# actiLib Kodiak 3407 Quick Start Guide

## **Document Purpose**

This document provides a product overview and information to install and the initial setup of the actiLib Kodiak 3407 Scalable Tape Library. The instruction is intended for trained System Administrators and Users who need physical and functional knowledge of the actiLib Kodiak 3407 library.

actidata Storage Systems GmbH - 07/12/2018



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1.0	0	Timo Kühne	2018-06-06	Initial Revision

## Inhaltsverzeichnis

Document Purpose	1
Introduction	5
Document Purpose	5
General Warnings	6
Document Conventions:	6
General Product Warnings	6
Product Overview	10
Supported Library Configurations — Rackmount Installation	10
Supported Module Configurations with Legacy Serial ADI Drive Sleds	13
Supported Tape Drives	13
Front Panel	14
Rear Panel	15
Element Numbering	16
Installing the Library	17
Planning Installation	17
Location Requirements	17
SAS Configuration Requirements	17
Fibre Channel Configuration Requirements	18
Planning Module and Rack Layout	19
Internal IP Range Selection	19
Host Preparation	20
Installation Precautions	21
Unpacking Base Module and Expansion Modules	22
Identifying Library Module Components	24
Preparing Top and Bottom Modules	24
Installing Modules in a Rack	27
Aligning and Connecting Modules	29
Installing Tape Drives	31
Connecting Fibre Channel Cables	31
Connecting SAS Cables	31
Powering On the Library	32
Using the Configuration Wizard	32
Verifying the Host Connection	32
Loading Tape Cartridges	32
Labeling Tape Cartridges	33
Using the Mailslot	33
Bulk Loading Magazines	34
Verifying the Installation	34
Configuring Additional Features	34
Tape Cartridges and Magazines	35
Using and Maintaining Tape Cartridges	3.5

Labeling Tape Cartridges	35
Write Protecting Tape Cartridges	36
Initial Setup of the Library	37
Using the OCP	37
Using the RMI	37
Logging into the Library	38
Using the Initial Configuration Wizard on the OCP	38
Get help	42

## **Document Purpose**

This document provides information to install, operate, upgrade, service and troubleshoot the actiLib Kodiak 3407 Scalable Tape Library. The instructions are intended for the trained System Administrators and trained Users who need physical and functional knowledge of the actiLib Kodiak 3407 library.



#### **WARNING**

- Only trained personnel should operate this equipment.
- Read all documentation and procedures before installation or operation.
- The actiLib Kodiak 3407 must only be installed in a restricted 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.
- Hazardous moving parts exist inside this product. Do not insert tools or any parts of your body into the interior of the library while the mailslot or magazine is pulled out.
- Do not insert any tools or any parts of your body into drive bay openings or any other openings of an operating system.



#### **AVERTISSEMENT**

Cet équipement ne doit être utilisé que par un personnel formé. Lisez la totalité de la documentation et des procédures avant toute installation ou utilisation. Ce produit est conçu pour l'installation et l'utilisation dans un rack d'ordinateur avec les portes avant et arrière fermées et sécurisées. Seul un personnel avec la formation technique et de sécurité des produits est autorisé à accéder à la bibliothèque. Ce personnel est désigné par utilisateurs dans la totalité de ce document.

Pour des raisons de sécurité le PIN d'administrateur par défaut doit être changé au cours de la configuration initiale.

Les pièces mobiles dangereuses existent à l'intérieur de ce produit. N'insérez pas d'outils ni partie du corps dans les ouvertures d'un système en marche.

The main components are:

- actiLib Kodiak 3407 BTL (Base Module)
- actiLib Kodiak 3407 ETL (Expansion Module)

#### **Product Warranty Caution**

The customer should only perform the service and repair actions on the tape library components as described in this document. Any other actions needed should only be performed by an authorized service center.

The warranty for the tape library shall not apply to failures of any unit when:

- The tape library is repaired or modified by anyone other than the manufacturer's personnel or approved agent.
- The tape library is physically abused or used in a manner that is inconsistent with the operating instructions or product specification defined by the manufacturer.
- The tape library fails because of accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, modification, or service by anyone other than the factory service center or

its approved agent.

- The tape library is repaired by anyone, including an approved agent, in a manner that is contrary to the maintenance or installation instructions supplied by the manufacturer.
- The manufacturer's serial number tag is removed.
- The tape library is damaged because of improper packaging on return.

Warranty will become immediately void in the event of unauthorized repairs or modifications.

## **General Warnings**

#### **Document Conventions:**

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WARNING

Indicates that failure to follow directions could result in bodily harm or

death.

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CAUTION

Indicates that failure to follow directions could result in damage to

equipment or data.

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**IMPORTANT** 

Provides clarifying information or specific instructions.



NOTE

Provides additional information.



TIP

Provides helpful hints and shortcuts.



**AVERTISSEMENT** 

Le non-respect de ces instructions expose l'utilisateur à

des risques

potentiellement très graves.



**ATTENTION** 

Le non-respect de ces instructions comporte des risques tant pour le matériel que pour les informations qu'il contient.



**IMPORTANT** 

Apporte une clarification ou fournit des instructions spécifiques.



**REMARQUE** 

Fournit des informations complémentaires..



ASTUCE

Conseils et raccourcis utiles.

## **General Product Warnings**



#### **DANGER**

#### High voltage

#### Risk of electric shock

- Do not remove power supply covers. No user-serviceable parts are inside unless specifically identified.
- Refer servicing to qualified service personnel.



**DANGER** 

Tension élevée

#### Risque de choc électrique

- Ne pas retirer le couvercle de l'alimentation. Aucune pièce réparable par l'utilisateur ne se trouve à l'intérieur à moins que celle-ci ne soit spécifiquement identifiée.
- Confier toute réparation à un personnel qualifié.



## MECHANICAL HAZARD

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



## DANGER MÉCANIQUE

**Danger** Risque de se coincer la main et de se coincer les mains ainsi que les doigts le tout pouvant entrainer de graves blessures. Gardez les mains à l'écart pendant le fonctionnement.



#### **WARNING**

#### **Product Weight**

#### Risk of personal injury

Before lifting a module:

- Observe local health and safety requirements and guidelines for manual material handling.
- Remove all tapes to reduce the weight.
- 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.



## **AVERTISSEMENT**

#### Poids du produit

#### Risque de blessure

Avant de soulever un module:

- Respectez les règles locales de santé et de sécurité au travail ainsi que les instructions concernant la manipulation du matériel.
- Retirez toutes les cartouches à bande pour réduire le poids
- Retirez toutes les lecteurs de bande pour réduire le poids
- Faites-vous assister de manière adéquate pour soulever et stabiliser le périphérique pendant l'installation ou le retrait.

#### Risque d'endommager les périphériques

Lors de l'insertion d'un module dans un rack ou du retrait d'un module d'un rack:

- Les vérins de mise à niveau doivent être en contact avec le sol.
- Les vérins de mise à niveau doivent supporter tout le poids du rack.
- Installez le kit de mise à niveau sur le rack.
- Déployez un seul élément de rack à la fois. Si vous déployez plusieurs éléments à la fois, vous risquez de compromettre la stabilité du rack.



### **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.



#### **ATTENTION**

#### Électricité statique

## Risque d'endommager les périphériques par une décharge d'électrostatique.

- Une décharge d'électricité statique peut endommager les circuits imprimés du système ou les autres périphériques sensibles aux décharges électrostatiques.
- Un emballage approprié et une mise à la terre constituent les précautions nécessaires pour éviter tout dommage.



#### NOTE

- Ventilation Place the product in a location that does not interfere with proper ventilation.
- Heat Place the product in a location away from heat sources.
- Power sources Connect the product to a power source only of the type directed in the operating instructions or as marked on the product.
- Power cord protection Place the AC line cord so that it is not possible to be walked on or pinched by items placed upon or against it.
- Object and liquid entry Insure that objects do not fall onto and that liquids are not spilled into the product's enclosure.



#### **REMARQUE**

- Ventilation Placez le produit dans un endroit qui n'interfère pas avec une ventilation approprié.
- Chaleur Placez le produit dans un endroit loin de sources de chaleur.
- Alimentation électrique Veuillez ne brancher le produit qu'à une source d'alimentation correspondant aux instructions figurant dans le mode d'emploi ou comme directement indiqué sur le produit.
- Protection du cordon d'alimentation Placez le cordon d'alimentation principal de sorte qu'il ne soit pas possible de marcher dessus ou d'être écrasé par des objets placés sur ou contre.
- Pénétration d'objets et de liquide S'assurez que des objets ne tombent pas sur le boîtier du produit et que des liquides ne soient pas déversés dans le boîtier du produit

#### **Product Overview**



WARNING

Only trained personnel should operate this equipment. Read all documentation and procedures before installation or operation. This product is intended for installation and operation in a restricted area. Only personnel with technical and product safety training should be provided access to the library. Such personnel are referred to as users throughout this document. Do not insert any tools or any part of your body into openings of an operating system.

## $\triangle$

#### **AVERTISSEMENT**

Cet équipement ne doit être utilisé que par un personnel formé. Lisez la totalité de la documentation et des procédures avant toute installation ou utilisation. Ce produit est conçu pour l'installation et l'utilisation dans un rack d'ordinateur avec les portes avant et arrière fermées et sécurisées. Seul un personnel avec la formation technique et de sécurité des produits est autorisé à accéder à la bibliothèque. Ce personnel est désigné par utilisateurs dans la totalité de ce document. N'insérez pas d'outils ni partie du corps dans les ouvertures d'un système en marche.

All actiLib Kodiak 3407 installations begin with the 3U high Base Module, with capacity for 32 tape cartridges and 3 half-height LTO tape drives.

actiLib Kodiak 3407 is expandable, allowing a user to grow their tape storage capacity as their data requirements increase. As data storage needs grow, actiLib Kodiak 3407 can also grow by adding one or more 3U high Expansion Modules. Each Expansion Module provides an additional 40 tape cartridges and supports an additional 3 half-height LTO tape drives.

Up to 6 Expansion Modules can be added to a Base Module, bring the total library capacity to 272 tape cartridges and 21 half-height LTO tape drives.

## **Supported Library Configurations – Rackmount Installation**

All actiLib Kodiak 3407 Libraries start with a Base Module. Up to 6 Expansion Modules can be added as needed to support customer requirements. The architecture has been designed to support a maximum of 3 Expansion Modules above and 3 Expansion Modules below. The Base Module must be mounted with 9U of empty space about and 9U of empty space below to ensure a full stack can be installed. Table 1 shows the supported configurations for libraries ranging from one to seven total modules.

The Base Module is depicted by the following image with the Operator Control Panel shown in yellow:



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



Module Quantity	Supported Library Configurations
1 Module Library Base Module	
2 Module Library Base Module 1 Expansion Module	
3 Module Library Base Module 2 Expansion Modules	
4 Module Library Base Module 3 Expansion Modules	

Module Quantity	Supported Library Configurations
<b>5 Module Library</b> Base Module 4 Expansion Modules	
<b>6 Module Library</b> Base Module 5 Expansion Modules	
<b>7 Module Library</b> Base Module 6 Expansion Modules	

## **Supported Module Configurations with Legacy Serial ADI Drive Sleds**

actiLib Kodiak 3407 supports serial ADI sleds from actiLib LTO 1U/2U/4U and actiLib Kodiak 6807 Tape Libraries. One drive power board (DC-DC converter) is required in each module that includes one or more serial ADI drive sleds. Table 2 describes the supported serial ADI configurations for each module type – Base Module and Expansion Module.

Module Type	Power Supplies	Drive Power Boards	Tape Drives
Booo	1 (standard)	0 (standard)	0
Base	or 2 (redundant)	1	Up to 3
	0 (standard)	0 (standard)	0
Expansion	1 (required with 1 or more drives)	0 (standard)	0
	or 2 (redundant)	1	Up to 3

## **Supported Tape Drives**

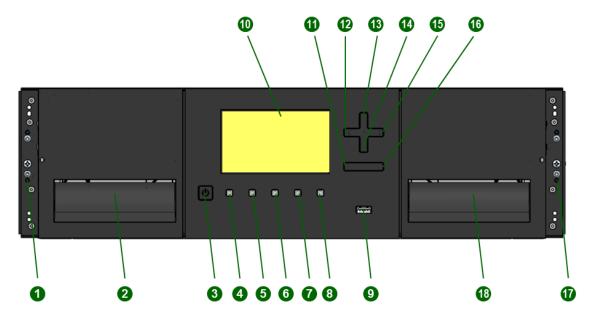
actiLib Kodiak 3407 was developed to integrate industry-standard LTO Ultrium tape drives from both HP and IBM.

Mixed drive generations and mixed interfaces are supported within a single library and within a single module.

Listed below are the tape drives that have been implemented and qualified for use in actiLib Kodiak 3407.

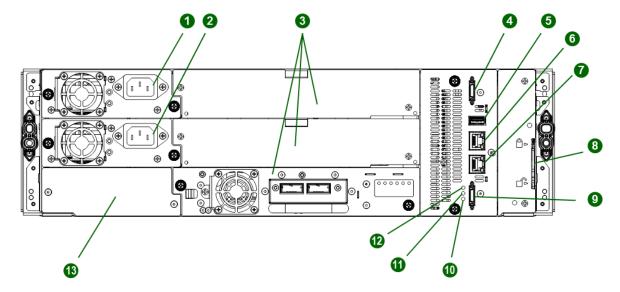
IBM LTO Drives	HP LTO Drives
LTO-6 Half-Height FC Single Port LTO-6 Half-Height FC Dual Port	LTO-6 Half-Height FC Dual Port
LTO-6 Half-Height SAS Dual Port	LTO-6 Half-Height SAS Dual Port
LTO-7 Half-Height FC Single Port LTO-7 Half-Height FC Dual Port	LTO-7 Half-Height FC Dual Port
LTO-7 Half-Height SAS Dual Port	LTO-7 Half-Height SAS Dual Port
LTO-8 Half-Height FC Single Port LTO-8 Half-Height FC Dual Port	LTO-8 Half-Height FC Dual Port
LTO-8 Half-Height SAS Dual Port	LTO-8 Half-Height SAS Dual Port

## **Front Panel**



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

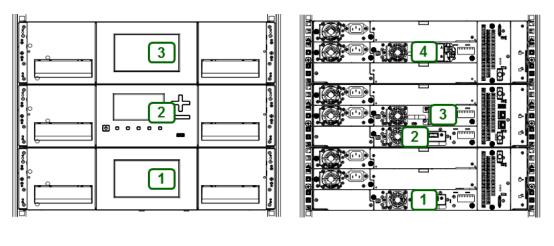
## **Rear Panel**

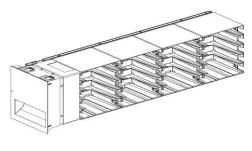


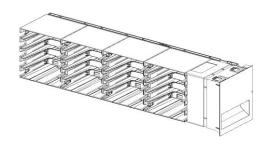
1	Power Supply 1	Standard on Base Module Optional on Expansion Module
2	Power Supply 2	Optional on Base Module Optional on Expansion Module
3	Half-Height Tape Drive Bays	
4	Upper Expansion Module Connection Port	
5	USB Port	Optional on Base Module Only
6	Ethernet Port A	Base Module Only
7	Ethernet Port B	Optional on 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	

## **Element Numbering**

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







1	Left Magazine
2	Right Magazine, Mailslot Disabled
3	Right Magazine Mailslot Enabled

## **Planning Installation**

- Choose a location for the library. See "Location Requirements".
- Plan the SAS or Fibre Channel configuration and obtain the necessary cables. See "SAS Configuration Requirements" or "Fibre Channel Configuration Requirements".
- For rack installations, plan the rack layout. See "Planning the Module and Rack Layout".
- Internal IP Range Selection

## **Location Requirements**



NOTE

- The library was designed for both rack and tabletop installation.
- Rack installations must use the provided rack rails.
- 1 Module tabletop installations require no additional hardware.
- 2 Module (Base Module + 1 Expansion Module) tabletop installations must use the optional table top kit.
- 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 meter) 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	10-35° C (50-95° F)
Power Source	<ul> <li>AC Power Voltage: 100-240 VAC</li> <li>Line Frequency: 50-60 Hz</li> <li>Library Located near AC Outlet(s)</li> </ul> The AC power cord is the library's main AC disconnect device and must be easily accessible at all times.
Air Quality	<ul> <li>Place the library in an area with minimal sources of particulate contamination</li> <li>Avoid areas near frequently used doors and walkways, stacks of supplies that collect dust, printers, and smoke-filled rooms</li> <li>Excessive dust and debris can damage tapes and tape drive</li> </ul>
Humidity	20-80 percent RH non-condensing

## **SAS Configuration Requirements**

Serial Attached SCSI (SAS) is a computer bus technology mainly used to transfer data to and from storage devices, including disk drives and tape drives. SAS is designed to transfer data at up to 6 Gbps. SAS uses serial connections, with a direct connection between the host server and each of the storage devices. This eliminates the need to configure SCSI busses and assign SCSI IDs, as is required for parallel SCSI devices.

The host server must have a SAS Host Bus Adapter (HBA) with an external connector. The HBA uses multiple Logical Unit Numbers (LUNs) to communicate with the library. Verify that your HBA supports multiple LUNs, as most RAID controllers do not. Most SAS HBA ports have four SAS channels. A tape

drive uses one channel, so each HBA port can support up to four tape drives. You can use a cable with one connector on each end, but only one channel will be used.

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

#### Supported SAS Speeds

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



CAUTION

High quality SAS cables rated at the transfer rate the SAS drives are required. Always verify that the SAS cable you are using is rated for the data transfer speed of the interface of your components. SAS cables described as "equalized" may not support 6 Gb/s data rates and should not be used with LTO-5 or later generation tape drives unless these cables are verified for 6 Gb/s data rates.



**CAUTION** 

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

A SAS tape drive is identified by a unique identifier called a **W**orld **W**ide **N**ame (WWN) or **W**orld **W**ide **Id**entifier (WWID). The library assigns the WWID to the drive bay. When a tape drive is replaced, the WWID is re-assigned to the new tape drive.

The operating system tracks the WWID for the tape drive on each HBA channel. Each of the drive connectors on the fan-out cable is associated with an HBA channel. Once a tape drive has been plugged in, it should remain on the same channel to retain the association between the HBA channel and WWID.

## **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.

**Table 1: Supported Fibre Channel Speeds** 

LTO Generation	Supported Speeds
LTO-6	2 Gbps, 4 Gbps, 8 Gbps
LTO-7	2 Gbps, 4 Gbps, 8 Gbps
LTO-8	2 Gbps, 4 Gbps, 8 Gbps



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.

## **Planning Module and Rack Layout**

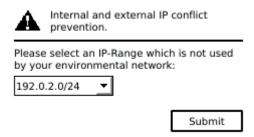
If possible, install the Base Module in the middle of the rack to provide space for the permitted 3 Expansion Modules above and 3 Expansion Modules below. See **5.1 Supported Library Configurations** for additional details.

#### **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.

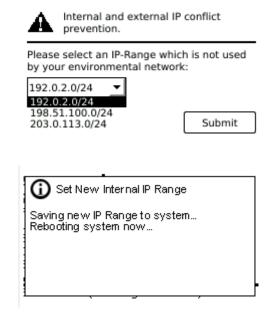
Therefore a file which contains the internal IP range is stored onto the Base Module backplane: /opt/storage/mfg/stack/network.range and LCM /opt/storage/configuration/network.range

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



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).



## **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.



#### **ATTENTION**

#### Électricité statique

## Risque d'endommager les périphériques par une décharge d'électrostatique.

- Une décharge d'électricité statique peut endommager les circuits imprimés du système ou les autres périphériques sensibles aux décharges électrostatiques.
- Un emballage approprié et une mise à la terre constituent les précautions nécessaires pour éviter tout dommage.

#### Follow these general guidelines:

- Check with a system administrator before powering off the host computer.
- For a SAS library, confirm availability or install a SAS HBA that supports multiple LUNs.
- For a direct-attach Fibre Channel library, confirm availability of install an FC HBA.
- For connection of a Fibre Channel library through a compatible switch, verify that sufficient ports are available.

#### **Installation Precautions**



#### **WARNING**

#### **Product Weight**

Each actiLib Kodiak 3407 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.



## **AVERTISSEMENT**

#### Poids du produit

Chaque actiLib Kodiak 3407 module de bibliothèque pèse 20 kg sans média ni lecteur de bande, et 35 kg avec média (40 cartouches) et trois lecteurs de bande. Lors du déplacement de la bibliothèque, pour réduire les risques de blessures ou de détérioration du périphérique :

- Respectez les règles locales de santé et de sécurité au travail ainsi que les instructions concernant la manipulation du matériel.
- Retirez les bandes des lecteurs avant de déplacer un module.
- Retirez toutes les bandes pour réduire le poids global du périphérique et pour empêcher les cartouches de tomber dans le chemin robotique et d'endommager la bibliothèque. Disposez les cartouches de sorte qu'elles réintègrent leur emplacement d'origine.
- Faites-vous assister pour soulever et stabiliser le périphérique pendant l'installation ou le retrait.



#### **ATTENTION**

L'équipement monté sur glissière/rail ne doit ne pas être utilisé comme étagère ou espace de travail.

## **Unpacking Base Module and Expansion Modules**

Before unpacking any modules, clear a work surface near the targeted rack or table for installation.

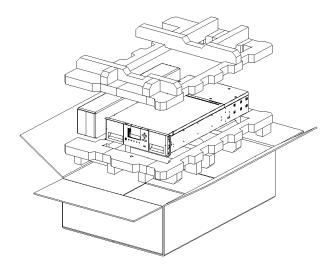


## **CAUTION**

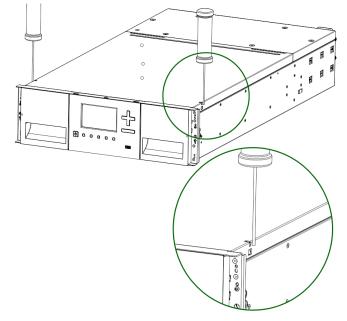
If the temperature in the room where the library will operate varies by 15° C (30° F) from where the module was stored, allow it to acclimate for at least 12 hours prior to unpacking.

Unpacking a actiLib Kodiak 3407 Base Module or Expansion Module:

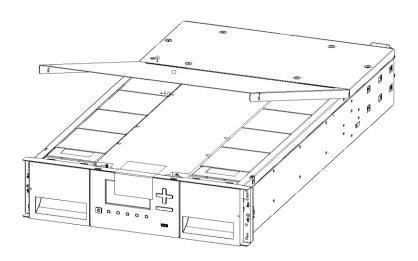
- 1. Before opening and removing a module from the box, inspect the container for shipping damage.
- 2. If you notice any damage, report it to the shipping company immediately.
- 3. Unpack the module from the box and place it on a work table



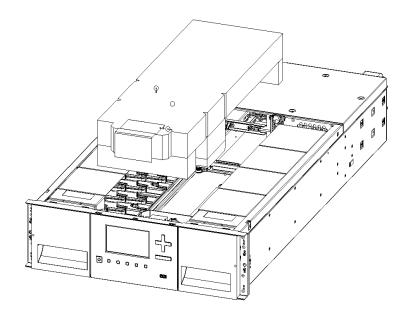
- 4. Skip the next steps if you are installing an Expansion Module only
- 5. The robotics is protected during shipment by an insertion foam which has to be removed prior to installation
- 6. To remove the top cover plate from the Base Module unlock the top cover using two small screwdrivers



7. Lift the cover front end by about 12 cm and pull gently forward to disengage from the pivot point at the unit center



8. Remove the insertion foam.



- 9. If you are installing a Base Module only without an Expansion Module install the top cover again on the Base Module
- 10. If you want to install a library stack with multiple modules see chapter "Preparing Top and Bottom Modules"
- 11. Save the packaging materials for future use.



**CAUTION** 

Do not place a module on either the ends or sides as this may cause damage.

## **Identifying Library Module Components**

If you have unpacked a Base Module, confirm that you have received the following components:

- 1. Base Module
- 2. Two Rack Rails
- 3. Accessory Kit
  - a. One packet of rack mount hardware
  - b. One North American Power Cord
  - c. One European Power Cord

If you have unpacked an Expansion Module, confirm that you have received the following components:

- 1. Expansion Module
- 2. Two Rack Rails
- 3. Accessory Kit
  - a. One packet of rack mount hardware
  - b. Expansion Interconnect Cable

For SAS libraries, you must provide SAS cabling with the correct configuration for your HBA. For Fibre Channel libraries, you must provide one Fibre Channel cable for each tape drive.

## **Preparing Top and Bottom Modules**

Skip this step if you are installing a Base Module only without an Expansion Module.

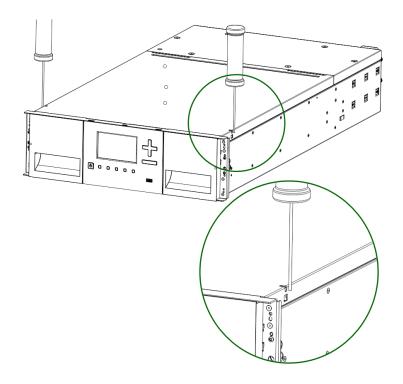
The Base Module has a removable top and bottom covers.

If you are installing one or more Expansion Modules above the Base Module, move the top cover from the Base Module to the Expansion Module that will be installed at the top of the library.

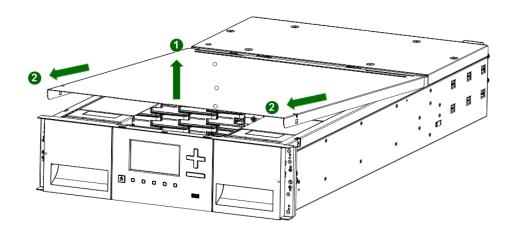
If you are installing on or more Expansion Modules below the Base Module, move the bottom cover from the Base Module to the Expansion Module that will be installed at the bottom of the library.

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

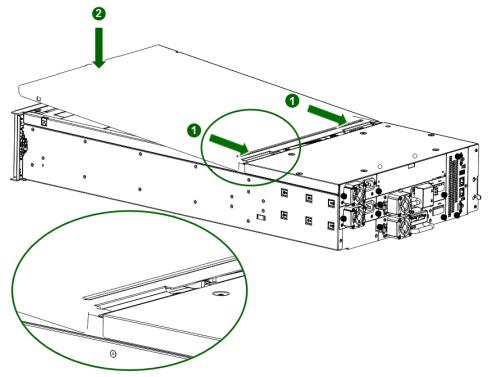
- 1. Remove the library top cover plate from the Base Module.
  - a. Place the Base Module on a work table
  - b. Unlock the top cover using two small screwdrivers.



- c. Lift the cover front end by about 12 cm
- d. Pull gently forward to disengage from the pivot point at the unit center

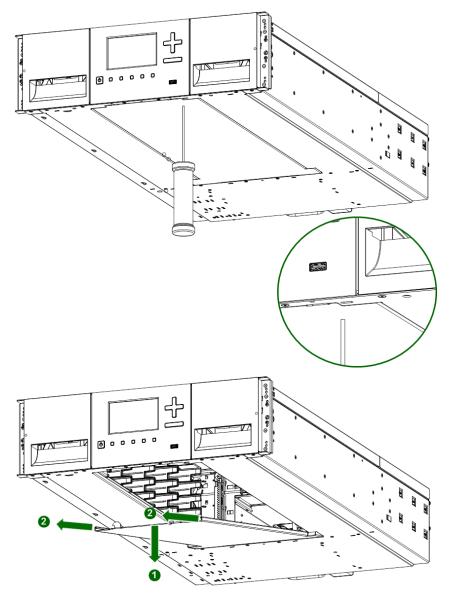


- 2. Install top cover on the Expansion Module that will be installed on the top of the library.
  - a. Place the Expansion Module on a work table
  - With the front of the top cover raised approximately 12 cm, engage the rear of the cover at the Expansion Module pivot point located at the back of the opening.
  - c. Lower the front of the top cover until the latches engage on both sides.

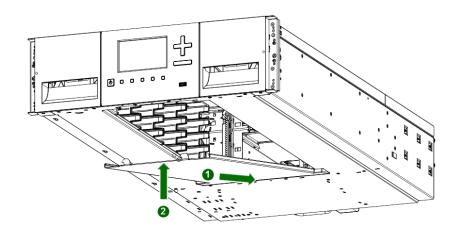


To move the library bottom cover plate from the Base Module to an Expansion Module:

- 1. Remove the library bottom cover plate from the Base Module.
  - a. Place the Base Module on a work table
  - b. Lift the unit front end by about 16 cm (use unit rear as a pivot edge)
  - c. Support the the bottom cover with one hand. Insert a small flathead screwdriver or Torx screwdriver into the hole and slide about 4 mm sidewards to unlock the spring loaded lock.
  - d. Lower the cover front end by about 10 cm and pull gently forward to disengage from the pivot point at unit center
  - e. Remove the cover from the module.



- 2. Install the library bottom cover plate to the an Expansion Module.
  - a. Place the Base Module on a work table
  - b. Lift the unit front end by about 16 cm (use unit rear as a pivot edge)
  - c. Insert the bottom cover at the center
  - d. Lift up the cover front edge until hard stop and it locks in at the unit front.



## **Installing Modules in a Rack**

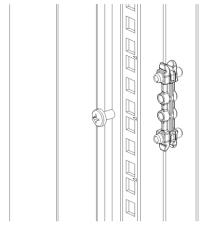
actiLib modules are easy to install in racks compliant to the EIA 310A Standard, when at least 1 meter deep. You need a #2 Phillips screwdriver for this process.

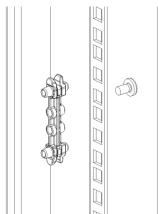
To locate the rail locations when installing multiple modules:

- 1. Locate the bottom of the lowest full U where the lowest module will be installed.
- 2. Continue identifying the locations for any additional module 3U higher.

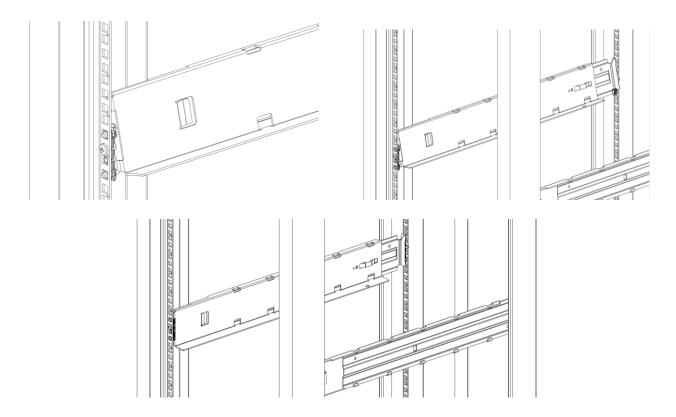
To install the rails into the rack, starting from the lowest rack location:

- 1. Locate all the 4 adapter blocks, 4 Philips screws and 2 rackmount rails (LH and RH).
- 2. On the front of the rack, mount an adapter block at the appropriate height to the right and left rack posts. Mount them in the middle square hole of the height unit (The middle of a height unit is the hole between two wide and neighboring division bars.).

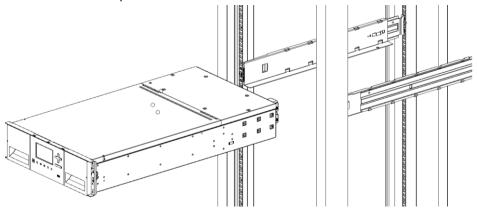




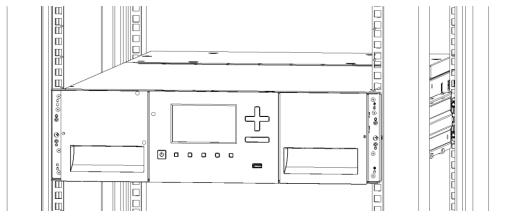
- 3. Repeat step 2 on the right and left rack posts in the rear of the rack.
- 4. Mount the LH Rackmount rail to the adapter blocks.
- 5. Repeat step 4 with the RH Rackmout Rail.



1. Place the library at the front of the rack on the support angles of the sliding rails and push it into the rack to the back stop.



2. If you are installing multiple modules, verify that this module has been installed directly above or below its adjacent module and is contained within the correct 3U volume. The gap between modules must be less than 4 mm.



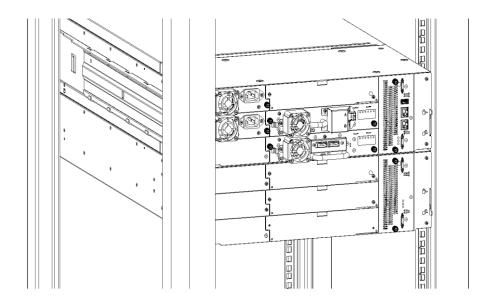
- 3. Use-a screwdriver for Phillips-recess to tighten the screws on each side of the module.
- 4. Repeat steps 3 through 5 to install the rest of the modules into the rack

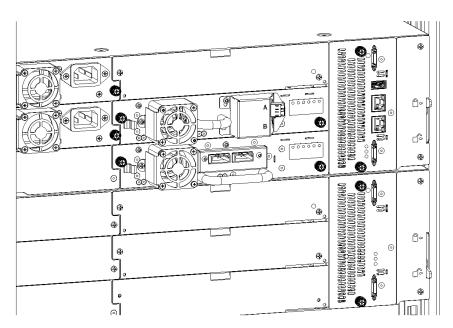
## **Aligning and Connecting Modules**

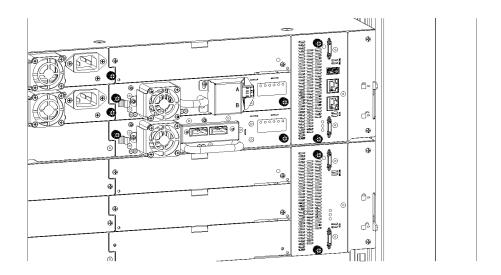
Skip this step if the library does not have Expansion Modules.

Aligning the modules ensures that the robot can move freely between the modules. The library will not operate unless the alignment mechanism is in the locked position.

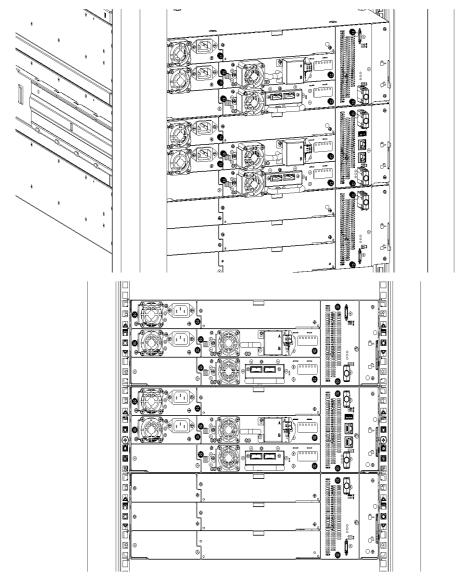
- 1. From the front of the library, loosen the screws on each of the modules two full turns.
- 2. From the back of the library, starting with the bottom pair of modules, align each module with the module below. Repeat for each pair of modules.
  - a. Move the alignment lever to the lock position. If you encounter resistance, adjust the position of the upper module so the pin in the alignment mechanism moves into the mating hole in the lower module.







- 3. Verify that the lowest module in the library has its alignment mechanism in the unlocked position
- 4. From the front of the library, tighten the Philips screws on each of the modules to secure the modules to the rack.
- 5. From the back of the library connect the modules of each pair to its adjacent module using the expansion interconnect cable as shown.



## **Installing Tape Drives**

- 1. Locate an appropriate vacant drive bay on the back of the library.
- 2. To assist in aligning the drive, only remove the drive bay covers for one drive at a time. Remove the face plate covering the drive bay by removing the screws holding it in place. Remove one drive bay cover to install one half-height tape drive.
- 3. Holding the tape drive by the handle and supporting it from the bottom, slide the tape drive along the alignment rails into the drive bay until it is flush with the back of the library.
- 4. Tighten the blue captive screws with your fingers to secure the tape drive to the chassis. If the thumbscrews cannot be tightened, verify that the tape drive is aligned properly.



## **CAUTION**

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.

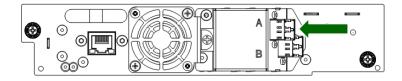


## DANGER MÉCANIQUE

**Danger** Risque de se coincer la main et de se coincer les mains ainsi que les doigts le tout pouvant entrainer de graves blessures. Gardez les mains à l'écart pendant le fonctionnement.

## **Connecting Fibre Channel Cables**

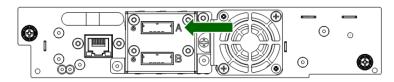
1. Remove the FC port caps if necessary. Attach one end of the FC cable to port A on the tape drive.



2. Attach the other end of the FC cable to a switch or HBA.

## **Connecting SAS Cables**

- 1. Attach the HBA end of the SAS cable into the connector on the HBA. If you are using a SAS fanout/Hydra cable, the end of the cable with only one connector should be plugged into the HBA.
- 2. Connect the drive end of the cable.
- If you are using a cable with a single connector on each end, attach the other end into the connector on the tape drive.
- If you are using a SAS fanout/Hydra cable, attach one mini-SAS connector into the connector on each tape drive. The unused ends of the SAS fanout/Hydra cable are single channel and not suitable for use with disk arrays. Use the other ends to connect tape drives, or coil and secure them to the rack to minimize stress on the connectors.





**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 six meters.

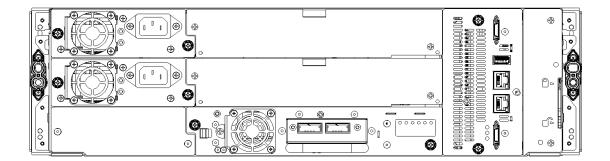
## **Powering On the Library**

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



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

- 2. To use the RMI, connect an Ethernet cable from the bottom Ethernet ports on the Base Module controller to your network.
- 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.



1	Power Connectors	
2	Ethernet Ports	(Base Module Only)

## **Using the Configuration Wizard**

Start the Initial Configuration Wizard from the OCP. The wizard will guide you through configuring the basic network configuration, date and time, and setting the administrator PIN. You can skip items and stop the wizard at any time. Once you have configured the network settings, you can initiate the wizard from the RMI to complete the remaining configurations. For Login to the RMI use the default Administrator Password "adm001"

## **Verifying the Host Connection**

To verify the connections between the host computer and the library:

- 1. Install the application software and/or drivers that are compatible with the library. Backup software packages might require additional software or licensing to communicate with the robotics.
- 2. Verify the connection between the library and the host using the host server's operating system utilities.

## **Loading Tape Cartridges**

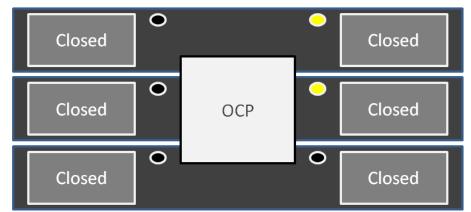
The library will power on without cartridges, but needs cartridges before performing data read and write operations, or any tests or operations that transfer cartridges.

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 recommended 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 soons as the mailslot is pulled out, the LED switches OFF.

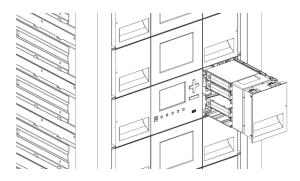


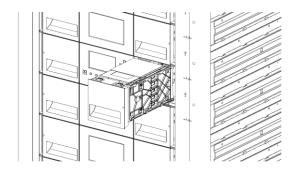
NOTE

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



- 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**

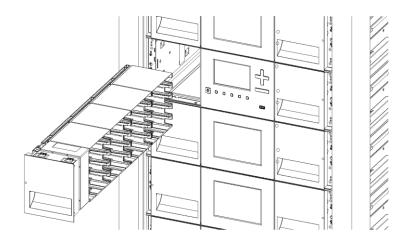
- Press the button for more than 3 seconds. This will start the unlock operation for the magazine, indicated by the LED slowly flashing.
- When the magazine is unlocked the LED starts quickly flashing
- 3. Pull out the magazine from the library. As soons as the magazine is pulled out, the LED switches OFF.



NOTE

- Opening a magazine will take the library off-line.
- The magazines will relock 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



- 4. Load the tape cartridges into the magazine
- 5. Insert the magazine to the unit
- 6. Push the magazine handle slowly until the magazine release latch snaps into place. The magazine locks into place.
- 7. Repeat steps 1 through 3 for each of the other magazines.
  - IMPORTANT Push the magazine fully into place until the latch snaps into place.

## **Verifying the Installation**

Verify that the library has the current firmware revision. The library firmware revision is displayed in the top left corner on the RMI screen or on the **Home > Status > Library > Library Status** screen on the OCP.

If necessary, update the library firmware from the OCP or RMI **Maintenance > Software Upgrades > System Firmware** screen.

After configuring the library, you can save the configuration settings to a USB flash drive from the OCP or to a file on your computer from the RMI **Configuration > Save/Restore** screen. Having a backup of the library configuration is helpful when recovering from a configuration error or if the library needs service.

## **Configuring Additional Features**

The library has many features to customize it for your organization.

- Enabling the mailslot. See "Enabling or Disabling Mailslots".
- Naming the library via the partitioning wizard. See "Configuring Library Partitions".
- Partitioning the library. 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 how to label and write-protect your tape cartridges. Careful labeling and handling of the tape cartridges will prolong the life of the tape cartridges and the library.

#### **Using and Maintaining Tape Cartridges**



#### **CAUTION**

Do not degauss LTO data cartridges! These data cartridges are prerecorded 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 ensure the longest possible life for your data cartridges, follow these guidelines:

- Use only the data cartridges designated for your device.
- Clean the tape drive when the Clean drive LED is illuminated.



#### CAUTION

Use only Ultrium Universal cleaning cartridges.

- Do not drop a cartridge. Excessive shock can damage the internal contents of the cartridge or the cartridge case itself, making the cartridge unusable.
- Do not expose data cartridges to direct sunlight or sources of heat, including portable heaters and heating ducts.
- The operating temperature range for data cartridges is 10 to 35° C. The storage temperature range is -40 to +60° C in a dust-free environment in which relative humidity is always between 20 percent and 80 percent (non-condensing).
- If the data cartridge has been exposed to temperatures outside the specified ranges, stabilize the cartridge at room temperature for the same length of time it was exposed to extreme temperatures or 24 hours, whichever is less.
- Do not place data cartridges near sources of electromagnetic energy or strong magnetic fields such as computer monitors, electric motors, speakers, or X-ray equipment. Exposure to electromagnetic energy or magnetic fields can destroy data and the embedded servo code written on the media by the cartridge manufacturer, which can render the cartridge unusable.
- Place identification labels only in the designated area on the cartridge.

#### **Labeling Tape Cartridges**

The device contains a bar code reader that reads the tape labels and stores the inventory data in memory. The device then provides the inventory information to the host application, OCP, and RMI. Having a bar code label on each tape cartridge enables the bar code reader to identify the cartridge quickly, thereby speeding up inventory time. Make it a practice to use bar code labels on your tape cartridges. A proper bar code label includes the media ID in the last two characters of the bar code. The library will not load an incompatible cartridge, based on the barcode media ID, into a tape drive. For example, the library will not load a cartridge labeled as LTO-3 into an LTO-6 tape drive. This saves the time needed to load the cartridge and have the tape drive reject it.

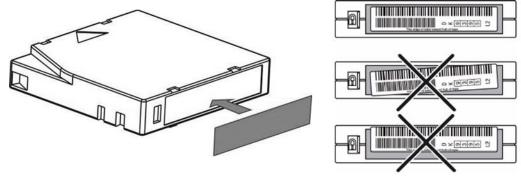
Your host software may need to keep track of the following information via the associated bar code:

- Date of format or initialization
- Tape's media pool
- Data residing on the tape
- Age of the backup
- Errors encountered while using the tape (to determine if the tape is faulty)

#### IMPORTANT

Misusing and misunderstanding bar code 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:



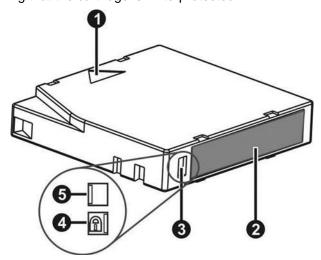
**IMPORTANT** 

The bar code label should only be applied as shown, with the alphanumeric portion facing the hub side of the tape cartridge. 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.

- Slide the switch to the left to allow the device to write data to the cartridge.
- Slide the switch to the right to write-protect the cartridge. An indicator, such as a red mark or small padlock, is visible showing that the cartridge is write-protected.



1	Insertion Arrow
2	Barcode Label
3	Write-Protect Switch
4	Write-Protected
5	Write-Enabled

## **Initial Setup of the Library**

The library provides two main interfaces:

- Operator Control Panel (OCP) With the OCP, you can monitor, configure, and control the library from the front panel.
- Remote Management Interface (RMI) With the RMI, you can monitor, configure, and control the library from a web browser. The RMI hosts a dedicated, protected Internet site that displays a graphical representation of the library.

#### Status Icons

$\checkmark$	The green Status OK icon indicates that the library is fully operational and that no user interaction is required	
<u> </u>	The blue exclamation point Status Warning icon indicates that user attention is necessary, but that the device can still perform most operations.	
8	The red X Status Error icon indicates that user intervention is required and that the device is not capable of performing some operations.	

## **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, Back).

#### Front Panel LED Indicators

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.

When possible, it is recommended that the RMI be used as the primary library interface because the web interface provides access to additional features, includes online help, and is easier to use. However, the RMI is not required to use the product, except to configure advanced features, such as SNMP, IPv6, encryption, and partitions.

Before using the RMI, you must configure the library network settings with the OCP. This can be done with the Initial Configuration Wizard. See "**Using the Initial Configuration Wizard**".

To start the RMI, open the latest version of a supported HTML browser and enter the IP address of the library in the browser's address bar. Supported browsers include Internet Explorer, 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.

## **Logging into the Library**

To login to the library on the OCP:

- 1. If the OCP screen saver is on, press the Enter button to get to the login page.
- 2. Select the User.
- 3. If required, enter the **PIN**. Leave the **PIN** blank unless the user PIN has been set in the Initial System Setup wizard
- 4. Navigate to the **Login** button and press the **Enter** button.

To login to the library on the RMI:

- 1. Open a supported web browser and enter the IP address of the library in the browser's address bar.
- 2. Select the **User**.
- 3. If required, enter the Password.
- 4. Click Login.



The user levels are:

- User No password is required (leave the **Password** blank unless the user password has been set in the Configuration > Configure User Accounts page).
- The user account provides access to status information, but not configuration, maintenance or operation functions.
- Administrator The administrator password is required to login as the administrator. There is a default
  administrator password adm001 for the first login. The administrator password can be changed in the
  Configuration > Configure User Accounts page
- The administrator user has access to all functionality except for the log configuration, Security and Service features.
- Security The security password is set at the factory to "**sec001**". The security password can be changed in the Configuration > Configure User Accounts page
- The security user has access to all functionality expect the log configuration and Service.
- Service Access to this user is by Service personnel only. The service password is set at the
  factory. Both the administrator and service passwords are required for a service person to enter the
  service area.

## **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 "adm001". To set

your own password go to the page Configuration > User Accounts on the RMI.

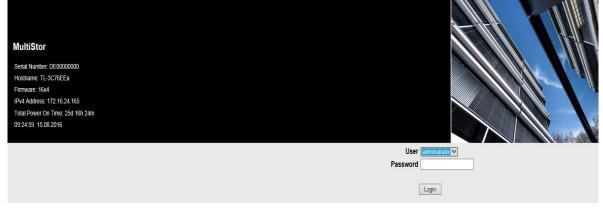


Table 2: Default Settings

Parameter	Default Setting	Reset to Default?
User Accounts		
"User" User	User = user PW = null	NOT reset
Administrator login	User= administrator PW = adm001	NOT reset
Service Login (requires admin pwd in addition to service pwd)	User = service PW = ser001	NOT reset
Security Login	User = security PW = sec001	NOT reset
LDAP Configuration	Disabled	NOT reset
Network configuration (ethO)		
Host name	Blank	NOT reset
IP Address	(dhcp)	NOT reset
Subnet Mask	(dhcp)	NOT reset
Default Gateway	(dhcp)	NOT reset
Auto Negotiate	Enable	NOT reset
Speed	Auto	NOT reset
IPV4	Enabled	NOT reset
DHCPv4	Enabled	NOT Reset
IPV6	Disabled	NOT reset
IPv6 Prefix	Enabled	NOT reset
Static V6	Disabled	NOT reset
IPv6Method	Disabled	NOT reset
DHCPv6	Disabled	NOT reset
DNS1 and DNS2 Configuration for Ipv4	(dhcp)	NOT reset
DNS1 and DNS2 Configuration for IPv6	Disabled	NOT reset
Network Access Services		
Primary Network Interface (ethO)	Enabled	NOT reset
SSH	Disabled	NOT reset
HTTPS	Disabled	NOT reset
Self Signed SSL Certificate	no file	NOT reset
Internal IP (eth1)	10.144.4.0/254	NOT reset
Secondary network (fallback)	Definable from range	NOT reset

Default controller IP	10.144.4.1	NOT reset
Magazines & Mailslots (I/O Station)		
Mailslots	Disabled	Yes
Magazines/Mailslots Allow user "User" access	Disbaled	Yes
Partitions	Disabled (one underlying partition)	All deleted leaving a single partition
NTP/SNTP Setting	Disabled	NOT reset
Date	Blank or existing	NOT reset
Time	Blank or existing	NOT reset
Time Zone	GMT	NOT reset
E-mail Notifications (SMTP)	Disabled	Yes
SNMP		
SNMP v1, v2, v3	Disabled	Yes
Licensed Features (need license for enablement)		
Encryption KMIP	Disabled	NOT reset
OCP Screen Preferences		
Screen Saver	Default image	Yes
Activation	10 minutes	Yes
Image	Customer specified	Yes
SCSI Defaults		
Product Name - Marketing Name		Yes
Library Product ID - INQUIRY Product ID String	Kodiak 3407	Yes
Library Vendor ID - INQUIRY Vendor ID String	BDT	Yes
SCSI element addressing	Starting element addresses in decimal:  Slot = 1001  Drives = 1  I/E Elements = 101  Values in hex are:  Slot = 0x3E9  Drives = 0x1  I/E Elements = 0x65	Yes

Miscellaneous settings		
Barcode format returned to host	Align left	Yes
Barcode length returned to host	8 left most characters	Yes
Language settings	English	NOT reset
Auto Clean	Disabled	Yes
Media Barcode Compatibility Check	Enabled	Yes
RMI Timeout	30 minutes	Yes
RMI Restricted Login	Disabled	Yes
DRIVE Defaults		
Drive speed and topology settings	Automatic/Automatic	Yes
Odometer	Enabled	NOT reset

## **Get help**

The actiLib Kodiak 3407 Tape Library User and Service Guide will give you more details about • how to install, configure and use your Tape libraray

- to Specifications of your interest

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