cracked or broken cartridge
- Broken leader
- Broken tape access door
- Damaged file-protect selector or write-protect switch
- Liquid in the cartridge
- Labels not firmly attached or extending over the cartridge edge
- Any other obvious damage

A cartridge must be inserted in a storage cell, rotational or AEM CAP cell, or drive with the bar code on the bottom, and the VOLID readable from right to left. The cartridge hub must always be down.

Unreadable Cartridges

Cartridges may be identified as unreadable for the following reasons:

- [Unlabeled Cartridges](#)
- [Upside-Down Cartridges](#)

ELS and ACSLS automatically eject unreadable cartridges from the library. FC-SCSI hosts may not; an unreadable cartridge may be moved automatically to a CAP during library initialization.

Note – If a large number of cartridges are reported as unreadable, you may suspect a faulty TallBot camera or scanner. This could result in a large number of cartridges mistakenly ejected from the library.

Unlabeled Cartridges

Cartridges without external labels are not fully supported in the SL3000. Unlabeled cartridges will not be mounted on drives; however, they can be moved between CAPs and storage cells.

- If an unlabeled cartridge is placed in a CAP, the TallBot will leave the cartridge there. The cartridge's disposition depends on the host software.
- If an unlabeled cartridge is placed in a library storage cell, during an audit the cartridge will be reported as "unreadable, invalid media type." Depending on the host software, the cartridge may not be recognized by the host, or it may be ejected through the CAP.

Upside-Down Cartridges

Insertion of upside-down cartridges should never be attempted, especially for Oracle StorageTek cartridges. How the library handles this situation depends upon the cartridge type.

Oracle StorageTek Cartridges

Caution – Upside-down Oracle StorageTek T9840 and T10000 cartridges do not fit in library storage cells and may cause damage to the cartridge and the TallBot.

- If a Oracle StorageTek cartridge is placed upside-down in a CAP magazine, the CAP will not be able to close.
- If a Oracle StorageTek cartridge is placed upside-down in a library storage cell, the cartridge will extend from the storage cell and damage the TallBot.

LTO Cartridges

- If an LTO cartridge is placed upside-down in a CAP magazine, the TallBot will leave the cartridge there. The cartridge's disposition depends on the host software.
- If an LTO cartridge is placed upside-down in a library storage cell, during an audit the cartridge will be reported as "unreadable, invalid media type." Depending on the host software, the cartridge may not be recognized by the host, or it may be ejected through the CAP.

Maintaining Cartridges

The following section describes general maintenance guidelines for cartridges.

Cleaning the Cartridge Exterior

Caution – CARTRIDGE DAMAGE: Certain solvents can damage the cartridges. DO NOT USE ACETONE, TRICHLOROETHANE, TOLUENE, XYLENE, BENZENE, KETONE, METHYL ETHYL KETONE, METHYLENE CHLORIDE, ETHYLDICHLORIDE, ESTERS, ETHYL ACETATE, OR SIMILAR CHEMICALS TO REMOVE LABELS OR TO CLEAN CARTRIDGES.

Wipe all dust, dirt, and moisture from the cartridge with a lint-free cloth.

Use Oracle StorageTek Tape Cleaner Wipes to clean the cartridges. These wipes are saturated with isopropyl alcohol. Do not let any solution touch the tape or get inside the cartridge.

Repairing a Detached Leader Block

When an LTO Ultrium cartridge tape is damaged, use a backup tape if possible. If a cartridge leader block is detached, there is no backup tape, and the cartridge or tape has no obvious damage, you may repair the leader block using a repair kit provided by the tape supplier. You can use the tape one time to copy the data onto another tape.

Storing Cartridges

Following are guidelines for cartridge storage:

- Do not take a cartridge out of its protective wrapping until you are ready to use it. Use the tear string, not a sharp instrument, to remove the wrapping.
- Store cartridges in a clean environment that duplicates the conditions of the room in which they are used.
- Before using a cartridge, make sure that it has been in its operating environment for at least 24 hours.
- Archival storage is 1 to 10 years for 9840 cartridge tapes and 15 to 30 years for LTO Ultrium cartridge tapes.

Ordering Cartridges and Labels

Contact your authorized Oracle selling agent for labeled cartridges.

For cartridge labels, contact EDP/Colorflex at:

- Web site: <http://www.colorflex.com>

For technical questions, contact your Oracle support representative.

▼ Apply a Label to a Cartridge

Cartridge labels reflect the cartridge media and usage. If your cartridges were not ordered with labels already applied, you must apply them yourself. You must correctly label all cartridges for library use. Use labels that do not leave a residue when they are removed.

Caution – *Possible misread of volume number label:* Make sure the edges of the labels do not curl; curling causes the cartridges to stick in the tape drive loader and the robot to misread the label.

1. Make sure that the cartridge has been at room temperature for at least 24 hours.
2. Clean the surface where the label will be placed using a cleaning solution made for this purpose. See [“Cleaning the Cartridge Exterior” on page 623](#).
3. Locate the type of label that you need.

Note – Make sure that the label contains a VOLID.

4. Peel the backing from the cartridge label.
5. Hold the cartridge so that the write-protect switch is toward you.
6. Position the cartridge label with the bar-code characters *below* the alphanumeric characters. Press it into place.

Note – On LTO Ultrium cartridge labels, the alphanumeric characters can be either vertical or horizontal.

Note – The label must be within the indented area of the cartridge so that the edges of the label are parallel to the edges of the cartridge. The label should be close to the inside edge of the indented area but must *never* overlap the edge of this area.

7. If the cartridge has a customer label, place the label in the area and press it into place.
8. Repeat [Step 2](#) through [Step 6](#) for the media ID label.

Web-launched SL Console Server

Oracle's Web-launched SL Console server, which is a standard feature of the SL3000, enables the SL Console to be installed on a centralized Web server. Individual clients can use a supported Web browser to download and log in to the Web-launched SL Console server.

You download the server from the Oracle E-Delivery website. It is distributed as a Java WebARchive (.war) file. Once you have downloaded the file, you can deploy it on the Web server of your choice. See your Web server documentation for specific deployment instructions and requirements.

Security Considerations

The customer is responsible for implementing all appropriate security systems, including firewalls, user access, etc.

Updating the Web-launched SL Console Server

You can update the Web-launched SL Console server while it is running. Updates are automatically propagated to the clients when they retrieve the Web-launched SL Console application from the server.

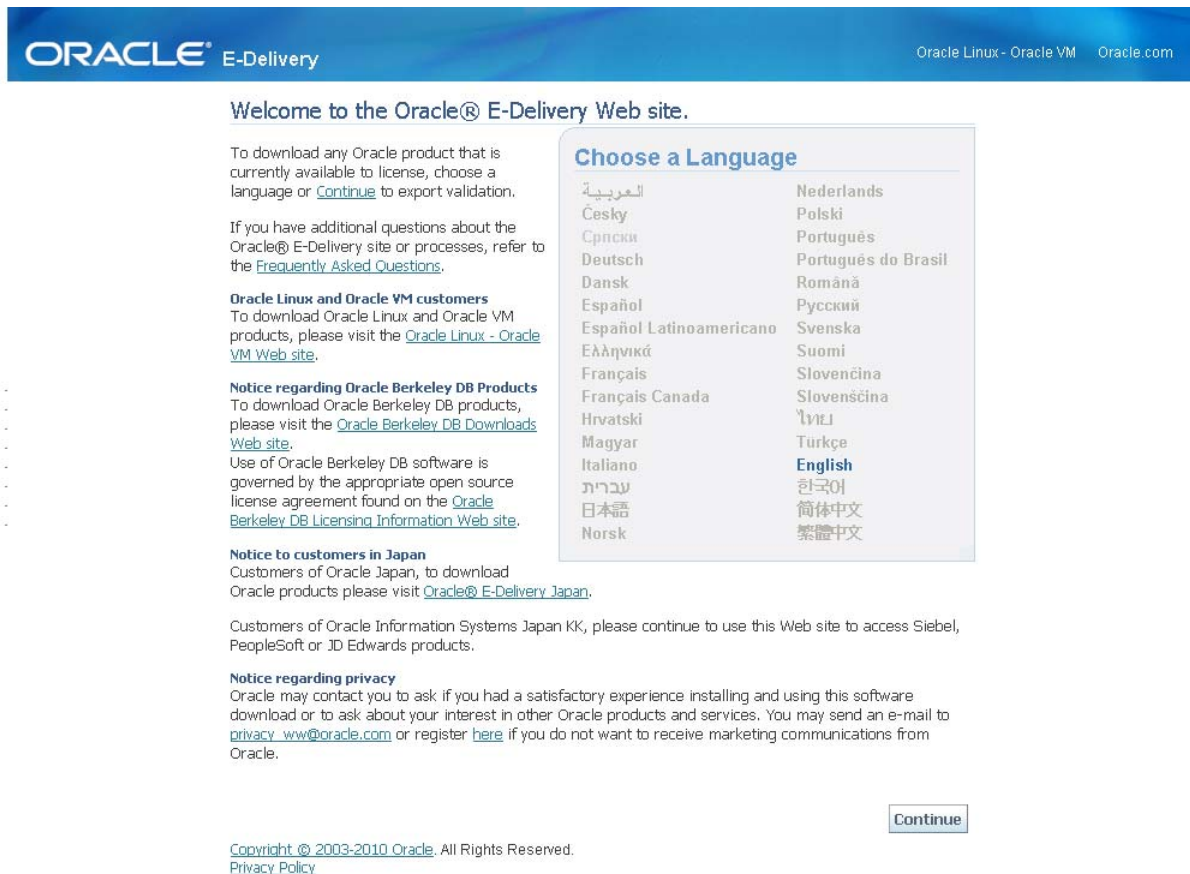
▼ Download the SL Console Media Pack

Use this procedure to download and extract the current SL Console Media Pack from the Oracle E-Delivery website. The Media Pack includes the Web-launched SL Console server, as well as the Web-launched SL Console client and the standalone SL Console.

Once you have completed this procedure, you can deploy the Web-launched SL Console server on the Web server of your choice. See your Web server documentation for specific deployment instructions and requirements.

1. **Start a Web browser on your PC or workstation, and navigate to the Oracle E-Delivery website at the following URL:**

<http://edelivery.oracle.com/>



The screenshot shows the Oracle E-Delivery website interface. At the top, there is a blue header with the Oracle logo and 'E-Delivery' text on the left, and 'Oracle Linux - Oracle VM Oracle.com' on the right. Below the header, the main content area is white. On the left side, there is a 'Welcome to the Oracle® E-Delivery Web site.' section with several paragraphs of text, including links to 'Continue', 'Frequently Asked Questions', 'Oracle Linux and Oracle VM customers', 'Notice regarding Oracle Berkeley DB Products', 'Notice to customers in Japan', and 'Notice regarding privacy'. On the right side, there is a 'Choose a Language' dialog box with a list of languages. The languages listed are: العربية, Nederlands, Cesky, Polski, Српски, Português, Deutsch, Português do Brasil, Dansk, Română, Español, Русский, Español Latinoamericano, Svenska, Ελληνικό, Suomi, Français, Slovenčina, Français Canada, Slovenščina, Hrvatski, ភាសាខ្មែរ, Magyar, Türkçe, Italiano, English, עברית, 한국어, 日本語, 简体中文, Norsk, 繁體中文. The 'English' option is highlighted in blue. Below the dialog box, there is a 'Continue' button. At the bottom of the page, there is a copyright notice: 'Copyright © 2003-2010 Oracle. All Rights Reserved. Privacy Policy'.

2. **Click Continue.**

3. **On the Export Validation screen, make the following entries:**

- Enter your contact information.
- Read the License Agreement and Export Restrictions, and click the check boxes to indicate your acceptance.

- Click Continue.

ORACLE E-Delivery Oracle Linux - Oracle VM Oracle.com

Export Validation Search Download

Export Validation

TIP Each time you visit this site, enter the information *exactly* the same. This will reduce the chance of long delays while processing your request. For example, if you include your middle initial one time but leave it out the next time, your name must be processed as a new user.

Need help? Look at our [Frequently Asked Questions](#).

Full name (FIRST LAST) * ⓘ
Example: John Doe

Company name *
Example: Oracle

E-mail address *

Country * - Select a country -

Note: * indicates a required field.

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4. On the Media Pack Search screen, make the following selections:

- In the **Select a Product Pack** pull-down, select **Oracle StorageTek Products**.
- In the **Platform** pull-down, select **Generic Platform**.

- Click Go.

ORACLE E-Delivery Logout Oracle Linux - Ora

Export Validation **Search** Download

Media Pack Search

Instructions

1. Review the [License List](#) to determine which Product Pack or Packs you need to download.
2. Select the Product Pack and Platform and click "Go".
3. If there is only one result, you will see the download page. If there are multiple results, select one and click "Continue".

Frequently Asked Questions

- [What is a Media Pack?](#)
- [How do I find the Media Pack that I need?](#)
- [How do I get my license code?](#)
- [More...](#)

Select a Product Pack ⓘ

Platform

Results

Select	Description	Release	Part Number	Updated	# Parts / Size
*** No search conducted ***					

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5. All media packs meeting your selection criteria are displayed in the Results section of the screen. Select the SL Console version you want to download. Click Continue.

Media Pack Search

Instructions

1. Review the [License List](#) to determine which Product Pack or Packs you need to download.
2. Select the Product Pack and Platform and click "Go".
3. If there is only one result, you will see the download page. If there are multiple results, select one and click "Continue".

Frequently Asked Questions

- [What is a Media Pack?](#)
- [How do I find the Media Pack that I need?](#)
- [How do I get my license code?](#)
- [More...](#)

Select a Product Pack ⓘ

Platform

Results

Select	Description	Release	Part Number	Updated	# Parts / Size
<input checked="" type="radio"/>	Oracle StorageTek Library Console (SLC) (v.4.75.0) Media Pack for Generic Platform	4.75.0.0.0	B62036-01	DEC-27-2010	1 / 358M
<input type="radio"/>	Oracle StorageTek Library Console (SLC) (v.4.67.0) Media Pack for Generic Platform	4.67.0.0.0	B62035-01	DEC-27-2010	1 / 359M
<input type="radio"/>	Oracle StorageTek Virtual Operator Panel (VOP) v.1.0.16.0.0 Media Pack for Generic Platform	1.0.16.0.0	B62146-01	JAN-05-2011	1 / 17M
<input type="radio"/>	Oracle StorageTek SL500 Hardware Activation Files Media Pack for Generic Platform	1.0.0.0.0	B62148-01	JAN-05-2011	4 / 3.0K

Total: 4

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6. On the specific media pack screen, review the information to verify that you have selected the correct media pack. Click Download.

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Export Validation Search **Download**

Oracle StorageTek Library Console (SLC) (v.4.75.0) Media Pack for Generic Platform

[Back](#) [Search Again](#)

TIP View the Readme file(s) to help decide which files you need to download.

Print this page with the list of downloadable files. It contains a list of the part numbers and their corresponding description that you may need to reference during the installation process.

Oracle StorageTek Library Console (SLC) (v.4.75.0) Media Pack v1 for Generic Platform

[Readme](#) [View Digest](#)

Select	Name	Part Number	Size (Bytes)
<input type="button" value="Download"/>	Oracle StorageTek Library Console (SLC), version 4.75	V24226-01	358M

Total: 1

Download Notes

Before You Download:

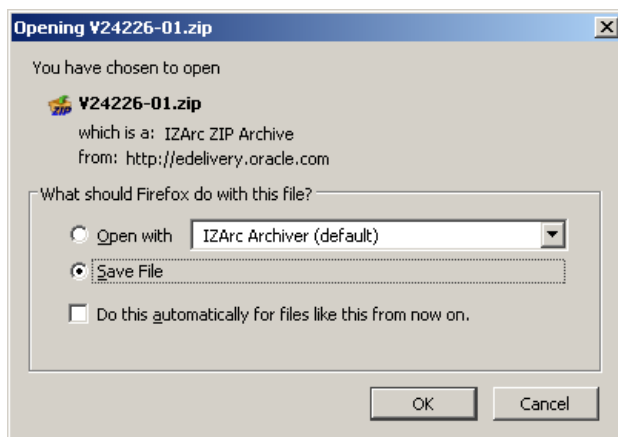
To ensure that you download the files successfully, first review the Media Pack Readme for download instructions and product information by clicking on the 'Readme' button.

Frequently Asked Questions

- [How do I know which files are required?](#)
- [What are the disk space requirements?](#)
- [How do I get my license code?](#)
- [More...](#)

7. In the popup, click Save File to save the media pack to your PC or workstation. Click OK.

Note – This process may take several minutes.



8. Use the appropriate extraction utility (for example, gunzip, pkunzip) to extract the media pack to the location of your choice.

The Web-launched SL Console server filename is `ope1.war`, located in the `Weblaunch` directory.

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