



SymplyPRO XTL 40 Tape Library User Guide

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If you have any support questions that are not addressed in this document, then please check our extensive FAQs or submit a support ticket on our support site.

Your feedback is important to us, so please let us know what you think of our products via email hello@gosymply.com.



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Table of Contents

Regulatory Information.....	10
Recycling and Disposal	10
FCC (United States)	11
Perchlorate warning.....	11
Canadian Verification	11
CE Mark	12
CCL Mark	12
Warnings and Symbols.....	13
Electrostatic Discharge	14
Preventing Electrostatic Damage	14
Grounding Methods	14
Document Revision.....	15
About this guide.....	15
COPYRIGHT STATEMENT	15
Introduction	16
Supported Library Configurations - Rackmount	17
Supported Library Configurations – Tabletop.....	20
Supported Module Configurations with Drive Sleds.....	20
Preparing the host.....	21
SymplyPRO XTL 40 Hardware Overview	22
SymplyPRO XTL 40 Base Module Part Numbers	22
Physical Specifications SymplyPRO XTL 40	22
Environmental Specifications SymplyPRO XTL 40	23
Transport and Storage of Library and Data Cartridge	24
Acclimatization Time for Library and Data Cartridge.....	25
LTO Drive and Data Cartridge Compatibility Guide.....	25
LTO-9 Media Optimization	26
SymplyPRO XTL 40 Front View	27
Operator Control Panel (OCP)	28
OCP LEDs Guide.....	28
OCP Button Guide	29
SymplyPRO XTL 40 Rear View	30
SAS Drive Sleds Rear Panels	31
Fibre Channel Drive Sleds Rear Panels.....	31
XTL Ethernet Module	32

XTL Thunderbolt Module	33
XTL Power Supply LEDs	34
Library Module Numbering – Logical Elements	35
Installing the XTL 40 Library	36
Location Requirements	36
SAS Configuration Requirements	37
Fibre Channel Configuration Requirements	38
iSCSI Configuration Requirements	39
iSCSI Host System Requirements	40
Thunderbolt Configuration Requirements	41
Thunderbolt Host System Requirements	41
Planning Module and Rack Layout	42
Internal IP Range Selection	42
Host Preparation	43
Installation Precautions	44
What's in the box?	45
SymplePRO XTL 40 Base Module Kit	45
SymplePRO XTL 40 Expansion Module Kit	45
Unpacking the SymplePRO XTL 40 Base Module & Expansion Modules	46
Preparing Top and Bottom Modules	49
Installing Modules in a Rack	53
Aligning and Connecting Modules	57
Installing Tabletop Modules	59
Installing Tape Drives	60
Connecting Fibre Channel Cables	60
Connecting SAS Cables	61
Installing XTL Ethernet Module	62
Installing XTL Thunderbolt Module.	64
Installing Windows Library and Tape Drivers	67
Powering On the Library	68
Using the Configuration Wizard	69
Verifying the Host Connection	69
Loading Tape Cartridges	70
Labeling Tape Cartridges	70
Using the Mailslot	71
Bulk Loading Magazines	73

Verifying the Installation	74
Configuring Additional Features	74
Tape Cartridges and Magazines	75
Using and Maintaining Tape Cartridges	75
Labeling Tape Cartridges	76
Write Protecting Tape Cartridges.....	77
Read and Write Compatibility.....	77
Initial Setup of the SymplyPRO XTL 40 Library	78
Library Interfaces:	78
OCP operating philosophy:.....	78
Default Usernames & Passwords	79
RMI Username and Passwords.....	79
OCP Username and PIN.....	79
Using the OCP	80
OCP Front Panel Buttons	80
OCP Front Panel LED Indicators	80
Using the RMI	81
Using the Initial Configuration Wizard on the OCP	81
Operating the Library using the Operator Panel	82
OCP login	83
Magazine Buttons	84
Operations – OCP	85
Moving Cartridge from Drive to Home Slot	85
Move Media	86
Inventory Scan.....	87
Configuration via OCP.....	88
Initial System Setup via OCP	88
Date & Time	91
Network Settings.....	92
Drive Power On/Off	92
User Accounts	93
User Accounts Password Recovery.....	95
Save/Restore	95
Maintenance via OCP	101
Library Tests	101
View Events	104

Drive Logs Download	105
Library Logs Download	106
Upgrading Drive Firmware	106
Library Firmware Upgrade	107
LCD Adjustment	108
SSH (Secure Shell)	108
Status Information via OCP	109
Network Settings	110
Library Status	111
Drive Status	112
Logout of the OCP	113
Operating the library using the RMI	114
Using the Library main screen on the RMI	114
Top Banner Elements	115
Left Pane Elements	116
Centre Pane Elements	118
Configuring the Library on the RMI	119
Saving, Restoring and Resetting the Library Configuration	119
Configuring the Date and Time Format	120
Configuring Media Barcode Compatibility Checking	123
License Key Handling	124
Configuring the Library Network Settings	125
Configuring Tape Drives	128
Enabling or Disabling Mailslots	130
Configuring Web Management	130
Configuring Network Management	133
Configuring Encryption	142
Configuring User Accounts	144
Maintaining the Library using the RMI	152
System Test	152
Slot to Slot Test	152
Element to Element Test	154
Position Test	155
Wellness Test	156
Robotic Test	157
OCP Test	157

Viewing Log Files	158
Managing System Firmware	159
Managing Drive Firmware.....	160
Downloading Support Tickets	161
Downloading Log and Trace Files	162
Rebooting the Library.....	162
Rebooting Drives	163
Controlling the Unit Identification (UID) LEDs	163
Moving the Robotic to the Base Module	164
Operating the Library on the RMI	165
Moving Media	165
Opening a Magazine	167
Cleaning a Tape Drive	168
Rescanning the Cartridge Inventory	168
Forcing a Drive to Eject a Cartridge	169
Using the LTO-9 New Media Initialization (Optimization) Wizard	170
Viewing Status Information on the RMI	171
Viewing Library and Module Status	171
Using Inventory Lists.....	174
Using Inventory Graphical View	176
Using Partition Map Configuration Status.....	181
Viewing Drive Status	182
Viewing Network Status	183
Viewing Security Status	184
Upgrading and Servicing the Library	185
Identifying a Failed Component	185
Installing or Replacing a Tape Drive	185
Removing a Tape Drive	186
Removing a Drive Bay Cover.....	186
Installing a Tape Drive.....	186
Connecting the SAS Cable.....	186
Connecting the Fibre Channel Cables	187
Configuring the FC Interface	187
Verifying the Installation.....	187
Adding an Expansion Module	188
Overview of adding Expansion Module	189

Powering Off the Library	189
Moving a Cover to the New Module.....	189
Installing the Module in the Rack.....	189
Aligning and Connecting the Module.....	189
Verifying the Installation and Configuration.....	189
Moving the Library	190
Replacing a Power Supply	191
Identifying the Failed PSU Component.....	191
Preparing to Remove the Power Supply	191
Removing the Power Supplies	192
Installing the New Power Supply	192
Verifying the Power Supply Installation and Operation	192
Replacing a Controller Board	193
Identifying the Controller Board	193
Saving the Configuration	193
Powering Off the Library.....	193
Preparing to Remove the Base or Expansion Module Controller.....	194
Removing the Base or Expansion Module Controller	194
Installing the Base or Expansion Module Controller	194
Verifying the Base or Expansion Module Controller Installation	194
Powering On the Library	195
Installing or Replacing a Power Module.....	195
Identifying the Failed Power Module	195
Powering Off the Library.....	195
Preparing to Remove the Power Module.....	195
Removing the Library/Expansion Controller Power Module	196
Installing the New Power Module	196
Powering On the Library	196
Verifying the Power Module Installation	196
Replacing a Module (Base or Expansion)	197
Overview of replacing a Base or Expansion Module	198
Saving the Configuration	198
Unlocking the Magazine	198
Removing the Tape Cartridges.....	199
Powering Off the Library.....	199
Removing the Module Cables	199

Removing the Tape Drives	199
Removing the Power Supplies	200
Removing the Base or Expansion Module Controller	200
Removing the Module from the Rack	201
Moving Library Cover Plates.....	202
Installing the Module into the Rack	203
Replacing the Module Components and Cables.....	203
Verifying the Library Configuration	203
Replacing the Robotic Assembly and Spooling Mechanism	204
Powering Off the Library	204
Preparing to Remove the Robotic Assembly and Spooling Mechanism from the Base Module	204
Removing the Robotic Assembly and Spooling Mechanism from the Base Module.....	206
Re-Installing the Robotic Assembly and Spooling Mechanism into the Base Module ..	209
After the Robotic Assembly and Spooling Mechanism Installation.....	212
Powering On the Library	212
Verifying the Installation.....	212
Replacing the Front Bezel or OCP	213
Powering Off the Library	213
Removing the Bezel	213
Installing the Bezel	213
Powering On the Library	213
Library Troubleshooting	214
Fibre Channel Connection Problems	214
SAS detection problems after installing a drive	215
Operation Problems	216
Power Problems	216
Failure/Attention Indications Displayed on the Front Panel	217
Tape Movement Problems	218
Media Problems	219
Attention LED (On)	220
Inventory Problems	221
RMI Network Connection Issues.....	221
Cleaning Problems.....	221
Performance troubleshooting	222
Average File Size	222

File storage system.....	222
Connection from the host to disk storage.....	223
Backup/archive Server	223
Backup/archive software and method	223
Connection from the host to the library.....	224
Media	224
Finding Event Information	224
Unlocking the Magazine	224
Using the Magazine Unlock Button.....	224
Using the RMI to Unlock a Magazine.....	225
Using the Magazine Manual Release	225
Unloading a Stuck Tape.....	226
Returning the Robotic Assembly to the Base Module.....	226
The Robotic Assembly is stopped in an Expansion Module that is near the Base Module or is Stopped Directly between Two Modules.....	227
The Robotic Assembly is stopped in an Expansion Module that is not near the Base Module, or it Cannot Move Vertically	228
Running Library Tests	229
Acronyms and Abbreviations	230
Event Codes	231
Error Event Codes	231
Warning Event Codes.....	242
Configuration Change Event Codes	253
Informational Event Codes	257
Warranty Information.....	259

Regulatory Information

This section describes the tape library compliance with safety and regulatory agency standards



IMPORTANT

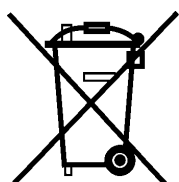
- The SymplyPRO XTL 40 library must be installed in a restricted area.
- Only personnel with technical and product safety training shall have access to the library.
- Access should be using a tool, lock and/or key, or other means of security, and is controlled by the authority responsible for the location.
- To comply with the regulations and standards, the library needs to be properly installed in an office or industrial environment with shielded cables and adequate grounding of SAS interface and input power.

Recycling and Disposal



NOTE

Disposal of waste equipment by users in private household in the European Union and Norway.



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at this time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

FCC (United States)

The computer equipment described in this manual generates and uses radio frequency (RF) energy. If the equipment is not installed and operated in strict accordance with the manufacturer's instructions, interference to radio and television reception might result.



**Tested To Comply
With FCC Standards**

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Part 15, Class A, of the FCC Rules, is designed to provide reasonable protection against radio and television interference in a residential installation. Although the equipment has been tested and found to comply with the allowed RF emission limits, as specified in the above cited Rules, there is no guarantee that interference will not occur in a particular installation. Interference can be determined by turning the equipment off and on while monitoring radio or television reception. The user may be able to eliminate any interference by implementing one or more of the following measures:

- Reorient the affected device and/or its receiving antenna.
- Increase the distance between the affected device and the computer equipment.
- Plug the computer and its peripherals into a different branch circuit from that used by the affected device.
- If necessary, consult an experienced radio/television technician for additional suggestions.

Perchlorate warning

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. www.dtsc.ca.gov/hazardouswaste/perchlorate".

Canadian Verification

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations (ICES-003, Class A)

CE Mark



The CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area (EEA). The CE marking certifies that a product has met EU consumer safety, health or environmental requirements.

CCL Mark



CSA C22-2 No. 60950-1 – Electrical safety – UL 60950-1
68475

Warnings and Symbols



IMPORTANT

All safety and operating instructions should be read before this product is operated and should be retained for future reference. This unit has been engineered and manufactured to assure your personal safety. Improper use can result in potential electrical shock or fire hazards. In order not to defeat the safeguards, observe the following basic rules for its installation, use and servicing.



DANGER

High voltage!

Risk of electric shock.

Do not remove cover (or back). No user-serviceable parts inside.
Refer servicing to qualified service personnel.



1 800 888 8888



39 - 66 lbs
18 - 30 kg

DANGER

A danger condition due to the weight of the unit. Weight symbols are accompanied by an approximation of the product's weight.



CAUTION

A discharge of static electricity can damage static-sensitive devices or micro circuitry. Proper packaging and grounding techniques are necessary precautions to prevent damage.



NOTE

Provides additional information.

Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

Topics include:

- Preventing electrostatic damage
- Grounding methods

Preventing Electrostatic Damage

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly. See the next section.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm (± 10 percent) resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.



NOTE

For more information on static electricity, or assistance with product installation, contact your authorized reseller.

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Library Firmware: 2.2.0-B000

About this guide

This guide is intended for system administrators and general users who need physical and functional knowledge of the SymplyPRO XTL 40 3U Modular Library.

This guide provides information about:

- Installing the SymplyPRO XTL 40 3U Library & Expansion Modules
- Configuring and operating the SymplyPRO XTL 40 3U Library
- Troubleshooting the SymplyPRO XTL 40 3U Library
- Upgrading and servicing the SymplyPRO XTL 40 3U Library
- Installing via the Optional Remote Management Unit (RMU)
- Installing the XTL Ethernet Module
- Installing the XTL Thunderbolt Module



WARNING

- Only trained personnel should operate this equipment.
- Read all documentation and procedures before installation or operation.
- The SymplyPRO XTL 40 must only be installed in a controlled area.
- Only personnel with technical and product safety training should be provided access to the library.
- For safety reasons the default administrator PIN on the Operator Control Panel needs to be changed during initial configuration.
- Do not insert any tools or any parts of your body into drive bay openings or any other openings of an operating system.

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Introduction

SymplePRO XTL-40 is a highly scalable, 3U modular tape library designed for growing datasets. Every deployment starts with the 3U Base Module, providing 40 cartridge slots and drive capacity for **up to three half-height LTO drives (or one full-height LTO drive)**. Drives may be SAS or Fibre Channel (FC). Alternatively, the Base Module can host a **SymplePRO XTL Ethernet Module** with dual **10 GbE (iSCSI)** that bridges up to four SAS tape drives; the Ethernet Module occupies one drive bay.

Capacity and performance scale linearly with additional 3U Expansion Modules. Each Expansion Module adds **40 cartridge slots** and supports **up to three half-height LTO drives, or one full-height LTO drive**. Up to **15** Expansion Modules can be attached to a single Base Module—for a maximum of **640 cartridges** and **48 half-height (or 16 full-height)** LTO drives.

For connectivity, SymplePRO XTL presents a **single target ID per drive with dual LUNs—LUN 0** for the tape drive and **LUN 1** for the library robotics. Use an HBA/initiator that supports **multiple LUNs (LUN scanning)**; if LUN scanning is disabled, the host will enumerate only LUN 0 and will see the drive but not the library.

SymplePRO XTL-40 integrates with environments that support **SAS, FC, iSCSI** (via the XTL Ethernet Module), or **Thunderbolt** (via the XTL Thunderbolt Module). Full feature access requires either native OS support or a compatible backup/archive application.

Supported Library Configurations - Rackmount

All SymplyPRO XTL-40 libraries start with a **Base Module**. You can add up to **15 Expansion Modules** as needed (maximum **7 above** and **8 below** the Base Module).

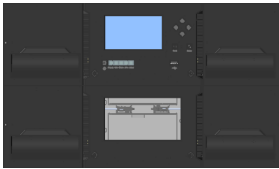
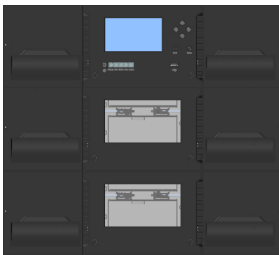
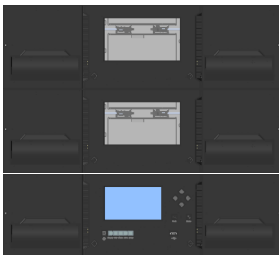
The Base Module is depicted by the following image with the Operator Control Panel (OCP) shown in blue:

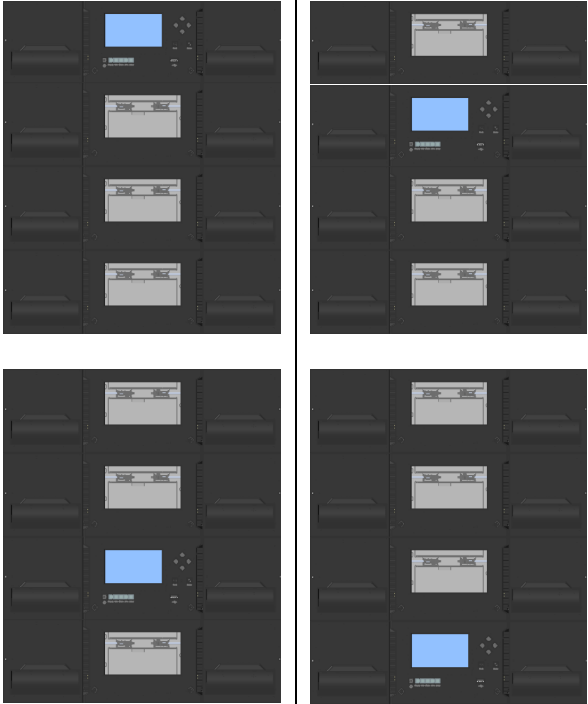


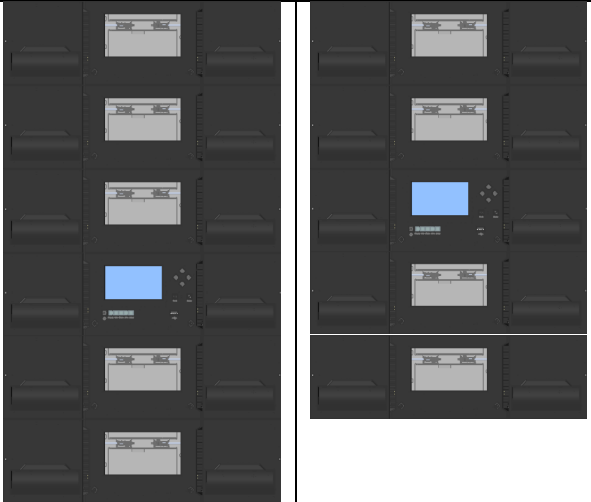
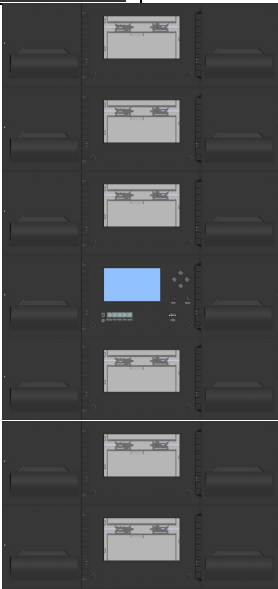
Each Expansion Module is represented by the following image with a large clear viewing window in the middle.



The table shows the supported configurations for libraries ranging from one to fourteen total modules:

Module Configuration	Base Module	Expansion Module	Module Location	
1 Module Library	1	n/a		
2 Module Library	1	1		
3 Module Library	1	2		

Module Configuration	Base Module	Expansion Module	Module Location	
4 Module Library	1	3		
5 Module Library	1	4		

Module Configuration	Base Module	Expansion Module	Module Location
6 Module Library	1	5	
7 Module Library	1	6	
8 Module Library	1	7	3 Expansion Modules above and 4 Expansion Modules below Base Module
9 Module Library	1	8	4 Expansion Modules above and 4 Expansion Modules below Base Module
10 Module Library	1	9	4 Expansion Modules above and 5 Expansion Modules below Base Module
11 Module Library	1	10	5 Expansion Modules above and 5 Expansion Modules below Base Module
12 Module Library	1	11	5 Expansion Modules above and 6 Expansion Modules below Base Module
13 Module Library	1	12	6 Expansion Modules above and 6 Expansion Modules below Base Module
14 Module Library	1	13	6 Expansion Modules above and 7 Expansion Modules below Base Module
15 Module Library	1	14	7 Expansion Modules above and 7 Expansion Modules below Base Module
16 Module Library	1	15	7 Expansion Modules above and 8 Expansion Modules below Base Module

Supported Library Configurations – Tabletop

One SymplyPRO XTL 40 base module can be installed in a tabletop configuration, although this is not recommended. The Base Module requires 123cm (4 feet) to avoid damage to the surface and avoid slippage of the module on the surface.

Module Quantity	Supported Library Configurations
1 Module Library Base Module	

Supported Module Configurations with Drive Sleds

Module Type	Number of Power Supplies	Number of Half-Height Tape Drives
Base	1 (Non-Redundant)	1 – 3
	2 (Redundant)	1 – 3
Expansion	0 (not required without installed tape drives)	0
	1 (Required with 1 or more drives, Non-Redundant)	1 – 3
	2 (Redundant)	1 – 3

Module Type	Number of Power Supplies	Number of Full-Height Tape Drives
Base	1 (Non-Redundant)	1
	2 (Redundant)	1
Expansion	0 (not required without installed tape drives)	0
	1 (Required with 1 or more drives, Non-Redundant)	1
	2 (Redundant)	1

Preparing the host

For the best experience with SymplyPRO XTL, make sure your host server or workstation is correctly configured. Symply recommends the following:

- **Use an appropriate HBA/NIC for the target throughput.** Fit a SAS, Fibre Channel (FC), or Ethernet (iSCSI) HBA/NIC capable of sustaining the library's maximum burst transfer rate for your chosen drive configuration.
- **Verify software compatibility.** Confirm that your data-protection application supports the specific SAS/FC/iSCSI adapter and the connected LTO drives/library.
- **Enable LUN scanning and TLR.** Install an HBA that supports LUN scanning and Transport Layer Retries (TLR). LUN scanning is required for the host to discover the library robotics as a separate LUN.
- **Avoid SCSI ID conflicts.** Depending on your server and adapter topology, you may need to adjust SCSI target IDs so each drive and the library are uniquely addressable.
- **Install the correct drivers and components.** After powering on the host, install HBA/NIC drivers and any vendor utilities, plus any application plug-ins or licences required to communicate with the library robotics.
- **Confirm OS detection.** Check that the operating system recognises both the tape drive(s) **and** the library (medium changer/robotics).



TIP

SymplyPRO XTL presents a single target ID per drive with dual LUNs: LUN 0 = tape drive, LUN 1 = library robotics. If LUN scanning is disabled, the host will only see LUN 0 (the drive) and not the library.

For detailed steps on verifying connections and enabling LUN scanning/TLR, consult your HBA and operating-system documentation.



IMPORTANT

Some host adapters that are also RAID controllers do not support tape libraries. It is important that the host adapters support TLR.

Symply recommend ATTO SAS, Fibre Channel and Ethernet Host Adapters, they are available from Symply and our authorized resellers.

SymplyPRO XTL 40 Hardware Overview

SymplyPRO XTL 40 Base Module Part Numbers

Part Numbers	Drive Generation	Host Interface	Maximum Native Data Transfer per Drive
SYXTL-C40S1L7H2	LTO-7	2 x 6Gb SAS SFF-8088	300MB/Sec
SYXTL-C40S1L8H2	LTO-8	2 x 6Gb SAS SFF-8088	300MB/Sec
SYXTL-C40S2L9H2	LTO-9	2 x 12Gb SAS SFF-8644	300MB/Sec
SYXTL-C40S2L9F1	LTO-9	2 x 12Gb SAS SFF-8644	400MB/Sec
SYXTL-C40S2LAF1	LTO-10	2 x 12Gb SAS SFF-8644	400MB/Sec
SYXTL-C40F1L7H2	LTO-7	2 x 8Gb FC LC	300MB/Sec
SYXTL-C40F1L8H2	LTO-8	2 x 8Gb FC LC	300MB/Sec
SYXTL-C40F1L9H2	LTO-9	2 x 8Gb FC LC	300MB/Sec
SYXTL-C40F1L9F1	LTO-9	2 x 8Gb FC LC	400MB/Sec
SYXTL-C40F2LAF1	LTO-10	2 x 32Gb FC LC	400MB/Sec
SYXTL-ME1BD04B	n/a	2 x 10GbE LC	2 x 10Gb/Sec
SYXTL-MT3BD08B	n/a	2 x Thunderbolt 3	1 x 22Gb/Sec

Physical Specifications SymplyPRO XTL 40

Characteristic	Description
Rack requirements per Module	Standard 19-inch rack with 3U of clearance
Number of Slots per Module	40
Drive Form Factor	Half-Height or Full-Height
Number of HH Drives per Module	1 –to- 3
Number of FH Drives per Module	1
Drive Interface	• SAS • Fibre Channel • iSCSI (XTL Ethernet Module) • Thunderbolt (XTL Thunderbolt Module).
MSBF w/o drive	2,000,000
Dimensions (H x W x D)	132.2 x 475 x 892 mm (~5.20 x 18.70 x 35.12 in)
Clearance Front	308 mm (~12.1 in) for mailslot access 600 mm (~ 23.6 in) for magazine removal
Clearance Rear	154 mm (~ 6 in)
Clearance Side	51 mm (~ 2 in)
Power Supply	Single Module 300W Gold 80 Plus (110v – 240 VAC 50-60 Hz))
Weight Base Module Without Media & Drives	20 Kg (44.09 lb)
Weight Expansion Module Without Media & Drives	14 Kg (30.86 lb)

Environmental Specifications SymplyPRO XTL 40

Environmental Factor	Recommended	Allowable	Non-Operating
Dry-Bulb Temperature	LTO-9 and LTO-10: 15 to 25 °C (59 to 77 °F) LTO-7 and LTO-8: 16 to 25 °C (61 to 77 °F)	LTO-9 and LTO-10: 15 to 30 °C (59 to 86 °F) LTO-7 and LTO-8: 16 to 30 °C (61 to 86 °F)	5 to 35°C (41 to 95°F)
Relative Humidity	LTO-9 and LTO-10: 20 to 50% (non-condensing) LTO-7 and LTO-8: 20 to 50% (non-condensing)	LTO-9 and LTO-10: 20 to 50% (non-condensing) LTO-7 and LTO-8: 20 to 50% (non-condensing)	20 to 80% (non-condensing)
Maximum Temperature Change	5 °C (41°F) / hour	5 °C (41°F) / hour	5 °C (41°F) / hour
Maximum Humidity Change	5% / hour	5% / hour	5% / hour
Temperature Limitation for Humidity Conditions	LTO-9 and LTO-10: Max Dew Point 22 °C (72 °F) LTO-7 and LTO-8 Wet Bulb Temperature <= 26 °C (79 °F)		
Maximum Altitude	3,048 m (10,000 ft)	3,048 m (10,000 ft)	12,192 m (40,000 ft)
Dust concentration	Less than 200 microgram / cubic metre		

Transport and Storage of Library and Data Cartridge

Condition	Environmental Specification
Short-term Storage condition	See operating conditions
Long-term Storage condition	See operating conditions
Shipping Conditions	5 to 45 °C (41 to 113 °F); 10% to 80% non-condensing. RH; 26 °C (72 °F) dew point maximum



IMPORTANT

Data cartridges stored at a temperature in excess of 52°C (125.6 °F) may suffer permanent damage. It is important that both temperature and humidity should be kept constant, as rapid changes in either are not good for the data cartridges or LTO drives.

Acclimatization Time for Library and Data Cartridge

Acclimatisation is required if the SymplyPRO XTL has been stored or transported at a different temperature to the operating environment. As a baseline, allow **four hours** after unpacking for the library to reach ambient temperature.

If there is **no risk of condensation** (i.e., the air is dry and the unit is above the local dew point), you may bring the unit up to temperature more quickly by **powering it on for ~30 minutes** before use. Do **not** load tapes until the unit has stabilised.

If the SymplyPRO XTL is **hotter than the maximum operating temperature (30 °C / 86 °F)**, there is a risk that tape may adhere to the read/write head. In this case, allow the library and drives to **cool back within the operating range** before use.

For best results, store the SymplyPRO product **and** its LTO data cartridges **together for 24 hours** in the environment where they will be used. This helps temperature and humidity equalise, ensuring proper acclimatisation.

!	IMPORTANT	Avoid rapid moves from cold to warm, humid environments. If in doubt, extend the acclimatisation time to prevent condensation.
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LTO Drive and Data Cartridge Compatibility Guide

	LTO-5 Data Cartridge	LTO-6 Data Cartridge	LTO-7 Data Cartridge	LTO-8 Data Cartridge	LTO-9 Data Cartridge	LTO-10 Data Cartridge
SymplyPRO LTO-7	Read Only	Read & Write	Read & Write	n/a	n/a	n/a
SymplyPRO LTO-8	n/a	n/a	Read & Write	Read & Write	n/a	n/a
SymplyPRO LTO-9	n/a	n/a	n/a	Read & Write	Read & Write	n/a
SymplyPRO LTO-10	n/a	n/a	n/a	n/a	n/a	Read & Write

LTO-9 Media Optimization

Overview. LTO-9 media optimisation—also referred to as *characterization*—was introduced with LTO-9 drives and LTO-9 cartridges. Because LTO-9 writes many more, narrower tracks, the drive performs a one-time, per-cartridge calibration to establish a reference that its intelligent alignment system uses to optimise data placement. This improves write reliability and long-term media durability. (Not required when using LTO-8 media in an LTO-9 drive.)

Key points

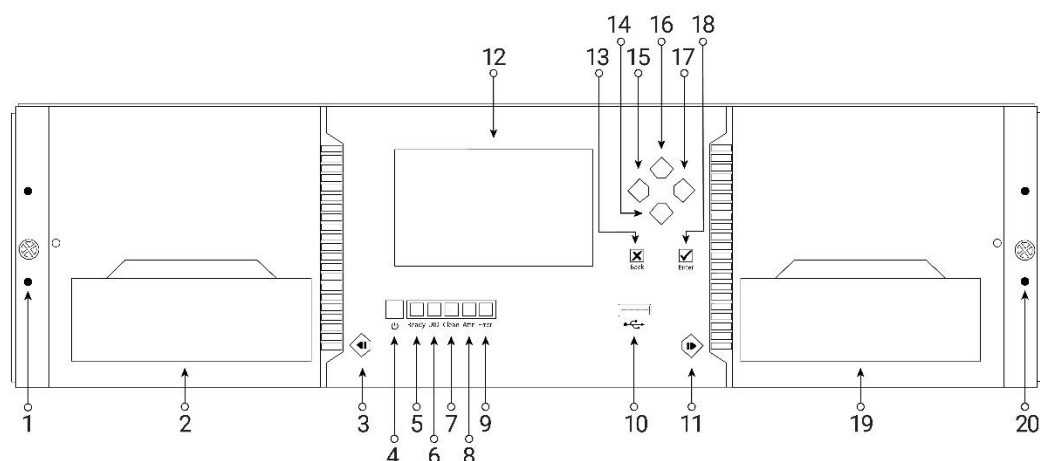
- **Automatic on first load.** Optimisation runs the first time an LTO-9 cartridge is initialised in any LTO-9 drive.
- **One time per cartridge.** Once completed, the cartridge can be used in any compatible drive without repeating optimisation.
- **Typical duration.** Expect ~**40 minutes** on average. Most complete within **60 minutes**; some may take up to **2 hours**.
- **No impact from duration variance.** The time taken has no effect on cartridge performance or functionality.
- **Do not interrupt.** Let the process complete before starting backup or archive jobs.
- **Pre-optimised media from Symply.** All LTO-9 media included in-box with Symply LTO-9 products ships **pre-optimised**.
- **Available through resellers.** Symply-supplied LTO-9 media is available **with or without** pre-optimisation via our authorised reseller network.



TIP

If you're introducing non-pre-optimised media into a new environment, consider pre-loading cartridges during a maintenance window so optimisation completes ahead of scheduled jobs [[Using the LTO-9 New Media Initialization \(Optimization\) Wizard](#)]

SymplyPRO XTL 40 Front View



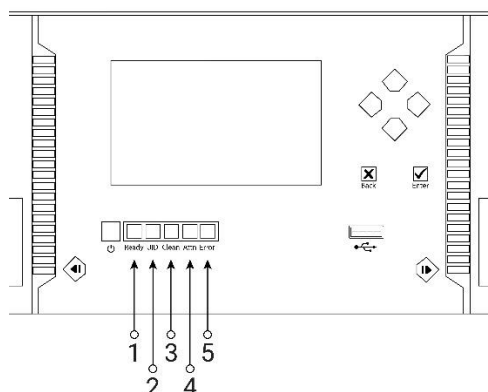
Number	Description	Module
1	Left Magazine Emergency Release Access Hole	
2	Left Magazine Access Handle	
3	Left Magazine Unlock Button	
4	Power Button	Base Module Only
5	Unit Identification LED, Blue	Base Module Only
6	Ready LED, Green	Base Module Only
7	Clean LED, Amber	Base Module Only
8	Attention LED, Amber	Base Module Only
9	Error LED, Amber	Base Module Only
10	USB Port	Base Module Only
11	Mailslot/Right Magazine Unlock Button	
12	Operator Control Panel (OCP) Display	Base Module Only
13	Back/Return Button	Base Module Only
14	Navigation Button - Left	Base Module Only
15	Navigation Button – Up	Base Module Only
16	Navigation Button – Down	Base Module Only
17	Navigation Button – Right	Base Module Only
18	Enter Button	Base Module Only
19	Mailslot/Right Magazine Access Handle	
20	Right Magazine Emergency Release Access Hole	

Operator Control Panel (OCP)

The Operator Control Panel (OCP) consists of an LCD display, 4 push button switches and a power on/off button. The OCP screen displays actions and status information, menu items or error messages equivalent to the operation mode.

OCP LEDs Guide

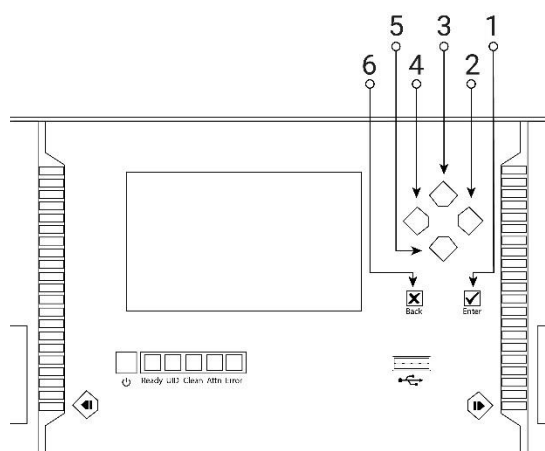
There are 4 LEDs located on the front of the library above the LCD display.



Item	Description
Unit ID	Blue - The unit identification (UID) LEDs are controlled by the user through the Controlling the UID LEDs screen on the <i>RMI</i> . The UIDs on the <i>OCP</i> and base module back panel are activated and deactivated together. In addition, UIDs on drives and expansion module back panels can be activated separately. The UIDs are helpful for locating components of the library in a data center.
Ready	Green steady - power is on Green flashing - blinking with tape ready / drive or library robotic activity
Clean	Amber - a tape drive cleaning operation is recommended.
Attention	Amber blinking - the library has detected a condition for which user attention is necessary, but that the library can still perform most operations.
Error	Amber - an unrecoverable tape drive or library error occurs. A corresponding error message is displayed on the LCD screen. User intervention is required; the library is not capable of performing some operations.

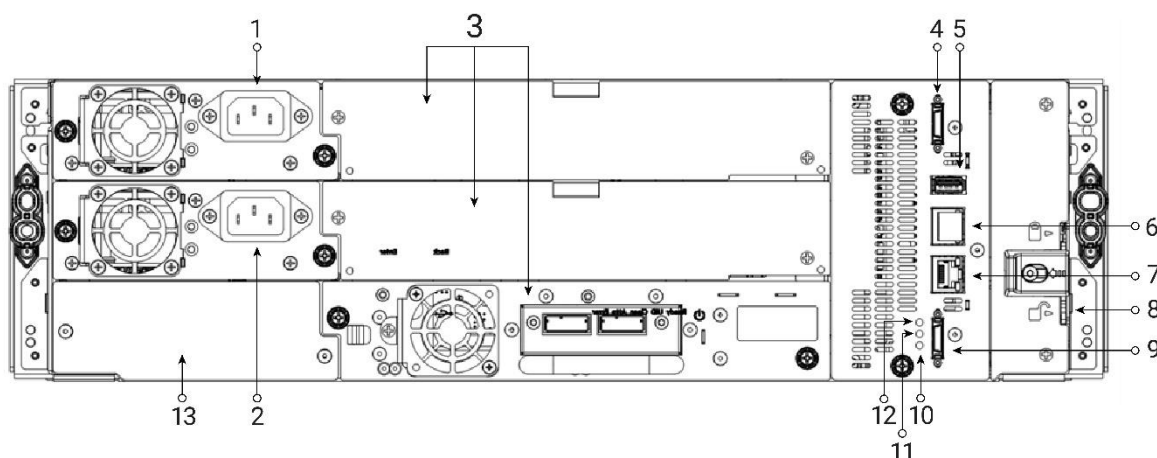
OCP Button Guide

There are 6 buttons located on the front of the library to the right-hand side of the LCD display.



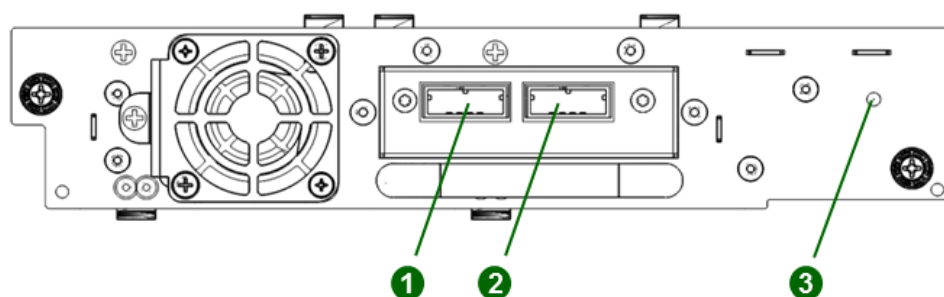
Number	Button	Description
1	Enter Button	The ENTER button to go to a sub menu or execute an action
2	Right Button	The RIGHT button is used to navigate through menu items
3	Up Button	The UP button is used to navigate backward through menu item
4	Left Button	The LEFT button is used to navigate through menu items
5	Down Button	The DOWN button is used to navigate backward through menu item
6	Back Button	The BACK button to go to back out of a menu, sub menu or action

SymplyPRO XTL 40 Rear View



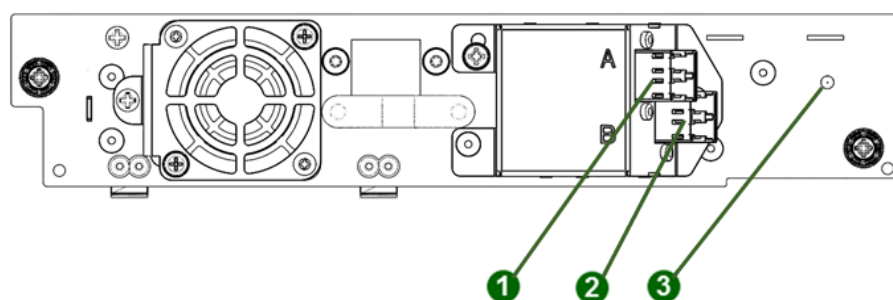
Number	Description	Module
1	Power Supply 1 (Standard)	Standard for Base Module Optional on Expansion Module
2	Power Supply 2 (Redundant Option)	Optional on Base Module Optional on Expansion Module
3	Tape Drive Bays	
4	Upper Expansion Module Connection Port	
5	USB Port	Optional on Base Module Only
6	Service Ethernet Port	Base Module Only
7	Management Ethernet Port	Base Module Only
8	Module Alignment Mechanism	
9	Lower Expansion Module Connection Port	
10	Unit Identifier LED, Blue	
11	Controller Error LED, Yellow	
12	Controller Health Status LED, Green	
13	Product Serial Number Tag Location	

SAS Drive Sleds Rear Panels



Number	Description
1	SAS Port A
2	SAS Port B
3	Tape Drive Power LED, Green

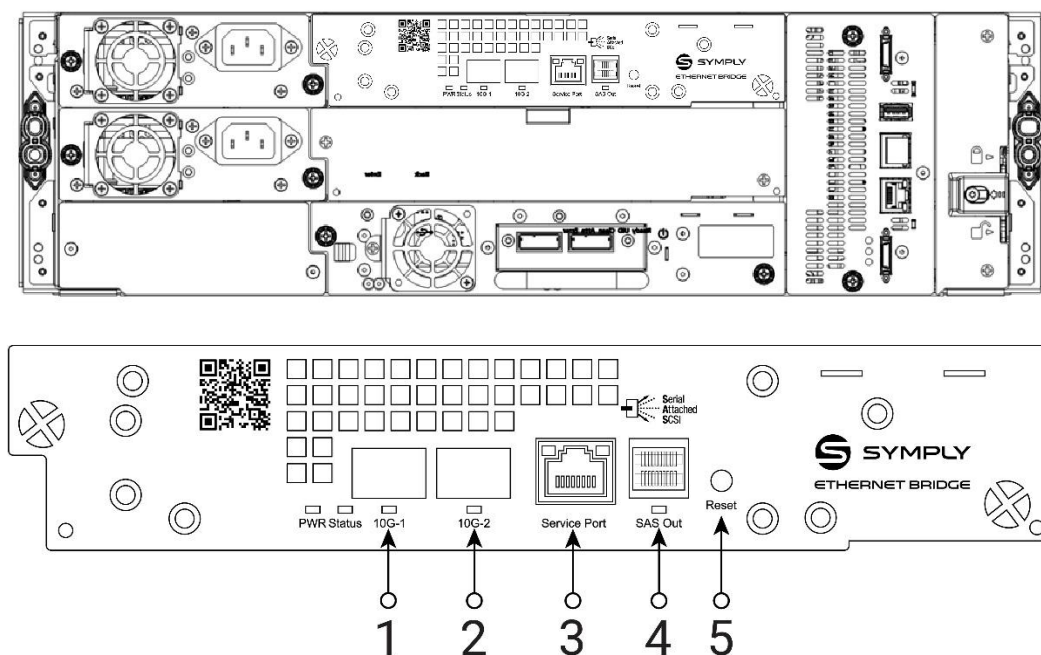
Fibre Channel Drive Sleds Rear Panels



Number	Description
1	Fibre Channel Port A
2	Fibre Channel Port B
3	Tape Drive Power LED, Green

XTL Ethernet Module

As standard it is recommended to fit the XTL Ethernet Module in the Top of the Half-Height Tape Drive Bays on either the XTL Base Module or Expansion Module, as shown below.



Number	Description
1	Data Port 1
2	Data Port 2
3	Service Port
4	SAS Out (Connection to SAS Tape Drives)
5	Module Reset

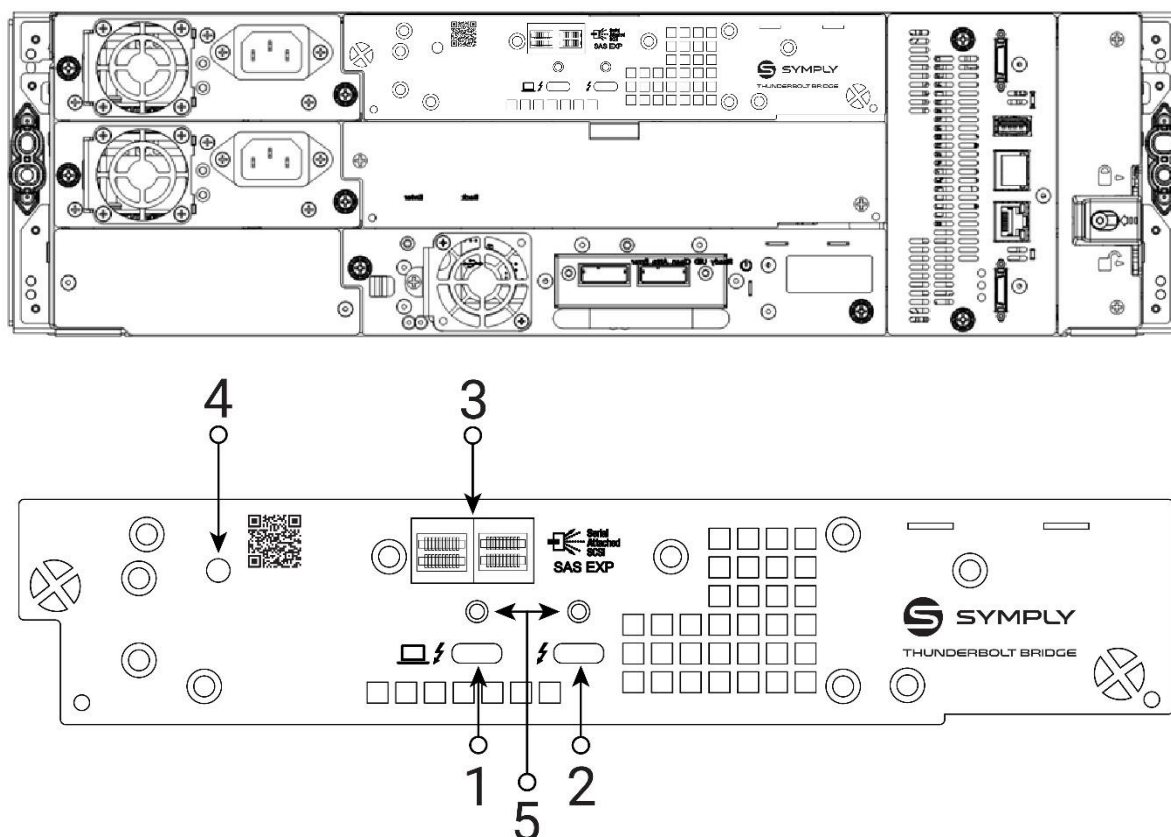


NOTE

For information on configuring the XTL Ethernet Module please see the [\[SymplyPRO Ethernet Appliance User Guide\]](#)

XTL Thunderbolt Module

As standard it is recommended to fit the XTL Thunderbolt Module in the Top of the Half-Height Tape Drive Bays on either the XTL Base Module or Expansion Module.



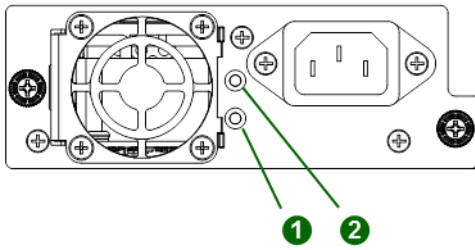
Number	Description
1	Thunderbolt 3 Port (15W)
2	Thunderbolt 3 Port (15W)
3	SFF-8644 SAS Ports (x2)
4	Ready Light (Green)
5	SymplyLOCK fixing point



NOTE

For information on configuring the XTL Thunderbolt Module please see the [\[SymplyPRO Thunderbolt User Guide\]](#)

XTL Power Supply LEDs

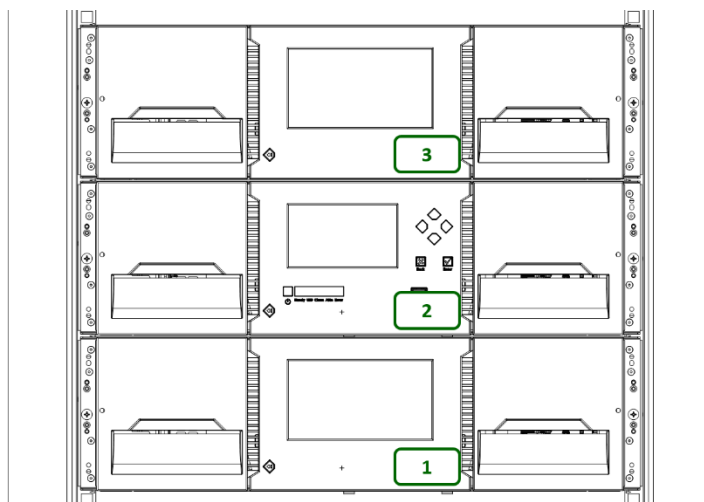


Number	Description
1	Module Powered On – Green LED
2	AC power connected On – White LED

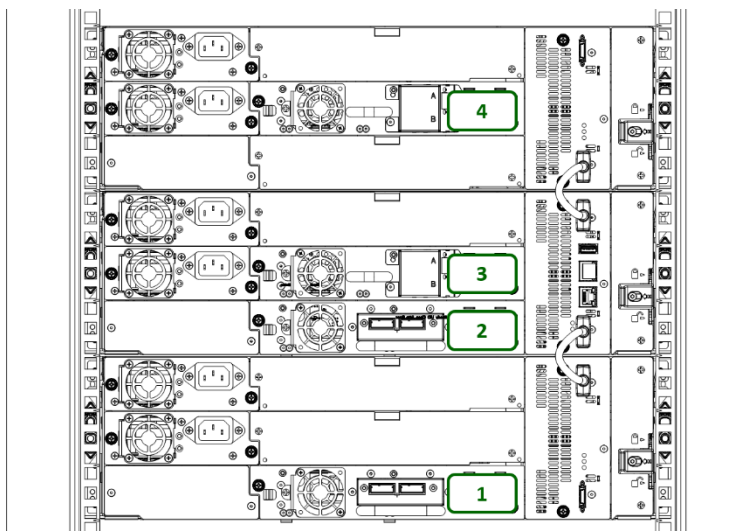
Library Module Numbering – Logical Elements

The library will generally display logical element numbering of modules, storage slots and tape drives starting with number one from the bottom up.

Front View



Rear View:



Installing the XTL 40 Library

When planning the installation of the XTL 40 library, here are some the important considerations:

- Choose a suitable location for the library.
- Plan the SAS, Fibre Channel, or iSCSI configuration and make sure you have the necessary cables.
- For rack installations, plan the rack layout and installation process.
- Select Internal and External IP Ranges for the library.

Location Requirements

- The library was designed for both rack and tabletop installation.
- Rack installations must use the provided rack rails.
- Select a location with access to the host server.
- Choose a location that meets the criteria in the table below.

Criteria	Definition
Rack Requirements	Standard 19-inch rack (minimum depth of 1 metre / 39.3 in) with an appropriate # of U's (Rack Units) of clearance for the planned module quantity
Rack Space Requirements	3U for the Base Module and 3U for each Expansion Module
Room Temperature	Allowable: 10 - 30 °C (50 - 86 °F)
	Recommended: 10 - 25 °C (50 - 77 °F)
Power Source	• AC Power Voltage: 100-240 VAC • Line Frequency: 50-60 Hz • Library Located near AC Outlet(s) The AC power cord is the library's main AC disconnect device and must always be easily accessible.
Air Quality	• Place the library in an area with minimal sources of particulate contamination. • Avoid areas near frequently used doors and walkways, stacks of supplies that collect dust, printers, and smoke-filled rooms. • Excessive dust and debris can damage tapes and tape drive. • Less than 200 microgram / cubic metre.
Humidity	Recommended: 20 - 50% RH non-condensing
	Allowable: 20 - 80% RH non-condensing

SAS Configuration Requirements

Serial Attached SCSI (SAS) is a point-to-point storage interface used for devices such as LTO tape drives and libraries. Because SAS links are direct connections rather than a shared parallel bus, you don't have to configure traditional SCSI bus IDs; however, the SCSI protocol (and **LUNs**) still apply over SAS.

Requirements and notes

- **Use a true SAS HBA (not a RAID controller).** Fit a host bus adapter with **external** SAS ports that supports **multiple LUNs** and **LUN scanning** so the OS can discover both the tape drive **and** the library robotics. Many RAID controllers do not expose devices correctly for tape.
- **LUN layout.** SymplyPRO XTL presents a single target per drive with **dual LUNs: LUN 0 = tape drive, LUN 1 = library robotics**.
- **Lane/port capacity.** A typical external SAS port is a **x4 wide** link (four lanes). An LTO tape drive uses **one lane**, so a single HBA port can service **up to four drives** when cabled appropriately (e.g., via a 1→4 breakout or SAS expander). If you connect one drive with a single end-to-end cable, only **one lane** is used and the remaining lanes are idle.
- **Cabling.** Use certified external mini-SAS / mini-SAS HD cables that match the HBA and device connectors. Keep within the HBA's supported cable length and generation (6/12/24 Gb SAS).



TIP

For best results, use an IT-mode/initiator-class SAS HBA, enable **LUN scanning**, and verify in the OS that both a **Tape drive** and a **Medium changer** device are present before configuring your backup application.

Supported speeds by drive generation are shown in the table below:

LTO Generation	Supported Speeds
LTO-7	1.5 Gbps, 3 Gbps, 6 Gbps
LTO-8	1.5 Gbps, 3 Gbps, 6 Gbps
LTO-9	3 Gbps, 6 Gbps, 12 Gbps
LTO-10	3 Gbps, 6 Gbps, 12 Gbps



CAUTION

Always use a high-quality SAS cable. The library has one or more SAS connectors on each SAS tape drive. SAS connectors are keyed. Do not force a SAS cable's SAS connector into the tape drive as it might be keyed differently.

- **Unique identifier.** Each SAS tape drive is identified by a **World Wide Name** (WWN, also called **WWID**). In SymplyPRO XTL, the library assigns the WWID to the **drive bay**, so if a drive is replaced the **same WWID is reassigned** to the new drive in that bay.
- **OS tracking per channel.** The operating system associates the drive's WWID with the **specific HBA channel** it was discovered on. With a fan-out (breakout) cable, each connector corresponds to a separate HBA channel.
- **Keep channel placement stable.** After initial discovery, keep each drive on the **same fan-out leg/channel** to preserve the OS association (WWID ↔ HBA channel). Moving a drive to a different channel can cause the OS or backup software to treat it as a **new device**, potentially requiring reconfiguration.

**TIP**

Label the fan-out connectors (e.g., A/B/C/D) and match them to drive bay numbers to maintain consistent cabling and predictable device paths.

Fibre Channel Configuration Requirements

The Fibre Channel (FC) tape drive can be connected directly to the server with a Host Bus Adapter (HBA) or through a storage area network (SAN).

The installation requires one Fibre Channel cable for each tape drive. The tape drives all utilize an LC-style connector. Some drives will have two FC ports, but only one cable connection is needed per drive. The cable can be connected to either drive FC port.

Supported speeds by drive generation are listed in the table below:

LTO Generation	Supported Speeds
LTO-7	2 Gbps, 4 Gbps, 8 Gbps
LTO-8	2 Gbps, 4 Gbps, 8 Gbps
LTO-9	2 Gbps, 4 Gbps, 8 Gbps
LTO-10	8 Gbps, 16 Gbs, 32 Gbs

**NOTE**

- Use an appropriate HBA for your tape drive due to performance requirements.
- A lower Gbps HBA might result in performance degradation when moving highly compressible data to a higher Gb tape drive.
- In a SAN installation, all switches between the host and the library must be of the appropriate type.
- A lower Gb switch in the path may result in performance degradation. Configure zoning so only the backup servers may access the library.

iSCSI Configuration Requirements

10 GbE iSCSI connectivity on **SymplyPRO XTL-40** is enabled by adding the **SymplyPRO XTL Ethernet Module** (dual 10 GbE). The module bridges attached **SAS LTO tape drives** to the IP network as iSCSI targets.

How it works (initiator/target):

- The **host** runs an iSCSI **initiator** (software driver) that sends SCSI commands over IP.
- The **SymplyPRO XTL Ethernet Module** exposes one or more iSCSI **targets** (the bridge to the SAS LTO drives in the library).
- Each initiator and target have a globally unique **iSCSI name** (an **IQN**).

Requirements:

- **Network interface:** A 10 GbE NIC on the host, cabled to the same network/VLAN as the XTL Ethernet Module.
- **iSCSI initiator/driver:**
 - **Windows:** Built-in Microsoft iSCSI Initiator.
 - **Linux:** Native initiator available (e.g., open-iscsi).
 - **macOS:** No built-in initiator; third-party software is required.
- **Multiple LUN support:** Ensure the initiator and applications support **multiple LUNs** so both the **tape drive** and the **library robotics** are discovered.
- **Target discovery:** Configure target portal(s), discover/log in to the **SymplyPRO XTL Ethernet Module** targets, and confirm sessions are established.
- The Ethernet Module presents the LTO drives behind it as iSCSI targets (with LUNs). In line with SymplyPRO Ethernet behaviour, LUN 0 is the **tape drive** and LUN 1 is the **library robotics**—your initiator must enumerate both.

- Each XTL Ethernet Module occupies one LTO drive bay and can bridge **up to four SAS tape drives** per module.



TIP

For stable device paths, use a dedicated iSCSI network (or VLAN), enable initiator auto-reconnect, and verify in the OS that you see both a Tape drive and a Medium changer before configuring your backup application.



NOTE

The SymplyPRO Ethernet module has two data ports. If both data ports are connected to the same host NIC and/or the same switch fabric, place **each data port in a different IP subnet**. Do **not** assign both data ports to the same subnet.

The management port of the SymplyPRO Ethernet module must be on a separate subnet from the data ports.

iSCSI Host System Requirements

Windows OS:

- A Windows host computer with a 10GbE NIC with current drivers to support OS version.
- The data ports of the SymplyPRO Ethernet configured to the same network as the 10GbE NIC.
- Microsoft iSCSI Initiator.

Linux OS:

- A Linux host computer with a 10GbE NIC with current drivers to support OS version.
- The data ports of the SymplyPRO Ethernet configured to the same network as the 10GbE NIC.
- An iSCSI Initiator.

macOS:

- A mac host computer with a 10GbE NIC with current drivers to support OS version.
- The data ports of the SymplyPRO Ethernet configured to the same network as the 10GbE NIC.
- macOS version 10.15 or later.
- A macOS compatible iSCSI initiator (ATTO Xtend SAN is approved).



NOTE

The SymplyPRO XTL Ethernet Module requires a minimum 10Gb Ethernet connectivity to the host or the switch.

Thunderbolt Configuration Requirements

SymplyPRO XTL-40 supports Thunderbolt via the **SymplyPRO XTL Thunderbolt 3 Module**, which bridges the library's SAS LTO drives to a host computer over Thunderbolt.

About Thunderbolt. Thunderbolt is a high-speed I/O interface co-developed by Intel and Apple that can carry data, video and power over a single connector. In this application, it's used **solely for data** between the XTL library and the host.

Ports & cables.

- **Thunderbolt 3/4/5** ports use the **USB-C** connector and are identified by the **Thunderbolt lightning-bolt icon** ⚡ (do not confuse with plain USB-C).
- All SymplyPRO Thunderbolt Modules ship with a **premium 2 m active Thunderbolt 4 cable**, compatible with **Thunderbolt 3 and Thunderbolt 5** host ports.
- Use certified Thunderbolt cables, not generic USB-C cables.
- Connect directly to a host Thunderbolt port (avoid USB-C hubs/docks unless Thunderbolt-certified and qualified for your workflow).
- Ensure your backup/archive software supports tape drives and medium changers connected over Thunderbolt.



NOTE

USB-C Ports that are only USB ⏏ will not have the lightning bolt icon ⚡ and are not compatible with Thunderbolt devices.

Thunderbolt 2 Host will require a Thunderbolt 3 (USB-C) to Thunderbolt 2 Adapter.



NOTE

If cable lengths of over 2m are required Symply also supplies Corning Thunderbolt 3 Optical cables which are available in 5, 10, 15, 25 and 50 metre lengths.

Thunderbolt Host System Requirements

macOS:

- A mac host computer with Thunderbolt 3, 4 or 5 connectivity.
- macOS 11 and later.

Windows OS:

- Windows Hardware with Intel Certified Thunderbolt 3, 4 or 5 connectivity.
- Microsoft Windows 11 and 10.
- Windows Server 2022, 2019, and 2016.

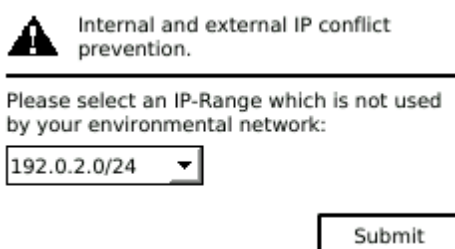
Planning Module and Rack Layout

If possible, install the Base Module in the middle of the rack to provide space for the permitted 8 Expansion Modules above and 7 Expansion Modules below the Base Module. See [\[Supported Library Configurations\]](#) for additional details.

Internal IP Range Selection

For internal communication between modules the tape library uses an Ethernet connection with an internal IP address range. To prevent any conflict between the internal IP address range and the external IP addresses it is required to select the internal IP range before the tape library gets connected to the external Ethernet port.

The Values must be in the following format: **RANGE = 192.0.2**



 Internal and external IP conflict prevention.

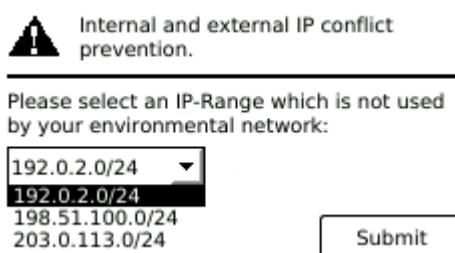
Please select an IP-Range which is not used by your environmental network:

192.0.2.0/24 ▼

Submit

Please note: the last section of the IP address is not set because it will be set internally.

The file will be created through the Operator Control Panel (OCP) IP Range selection page when the Stack starts for the very first time or if the unit was reset to Manufacturing Defaults / Reset via OCP or Remote Management Interface (RMI).



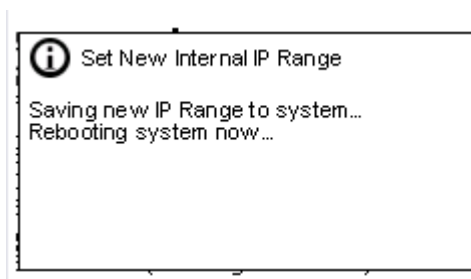
 Internal and external IP conflict prevention.

Please select an IP-Range which is not used by your environmental network:

192.0.2.0/24 ▼

192.0.2.0/24
198.51.100.0/24
203.0.113.0/24

Submit



 Set New Internal IP Range

Saving new IP Range to system...
Rebooting system now...

Host Preparation

 CAUTION	Static Sensitive Risk of damage to devices • A discharge of static electricity damages static-sensitive devices or micro circuitry. • Proper packaging and grounding techniques are necessary precautions to prevent damage.
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Follow these general guidelines:

- **Check with a system administrator** before powering off the host computer.
- **SAS:** Confirm availability of, or install, a **SAS HBA** that supports **multiple LUNs**.
- **Direct-attach Fibre Channel:** Confirm availability of, or install, an **FC HBA**.
- **Switched Fibre Channel:** If connecting via a compatible FC switch, **verify sufficient free ports** are available.
- **Use dedicated 10 GbE (or faster) NICs** for iSCSI traffic and place each XTL Ethernet Module **data port on a separate subnet/VLAN**.
- Ensure initiator/NIC settings are consistent end-to-end if using **jumbo frames**, set the **same MTU (e.g., 9000)** on the host, switches, and XTL Ethernet Module.
- **Keep management separate:** put the Ethernet Module **management port on a different subnet** from both data ports.

Installation Precautions

 WARNING	Product Weight: Each XTL 40 module weighs more than 20 kg (44 lbs) without drives or tapes and more than 35 kg (77 lbs) with 3 tape drives and 40 tapes. Risk of Personal Injury: Before moving or lifting a module: • Observe local health and safety requirements and guidelines for manual material handling. • Remove all tapes to reduce the weight and to prevent cartridges from falling into the robotics path and damaging the library. • Remove all tape drives to reduce the weight. • Obtain adequate assistance to lift and stabilize the module during installation or removal. Risk of damage to devices: When placing a module into or removing the module from a rack: • Extend the rack's levelling jacks to the floor. • Ensure that the full weight of the rack rests on the levelling jacks. • Install stabilizing feet on the rack. • Extend only one rack component at a time.
 CAUTION	• Do not expose the library to moisture. • Do not place a module on either the ends or sides as this may cause damage.

What's in the box?

SymplyPRO XTL 40 Base Module Kit

Item	QTY	Description
SymplyPRO XTL 40	1	3U 40 Slot Library with Single PSU
Rack Kit	1	2 rack mount rails. - One packet of rack mount hardware.
LTO Clean Cartridge	1	Symply LTO Media - Ultrium Universal Cleaning Cartridge, with barcode
Ethernet Cable	1	5m (16.4 ft) Cat6 Ethernet Cable (for management port)
Data Cable Optical	2	FC Units Only – 3 x 3m OM4 (6.5 ft) LC-LC Optical Cable
Data Cable SAS	2	SAS Units Only – 1 x 2m (6.5 ft) SAS Fan-Out Cable LTO-7 & LTO-8 include SFF-8080 -to- SFF-8644 LTO-9 & LTO-10 include SFF-8644 -to- SFF-8644
Power Cable	1	2 m (6.5 ft) IEC power cord for local region
Welcome Card	1	Information Card Please Read Carefully
Shipping Carton	1	Please retain shipping carton and packaging for warranty purposes

SymplyPRO XTL 40 Expansion Module Kit

Item	QTY	Description
SymplyPRO XTL 40 Expansion	1	3U 40 Slot Expansion (no power supply)
Rack Kit	1	2 rack mount rails. - One packet of rack mount hardware.
Expansion Interconnect Cable	1	This cable is used to connect the Expansion Module to the Base Library
Welcome Card	1	Information Card Please Read Carefully
Shipping Carton	1	Please retain shipping carton and packaging for warranty purposes

Unpacking the SymplyPRO XTL 40 Base Module & Expansion Modules



CAUTION

If the temperature in the room where the library will operate varies by 15 °C (30 °F) from where the module was stored, allow it to acclimate for at least 12 hours prior to unpacking.

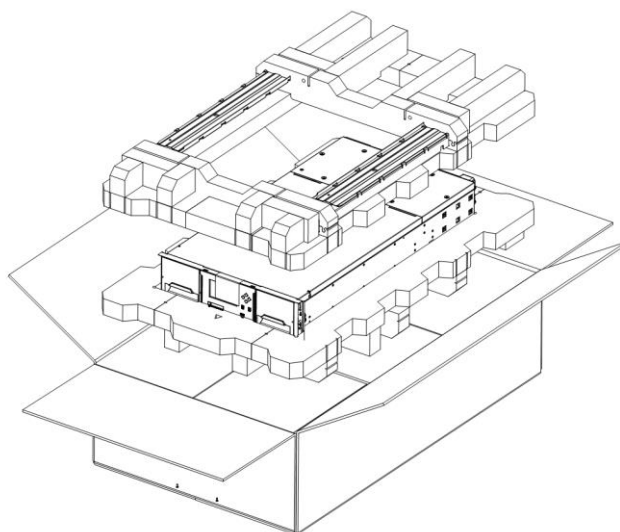
Inspect on arrival. Check the shipping carton and contents for damage. If you find any damage, **do not install or power on the unit**—contact your place of purchase immediately.

Handling and lifting. Clear the work area before lifting. A **two-person lift is recommended**. Support the chassis from the underside; do **not** lift by the bezel, magazines, drive handles, or power supplies.

Keep the packaging. Retain all packing materials in case the unit needs to be transported or returned.

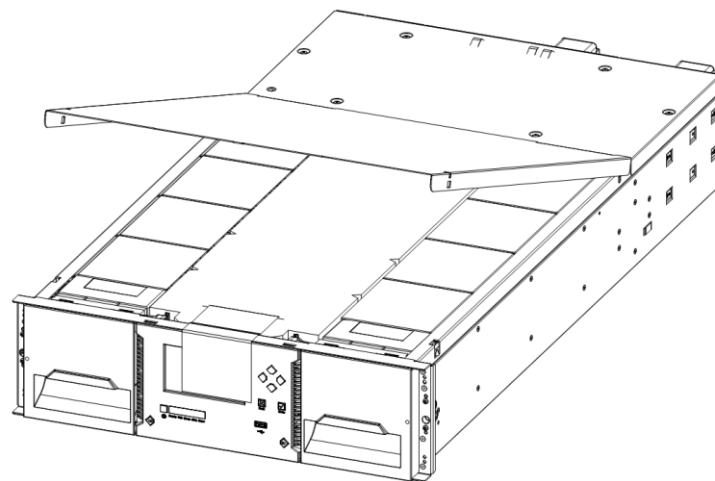
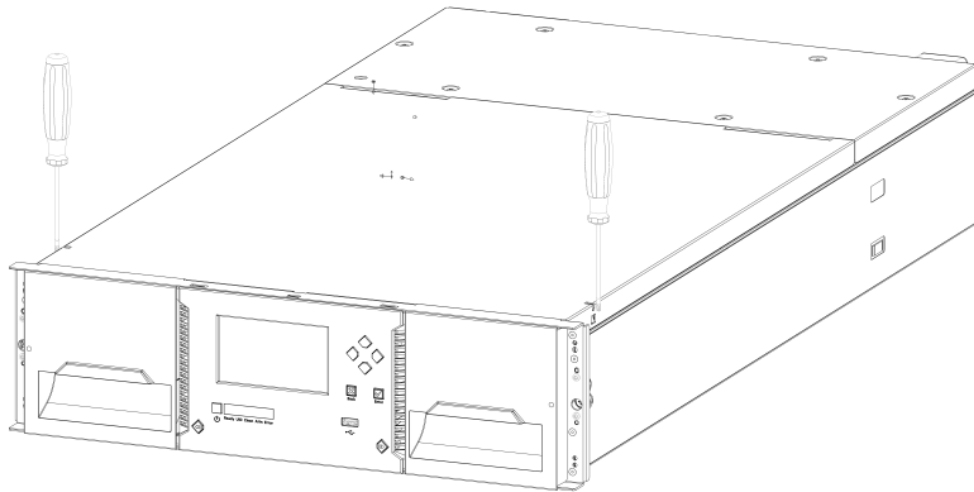
Verify the contents against the packing list before proceeding to rack installation.

1. **Carefully open the carton** on a stable surface.
2. **Remove and set aside the rack rail kit (pair)** and the **accessory pack**.
3. **Remove the top packing materials** from the library and any protective.
4. **With two people, lift the SymplyPRO XTL-40** straight up by the chassis sides and place it on a worktable.

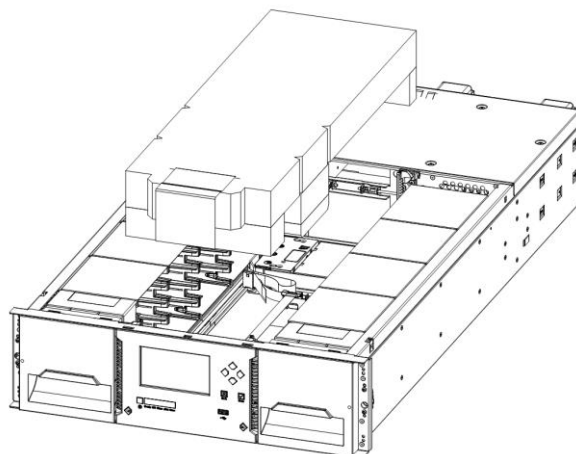


5. Remove the transit foam (Base Module only). The robotics is secured for shipping with a pre-cut insertion foam. With the library on a stable work surface and **powered off**, remove the **top cover** (see step 6).

6. Remove the top cover (to access the robotics area). Using **two small flat-blade screwdrivers**, depress the two latch tabs that secure the top cover (one on each side), then **slide the cover slightly to the rear** and lift it off vertically.



7. **Lift** the foam straight up and out from around the robotics/picker assembly.



If you are installing a Base Module only without an Expansion Module install the top cover again on the Base Module.

8. If you want to **install a library stack** with multiple modules see [[Preparing Top and Bottom Modules](#)].
9. **Save** the packaging materials for future use.

! IMPORTANT	Please retain the SymplyPRO XTL-40 shipping carton and all packing materials for warranty purposes. If the unit requires service, it must be returned in the original packaging or equivalent protective packaging ; failure to do so may invalidate the warranty .
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Preparing Top and Bottom Modules

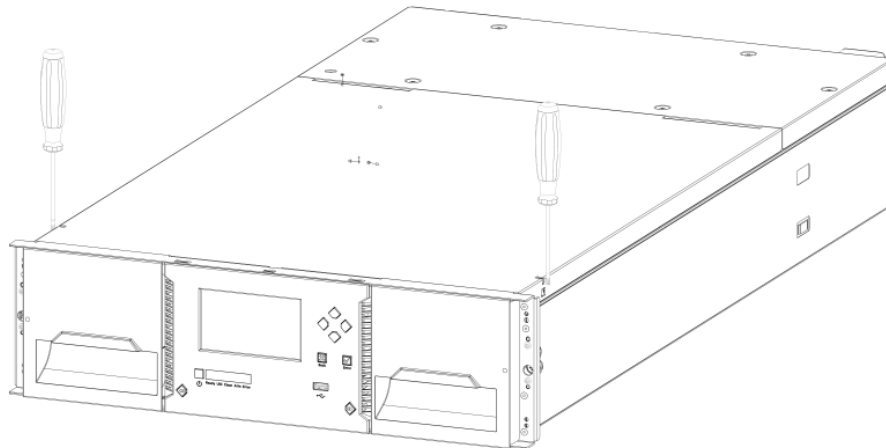
Skip this step if installing a **Base Module only** (no Expansion Modules).

The **Base Module** has **removable top and bottom covers** that must be moved to the outermost modules when you stack expansions:

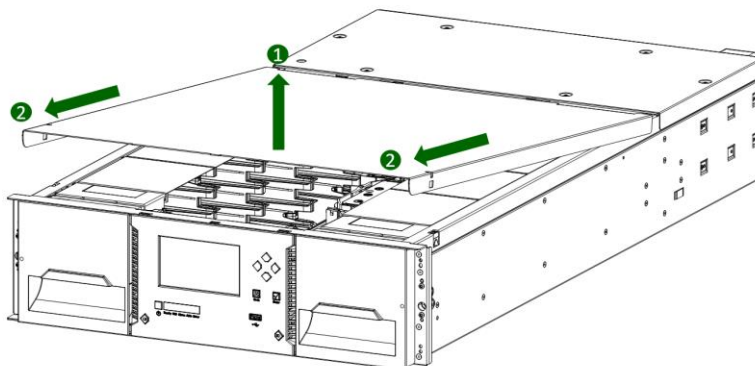
1. **If adding one or more Expansion Modules above** the Base Module:
Remove the **top cover** from the Base Module and fit it to the **uppermost** Expansion Module.
2. **If adding one or more Expansion Modules below** the Base Module:
Remove the **bottom cover** from the Base Module and fit it to the **lowest** Expansion Module.

To move the library top cover plate from the Base Module to an Expansion Module:

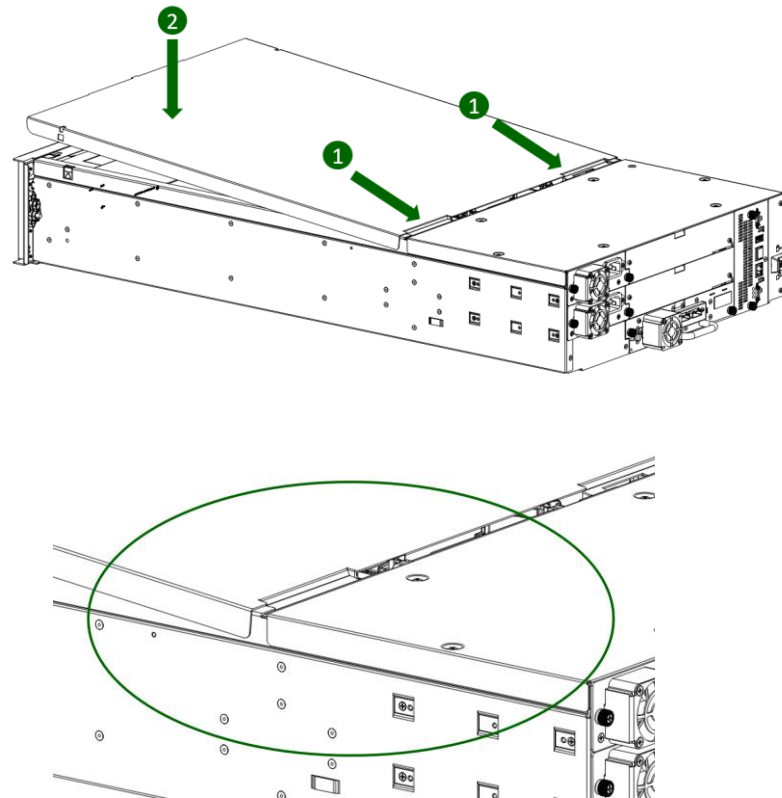
1. Remove the library top cover plate from the Base Module.
 - a. Place the Base Module on a worktable.
 - b. Using **two small flat-blade screwdrivers**, depress the two latch tabs securing the top cover (one on each side).



- c. **Raise the front edge ~120 mm (~5 in)** to clear the front lip.
- d. **Disengage the rear pivot**, gently pulling the cover **forward** to release from the centre pivot point, then lift the cover away.

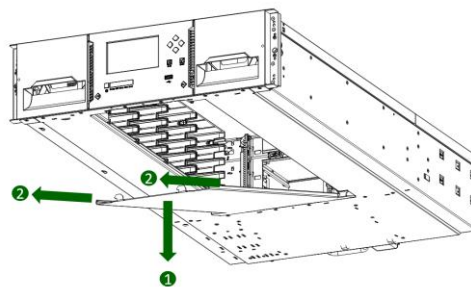
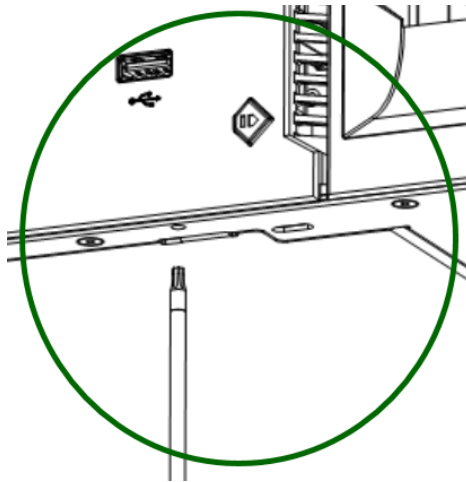
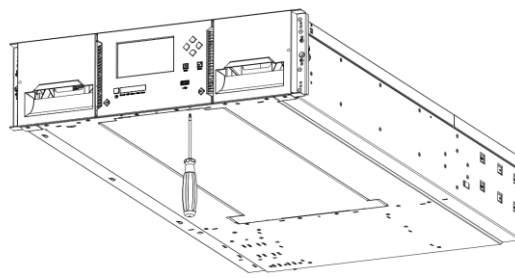


2. Install the top cover on the **uppermost** Expansion Module.
 - a. Place the **Expansion Module** on a worktable.
 - b. With the front of the cover raised ~120 mm (~5 in), **engage the rear of the cover** onto the **pivot point at the back** of the opening.
 - c. Lower the front edge until both side latches **click** and the cover sits flush.



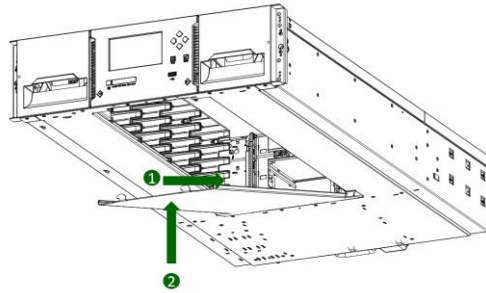
To move the bottom cover plate to the lowest Expansion Module:

1. Remove the library bottom cover plate from the Base Module.
 - a. Place the **Base Module** on a worktable.
 - b. **Raise the front of the unit ~160 mm (~6 in)**, using the rear edge as a pivot (support the chassis securely).
 - c. Support the bottom cover with one hand. Insert a **small flat-blade or Torx® screwdriver** into the release hole and slide **~4 mm (~0.15 in) sideways** to unlock the spring-loaded latch.
 - d. Lower the front edge of the cover **~100 mm (~4 in)** and **pull gently forward** to disengage from the centre pivot point.
 - e. Remove the cover and set aside.



2. Install the bottom cover on the lowest Expansion Module.
 - a. Place the **Expansion Module** on a worktable.
 - b. **Raise the front of the unit ~160 mm (~ 6 in)**, using the rear edge as a pivot.
 - c. Insert the bottom cover at the **centre pivot**, then **lift the front edge up** until it reaches the hard stop and the front latch **locks**.

- d. Confirm the cover is fully seated and flush along all edges.



Installing Modules in a Rack

	Protective earth required. Connect the power supply to a properly earthed (PE) mains outlet that complies with local electrical codes and standards. Do not defeat the earth/ground pin. Improper grounding can cause electric shock and/or equipment damage. Rack power capacity. If rack-mounted, ensure the PDU and upstream circuit have sufficient capacity and headroom for the library's maximum draw. Do not exceed the rack's power capabilities.
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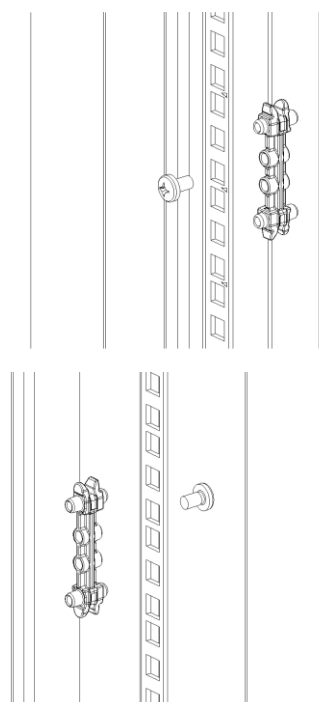
- SymplyPRO XTL modules mount in EIA-310 compliant racks with a minimum depth of 1 metre (39.3 in).
- Required tool: #2 Phillips screwdriver.
- Two-person lift recommended.

To locate and mark the rail positions (for installing multiple modules):

1. Identify the **bottom of the lowest full U** where the lowest module will sit.
2. For additional modules, mark positions in **3U increments** above (or below) the first.

Install the rails into the rack (starting from the lowest rack position):

1. Gather: **4 adapter blocks**, **4 Phillips screws**, and **2 rack-mount rails (LH and RH)**.
2. On the **front** rack posts, fit an **adapter block** at the chosen height on both left and right posts. Mount each block in the **middle square hole** of the U (the hole between the two wider dividing bars).

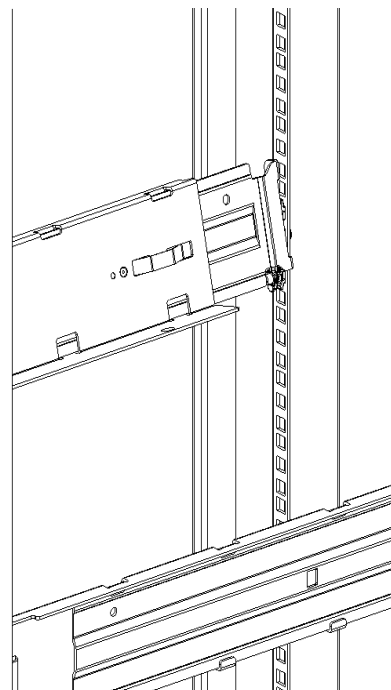
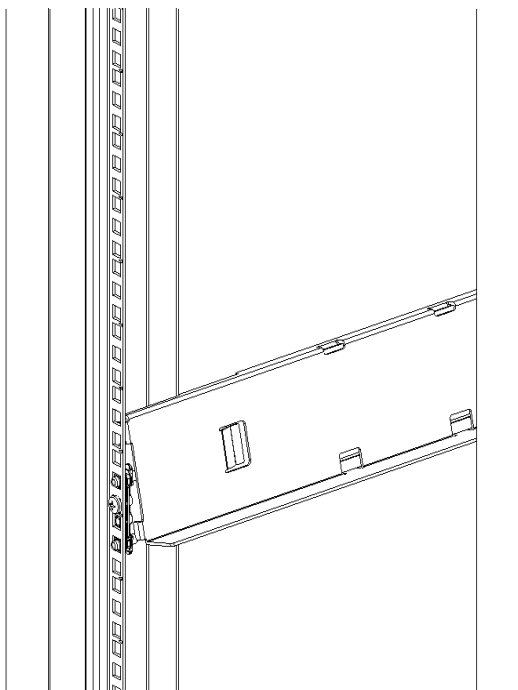
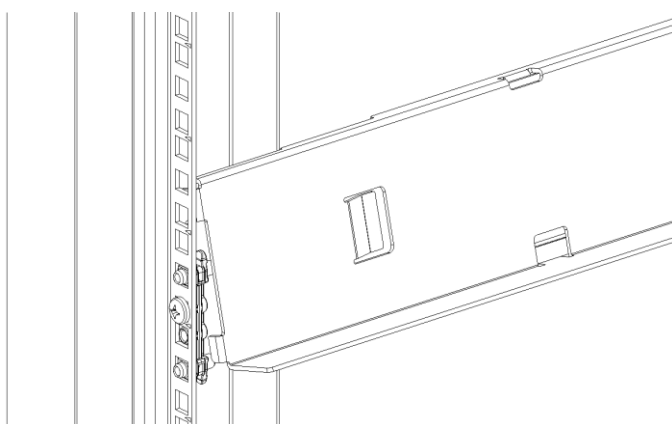


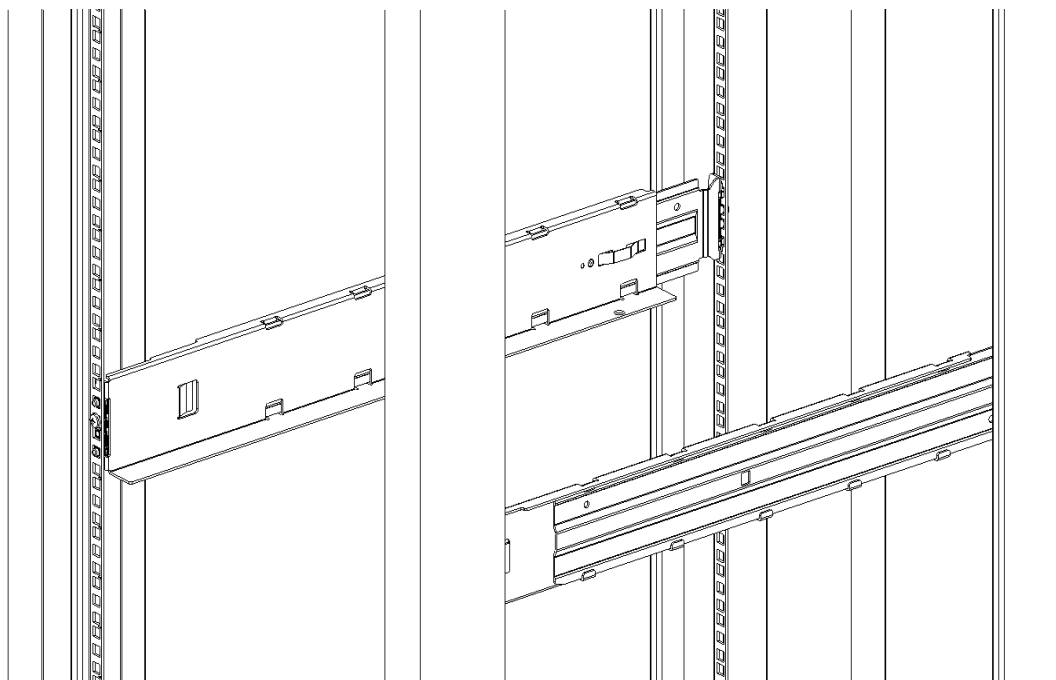
3. Repeat step 2 on the **rear** rack posts.
4. Mount the **LH rail** to the front and rear adapter blocks; tighten screws finger-tight, then snug with the screwdriver.
5. Mount the **RH rail** the same way.



TIP

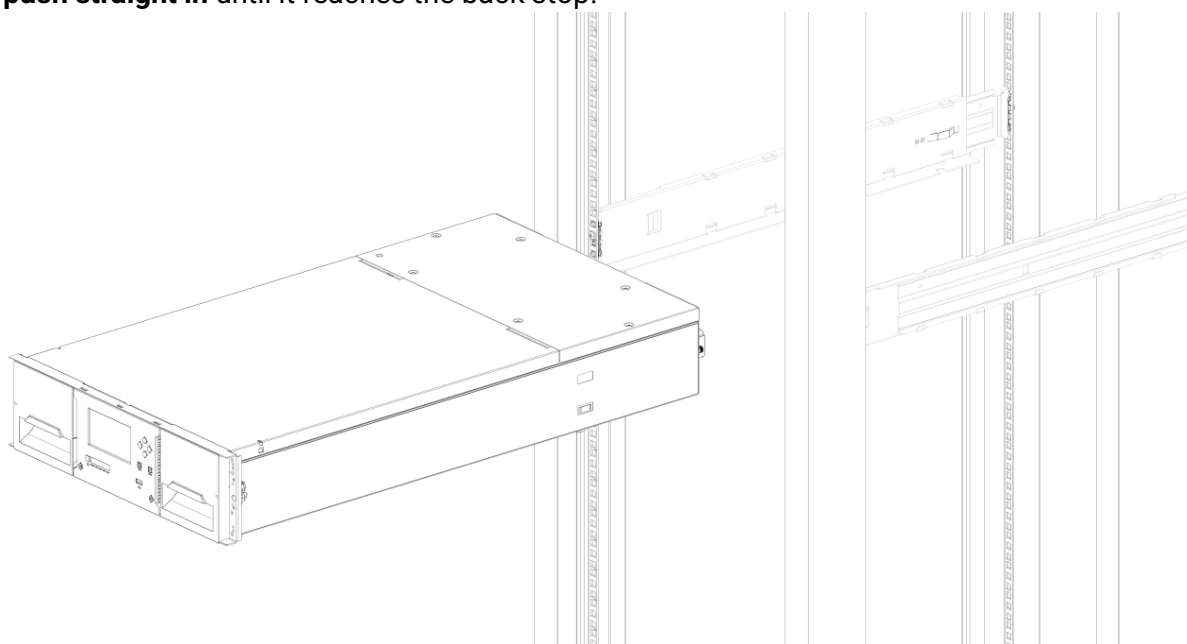
Verify both rails are level and aligned front-to-rear before fully tightening.



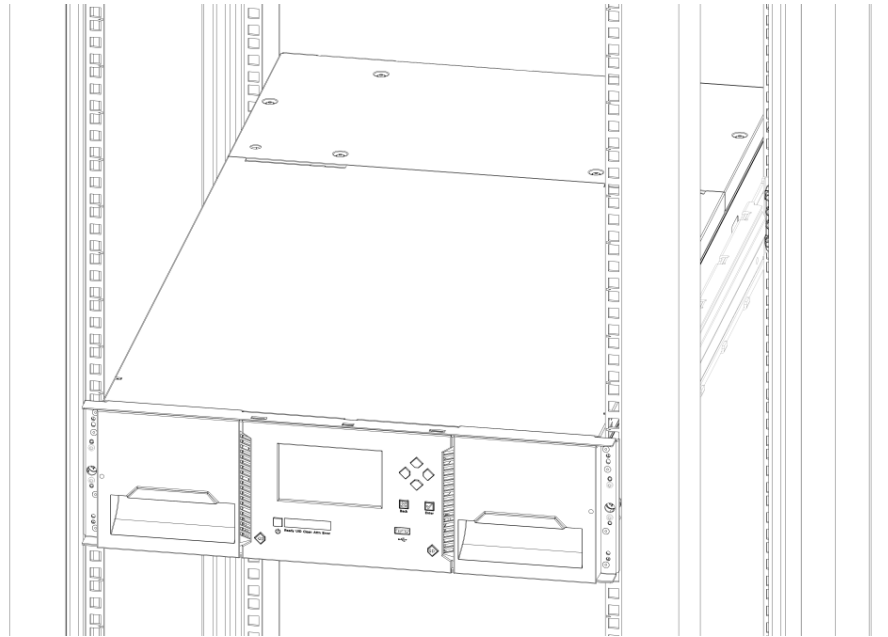


Install the XTL-40 onto the rails:

1. Place the library on the **support angles** of the sliding rails at the **front** of the rack and **push straight in** until it reaches the back stop.



2. If installing multiple modules, confirm the unit is **directly above/below its adjacent module** and fully contained within the correct **3U** space. The **gap between modules must be < 4 mm (~0.157 in)**.



3. Using the #2 Phillips screwdriver, **secure the front ears** (and rear, if applicable) on **both sides** of the module.
4. Repeat the rail and module steps for any **additional modules**.



TIP

Do not over-tighten; avoid deforming rack posts or chassis ears.

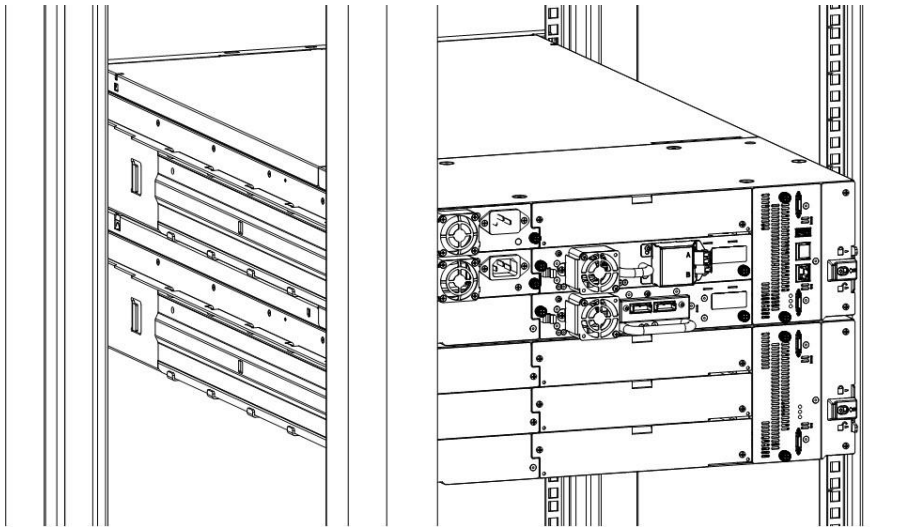
Aligning and Connecting Modules

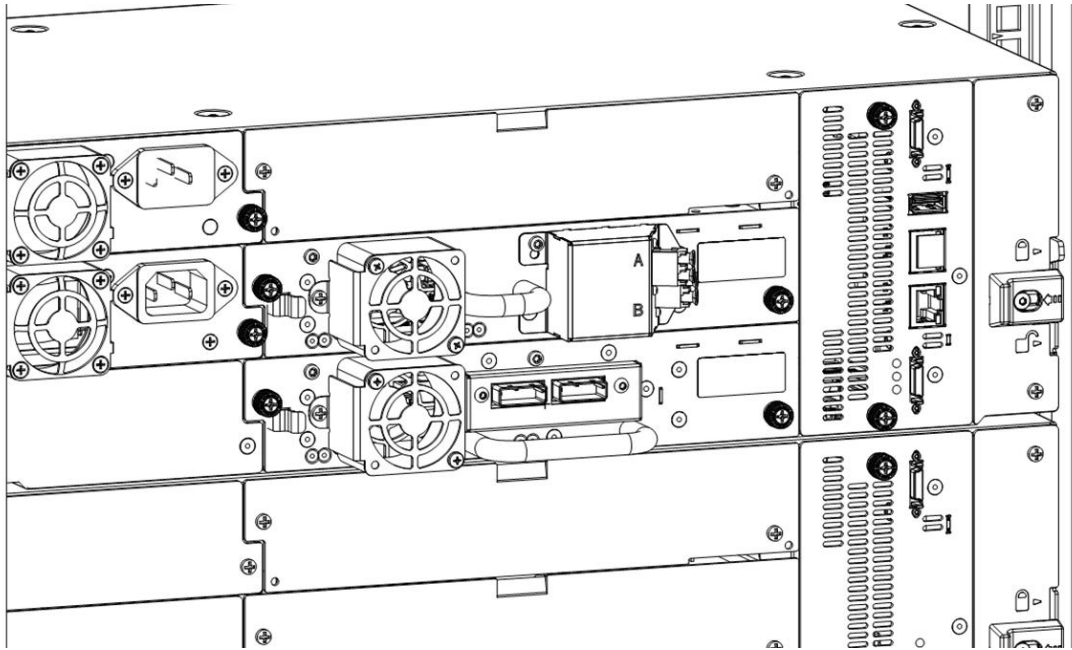
Skip this step if the library has **no Expansion Modules**.

Aligning the modules ensures the robot can move freely between them. The library will **not operate** unless each **inter-module alignment mechanism is in the *locked*** position.

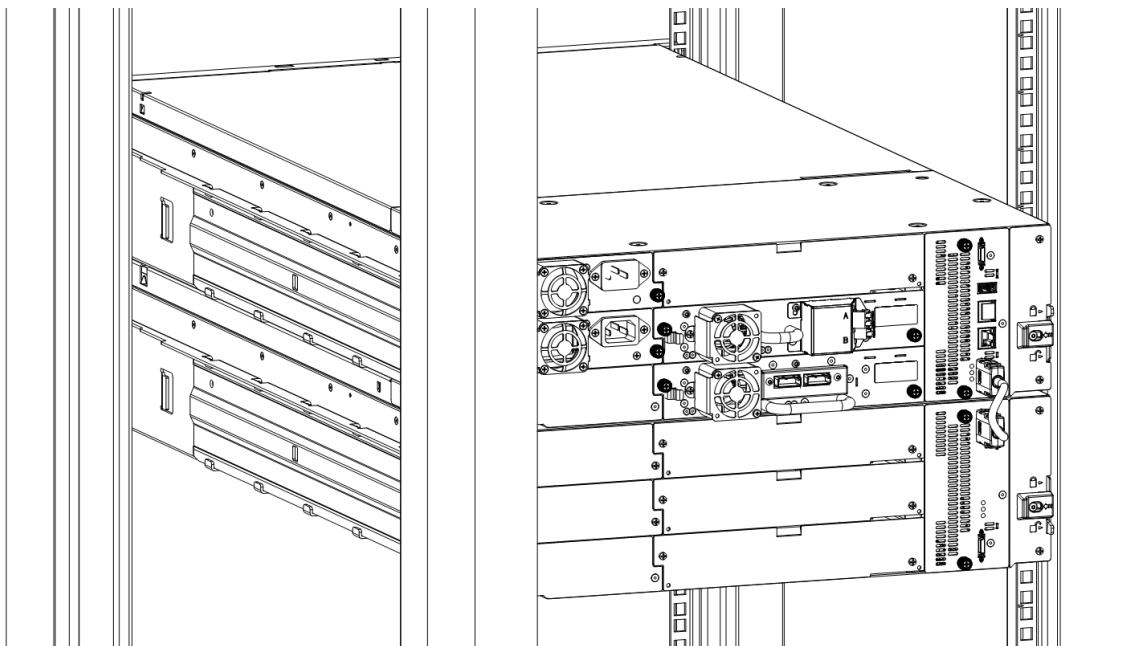
Prerequisites:

- All modules are mounted on rails, gaps between modules are **< 4 mm** (~ 0.16 in).
 - Power is **off** and the work area is clear.
1. **Loosen front fixings** (all modules). From the **front**, loosen the mounting screws on **each** module by **two full turns**. This allows a small amount of play for alignment.
 2. **Align and lock each pair** of modules (rear of rack). From the **rear**, start with the **lowest adjacent pair** (Base Module + first Expansion), then work **upwards**:
 - a. Bring the upper module into line with the module below so the **alignment pin** enters the **mating hole**.
 - b. Move the **alignment lever to the LOCK position**.
 - c. If you feel resistance, slightly adjust the **upper** module position until the pin seats fully, then lock.





3. Verify alignment mechanisms.
 - a. **Between modules:** Confirm **every inter-module alignment mechanism is LOCKED** (left and right, where fitted).
 - b. **Lowest module:** Ensure any **lower/transport alignment latch on the Lowest Module** (not mating to another module) is in its **UNLOCKED** position.
4. **Re-tighten front fixings.** From the **front**, tighten the Phillips screws on **each** module to secure the stack to the rack.
5. **Connect expansion interconnects** (rear). From the **rear**, link **each module pair** using the **expansion interconnect cable** (as shown in the installation diagrams).



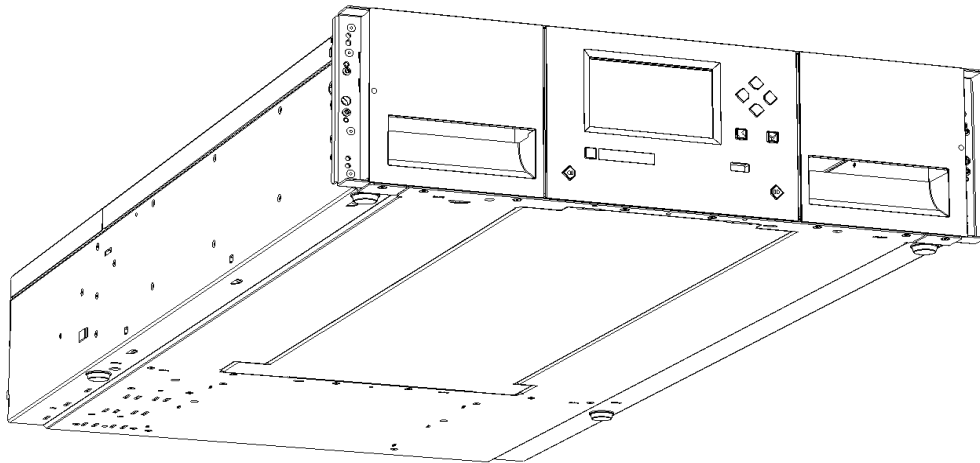


CAUTION

- Watch for **pinch points** at the alignment pins and levers.
- Do **not** force the lever—re-align until the pin seats cleanly.
- The library should not be operated until all **inter-module locks are engaged** and front fixings are tightened.

Installing Tabletop Modules

One Base module can be installed in a tabletop configuration. The Base Module requires 4 feet to avoid damage to the surface and avoid slippage of the module on the surface.



Place the four feet on the bottom of the module as indicated in the drawing above.



NOTE

- Feet are not included in the accessory kit as standard.
- If you want to install the module into a rack, make sure that the four feet will be removed prior to the rack installation.

Installing Tape Drives

1. **Locate the vacant drive bay** at the rear of the library.
2. **Remove the bay faceplate and cover.**
 - a. Unscrew the faceplate screws and lift off the faceplate.
 - b. Remove **one** drive-bay cover for the bay you're populating; retain all screws/covers for future use.
3. **Insert the drive.**
 - a. Hold the tape drive by the handle, supporting it from underneath.
 - b. Slide it along the **alignment rails** until the drive is **flush** with the back of the library (do not force).
4. **Secure the drive**
 - a. Finger-tighten the **blue captive thumbscrews** evenly to fix the drive to the chassis.
 - b. If the thumbscrews do not start, back the drive out slightly, re-align on the rails, and try again—**do not use tools** to overtighten.



CAUTION

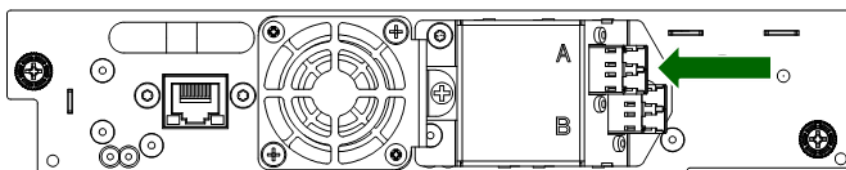
- If resistance is felt before the drive is flush, re-check that the correct bay cover has been removed and the drive is properly on the rails.
- All drive bays without tape drives installed must have drive bay covers installed.



MECHANICAL HAZARD

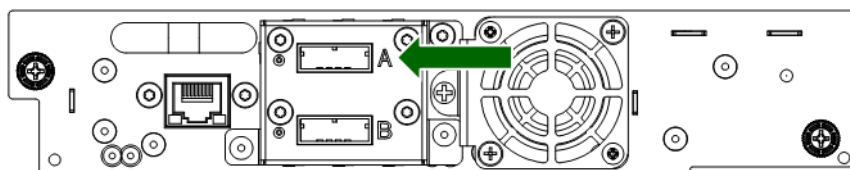
Danger: Risk of hand pinching. Can trap hands, fingers and cause serious injury. Keep hands clear during operation.

Connecting Fibre Channel Cables



1. Remove the FC port caps if necessary. Attach one end of the FC cable to **port A** on the tape drive.
2. Attach the other end of the FC cable to a switch or HBA.

Connecting SAS Cables



1. **Connect to the HBA.**
 - a. Insert the **HBA end** of the SAS cable into the HBA port until the latch clicks.
 - b. **If using a SAS fan-out (1→4) cable: the single connector goes into the HBA.**
2. **Connect to the drive(s).**
 - a. **Single-to-single cable:** attach the other end to the tape drive SAS port.
 - b. **SAS fan-out cable:** attach **one x1 leg per tape drive**—do not daisy-chain. The **unused fan-out legs are single-channel and not suitable for disk arrays.** Either use them for additional tape drives on the same HBA port or **coil and secure** them to the rack to avoid strain on connectors.



TIP

- Route and dress cables to avoid sharp bends ($\geq 5\times$ cable diameter), pinch points, or obstructing rail travel.
- **Ensure latches are fully engaged at both ends;** press the latch to release—do not pull on the cable.

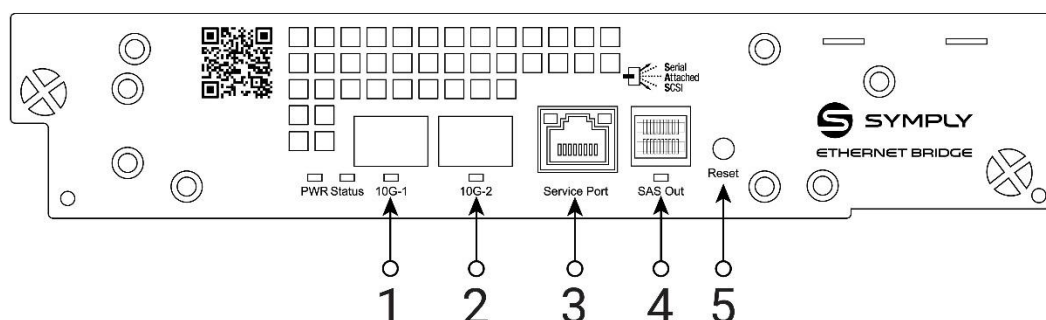


NOTE

SAS signalling requires clean, direct connections between the HBA and the tape drive. Do not use adapters, or converters. For reliable operation, use certified, like-for-like SAS cables and keep runs as short as practical—**no more than 5 metres.**

Installing XTL Ethernet Module

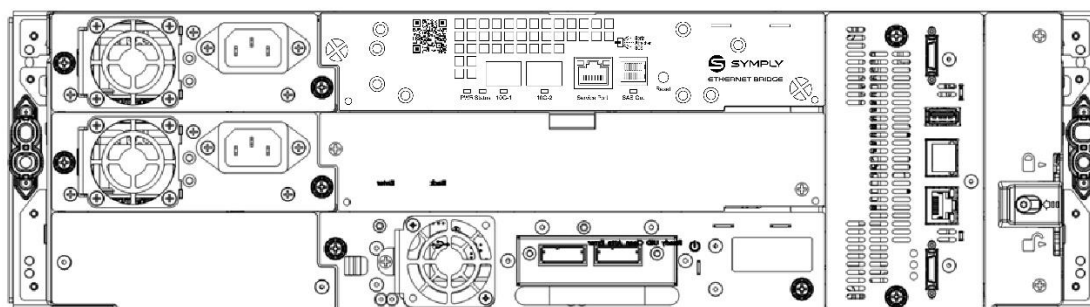
Each XTL Ethernet Module occupies **one HH bay** and can bridge **up to four SAS LTO drives**.



Number	Description
1	Data Port 1
2	Data Port 2
3	Service Port
4	SAS Out (Connection to SAS Tape Drives)
5	Module Reset

1. Placement guidance:

- If only **one** other drive is present in the module (Base or Expansion), install the **XTL Ethernet Module in the top half-height (HH) bay**.
- If **two** drives are present, install the **Ethernet Module in the middle bay** (between the two drives) for optimal airflow.



2. Prepare the bay:

- Remove only one bay's faceplate at a time to aid alignment and maintain airflow.
- Remove the screws securing the faceplate and lift it off; keep all hardware.

3. Insert the XTL Ethernet Module:

- Hold the module, supporting it from underneath.
- Slide it along the **alignment rails** until the front is **flush** with the back panel.
- Finger-tighten the **blue captive thumbscrews** to secure the module. If they don't start easily, back the module out slightly and re-align—do not force.

4. SAS fan-out cabling (module → drives):
 - a. Connect the **Mini-SAS HD (SFF-8644)** end to the **XTL Ethernet Module**.
 - b. Connect the **fan-out legs (x1)** to the **SAS ports on each LTO tape drive** (one leg per drive).
 - c. Coil and secure any **unused fan-out legs** to the rack to minimise connector stress and keep them clear of rail travel.



NOTE

- Symple provide 2m Fan-Out Cables with Each XTL Base Module
- LTO-9 Libraries are supplied with a single 2m SFF-8644 to 4x SFF-8644 cable
- LTO-7 and 8 Libraries are supplied with a single 2m SFF-8644 to 4x SFF-8088
- 2m SFF-8644 to 2x SFF-8644 & SFF-8088 cables are available to purchase from Symple



NOTE

For information on configuring the XTL Ethernet Module please see the [\[SymplePRO Ethernet Appliance User Guide\]](#)



CAUTION

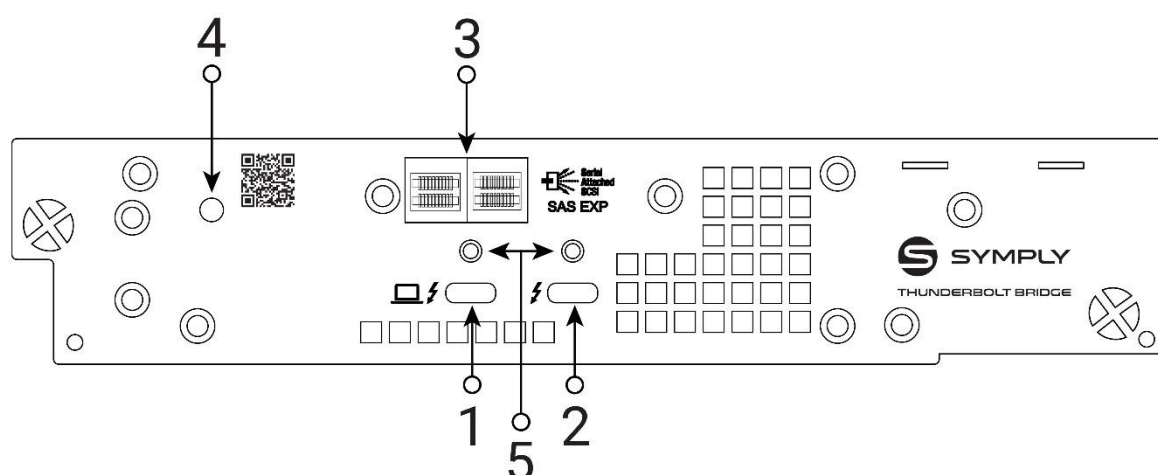
All drive bays without tape drives installed must have drive bay cover installed.



MECHANICAL HAZARD

Danger: Risk of hand pinching. Can trap hands, fingers and cause serious injury. Keep hands clear during operation.

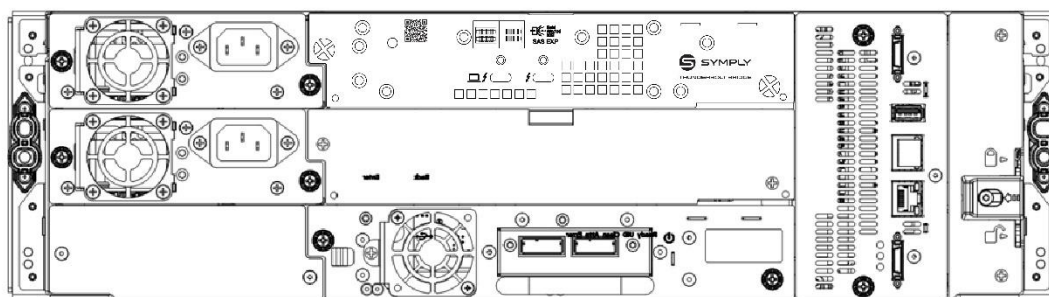
Installing XTL Thunderbolt Module.



Number	Description
1	Thunderbolt 3 Port (15W)
2	Thunderbolt 3 Port (15W)
3	SFF-8644 SAS Ports (x2)
4	Ready Light (Green)
5	SymplyLOCK fixing point

1. Placement guidance:

- If only **one** other drive is present in the module (Base or Expansion), install the **XTL Thunderbolt Module in the top half-height (HH) bay**.
- If **two** drives are present, install the **Thunderbolt Module in the middle bay** (between the two drives) for optimal airflow.



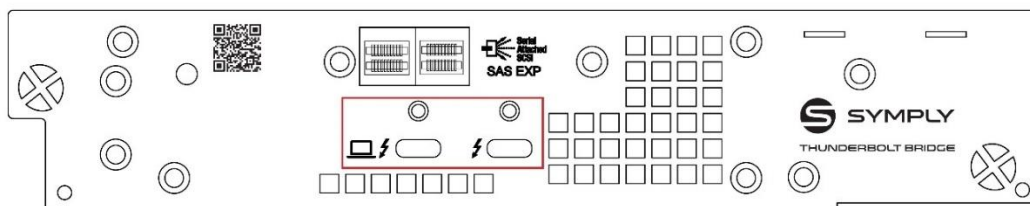
2. Prepare the bay:

- Remove only one bay's faceplate at a time to aid alignment and maintain airflow.
- Remove the screws securing the faceplate and lift it off; keep all hardware.

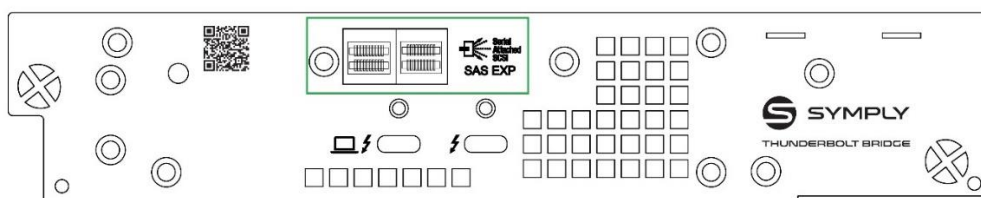
3. Insert the XTL Thunderbolt Module:

- Hold the module, supporting it from underneath.
- Slide it along the **alignment rails** until the front is **flush** with the back panel.
- Finger-tighten the **blue captive thumbscrews** to secure the module. If they don't start easily, back the module out slightly and re-align—do not force.

4. **Connect the Thunderbolt cable and secure it.** Plug the supplied active Thunderbolt cable into either Thunderbolt port on the XTL Thunderbolt Module (as shown) and into a Thunderbolt port on the host. Use SymplyLOCK to secure the cable at the module to prevent accidental disconnection



5. **Cable SAS from the Thunderbolt Module to the LTO drives.** Use the Symply-provided SAS fan-out cable to connect the module's **SAS OUT** ports to the installed tape drives:



- a. Connect the **Mini-SAS HD (SFF-8644)** plug to the **XTL Thunderbolt Module**
- b. Connect the **fan-out legs (x1)** to the **SAS ports on each tape drive**—one leg per drive.
- c. **Coil and secure** any unused length to the rack to **minimise connector stress** and keep clear of rail travel.



TIP

Ensure latches click home on all SAS connectors; avoid sharp bends ($\geq 5 \times$ cable diameter).



NOTE

- LTO-9 Libraries are supplied with a single 2m SFF-8644 to 4x SFF-8644 cable
- LTO-7 and 8 Libraries are supplied with a single 2m SFF-8644 to 4x SFF-8088
- 2m SFF-8644 to 2x SFF-8644 & SFF-8088 cables are available to purchase from Symply



NOTE

For information on configuring the XTL Ethernet Module please see the [\[SymplyPRO Thunderbolt User Guide\]](#).

 CAUTION	All drive bays without tape drives installed must have drive bay cover installed.
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 MECHANICAL HAZARD	Danger: Risk of hand pinching. Can trap hands, fingers and cause serious injury. Keep hands clear during operation.
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Installing Windows Library and Tape Drivers.

To use SymplyPRO XTL with Windows or Windows Server, install the SymplyPRO XTL library (medium-changer) device driver for your specific model along with the correct LTO tape drive driver.

Before installing, make sure the tape hardware is cabled and powered correctly: SAS and Thunderbolt require a point-to-point connection, while Fibre Channel and iSCSI can be either point-to-point or connected through a qualified switch. Power on the library and drives and wait until they reach a ready state so the host can detect them before proceeding with driver installation.



NOTE

We suggest you check with your Application Software Vendor to determine the proper installation procedure for your particular configuration.

Many software partners provide their own drivers for use with libraries. Use of the drivers below may prevent your backup software from working properly.

The Windows drivers for the SymplyPRO XTL and Tape drives are available to download from [\[SymplyPRO XTL Drivers\]](#)

Powering On the Library

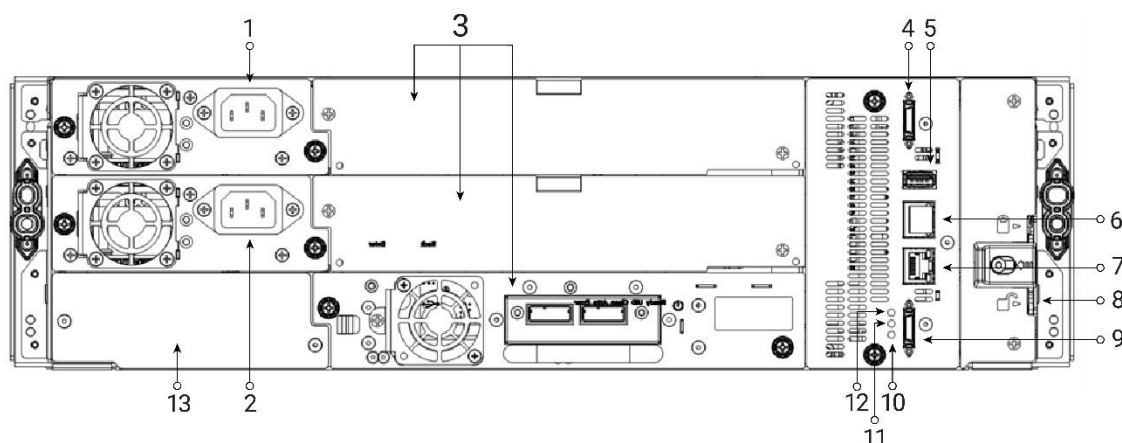
1. Plug the power cables into the power connectors on each module and into power outlets.



NOTE

The library has dual redundant power supplies. To increase redundancy, plug each power cord into a different AC power circuit.

2. To use the RMI (Remote Management Interface), connect an Ethernet cable from the bottom Ethernet ports on the Base Module controller to your network.
3. Power on the library by pressing the power button on the Base Module just below the OCP (Operator Control Panel); the green light will illuminate. When the library is powered on, it inventories the tape cartridges in the magazines, checks the firmware version on all modules, configures the tape drives, confirms the presence of the existing modules, and searches for any new modules.



Number	Description
1	Power Connector for Primary PSU
2	Power Connector Optional Redundant PSU
7	Ethernet Management Port (Base Module Only)

Using the Configuration Wizard

Start the Initial Configuration Wizard from the OCP. The wizard guides you through basic network settings, date and time, and setting the administrator PIN. You can skip items or exit the wizard at any time. After the network settings are saved, you can also launch the wizard from the RMI to complete the remaining steps. To log in to the RMI, use the default **administrator** password “**syadm**” (then change it immediately).

On first use, **you must create at least one partition** so the host operating system can see the LTO drive(s) and the library robotics; the wizard will prompt you to do this. You can also create or remove partitions later, outside the wizard, using the Library Partitions configuration [[Configuring Library Partitions](#)].

Verifying the Host Connection

To verify connectivity between the host and the SymplyPRO XTL:

1. **Install required software.** Install the library (medium-changer) and LTO tape **drivers**, plus any **backup/archiving application** components needed to communicate with the robotics. Some applications require additional plug-ins or licences for library control.
2. Confirm OS-level detection (assuming relevant drivers are installed).
 - a. **Windows:** Open **Device Manager** and verify entries under **Tape drives** (LTO drive) **and Medium Changers** (library/robotics). For iSCSI, also check **iSCSI Initiator** (Targets → Connected).
 - b. **Linux:** Verify devices with `lsscsi -g` (expect one tape and one mediumx/changer per path). Optional: `mtx -f /dev/sgX` status should return slot/drive status; `mt -f /dev/stX` status should succeed.
 - c. **macOS (Thunderbolt workflows):** Check **System Information** → **Thunderbolt** for the module, confirm both the **tape** and **changer** are present as SAS devices.

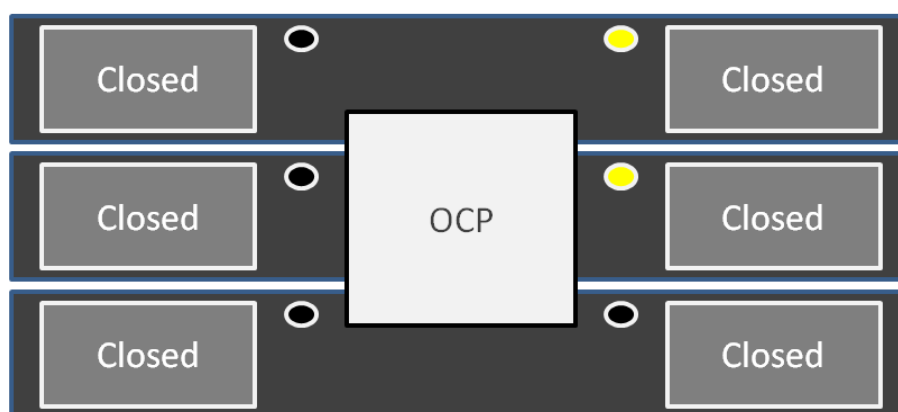
Loading Tape Cartridges

The library will power on without cartridges but needs cartridges before performing data read and write operations, or any tests or operations that transfer cartridges.

The easiest way to open a mailslot or magazine is to use the magazine unlock buttons on the front panel. The LED in the translucent button indicates different states of the mailslot or magazine:

- LED steady ON: mailslot is enabled
- LED flashing slowly: unlock operation in process
- LED flashing quickly: mailslot or magazine is unlocked and can be removed

Example: 3-module-library with mailslots enabled on the top 2 modules:



NOTE

You can also open mailslots or magazines through the **Operation > Open Mailslot** or **Operation > Open Magazine** page on the RMI. **Opening mailslots or magazines through the OCP is not possible.**

Labeling Tape Cartridges

Barcode labels are essential in production environments to improve inventory time in the library and ease cartridge handling processes outside the library.

Using the Mailslot

If the mailslot is enabled (indicated by the right button LED steady ON), you can use it to load cartridges into the library.

1. Press the right button for less than 3 seconds. This will start the unlock operation for the mailslot, indicated by the LED slowly flashing.
2. When the mailslot is unlocked the LED starts quickly flashing.
3. Pull out the mailslot from the library. As soon as the mailslot is pulled out, the LED switches OFF.



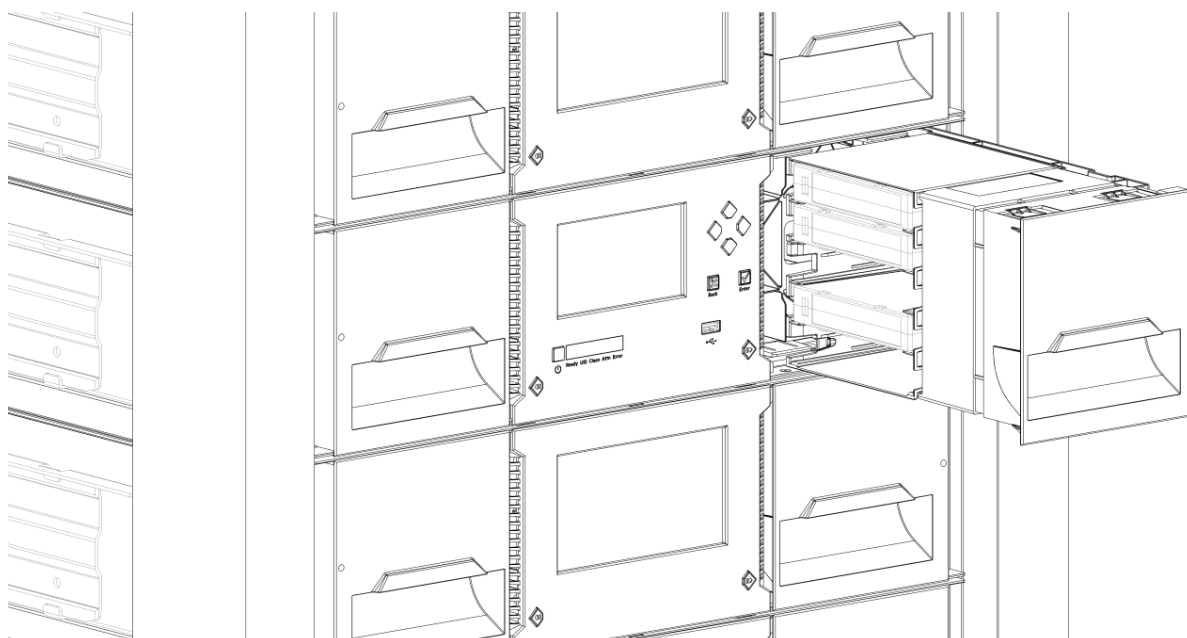
NOTE

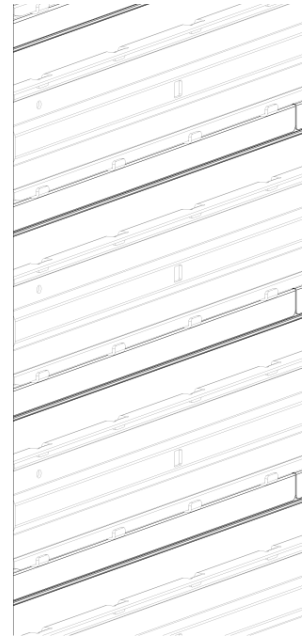
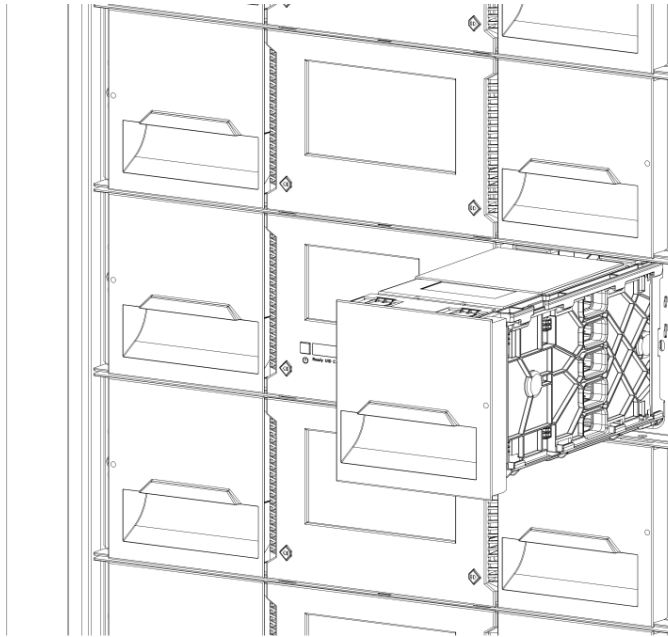
- The mailslot is attached to the magazine and cannot be removed completely
- The mailslot will relock after 30 seconds.



IMPORTANT

- You can enable mailslots only through the **Configuration > Mailslots** page on RMI. Enabling the mailslots through the OCP is not possible.
- Wait before pulling out the mailslot until the LED is quickly flashing and OCP message says that the mailslot is unlocked





Bulk Loading Magazines

1. **Press and hold** the unlock button next to the magazine for **>3 seconds**. The unlock sequence starts and the adjacent LED **flashes slowly**.
2. When the magazine is unlocked, the LED **flashes quickly**.
3. **Pull the magazine straight out**. As soon as it is removed, the LED **turns off**.



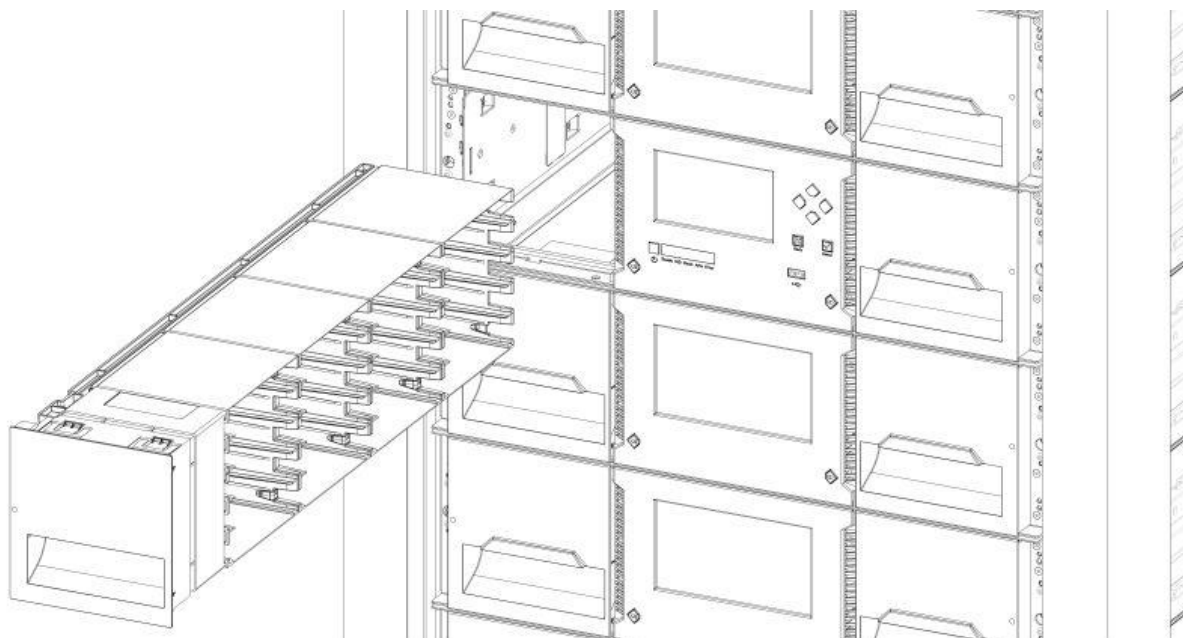
NOTE

- Opening a magazine will take the library off-line.
- The magazines will re-lock after 30 seconds.



IMPORTANT

Wait before pulling out the magazine until the LED is flashing and OCP message says that the magazine is unlocked.



4. **Load the tape cartridges** into the magazine, labels facing outward and oriented correctly. Do not force cartridges.
5. **Insert the magazine** into the library, keeping it level and guided by the rails.
6. **Push the handle in slowly** until the release latch **clicks**; the magazine is now locked in place.
7. **Repeat** for any remaining magazines.



IMPORTANT

Push the magazine fully into place until the latch snaps into place.

Verifying the Installation

After installation, confirm the library is on a **current firmware**. The firmware revision is shown **in the top-left corner of the RMI** or on the OCP at **Home > Status > Library > Library Status**.

If an update is needed, perform it from the **OCP or RMI** at **Maintenance > Software Upgrades > System Firmware**. Ensure the library is **idle**, on **stable power**, and **do not interrupt** the upgrade; the library will reboot when complete.

When configuration is finished, **back up the settings**. From the **OCP**, save to a **USB flash drive**; from the **RMI**, go to **Configuration > Save/Restore** and save to a file on your computer. Keep this backup with your service records to speed recovery from configuration errors or service events.

Configuring Additional Features

The library offers a range of features you can tailor to your environment, including:

- Enabling the mailslot. See [[Enabling or Disabling Mailslots](#)].
- Naming the library via the partitioning wizard. See [[Configuring Library Partitions](#)].
- Enabling and configuring SNMP network management. See [[Configuring SNMP](#)].
- Setting up email event notification. See [[Configuring Event Notification Parameters](#)].

Tape Cartridges and Magazines

This chapter explains which media to use with your library, and how to label and write-protect your tape cartridges. Careful labelling and handling of the tape cartridges will prolong the life of the tape cartridges and the library.

Using and Maintaining Tape Cartridges

Use the Ultrium data and cleaning tape cartridges designed for your model of library.



CAUTION

Do not degauss LTO data cartridges! These data cartridges are pre-recorded with a magnetic servo signal. This signal is required to use the cartridge with the LTO tape drive. Keep magnetically charged objects away from the cartridge.

To maximise the life of your cartridges:

- **Use only approved media** for your device/model.
- **Clean the tape drive** when the **Clean Drive** LED illuminates (use an approved cleaning cartridge).
- **Handle with care**—do not drop cartridges; shock can damage the shell or internal tape media.
- **Avoid heat and sunlight.** Keep cartridges away from heaters, ducts, and direct sun.
- **Observe environmental limits.** Operating: **10–35 °C (50–95 °F)**. Storage: –40 to +60 °C (–40 to +140 °F) in a dust-free, **20–80% RH environment**.
- **Acclimatise after extremes.** If a cartridge has been outside these limits, let it stabilise at room temperature for the **same duration** it was exposed (or **24 hours**, whichever is less) before use.
- **Keep away from electromagnetic sources.** Do not place cartridges near strong magnetic fields or EM sources (e.g., monitors, motors, speakers, X-ray equipment), which can destroy data and servo patterns.
- **Label correctly.** Apply identification labels **only** in the designated area.

Labeling Tape Cartridges

The library includes a barcode reader that scans cartridge labels and stores the resulting inventory in memory. This inventory is then presented to the **host application**, the **OCP**, and the **RMI**. Applying a barcode label to every cartridge is mandatory, as it lets the library identify media immediately and significantly reduces inventory time.

A correctly formatted LTO barcode ends with a **two-character media identifier** (e.g., **L9** for LTO-9, **L8** for LTO-8). The library enforces media compatibility using this suffix and will **not load incompatible media**—for example, a cartridge labelled as **LTO-7** will not be loaded into an **LTO-9** drive. This prevents time-consuming load attempts that would otherwise be rejected by the drive.

Your host software may track additional details against each barcode, such as:

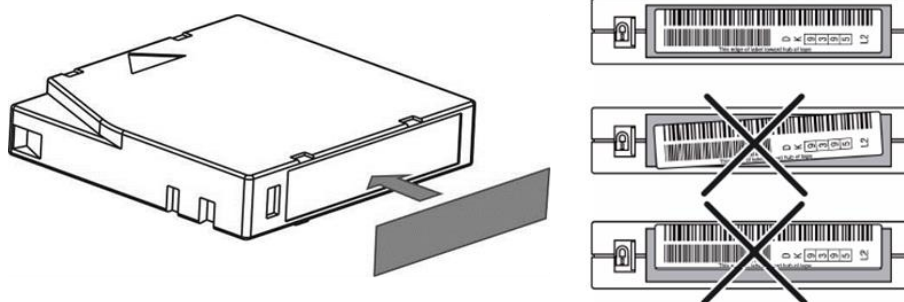
- Date of format/initialisation.
- Media pool membership.
- Data set or job information stored on the tape.
- Backup age/retention status.
- Error history (to identify suspect or failing media).



IMPORTANT

Misusing and misunderstanding barcode technology can result in backup and restore failures. Use only high-quality labels. Self-printed labels are not recommended as they are often a source of barcode reading issues.

LTO tape cartridges have a recessed area located on the face of the cartridge next to the write-protect switch. Use this area for attaching the adhesive-backed bar code label. **Only apply labels as shown:**

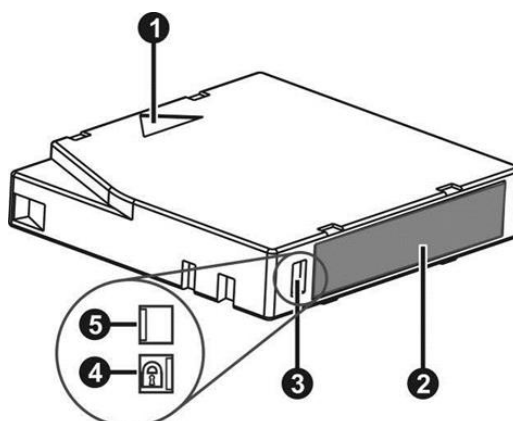


IMPORTANT

- The barcode label should only be applied as shown, with the alphanumeric portion facing the hub side of the tape cartridge.
- Never apply any label, anywhere else on the tape cartridge. This will cause the cartridge to jam in a tape drive.
- Never apply multiple labels onto a cartridge because extra labels can cause the cartridge to jam in a tape drive.

Write Protecting Tape Cartridges

All rewriteable data cartridges have a **write-protect switch** to prevent accidental erasure or overwriting of data. Before loading a cartridge into the device, make sure the write-protect switch on the front of the cartridge is in the desired position.



Number	Description
1	Insertion Arrow
2	Barcode Label Area
3	Write-Protection Switch
4	Write-Protected
5	Write-Enabled

Read and Write Compatibility

Ultrium Read/Write Compatibility:

Number	LTO-7 Drive	LTO-8 Drive	LTO-9 Drive	LTO-10 Drive
LTO-5 Media	Read Only	Incompatible	Incompatible	Incompatible
LTO-6 Media	Read & Write	Incompatible	Incompatible	Incompatible
LTO-7 Media	Read & Write	Read & Write	Incompatible	Incompatible
LTO-8 Media	Incompatible	Read & Write	Read & Write	Incompatible
LTO-9 Media	Incompatible	Incompatible	Read & Write	Incompatible
LTO-10 Media	Incompatible	Incompatible	Incompatible	Read & Write

Initial Setup of the SymplyPRO XTL 40 Library

Library Interfaces:

- **Operator Control Panel (OCP):** Monitor, configure, and control the library from the front panel.
- **Remote Management Interface (RMI):** Monitor, configure, and control the library from a web browser. The RMI presents an authenticated, graphical view of the library. *Note:* Some materials may refer to **RMU**; this is equivalent to **RMI**.

OCP operating philosophy:

- **Reservation & command arbitration (first-come, first-served).**
To avoid conflicts, a reservation mechanism grants control to the first requester—OCP, drive interface, or RMI. An OCP reservation ends on **OCP logout** or after **timeout** when **User Interaction Mode** ends, at which point the library becomes available for reservation by the RMI/host.
- **Impossible actions are blocked by firmware.**
The OCP will not allow operations such as moving a cartridge **to a full slot**; moving a cartridge **from an empty slot**; **loading** to a **full drive**; or **unloading** from an **empty drive**.
- **Error handling & indications.**
Errors that cannot be recovered by built-in algorithms are treated as **fatal**. A **numeric error code** appears on the OCP display and the **Error LED** illuminates. The code remains until a button is pressed, after which the OCP returns to the Home screen. **Numeric codes** are used only for **unrecoverable/fatal** errors; otherwise, the system presents **text status messages**.
- **Modes & security.**
Pressing and releasing any OCP button places the library into **User Interaction Mode**. This mode persists until **3 minutes** after the last button press, or until any requested robotic action completes—**whichever is longer**—then the OCP returns to **System-Driven Mode**.
 - A user security feature can restrict access so that, when enabled, User Interaction Mode exposes only the **Information** and **Login** menu items until a valid **PIN** is entered.

Status Icons:

	The green Status OK icon indicates that the library is fully operational, and that no user interaction is required
	The blue “exclamation mark” Status Warning icon indicates that user attention is necessary, but that the device can still perform most operations.
	The red X Status Error icon indicates that user intervention is required, and that the device is not capable of performing some operations.

Default Usernames & Passwords

RMI Username and Passwords

User Level	Password
User	systd
Administrator	syadm
Service	sysrv

Management Port (Gb Ethernet RJ45)	
IP Address	DHCP Default

The management port is set to DHCP, the resolved IP address can be accessed via the OCP display.

OCP Username and PIN

User Level	Password
User	0000
Administrator	0000

Using the OCP

The OCP has a power button, an LCD display, six navigation buttons, and five LEDs. With the OCP you can monitor, configure, and operate most library functions from the library front panel. To navigate the OCP, use the six navigation buttons (up/down, left/right, enter, and back).

OCP Front Panel Buttons

Number	Button	Description
1	Enter Button	The ENTER button to go to a sub menu or execute an action
2	Right Button	The RIGHT button is used to navigate through menu items
3	Up Button	The UP button is used to navigate backward through menu item
4	Left Button	The LEFT button is used to navigate through menu items
5	Down Button	The DOWN button is used to navigate backward through menu item
6	Back Button	The BACK button to go to back out of a menu, sub menu or action

OCP Front Panel LED Indicators

Item	Description
Unit ID	Blue when activated. The unit identification (UID) LEDs are controlled by the user through the RMI Maintenance > UID LED Control screen. The UIDs on the OCP and base module back panel are activated and deactivated together. In addition, UIDs on drives and expansion module back panels can be activated separately. The UIDs are helpful for locating components of the library in a data center.
Ready	Green, steady when power is on, blinking with tape Ready drive or library robotic activity
Clean	Amber when a tape drive cleaning operation is recommended.
Attention	Amber blinking if the library has detected a condition for which user attention is necessary, but that the library can still perform most operations.
Error	Amber if an unrecoverable tape drive or library error occurs. A corresponding error message is displayed on the LCD screen. User intervention is required; the library is not capable of performing some operations.

Using the RMI

With the RMI you can monitor, configure, and operate most library functions from a web browser. Where possible, use the RMI as your primary interface: it exposes additional features, includes online help, and is generally easier to use. The RMI is not required to operate the product day-to-day, but it is needed to configure advanced features such as SNMP, IPv6, encryption, and partitions.

Before using the RMI, configure the library's network settings on the OCP—typically via the Initial Configuration Wizard, see [\[Using the Initial Configuration Wizard\]](#). To start the RMI, open the latest version of a supported browser and enter the library's IP address in the address bar. Supported browsers include Firefox, Chrome, and Safari.

**TIP**

Check the online help in the RMI for additional information. The help pages are updated with firmware updates and often contain up-to-date technical details that might not be contained in this document. To access RMI help, click the “?” icon on the right side of the RMI top banner.

Using the Initial Configuration Wizard on the OCP

For initial configuration navigate to the **Home > Configuration > Initial System Setup** feature.

The wizard guides you through setting library network configuration, configuring date and time, and setting the administrator PIN. You can skip items and stop the wizard at any time.

**NOTE**

On the very first power up of the library the user is prompted to walk through the Initial Configuration wizard. It is recommended to walk completely through the wizard and finish the wizard by pressing the **Finish Button**. Otherwise with every login on the OCP the user will be prompted again to walk through the wizard.

Once you have configured the network settings, you can initiate the wizard from the RMI to complete the remaining configurations.

To login the very first time on the RMI you should use the default administrator password “**syadm**”. To set your own password go to the page **Configuration > User Accounts** on the RMI.

Operating the Library using the Operator Panel

The OCP contains a power button, an LCD display, six navigation buttons, and five LEDs. With the OCP you can monitor, configure, and operate most library functions from the library front panel. To navigate the OCP, use the six navigation buttons (up/down, left/right, enter, and back).

In addition, on each module two buttons are available to unlock magazines or I/O stations.

The OCP provides a subset of menu items compared to the full capability of the RMI. Menu items that are similar to the RMI are not described again in detail. For details, please refer to the corresponding item in the section Operating the library using the RMI

Front Panel LED Indicators:

Item	Description
Unit ID	Blue - The unit identification (UID) LEDs are controlled by the user through the Controlling the UID LEDs screen on the <i>RMI</i> . The UIDs on the <i>OCP</i> and base module back panel are activated and deactivated together. In addition, UIDs on drives and expansion module back panels can be activated separately. The UIDs are helpful for locating components of the library in a data center.
Ready	Green steady - power is on Green flashing - blinking with tape ready / drive or library robotic activity
Clean	Amber - a tape drive cleaning operation is recommended.
Attention	Amber blinking - the library has detected a condition for which user attention is necessary, but that the library can still perform most operations.
Error	Amber - an unrecoverable tape drive or library error occurs. A corresponding error message is displayed on the LCD screen. User intervention is required; the library is not capable of performing some operations.

OCP main screen layout:

- Left Pane - Displays the library status (firmware revision, number of modules, number of slots, number of drives, number of errors, number of warnings).
- Centre Pane - provides access to operate and configure the library and to view additional status information (Operation, Configuration, Maintenance, Status, Logout).
- Bottom Pane - Displays additional status information (library status, time/date, IPv4 or IPv6 address). The status pane displays one status information for 10 seconds and then switches to the next status item.

		Operation
		Configuration
		Maintenance
		Status
		Logout
FW	1.0.0-0001	
Modules	2	
Slots	13/72	
Drv	3	
Err	0	
Warn	1	
Time/Date: 07:25:37 08.12.2017		

OCP login

1. If the OCP screen saver is on, press **Enter** to get to the dashboard page.
2. On the Login screen navigate to the drop-down box and select the user.

IPv4: 172.16.25.93	
Select User:	user ▼ user administrator service
Enter PIN:	
	Clear Login

3. Then navigate to the **Enter PIN** field and enter the 4-digit PIN

Date/Time: 12:42:03 26.06.2017	
Select User:	administrator ▼
Enter PIN:	****
	Clear Login

4. Afterwards, navigate to **Login** and press **Enter**.

Magazine Buttons

Each magazine has an **unlock button** located adjacent to it on the front panel. A magazine can be configured with a portion designated as a **mailslot**. To unlock **only the mailslot**, press the button for **less than 3 seconds**. To unlock the **entire magazine**, press and hold the button for **more than 3 seconds**.



NOTE

The user will need to pull out the magazine, as the magazine does not eject.

After a magazine has been open and closed, a library inventory will be performed. The magazine button LED provides an indicator of the current state of that magazine.

Magazine State	LED state	Description
Closed	Steady ON	Mailslot is enabled
Closed	Slow Flash	Magazine unlock is in progress
Closed	Fast Flash	Magazine is unlocked
Closed	OFF	Mailslot is not enabled
Opened	OFF	Magazine is opened

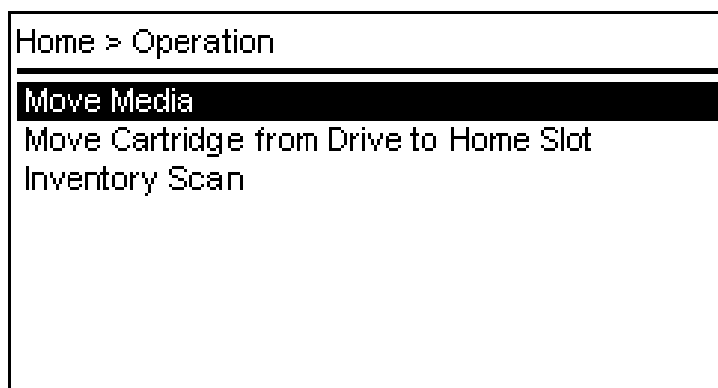


NOTE

- If a magazine unlock is in process, no other magazines or mailslots can be unlocked.
- If an unlocked magazine is not opened within 30 seconds, the magazine will be locked.

Operations – OCP

Navigate with the **Up/Down** buttons to the **Operation** menu entry on the **Home** screen to access the operation features.



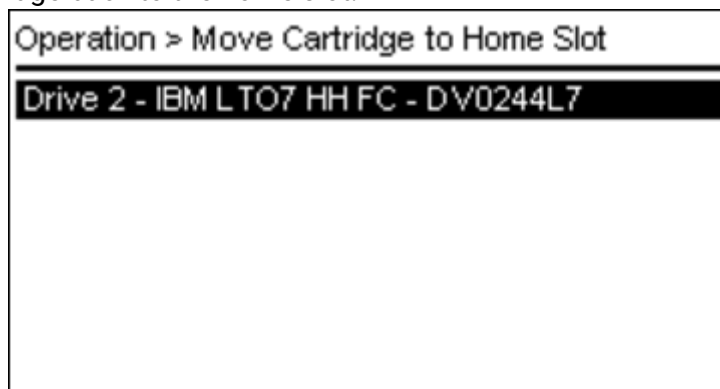
The Operation Menu provides the following sub menus:

- Move Cartridge from Drive to Home Slot
- Move Media
- Inventory Scan

Moving Cartridge from Drive to Home Slot

With the **Operation > Move Cartridge from Drive to Home Slot**, the user can move a cartridge from a drive back to its home slot.

1. The **Operation > Move Cartridge from Drive to Home Slot** screen displays all drives that contain cartridges. Navigate with the **Up** or **Down** to the drive where you want to move the cartridge back to the home slot.



2. Press **Enter**

Operation > Move Cartridge to Home Slot
Move cartridge DV0244L7 from Drive 2 to Home Slot
Submit

3. Press **Enter** to submit the **Move** command.**Move Media**

On the OCP, navigate to **Operation > Move Media**. The opening screen displays brief instructions:

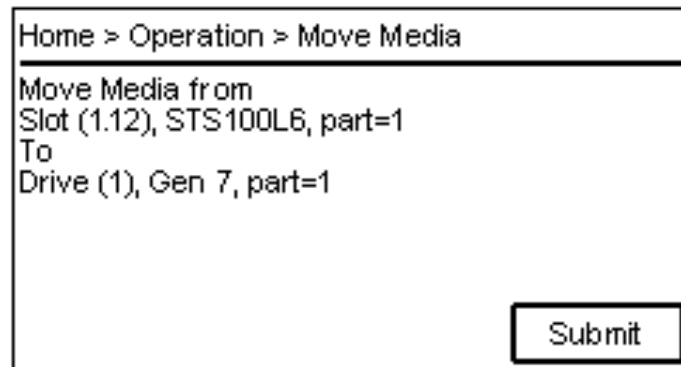
1. **Select the source.** Press **Enter** to open the source list (e.g., slots, drives, mailslot). Use **Up/Down** to highlight the source element, then press **Enter** to confirm. Press **Back** at any time to return to the **Operation** menu.

Home > Operation > Move Media (Source)
Slot (1.2), TD182ML4, part=1
Slot (1.3), TD115ML4, part=1
Slot (1.4), 000191L4, part=1
Slot (1.8), TD026ML4, part=1
Slot (1.12), STS100L6, part=1
Slot (1.34), TD227ML4, part=1
Slot (2.12), DQ0380L4, part=2
Slot (2.13), TD056ML4, part=2

2. **Select the destination.** Press **Enter** to open the destination list. Use **Up/Down** to highlight the destination element, then press **Enter** to start the move. Press **Back** to cancel and return to the **Operation** menu.

Home > Operation > Move Media (Destination)
Mailslot (1.39), part=1
Mailslot (1.40), part=1
Mailslot (2.36), part=2
Mailslot (2.37), part=2
Mailslot (2.38), part=2
Mailslot (2.39), part=2
Mailslot (2.40), part=2
Drive (1), Gen 7, part=1

3. Press **Enter** to open the final **Summary** page and review the selected **source** and **destination**.



Home > Operation > Move Media

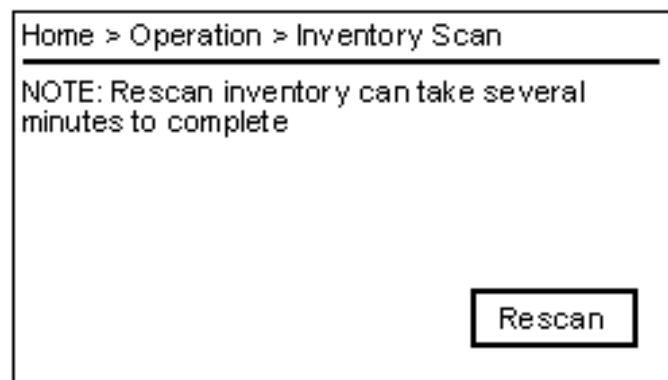
Move Media from
Slot (1.12), STS100L6, part=1
To
Drive (1), Gen 7, part=1

Submit

4. Press **Enter** again to **submit** and start the **Move Media** operation. When the move completes, the OCP returns to the first (Intro) page. Press **Back** at any time to **abort** and return to the **Operation** menu. Use the **Left/Right** keys to step back through the pages and change your selections before submitting.

Inventory Scan

Navigate to **Operation > Inventory Scan** page. Pressing the Enter button will start the inventory scan process.



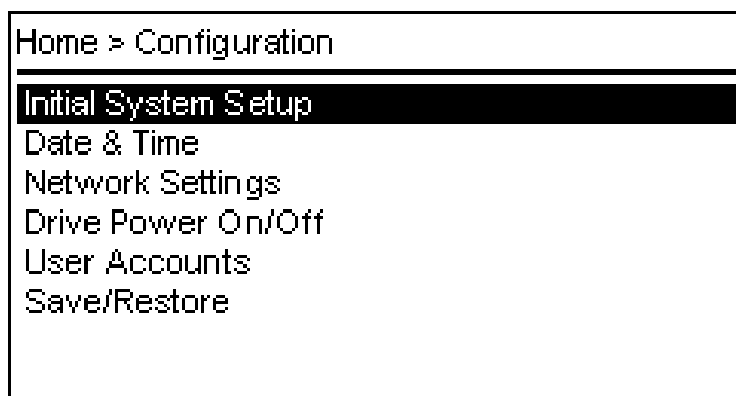
Home > Operation > Inventory Scan

NOTE: Rescan inventory can take several
minutes to complete

Rescan

Configuration via OCP

Navigate with the **Up/Down** buttons to the **Configuration** menu entry on the **Home** screen to access the configuration features.



The Configuration Menu provides the following sub menus:

- Initial System Setup
- Date & Time
- Network Settings
- Drive Power On/Off
- User Accounts
- Save/Restore

Initial System Setup via OCP

For initial configuration go to the **Configuration > Initial System Setup** screen.

The wizard guides you through setting library network configuration, configuring date and time, and setting the administrator PIN. You can skip items and stop the wizard at any time. When you have configured the network settings, you can initiate the wizard from the RMI to complete the remaining configurations.

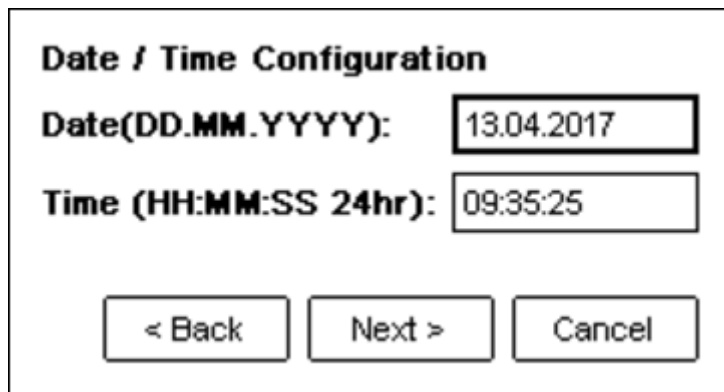


NOTE

On the very first power up of the library the user is prompted to walk through the Initial Configuration wizard. It is recommended to walk completely through the wizard and finish the wizard by pressing the **Finish Button**. Otherwise with every login on the OCP the user will be prompted again to walk through the wizard.

To login the first time on the RMI you should use the default administrator password “**syadm**”. To set your own password go to the page **Access > Users** on the RMI.

1. Press **Next>**, then **Enter** to start the wizard beginning with the network configuration.
2. In the network configuration menu, you can configure these items:
 - Host Name
 - Domain Name
 - Protocol Name
 - IPv4 Setting
 - Method
 - IPv4 Address
 - Netmask
 - IPv4 Gateway
 - IPv4 DNS1
 - IPv4 DNS2
 - IPv6 Setting
 - Method
 - IPv6 Address
 - IPv6 Gateway
 - Prefix Length
 - IPv6 DNS1
 - IPv6 DNS2
3. When finished with the network settings, select **Next>** and press **Enter** to switch to date and time.



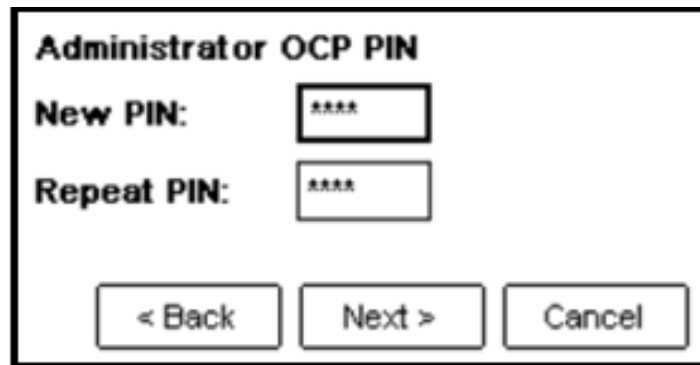
Date / Time Configuration

Date(DD.MM.YYYY): 13.04.2017

Time (HH:MM:SS 24hr): 09:35:25

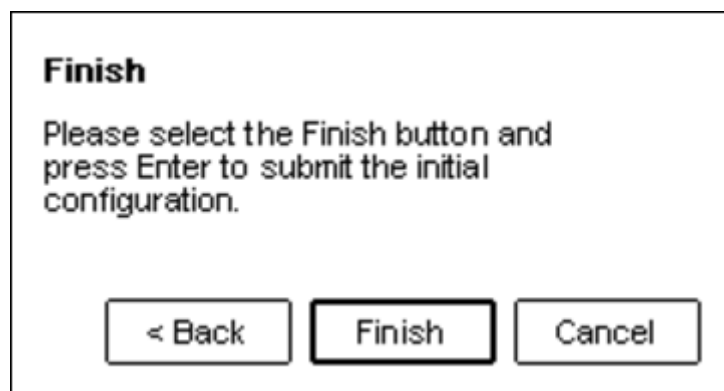
< Back Next > Cancel

4. When finished with the date and time settings, select **Next>** and press **Enter** to switch where the OCP PIN can be changed.



The image shows a screen titled "Administrator OCP PIN". It has two input fields: "New PIN:" and "Repeat PIN:", each containing five asterisks. At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

5. When finished with the PIN change, select **Next>** and press **Enter** to switch to the finish screen.

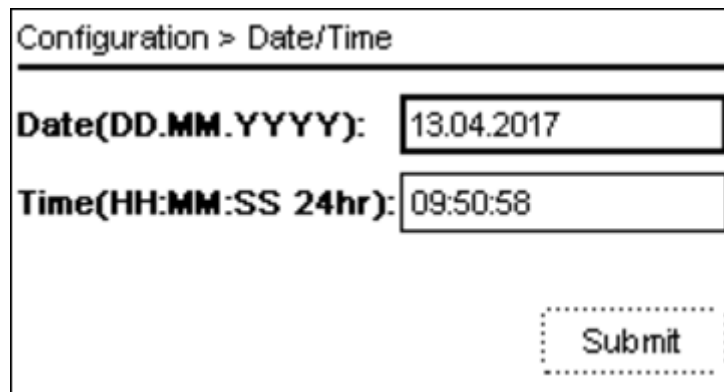


The image shows a screen titled "Finish". It contains the text: "Please select the Finish button and press Enter to submit the initial configuration." At the bottom, there are three buttons: "< Back", "Finish", and "Cancel".

6. To keep the settings, select **Finish** and press **Enter**. With **Cancel**, you can skip the configuration and leave the wizard without any changes. With **Back**, you can correct your changes before they are submitted.

Date & Time

To configure date and time navigate to the **Configuration > Date & Time** screen.



The screenshot shows a screen titled "Configuration > Date/Time". Below the title, there are two input fields. The first field is labeled "Date(DD.MM.YYYY):" and contains the text "13.04.2017". The second field is labeled "Time(HH:MM:SS 24hr):" and contains the text "09:50:58". At the bottom right of the screen, there is a button labeled "Submit" with a dotted border.

1. Press **Enter** and use **Up** or **Down** to change the day.
2. Press the **Right** button to move to the month and select the correct month.
3. Repeat this procedure for the year.
4. Press **Enter**.
5. Press **Down** to navigate to the **Time** field.
6. Press **Enter** and use **Up** or **Down** to change the hours.
7. Press the **Right** button to move to the minutes and select the correct minutes.
8. Repeat this procedure for seconds.
9. Press **Enter**. Now **Submit** is activated.
10. Press **Down** to navigate to Submit.
11. Press **Enter** to submit the new date and time.

Network Settings

To configure the network settings, go to the **Configuration > Network Settings** screen.

Configuration > Network Settings

Host Name:
TL-8019C5

Domain Name:

Protocol:
IPv4/IPv6

The following settings can be changed on the **Network Settings** screens:

- IPv4 Setting
 - Method
 - IPv4 Address
 - Netmask
 - IPv4 Gateway
 - IPv4 DNS1
 - IPv4 DNS2
- IPv6 Setting
 - Method
 - IPv6 Address
 - IPv6 Gateway
 - Prefix Length
 - IPv6 DNS1
 - IPv6 DNS2

Drive Power On/Off

From the **Configuration > Drive Power On/Off** page you can switch power on or off for an installed drive.

Home > Configuration > Drive Power On/Off

Drive 1 - IBM LTO7 HH SAS

Drive 2 - IBM LTO7 HH FC

Drive 3 - IBM LTO6 HH FC

1. The page provides a list of all installed drives. Select the **drive** where you want to change the drive power status and press **Enter**.
2. The page for the selected **drive** provides further details for this drive. Press **Enter** to change the drive power status.

Drive Power On/Off > Drive 1	
Power:	On Power Off
Drive Num:	1
S/N:	000000005C
Vendor:	HP
Type:	LT07 HH FC
Cartridge:	Empty

3. A dialog box will prompt the user to confirm the change of the drive power status.

Warning	
Are you sure you want to Power Off the drive?	
Yes	No

User Accounts

The **Configuration > User** Accounts page provides the following submenus:

- Change PIN
- Restricted RMI Login

Home > Configuration > User Accounts	
Change PIN	
Restricted RMI Login	

From the **Configuration > User Accounts > Change PIN** page you can change the PIN to access the OCP.

User Accounts > Change PIN

Select User:

OCP user

OCP user

OCP administrator

RMI user

RMI administrator

Enter PIN:

Repeat PIN:

Submit

1. Navigate to the user dropdown box and select a user.
2. Navigate to the Enter PIN field.
3. Press **Enter** and use the **Up** or **Down** buttons to select the first number of the PIN.
4. Press the **Right** button to move to the next number and select the second number.
5. Repeat this procedure for the third and fourth numbers.
6. Press **Enter**.
7. Press the **Down** button to navigate to the Repeat PIN field.
8. Run steps 1 to 3 and repeat the PIN.
9. Press **Enter**. Now **Submit** is activated.
10. Press the **Down** button to navigate to the **Submit** button.
11. Press **Enter** to submit the new PIN.



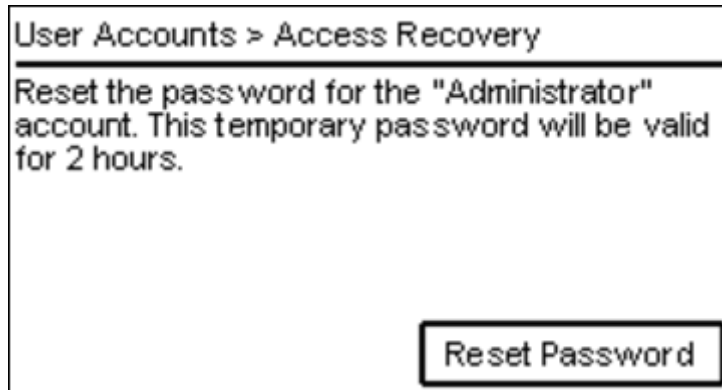
NOTE

As long as you stay logged in, the new PIN will not become active. Only after logout the new PIN will be valid.

User Accounts Password Recovery

From the OCP **Configuration > User Accounts > Access Recovery** page you can generate a temporary administrator password for login on to the RMI which is valid for 2 hours. This is helpful in case the administrator account was locked because of too many login tries with an invalid password.

1. After entering the **Access Recovery** menu, the screen below will be shown.



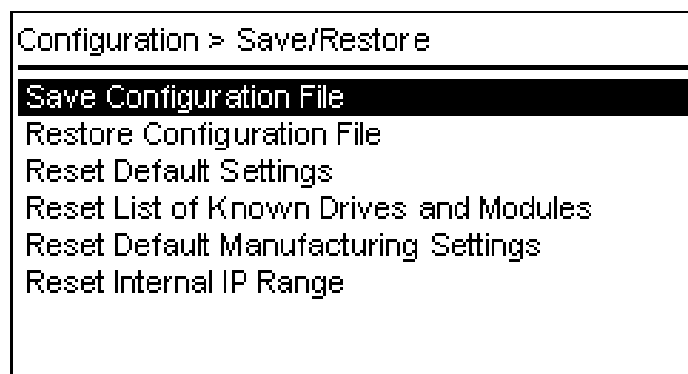
2. Press **Enter** to generate the temporary password. The password is shown in the popup message.



Save/Restore

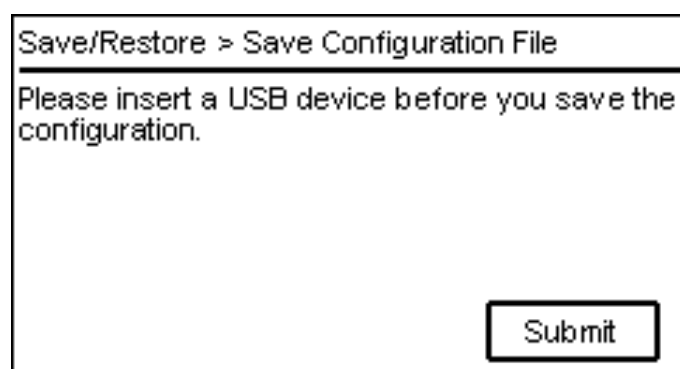
The **Configuration > Save/Restore** page provides the following submenus:

- Save Configuration File.
- Restore Configuration File.
- Reset Default Settings.
- Reset the List of Known Drives and Modules.
- Reset Default Manufacturing Settings (only accessible with service PIN).
- Reset Internal IP Range.

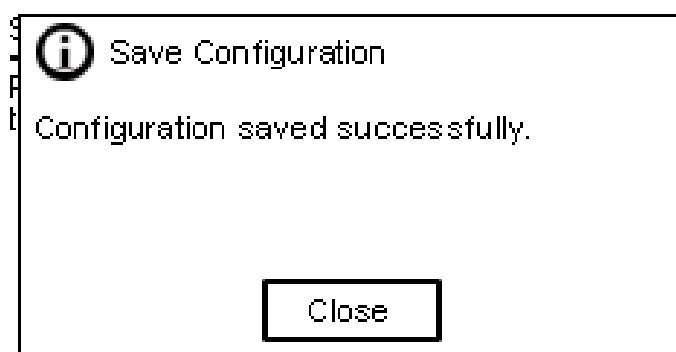


Save Configuration File

From the **Save/Restore > Save Configuration File** page you can save the library configuration on a USB device.

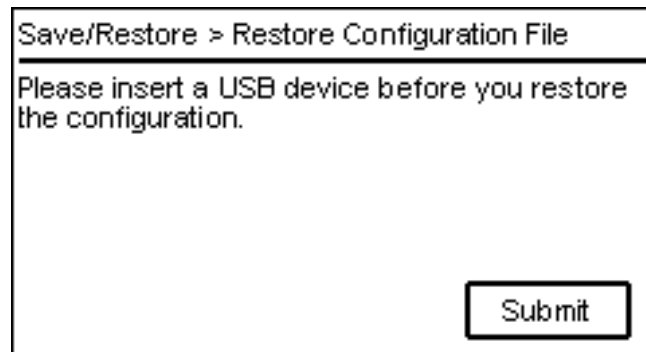


1. Insert a USB device on the OCP.
2. Press **Submit** to save the configuration file on the USB device. A dialog box will notify the user that the saving process has started.
3. If the configuration file was saved successfully the following dialog will be displayed.



Restore Configuration File

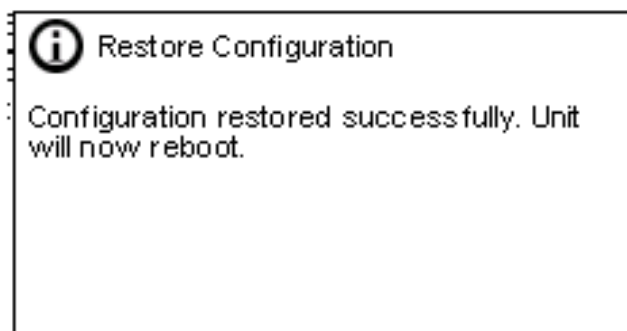
From the **Save/Restore > Restore Configuration File** page you can restore the library configuration from a USB device.



1. Insert a USB device on the OCP.
2. Press **Submit** to start the restore process.
3. A dialog box will prompt the user to confirm the restore process.

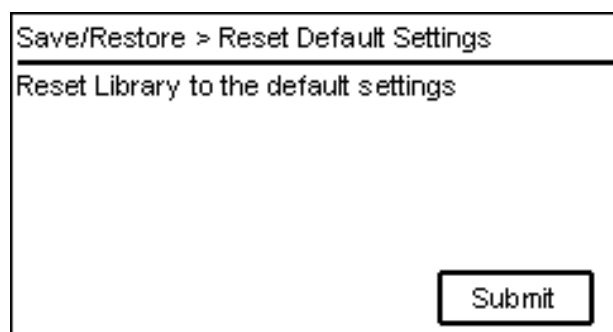


4. If the configuration file was restored successfully the following dialog box will be displayed.

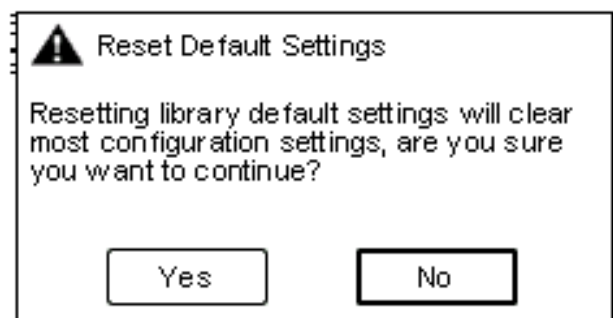


Reset Default Settings

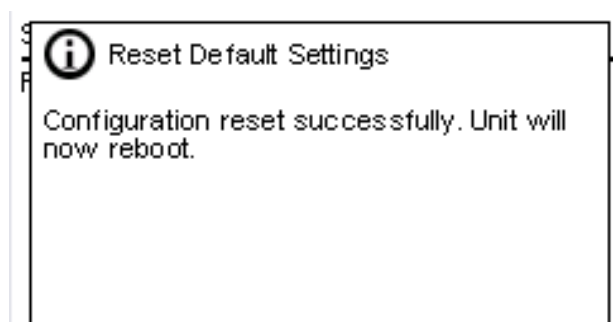
From the **Save/Restore > Reset Default Settings** page you can reset the library to default configuration settings.



1. Press **Submit** to reset the configuration settings to default.
2. A dialog box will prompt the user to confirm to reset to defaults.

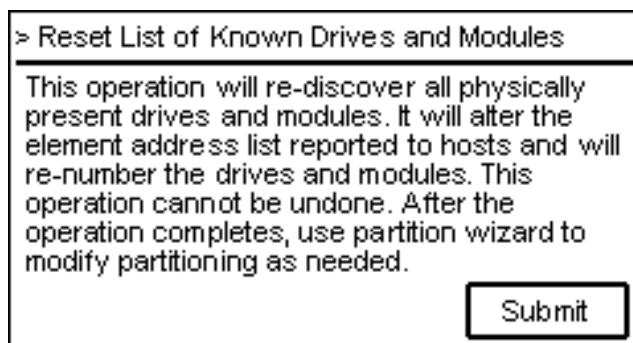


3. If the reset to default settings was successful, the following dialog box will be dispatched.

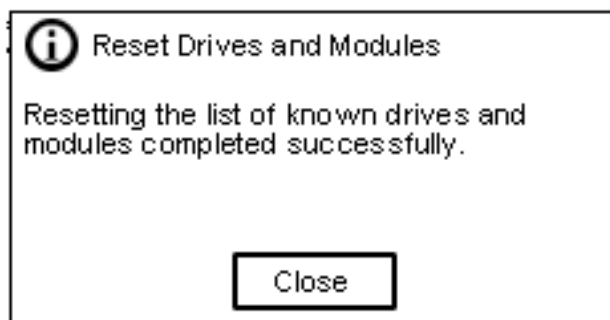


Reset List of Known Drives and Modules

The **Save/Restore > Reset List of Known Drives and Modules** page enables you to remove non-present Modules and Drives from the library stack.



1. Press **Submit** to reset the list of drives and modules in the library stack.
2. A dialog box will prompt the user to confirm to reset the list.
3. If resetting the list of drives and modules was successful, the following dialog will be displayed.



Reset Default Manufacturing Settings

From the **Save/Restore > Reset Default Manufacturing Settings** page you can reset the library to default manufacturing configuration settings.



NOTE

This Reset feature is only available with Service login

> Reset Default Manufacturing Settings

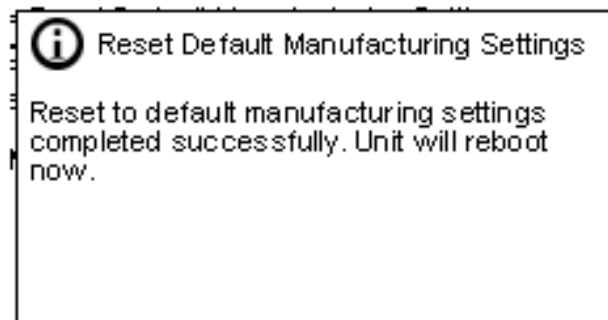
Reset Library to the default manufacturing settings.

NOTE: This command should only be used by factory personnel.

Submit

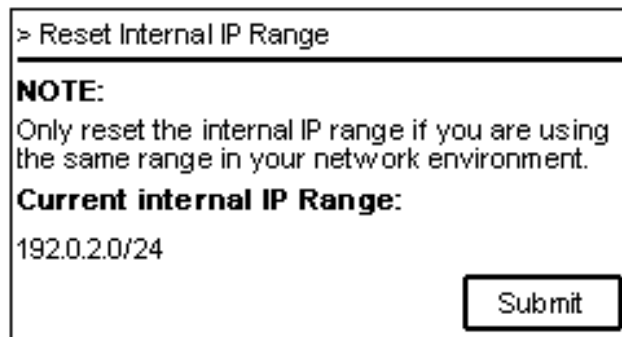
1. Press **Submit** to reset the configuration settings to default.
2. A dialog box will prompt the user to confirm to reset to defaults.

3. If the reset to default settings was successful, the following dialog box will be displayed.



Reset Internal IP Range

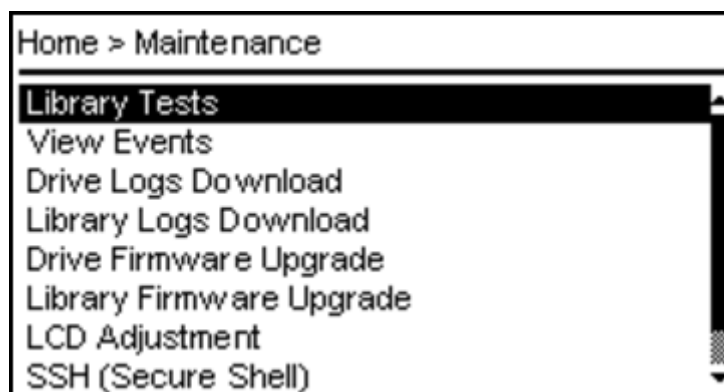
From the **Save/Restore > Reset Internal IP Range** page you can reset the internal IP range.



1. Press **Submit** to reset the configuration settings to default.
2. A dialog box will prompt the user to confirm to reset to defaults.

Maintenance via OCP

Use the **Up/Down** buttons to go to **Maintenance** on the Home screen to access the configuration features.



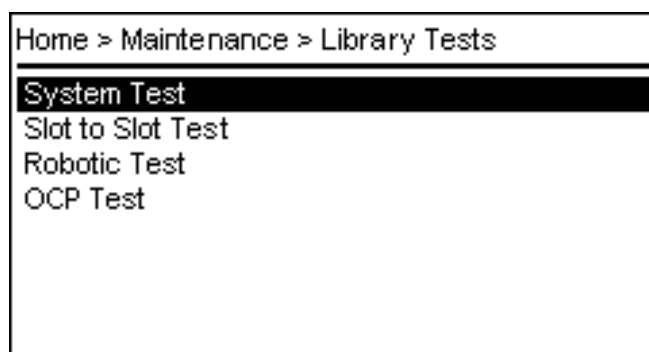
The **Maintenance Menu** provides the following sub menus:

- Library Tests.
- View Events.
- Drive Logs Download.
- Library Logs Download.
- Drive Firmware Upgrade.
- Library Firmware Upgrade.
- LCD Adjustment.
- SSH (Secure Shell).

Library Tests

The **Maintenance > Library Tests** page provides the following sub menus:

- System Test.
- Slot to Slot Test.
- Robotic Test.
- OCP Test.



NOTE

Other Library Tests like Wellness Test or Element to Element Test are only available on RMI. To run these tests please go to the **Maintenance > Library Tests** page on RMI and select the test from the menu list.

System Test

To run the System Test, go to the **Maintenance > Library Tests > System Test** screen.

The System Test exercises overall library functionality by moving cartridges within the library.

Library Test > System Test	
Cycles:	1 ▼ Start Test
Media:	Seating ▼
Test Status:	Passed Ticket ID: N/A
Direction:	Drive (1) => Slot (2.28)
Cycles:	1 of 1

- During each cycle the library moves a cartridge from a full slot to an empty drive and then returns it to its original slot. You can select the number of cycles for the test. If the test is cancelled, the library returns the cartridge to its original slot.
- The library does not move cleaning cartridges during the test.
- The test operates across the entire library and does not consider partition configuration.
- During the test the library is offline.

Slot to Slot Test

To run the System Test, go to the **Maintenance > Library Tests > Slot to Slot Test** screen.

The Slot to Slot Test exercises overall library functionality by moving cartridges between magazine slots within the library.

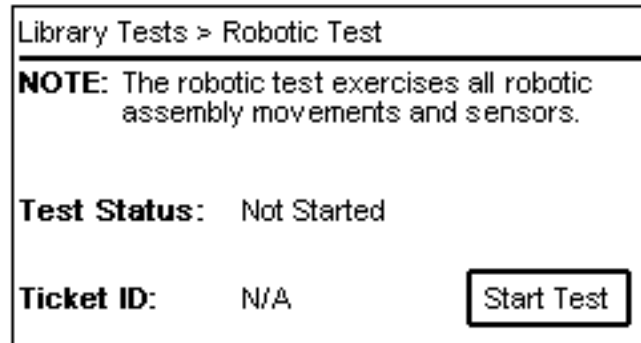
Library Tests > Slot to Slot Test	
Cycles:	1 ▼ Start Test
Test Status:	Not Started
Direction:	N/A
Cycles:	N/A
Ticket ID:	N/A

- During each cycle the library moves a cartridge from a full slot to an empty, randomly selected slot. You can select the number of cycles for the test. If the test is cancelled, the library completes the current move and then stops.
- The test operates across the entire library and does not consider partition configuration.
- During the test the library is offline.

Robotic Test

To run the System Test, go to the **Maintenance > Library Tests > Robotic Test** screen.

The Robotic Test exercises overall robotic functionality by initializing motors and checking sensors and barcode reader. During the test the library is offline.



Library Tests > Robotic Test

NOTE: The robotic test exercises all robotic assembly movements and sensors.

Test Status: Not Started

Ticket ID: N/A

The field **Test Status** provides the following status information:

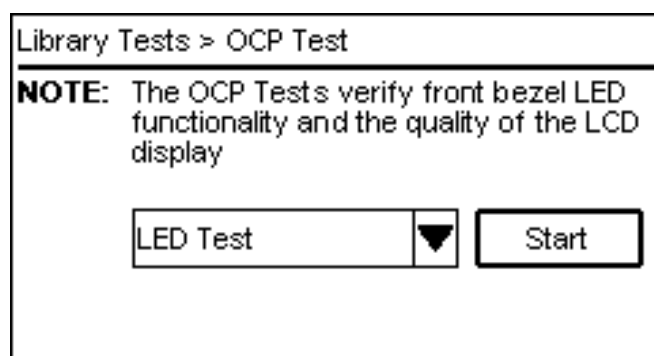
- Not Started
- Running
- Passed
- Aborted
- Failed (according to Ticket ID for the failure is posted)

Operator Control Panel Test

To run the OCP Test, go to the **Maintenance > Library Tests > OCP Test** screen.

The OCP Test exercises the functionality of the LEDs on the OCP. The LED Test switches every LED on/off sequentially left to right and right to left.

During the test the library is offline.



Library Tests > OCP Test

NOTE: The OCP Tests verify front bezel LED functionality and the quality of the LCD display

LED Test ▼

View Events

From the **Maintenance > View Events** screen you can get a quick overview of the recent Error Events and Warning Events.

1. Navigate with the **Up** and **Down** buttons to select **Warning** or **Error Event Ticket Log** from the list.
2. Press **Enter**.
3. The screen shows these components:
 - Ticket number.
 - Event Code.
 - Time.
 - Component.
 - ID.
 - Description.

Small arrows on the left and right side indicate that the log contains more than one ticket. To go to the previous/next ticket use the **Left** or **Right** button.

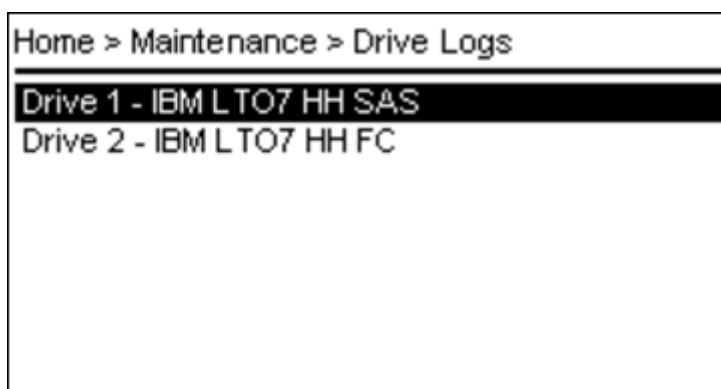
Example View Error Events:

View Error Event Ticket Log			
Ticket-No:	237	Event:	2036
Time:	01:02:17	01.01.1970	
Comp.:	SYSTEM	ID:	1
◀ Description: ▶			
Unintended termination of application process			

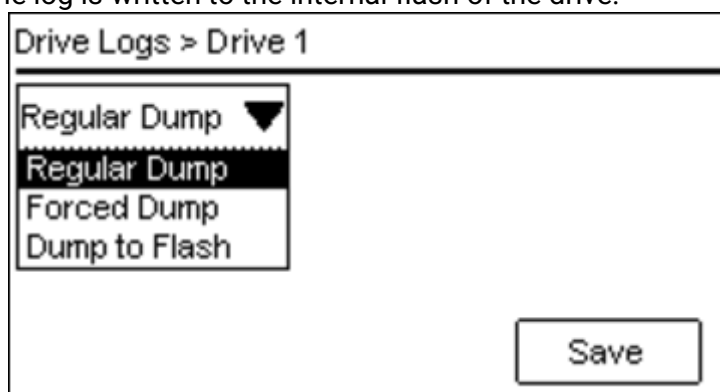
View Warning Event Ticket Log			
Ticket-No:	238	Event:	4021
Time:	03:44:51	01.01.1970	
Comp.:	DRIVE	ID:	1 (10)
Description:			
Drive has been hot removed while in active status as data transfer device			

Drive Logs Download

From the **Maintenance > Drive Logs** pages you can download logs from every drive that is installed in the library.



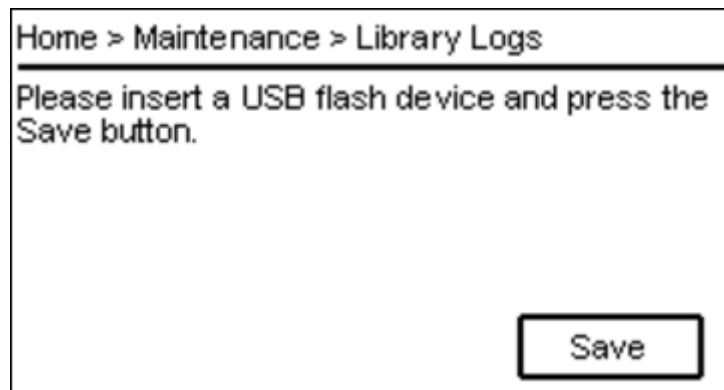
1. Use the **Up** and **Down** button to choose the drive and use **Enter** to confirm the selection.
2. On the next screen you can select different drive log types. Press **Enter** and use the **Up** or **Down** button to change the drive log type and confirm the selection with **Enter**. For the *Regular Dump* and *Forced Dump* log type, a USB flash device must be connected to the library USB port. The *Dump to Flash* type does not require a USB flash device, the log is written to the internal flash of the drive.



3. Press the **Down** button to go to the **Save** button.
4. Press **Enter** to start the download.

Library Logs Download

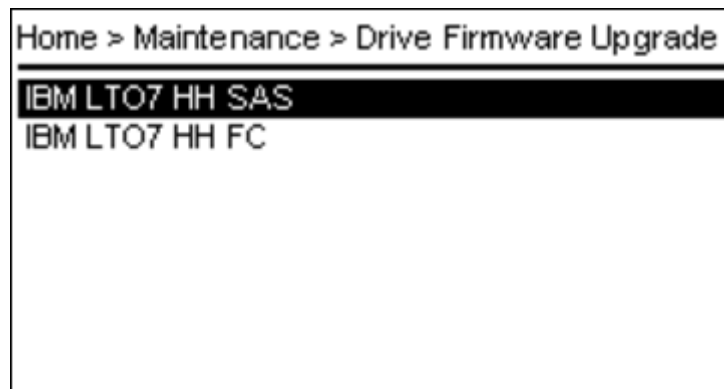
From the **Maintenance > Library Logs** pages you can download the library logs to a USB flash device.



1. Insert a USB flash device and press **Enter** to start the download.

Upgrading Drive Firmware

From the **Maintenance > Drive Firmware Upgrade** pages you can have the possibility to upgrade every drive that is installed in the library.



To update the drive firmware from the Operator Panel, the drive firmware files need to be available on the USB flash drive.

1. Use the **Up** and **Down** button to select a drive from the drive list.
2. On the next screen you can select either
 - a. Upgrade all installed drives of the same type (same Generation, Form Factor and Interface Type).
 - b. One specific drive of the previously selected type.
3. Navigate with the **Up** and **Down** to one option and confirm the selection with **Enter**.

Drive Firmware Upgrade > IBM LTO7 HH SAS

☐ Select All

☒ Drive 1 - IBM LTO7 HH SAS - FW: H3FF

Next

4. Press the **Down** button to navigate **Next**.
5. Use the **Up** and **Down** buttons to select the firmware image name you can use for the upgrade process and confirm the selection with **Enter**.
6. Press the **Down** button to go to **Submit**.
7. Press **Enter** to start the upgrade process.

Library Firmware Upgrade

From the **Maintenance > Library Firmware Upgrade** pages you can upgrade the firmware of the library. When the library firmware is updated, the library will also update the firmware of the expansion modules to a compatible version.

1. To update the library firmware from the Operator Panel, the library firmware file needs to be available on a USB flash drive. Insert the USB device and continue press **Enter**.

Maintenance > Library Firmware Upgrade

Current Installed Library Firmware:

1.0.0-0001

Please insert a USB device with the upgrade file.

Next

2. Use **Up** and **Down** to go to the firmware image name you can use for the upgrade process. Confirm the selection by clicking **Enter**.

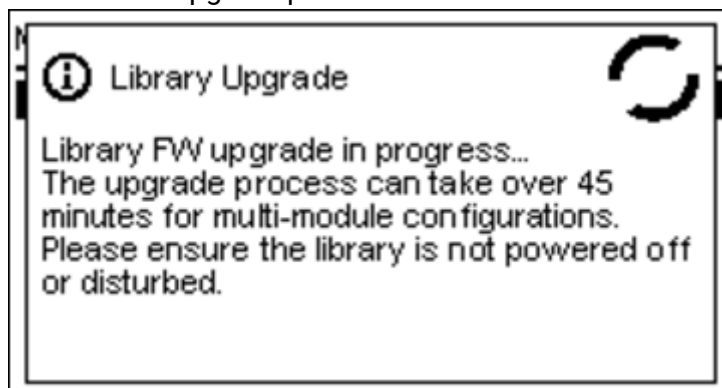
Maintenance > Library Firmware Upgrade

MR3U_1.0.0-0001_BDT.fbi

Submit

3. Press **Down** to go to **Submit**.

- Press **Enter** to start the upgrade process.



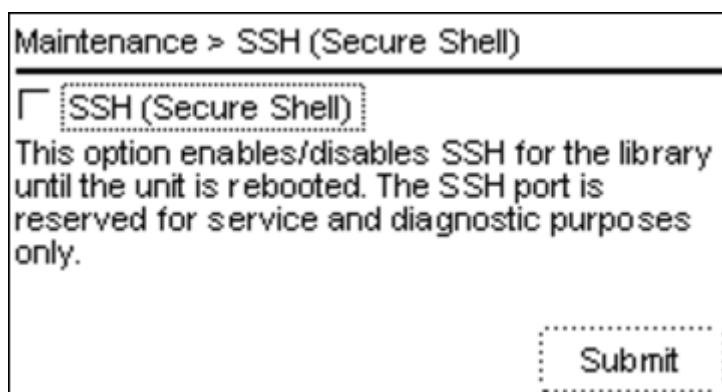
LCD Adjustment

On the **Maintenance > LCD Adjustment** page, the LCD display can be adjusted according to your personal needs. You can adjust contrast and backlight brightness of the LCD display.

- On the **Home > Maintenance** screen select **LCD Adjustment** and press **Enter**. This action opens the **Maintenance > LCD Adjustment** screen.
- The **Adjust Contrast** button is active. Press **Enter** to open the contrast adjustment screen.
- With the **Right** button you can move the slider to the right and increase the contrast, with the **Left** button you can move the slider to the left and decrease the contrast.
- Press **Back** when you are finished to get back to the **Maintenance > LCD Adjustment** screen.
- To go to the **Adjust Backlight** button press **Up** or **Down**. Press **Enter** to open the backlight adjustment screen.
- Adjust the backlight with the **Left** or **Right** button.
- Press **Back** to go back to the **Maintenance > LCD Adjustment** screen.
- When you are finished with the adjustment press **Down**, then select **Submit**.
- Press **Enter** to submit the new adjustment values.

SSH (Secure Shell)

On the **Maintenance > SSH (Secure Shell)** page, you can enable the SSH port on the network interface.



1. Press **Enter** to check SSH (Secure Shell), check box. Now **Submit** is activated.
2. Press **Down** to navigate to the Submit button.
3. Press **Enter** to submit the change.

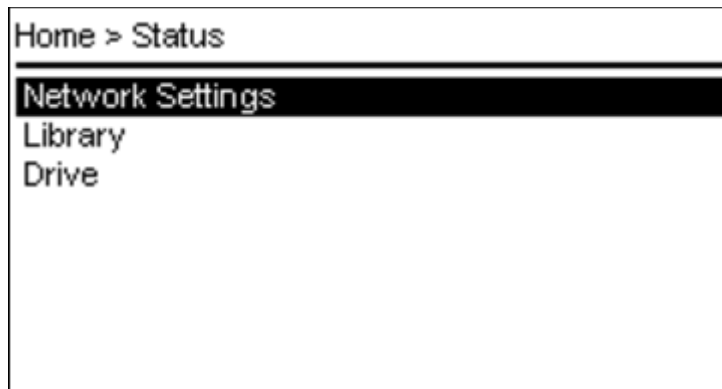


NOTE

This feature is reserved for on-site diagnostic and failure analysis only. It is intended to provide root access for software engineers to review low level traces.

Status Information via OCP

Use the **Up/Down** buttons to go to the **Status** on the Home screen to access the status information.



The Status Menu provides the following sub menus:

- Network Settings.
- Library.
- Drive.

Network Settings

From the **Status > Network Settings** screen you can see the status of the network settings.

This status page provides the following information:

- Host Name
- Domain Name
- Protocol

General Network Settings:

- MAC Address
- Link Status
- Link Speed
- Duplex

IPv4:

- DHCP
- Address
- Netmask
- Gateway
- DNS 1
- DNS 2

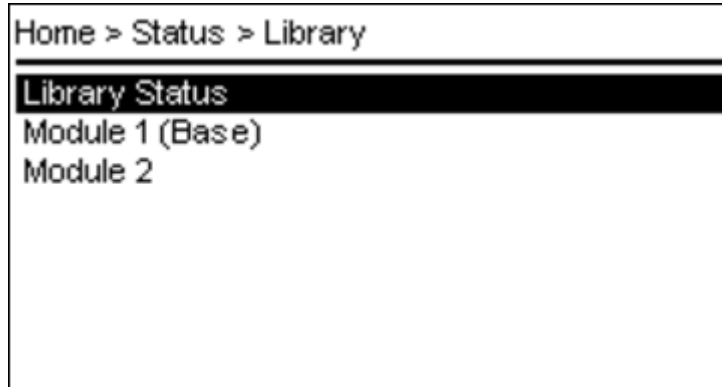
IPv6:

- Method
- Address
- Prefix Length
- Gateway
- DNS 1
- DNS 2

Library Status

From the **Status > Library** screen you can see the library status information.

- Library Status.
- Module Status for each single module in the stack (up to 7 modules).



The **Status > Library > Library Status** screen provides the following status information:

Library Information:

- Vendor
- Product ID
- Serial Number
- Base Firmware Revision
- Expansion Firmware Revision
- Robotic Hardware Revision
- Robotic Firmware Revision
- Barcode Reader Hardware Revision
- Barcode Reader Firmware Revision

Library Status:

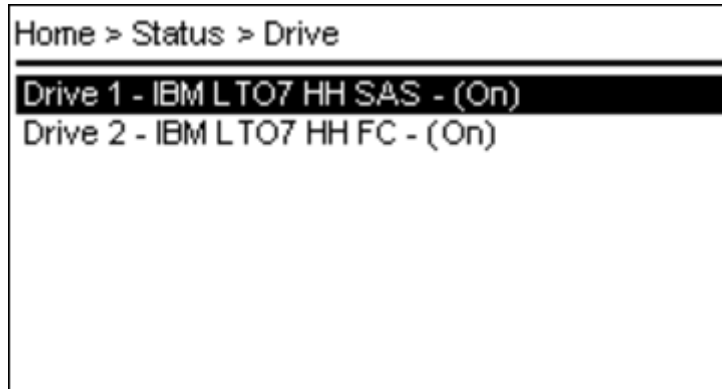
- Library Status - e.g. Scanning, Moving, Idle
- Total Power On Time - days/hours/minutes
- Cartridge in Transport - source slot of current moving cartridge
- Odometer
- Robotic Location - Position in Stack
- Shipping Lock - Locked/Unlocked

The **Status > Library > Module** screen provides the following status information:

- Controller Revision - Base/Expansion controller
- Power Supply Status
- Lower Power Supply - Present/Not Present
- Upper Power Supply - Present/Not Present

Drive Status

From the **Status > Drive** screen you can see the configuration and status of each drive that is installed in the library. Use **Up** and **Down** to select a drive from the drive list. The drive list provides the powered status of the drives (On or Off).



The **Status > Drive > Drive x** screen provides the following status information:

- Vendor.
- Personality.
- Firmware.
- Generation.
- Form Factor – HH (Half-Height) or FH (Full-Height).
- Interface Type - Fibre Channel (FC) or SAS.
- Manufacturer S/N.
- Powered – On or Off.
- WWNN.
- Temperature.
- Logical Library.
- Encryption.
- Cartridge - Barcode label, N/A if no cartridge loaded.
- Module Location.
- Cooling Fan Status – Active or Not Active

Fibre Channel Drive: Status for Port 0 and Port 1 (if present):

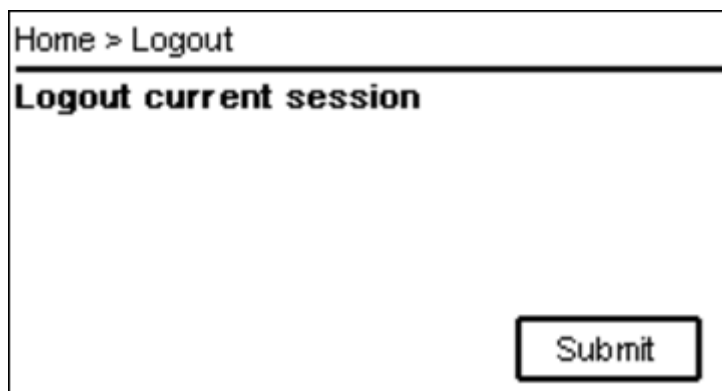
- WWPN.
- Speed.
- Port Type.
- Port ID or Loop ID / ALPA.
- Interface.

SAS Drive: Status for Port 0 and Port 1:

- WWPN.
- Interface.
- Speed.

Logout of the OCP

Use the **Up/Down** buttons to go the **Logout** on the Home screen to access the **Logout** screen. On the **Logout** screen you can exit the current session on the operator panel and return to the login screen.

A screenshot of a terminal-style interface. At the top, it says "Home > Logout" followed by a horizontal line. Below the line, the text "Logout current session" is displayed. In the bottom right corner, there is a rectangular button labeled "Submit".

Home > Logout

Logout current session

Submit

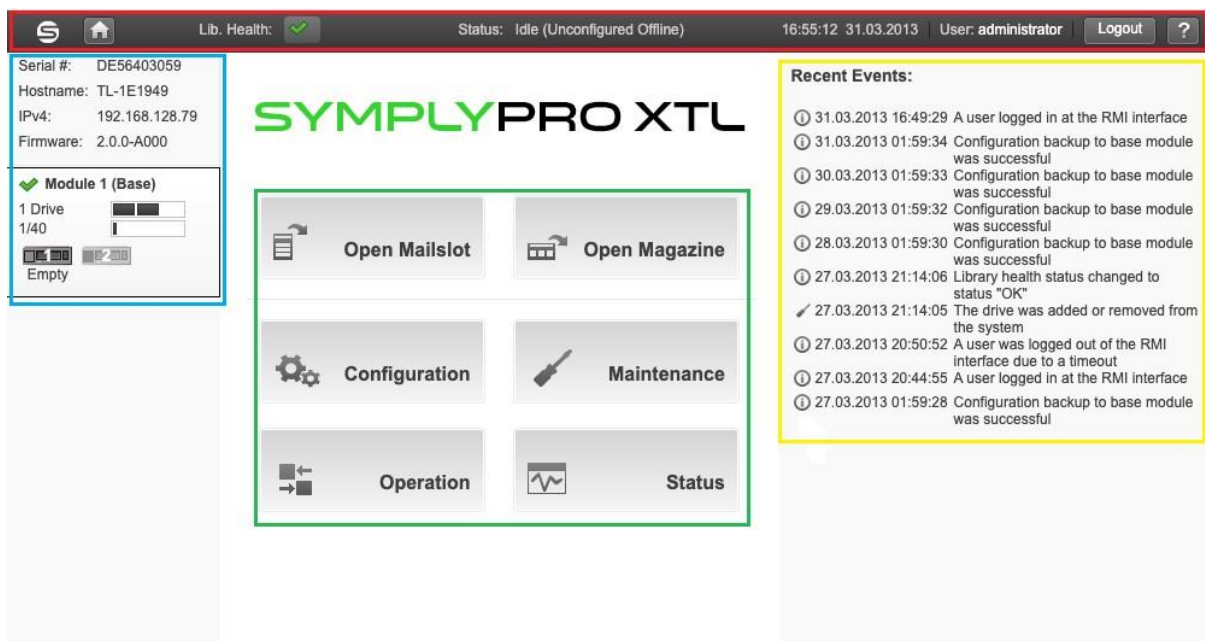
Press **Enter** to logout and return to the login screen.

Operating the library using the RMI

Using the Library main screen on the RMI

The library's main screen is organized into the following regions:

- **Top Banner** - Contains the home button and displays the overall status and information about the library and user.
- **Left Pane** - Displays the library identity and module status.
- **Centre Pane** - Provides access to operate and configure the library and to view additional status information.
- **Right Pane** - Displays a log of recent events.



Top Banner Elements

Icon	Type	Description
	Home	Returns to the library main screen
	Library Health	The green check mark Status OK icon indicates that all library components are fully operational and that no user intervention is required.
	Library Health	The yellow triangle exclamation point Status Warning icon indicates that user attention is necessary, but that the library can still perform most operations. Click the icon to display the event ticket log.
	Library Health	The red circle X Status Error icon indicates that user intervention is required, and the library is not capable of performing some operations. Click the icon to display the event ticket log.
Status of Library	Idle	The library robotic is ready to perform an action
Status of Library	Moving	The library robotic is moving a cartridge.
Status of Library	Scanning	The library robotic is performing an inventory of cartridges.
Status of Library	Offline	The library robotic has been taken offline by the library.
Library Time & Date		Helpful when analysing event logs and support tickets and might be needed when contacting support.
User		The user account for this session.
Logout		Logs out of this session.
?		Accesses online help.

Left Pane Elements

Library Status – Overall library confirmation and status	
Serial #	The Base Module serial number
Hostname	The library hostname
Network Configuration	The IP version (IPv4 or IPv6) and IP address
Firmware	The library firmware version

Module Status Overviews – A summary of each module's configuration and health. Click the module status area to select the module.

	Module Health	The green check mark Status OK icon indicates that the module and each of its components are fully operational and that no user intervention is required.
	Module Health	The yellow triangle explanation point Status Warning icon indicates that user attention is necessary, but that the library can still perform most operations.
	Module Health	The red circle X Status Error icon indicates that user intervention is required, and the module is not capable of performing some operations.
Module Number	Modules are numbered based on their location in the physical library. The bottom module is Module 1. The Base Module is annotated with (Base).	
Drive Status	The number of drives installed in the module and the health of each drive. Click on the drive to display drive configuration and status information in the centre pane.	
		A black square indicates that the drive is fully operational and that no user intervention is required.
		A yellow square indicates that user attention is necessary, but that the drive can still perform most operations.
		A red square indicates that user intervention is required, or the drive is not capable of performing some operations.
Magazine Slot Usage	The number of cartridge slots available and the number in use.	
Drive Operation Status	The current drive activity for each drive in the module. The drive operation status is only displayed for the selected module.	
	Write	The drive is performing a write operation
	Read	The drive is performing a read operation.
	Idle	A cartridge is in the drive, but the drive is not performing an operation.
	Empty	The drive is empty.
	Encryp	The drive is writing encrypted data.

Centre Pane Elements

Item	Description
Open Mailslot	(Administrator user only) Click to unlock the mailslot on the selected module. Mailslots must be enabled before the slots can be used as mailslots. See [Enabling or Disabling Mailslots] .
Open Magazine	(Administrator user only) Click to unlock a magazine in the selected module. Only one magazine in the library can be open at a time. See [Opening a Magazine] .
Configuration	(Administrator user only) Click to configure the library. See [Configuring the Library] .
Maintenance	(Administrator user only) Click to access maintenance functions. See [Maintaining the Library] .
Operation	(Administrator user only) Click to access operation functions. See [Operating the Library] .
Status	Click to access status information. See [Viewing Status Information] .

Configuring the Library on the RMI

Saving, Restoring and Resetting the Library Configuration

From the **Configuration > System > Save/Restore Configuration** screen you can save the library configuration settings to a file, restore the settings, or reset the library configuration to the default settings. The saved configuration database will make it easier to recover the library configuration if you need to replace the Base Module or Base Module Controller.

The feature Reset the List of Known Drives and Modules will do a re-discovery of installed hardware components.

Configuration > System > Save/Restore Configuration

▲ Save Configuration File

▲ Restore Configuration File

Configuration File

▲ Reset Default Settings

▲ Reset the List of Known Drives and Modules

NOTE: Resetting the list of known drives and modules will cause the library to re-discover only the drives and modules that are physically present. This operation will alter the list of element addresses reported to hosts and will re-number the drives and modules. This operation cannot be undone. After the operation completes, use one of the partition wizards to modify partitioning as needed.

Saving the library configuration to a file

1. Navigate to the **Configuration > System > Save/Restore Configuration** screen as shown above.
2. Click **Save**. Starts to download the configuration file to the browser or system running the RMI

Restoring the library configuration from a file.

1. Navigate to the **Configuration > System > Save/Restore Configuration** screen.
2. Click **Browse** to navigate to and select the configuration file. The file has to be a zip file.
3. Select the file and press **Upload File & Restore**. Starts the uploading process and restores the configuration file from the system running the RMI.

Resetting the default settings

To reset the library configuration to the default settings, click **Reset Default Settings**. For the default settings, see [[Defaults and Restore Defaults Settings](#)].

Resetting the List of Known Drives and Modules

To reset the List of Known Drives and Modules, click **Reset**. Removes not present Modules and Drives from the library stack.

Configuring the Date and Time Format

To configure date and time format parameters and to use an SNTP server, from the Configuration area, navigate to the **System > Date and Time Format** screen.



NOTE

The library does not adjust its time for daylight saving time; the time must be adjusted manually.

Configuration > System > Date and Time Format

▼ Time Zone

▲ Date/Time Format

Time Format: 24 Hours (hh:mm:ss) ▼

Date Format: (DD.MM.YYYY) ▼

Submit

Setting the Time Zone

1. Click **Time Zone**.

A list of continents, countries, and regions is displayed. When an item preceded with '>', for example > **US**, is selected, a submenu is displayed in the next column.

Configuration > System > Date and Time Format

▲ Time Zone

Current Time Zone: GMT

Time Zone List

> Mexico > Mideast > Pacific > US > posix > right CET CST6CDT Cuba EET EST	Alaska Aleutian Arizona Central East-Indiana Eastern Hawaii Indiana-Starke Michigan Mountain	
---	--	--

Submit

2. Expand the time zone list, as necessary, until a location with the appropriate time zone is visible.
3. Select a location with the appropriate time zone.
4. Click **Submit**.

Setting the Date and Time Format

1. Click **Date/Time Format**.

Configuration > System > Date and Time Format

▼ Time Zone

▼ Date/Time Format

▲ Set Date/Time

Time: 24 Hours (hh:mm:ss)

Date: (DD.MM.YYYY)

Submit Now

2. Select Time Format
3. Select Date Format
4. Click **Submit**

Setting Date and Time

1. Click **Set Date/Time**.

Configuration > System > Date and Time Format

▼ Time Zone

▼ Date/Time Format

▲ Set Date/Time

Time: 24 Hours (hh:mm:ss)

Date: (DD.MM.YYYY)

2. Enter time and date in given format or use "Now" button to take over current time from local PC.
3. Click Submit.

Enabling SNTP (Simple Network Time Protocol) Synchronization

The library must have network access to an SNTP server.

1. Click **SNTP**.

Configuration > System > Date and Time Format

▼ Time Zone

▼ Date/Time Format

▼ Set Date/Time

▲ SNTP

SNTP Enabled ☐

SNTP Server:

2. Enter the SNTP server address.
3. Click **Submit**.

Configuring Media Barcode Compatibility Checking

From the **Configuration > System > Media Barcode Compatibility Check** screen you can enable or disable the barcode media ID check.

Configuration > System > Media Barcode Compatibility Check



Barcode Media ID Restriction

When the box is checked, the Media Barcode Compatibility feature is enabled. This feature uses the media barcode identifier (the Media ID is the last two characters of the barcode) to verify the media is compatible with the tape drives installed.

NOTE: It is recommend to leave this option enabled (checked).

Submit

When **Barcode Media ID Restriction** is enabled, the library will only allow appropriate tape cartridges to be loaded into tape drives. The barcode media ID is the last two characters of the barcode. For example, an LTO-7 labelled cartridge will not be allowed to move into an LTO-9 tape drive.

When disabled, the library will move any tape to any tape drive. If the cartridge is incompatible with the tape drive, the library will display a message.



NOTE

It is strongly recommended that all cartridges have barcode labels with the correct media ID, and that the Barcode Media ID Restriction is enabled.

License Key Handling

To add a license key, navigate to the **System > License Key Handling** screen.

Configuration > System > License Key Handling

 Add License Key

License Key: Add License

 License Key(s) in System

Add a license key:

1. Enter license key. The license key needs to have a length of 15 characters
2. Click Add License



NOTE

Once the license key is entered, the information will appear in the list showing license keys in the system.

Configuring the Library Network Settings

From the **Configuration > Network** screen you can configure the library network settings.

Configuration > Network

Host Name: Domain Name:

Protocol:

IPv4

Method:

Address: Netmask:

Gateway:

DNS 1: DNS 2:

IPv6

Method:

Current Address: fd01::20e:11ff:fe80:3de3

Address: Prefix Length:

Gateway:

DNS 1:

DNS 2:

Reset internal IP Range (in case of conflict)

NOTE: Only reset the internal IP range if you are using the same range in your network environment.

Current internal IP Range:

1. Navigate to the **Configuration > Network** screen.
2. Configure or update the **Host Name** and **Domain Name**. The RMI URL is <Host Name>.<Domain Name>.
3. Select the internet protocol to use for the library.
4. Configure the settings for the selected internet protocol.
5. To have the library obtain an internet address from a DHCP server, select the DHCP or Stateless method.
6. Click **Submit**.

Network > Reset internal IP Range

For internal communication between modules the tape library uses an Ethernet connection with an internal IP address range. To prevent any conflict between the internal IP address range and the external IP addresses it is required to select the internal IP range before the tape library gets connected to the external Ethernet port.

Therefore, a file which contains the internal IP range is stored onto the Base Module backplane:

/opt/storage/mfg/stack/network.range

and

LCM /opt/storage/configuration/network.range

The Values must be in the following format: **RANGE=192.0.2**

 **WARNING**

Internal and external IP conflict prevention.

Please select an IP-Range which is not used by your environmental network:

192.0.2.0/24 ▼



NOTE

- The last section of the IP address is not set because it will be set internally.
- The file will be created through the Operator Control Panel (OCP) IP Range selection page when the Stack starts for the very first time or if the unit was reset to Manufacturing Defaults / Reset via OCP or Remote Management Interface (RMI).



Internal and external IP conflict prevention.

Please select an IP-Range which is not used by your environmental network:

Set and Proceed

192.0.2.0/24

192.0.2.0/24

198.51.100.0/24

203.0.113.0/24



Internal and external IP conflict prevention.



Set new internal IP Range

Saving new IP Range to system...

Rebooting system now...

Configuring Tape Drives

From the **Configuration > Drives** screen you can see and modify drive configuration.

Configuration > Drives > Settings

▲	Drive: 1	S/N: [REDACTED]	LTO 5	HH	SAS	Pwr: On
Firmware: Z68W Manufacturer S/N: [REDACTED]						
☒ Power On						

▲	Drive: 2 (LUN)	S/N: [REDACTED]	LTO 6	HH	FC	Pwr: On
Firmware: 238W Manufacturer S/N: [REDACTED]						
☒ Power On						

Port A Configuration

Speed:	Automatic ▼	Port Type:	Automatic ▼
Addressing Mode:	Soft ▼	Loop ID / ALPA:	Automatic ▼

Port B Configuration

Speed:	Automatic ▼	Port Type:	Automatic ▼
Addressing Mode:	Soft ▼	Loop ID / ALPA:	Automatic ▼

▼	Drive: 3	S/N: [REDACTED]	LTO 6	HH	FC	Pwr: On
---	----------	-----------------	-------	----	----	---------

Item	Description
Drive number	Drives are numbered from the bottom of the library up beginning with one. The drive currently hosting the SCSI communication for the library is designated with (LUN).
Serial Number	The serial number assigned to the tape drive by the library. This serial number is reported to host applications. The serial number cannot be modified. This is not the serial number assigned to the drive by the manufacturer; the serial number assigned by the manufacturer is shown in Manufacturer S/N.
LTO Generation	LTO 7 Ultrium Tape Drive
	LTO 8 Ultrium Tape Drive
	LTO 9 Ultrium Tape Drive
	LTO 10 Ultrium Tape Drive
Drive Form Factor	HH (Half Height)
Drive interface	SAS – Serial Attached SCSI
	FC – Fibre Channel
(Modified)	When present indicates that a setting has been changed. To apply the changes, click Submit . To reset all changed fields to their previously saved values, click Undo .
Pwr	Indicates whether the drive is currently powered on or off.
Firmware	The version of firmware currently installed on the drive.
Manufacturer S/N	The serial number assigned to the drive when it was manufactured. Use this serial number when working with the Symply service team.
Power On	Checked when the drive is powered on.

**NOTE**

Always power off a tape drive before removing it from the library or moving it to a new location within the library.

Item	Description	
Port configuration (FC only)	Speed	The currently selected ° speed. The default is Automatic.
	Port Type	• Automatic • Loop – Enables selection of the Addressing Mode. • Fabric
	Addressing Mode	When Port Type is set to Loop, Addressing Mode can be set to Soft, Hard .
	ALPA	When Addressing Mode is set to Hard, you can choose an ALPA address from the drop-down list.

To modify the configuration of one or more tape drives:

1. Modify any of the configurable values.
2. Click **Submit**.

**NOTE**

To configure the number of barcode characters to report to the host application and whether to report them from the left or right end of the label, use either the Basic Partition Wizard or Expert Partition Wizard. See [\[Using the Basic Partition Wizard\]](#) or [\[Using the Expert Partition Wizard\]](#).

Enabling or Disabling Mailslots

The **Configuration > Mailslot** screen lists each of the mailslots and shows whether each is enabled or disabled. To change the state, click the button for the mailslot and then click Submit. Slots are not enabled as mailslots are available as storage slots.

Configuration > Mailslots

Module	Mailslot Magazine	
Module 2	Disabled	Enable
Base	Enabled	Disable

Configuring Web Management

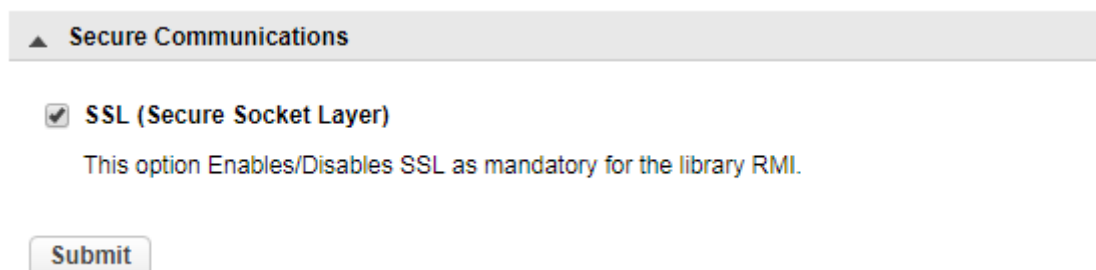
From the **Configuration > Web Management** screen you can set or modify the following web management features:

- SSL Secure Communication.
- Certificate Setting.
- Create Custom Certificate/Certificate Wizard.
- Backup/Restore Custom Certificate.
- Session Timeout and Session Locking.
- Restricted RMI Login.

Configuring SSL Secure Communication

From the **Configuration > Web Management** screen you can enable or disable secure access to the RMI using Secure Socket Layer (SSL). When SSL is enabled, connections to the RMI must use HTTPS.

As default SSL is disabled.

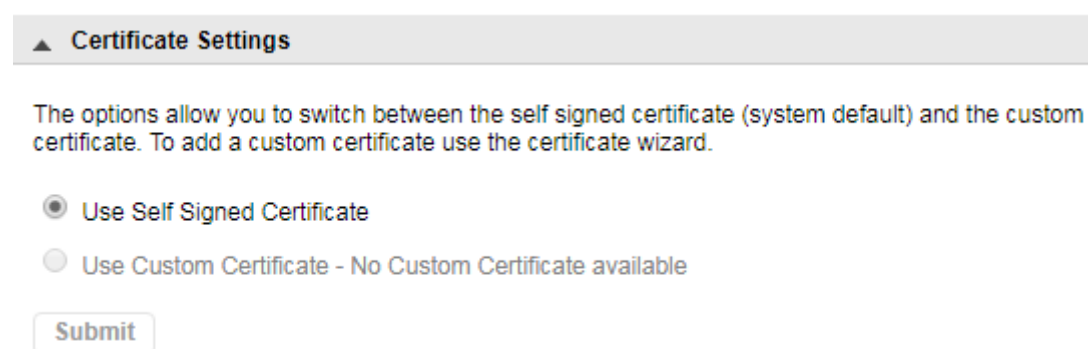


The screenshot shows a configuration panel titled "Secure Communications". It contains a checkbox labeled "SSL (Secure Socket Layer)" which is checked. Below the checkbox is a descriptive text: "This option Enables/Disables SSL as mandatory for the library RMI." At the bottom of the panel is a "Submit" button.

Configuring Certificate Setting

This screen provides the option to switch between the self-signed certificate and the custom certificate. Per default the self-signed certificate is set.

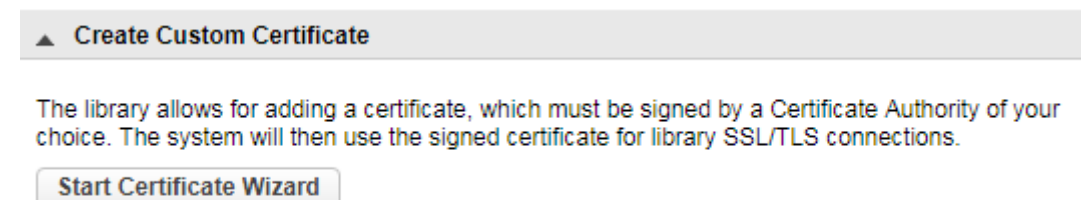
To add a custom certificate, use the certificate wizard.



The screenshot shows a configuration panel titled "Certificate Settings". It contains a descriptive text: "The options allow you to switch between the self signed certificate (system default) and the custom certificate. To add a custom certificate use the certificate wizard." Below the text are two radio button options: "Use Self Signed Certificate" (which is selected) and "Use Custom Certificate - No Custom Certificate available". At the bottom of the panel is a "Submit" button.

Create Custom Certificate by using the Certificate Wizard

The **Create Custom Certificate** screen allows to add a certificate, which must be signed by a Certificate Authority by your choice. The system then will use the signed certificate for SSL/TLS connections. The certificate will be used by the library for HTTPS connections to the RMI.



The screenshot shows a configuration panel titled "Create Custom Certificate". It contains a descriptive text: "The library allows for adding a certificate, which must be signed by a Certificate Authority of your choice. The system will then use the signed certificate for library SSL/TLS connections." Below the text is a "Start Certificate Wizard" button.

Before starting the wizard, prepare your Certificate Authority to sign the certificate. You will be pasting the certificate generated by the wizard into a field in the Certificate Authority for signing.

To start the Certificate Wizard, click the **Start Certificate Wizard** button. The wizard will guide you through adding a certificate to the library.

1. Read the **Information** screen and then click **Next**.
2. In the **Certificate Signing Request** the screen creates the certificate.
3. Enter the information about the library and organization.
4. Click **Generate CSR**.
5. Use a web browser copy command, such as **Crtl-C** to copy the certificate generated by the wizard is now in your computer's copy buffer.
6. Paste the certificate into the appropriate field in your Certificate Authority and then have the Certificate Authority sign the certificate.
7. In the wizard **Certificate Signing Request** screen, click **Next**.
8. In the **Signed Certificate** screen, paste the signed certificate into the **Signed. Certificate** pane and then click **Finish**.
9. To verify that the certificate is being used, open an https connection to the library from a server or computer where the server-side certificate has been imported.



NOTE

To clear the wizard settings when no longer using this certificate or reset the wizard configuration to its default state, click **Clear All Wizard Settings** on the **Information** screen.

Configuring Backup/Restore Custom Certificate

Use the **Backup Custom Certificate Button** to download a backup of the currently installed certificate.

Use the following sequence to restore a previously saved certificate file:

- Select the certificate file you want to restore.
- Click the Restore Custom Certificate button.

Configuring Session Timeout and Session Locking

The **Session Timeout** screen allows you to select how many minutes a user should stay logged in (5 or 30 minutes).



NOTE

The timeout is only selectable for RMI. The timeout for OCP is always set to 5 Minutes

The **OCP/RMI Session Locking** screen allows you to enable OCP/RMI session locking by clicking the checkbox. The library only supports one OCP or RMI session at a time for the Administrator, Service and Security users. With OCP/RMI session locking enabled, the library will not allow a new Administrator, Service and Security user login until a current session is logged out or times out.

**NOTE**

When this setting is enabled, always logout of the RMI or OCP when finished with a session. Otherwise, no new sessions will be allowed until the current session times out.

Configuring Restricted RMI Login

The **Restricted RMI Login** screen allows the administrator to set login restrictions for the administrator user and security user.

If the restriction mode is set, administrator user and security user are no longer allowed to login via the RMI.

Once this feature is enabled it can only be disabled by logging into the operator control panel (OCP).

**NOTE**

Only the administrator has the right to enable and disable the Restricted RMI Login mode.

**NOTE**

The User login will still be able to remotely view status information.

Configuring Network Management

From the **Configuration > Network Management** screen you can set or modify the following network management features:

- SNMP.
- Event Notification (SMTP).
- Remote Logging (rsyslog).

Configuring SNMP

Use the **Configuration > Network Management > SNMP** screen to enable and configure SNMP (Simple Network Management Protocol), which allows applications to manage the device. The library supports both SNMP configuration and SNMP traps.

Configuration > Network Management > SNMPSNMP Enabled: ☐Community Name: Notification Level: **SNMP Targets**

IP/Hostname	Port	Version	Community	Action	
	162	SNMPv1	public	Edit	Delete

The configuration options below are only needed when using SNMPv3.

SNMPv3 Security Level: Authentication User Name: Authentication Password:

NOTE: Needed for security levels authNoPriv and authPriv (8 -31 characters)

Authentication Protocol:

NOTE: Needed for security levels authNoPriv and authPriv

Privacy/Encryption Protocol:

NOTE: Needed for security level authPriv

Privacy/Encryption Passphrase:

NOTE: Needed for security level authPriv (8 -31 characters)

Item	Description
SNMP Enabled	When checked, the library can be managed by computers listed in the SNMP Target IP Addresses field.
Community Name	A string used to match the SNMP management station and library. It must be set to the same name on both the management station and the library. The default community name is public.
SNMP Targets	List of configured SNMP targets.

To add an SNMP target or edit information for an SNMP target:

1. Click **Edit** for the appropriate SNMP target. When adding an SNMP target, click **Edit** next to a target without an IP/Hostname.
2. Enter the target IP address or hostname.
3. Enter the port.
4. Select the SNMP version.
5. Enter the SNMP community string for the target.
6. Click **Submit**.

To delete an SNMP target:

1. Click **Delete** for the target to be deleted.
2. Click **Submit**.

To clear SNMPv3 Options:

1. Click **Clear SNMPv3 options**
2. To confirm that you want to clear the SNMPv3 Options, click **Yes**

Configuring Event Notification Parameters

From the **Configuration > Network Management > SMTP** screen you can enable SMTP (Simple Mail Transfer Protocol) functionality and configure e-mail notification of library events. The library must have network access to an SMTP server.

Item	Description
SMTP Enabled	Check to enable SMTP. When checked, the remaining configurations are active.
Notification Level - The types of events for which the library should send e-mail	Inactive
	Critical
	+ Warnings
	+ Configuration
	+ Information
SMTP Server	Hostname or IP address of the SMTP server
Security - Security protocol for accessing the SMTP server	None
	SSL => SSL/TLS
	TLS = STARTTLS
SMTP Port	SMTP server port. The default port for the selected protocol will be selected. You can choose one of the default ports or configure a custom port.
To Email Address	The address to receive the reported events (for example firstname.lastname@example.com). Only one email address can be configured.
Mailer Name	Name of the sender of the e-mail
Email Subject	Subject line for the e-mail message
Mailer Address	Return address to use for the e-mail message
Authentication Required	When checked, a username and password are required to access the SMTP server.
Username	User account for logging into the SMTP server when authentication is required
Password	Password associated with the Username when authentication is required

Configuring Remote Logging

Use the **Configuration > Network Management > Remote Logging** (rsyslog) screen to enable and configure Remote Logging.

Item	Description	
Remote Logging Enabled	When checked, the library will start forwarding log messages in a selected IP Network.	
Notification Level – With this field you can select the notification level	Inactive	No events are sent.
	Critical	Only critical events are sent.
	+ Warnings	Only critical and warning events are sent.
	+ Configuration	Only critical, warning, and configuration events are sent.
	+ Information	All events are sent.
Remote Logging Server	Hostname or IP address of the Remote Logging server	
Remote Logging Port	Select between Default Remote Logging Port or Custom Port	
Transport Protocol	Select between Default Remote Logging Port or Custom Port	

Configuring Library Partitions

The library has a flexible partitioning scheme with a few key constraints:

- Each partition must have at least **one tape drive**. One drive in each partition will host the library LUN for the partition.
- The **maximum** number of partitions is **21**.
- Magazine slots are allocated in five-slot groups.
- Mailslots must be enabled for a module before they can be allocated to a partition.



NOTE

A partition does not need to have a mailslot. If a partition does not have a mailslot, the magazine must be accessed to import or export cartridges. Opening a magazine takes the library offline.



NOTE

Although the mailslot magazine is shared between partitions, the mailslot elements are assigned individually to partitions. Wizards guide you through the partition configuration process. The wizards are only accessible from the RMI.

- **Basic Partition Wizard** – You specify the number of partitions, and the wizard removes the current partition configuration and assigns the drives and storage slots as evenly as possible to the partitions. Any extra drives or slots are assigned to the first partition.
 - Use the Basic Partition Wizard to configure partitions that will have similar resources or to configure the number of barcode characters to report to the host application and whether to report them from the left or right end of the label for a library with a single partition.
- **Expert Partition Wizard** – You add or remove partitions from the current partitions configuration and then edit each partition configuration to add or remove library resources.
 - Use the Expert Partition Wizard to configure partitions that will have different resources or to adjust resource assignments for existing partitions or those created with the Basic Partition Wizard.



CAUTION

The **library will go offline while partitions are being configured**. Ensure that all host operations are idle before running a partition wizard.

Using the Basic Partition Wizard

1. Click **Configuration > Basic Wizard** to start the wizard.
2. The **Information** screen displays the existing partitions, which will be deleted by the wizard.
3. Click **Proceed** and then click **Next**.
4. The **Create Partition Scheme** screen displays the number of slots, mailslots, tape drives, and maximum available partitions for the library.



NOTE

If you want to enable or disable the mailslots, **Cancel** out of the wizard and update the mailslot configuration before configuring partitioning.

5. Select the **number** of partitions.
6. Select the **number of barcode characters** reported to the host application. This option provides interchange compatibility with libraries with more limited barcode reading capabilities. The maximum length is 16 and the default is 8. This configuration will apply to all partitions.



NOTE

The industry standard length for LTO barcode labels is eight characters. Barcode labels longer than eight characters might scan incorrectly, particularly if they are not high-quality labels.

7. Select whether to report the **barcode characters from the left or right** end of the barcode label to the host application when reporting fewer than the maximum number of characters. For example, when reporting only six characters of the barcode label 12345678, if alignment is left, the device will report 123456. If alignment is right, the device will report 345678. The default is left. Click **Next**.
8. The **Finish Configuration** screen displays the proposed allocation of library resources into partitions.
 - a. To update the configuration, click **Back**.
9. To have the wizard configure partition as shown, click **Finish**.
10. After the wizard reconfigures the partition, the library will come online automatically.
11. To exit the wizard, click **Cancel** or **Exit**.



TIP

You can use the Expert Partition Wizard to adjust the allocation of resources after creating the partitions with the Basic Partition Wizard.

Using the Expert Partition Wizard

Click **Configuration > Expert Wizard** to start the wizard. The **Create Partition Scheme** screen lists the current partitions, if any, and the free resources. Use the wizard to configure one partition at a time.



NOTE

If you want to enable or disable the mailslots, **cancel** out of the wizard and update the mailslot configuration before configuring partitioning.

Adding a Partition:

1. To add a partition, click **Add** and then click **Next**.



NOTE

The **Add** button will only be active if there are available resources. If there are no available resources, either edit a partition and release resources from it or remove a partition that contains extra resources.

2. Enter a **name** for the partition.
3. Select the **number of barcode characters** reported to the host application. This option provides interchange compatibility with libraries with more limited barcode reading capabilities. The maximum length is 16 and the default is 8. This configuration will apply to all partitions.



NOTE

The industry standard length for LTO barcode labels is eight characters. Barcode labels longer than eight characters might scan incorrectly, particularly if they are not high-quality labels.

4. Select whether to report the **barcode characters from the left or right** end of the barcode label to the host application when reporting fewer than the maximum number of characters. For example, when reporting only six characters of the barcode label 12345678, if alignment is left, the device will report 123456. If alignment is right, the device will report 345678. The default is left. Click **Next**.
5. In the **Assign Storage Slots** screen, use the >> and << buttons to assign slots to the new partition and then click Next.
6. In the **Assign Mail Slots** screen, use the >> and << buttons to assign mailslots to the new partition and then click Next.
7. **Individual mailslot elements cannot be shared between partitions.** Importing or exporting cartridges in a partition without an assigned mailslot will require magazine access, which will take the library offline.

8. In the **Assign Drives** screen, use the >> and << buttons to assign drives to the new partition and then click Next.
9. If the **partition has multiple tape drives, select the drive that will host the SCSI communication for the partition** and then click **Next**.
10. The lowest numbered drive in the partition is the default.
11. Verify the partition configuration and then click **Finish**.
12. After the **wizard reconfigures the partition, the library will come online automatically**.

Removing a Partition:

1. Select the partition, click **Remove**, and then click **Next**.
2. **Verify** that you want to remove the partition and then click **Finish**.
3. After the wizard removes the partition, the library will come online automatically.

Configuring Encryption

The **Configuration > Encryption** page provides several options to set encryption mode.



NOTE

When changing certain configuration options, the library will go offline to hosts. Only perform these configuration changes when it is acceptable for the library to go offline.

To set the **Default Encryption Mode** for new Partitions select the encryption mode from the dropdown box.

Set Default Encryption Mode for new Partitions

Set the default encryption mode for new Partitions. Will be used if a partition gets created:

Controlled by Backup Application ▼

Apply to all existing partitions

Click the **Apply to all exiting partitions** button to set the selected encryption mode for all exiting partitions. Click the **Submit** button to activate the encryption modes.

General Settings

Allow Administrator encryption configuration during Expert Partition Wizard



Note: Enabling this selection allows library administrators to enable and disable encryption on a per-partition basis, without needing further approval from the Security user.

Clicking the checkbox in section **General Settings** will allow the Administrator to enable and disable encryption during Expert Wizard

Section **Set Encryption Mode per Partition** allows you to select on a per-partition basis the encryption mode. Click the **Submit** button to activate the encryption modes.

KMIP Wizard

The library supports integration with encryption key management servers using the **KMIP standard**. These key management servers support sharing encryption keys with different libraries, which can be in different physical locations.

With the **Key Management Interoperability Protocol (KMIP)** Wizard you can configure use of KMIP key management servers with the library. Access to the wizard from the **Configuration > Encryption** menu is only available to the Security user and requires that the KMIP license has been added from the **Configuration > System > License Key Handling** screen.

For additional information on configuring KMIP servers for use with the library, see the KMIP server documentation.

Before running the wizard, verify that:

- The library configuration is complete, including defining all library partitions.
- The KMIP server is available on the network and has been configured for use with this library.

Using the KMIP Wizard:

1. In the **Configuration** area, click **KMIP Wizard** in the **Configuration > Encryption** menu to start the wizard.
2. The **Wizard Information** screen displays information about the wizard. If the library configuration is complete and the KMIP server is available on the network, click **Next**.
3. The **Certificate Authority Information** screen displays prerequisites for using the KMIP certificate. When the prerequisites are met, click **Next**.
4. The **Certificate Authority Certificate Entry** screen displays instructions for obtaining the certificate for the KMIP server. Follow the instructions to copy the certificate from the management console. Paste the certificate into the wizard and then click **Next**.
5. The **Library Certificate Information** screen displays information about the next wizard steps. Click **Next**.
6. The **KMIP Client Configuration** screen provides options for two types of server authentication.
 - If your KMIP server uses a client username and password for authentication, enter the username and password that were specified on the KMIP management console for the library.
 - If your KMIP server uses *only* certificate passing for authentication, select **Enable KMIP Certificate-only authentication**. Only select this option if you are using a KMIP server that requires it and you do not have a client username and password.
 - Click **Next**.
7. The **Certificate Generation** screen displays the current library certificate, if one exists. To use the current certificate, select **Keep Current Certificate** and then click **Next**. To generate a new certificate, select **Generate New Certificate**. The wizard will generate and display a new library certificate. Click **Select Certificate** to copy the new certificate text and then click **Next**.

8. If you select **Generate New Certificate**, the **Sign Library Certificate** screen displays the new certificate for the library. Sign the new library certificate with the certificate authority as a client certificate, paste the new KMIP certificate in the box, and then click **Next**.
9. In the **KMIP Server Configuration** screen, enter the IP address or fully-qualified hostname and port number for up to ten KMIP servers. To verify access to the KMIP servers, click **Connectivity Check**.
10. The **Setup Summary** screen displays the settings that were collected by the wizard. Verify that the settings are correct and that there are no errors in the **Done** column. If you need to modify any settings or fix any issues, either click **Back** to reach the applicable screen or **cancel** out of the wizard to fix the issues and return later. If the settings are correct and there are no errors, click **Finish**.

Configuring User Accounts

From the **Configuration > User Accounts** screen you can set or modify the following user account properties:

- User Account Settings.
- Local User Accounts.
- LDAP.
- Kerberos.

Configuring User Account Settings

From the page **Configuration > Configure User Accounts > Configure User Accounts Settings** you can configure the **Password Rule** settings.

▲ Password Rules

Minimum Number Of Characters:	8 ▼
Minimum Number Of Upper Case Alphabetic Characters (A-Z):	1 ▼
Minimum Number Of Lower Case Alphabetic Characters (a-z):	1 ▼
Minimum Number Of Numeric Characters (0-9):	1 ▼
Minimum Number Of Special Characters (!@#\$%^&*()_+-={} \;:'<>?,./):	0 ▼
Maximum Number Of Identical Consecutive Characters:	2 ▼
Maximum Number Of Failed Logins Before Password Is Locked:	3 ▼
Maximum Number Of Days Before Password Must Be Changed:	90 ▼
Number Of Password Changes Before An Old Password Can Be Used Again:	3 ▼

- Minimum Number Of Characters.
- Choose the minimum password length. The factory default value is 8. Possible range for this configuration option is from 8 to 20. The maximum password length is 20.
- Minimum Number Of Upper Case Alphabetic Characters (A-Z).
- Choose the minimum number of upper case alphabetic characters. The factory default value is 1. Possible range for this configuration option is from 0 to 3.
- Minimum Number Of Lower Case Alphabetic Characters (a-z).
- Choose the minimum number of lower case alphabetic characters. The factory default value is 1. Possible range for this configuration option is from 0 to 3.
- Minimum Number Of Numeric Characters (0-9).
- Choose the minimum number of numeric characters. The factory default value is 1. Possible range for this configuration option is from 0 to 3.
- Minimum Number Of Special Characters (!@#\$%^&*()_+~{}|[]\';:" <>?,./) Choose the minimum number of special characters. The factory default value is 0. Possible range for this configuration option is from 0 to 3.
- Maximum Number Of Identical Consecutive Characters.
- Choose the maximum number of identical consecutive characters. The factory default value is 2. Possible range for this configuration option is from Unlimited to 3.
- Maximum Number Of Failed Logins Before Password Is Locked.
- Choose the maximum number of failed logins before the password is locked. The factory default value is 3. Possible range for this configuration option is from Unlimited to 10.

**NOTE**

When a password is locked, the login cannot continue. Either the user must complete a valid login with an administrator account where the administrator can change a password or needs to get a temporary password for the administrator account.

- Maximum Number Of Days Before Password Must Be Changed.
- Choose the maximum number of days before the password must be changed. In case the password is expired, you will be forced to change the password during the login. The factory default value is 90. Possible range for this configuration option is from Unlimited to 365.
- Number of Password Changes Before An Old Password Can Be Used Again.
- Choose the amount of password changes to be done until a password can be used again. The factory default value is 3. Possible range for this configuration option is from 0 to 6.

Configuring Local User Accounts

On the page **Configuration > User Accounts > Local User Accounts Settings** you can see the configured local users with access to the RMI.

By default, the library has four predefined user accounts: User, Administrator, Security and Service. When additional users are configured, the RMI login screens show the "custom users" along with the predefined users.

By pressing the **Add User** button you can add up to 80 users to the Local User Account list.

A dialog box will be opened, and you have to enter the username, select the user role and specify a password according to the password rule settings.

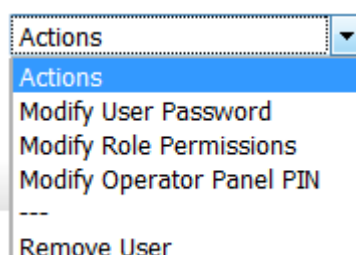
The added user will be prompted to set a new password at the first login.

Configuration > User Accounts > Local User Accounts

NOTE: A maximum of 80 users can be added to the system.

Local Users			
Add User Actions Filter By Name			
Name	User Role	Status	Last Activity
administrator	Administrator	Connected	09:35:32 19.09.2018
admIntern	Administrator	Disconnected	N/A
user	User	Disconnected	N/A
UserExtern	User	Disconnected	N/A

The Action dropdown list provides different actions to configure user accounts.



The table below lists the individual permission for each user role:

User Role	Permission
User	No rights at all, not allowed to add/edit/delete any user
Administrator	Allowed to add/edit/delete User and Administrator role, allowed to change Role Permissions
Security	Allowed to add/edit/delete Security role, allowed to change Role Permissions
Service	Allowed to add/edit/delete Security role

Modify User Password:

This action is only active if user is selected. Selecting this action will open a dialog box where the Username and User Password can be changed. Please note that the name for default local user (user, administrator, service, security) are not changeable.

Modify Role Permissions:

This action is permanent active. In the dialog box you can allow Mailslot and/or Magazine access for the User Role.

Modify Operator Panel PIN:

This action is permanent active. In the dialog box you must select the user role first and then enter the new OCP PIN.

Remove User:

This action is only active if user is selected. It is only valid for user which were previously added to the list. Default local user cannot be removed from the list.

Configuring LDAP

On the **Configuration > User Accounts > LDAP** page you can configure LDAP Servers and Users using for login on the RMI.

By default, the library has four predefined user accounts: User, Administrator, Security and Service. When LDAP servers and users are configured, the RMI login screens show the LDAP users along with the predefined users.

Each LDAP user is assigned to a role, based on the predefined user roles, and this role determines the access level for the LDAP user.



NOTE

Using LDAP does not disable the predefined user accounts. For library security, ensure that the password for the predefined administrator user account is always set.

Setting the administrator password is required for any user with an administrator role to log in from the RMI.



NOTE

LDAP server configuration is dependent on the company's IT environment and security model. See your IT administrator for the settings for your environment. Before the wizard is used, you must know:

- IP address and port for the primary and backup LDAP servers
- User CN (Common Name) for the user who has access to the LDAP server
- User DN (Distinguished Name). This is the DN in which the User CN is located.
- Base DN. Parameters needed to search for potential library users in the LDAP server. For example, OU=Users, OU=RW, DC=libgroup, DC=local.
- Attribute Mapping, Username. For most Windows Active Directory environments, the "**Username**" field under "**Attribute Mapping2**" should be set to "**sAMAccountName**".
- If SSL is required for the LDAP server. This field is likely required for newer versions of LDAP servers.

1. Navigate to the Configuration > User Accounts > LDAP page.
2. If not already listed, add your LDAP servers.
 - a. In the **LDAP Servers** area click **Add Server**. The RMI displays the **Add Server** dialog.
 - b. Enter all the requested LDAP configuration settings in the Primary Server area.

See your LDAP server documentation or local LDAP administrator for the preferred values for the various LDAP configuration settings, such as the port number and distinguished names.

- i. **Host** - IP address for the LDAP server
- ii. **Port** - The default is 389 (636 with SSL). Port 3268 (3269 with SSL) when Base DN pointed to the global catalogue.
- iii. **User CN** (Common Name) - The LDAP user of the person or group that is the library administrator. Many environments use the format "Surname, Name" or the email address for a group of library administrators.
- iv. **User DN** - This is the DN where the User CN is included. For example: `DC=Examplegroup,DC=local`
- v. **Password** - LDAP password of the User CN. This might be the User CN's Windows password or an environment-specific password.
- vi. **Use SSL** - If SSL is required by your organization, select Use SSL and then paste the appropriate CA certificate.

Enter the Secondary/Backup Server host address and port number.

Enter the Distinguished Name and Attribute Mapping parameters.

- vii. **Base DN** - The LDAP parameters for the LDAP accounts for potential library users. For example:

`OU=Internal,OU=Users,OU=RW,DC=examplegroup,DC=local`

- c. Click **Test Connection** to verify the configuration.
 - d. When the library successfully connects to the LDAP server, click **OK**.
3. In the LDAP User area, click Add User.
 - a. The RMI displays the Add User dialog.
4. Click **Query LDAP Servers** to see a list of available users.
5. Select the username and then assign the user a role (User, Administrator, Security or Service). Security user role can only be assigned by another security user. The other roles can be assigned by a user having the administrator role. Click **OK**.

LDAP server settings can be modified after the server was added. Selecting a server from the server list and choose **Modify Server** from the LDAP Servers action menu, will open the **Modify Server** dialog.

Removing a server can be done by selecting the server which should be removed and choose **Remove Server** from the LDAP Servers action menu. This action must be confirmed. The LDAP users that are related to the removed server are automatically removed together with the server.

The user role of an LDAP user can be modified after the user has been added. This can be done by selecting the specific user and using the **Modify User** action from the LDAP User action menu.

Removing a user can be done by selecting the user which should be removed and choose **Remove User** from the LDAP Users action menu. This action must be confirmed.

Configuring Kerberos

On the **Configuration > User Accounts > Kerberos** page you can configure Kerberos Servers and Users using for login on the RMI.

By default, the library has four predefined user accounts: User, Administrator, Security and Service. When Kerberos servers and users are configured, the RMI login screens show the Kerberos users along with the predefined users.

Each Kerberos user is assigned to a role, based on the predefined user roles, and this role determines the access level for the Kerberos user.



NOTE

Using Kerberos does not disable the predefined user accounts. For library security, ensure that the password for the predefined administrator user account is always set.

Setting the administrator password is required for any user with an administrator role to log in from the RMI.



NOTE

Kerberos server configuration depends on the company's IT environment and security model. See your IT administrator for the settings for your environment. Before adding a server, you will need to know:

- Realm
- Default Domain
- KDC (Key Distribution Center) address and port
- Admin Server address and port

Default Domain and Admin Server is not a required configuration option for Kerberos 5 servers.

1. Navigate to the **Configuration > User Accounts > Kerberos** page.
2. If not already listed, add your Kerberos servers.
 - a. In the **Kerberos Servers** area click **Add Server**. The RMI displays the **Add Server** dialog.
 - b. Enter all of the requested Kerberos configuration settings in dialog. See your Kerberos server documentation or local Kerberos administrator for the preferred values for the various Kerberos configuration settings.
 - i. **Realm** - This is your Kerberos realm, which is usually a domain name in upper case letters. For example, the machine foo.abc.com is in the ABC.COM Kerberos realm.
 - ii. **Default Domain** - The default domain of the Kerberos server.
 - iii. **KDC, Port** - The address and port of the key distribution centre.
 - iv. **Admin Server, Port** - The address and port of the admin server.
 - c. Click **Test Connection** to verify the configuration.
 - d. When the library successfully connects to the Kerberos server, click **OK**.
3. In the **Kerberos Users** area, click **Add User**. The RMI displays the **Add User** dialog.
4. Enter all of the requested user settings in dialog box.
 - a. **Principal** - Enter the name of the Kerberos Principal in this field. The Principal name consists of a number of components separated using the "/" separator.
 - b. **Realm** - This is your Kerberos realm. A drop-down list offers the realms of the previously configured Kerberos servers.
 - c. **User Role** - Monitor, Superuser or Administrator. The other roles can be assigned by an user having the administrator role.
5. Click **OK** to add the user.

Kerberos server settings can be modified after the server was added. Selecting a server from the server list and choose **Modify Server** from the Kerberos Servers action menu, opens the **Modify Server** dialog.

Removing a server can be done by selecting the server which should be removed and choose **Remove Server** from the Kerberos Servers action menu. This action must be confirmed. The Kerberos users related to the removed server are automatically removed together with the server.

The user role of a Kerberos user can be modified after the user has been added. This can be done by selecting the specific user and using the **Modify User** action from the Kerberos Users action menu.

Removing a user can be done by selecting the user which should be removed and choose **Remove User** from the Kerberos Users action menu. This action must be confirmed.

Maintaining the Library using the RMI

From the Home screen click or tap on **Maintenance** to access the library maintenance features.

System Test

The system test exercises overall library functionality by moving cartridges within the library.

1. During each cycle the library will move a cartridge from a full slot to an empty drive and then return it to its original slot. You can select the number of cycles for the test. If the test is cancelled, the library will return the cartridge to its original slot.
2. The library will not move cleaning cartridges during the test.
3. The **test operates over the whole library and does not consider partition** configuration.
4. During the test the library is offline.

Maintenance > Library Tests > System Test

NOTE: The System Test loads cartridges from slots into drives, then returns each cartridge to its original slot a user-specified number of times. The test requires at least one compatible cartridge for each generation of tape drive in the library. The tape drives must be empty before starting the test, and at least one slot needs to be full. For more information, see the online help.

Cycles:	Select ...	Test Status Direction : Drive (15) => Slot (7.26) Cycles : 1 of 1 Status : Passed
Media:	Seating	

To run the system test, navigate to the **Maintenance > Library Tests > System Test** screen, select the number of cycles and then click **Start Test**.

Slot to Slot Test

The slot to slot test randomly exchanges cartridges between slots to verify that the library is operating correctly. At the end of the test the **cartridges are not returned to their original slots**. If a tape is moved to an incompatibly drive, the drive will reject the tape, as designed.

For service and diagnostics, use the robotic test.

 CAUTION	The test can move cartridges between partitions.
--	--

Maintenance > Library Tests > Slot to Slot Test

NOTE: The Slot to Slot Test randomly exchanges cartridges between slots a user-specified number of times. The test requires at least one cartridge in any slot and at least one empty slot in the library. For more information, see the online help.

Cycles:

Test Status

Direction :

Cycles : of

Status :

To run the slot to slot test, navigate to the **Maintenance > Library Tests > Slot to Slot Test** screen, select the number of cycles and click **Start Test**.

Element to Element Test

The element to element test moves a selected cartridge to a selected slot or tape drive, and then returns it to the original slot. You can select the number of times to move the selected cartridge to the destination location and back.

The **element to element test is intended to show that the library is operating correctly**. To diagnose problems with the robotic assembly or verify that it has been correctly replaced, use the robotic test.

Maintenance > Library Tests > Element to Element Test

NOTE: The Element to Element Test moves cartridges between two user-defined element locations a user-specified number of times. The test requires at least one cartridge. If moving a cartridge to or from a tape drive, the cartridge must be compatible with the generation of the tape drive. One of the selected element locations must be empty, and one of the selected element locations must be full, before starting the test. For more information, see the online help.

Filter On
All

Source Elements

Element	Barcode	Module	Part.
Mailslot (7.38)	CLN012L1	7	1
Mailslot (7.39)	000113L5	7	1
Drive (1)	TC094ML5	1	1
Drive (3)	TC084ML5	1	1
Drive (6)	TD239ML4	2	1
Slot (7.3)	TC070ML5	7	1
Slot (7.25)	000112L5	7	1
Slot (7.26)	000116L5	7	1

Destination Elements

Element	Status	Module	Part.
Mailslot (1.37)		1	1
Mailslot (1.38)		1	1
Mailslot (1.39)		1	1
Mailslot (1.40)		1	1
Mailslot (2.36)		2	1
Mailslot (2.37)		2	1
Mailslot (2.38)		2	1
Mailslot (2.39)		2	1
Mailslot (2.40)		2	1
Mailslot (3.36)		3	1
Mailslot (3.37)		3	1
Mailslot (3.38)		3	1
Mailslot (3.39)		3	1
Mailslot (3.40)		3	1
Mailslot (4.36)		4	1
Mailslot (4.37)		4	1
Mailslot (4.38)		4	1
Mailslot (4.39)		4	1

Selected Source:

Selected Destination:

Cycles:

Test Status

Direction :

Cycles : of

Status :

To run the element test:

1. Navigate to the **Maintenance > Library Tests > Element to Element Test** screen.
2. Select a cartridge from the **Source Elements** list.
3. To select from a subset of the cartridges:
 - a. Click **Filter On**.
 - b. Enter characters into the search box and then click **Search**.
4. The **Source Elements** list is updated to only include cartridges with a barcode label including the search characters.
5. Select a location from the **Destination Elements** list.
6. Select the number of cycles.
7. Click **Start Test**.

Position Test

The position test moves the robotic assembly vertically between two element locations. **The test does not move cartridges.** You can select the number of times to move the robotic assembly between two element positions.

The **position test is intended to show that the vertical movement of the robotic assembly is operating correctly.** To diagnose problems with the robotic assembly itself or verify that it has been correctly replaced, use the robotic test.

Maintenance > Library Tests > Position Test

NOTE: The Position Test moves the robotic assembly vertically between two element locations a user-specified number of times. The test does not move cartridges. For more information see the online help.

Filter On

All

Source Elements

Element	Barcode	Module	Part.
Mailslot (1.37)		1	1
Mailslot (1.38)		1	1
Mailslot (1.39)		1	1
Mailslot (1.40)		1	1
Mailslot (2.36)		2	1
Mailslot (2.37)		2	1
Mailslot (2.38)		2	1
Mailslot (2.39)		2	1
Mailslot (2.40)		2	1
Mailslot (3.36)		3	1
Mailslot (3.37)		3	1
Mailslot (3.38)		3	1
Mailslot (3.39)		3	1
Mailslot (3.40)		3	1
Mailslot (4.36)		4	1
Mailslot (4.37)		4	1
Mailslot (4.38)		4	1
Mailslot (4.39)		4	1

Destination Elements

Element	Barcode	Module	Part.
Mailslot (1.37)		1	1
Mailslot (1.38)		1	1
Mailslot (1.39)		1	1
Mailslot (1.40)		1	1
Mailslot (2.36)		2	1
Mailslot (2.37)		2	1
Mailslot (2.38)		2	1
Mailslot (2.39)		2	1
Mailslot (2.40)		2	1
Mailslot (3.36)		3	1
Mailslot (3.37)		3	1
Mailslot (3.38)		3	1
Mailslot (3.39)		3	1
Mailslot (3.40)		3	1
Mailslot (4.36)		4	1
Mailslot (4.37)		4	1
Mailslot (4.38)		4	1
Mailslot (4.39)		4	1

Selected Source:

Selected Destination:

Cycles: Select ...

Test Status

Direction :

Cycles : of

Status :

To run the position test:

1. Navigate to the Maintenance > Library Tests > Position Test screen.
2. Select a source location from the Source Elements list.
3. Select a destination location from the Destination Elements list.
4. Select the number of cycles.
5. Click Start Test.

Wellness Test

- The wellness test exercises a general health check on library functionality by running the following partial tests:
 - Basic Hardware Review.
 - Robotics Initialization Test.
 - Barcode Scanning Test.
 - Move Media Test.
- Running the test **requires at least one enabled and functional drive and one cartridge with a barcode label** in each module.
- After the test has been started the Stop Test button is active. Clicking the button will abort the wellness test but not before the current partial test has been completed.
- The **test operates over the whole library and does not take into account partition** configuration.
- During the test the library is offline.
- The Info column notifies the user about the status and result of each partial test.

Maintenance > Library Tests > Wellness Test

NOTE: The Wellness Test checks various library operations and hardware components. The Wellness Test requires at least one enabled and functional drive in the Library stack and one cartridge with barcode label in each module. For more information, see the online help. For a quick test execution it is recommended to have one functional drive in each module and 8 compatible data cartridges in the corner slots of the same module.

Start Test
Stop Test

Robotics initialization test in progress...



Step	Info	Done
▼ Basic Hardware Review	Successful	
Robotics Initialization	Processing	
▼ Barcode Scanning Test	Not yet started	
▼ Move Media Test	Not yet started	

To run the Wellness test, navigate to the **Maintenance > Library Tests > Wellness Test** screen, and then click **Start Test**.

Robotic Test

The robotic test exercises all robotic assembly movements and sensors.

To run the robotic test, navigate to the **Maintenance > Library Tests > Robotic Test** screen, then click **Start Test**.

OCP Test

From the RMI you can run an LED test on the OCP. The test illuminates each of the front panel LEDs. To start the test, navigate to the **Maintenance > Library Tests > OCP Test** screen, and then click **Start**.

Maintenance > Library Tests > OCP Test

LED Test ▼

Start

From the **Maintenance > Library Tests > OCP Test** screen you can also reset the LCD Adjustment for the LCD display on the Operator Control Panel. To start the test, select **Reset LCD Adjustment** in the dropdown box, and then click Start.

Viewing Log Files

To view the library log files, navigate to the **Maintenance > Logs and Traces > View Logs** screen and then select one of the logs. The available logs are:

- Event Ticket Log – Records library error and warning events
- Information Log – Records library information warnings
- Configuration Log – Records configuration changes

Maintenance > Logs and Traces > View Logs

Event Ticket Log

Close all open tickets

Clear log

Include closed tickets ☐

Event Ticket Log ▼

Total (22)

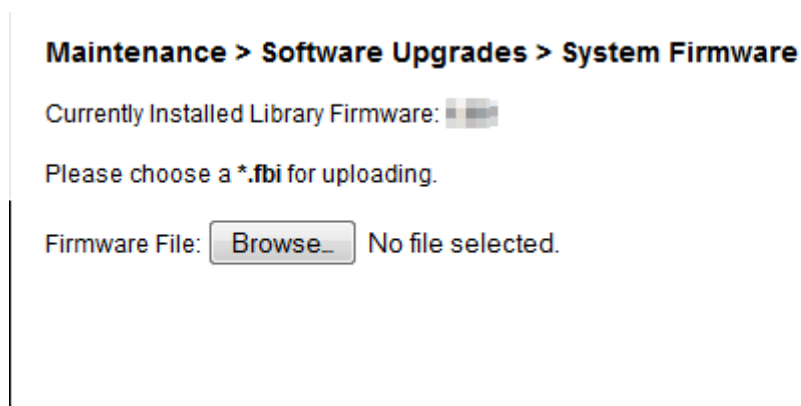
Ticket-No	Time	Event	Description	State	Component	Component ID	Severity
27	21.11.2018 15:37:25	4012	Move cartridge operation failed due to drive or media issue	Singular	Drive	1 (7)	WARNING
26	21.11.2018 15:31:58	4005	Drive is reporting a critical TapeAlert	Resolved	Drive	1 (7)	WARNING
25	21.11.2018 15:31:58	4065	A tape alert flag was reported by a drive	Resolved	Drive	1 (7)	WARNING
24	21.11.2018 15:31:58	4065	A tape alert flag was reported by a drive	Resolved	Drive	1 (7)	WARNING
23	21.11.2018 15:03:12	4021	Drive has been hot removed while in active status as data transfer device	Resolved	Drive	2 (8)	WARNING
22	21.11.2018 13:45:49	4065	A tape alert flag was reported by a drive	Resolved	Drive	3 (10)	WARNING
21	21.11.2018 13:45:49	4065	A tape alert flag was reported by a drive	Resolved	Drive	3 (10)	WARNING
20	21.11.2018 13:45:49	4065	A tape alert flag was reported by a drive	Resolved	Drive	3 (10)	WARNING

The log entries are displayed in order of most recent to oldest. The log entries contain a date and time code, event code, severity, component identifier and event details. The format for the date and time is: YY.MM.DD HH.MM.SS.ss.

- YY.MM.DD – The date displayed as Year.Month.Day
- HH.MM.SS.ss – The time displayed as Hour.Minute.Second.Hundredths of a second

Managing System Firmware

The firmware version currently installed on the library is displayed in the library status area on the Home page. You update the library firmware from the **Maintenance > Firmware Upgrades > System Firmware** screen.



Updating Library Firmware

To update library firmware from the RMI, click Choose File and select the firmware file from the local computer.

To update the library firmware from the OCP:

1. Copy the firmware file to the USB thumb drive.
2. Insert the USB thumb drive into the USB port on the front of the library.
 - a. The library detects the USB thumb drive.
3. Select the firmware file.
4. Click **Start Upgrade**.

When you update the library firmware, the library will also update the firmware of the expansion modules to a compatible version.

Managing Drive Firmware

Drive firmware can be updated on multiple drives of the same type at the same time. Drive firmware can only be updated from the RMI. Each drive will only accept appropriate firmware.

To see the firmware version currently installed on the drives, navigate to the **Status > Drive Status** screen.

Maintenance > Software Upgrades > Drive Firmware

▼ HP LTO 5 HH - SAS

▲ HP LTO 6 HH - FC

☐	Drive	Type	Firmware	Serial	Unit	Partition
☐	2	HH - FC	238W	[REDACTED]	1	1
☐	3	HH - FC	22CW	[REDACTED]	1	1

Image File: No file selected.

To update drive firmware from the RMI:

1. Navigate to the **Maintenance > Software Upgrades > Drive Firmware** screen. The tape drives are organized by drive type.
2. Expand the appropriate drive type and select one or more of the tape drives.
3. Click **Choose File**, and then select the file from the local computer.
4. Click **Submit**.

Downloading Support Tickets

From the **Maintenance > Download Support Ticket** screen you can download a support ticket from the library or any of the tape drives.

Maintenance > Download Drive Logs

▲ Drive Logs

Current Log ▼

	Drive	Type	Firmware	Serial	Module	Partition
☐	1	HP - LTO5 - HH - SAS	Z68W		1	1
☐	2	HP - LTO6 - HH - FC	238W		1	1
☐	3	HP - LTO6 - HH - FC	22CW		1	1

Save ...

To download a drive support ticket:

- Expand the Drive Support Ticket List, if necessary, by clicking the down arrow on the left side. The drive list displays:
 - Drive** – The drive number. Drives are numbered starting with one from the physical bottom of the library to the top.
 - Type** – The drive form factor (half height or full height) and interface.
 - Firmware** – The current drive firmware version.
 - Serial** – The drive serial number.
 - Unit** – The module containing the tape drive.
 - Partition** – The logical library associated with the tape drive.
- Select the ticket to download.
 - Current Ticket** – Pulls and saves a new support ticket from the drive.
 - Last Unload Ticket** – Saves the ticket that was pulled automatically after the last cartridge was unloaded from the drive.
- Check the drive.
- Click **Save**.

To download a library support ticket:

- Expand the Library Support Ticket area, if necessary, by clicking the down arrow on the left side.
- Click **Save**.

To download a drive support ticket:

1. Expand the Library Support Ticket list, if necessary, by clicking the down arrow on the left side.
2. Click **Save**.

Downloading Log and Trace Files

To download the library log and trace files from the RMI, navigate to the **Maintenance > Logs and Traces > Download Logs and Traces** screen and then click **Save**.



NOTE

Users and Administrators should download support tickets instead of log and trace files because the support ticket will have complete information about each library event and is easier to read. See [[Downloading Support Tickets](#)].

Rebooting the Library

To reboot the library, navigate to the **Maintenance > System Reboot** page and click the **Reboot** button

Rebooting Drives

1. Select the drive you want to reboot
2. Click Yes on the dialog popup to start the reboot process

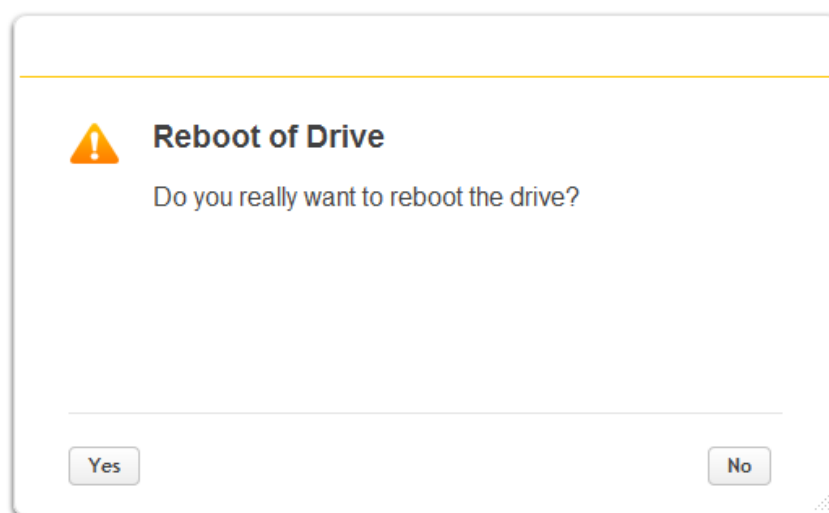
Only one drive can be selected for reboot at a time.

Maintenance > Drive Reboot

NOTE: Please make sure that no Move Media operations are initiated to/from the drive you want to reboot. This could result in Move Media failures.

	Drive	Type	Firmware	Serial	Module	Partition
☐	1	LTO 6 HH FC	238W	HU1235PYK4	1	N/A
☒	3	LTO 5 HH SAS	Z68W	HU1208M51J	1	N/A

Submit



Controlling the Unit Identification (UID) LEDs

UID (Unit Identification) LED refers to blue LEDs on the tape library that assist users and service personnel in determining which component requires attention.

- Base and expansion controller (one LED per controller)

Additionally, there is one UID LED on the Operator Control Panel OCP. Control of this LED is linked to the base controller UID LED (i.e. if the base controller is selected and its UID LED is switched on, the OCP UID LED will be switched on as well).

To select and switch on UID LEDs, navigate to the page **Maintenance > UID LED**.

1. Expand the **Component Drive or Component Module** list, if necessary, by clicking the down arrow on the left side.
2. Select the component where you want to switch on the UID LED.
3. Click the **Switch LEDs On** button

Run the same procedure if you want to switch off UID LEDs.

Moving the Robotic to the Base Module

Before extending a module from the rack, the robotic assembly must return to its park position in the Base Module. Under normal circumstances, when the library is powered off using the front power button the robot automatically parks and locks into the Base Module behind the OCP. After powering off the library and **before proceeding with extending a module from the rack, look inside the upper or lower expansion module window to verify that the robotic assembly is behind the OCP.**

If the library did not move the robotic assembly to its park position, you can do so from the **Maintenance > Move Robotic to Base Library** screen.

Maintenance > Move Robotic to Base Module

Move the Robotic to the Base Module Park Position.

Submit

Operating the Library on the RMI

Click or tap the Operations button on the Home screen to access the operations features.

Moving Media

From the **Operation > Move Media** screen you can move a tape cartridge located in a source element to an available destination element within the same partition.

Operation > Move Media

Barcode Filter Off

Search

Source Elements

Element	Barcode	Module	Part.
Mailslot (7.38)	CLN012L1	7	1
Mailslot (7.39)	000113L5	7	1
Drive (1)	TC094ML5	1	1
Drive (3)	TC084ML5	1	1
Drive (6)	TD239ML4	2	1
Drive (11)	000112L5	5	N/A
Slot (7.3)	TC070ML5	7	1
Slot (7.26)	000116L5	7	1

Destination Elements

Element	Status	Module	Part.
Mailslot (1.37)		1	1
Mailslot (1.38)		1	1
Mailslot (1.39)		1	1
Mailslot (1.40)		1	1
Mailslot (2.36)		2	1
Mailslot (2.37)		2	1
Mailslot (2.38)		2	1
Mailslot (2.39)		2	1
Mailslot (2.40)		2	1
Mailslot (3.36)		3	1
Mailslot (3.37)		3	1
Mailslot (3.38)		3	1
Mailslot (3.39)		3	1
Mailslot (3.40)		3	1
Mailslot (4.36)		4	1
Mailslot (4.37)		4	1
Mailslot (4.38)		4	1
Mailslot (4.39)		4	1

Move Source:
to Destination:

Submit

- **Source Elements** – Tape drives, enabled mailslots, and storage slots that contain a tape cartridge.
- **Destination Elements** – Tape drives, enabled mailslots, and storage slots that do not contain a tape cartridge.
 - Tape drives are listed at the top of each element list and listed in the order of their drive numbers.
 - Tape drives are numbered from the physical top of the library starting with Drive (1).
 - Slots are listed in the order of the slot numbers. Slots are numbered m . s, where m is the module number and s is the slot within the module.

Filtering Based on Barcode

To see a subset of the cartridges in the library, enter some or all the barcode label characters in the search area and click **Search**. The **Source Element** list updates to display only the cartridges with labels that include the characters in the search box.

To perform a different search or display all the available cartridges, click **Barcode Filter Off**.

Moving a Cartridge

1. Select the cartridge from **Source Elements**.
2. Select the destination location from **Destination Elements**.
3. Click **Submit**.

From the **Operation > Open Mailslot** screen you can see the status and unlock any enabled mailslot in the library.

Operation > Open Mailslot

NOTE: To open multiple mailslots, select a mailslot to open, and then after the mailslot has been pulled out, select another mailslot to open.

Module	Mailslot	
Module 7	Closed	Open
Module 6	Closed	Open
Module 5	Closed	Open
Base	Disabled - mailslot cannot be opened.	
Module 3	Closed	Open
Module 2	Closed	Open
Module 1	Closed	Open

To open a mailslot, click **Open** for the appropriate mailslot. The library will release the lock. You can then pull the mailslot out of the library to access the mailslot.



NOTE

The mailslot will relock after 30 seconds.

The mailslot must be enabled before it can be opened. To enable a mailslot, see [[Enabling or Disabling mailslot](#)].



WARNING

Hazardous moving parts exist inside this product. Do not insert tools or any portion of your body into the interior of the library while the mailslot is pulled out.

Opening a Magazine

From **Operation > Open Magazine** screen you can unlock any magazine in the library.

Operation > Open Magazine

NOTE: Only one magazine is allowed to be removed at a time.

Module	Left	Right	
Module 7	Closed	Open	Open
Module 6	Closed	Open	Open
Module 5	Closed	Open	Open
Base	Closed	Open	Open
Module 3	Closed	Open	Open

To unlock a magazine, click **Open** for the magazine. The library will release the lock. You can then pull the magazine out of the library to access the storage slots.



NOTE

- Opening a magazine will take the library off-line.
- The magazines will re-lock after 30 seconds.

Cleaning a Tape Drive

From **Operation > Clean Drive** screen you can initiate a drive cleaning operation.

Operation > Clean Drive

Source Elements					Destination Elements			
Element	Barcode	Module	Part.	Use Count	Element	Status	Module	Part.
Slot (2.76)	CLN003L2	2	1	N/A	Drive (1)		1	1
					Drive (2)		1	1
					Drive (3)		1	1

Move Source: _____ to Destination: _____

1. **Select** a cleaning cartridge from the **Source Elements** list. The library uses the barcode label to identify cleaning cartridges.
2. If no cleaning cartridges are available, load one into a mailslot or magazine slot.
3. **Select** the tape drive to be cleaned from the **Destination Elements** list.
4. Tape drives currently containing a cartridge are not listed. To clean a tape drive not listed, move the cartridge out of the drive.
5. Click **Submit**.

Rescanning the Cartridge Inventory

To have the library rescan the cartridges, navigate to the **Operation > Rescan** screen and click **Rescan**. The library will change to Scanning status and will be unavailable to perform other operations until the scan is complete.

Forcing a Drive to Eject a Cartridge

The force drive media eject operation attempts to force the tape drive to eject the cartridge and place it into an open slot. Access to this feature requires an administrator password.

Before performing this option, it is recommended that you attempt to eject the tape using the backup software or library move media operation. While a drive is being force ejected, a window indicating the process is ongoing should appear. No operations will be available until the force eject completes.



NOTE

If the tape drive has difficulty ejecting the cartridge, the media is possibly bad or damaged. Check the cartridge for damage, check the leader pin position.

Operation > Force Drive Media Eject

Barcode Filter On
Search

Source Elements

Element	Barcode	Module	Part.
Drive (1)	TC094ML5	1	1
Drive (3)	TC084ML5	1	1
Drive (6)	TD239ML4	2	1

Destination Elements

Element	Status	Module	Part.
Mailslot (1.37)		1	1
Mailslot (1.38)		1	1
Mailslot (1.39)		1	1
Mailslot (1.40)		1	1
Mailslot (2.36)		2	1
Mailslot (2.37)		2	1
Mailslot (2.38)		2	1
Mailslot (2.39)		2	1
Mailslot (2.40)		2	1
Mailslot (3.36)		3	1
Mailslot (3.37)		3	1
Mailslot (3.38)		3	1
Mailslot (3.39)		3	1
Mailslot (3.40)		3	1
Mailslot (4.36)		4	1
Mailslot (4.37)		4	1
Mailslot (4.38)		4	1
Mailslot (4.39)		4	1

Move Source:
to Destination:

Submit

1. Navigate to the **Operation > Force Drive Media Eject** screen.
2. Select the drive in the **Source Elements** list.
3. Select the destination in the **Destination Elements** list.
4. Click **Submit**.

Using the LTO-9 New Media Initialization (Optimization) Wizard



IMPORTANT

- This procedure is for new media only and not meant for media that has been initialized commonly referred to as optimization.
- The library will be offline to hosts while the LTO-9 New Media Initialization Wizard is running.
- Media Initialization (optimization) can take up to two hours per tape to complete.

To use the Media Initialization Wizard (Optimization):

1. Navigate to the **Maintenance > LTO-9 New Media Initialization Wizard**.
2. Click **Start LTO-9 New Media Initialization Wizard**.
3. Click **Next** on the **Information** Screen.
4. Select the cartridge(s) you want to initialize and click the right arrow. If all the cartridges need to be initialized, click **Select All**, then click the right arrow.
 - a. This will place the cartridges in the section to the right titled **Selected Cartridges**.
5. Click **Next**.
6. Select the drives to be used for initializing (optimizing) the media and click the right arrow. If all the drives are to be used, click **Select All**, then click the right arrow. This will place the drives in the section to the right titled **Selected Drives**.
7. Click **Next**.
8. Click **Finish** to complete the wizard and begin the media initialization (optimization) process on the selected tapes. The wizard screen will show the progress as the process completes. If you click **Exit**, you will leave the wizard, but the process will continue, and updates will be displayed on the **Maintenance > LTO-9 New Media Initialization Wizard** page.



NOTE

If needed, it is possible to abort the media initialization (optimization) process. It should be noted however, that once a tape is loaded in a drive, that media will complete its (optimization), which could take up to two hours. Once the currently loaded media completes initialization, the wizard will abort and not process any remaining media that was selected.

Viewing Status Information on the RMI

To access the status area, from the **Home** screen, click or tap **Status**.

Viewing Library and Module Status

Summary information and status is displayed in the top banner and the left side bar. For additional library module configuration and status information navigate to the **Status > Library Status** screen.

Status > Library Status

▲ Library Information			
Vendor:	BDT	Product ID:	MULTISTAK
Serial Number:	DE00000000		
Base Firmware Revision:	16x4	Expansion Firmware Revision:	0.07
Robotic Hardware Revision:	4	Robotic Firmware Revision:	0.07
Barcode Reader Hardware Revision:	SE-625	Barcode Reader Firmware Revision:	PAAAMC00-002-N09D0
▲ Library Status			
Library Status:	Idle	Total Power On Time:	26d 17h 3m
Cartridge in Transport:	None	Odometer:	4766
Robotic Location:	Module 4 (Base)	Shipping Lock:	Unlocked
▲ Module 7			
Expansion Controller Revision:	E000	Power Supply Status:	OK
Lower Power Supply:	Present	Upper Power Supply:	Not Present
Drive Power Board:	OK	Chassis Fan:	OK
▼ Module 6			
▼ Module 5			
▲ Module 4 (Base)			
Base Controller Revision:	B000	Power Supply Status:	OK
Lower Power Supply:	Present	Upper Power Supply:	Not Present
Drive Power Board:	OK	Chassis Fan:	OK
▼ Module 3			

Library information:

- **Vendor.**
- **Serial Number** – Library serial number.
- **Robotic Hardware Revision.**
- **Barcode Reader Hardware Revision.**
- **WWide Node Name** – A worldwide unique identifier that the library reports over SCSI and can be used by operating systems or software applications to identify and track the library.
- **Product ID.**
- **Firmware Revision** – Version of the currently installed library firmware.
- **Robotic Firmware Revision** – Version of the currently installed robotic assembly firmware. The robotic assembly firmware is bundled and installed with the library firmware.
- **Barcode Reader Firmware Revision** – Version of the currently installed barcode reader firmware. The barcode reader firmware is bundled and installed with the library firmware.
- **Library Status**
 - **Idle** – The library robotic is ready to perform an action.
 - **Moving** – The library robotic is moving a cartridge.
 - **Scanning** – The library robotic is performing an inventory of cartridges.
 - **Offline** – The library robotic has been taken offline by the library.
 - **Robotic Location** – Displays the module where the robotic is currently located.
 - **Shipping Lock** – Indicates whether the robotic is unlocked or locked for shipment.
- **Cartridge in Transport** – When applicable, displays the barcode label of the cartridge currently in the robotic assembly.
- **Total Power On Time** – Total time that the Base Module has been powered on since it was manufactured.
- **Odometer** – Robotic assembly move count.
- **Base Controller Revision or Expansion Controller Revision** – Hardware revision of the controller board currently installed in the module.
- **Drive Power Board Status** – Status of the drive power board (DC-DC converter) for the three half-height drive slots in the module.
- **Power Supply Status** – Displays the status of power redundancy.
- **Lower/upper Power Supply** – Displays the presence status of the power supplies.

Status > Library Status

▼ Library Information			
▲ Library Status			
Library Status:	Idle	Total Power On Time:	26d 17h 3m
Cartridge in Transport:	None	Odometer:	4766
Robotic Location:	Module 4 (Base)	Shipping Lock:	Unlocked
▼ Module 7			
▼ Module 6			
▼ Module 5			
▼ Module 4 (Base)			
▼ Module 3			

Using Inventory Lists

The inventory lists display each of the elements, such as slots and tape drives, with information about the cartridge stored in the element.

Cartridges stored in unused slots, which are not available for move operations, are greyed out and are not assigned to any partition.

To see the elements organized by module, from **Status**, navigate to **Cartridge Inventory** → **List View**. To see the elements organized by logical library or partition, from **Status**, navigate to **Partition map** → **List View**.

Status > Cartridge Inventory > List View

Drives Cartridges Group Off Filter On						
Module	Slot #	Barcode	Full	Gen.	Partition	
▲ 1						▲
	1.1				1	
	1.2				1	
	1.3				1	
	1.4				1	
	1.5				1	
	1.6				1	
	1.7				1	
	1.8				1	
	1.9				1	
	1.10				1	
	1.11				1	
	1.12				1	
	1.13				1	
	1.14				1	
	1.15				1	
	1.16				1	
	1.17				1	
	1.18	000022L5	X	5	1	
	1.19				1	
	1.20				1	
	1.21				1	
	1.22				1	
	1.23				1	
	1.24				1	▼

In the Inventory List:

- **Module** – The module number.
- **Slot #** – Identifier in the format *M.S*, where **M** is the module number and **S** is the slot number (e.g., **3.27** = module 3, slot 27).
- **Label** – Barcode label.
- **Full** – X if a cartridge is using the element.
- **Gen** – LTO generation of the cartridge.
- **Partition** – The partition number.

Filtering by Barcode Label

To filter the list based on barcode label, enter characters in the filter box and then click **Search**.

1. Click **Filter On**. The search box is displayed.
2. Enter characters into the search box and then click **Search**. The characters can be anywhere in the barcode label. The search characters are not case sensitive. There are no wildcards.

To disable filtering, click **Filter Off**.

Listing Just Drives or Cartridges

To limit the list to tape drives, click **Drives**.

To limit the list to cartridges, click **Cartridges**.

To see all elements, click **Partition** or **Slots**.

Viewing Elements by Group

When the list is grouped, you can expand or contract the list for each group by clicking the triangle next to the number in the first column. Grouping is enabled by default.

To disable grouping, click **Group Off**.

To enable grouping, click **Group On**.

Using Inventory Graphical View

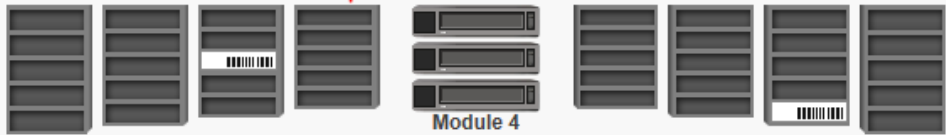
The inventory graphical view displays each of the elements, such as slots and tape drives, with information about the cartridge stored in the element.

Unused slots, which are not available for move operations, are greyed out and marked with a cross. Cartridges stored in these slots are displayed in the same way as for regular slots.

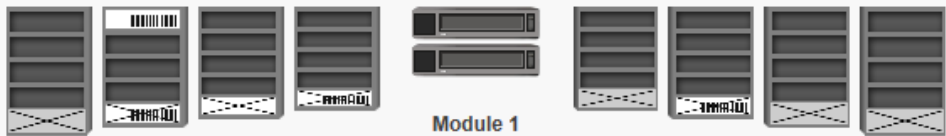
To see the elements organized by module, from **Status**, navigate to **Cartridge Inventory > Graphical View**. To see the elements organized by logical library or partition, from **Status**, navigate to **Partition Map > Graphical View**.

Status > Cartridge Inventory > Graphical View

Module	Cartridges	Drives
▼ 7	2	2
▼ 6	0	3
▼ 5	0	3
▲ 4 (Base)	2	3



▼ 3	0	1
▼ 2	1	3
▲ 1	5	2



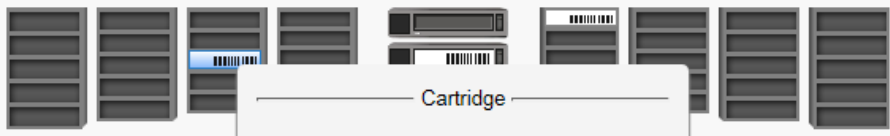
Moving the mouse over drive or cartridge will display additional information:

- **Drive** – LTO generation of drive and format (Full Height or Half Height).
- **Drive #** - The drive number.
- **Serial #** - Serial number of the drive.
- **Slot #** – Identifier in the format *M.S*, where **M** is the module number and **S** is the slot number (e.g., **3.27** = module 3, slot 27).
- **Barcode** – Barcode data on label.
- **Generation** – LTO generation of cartridge.
- **Partition** – The partition number.
- **Media Loads** – The number of media loads.

- **Encryption** – Indicates whether data on this media is encrypted or not encrypted.
- **Media Type** – Indicates whether this media is a data or a cleaning cartridge.

Status > Cartridge Inventory > Graphical View

Module	Cartridges	Drives
▼ 7	2	2
▼ 6	0	3
▼ 5	0	3
▲ 4 (Base)	2	2



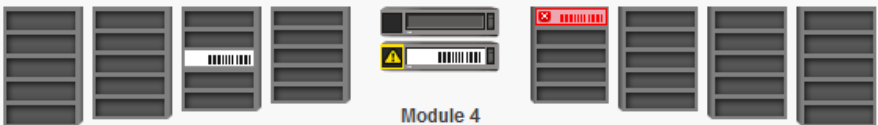
Cartridge
Barcode: 000112L5
Generation: 5
Slot #: 4.13
Partition: 1
Media Loads: 6
Encryption: Not Encrypted
Media Type: Data

▼ 3	0	
▼ 2	0	
▼ 1	0	

Warning state and error state for a specific drive or cartridge are indicated with icons.

Status > Cartridge Inventory > Graphical View

Module	Cartridges	Drives
▼ 7	2	2
▼ 6	0	3
▼ 5	0	3
▲ 4 (Base)	2	2



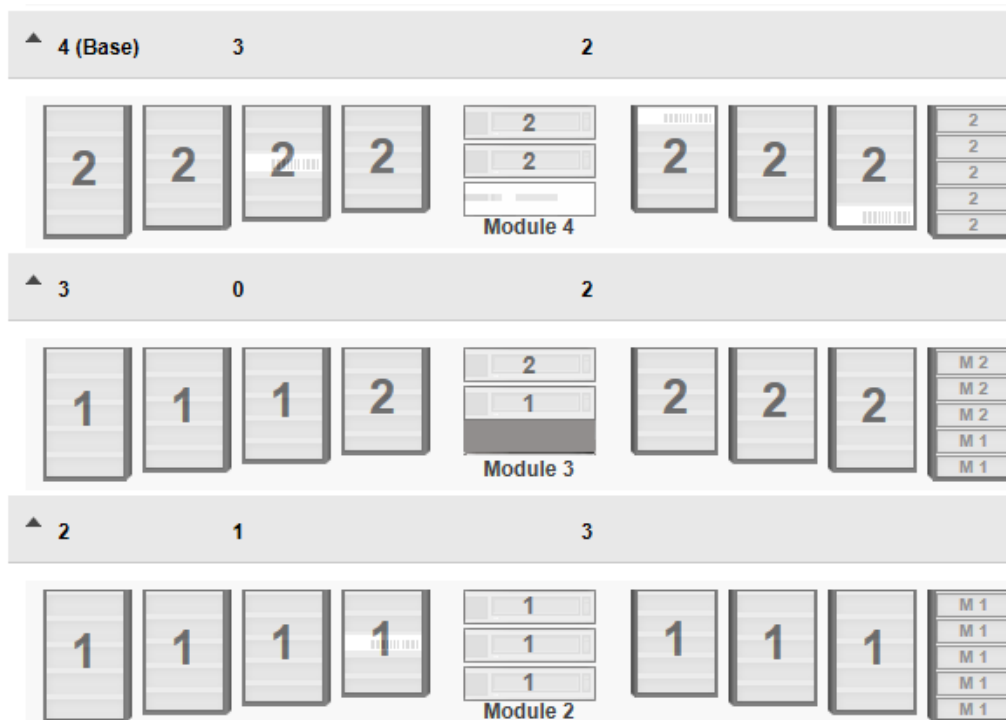
Module 4

▼ 3	0	2
▼ 2	0	3
▼ 1	0	3

Using Partition Map Graphical View

To see the elements organized by logical library or partition, from **Status**, navigate to **Partition Map** → **Graphical View**.

The graphical view of the partition map displays the partition number for every magazine. Magazine #8, which can be configured as mailslot magazine, displays single slots. When they are configured as **mailslots**, the slot number gets a leading 'M'.



Moving the mouse over a partition layer the interface will display additional information:

- **Name** – Partition name.
- **Barcode** – Barcode orientation.
- **Media Removal** – Indicates whether media removal is allowed or prevented by the host.
- **Key Manager Type** – Encryption type.
- **Partition S/N** – Serial number of the partition.
- **Drive Count** – Number of drives in this partition.
- **Slot Count** – Number of slots in this partition.
- **Media Count** – Number of cartridges in this partition.
- **Mailslot Count** – Number of mailslots in this partition.

Status > Partition Map > Graphical View

Module	Cartridges	Drives
▼ 7	1	2
▼ 6	1	1
▲ 5	1	1

The graphical view shows a 3D layout of modules and drives. A tooltip for Partition # 5 is displayed over a drive in Module 3. The tooltip contains the following information:

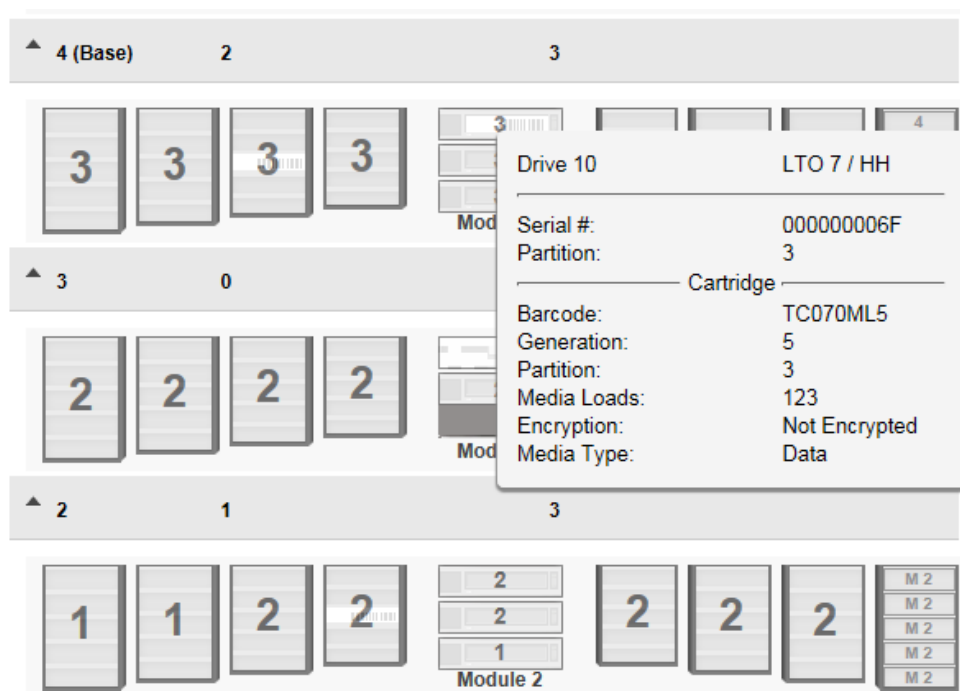
Partition # 5	
Name:	Partition_5
Barcode:	8 / Left
Media Removal:	Allowed
Key Manager Type:	Controlled by Backup Application
Partition S/N:	DE00000000_LL05
Media	
Drive Count:	1
Slot Count:	35
Cartridge Count:	1
Mailslot Count:	4

Moving the mouse over a drive the interface will display additional information such as:

- **Drive** – LTO generation of drive and format (Full Height or Half Height).
- **Drive #** - The drive number.
- **Serial #** - Serial number of the LTO drive.
- **Partition** – The partition number.

If a cartridge is loaded in this drive additional information about the cartridge is displayed such as:

- **Barcode** – Barcode data on label.
- **Generation** – LTO generation of cartridge.
- **Partition** – The partition number.
- **Media Loads** – Number of loads.
- **Encryption** – Encryption status.
- **Media Type** – Data cartridge, Cleaning Cartridge.



Using Partition Map Configuration Status

To see the configuration of a partition, the elements and their status, from **Status**, navigate to **Partition Map** → **Configuration Status**.

In the configuration status list, you can see:

- **Partition Number** – The partition number.
- **Partition Name** – The partition name.
- **Partition S/N** – The partition serial number.
- **Number of Drives** – Number of drives in this partition.
- **Number of Slots** – Number of slots in this partition.
- **Number of Mailslots** – Number of mailslots in this partition.
- **Barcode Label Length Rep. to Host** – Barcode length reported to the host.
- **Barcode Label Alignment Rep. to Host** – Barcode alignment reported to the host.
- **Auto Clean** – Indicates whether automatic cleaning of drives is enabled or disabled.
- **Key Manager Type** – Encryption type.
- **Active Control Path Drive** – LUN drive for this partition.
- **LT07 Multi-initiator SCSI Conflict Detection** – Indicates whether Multi-initiator Conflict Detection is enabled or disabled.

Status > Partition Map > Configuration Status

▼ Partition Number: 1 Partition Name: Partition_1

▼ Partition Number: 2 Partition Name: Partition_2

▼ Partition Number: 3 Partition Name: Partition_3

▲ Partition Number: 4 Partition Name: Partition_4

▼ Partition Number: 5 Partition Name: Partition_5

▼ Partition Number: 6 Partition Name: Partition_6

Partition Number:	4
Partition Name:	Partition_4
Partition S/N:	DE0000000_LL04
Number of Drives:	▼ 3
Number of Slots:	40
Number of Mailslots:	5
Barcode Label Length Rep. to Host:	8
Barcode Label Alignment Rep. to Host:	Left
Auto Clean:	Disabled
Key Manager Type:	Controlled by Backup Application
Active Control Path Drive:	Drive 11 (LT07 Fibre)
LT07 Multi-initiator SCSI Conflict Detection:	Disabled

Refresh

Expand All

Viewing Drive Status

In the **Status> Drive Status** screen you can see the configuration and status of each drive installed in the library.

Status > Drive Status

▲ 2	S/N: [REDACTED]	HP LTO 6 HH FC	✓	Idle	On
Vendor:	HP	Personality:	5C 0D		
Firmware:	238W	Manufacturer S/N:	[REDACTED]		
Powered:	On	WWNN:	[REDACTED]		
Temperature:	38 °C	Partition:	1		
Encryption:	Disabled	Cartridge:	TC063ML5 (1.13)		
IP Addr.:	N/A	Media Removal:	Allowed		
Module Loc:	1	Data Compression:	Enabled		
Cooling Fan Status:	Active				
Fibre Channel Fabric Log-in Name:	HP Ultrium 6 Fibre Channel 238W S/N-00000000DD				
Port A Status (WWPN: [REDACTED])					
Speed:	8 Gb/s	Port Type:	Loop (L)		
Interface:	Login complete	Loop ID / ALPA:	0x7C / 0x2		
Fibre Channel Fabric Log-in Name:	HP Ultrium 6 Fibre Channel 238W S/N-[REDACTED] Port-A				
Port B Status (WWPN: [REDACTED])					
Speed:	N/A	Port Type:	N/A		
Interface:	No light detected	Port ID:	N/A		
Fibre Channel Fabric Log-in Name:	HP Ultrium 6 Fibre Channel 238W S/N-[REDACTED] Port-B				
▼ 3	S/N: 00000000E7	HP LTO 6 HH FC	✓	Empty	On

Refresh Expand All

Viewing Network Status

Status > Network Status

Host Name: [REDACTED]

Domain Name: [REDACTED]

Protocol: IPv4 & IPv6

▲ General Network Settings

MAC Address: [REDACTED] Link Status: Enabled

Link Speed: 1000 Mbit/s Duplex: Enabled

▲ IPv4

DHCP: Enabled

Address: [REDACTED] Netmask: 255.255.248.0

Gateway: [REDACTED]

DNS 1: [REDACTED] DNS 2: [REDACTED]

▲ IPv6

Method: Stateless

Address: [REDACTED]

Prefix Length: 64

Gateway: [REDACTED]

DNS 1: [REDACTED]

DNS 2: [REDACTED]

In the **Status > Network** screen you can see:

- **Host Name** – Library hostname.
- **Domain Name**.
- **Protocol** – IPV4 or IPV6.
- **MAC Address** – A unique identifier for the library controller network interface.
- **Link Status** – Enabled or disabled.
- **Link Speed** – Speed of the Ethernet connection to the library.
- **Duplex** – Enabled or disabled.
- **IPv4 settings.**
- **DHCP** – When Enabled, the library requests an IP address from a DHCP server each time the library is powered on.
- **Address** – IP address in use by the library. If DHCP is enabled, this address was obtained from the DHCP server. When DHCP is not enabled, the address was configured.
- **Netmask** – The network mask of the library controller used when DHCP is not enabled.

- **Gateway** – The gateway used when DHCP is not enabled.
- **DNS 1.**
- **DNS 2.**
- **IPv6 settings.**
- **Stateless Addressing** – When Enabled, the device will generate an address for itself based on the routing information obtained from a router advertisement and the MAC address. The device can manage up to five global addresses at the same time, which can be assigned from different routers.
- **Static Addressing** – When Enabled, the library will use a statically-configured address.
- **Static Assigned Address** – The IPv6 address when Static Addressing Enabled is On.

Viewing Security Status

On the **Status > Security** page you can view the encryption status of the library.

Section **Security Encryption Status** provides an overview on the different encryption modes available in the library and their status.

Section **Partition Encryption Status** lists all partitions and its according encryption configuration.

Section **Drive Encryption Status** provides a list with all drives installed in the library and the encryption status for each drive.

Upgrading and Servicing the Library

For serving and upgrading the SymplyPRO XTL Library, the following tools maybe required.

- #2 Phillips Screwdriver – securing or removing the round-hole rack adapter bracket, securing retention inserts in square-hole rack.
- Small Flat Head or Torx Screwdriver – retracting the locking screen when moving a library cover, using the magazine manual release.
- T10 Torx Screwdriver – removing drive bay covers.
- Small Flat Head Screwdriver – removing a magazine access door.
- Clip Nut Installation Tool – inserting or removing clip nuts in square-hole racks while installing or removing rack rails.

Identifying a Failed Component

Using the RMI:

1. **Activate the UID** (Unit Identification) LEDs from the **Maintenance** → **UID LED Control** screen on the RMI. This will illuminate the blue LED on the front and rear of the Base Module to identify the library containing the failed component.
2. **Identify the module** within the library that contains the failed component:
 - a. In the upper left corner of the **Home** screen, locate the module that indicates an error.
 - b. **Click** the module for information on the failed component.

Installing or Replacing a Tape Drive



WARNING

Only individuals who are informed about the procedures and risks should replace or upgrade this tape drive assembly. Read all troubleshooting documentation and procedures before proceeding with repair or upgrading procedures. **Hazardous** moving parts exist inside this product. Do not insert tools or any portion of your body into the drive bay openings.

Removing a Tape Drive

Replacing a tape drive:

- **Make sure the tape cartridge has been removed from the tape drive.** Use the operator control panel (OCP) or the remote management interface (RMI) to move the cartridge to a storage slot or mailslot.
- If you are replacing the tape drive in a single drive unit or the master drive in a multi-drive unit, **verify that backups are not occurring on the drive you are replacing.** If backups are occurring on the master drive, verify that the library will not be accessed through this drive while the drive is being replaced.

To replace a tape drive:

1. Use the OCP or RMI to **power off the tape drive.**
2. Verify that the **tape drive assembly LED is off**, and then remove the FC or SAS cable from the tape drive.
3. **Loosen the blue captive thumbscrews on the tape drive.** Press the lock lever to the right and pull straight back on the tape drive handle while supporting the bottom of the drive to remove it from the unit.



CAUTION

Support the bottom of the tape drive when removing it to avoid damaging any of the internal connections.

Removing a Drive Bay Cover

If you are adding a tape drive:

1. Identify the location for the tape drive. If this is the first tape drive, install it in the bottom drive bay. Otherwise, install the new drive in the next higher drive location.
2. Using a Philips screwdriver, remove one half-height drive bay cover to install one half-height drive.

Installing a Tape Drive

1. Align and slowly insert the new tape drive into the drive bay while supporting the drive assembly. The tape drive should be flush with the back panel of the device.
2. Tighten the captive thumbscrews with your fingers until the tape drive is secure.

Connecting the SAS Cable

- 1) Attach to the HBA. Plug the HBA end of the SAS cable into the host HBA. If you're using a SAS fan-out (1→4) cable, the single (wide) connector goes into the HBA.
- 2) Attach to the drive(s).

Single-to-single cable: connect the other end to the tape drive's SAS port.

SAS fan-out cable: connect **one x1 leg per tape drive**—do not daisy-chain. Any unused fan-out legs are single-channel and not suitable for disk arrays; either use them for additional tape drives on the same HBA port, or **coil and secure** them to the rack to minimize connector stress.



NOTE

Each of the tape drives uses one channel and the fanout cable recommended for use with the library maps each of the four channels from the HBA to one channel on the drive end.

You can plug any of the four drive connectors into any tape drive.



TIP

If you are not using a SAS cable specified for the library, do not force a SAS cable's SAS connector into the tape drive SAS connector because it might be keyed differently.



NOTE

SAS signal rates require clean connections between the HBA and tape drive. Do not use adapters or converters between the HBA and the tape drive. For reliable operation, use a maximum SAS cable length of five (5) meters.

Connecting the Fibre Channel Cables

1. Remove the FC port caps if necessary. Attach one end of the FC cable to **port A** on the tape drive.
2. Attach the other end of the FC cable to a switch or HBA.

Configuring the FC Interface

If you are replacing an existing FC tape drive, skip this step.

It is recommended that you leave the FC port at the default settings of **Port Speed: Automatic** and **Port Type: Auto Detect**. With these settings, the tape drive will use the appropriate configuration.

Verifying the Installation

1. Power on the drive from the OCP or RMI, if necessary.
2. Confirm that the library recognizes the new tape drive by checking the OCP or RMI. The new drive should appear in the module status overview area on the left side of the screen.
3. Use RMI or OCP to verify that the tape drive has the current firmware. Update the firmware if necessary.

Adding an Expansion Module



WARNING

Product Weight

Each SymplyPRO XTL module weighs more than 20 kg (44 lbs) without drives or tapes and more than 35 kg (77 lbs) with 3 half-height tape drives and 40 tapes.

Risk of personal injury

Before moving or lifting a module:

- Observe local health and safety requirements and guidelines for manual material handling.
- Remove all tapes to reduce weight and to prevent cartridges from falling into the robotics path and damaging the library.
- Remove all tape drives to reduce the weight.
- Obtain adequate assistance to lift and stabilize the module during installation or removal.

Risk of damage to devices

When placing a module into or removing the module from a rack:

- Extend the rack's levelling jacks to the floor.
- Ensure that the full weight of the rack rests on the levelling jacks.
- Install stabilizing feet on the rack.
- Extend only one rack component at a time.



CAUTION

Static Sensitive

Risk of damage to devices

- A discharge of static electricity damages static-sensitive devices or micro circuitry.
- Proper packaging and grounding techniques are necessary precautions to prevent damage.
- Proper packaging and grounding techniques are necessary precautions to prevent damage

Overview of adding Expansion Module

To install this Expansion Module, you will:

1. Clear space in the rack, if necessary, and then install the rack rails.
2. Transfer the library top or bottom cover to the Expansion Module.
3. Install the Expansion Module in the rack and align the module with the library.
4. Plug in the cables and verify the installation.

You will need a small flat head or Torx screwdriver, a #2 Phillips screwdriver.

Powering Off the Library

Before powering off the library, verify that all host processes are idle. Power off the library from the front panel. Depress the power button and hold it for 3 seconds. If the library does not perform a soft shutdown, depress and hold the power button for 10 seconds.

Verify that the robotic assembly is in its parked position (behind the OCP panel).

Moving a Cover to the New Module

The library has removable top and bottom covers. When adding a module, you must move either the top or the bottom cover to the new module. See [[Preparing the Top and Bottom Modules](#)] for details; while this procedure refers to moving a cover from the Base Module, the information is the same for moving a cover from an Expansion Module.

Installing the Module in the Rack

See [[Installing Modules in a Rack](#)] for details

Aligning and Connecting the Module

Aligning the new module with the library ensures that the robot can move freely between the modules. The library will not operate unless the alignment mechanism is in a locked position. See [[Aligning and Connecting Modules](#)] for details.

Verifying the Installation and Configuration

Verify that the library powers on and initializes correctly, and that the status is Ready. From the OCP or RMI, verify that the new module is visible.

Check the library configuration settings related to the additional storage slots, mailslots, and tape drives, and update if necessary.

The expansion module will operate using the existing library firmware. It is recommended that you always update the library to the latest firmware version.

You can update firmware from the RMI or OCP **Maintenance > Firmware Upgrades > System Firmware** screen.

Moving the Library

When moving a library module within the rack, to a different rack, or in a rack to a different physical location, care must be taken to avoid personal injury and damage to the module.



WARNING

Product Weight

Each SymplyPRO XTL 40 module weighs more than 20 kg (44 lbs) without drives or tapes and more than 35 kg (77 lbs) with 3 half-height tape drives and 40 tapes.

Risk of personal injury

Before moving or lifting a module:

- Observe local health and safety requirements and guidelines for manual material handling.
- Remove all tapes to reduce weight and to prevent cartridges from falling into the robotics path and damaging the library.
- Remove all tape drives to reduce the weight.
- Obtain adequate assistance to lift and stabilize the module during installation or removal.

Risk of damage to devices

When placing a module into or removing the module from a rack:

- Extend the rack's levelling jacks to the floor.
- Ensure that the full weight of the rack rests on the levelling jacks.
- Install stabilizing feet on the rack.
- Extend only one rack component at a time.

To move a module within a rack or into a different rack:

1. Save the library configuration.
2. Remove the tape cartridges from the tape drives and magazines, and power off the library.
3. Disconnect the power cords and cables, and unlock the alignment mechanisms.
4. Remove the modules from the rack.
5. Remove the rack rails from the rack.
6. Verify that the destination rack is level side to side and front to back.
7. Install the rack rails in the destination rack.
8. Install the modules in the rack.
9. Replace the cables and lock the alignment mechanisms.
10. Connect the power cords, power on the library, and verify the operation.
11. Replace the tape cartridges.

For instructions for these steps, see [\[Replacing a Module\]](#) and [\[Installing the Library\]](#).



CAUTION

Failure to disconnect all cables can result in damage to the cable and/or the mating electronic assembly in the library.

Replacing a Power Supply



CAUTION

Static Sensitive

Risk of damage to devices

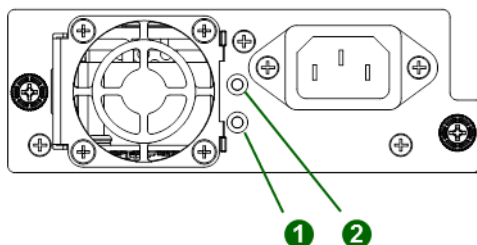
- A discharge of static electricity damages static-sensitive devices or micro circuitry.
- Proper packaging and grounding techniques are necessary precautions to prevent damage.

Identifying the Failed PSU Component

See the OCP or RMI Home screen to identify the failed component. **Activate the UID LEDs** from the **Maintenance > UID LED Control** screen to locate the library in the data centre. For detailed instructions, see [\[Identifying a Failed Component\]](#).

Preparing to Remove the Power Supply

1. Locate the failed power supply on the rear of the library by the LEDs; either the green LED is unlit or both LEDs will be unlit.
2. Unplug the AC power cord from the power supply you are replacing.



Number	Description
1	Module Powered On – Green LED
2	AC power connected – White LED

Removing the Power Supplies

1. **Loosen the two blue captive thumbscrews** with your fingers on the power supply.
2. Using the thumbscrews (one on each side), **slowly pull the power supply** approximately 10 cm (4 inches) from the back of the module.
3. Use one hand to completely remove the power supply from the module while using the other hand to support the bottom.

Installing the New Power Supply

1. **Position the new power supply onto the alignment rails.**
2. **Slide the power supply into the module until it is flush** with the back panel of the chassis.
3. **Tighten the blue captive thumbscrews** with your fingers to secure it to the module.
4. Attach the AC power cord to the new power supply.

Verifying the Power Supply Installation and Operation

1. Verify that the new power supply is operating properly by checking the power supply LEDs:
 - a. The white (1) LED should be lit.
 - b. The green (2) LED should be lit.
2. Using the **OCP or RMI**, confirm that the power supply is operating correctly; the event that indicated the event that indicated the power supply was faulty should be cleared.
3. If the UID LEDs are still illuminated, deactivate them using the RMI.

Replacing a Controller Board



CAUTION

Static Sensitive

Risk of damage to devices

- A discharge of static electricity damages static-sensitive devices or micro circuitry.
- Proper packaging and grounding techniques are necessary precautions to prevent damage.

Identifying the Controller Board



IMPORTANT

Do not replace both the base chassis and the Base Module controller with repair components in the same procedure. The firmware will not allow the library to operate if both components are replaced at the same time. The library WWID and serial number are saved in the controller and within the chassis. When one is replaced, the data from the original component is transferred to the repair component. If replacing both the base chassis and Base Module controller, you must power cycle the library between component replacements.

See the OCP or RMI Home screen to identify the failed component. Activate the UID LEDs from the **Maintenance > UID LED Control** screen on the RMI to locate the library in the data center. For detailed instructions, see [\[Identifying a Failed Component\]](#).

Saving the Configuration

The library configuration settings are on the library chassis and will be restored automatically when the controller is replaced. However, it is recommended to save the configuration settings before removing the controller board. See [\[Saving the Library Configuration to a File\]](#) for instructions on saving configuration settings to a file or USB flash drive via the OCP or RMI.

Powering Off the Library

Before powering off the library, verify that all host processes are idle.

Power off the library from the front panel. Depress the power button and hold it for 3 seconds. If the library does not perform a soft shutdown, depress and hold the power button for 10 seconds.

Preparing to Remove the Base or Expansion Module Controller

1. **Unplug the AC power cables** from the module containing the failed controller.
2. On the module containing the failed controller, **remove the expansion interconnect cables** that connect to other modules, if present.
3. Remove the Ethernet cables and the USB device, if present (an Expansion Module will not have Ethernet or USB ports.)

Removing the Base or Expansion Module Controller

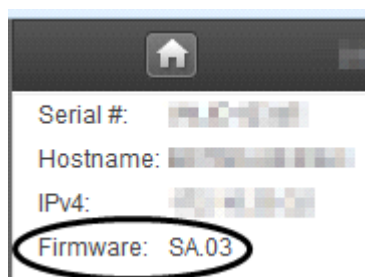
1. **Loosen the two blue captive thumbscrews** on the controller.
2. Using the thumbscrews, **slowly remove the controller** from the module.

Installing the Base or Expansion Module Controller

1. **Position the new controller on the alignment rails.**
2. Slide the controller slowly into the module until it is flush with the back panel of the chassis.
3. **Tighten the blue captive thumbscrews** with your fingers to secure it to the module.
4. **Replace** the expansion interconnect cables, the Ethernet cable, and the USB device removed previously.
5. **Plug in** the AC power cables.

Verifying the Base or Expansion Module Controller Installation

1. Using the OCP or RMI, click or tap **Status > Library Status > Module x** to view the controller status.
2. Using the OCP or RMI, check for events; the event that indicated the controller was faulty should be cleared.
3. Verify that the library has the most up-to-date firmware revision. To find the version of firmware installed on the library, check the upper left corner of the OCP or RMI.



4. If replacing the Base Module controller, upgrade the firmware if necessary.
5. Update the firmware from the **RMI Maintenance > Firmware Upgrades > System Firmware** screen.
6. If replacing the Base Module controller, restore the previous settings by restoring them from a file of saved settings, or by entering them using the OCP or RMI.
7. If the UID LEDs are still illuminated, deactivate them using the RMI.
8. Resume the host applications.

Powering On the Library

Power on the library by pressing the **power button on the Base Module** just below the OCP; the green light will illuminate. When the library is powered on, it inventories the tape cartridges in the magazines, checks the firmware version on all modules, configures the tape drives, confirms the presence of the existing modules, and searches for any new modules.

Installing or Replacing a Power Module

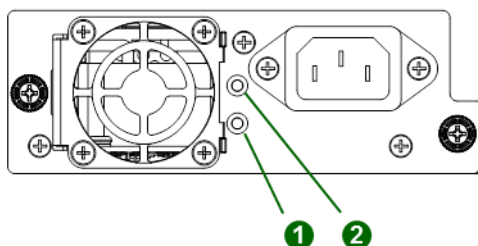


CAUTION

Parts can be damaged by electrostatic discharge. Keep parts in electrostatic containers until needed. Ensure you are properly grounded when touching static sensitive components.

Identifying the Failed Power Module

See the OCP or RMI Home screen to identify the failed component. Activate the UID LEDs from the **Maintenance > UID LED Control** screen to locate the library in the datacenter. For detailed instructions, see [\[Identifying a Failed Component\]](#).



Number	Description
1	Module Powered On – Green LED
2	AC power connected – White LED

Powering Off the Library

Before powering off the library, verify that all host processes are idle.

Power off the library from the front panel. Depress the power button and hold it for 3 seconds. If the library does not perform a soft shutdown, depress and hold the power button for 10 seconds.

Preparing to Remove the Power Module

Unplug the AC power cords from the module containing the failed drive power board.

Removing the Library/Expansion Controller Power Module

1. **Loosen the two blue captive thumbscrews** on the library/expansion power module.
2. Using the thumbscrews, slowly remove the power module from the library module.
3. Slowly slide the power module out.

Installing the New Power Module

1. Position the new power module onto the **alignment rails**.
2. **Slide the power module** into the library module until it is firmly seated.
3. Push the latch up until it snaps into place; when the power module is installed correctly, the latch will not be loose.
4. **Tighten the blue captive thumbscrews** with your fingers to secure it to the module.
5. **Plug in** the AC power cords disconnected previously.

Powering On the Library

Power on the library by pressing the **power button on the Base Module** just below the OCP; the green light will illuminate. When the library is powered on, it inventories the tape cartridges in the magazines, checks the firmware version on all modules, configures the tape drives, confirms the presence of the existing modules, and searches for any new modules.

Verifying the Power Module Installation

1. Verify that all drives that are present are powered on:
 - a. Check the OCP or RMI for events.
 - b. From the back of the library, verify that the green LED on each drive is illuminated.
2. Verify that the power module is operating properly by checking the OCP or RMI; the event that indicated the drive power board was faulty should be cleared.
3. If the UID LEDs are still illuminated, deactivate them using the RMI.
4. Resume the host applications.

Replacing a Module (Base or Expansion)



WARNING

Product Weight

Each SymplyPRO XTL module weighs more than 20 kg (44 lbs) without drives or tapes and more than 35 kg (77 lbs) with 3 half-height tape drives and 40 tapes.

Risk of personal injury

Before moving or lifting a module:

- Observe local health and safety requirements and guidelines for manual material handling.
- Remove all tapes to reduce weight and to prevent cartridges from falling into the robotics path and damaging the library.
- Remove all tape drives to reduce the weight.
- Obtain adequate assistance to lift and stabilize the module during installation or removal.

Risk of damage to devices

When placing a module into or removing the module from a rack:

- Extend the rack's levelling jacks to the floor.
- Ensure that the full weight of the rack rests on the levelling jacks.
- Install stabilizing feet on the rack.
- Extend only one rack component at a time.



CAUTION

Parts can be damaged by electrostatic discharge. Keep parts in electrostatic containers until needed. Ensure you are properly grounded when touching static sensitive components.

Overview of replacing a Base or Expansion Module

To replace the module, you will:

1. Save the library configuration.
2. Remove tape cartridges and power off the library.
3. Remove all the components from the module and disconnect the power cords and cables.
4. Remove the module from the rack.
5. Install the replacement module into the rack.
6. Replace the components and cables.
7. Connect the power cords, power on the library, and verify the operation.
8. Replace the tape cartridges.

You will need a T-10 Torx screwdriver to remove the drive bay covers and a small flat head screwdriver. Have several static safe bags available for the boards being moved to the replacement chassis.

Before beginning this replacement procedure:

- Ensure that the rack is level side to side and front to back.
- Verify that any applications using the library are idle.



CAUTION

If the temperature in the room where the replacement module will be installed varies by 15 °C (30 °F) from the room where it was stored, allow it to acclimate to the surrounding environment for at least 12 hours before unpacking it from the shipping container.

Saving the Configuration

The library configuration settings are on the library chassis and will be restored automatically when the controller is replaced. However, it is recommended to save the configuration settings before removing the controller board. See [\[Saving the library configuration to a file\]](#) for instructions on saving configuration settings to a file or USB flash drive via the OCP or RMI.

Unlocking the Magazine

Unlock the magazine using the magazine unlock buttons or RMI. If these methods fail, or if a magazine needs to be removed when the power to the device is off, you can release the magazine manually. Only one magazine can be open at a time. For detailed instructions, see [\[Unlocking the magazine\]](#).

**NOTE**

As best practice, perform this procedure while applications are idle. While the magazine is pulled or removed, the library robotic assembly cannot move media.

Removing the Tape Cartridges

Remove the tape cartridges noting their locations within the magazine. You will place them in the same locations in the new magazine after it is installed.

Powering Off the Library

Before powering off the library verify that all host processes are idle.

Power off the library from the front panel. Depress the power button and hold it for 3 seconds. If the library does not perform a soft shutdown, depress and hold the power button for 10 seconds.

Verify that the robotic assembly is in its parked position (behind the OCP panel).

Removing the Module Cables

1. Remove the power cords from the module being replaced.
2. Remove the expansion interconnect cables from the module being replaced and from the modules connected to it.
3. Remove any SAS, FC, or Ethernet cables from the module being replaced.
4. Remove the USB device, if present.

**NOTE**

Completely removing the cables from both ends prevents damaging the expansion interconnect cables during module removal and replacement.

Removing the Tape Drives

Remove any tape drives from the module being replaced. The library tracks the LTO drive locations and will issue events if the LTO drives aren't in the expected locations. Note the LTO drive locations so they can be replaced in the same order in the LTO drive bays.

1. Use your fingers to loosen the blue captive thumbscrews on the tape drive.
2. Pull straight back on the tape drive handle while supporting the bottom of the drive to remove it from the module.



CAUTION

Support the bottom of the tape drive when removing it to avoid damaging any of the internal connections.

Removing the Power Supplies

While removing the power supplies, be sure to support the bottom. For detailed instructions, see [\[Removing the Power Supplies\]](#).

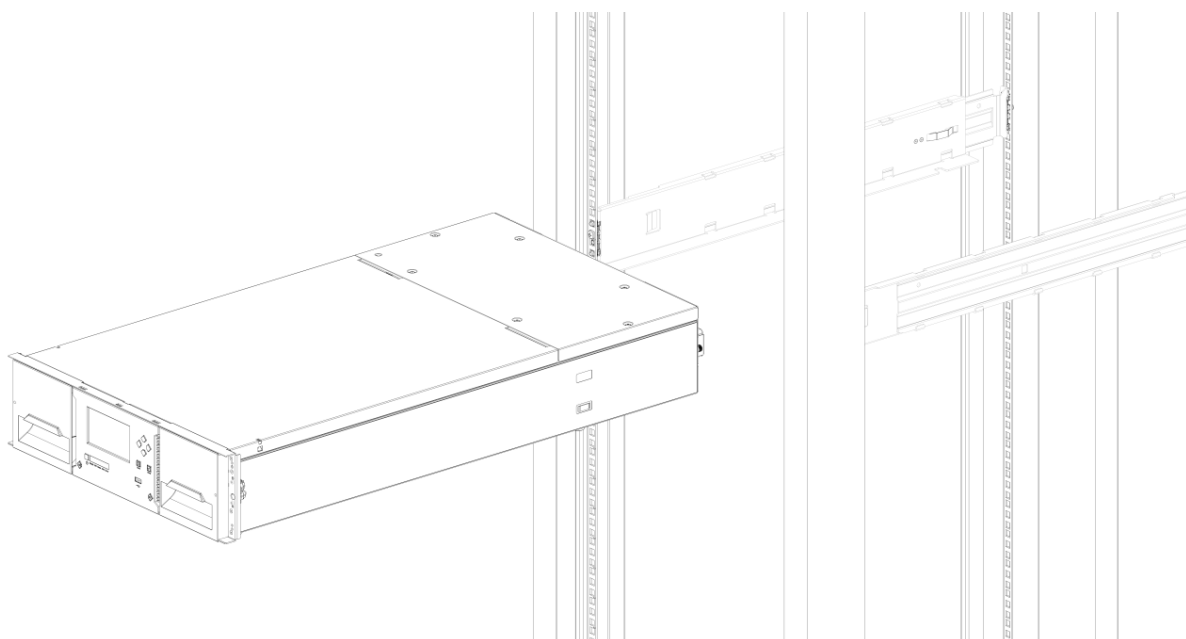
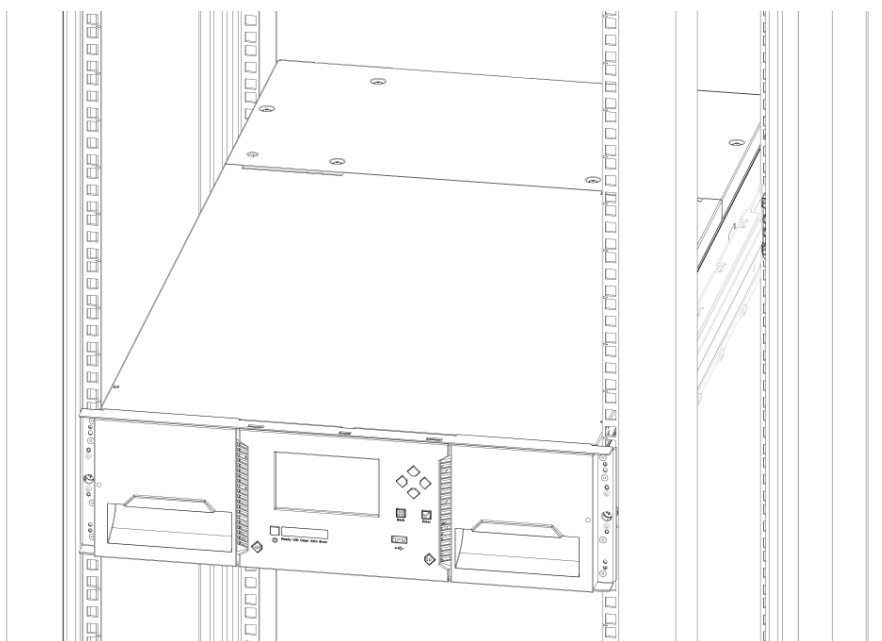
Removing the Base or Expansion Module Controller

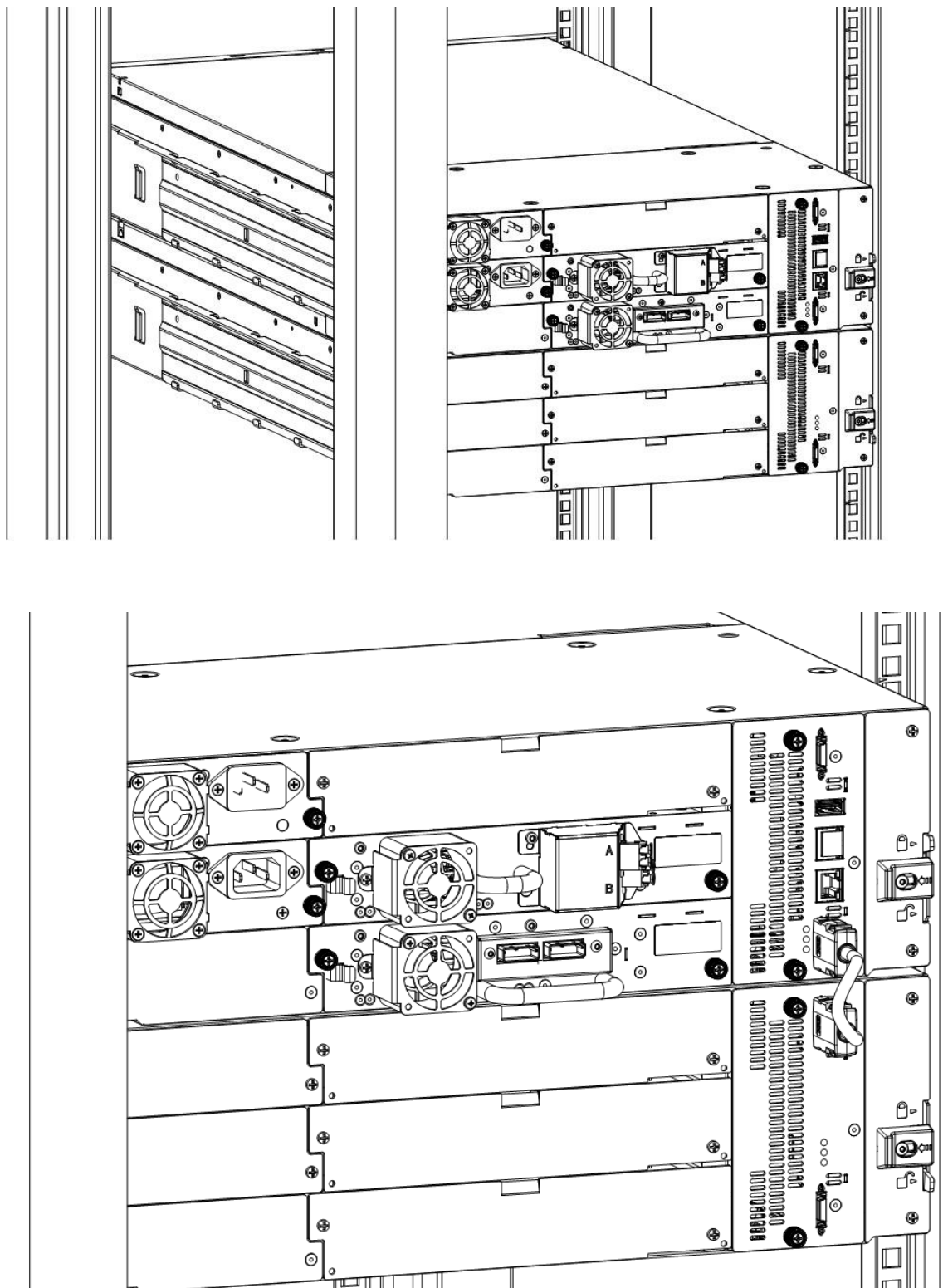
For detailed instructions, see [\[Removing the Base or Expansion Module Controller\]](#).

Removing the Module from the Rack

Obtain assistance to lift and stabilize the module during removal and replacement.

1. If you are removing a module that has a module immediately above and/or below it:
 - a. From the front of the library, use a screwdriver Phillips #2 to loosen the screws two full turns on the module and its adjacent modules.
 - b. From the back of the library, unlock the alignment mechanisms connecting the module with the adjacent modules.
 - c. From the front of the library, use a screwdriver Phillips #2 your fingers to loosen the captive thumbscrews screws two full turns on the module to be removed and slide the module out of the rack.





Moving Library Cover Plates

Unpack the replacement module and place it on a sturdy work surface. Save the packaging materials to return the empty module.

The library has removable top and bottom cover plates. The two covers are identical and the process for removing and installing them is the same for the top and bottom of the module.

See [\[Preparing the Top and Bottom Modules\]](#) for details; while this procedure refers to moving a cover from the Base Module, the information is the same for moving a cover from an Expansion Module.

The replacement module is shipped with a bottom cover plate but not a top cover plate. Move the cover plates as necessary so the replacement module has the cover plates in the same location as the empty module and the empty module has a bottom cover plate.

Installing the Module into the Rack

See [\[Installing Modules in a Rack\]](#) for details.

Replacing the Module Components and Cables

Replace the module components by reversing the removal procedures. Align the components carefully in the guide slots and only tighten thumbscrews with your fingers. If the thumbscrews cannot be tightened easily, verify that the component is aligned properly.

1. Replace the drive power board.
2. Replace the controller board.
3. Replace the tape drives in the same locations.
4. Replace the power supplies.
5. Reattach any SAS, FC, expansion interconnect, and Ethernet cables removed earlier.
6. Reinsert the USB device if it was removed earlier.
7. Reattach the power cords.

**TIP**

To assist in aligning the drive, only remove the drive bay covers for one drive at a time.

Verifying the Library Configuration

1. Power on the library by pressing the button just below the OCP.
2. Verify that the library initializes correctly and that the status is Ready. Verify that the replacement module is visible in the OCP or RMI.
3. Under normal operation the library configuration is saved on the Base Module controller.
4. Replace the tape cartridges in the same location(s).

Replacing the Robotic Assembly and Spooling Mechanism



CAUTION

Parts can be damaged by electrostatic discharge. Keep parts in electrostatic containers until needed. Ensure you are properly grounded when touching static sensitive components.



IMPORTANT

Under normal circumstances, when the library is powered off using the front power button, the robot automatically parks and locks into the Base Module behind the OCP.

Powering Off the Library

Before powering off the library, verify that all host processes are idle.

Power off the library from the front panel. Depress the power button and hold it for 3 seconds. If the library does not perform a soft shutdown, depress and hold the power button for 10 seconds.

Verify that the robotic assembly is in its parked position (behind the OCP panel).

Preparing to Remove the Robotic Assembly and Spooling Mechanism from the Base Module



WARNING

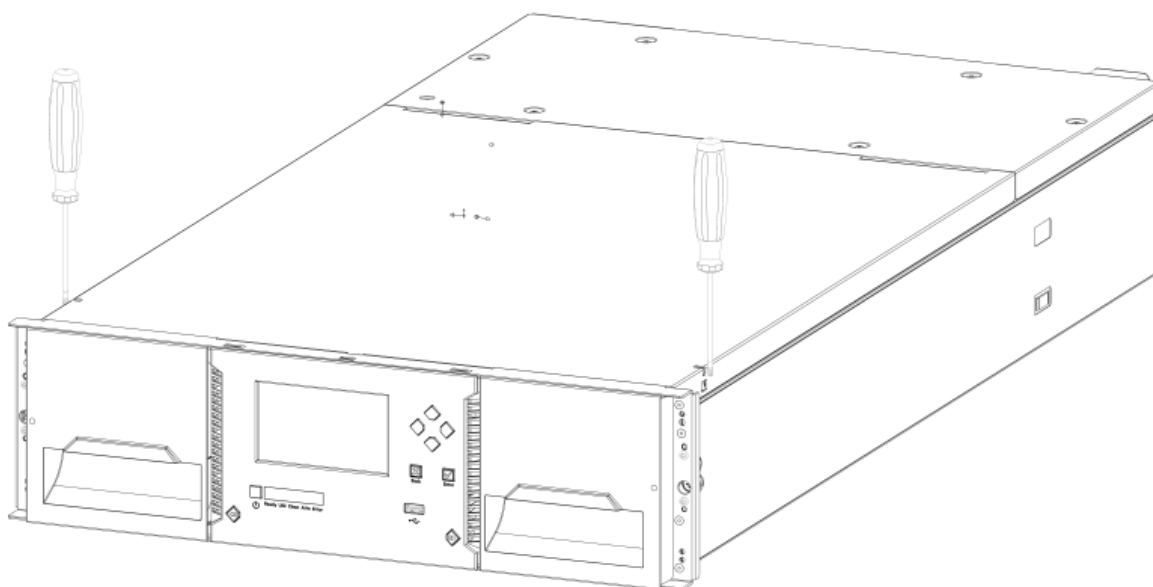
When extending a module from the library, to reduce the risk of personal injury or damage to equipment:

- Extend the rack leveling jacks to the floor.
- Ensure that the full weight of the rack rests on the leveling jacks.
- Verify that the rack is level side to side and front to back.
- Install the rack stabilizer kit on the rack.
- Extend only one rack component at a time. Racks may become unstable if more than one component is extended.

Prerequisites: Stop all jobs, place the library in a safe state. From the **OCP or RMI**, go to **Maintenance > Move Robot to Base Module** and run the command. Wait until the operation completes and the status indicates the robot is parked at the Base Module.

Power down the library. Observe ESD precautions. Label all cables before removal. Two-person handling is required.

1. **Loosen Base Module fixings.** From the **front**, loosen the Base Module's **captive thumbscrews** by **two full turns**.
2. If there are adjacent Expansion Modules:
 - a. From the **front**, loosen the **captive thumbscrews** on each adjacent Expansion Module by **two full turns**.
 - b. From the **rear**, on the Base Module and the module **above (if present)**, loosen the **alignment-mechanism thumbscrews**, move each mechanism to **UNLOCKED**, then re-tighten the thumbscrews to hold that position.
 - c. **Disconnect and remove** the **expansion interconnect cables** from the Base Module **and** the adjacent modules to prevent cable damage while sliding the chassis.
3. **Disconnect power.** Remove the **power cords** from the Base Module.
4. **Disconnect data cabling.** Remove all **Ethernet, SAS, and Fibre Channel** cables from the Base Module.
5. **Release front fixings.** Fully loosen the Base Module's **front captive thumbscrews**.
6. **Extend the chassis.** From the **front**, **slowly pull** the Base Module forward until the **rails lock** in the service position. Do not force the slides.
7. **Remove the top cover (if fitted):**
 - a. Using **two small flat-blade screwdrivers**, depress the two cover latches to **unlock**.
 - b. Lift off the cover and set it aside safely.



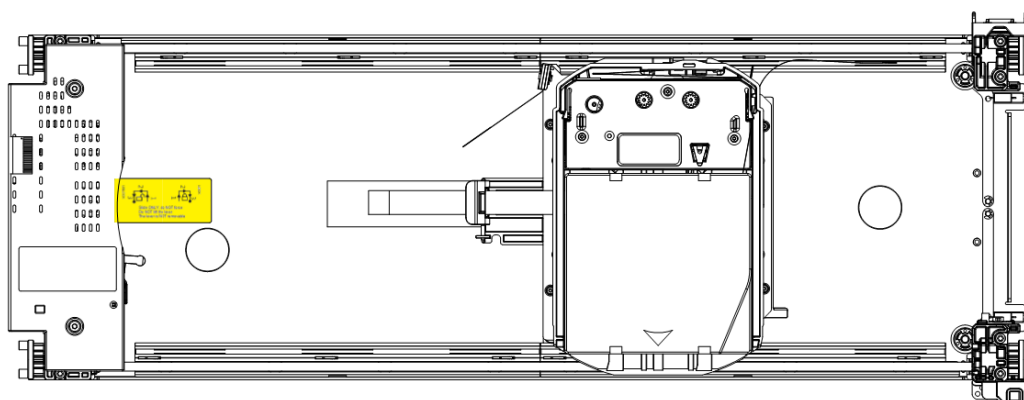
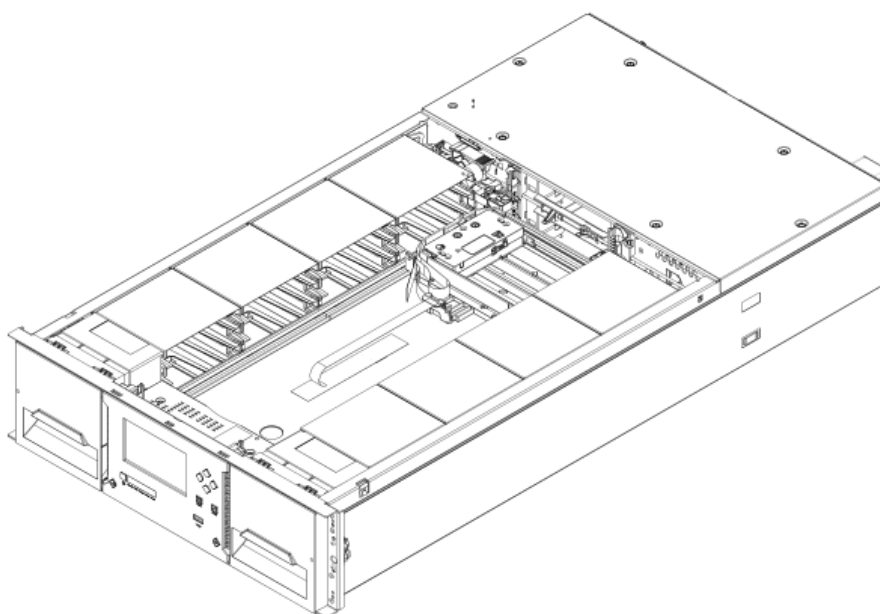
Removing the Robotic Assembly and Spooling Mechanism from the Base Module

1. **Expose the lock lever.** Slide the **cartridge carrier** toward the centre of the robotics to access the **robot locking lever**.
2. **Unlock the robot (front of module).** Move the **blue lever left** → **towards you** → **right** to unlock.
3. **Lift carefully.** Place your fingers in the large holes on the robotic assembly and **pull up slowly**.



NOTE

The assembly will offer resistance. **Lift no faster than 12 mm (0.5 in) per second.**



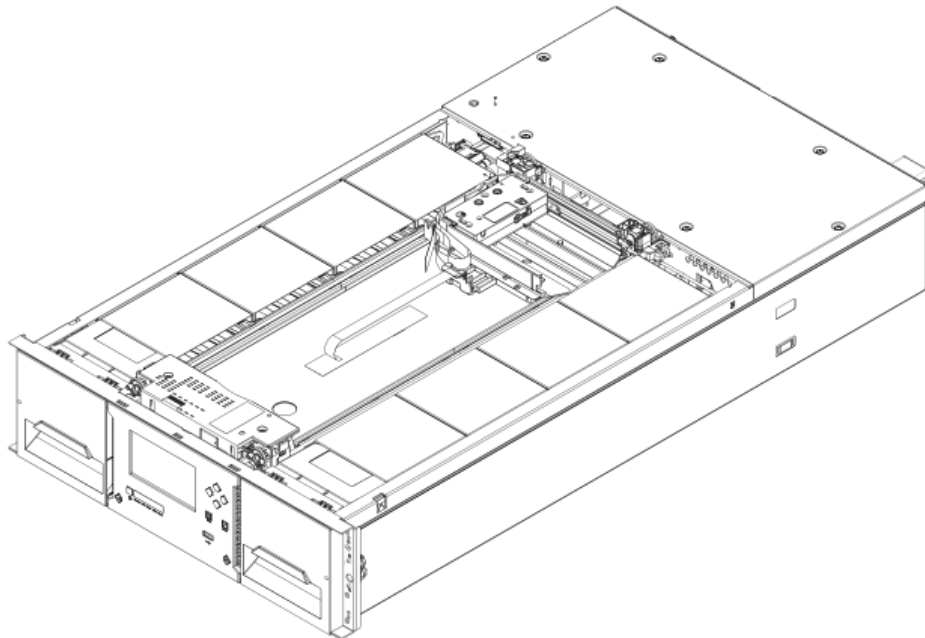
4. **Stage the assembly.** Lift the robotic assembly clear and place it **on top of the module, right-hand side** (opposite the spooling mechanism) and slightly forward. **Do not strain the spooling cable.**
5. **Release the spooling cable.** At the top of the robotic assembly where the spooling cable attaches, use a **small flat-blade or Torx screwdriver** to press the latch and **unlock** the spooling cable.

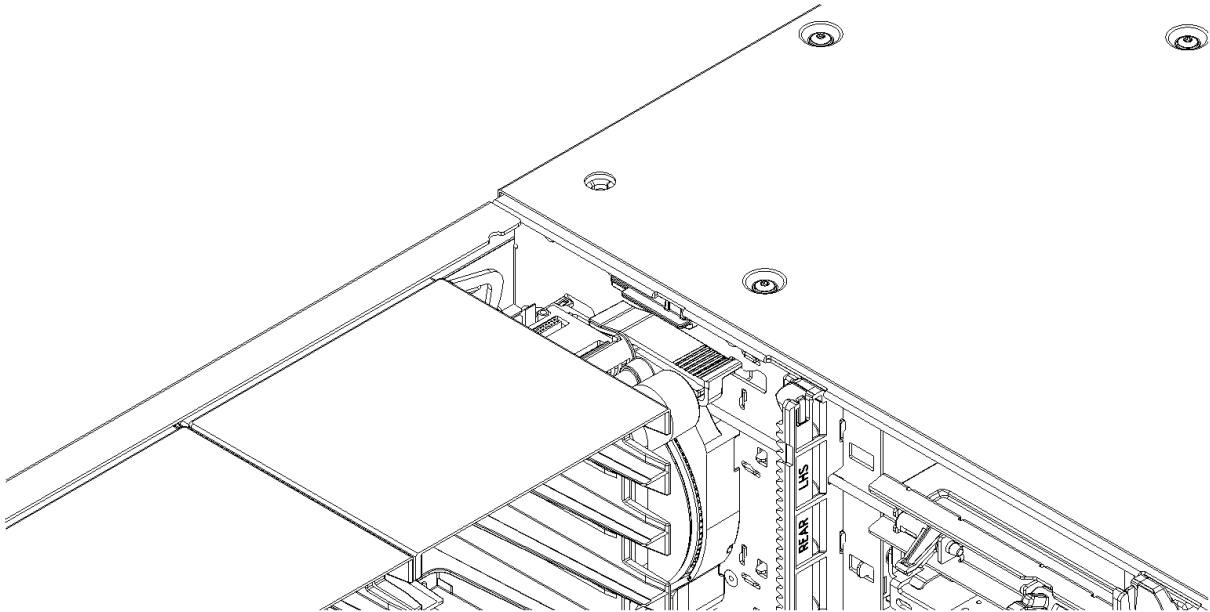


NOTE

Observe how the **end of the spooling cable pivots** in the robotic assembly; you will need this orientation for re-attachment.

6. **Dock the cable.** Lift the spooling cable off the robotic assembly and place it in its **cradle at the top of the spooling mechanism**. Move the **spooling connector to the park position**.





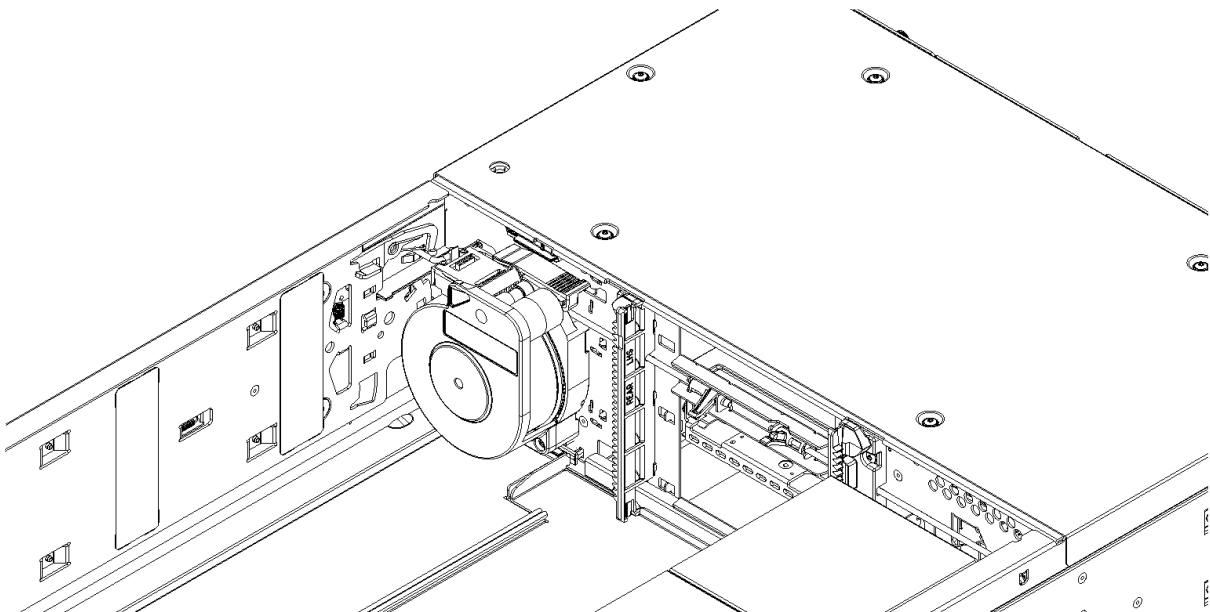
7. **Set aside** the robotic assembly on a protected surface.

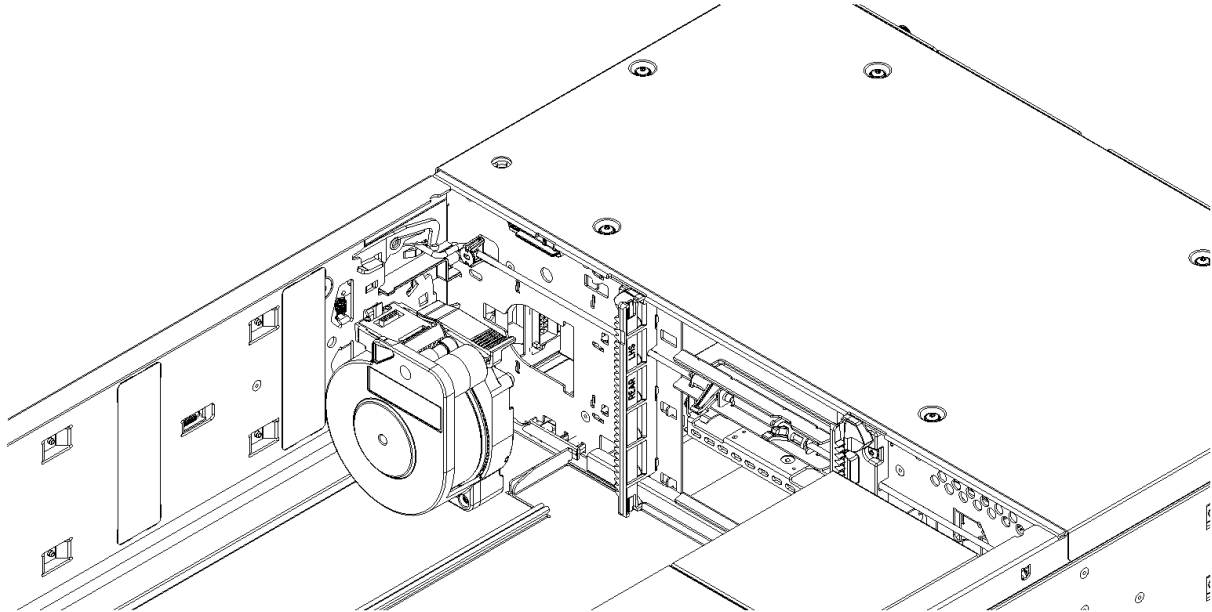


IMPORTANT

If a tape cartridge is still in the **cartridge carrier**, remove it by lifting **straight up** (you may need to gently rock it side to side)..

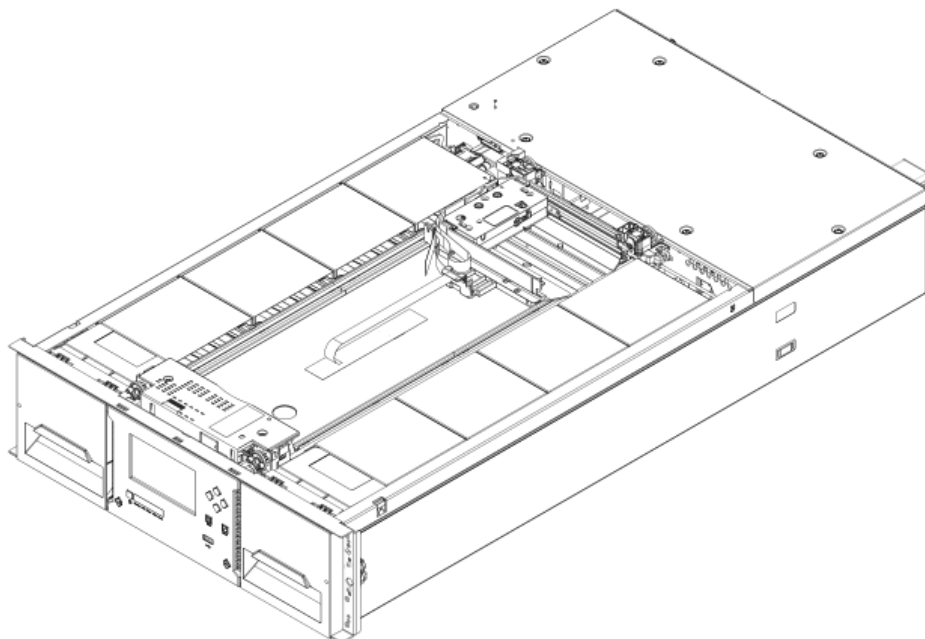
8. **Extend the left magazine** from the rack by approximately **15 cm (6 in)**.
9. While **pressing the latch** near the top of the spooling mechanism, **pull the mechanism upward** until it clears the **narrow part of the keyhole** in the back-left of the metal wall. It may help to **push up from below** with your other hand.
10. **Pull forward** to disconnect and **remove** the spooling mechanism from the module.

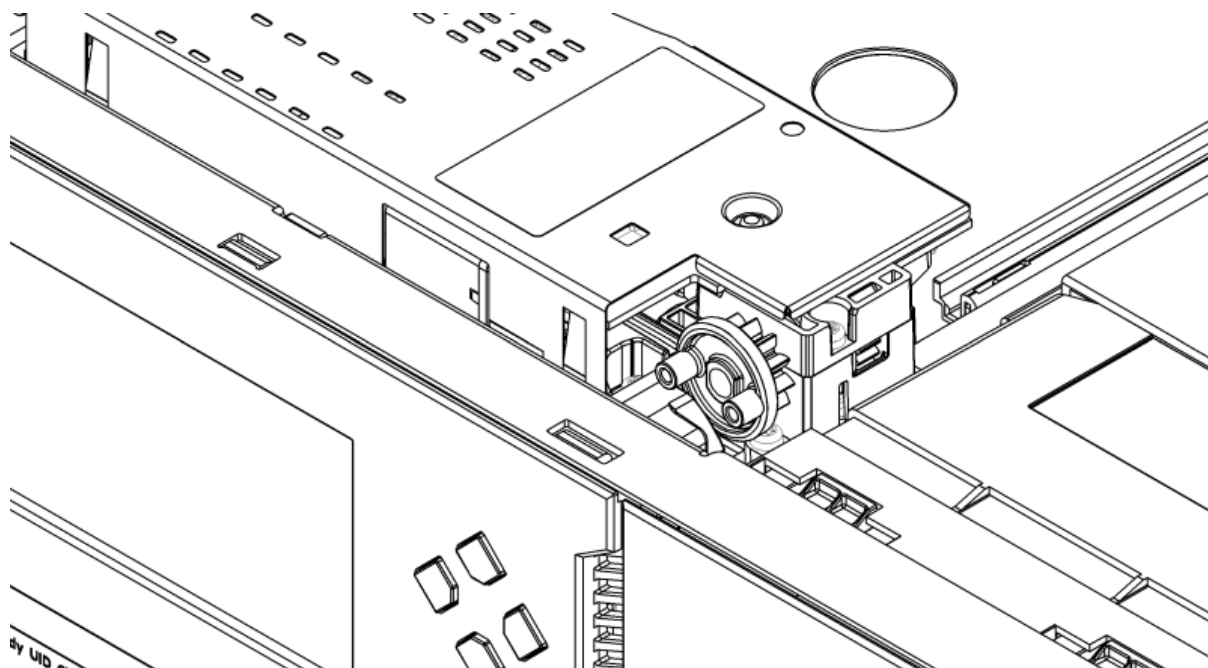




Re-Installing the Robotic Assembly and Spooling Mechanism into the Base Module

1. **Orient the spooling mechanism.** Hold it so the end of the **spooling cable** that attaches to the robotic assembly points **up**.
2. **Engage the rear tab.** Align the **tab** on the back of the spooling mechanism with the **keyhole** on the back-left of the module's inner wall.
3. **Seat the mechanism.** Push the spooling mechanism **in and down** until it **snaps** into place.
4. **Confirm the robot is unlocked.** The robotic assembly ships **unlocked**. Standing at the **front** of the module, if needed **unlock** by moving the **blue lever left** → **towards you** → **right**.
5. **Set gear pin orientation.** Each corner gear on the robotic assembly has **two protruding pins**. Rotate one gear so its pins are **horizontal**.
6. **Position the robot.** Place the corner gears into the **grooves** at the inside corners of the module. Confirm all pins are **touching the outer faces** of the grooves.





7. **Lower the robot slowly.** Push the assembly **straight down** until its platform is about **10 cm (4 in)** below the module top.



CAUTION

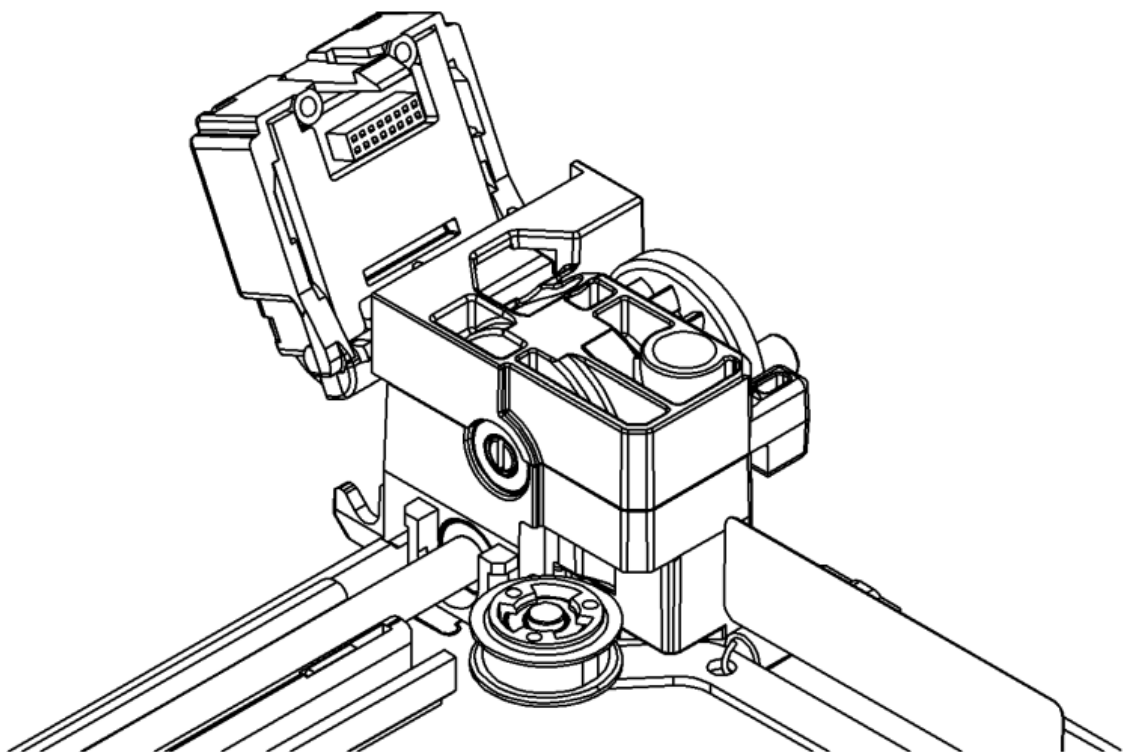
Lower **no faster than 12 mm (0.5 in) per second**. Misalignment or excessive force can damage the robot or module.



NOTE

The assembly should drop **smoothly** with gentle pressure. If not, re-check gear alignment.

8. **Lock the robot.** From the **front**, move the blue lever **left** → **away from you** → **right** to lock.
9. **Retrieve the spooling cable.** From the **right side** of the module, lift the cable end from its **cradle**.
10. **Attach the spooling cable.** Place the cable end into the **grooves** on the robotic assembly and **rotate** until it **snaps** into place. Ensure the pivot/orientation matches the seating features on the robot.



TIP

If the cable end slips into the module, **unlock** and remove the robotic assembly, return the cable end to its **cradle**, reposition the robot, **re-lock**, and repeat the attachment.

After the Robotic Assembly and Spooling Mechanism Installation

1. **Return the left magazine** to the module and push it fully home until the latch **clicks**.
2. **Refit the top cover** on the Base Module (if it was removed): align, slide forward, and ensure both latches engage.
3. **Slide the module into the rack** from the front until the rails lock at the closed position.
4. **If there are no adjacent modules:** tighten the **front captive screws** to secure the Base Module.
5. If adjacent modules are present:
 - a. Set each **alignment mechanism to LOCK**. If you feel resistance, adjust the **upper** module so the alignment pin seats into the mating hole on the lower module, then finger-tighten the thumbscrew.
 - b. **Reconnect the expansion interconnect cables** between adjacent modules; dress cables to avoid pinch points.
6. **Reconnect data cabling** to the Base Module: **Ethernet, SAS, and Fibre Channel** as applicable.
7. **Reconnect power** to the Base Module.
8. **Package the failed parts** (robotic assembly and spooling mechanism) using approved packing for return to service.

Powering On the Library

Press the **power button** on the Base Module (just below the OCP). The **green Power LED** will illuminate and the library will begin its start-up sequence: it inventories the magazines, verifies firmware across all installed modules, initialises and configures the tape drives, confirms the presence of existing modules, and discovers any newly added modules. Allow the sequence to complete before starting jobs—the OCP will return to the **Home** screen with the library in a **Ready** state. Do not open magazines or disconnect cables during initialisation.

Verifying the Installation

Confirm the library **powers on**, completes **initialisation**, and the status shows **Ready**. If any **UID/Identify LEDs** remain illuminated, turn them off in the **RMI** (Identify/UID control) before returning the system to service.

Verify that the OCP/RMI reports no errors, run an **Inventory**, and confirm the host sees both the **tape drive(s)** and **library/robotics** before resuming operations.

Replacing the Front Bezel or OCP



CAUTION

ESD sensitive. Parts can be damaged by electrostatic discharge. Keep FRUs in antistatic packaging until needed and wear a grounded ESD strap when handling static-sensitive components.

Tools required: Small flat-blade or Torx screwdriver.

Powering Off the Library

Verify that all host processes are idle.

Power off the library from the front panel. Depress the power button and hold it for 3 seconds. If the library does not perform a soft shutdown, depress and hold the power button for 10 seconds.

Removing the Bezel

1. **Remove the magazines** (use the **emergency unlock** only if necessary).
2. Insert a **small flat-blade or Torx screwdriver** into the **bezel release holes** at the **bottom** of the unit.
3. Press in until the bezel **releases**.
4. **Lift the bezel upward** to remove.



NOTE

When removing a **Base Module** bezel, pull **gently** to avoid straining the **OCP cable** behind the bezel. Observe how the cable is routed and attached.

Installing the Bezel

1. Engage the **top tabs** of the bezel into the **top slots** on the module.
2. **Rotate the bezel down** and press at the bottom until it **snaps** into place.

Powering On the Library

Press the **Power** button on the Base Module (below the OCP). The green LED illuminates and the library will: inventory the magazines, verify firmware across all modules, initialise/configure the tape drives, confirm installed modules, and discover any new modules. Wait for the **Ready** state before starting jobs.

Library Troubleshooting



CAUTION

This library is designed to operate **only** when installed in a rack using the supplied rail kit. Operating it off-rail (e.g., on a table, bench, or rack shelf) can cause alignment and robotics errors. Do **not** place any weight on top of the library—the top cover is not load-bearing and doing so may lead to faults or damage.

Fibre Channel Connection Problems

Use **Status > Drive Status** to check each drive's link state. If it shows **Logged Out**:

- **Speed:** Set link speed to **Automatic** (recommended). If you know the HBA/switch speed, select it explicitly; otherwise use Auto.
- **Port type:** Ensure the correct **port type** is selected (**Fabric/Point-to-Point** vs **Loop**). Loop requires extra configuration; if unsure, set **Auto**.
- If the screen shows **No Link**, (Speed Status “–” and the drive's rear **Link LED is off**):
 - The **speed** is likely incorrect—set to **Automatic**.
 - If issues persist, set **port type** to **Auto Detect**.
- If no connection light is shown on the drive:
 - The **cable may not be seated**. Check it is fully inserted into **Port A** on the tape drive.
 - The **cable may be damaged**. FC cables are delicate; if bent/twisted sharply, replace with a known-good cable.
- If the screen shows ALPA Conflict (Loop mode):
 - There may be a loop address clash. Set Loop mode to **Soft** so the system selects an available address on each connect.
 - If your server cannot change addresses, try **Hard Auto-Select** so the system picks an address on first connect and retains it thereafter.

SAS detection problems after installing a drive

Problems are often due to **cabling**, **driver/application configuration**, or **OS settings**. Determine the scope:

- Does the **application** software detect the **tape drive**?
- Does the **application** software detect the **library/robot**?
- Does the **operating system** detect the **tape drive**?
- Does the **operating system** detect the **library/medium changer**?
- Does the **operating system** detect the library/medium changer, but list it as a generic device?

Then check the following:

If neither the application nor the OS sees the tape drive (or both the drive and the library are missing)

- **Cables:** Verify all SAS connectors are fully seated at **both ends**. If a mini-SAS plug won't insert, check the **keying**—the drive uses the **standard end-device key (location 4)**. A differently keyed cable will not fit and likely won't work.
- **Length/integrity:** Keep to vendor limits (**typically ≤ 5 m or 16.4 ft**) and avoid adapters/converters between HBA and library. Replace questionable cables.
- **Connector condition:** Inspect for damage/debris; clean or replace as needed.
- **HBA support/firmware:** Use a **qualified SAS HBA** (not a RAID controller), supported by the host OS and the library, with **current firmware/drivers**.

If the application/OS sees the tape drive but not the library

- **Multiple LUNs:** Enable **multiple-LUN (LUN scanning)** on the HBA/initiator. The library presents **LUN 0 = tape drive** and **LUN 1 = robotics**. Without multiple-LUN support, the host will see the drive but **not** the library.
- **Check** there is a valid **partition** in the library.

If the OS sees the library but the application does not

- **Application modules/licences:** Many backup apps require a **library/robotics module** or licence. Follow the app vendor's install/verification steps.

If the OS lists the library as generic/unknown

- **Drivers:** Install the **correct device driver** (where applicable) and check the software vendor's site for the latest **drivers/patches**.

**NOTE**

- Many **RAID controllers** do not support tape devices and libraries. Make to use an HBA and not a RIAD controller.
- Many backup applications install their **own drivers**; avoid conflicts with OS/vendor drivers.

Operation Problems

Power Problems

Problem	Solution
The device does not power on.	1. Check all power cord connections. 2. Check the LEDs on the power supplies. 3. Make sure the power button on the front panel has been pressed, and the green Ready LED is lit. 4. Make sure the outlet has power. Try another working outlet. 5. Replace the power cord.
No message appears on the OCP display.	1. Check all power cord connections. 2. Check the LEDs on the power supplies. 3. Make sure the power button on the front panel has been pressed, and the green Ready LED is lit. 4. Make sure the outlet has power. Try another working outlet.

Failure/Attention Indications Displayed on the Front Panel

Problem	Solution
The LCD displays a warning or error icon.	Tap the icon to see more information about the event on the LCD.
The LCD displays an error code.	Look up the error code, try to resolve the failure, and power cycle the library (see Event Codes).

Tape Movement Problems

Problem	Solution
Tape stuck in drive.	Try the following steps, in this order, to remove the stuck tape. NOTE: The tape drive must rewind the tape before ejecting it. This can take as long as five minutes, depending on how much tape must be rewound. Once the tape is rewound, the eject cycle will take fewer than 16 seconds. The Ready light flashes while the tape rewinds. Wait for the tape to finish rewinding before attempting another operation. 1. Attempt to unload the tape from your backup software. 5. Shut down the backup software and stop the operating system's removable storage services. From the Operation > Move Media screen, attempt to unload or move the tape to a slot. 6. Power down the library, disconnect the cable from the drive, power up the library, and wait until the tape drive is idle or ready. From the Operation > Move Media screen, attempt to unload or move the tape to a slot. 7. From the Operation > Force Drive Media Eject screen, attempt a force eject or emergency unload operation. IMPORTANT: Inspect the tape cartridge that was stuck. Damage or misplaced labels on the cartridge could have caused the load/unload failure. Discard any tape cartridge found to have issues.
Tape cannot be removed from storage slot	If the OCP or RMI is still operational: 1. Unlock the magazine from the Operation > Open Magazine screen and extend it to access the storage slot. 8. Grasp the cartridge and remove it from the storage slot. Some tapes need to be inserted and removed several times to condition them for free movement in and out of the magazine. 9. Check the barcode label and verify that it is secure to the cartridge. 10. Check the cartridge for damage. 11. Check the storage slot for damage.

Media Problems

Problem	Solution
Cleaning or data cartridge is incompatible with drive.	1. Check the event log to see which cartridge is incompatible. 2. Make sure you are using data and cleaning cartridges that are compatible with the drive and model of your device and that you are using the correct cartridge type for the operation. The device automatically unloads incompatible cartridges, the Attention LED flashes. Export the media.
Cannot write to or read from tape.	1. Make sure that the cartridge is not a WORM cartridge that has already been used. 2. Make sure that the cartridge is write enabled (move the write-protect switch to the enabled position). 3. Make sure the data cartridge is compatible with the drive model. LTO tape drives can read data cartridges from two generations back and write to data cartridges one generation back. 4. Make sure you are using an Ultrium cartridge that has not been degaussed. Do not degauss Ultrium cartridges! 5. Make sure that the cartridge has not been exposed to harsh environmental or electrical conditions and is not physically damaged in any way. 6. Many backup applications do not read or write to cartridges that were created using a different backup application. In this case, you may have to perform an erase, format, or label operation on the cartridge. 7. Make sure you understand any data protection or overwrite protection schemes that your backup application may be using, which could prevent you from writing to a given cartridge. 8. Retry the operation with a different, known good tape. 9. Clean the tape drive from the Operation > Clean Drive screen.

Attention LED (On)

Problem	Solution
Both the Attention and Cleaning LEDs are lit.	This is most likely caused by a dirty drive that cannot read a tape and marks the tape invalid. Log into the OCP or RMI and check the event log to see which drive has reported that it needs cleaning. Clean the drive with an approved Ultrium cleaning cartridge.
A particular cartridge sets off the cleaning light.	Remove the cartridge from the library.
A cartridge recently imported from a different environment is causing issues.	Media that is moved from one environment to another can cause issues until it has acclimated to the new conditions. A cartridge should be acclimated for at least 24 hours before being used, particularly if it has been stored at a substantially different temperature or level of humidity than the device.
The Attention LED is lit but the Cleaning LED is not lit after a cartridge load.	1. The library was unable to complete the requested operation with the selected tape cartridge. 2. Use only cartridges that are compatible with the drive type 3. Use the correct type of cartridges for the operation. For example, use a cleaning cartridge for cleaning. 4. Make sure you are using an Universal cleaning cartridge
The Cleaning LED is lit after using a cleaning cartridge.	The cleaning cartridge has expired. A cleaning cartridge will expire after 50 cleaning cycles.
A particular cartridge sets off the Attention LED and possibly the Cleaning LED.	1. Retry the operation with a different cleaning cartridge. 2. If the Attention LED is cleared and the drive has been cleaned, and then immediately re-displays each time a particular cartridge is reloaded, that cartridge should be suspected as being defective. 3. If this occurs, export the cartridge and load a known good cartridge. In some cases, a cartridge can be worn out, have a defective Cartridge 4. Memory, or have been formatted as a Firmware Upgrade Cartridge. 5. Any cartridge that is suspected of being defective or contaminated should NOT be reused in any drive. 6. If the bad cartridge is a cleaning cartridge, it might be expired.

Inventory Problems

Problem	Solution
The library displays incorrect barcodes	1. Verify that the label is properly applied. 2. Verify that the label is not soiled.

RMI Network Connection Issues

Problem	Solution
I cannot connect to the RMI.	1. Verify that the Ethernet cable is connected to the Base Module's controller board and to the LAN. 2. Verify that the link LED on the RJ45 (LAN) connector is lit when the device is powered up. If the LED is not lit, the device is not communicating with the LAN. See your network administrator for help. 3. Verify that the device has been configured with a valid static network address or DHCP has been enabled so the device can obtain a network address. If you use DHCP, write down the device's network address from the OCP login screen. If the device did not obtain a valid address via DHCP, verify that the DHCP server is up and the library has network access to it. If necessary, set a static network address instead. 4. Enter the library's IP address into the address bar of a web browser connected to the same LAN as the device. If the RMI web page does not display, ping the device's IP address. If the ping fails, verify that the device has a valid network address and that there are no firewalls or other obstructions to network traffic between the computer with the web browser and the device. See your network administrator for help.

Cleaning Problems

Problem	Solution
Cannot load the cleaning cartridge.	1. Make sure you are using an Ultrium cleaning cartridge. 2. Make sure the cleaning cartridge has not expired. A cleaning cartridge will expire after 50 cleaning cycles. 3. Power cycle the library.

Performance troubleshooting

Backups touch many components—from the source disks and file system, through the backup server and software, to the tape library. Throughput is limited by the **slowest** element in that chain. Identify the bottleneck, then tune or upgrade it.

Common bottlenecks to review:

- Average file size.
- File system / storage layout.
- Connection from the backup/archive host server to the disks.
- Backup/archive server resources.
- Backup/archive software and method.
- Connection from the host to the library.
- Media (type, condition, environment).

Average File Size

Disks must **seek** to each file before reading. Lots of small files increase seek time and reduce throughput. Calculate average file size: **total data size ÷ number of files**. If the average is $\leq \sim 64$ KB, consider a **sequential/image/block** backup that captures a whole volume/LUN rather than file-by-file (trade-off: restores may be whole-image or slower for single files).



NOTE

File fragmentation will also cause excessive drive seeking, which lowers performance, so ensure that files are regularly defragmented.

File storage system

How data is organised on disk matters. Spreading I/O across multiple disks (e.g., with RAID) lets some disks **seek** while others **read**, improving throughput. Single, non-RAID disks are slowest; high-end arrays are fastest. Converting standalone disks to a suitable RAID level can help.

Connection from the host to disk storage

The host-to-storage link must sustain the tape drive's **streaming rate**. Insufficient bandwidth starves the drive. Use interfaces and link speeds that match your workload; on lower-speed Ethernet-based storage, consider **multiple connections** (properly configured/teamed per vendor guidance).

Backup/archive Server

Ensure enough **CPU** and **RAM** to move data while the backup software and other services run. Monitor during jobs; if resources are saturated, add CPU/RAM or reduce concurrent tasks.

Backup/archive software and method

Each backup method has its own impact on performance, depending on how well it can keep data streaming to the tape drive. In most cases, native applications don't have the features required to maximize performance for LTO tape drives. It is recommended to use a full-featured backup or archive application with this library.

File-by-file backup or archive methods provide the best restore performance if you only need to restore individual files. However, if the average file size is small, file-by-file methods will significantly reduce performance.

Disk image, flash, or sequential backup methods provide the fastest performance because they back up an entire disk, partition, or LUN, which minimizes disk seeking. The disadvantage is that backup and restore operations work on an entire disk, partition, or LUN. You might not be able to back up a subset of files or restore a single file. If you can restore a single file, the restore process will be slow.

Database backup performance will vary based on the model. To improve performance when backing up data from a database:

- Use specific backup agents for the database.
- Use the latest versions of the databases.
- Do not back up individual mailboxes.
- Do not back up specific records or do a record-by-record backup.
- Do not back up when the database is in heavy use.

Connection from the host to the library

Interfaces used with modern LTO drives are rarely the bottleneck, but **bad cables**, **excess length**, or **mismatched settings** can be. Keep within **recommended cable lengths**, use quality, like-for-like cables, and verify link settings (speed/port type/MTU as applicable).

Media

Media type and condition affect performance. For best results, use media that matches the drive generation, retire worn or damaged cartridges, and clean drives when prompted. **LTO-9 and LTO-10** have **tighter environmental tolerances** than earlier generations; operating **outside**—or consistently **near the edge**—of the recommended temperature and humidity ranges can **significantly degrade throughput** and increase error recovery (stop–start streaming). Keep conditions stable and in specifications and allow cartridges to acclimatise before use.

Finding Event Information

You can find error codes by viewing log files from the **Maintenance > Logs and Traces > View Logs** screen or downloading support tickets from the **Maintenance > Download Support Ticket** screen. See [\[Viewing Log Files\]](#) or [\[Downloading Support Tickets\]](#).

Unlocking the Magazine

It is recommended that you unlock the magazine using the unlock buttons or RMI. If these methods fail, or if a magazine needs to be removed when the power to the device is off, you can release the magazine manually. Only one magazine can be open at a time.



NOTE

As best practice, perform this procedure while applications are idle. While the magazine is extended, the library robotic assembly cannot move media

Using the Magazine Unlock Button

1. Press the button for more than 3 seconds. This will start the unlock operation for the magazine, indicated by the LED slowly flashing.
2. When the magazine is unlocked the LED starts quickly flashing.
3. Pull out the magazine from the library. As soon as the magazine is pulled out, the LED switches OFF.



NOTE

- Opening a magazine will take the library off-line.
- The magazines will re-lock after 30 seconds.

**IMPORTANT**

Wait before pulling out the magazine until the LED is quickly flashing and OCP message says that the magazine is unlocked.

Using the RMI to Unlock a Magazine

1. Log in as an administrator.
2. On the Home screen, click **Open Magazine**.
3. Click **Open** in the left or right magazine column within the module containing the magazine to be opened.

Operation > Open Magazine

NOTE: Only one magazine is allowed to be removed at a time.

Module	Left		Right	
Module 7	Closed	Open	Closed	Open
Module 6	Closed	Open	Closed	Open
Module 5	Closed	Open	Closed	Open
Base	Closed	Open	Closed	Open
Module 3	Closed	Open	Closed	Open
Module 2	Closed	Open	Closed	Open
Module 1	Closed	Open	Closed	Open

4. A message box indicates when the magazine has been unlocked.
5. Open Magazine screen shows that the magazine is now unlocked.

**NOTE**

If not removed, the magazines and the mailslot will relock after 30 seconds.

Using the Magazine Manual Release

To manually release the magazine, insert a small flat head screwdriver or Torx driver into the appropriate magazine release hole and gently push the tab in.

**IMPORTANT**

Do not exert force once you encounter resistance. Doing so can damage the device.

Unloading a Stuck Tape

If the tape is stuck in a tape drive, eject the tape from the drive from the **Operation > Force Drive Media Eject** screen.

If a tape is stuck in a magazine, open the magazine, grasp the cartridge, and pull it out of the storage slot.

Returning the Robotic Assembly to the Base Module

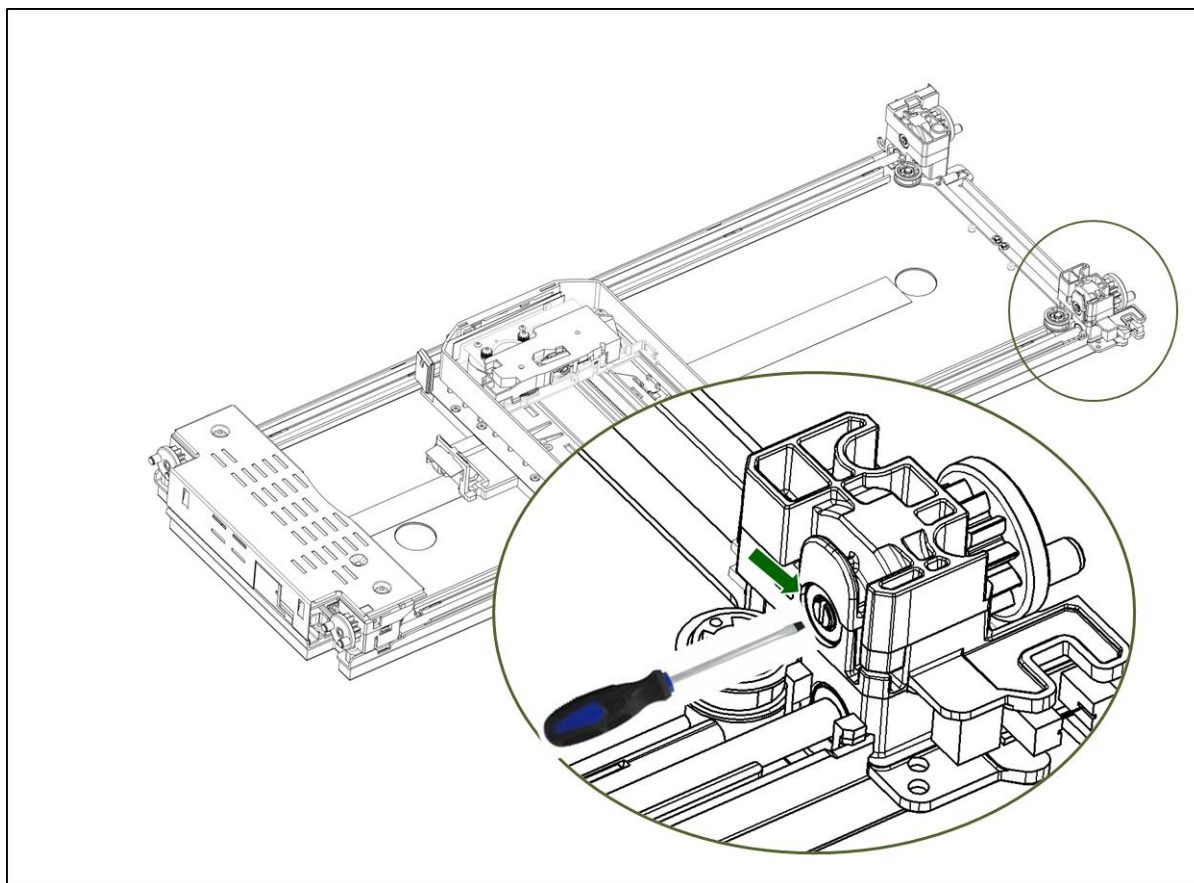
If you have powered off the library and the robotic assembly did not return to its parking position in the Base Module behind the OCP:

1. Power on the library by pressing the power button on the Base Module just below the OCP.
2. From the RMI, return the robotic assembly to its park position from the **Maintenance > Move Robotic to Base Module** screen.
3. Power off the library by pressing the power button on the Base Module and holding it for 3 seconds.

If the robotic assembly is still not in the Base Module, use one of the procedures in the following two sections.

The Robotic Assembly is stopped in an Expansion Module that is near the Base Module or is Stopped Directly between Two Modules

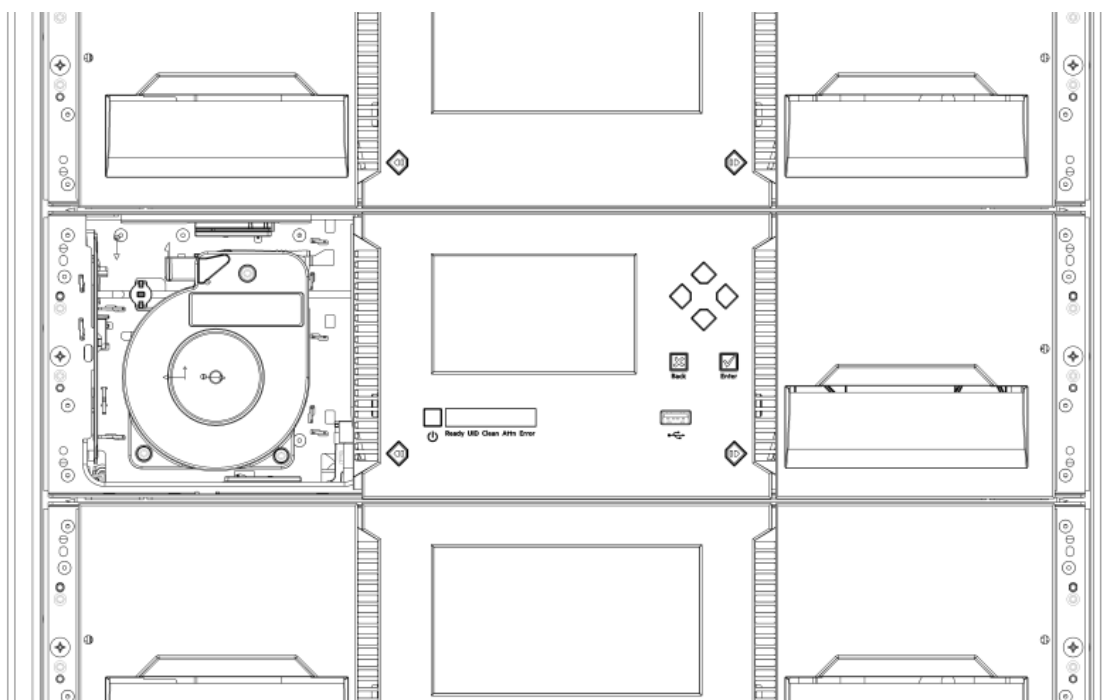
1. Remove the front bezel from the Base Module, the Expansion Module containing the robotic assembly, and modules in between as needed; see [\[Removing the Bezel\]](#).
2. Insert a small flat head screwdriver into the screwdriver relief on the right rear bearing block of the robotic assembly.



3. Turn the screwdriver to manually operate the robotic assembly gear train and move the robotic assembly into the Base Module.
4. Lock the robotic assembly; standing at the front of the module, move the blue lever to the left, then away from you, then to the right.
5. Reinstall the bezels previously removed; see [\[Installing the Bezel\]](#).
6. Remove the robotic assembly and spooling mechanism; see [\[Preparing to Remove the Robotic Assembly and Spooling Mechanism from the Base Module\]](#).
7. Install the new robotic assembly and spooling mechanism; see [\[Installing the Robotic Assembly and Spooling Mechanism into the Base Module\]](#).
8. Slide the Base Module back into the rack; see [\[After the Robotic Assembly and Spooling Mechanism Installation\]](#).

The Robotic Assembly is stopped in an Expansion Module that is not near the Base Module, or it Cannot Move Vertically

1. Remove the left magazine of the Base Module; see [\[Removing the Magazine\]](#). The library should already be powered off. Therefore, you must unlock the magazine using the manual release.
2. Disconnect the power supply cables from all of the modules.
3. Using plastic-handled scissors reach through the left magazine opening of the Base Module and carefully cut the spooling cable.



4. Extend the expansion module containing the robotic assembly while carefully guiding the free spooling cable; see [\[Preparing to Remove the Robotic Assembly and Spooling Mechanism from the Base Module\]](#). While there may be minor differences, these instructions for a Base Module will also apply to an Expansion Module.
5. Remove the robotic assembly from the Expansion Module using Step 1 through Step 7 in [\[Removing the Robotic Assembly and Spooling Mechanism from the Base Module\]](#).
6. Slide the Expansion Module back into the rack; see [\[After the Robotic Assembly and Spooling Mechanism Installation\]](#). While there may be minor differences, these instructions for a Base Module will also apply to an Expansion Module.
7. Extend the Base Module; see [\[Preparing to Remove the Robotic Assembly and Spooling Mechanism from the Base Module\]](#).
8. Remove the spooling mechanism from the Base Module using Step 8 through Step 10 in [\[Removing the Robotic Assembly and Spooling Mechanism from the Base Module\]](#).
9. Install the new robotic assembly and spooling mechanism; see [\[Installing the Robotic Assembly and Spooling Mechanism into the Base Module\]](#).
10. Slide the Base Module back into the rack; see [\[After the Robotic Assembly and Spooling Mechanism Installation\]](#).

Running Library Tests

The library provides tests to verify library operations.

- **Wellness Test** – exercises a general health check on the library functionality by running the following partial tests:
 - Basic Hardware Review
 - Robotics Initialization Test
 - Barcode Scanning Test
 - Move Media Test
- **System Test** – exercises overall library functionality by moving cartridges within the library. Cartridges are returned to their original location. See [\[System Test\]](#).
- **Slot to Slot Test** – randomly exchanges cartridges within the library. Cartridges are NOT returned to their original locations. See [\[Slot to Slot Test\]](#).
- **Element to Element Test** – moves a cartridge to a specific element and then returns it to its original location. See [\[Element to Element Test\]](#).
- **Robotics Test** – exercises all robotic assembly movements and sensors. See [\[Robotics Test\]](#).
- **OCP Test** – illuminates each of the front panel LEDs. See [\[OCP Test\]](#).

Acronyms and Abbreviations

Item	Description
FC	Fibre Channel
FH	Full Height
GUI	Graphical User Interface
HBA	Host Bus Adapter
HH	Half Height
LUN	Logical Unit Number
OCP	Operator Control Panel
RMI	Remote Management Interface
SAN	Storage Area Network
SAS	Serial Attached SCSI
SNMP	Simple Network Management Protocol
SSH	Secure Shell
SSL	Secure Socket Layer
UID	Unit Identification
USB	Universal Serial Bus
WORM	Write Once, Read Many
WWPN	World-Wide Port Name

Event Codes

Error Event Codes

Event Code	Message Text and Description	Details and Solution
2000	Failed to move cartridge.	Verify the source and destination elements and retry the move operation.
2002	The initial module discovery (detection of expansion modules) failed.	Verify that all expansion modules are powered on and that the expansion interconnect cables are properly installed
2003	The library's temperature has exceeded the critical limit.	Check to ensure 1) the chassis fan is functioning in each module present, 2) the drive cover plates are installed where no drive exists, 3) all power supplies are installed, 4) the room temperature is within limits.
2004	Library Startup Failure.	Verify that magazines are closed, cartridges are fully seated, and that there are no robotic assembly obstructions. Verify all modules are powered and any expansion modules are cabled correctly with the inter module cable. Verify there is a top and bottom cover properly installed on the library. Also, verify the module alignment locks (at rear of module) are in the proper position. If the robot moves front to back, but not vertically, the robot shipping lock could be positioned incorrectly and should be moved to either the fully locked or fully unlocked position. If the error persists, review library events for more information and/or reboot the library.
2005	Robotic spooling cable failure.	Ensure that the spooling cable is fully seated in the base module and

Event Code	Message Text and Description	Details and Solution
		connected correctly to the robotic assembly.
2009	Library test failed due to robotics assembly problem.	Review test requirements and retry the test, if the test continues to fail check for robotic obstructions or other robotic problems. For proper operation the robot must be able to reach the very bottom of the library. Verify there are no obstructions at the bottom of the library or on the bottom cover of the library in the path of the robot. To check for obstructions at the bottom of the library, first power off the library by pressing the front power button for 5 seconds and select the Default Park location. Once the library is powered off, remove the left magazine of the lowest library module, and verify the entire area of the bottom cover is free of any objects that might obstruct the robot's path. After clearing any obstructions, replace the magazine, power the library on, and after the library finishes initialization and inventory, verify no further critical events were generated.
2010	Library test failed due to spooling mechanism defect.	Ensure that the spooling mechanism is fully seated in the base module and installed correctly to the robotic assembly.
2011	Drive Power Board has failed. Due to this failure some drives maybe powered off.	Ensure the drive power board is fully seated in the module and power cycle the library.
2012	Multiple bottom covers detected.	Remove all bottom covers except from the bottom module in the library.
2013	Multiple top covers detected.	Remove all top covers except for the top module in the library.
2014	Bottom cover is missing.	Install the bottom cover on the bottom module of the library, also check the module interconnect cabling and module power cabling. If the base

Event Code	Message Text and Description	Details and Solution
		module cannot detect both a top and bottom cover the robot will not move.
2015	Top cover is missing.	Install the top cover on the top module of the library, also check the module interconnect cabling and module power cabling. If the base module cannot detect both a top and bottom cover the robot will not move.
2016	Module alignment mechanism is not locked properly.	Ensure that the alignment mechanism is engaged in every module that is above another module in the library.
2017	A communication problem between modules was detected.	Ensure that all modules are powered and have the inter connect cable properly attached. Also, ensure that the module alignment locks (located at the rear of module) are in the correct positions.
2021	Database access error.	Restore a configuration backup and perform a power cycle.
2022	Drive has been hot removed while in active status as LUN master.	Reinsert the removed drive at the same position as it was removed.
2023	Internal software error.	Check for a new system software version for upgrade.
2024	Exception thrown by application not handled.	Check for a new system software version for upgrade.
2027	Move failed pulling cartridge from slot.	Check for labels or cartridge misalignments that would prevent the cartridge from coming out of the slot or drive. For proper operation the robot must be able to reach the very bottom of the library. Verify there are no obstructions at the bottom of the library or on the bottom cover of the library in the path of the robot. To check for obstructions at the bottom of the library, first power off the library by pressing the front power button for 5 seconds and select the Default Park location. Once the library is powered off, remove the left magazine of the lowest library

Event Code	Message Text and Description	Details and Solution
		module, and verify the entire area of the bottom cover is free of any objects that might obstruct the robot's path. After clearing any obstructions, replace the magazine, power the library on, and after the library finishes initialization and inventory, verify no further critical events were generated.
2028	Move failed inserting cartridge to slot.	Check for labels or cartridge misalignments that would prevent the cartridge from moving into the slot or drive. For proper operation the robot must be able to reach the very bottom of the library. Verify there are no obstructions at the bottom of the library or on the bottom cover of the library in the path of the robot. To check for obstructions at the bottom of the library, first power off the library by pressing the front power button for 5 seconds and select the Default Park location. Once the library is powered off, remove the left magazine of the lowest library module, and verify the entire area of the bottom cover is free of any objects that might obstruct the robot's path. After clearing any obstructions, replace the magazine, power the library on, and after the library finishes initialization and inventory, verify no further critical events were generated.
2029	Initialization failure due to robot front to back positioning error.	Check for obstructions in the pathway of the robot such as a cartridge sticking out. Verify module alignment and frame alignment. Check if robotics assembly stuck in lock mechanism, move robotics assembly apart from lock mechanism and enable lock mechanism correctly.
2032	Initialization failure due to robot rotation positioning error.	Check for obstructions in the vertical pathway of the robot such as a cartridge sitting in the shuttle of the robot or any other impedance to robotic movement.

Event Code	Message Text and Description	Details and Solution
2033	Initialization failure due to robot vertical positioning error.	Check for obstructions in the vertical pathway of the robot such as a cartridge sticking out. Verify module alignment and frame alignment. For proper operation the robot must be able to reach the very bottom of the library. Verify there are no obstructions at the bottom of the library or on the bottom cover of the library in the path of the robot. To check for obstructions at the bottom of the library, first power off the library by pressing the front power button for 5 seconds and select the Default Park location. Once the library is powered off, remove the left magazine of the lowest library module, and verify the entire area of the bottom cover is free of any objects that might obstruct the robot's path. After clearing any obstructions, replace the magazine, power the library on, and after the library finishes initialization and inventory, verify no further critical events were generated.
2034	Cable to spooling mechanism has failed during initialization.	Ensure that the spooling mechanism is fully seated in the base module and connected correctly to the robotic assembly.
2035	Initialization failure due to robot gripper positioning error.	Check for obstructions in the vertical pathway of the robot such as a cartridge sitting in the shuttle of the robot or any other impedance to robotic movement.
2036	Unintended termination of application process.	Reboot or power cycle system.
2037	Robotics firmware version upgrade failed.	Reboot or power cycle system.
2038	Lost connection to Module.	Ensure that all modules are powered and have the interconnect cable properly attached. Reboot or power cycle the system.

Event Code	Message Text and Description	Details and Solution
2039	Cartridge left in robot gripper, unable to be moved to any open location.	Enable Mailslots and ensure that some of them are free. Then power cycle library. If it is still failing, open covers and remove cartridge manually from gripper.
2040	Wellness test failed with critical error.	
2041	Wellness test failed because of unit lock failed.	Ensure that the alignment mechanism is engaged in every module that is above another module in the library.
2042	Wellness test failed because top cover is missing.	Install the top cover on the top module of the library, also check the module interconnect cabling and module power cabling. If the base module cannot detect both a top and bottom cover the robot will not move.
2043	Wellness test failed because bottom cover is missing.	Install the bottom cover on the bottom module of the library, also check the module interconnect cabling and module power cabling. If the Base Module cannot detect both a top and bottom cover the robot will not move.
2044	Wellness test failed because drive power board has failed.	Ensure the drive power board is fully seated in the module and power cycle the library.
2045	Wellness test failed because move media test failed.	The minimum requirements for the Wellness are at least one unloaded drive and one data cartridge compatible with that unloaded drive installed in the library. If no drives are unloaded or no compatible media is found, the test will fail and an error event will be generated. To view event details from RMI, click on the event, and then view all of the event details to see what elements were involved in the move failure. Additionally, check for obstructions in the pathway of the robot such as a cartridge sticking out. Verify module alignment and frame alignment.

Event Code	Message Text and Description	Details and Solution
		Check if robotics assembly stuck in lock mechanism, move robotics assembly apart from lock mechanism and enable lock mechanism correctly.
2046	Wellness test failed because drive communication test failed.	Remove and reseal the drive canister to ensure that the drive is fully seated. If the issue persists then reset the drive. Use the library RMI to pull a drive support ticket and check the device analysis section for more help (HPE Library and Tape Tools must be installed to view support ticket).
2047	Wellness test failed because the barcode scanning test failed.	Verify that there is no obstruction in front of the barcode scanning module on the cartridge table located on the robotics assembly. If the error persists, replace the robotics assembly. For proper operation the robot must be able to reach the very bottom of the library. Verify there are no obstructions at the bottom of the library or on the bottom cover of the library in the path of the robot. To check for obstructions at the bottom of the library, first power off the library by pressing the front power button for 5 seconds and select the Default Park location. Once the library is powered off, remove the left magazine of the lowest library module, and verify the entire area of the bottom cover is free of any objects that might obstruct the robot's path. After clearing any obstructions, replace the magazine, power the library on, and after the library finishes initialization and inventory, verify no further critical events were generated.
2051	Wellness test failed because of the failing robotic test.	Check for obstructions in the pathway of the robot such as a cartridge sticking out. Verify module alignment and frame alignment. Check if robotics assembly stuck in lock mechanism, move robotics assembly apart from lock mechanism

Event Code	Message Text and Description	Details and Solution
		and enable lock mechanism correctly. Ensure that the spooling cable is fully seated in the Base Module and connected correctly to the robotic assembly.
2052	An open magazine was detected in one or more modules and as a result the system was taken offline.	Ensure that all magazines are completely inserted and properly locked. Do not open magazines using the emergency release while the library is operating and the robot is moving.
2053	An open top cover was detected and as a result the system was taken offline.	Ensure that the top cover is completely inserted and properly locked. Do not open top cover using the emergency release while the library is operating, and the robot is moving.
2054	An open bottom cover was detected and as a result the system was taken offline.	Ensure that the bottom cover is completely inserted and properly locked. Do not open bottom cover using the emergency release while the library is operating, and the robot is moving.
2055	An open unit lock was detected and as a result the system was taken offline.	Ensure that all unit locks are properly locked. Do not open unit locks using the emergency release while the library is operating, and the robot is moving.
2056	Initialization failure due to picker push pull positioning error.	Check for obstructions in the horizontal pathway of the robotics assembly such as a cartridge sticking out or a cable impeding progress.
2057	Robotics shipping lock in incorrect position.	Get access to the picker assembly and manually move the shipping lock lever to either locked or unlocked position. After moving the shipping lock to the one of the correct positions, reboot the library.
2061	Move failed pulling cartridge from drive.	Check for labels or cartridge misalignments that would prevent the cartridge from coming out of the drive.

Event Code	Message Text and Description	Details and Solution
2062	Move failed inserting cartridge to drive.	Check for labels or cartridge misalignments that would prevent the cartridge from coming out of the drive.
2063	Move failed positioning picker in front of drive.	Check for obstructions in the vertical or horizontal pathway of the robotic assembly. Examples could include a cartridge that is not seated completely in a slot, a robotics assembly is not sitting horizontally level, or a problem with the robotic spooling cable that is impeding progress.
2064	Library test failed with critical error.	
2065	Library startup process failed because of robotics initialization issue.	
2066	Library startup process failed during inventory scan.	
2067	For safety reason the robot movement was halted in place.	Ensure that all magazines, top or bottom covers and unit locks are completely inserted and properly locked. Do not open magazines using the emergency release or remove covers or unit locks while the library is operating and the robot is moving. Ensure that all modules are powered and have the interconnect cable properly attached.
2068	An emergency stop condition was detected in one or more modules and prevented the robotic from initialization.	Ensure that all magazines, top or bottom covers and unit locks are completely inserted and properly locked. Please insert all open magazines and install all necessary covers and unit locks before powering on the library. Ensure that all modules are powered and have the interconnect cable properly attached.
2069	Initialization failure due to barcode reader error.	
2070	Inventory scan failed because of Elevator axis problem.	Check for obstructions in the vertical pathway of the robot such as a cartridge sticking out. Verify module alignment

Event Code	Message Text and Description	Details and Solution
		and frame alignment. For proper operation the robot must be able to reach the very bottom of the library. Verify there are no obstructions at the bottom of the library or on the bottom cover of the library in the path of the robot. To check for obstructions at the bottom of the library, first power off the library by pressing the front power button for 5 seconds and select the Default Park location. Once the library is powered off, remove the left magazine of the lowest library module, and verify the entire area of the bottom cover is free of any objects that might obstruct the robot's path. After clearing any obstructions, replace the magazine, power the library on, and after the library finishes initialization and inventory, verify no further critical events were generated.
2071	Cartridge on picker when trying to scan.	Verify that there is no obstruction in front of the barcode scanning module on the cartridge table located on the robotics assembly. If the error persists, replace the robotics assembly.
2072	Bottom cover detected at an incorrect position.	Review the stack assembly and place the covers to the proper position.
2073	Top cover detected at an incorrect position.	Review the stack assembly and place the covers to the proper position.
2074	The library startup failed due to a GPIO error.	Reboot or power cycle system.
2075	The library startup failed due to an error when trying to open the robotics serial port.	Reboot or power cycle system.
2076	I2C bus signals invalid.	Remove all drive canisters of the affected chassis and reboot the library. If the problem persists, replace the chassis. If not, add one drive after the other until the problem comes back.

Event Code	Message Text and Description	Details and Solution
		Replace the last drive added before it failed again.
2077	Failed to store Calibration Data to Chassis.	Reboot or power cycle system.
2079	Could not upgrade barcode reader firmware.	Reboot the library and if the error persists replace the robotics.
2080	Cartridge lost while inserting it into slot/drive.	Check the source/destination element and ensure that there are no obstructions in the pathway of the robot.
2083	Drive Power Board is not compatible to this Library and does not match to the installed power supply.	Remove incompatible Drive Power Board. Only install Drive Power Boards that are compatible with the library.
2087	Error accessing the backplane flash memory.	Reboot the library and if the error persists replace the chassis. Prior to replacing the chassis, ensure you remove all of your tape cartridges. If magazines need to be removed to get access to the tape cartridges, first power down the device and then manually release each magazine. Only one magazine should ever be opened at a time.
2090	Wellness test failed because incompatible drive power board detected.	Remove incompatible Drive Power Board. Only install Drive Power Boards that are compatible with the library.
2091	Display Controller of the Operator Control Panel (OCP) reports an error	Reboot the library for new initialization of the OCP controller. If the error continues to persist, replace the Operator Control Panel.
2092	Locking the Robotics Assembly has failed during Power Down	
2093	Communication to Robotic Controller could not be established	Reboot the library and if the error persists replace the robotics assembly.
2094	An emergency stop condition was detected in one or more modules and prevented the robotic from running the inventory scan	Ensure that all magazines, top or bottom covers and unit locks are completely inserted and properly locked. Please insert all open magazines and install all necessary covers and unit locks before

Event Code	Message Text and Description	Details and Solution
		powering on the library. Ensure that all modules are powered and have the interconnection cable properly attached.
2095	Inventory scan failed because of robotic positioning problem	Check for obstructions in the horizontal pathway of the robot such as a cartridge sticking out or lying on the robotics table.
2096	Initializing a communication interface on the library controller failed	Reboot the library and if the error persists replace the library controller
2097	Mechanical re-initialization in context of Robotics error recovery has failed	Reboot the library and if the error persists replace the robotics.
2100	Position to element command failed because of robotics problem	Check for obstructions in the pathway of the robot such as a cartridge sticking out. Verify module alignment and frame alignment. Check if robotics assembly stuck in lock mechanism, move robotics assembly apart from lock mechanism and enable lock mechanism correctly.

Warning Event Codes

Event Code	Message Text and Description	Details and Solution
4000	A reported drive canister fan speed is too slow.	Ensure there are no obstructions in the fan
4002	A drive sent a clean request.	Clean the drive with an approved cleaning cartridge.
4003	The drive configuration failed.	Remove and reseal the drive canister and retry the operation. If the drive installed is a different generation than the drive previously installed, you may need to reset defaults and reconfigure the drive as appropriate. Use the library RMI to pull a drive support ticket and check the device analysis section for more help (HPE Library and Tape Tools must be installed to view support ticket).

Event Code	Message Text and Description	Details and Solution
4004	The drive status request failed.	Remove and reseal the drive canister to ensure that the drive is fully seated. If the issue persists then reset the drive. Use the library RMI to pull a drive support ticket and check the device analysis section for more help (HPE Library and Tape Tools must be installed to view support ticket).
4005	Drive is reporting a critical TapeAlert.	Power-cycle the drive, and verify whether the drive reports the same TapeAlert. Use the library RMI to pull a drive support ticket and check the device analysis section for more help (HPE Library and Tape Tools must be installed to view support ticket).
4006	A drive temperature reported is above the threshold.	Verify the drive fan is spinning, is not obstructed and that the ambient temperature is within specification. Also, ensure that there are drive bay cover plates in place in each location where there is no drive installed. The drive cover plates are required for proper airflow.
4007	Cartridge error.	Remove the cartridge and inspect it for damage. Retry operation with another cartridge.
4008	Cleaning tape expired.	Discard the cleaning cartridge and retry the cleaning operation with a new cleaning cartridge.
4009	Firmware upgrade of one or multiple expansion modules failed.	The Base Module must be able to communicate with a powered on and connected expansion module to perform the upgrade. Reseat the expansion controller and check the inter module cable and power connections. Retry the firmware upgrade.
4010	Drive is not compatible with this library.	Remove the incompatible drive. Only install drives that are supported by the library.
4012	Move Cartridge operation failed due to drive or media issue.	View the event details to determine which cartridge was involved. Verify surrounding events pointing to problems with this media in other move operations. Remove the

Event Code	Message Text and Description	Details and Solution
		media from the library, and physically inspect the media to ensure there is no physical damage. If the media appears to be undamaged, put the media back into the library and retry the move operation. If the problem persists retry the operation with a different cartridge in the same drive. If the problem follows the media, remove the media from use. If the problem follows the drive, use the library RMI to pull a drive support ticket and check the device analysis section for more help (HPE Library and Tape Tools must be installed to view support ticket).
4014	Library test failed due to a drive issue.	Verify the test parameters, and retry the test. If the test fails, check the library event log for specific events associated with this drive. Use the library RMI to pull a drive support ticket and check the device analysis section for more help (HPE Library and Tape Tools must be installed to view support ticket).
4015	Power supply has failed. Redundancy is not available.	Ensure all power supplies are installed properly (two per module), and that each power supply is connected to a valid power source.
4016	Backup configuration data to base module failed.	Attempt to save a library configuration, power cycle the library and retry the operation.
4017	Restore configuration data from Chassis failed.	Attempt to save a library configuration, power cycle the library and retry the operation.
4018	Firmware upgrade failed; tape drive reported an error applying the firmware file.	Verify that the firmware file is correct for the drive(s), ensure the drive(s) is/are in a healthy state with no cartridge in the drive, then retry the operation.
4019	General Drive Firmware bundle upgrade failure.	Verify that the firmware file is correct for the drive(s), ensure the drive is in a healthy state with no cartridge in the drive, then retry the operation.

Event Code	Message Text and Description	Details and Solution
4020	Database has been reset due to a problem that prevented the library from powering up.	If the library was restored to default settings, restore a saved configuration by using a previously saved config file. If not config file exists, then proceed in configuring the library. If the library was restore to default settings, restore a saved configuration by using a previously saved config file. If not config file exists, then proceed in configuring the library.
4021	Drive has been hot removed while in active status as data transfer device.	
4024	One or two unit position transmitter/detector failures.	
4025	Library test failed due to a cartridge error.	Remove the cartridge and inspect it for damage. Retry operation with another cartridge.
4028	Drive cannot use this media due to it being an unknown or unsupported format. Possibly the media is the wrong generation of media.	Check LTO generation for media and drives. Remove cartridges which are not compatible to your tape drives.
4029	Incompatible media move operation blocked by media barcode ID check.	Check if Media barcode label is matching LTO generation. Replace label or remove incompatible media from your system.
4030	Move cartridge operation failed due to media error.	Remove the cartridge and inspect it for damage. Retry operation with another cartridge.
4041	Wellness test failed because of power supply redundancy test failed.	Ensure all power supplies are installed properly (two per module), and that each power supply is connected to a valid power source.
4044	One of the Library tests failed because of a source element or destination element is currently not accessible.	
4060	Connection to the KMIP server failed.	Verify username and password as well as all needed SSL certificates needed for

Event Code	Message Text and Description	Details and Solution
		connecting to the KMIP server. Verify that the KMIP server is reachable within the network.
4061	Key not found on KMIP server.	Verify that the requested key is available on the KMIP server. Check the KMIP server logs for additional details.
4062	Key creation on KMIP server failed.	Check the KMIP server logs for additional details about why key creation failed.
4063	KMIP configuration invalid.	Use the KMIP configuration wizard to verify the KMIP configuration.
4064	KMIP feature not licensed.	Disable KMIP or install appropriate license for KMIP feature.
4065	A tape alert flag was reported by a drive.	
4067	Cleaning cartridge will soon be expired and should be replaced.	Replace the cartridge.
4072	No cleaning cartridge in partition available for auto cleaning.	Auto cleaning is enabled, but the partition contains no labeled cleaning cartridge. The library was unable to perform the auto clean function for one or more drives in this partition. Install a valid and labeled cleaning cartridge into the partition and then perform a load and unload on the drive that needs cleaned to initiate the auto cleaning.
4073	Medium source element empty.	Check the source slot visually and rescan inventory. Additionally check for valid and readable barcode label.
4074	Medium source element empty.	Check the source slot visually and rescan inventory. Additionally check for valid and readable barcode label.
4075	Cartridge lost while extracting it from slot/drive.	Check the source/destination element and ensure that there are no obstructions in the pathway of the robot.
4077	Unlocking the right magazine failed.	Reboot the library and retry the operation. If the error persists replace the chassis. If the magazine needs to be removed to get

Event Code	Message Text and Description	Details and Solution
		access to the tape cartridges, first power down the device and then release the magazine manually. Only one magazine can be open at a time.
4078	Unlocking the left magazine failed.	Reboot the library and retry the operation. If the error persists replace the chassis. If the magazine needs to be removed to get access to the tape cartridges, first power down the device and then release the magazine manually. Only one magazine can be open at a time.
4079	Unlocking the mailslot failed.	Reboot the library and retry the operation. If the error persists replace the chassis. If the mailslot needs to be removed to get access to the tape cartridges, first power down the device and then release the entire magazine manually. Only one magazine can be open at a time.
4080	Wellness test failed with warning.	
4085	Too many retries of drive command needed because of Unit Attention or Not Ready condition.	
4086	Move operation failed due to the inability accessing the database.	Ensure the network the library is connected to is operating normally and ensure the library is running the latest firmware. Library needs reboot.
4089	Auto calibration of one or more modules failed. The library is not properly calibrated. This may cause media movement failures.	The library needs to be re-calibrated. Ensure the library firmware is up to date. This event indicates that one or more of the gray calibration targets located on the library magazines could not be used in calibration. Inspect the calibration targets in each module and then repeat the auto-calibration routine via the Maintenance > Auto Calibration RMI menu.
4090	Auto calibration of one or more modules failed. The library is not properly calibrated. This may cause media movement failures.	The library needs to be re-calibrated. Ensure the library firmware is up to date. This event indicates that one or more of the gray calibration targets located on the library

Event Code	Message Text and Description	Details and Solution
		magazines could not be used in calibration. Inspect the calibration targets in each module and then repeat the auto-calibration routine via the Maintenance > Auto Calibration RMI menu.
4091	Auto calibration of one or more modules failed. The library is not properly calibrated. This may cause media movement failures.	The library needs to be re-calibrated. Ensure the library firmware is up to date. This event indicates that one or more of the gray calibration targets located on the library magazines could not be used in calibration. Inspect the calibration targets in each module and then repeat the auto-calibration routine via the Maintenance > Auto Calibration RMI menu.
4093	Could not obtain an IP address from DHCP server.	Check the network configuration settings and check if the DHCP server is reachable. Use the network configuration menu or unplug the network cable and plug it in after a few seconds to trigger an automatic reconfiguration of the network interface.
4094	Drive interface I/O error.	Reboot the library for new initialization of hardware and device drivers. Get in touch with service if the problem persists.
4095	Library test failed. Not enough valid cartridges available for testing.	
4098	System time synchronization via SNTP failed.	Check for valid SNTP server address in Time configuration. If correct, ensure that server reachable from your network and not blocked by Firewall.
4099	An unexpected reset of robotics has been detected.	Ensure that the spooling cable is fully seated in the Base Module and connected correctly to the robotic assembly. If the error re-occurs replace the robotic assembly.
4110	Drive disabled due to an incompatible Drive Power Board.	Remove incompatible Drive Power Board. Only install Drive Power Boards that are compatible with the library.
4113	Move Cartridge operation failed due to cartridge not properly taken over from Drive.	Check for labels or cartridge misalignments that would prevent the cartridge from coming out of the slot or drive.

Event Code	Message Text and Description	Details and Solution
4114	LT Library Encryption not Licensed	Disable LT Library encryption or install appropriate license
4116	LT Library Encryption import of encryption keys reached the allowed limit	Delete some LT encryption keys which are not used anymore and retry the import. Please do a backup of your encryption keys before deleting them.
4117	Drive disabled because no power supply available in this module.	Remove all affected Drives, insert and power up at least one power supply to the failing module. Wait 10 seconds and put the drives back into the module.
4118	Drive disabled because no drive power board available in this module.	Power down your library stack. Install compatible drive power board to the failing module. Restart library stack.
4120	No empty drive available for system test.	
4121	No compatible media available for system test.	
4122	No cartridge available for slot to slot test.	
4123	No empty slot available for slot to slot test.	
4124	Drive or media statistics could not be retrieved when unloading the tape.	Check for additional warning tickets. Replace media if media related tape alert flags reported.
4128	An expansion module has detected an installed power supply but this power supply does not provide power.	Ensure the power supply has a power cord plugged in and is connected to a valid power source. Although power source is not available this expansion module can still be used for tape storage. Operation of tape drives is not possible.
4129	Media removal prevented by drive.	Check backup application how to allow media removal from drive. If unsuccessful try Force Drive Media Eject option in operations menu.
4130	Wellness test failed because drive not finally initialized.	Wait until drive initialization completed and run test again.

Event Code	Message Text and Description	Details and Solution
4131	Wellness test failed because drive installed to a module without power supply.	Install at least one power supply to the module where the failing drive is located or move the drive to a module with power supply.
4132	Wellness test failed because serial drive installed to a module without drive power board.	Install drive power board to the module where the failing drive is located or move the drive to a module with drive power board installed.
4133	Protection Foam not removed from Base Module	Power down the library. Remove top cover and then remove the protection foam. Install the top cover again and restart the library
4136	The base module has detected an installed power supply but this power supply does not provide power.	Ensure the power supply has a power cord plugged in and is connected to a valid power source.
4139	Failed to unlock or lock magazine or mailslot	Check if any obstacle is preventing the robot from movement. Reboot the library and retry the operation. If the error persists, replace the robotics. If the magazine needs to be removed to get access to the tape cartridges, first power down the device and then release the magazine manually. Only one magazine can be open at a time.
4141	Drive requires cleaning	Clean the drive with an approved cleaning cartridge.
4142	Medium destination element full	Ensure that your destination slot or drive is empty and try again.
4144	Unit to unit lock of lowermost module is engaged	Ensure that the alignment mechanism is not engaged in the lowermost module.
4146	LT07 formatted cartridge with a Type M barcode detected.	Replace cartridge barcode label with the correct version.
4147	Type M cartridge without a Type M barcode detected.	Replace cartridge barcode label with the correct version.
4151	Download of drive firmware image completed, but firmware revision did not change after reboot.	Check if the uploaded firmware image is matching your drive type and generation. Ensure that the image file is not

Event Code	Message Text and Description	Details and Solution
		corrupted. Download a new image from the drive vendor's web site if you are not sure about file integrity.
4152	KMIP connection refused - The selected port on the target machine is not open, the connection is refused.	Please check that the server application is running on the target machine and the firewall is not blocking the selected port. Get in contact with your IT Personnel to verify the port settings.
4153	KMIP Server does not trust the client certificate - The authentication on server side fails because the client certificate cannot be trusted	Please use a client certificate, which is signed by a trusted Certification Authority (CA) or manually select the untrusted certificate on server side and trust it (not available on all servers).
4154	KMIP Ping to server failed - The target machine couldn't be reached, no network connection possible.	Please verify that the IP address in the settings is correct. Check that the target machine is powered and connected to the network. Please check the network cable. Verify that the Firewall setting on the target machine allowing ping requests and responses.
4155	KMIP No route to host - The target machine couldn't be reached, the network route to the machine is not available.	Please check your IP settings (IP Address, Gateway and Netmask) and verify them with your IT personnel. Check that the Firewall settings on the target machine are correct.
4156	KMIP Handshake failure - The TLS connection couldn't be established because of Handshake errors during certificate exchange.	Check the certificates on server and client side for valid entries and that they are still valid and not expire. Verify that TLS1.2 is enabled on the server. Check the client and server date/time for current time. Ask your IT personnel for new and valid certificates.
4157	KMIP Certificate unknown - The server certificate is unknown, because its root certificate is missing or not trusted.	Run a new certificate request with your server or certificate authority and import the resulting certificate chain.
4158	KMIP Host name lookup failed - The host name on the network couldn't be found. It doesn't exist or is misspelled.	Please verify the entered host name to be correct. Check your DNS address in the network settings. In any case contact your IT personnel for the verification of the entered data.

Event Code	Message Text and Description	Details and Solution
4159	KMIP certificate verify failed - The TLS server certificate couldn't be verified as a valid and trusted certificate.	Check if your server root certificate has changed. Create a new certificate request against your server to generate a new client certificate based on the changed server certificates.
4164	Inventory has been updated due to an unexpected empty or full slot	

Configuration Change Event Codes

Event Code	Message Text and Description
8000	The configuration of a drive changed.
8001	The drive was added or removed from the system.
8002	A partition was added/removed or changed.
8003	A mailslot bank was enabled / disabled.
8004	Drive firmware changed due to firmware upgrade.
8005	The configuration of hostname/domain name has changed.
8006	The email configuration settings have been changed.
8007	The configuration of a date/time format changed.
8008	The system language setting changed.
8009	The timezone configuration has changed.
8010	A new partition was added.
8011	The network settings have changed.
8012	All Expansion Modules upgraded.
8013	The NTP time synchronization configuration has changed.
8014	The SSH access was enabled/disabled.
8015	Level of media generation checking has changed.
8016	Library reset default settings invoked by user.
8017	Library FW changed.
8018	The Unlabeled Media Support configuration has changed.
8019	Robotics firmware version upgraded .
8022	RMI/OCP Timeout configuration changed.
8024	Mailslot / Magazine access control configuration changed.
8026	Robotics change detected.
8029	The SNMP configuration changed.
8030	A SNMP target has been added.
8031	A SNMP target has been deleted.
8032	The SNMPv3 settings changed.

Event Code	Message Text and Description
8033	The OCP module has been changed.
8034	A drive reboot has been requested by RMI command or REST interface. This process could cause side effects if done in parallel to running operations.
8036	New chassis detected.
8037	Chassis has been removed.
8040	LDAP Server has been added.
8041	LDAP Server has been modified.
8042	LDAP Server has been deleted.
8043	LDAP User has been added.
8044	LDAP User has been modified.
8045	LDAP User has been deleted.
8046	Logout prevention configuration changed.
8048	LT Encryption master key created
8049	LT Encryption master key deleted
8050	LT Encryption master key exported to key file
8051	LT Encryption master key imported from key file
8052	LT Encryption master key changed
8053	LT Encryption encryption keys exported to key file
8054	LT Encryption encryption keys imported from key file
8055	LT Encryption encryption keys deleted
8057	New hardware component added to the Library.
8058	Hardware component removed from the Library.
8059	Hardware component of Library replaced.
8060	New Expansion Controller detected.
8061	New Base Library Controller detected.
8062	Auto calibration successfully finished
8064	Password rules configuration changed

Event Code	Message Text and Description
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8050	LT Encryption master key exported to key file
8051	LT Encryption master key imported from key file
8052	LT Encryption master key changed
8053	LT Encryption encryption keys exported to key file
8054	LT Encryption encryption keys imported from key file
8065	User has been added
8066	User has been deleted
8068	Remote Logging configuration changed
8069	User password has been changed
8070	Default encryption mode for new partitions has been changed
8071	The administrator permission for configuring encryption has been changed
8072	Kerberos Realm has been added
8073	Kerberos Realm has been modified
8074	Kerberos Realm has been deleted
8075	Kerberos User has been added

Event Code	Message Text and Description
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8051	LT Encryption master key imported from key file
8052	LT Encryption master key changed
8053	LT Encryption encryption keys exported to key file
8054	LT Encryption encryption keys imported from key file
8076	Kerberos User has been modified
8077	Kerberos User has been deleted

Informational Event Codes

Event Code	Message Text and Description
9000	A tape alert flag was reported by a drive.
9001	A drive is present in the system but powered off.
9002	The library was powered on.
9003	Move Medium command was executed.
9004	Inventory scan was performed.
9005	The library was powered down from Front Panel.
9006	The network interface was switched on.
9007	The network interface switched off.
9008	The System Time was synchronized with a NTP server.
9009	A magazine was unlocked and opened.
9010	A magazine was closed and locked.
9011	A mailslot bank was unlocked and opened.
9012	A mailslot bank was closed and locked.
9013	A user logged in at the RMI interface.
9014	A user logged out at the RMI interface.
9015	A user logged in at the OCP interface.
9016	A user logged out at the OCP interface.
9024	Drive support ticket created.
9025	Library test started.
9026	Library test successfully finished.
9027	Library test stopped by user.
9028	Configuration backup to Base Module was successful.
9029	Configuration restore from Base Module was successful.
9031	Library health Status changed to "Status OK".
9032	Library health status changed to status "Warning".

Event Code	Message Text and Description
9033	Library health status changed to status “Critical”.
9035	New library chassis detected.
9038	The library was rebooted through user interface.
9041	Key on KMIP server created.
9043	Drive cleaning.
9045	Library configuration data failed to duplicate on to the Base Module.
9060	One or multiple configured DNS servers are not responding.
9061	A user account has been locked due to too many invalid login attempts on RMI.
9062	Invalid password used for login
9063	The network port used to contact the encryption server has been changed.
9064	Backup of certificate created
9065	Certificate has been restored.

Warranty Information

The SymplyPRO XTL system comes with a limited three (3) year warranty, but with the option to purchase an upgrade to a five (5) year warranty.

Warranty and technical support service can be accessed at www.support.gosymply.com

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The sole remedy under this Limited Warranty is product repair, replacement, or refund of the purchase price, at the sole discretion of the Company. In order to make a claim the purchaser must ship the product to the Company at the purchaser's expense, together with proof of purchase and a description of the nature of the defect. The Company will not be held responsible for any product that is damaged or lost in transit to the Company.

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