

Sun StorageTek™ SL24 Tape Autoloader

Getting started

IMPORTANT:

Shipping Lock: **The shipping lock must be removed for the robotics to work properly.** A robot move error is displayed if the shipping lock is not removed. See Step 1, Removing and storing the shipping lock.

WARNING!

The Sun StorageTek™ SL24 Tape Autoloader weighs 15.6 kg (34.3 lb) without media and 20.4 kg (44.9 lb) with media (24 cartridges). When moving the Autoloader, to reduce the risk of personal injury or damage to the device:

- Observe local health and safety requirements and guidelines for manual material handling.
 - Remove all tapes to reduce the overall weight of the device.
 - Obtain adequate assistance to lift and stabilize the device during installation or removal.
-

WARNING!

When placing the Autoloader into a rack, to reduce the risk of personal injury or damage to equipment:

- Extend the rack's leveling jacks to the floor.
 - Ensure that the full weight of the rack rests on the leveling jacks.
 - Install stabilizing feet on the rack.
 - Extend only one rack component at a time. Racks may become unstable if more than one component is extended.
-

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Fourth edition: October 2008

The information in this document is subject to change without notice.

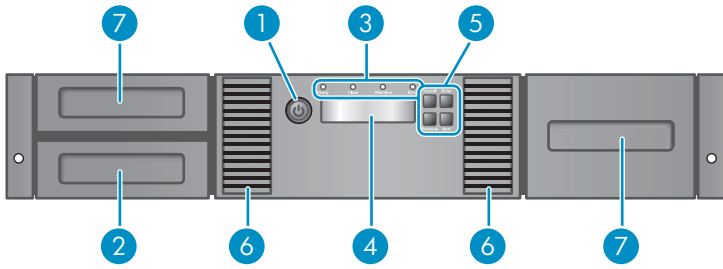
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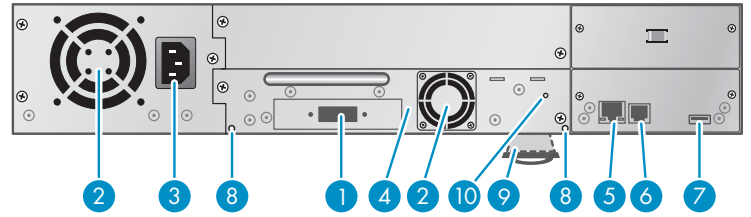
Front panel overview



11341

1. Power button
2. Mailslot
3. LEDs
4. LCD screen
5. Control keys
6. Air vents
7. Magazines

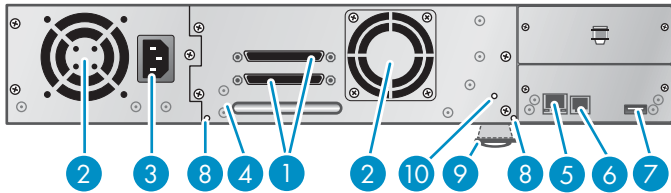
Back panel overview: SAS



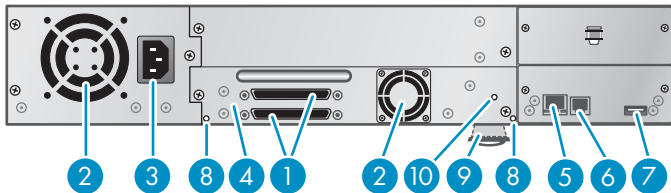
11672

1. SAS connector
2. Fan
3. Power connector
4. Tape drive
5. Ethernet port
6. Serial port (Factory use only)
7. USB port
8. Magazine release hole
9. Pull-out tab containing product information
10. Tape drive LED

Back panel overview: parallel SCSI



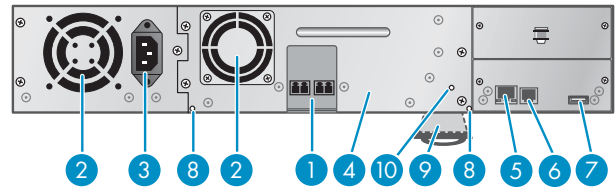
11360



11361

1. Parallel SCSI connector
2. Fan
3. Power connector
4. Tape drive
5. Ethernet port
6. Serial port (Factory use only)
7. USB port
8. Magazine release hole
9. Pull-out tab containing product information
10. Tape drive LED

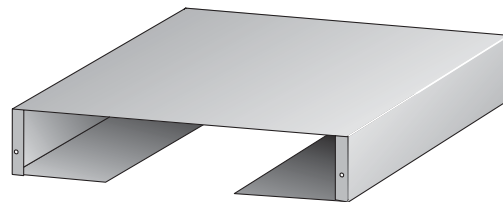
Back panel overview: Fibre Channel



11362

1. Fibre Channel ports
2. Fan
3. Power connector
4. Tape drive
5. Ethernet port
6. Serial port (Factory use only)
7. USB port
8. Magazine release hole
9. Pull-out tab containing product information
10. Tape drive LED

Optional: Tabletop conversion cover



11359

CAUTION:

Operating the Autoloader on a flat surface without the tabletop conversion cover may cause errors or damage to the Autoloader.

The Autoloader can either be installed into a rack with the enclosed rails or installed into the optional tabletop conversion cover and set on a flat surface.

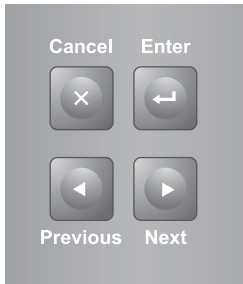
Using the operator control panel (OCP)

The OCP has a power button, four LEDs, four control keys, and a 2-line by 16-character LCD screen. With the OCP, you can monitor, configure, and operate most Autoloader functions from the Autoloader front panel.

See Page 12 for the OCP menu tree.

Control keys

The OCP displays a menu that lets you access information and execute commands using the four control keys.



10763

Cancel — Cancels the current menu option, returns to the previous menu level, or returns to the Home screen.

Enter — Executes the current menu or selects the current option displayed on the LCD screen.

Previous — Selects the previous item or value in the currently displayed menu.

Next — Selects the next item or value in the currently displayed menu.

LED indicators

The OCP has four LEDs that provide a variety of information.

Ready — Green when power is on, blinking with tape drive or Autoloader robotics activity.

Clean — Amber when a cleaning cartridge should be used.

Attention — Amber if the Autoloader has detected a condition that requires attention.

Error — Amber if an unrecoverable tape drive or Autoloader error occurs. A corresponding error message displays on the LCD screen.

Using the remote management interface (RMI)

With the RMI, you can monitor, configure, and operate most Autoloader functions from a web browser.

Sun recommends that, when possible, the RMI be used as the primary Autoloader 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 SNMP, IPv6, and logical libraries. The only tasks you cannot do from the RMI are:

- Opening the mailslot.
- Initiating the Wellness test.
- Saving and restoring files and downloading firmware via a USB flash drive.

To enable the Autoloader's RMI, follow the instructions in this installation process to:

- Connect the Autoloader to your local area network with an Ethernet cable (Step 9).
- Configure the network (Step 10).
- Set the Administrator password using the OCP (Step 12).

Logging in

Using the OCP, find the Autoloader's IP address from the **Info > Network** screen. Open any HTML web browser and enter the Autoloader's IP address. Select the account type. For the administrator account, you must also enter the administrator password. Click **Sign In**.



Once signed in, click **Help** in the upper right-hand corner for more information about the fields and information in the RMI.

NOTE:

The Autoloader is shipped without an administrator password. You must set the administrator password with the OCP before you can use the RMI's administrator functions. Once the administrator password is set, you can access the RMI by providing the administrator password on the login screen.

Status icons



The green **Status OK** icon indicates that the Autoloader is fully operational and that no user interaction is required.



The blue exclamation point **Status Warning** icon indicates that user attention is necessary, but that the device can still perform most operations.

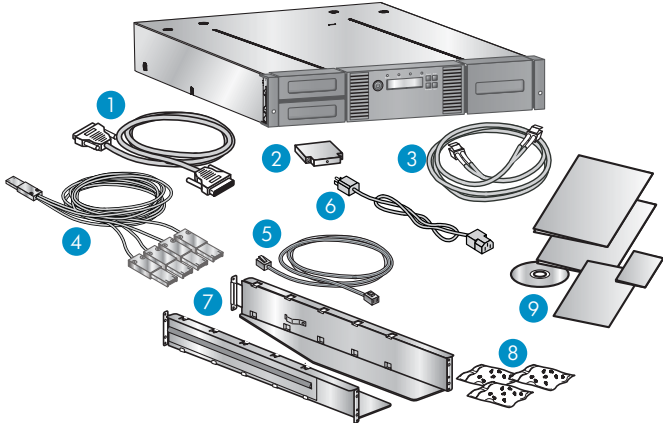


The red X **Status Error** icon indicates that user intervention is required and that the device is not capable of performing some operations.

Unpacking the Autoloader

Remove the packaging, accessories, and Autoloader from the box one layer at a time. Place the Autoloader on a level work surface. Carefully remove the foam padding and then the bag from the Autoloader. Save the packaging materials to move or ship the Autoloader in the future.

Identifying product components

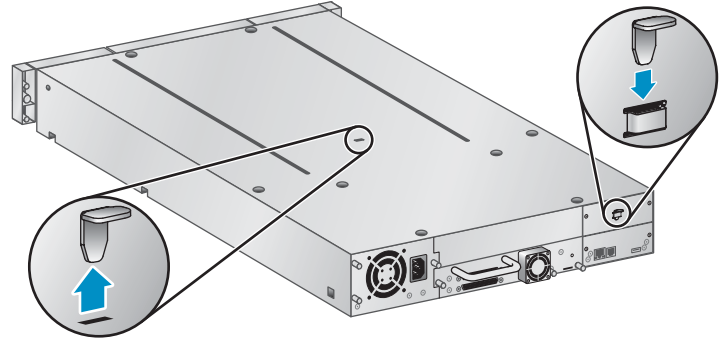


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Confirm that you received the following product components:

1. Parallel SCSI cable (parallel SCSI Autoloaders — ordered separately)
2. U320 parallel SCSI terminator (one per parallel SCSI drive)
3. Fibre Channel cable (Fibre Channel Autoloaders — ordered separately)
4. SAS fanout cable (SAS Autoloaders)
5. Ethernet cable (ordered separately)
6. Power cord (ordered separately)
7. Two rack rails
8. Three packets of rack hardware
9. Product documentation

1 Removing and storing the shipping lock



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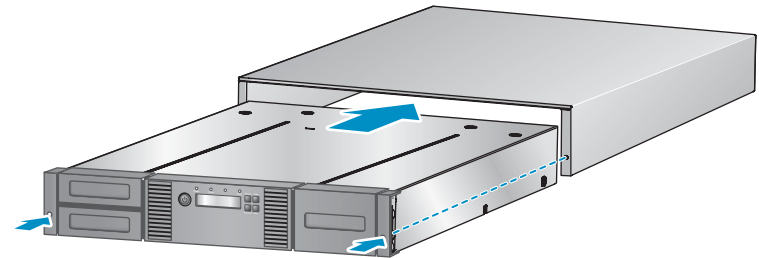
IMPORTANT:

Shipping lock: **The shipping lock must be removed for the robotics to work properly.** A robot move error is displayed if the shipping lock is not removed.

The shipping lock prevents the robotic transport mechanism from moving during shipment and must be removed and stored before powering on the Autoloader.

Locate the adhesive tape holding the storage lock at the top of the Autoloader. Remove the adhesive tape, then remove the storage lock and store it as shown.

Optional: Installing the tabletop conversion cover



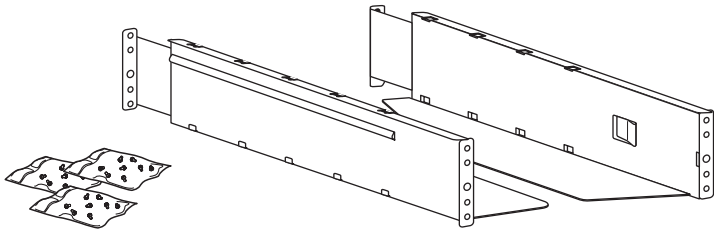
11349

Skip this step if you are mounting the Autoloader in a rack.

Place the cover on the work surface behind the Autoloader. Slide the Autoloader into the cover until the front panel of the Autoloader is aligned with the cover.

Tighten the two captive screws on the front bezel to secure the Autoloader in the cover.

2 Determining your rack type



11420

You will need a #2 Phillips screwdriver, a small flat screwdriver, the two rack rails, and the hardware packets for your rack.

Racks having vertical mounting rails with 10–32 threaded holes in the rack column (Sun StorEdge Expansion Cabinet).

- You will need the **Standard rack hardware** packet and the packet of alignment pins marked **10–32 threaded-hole rack**.

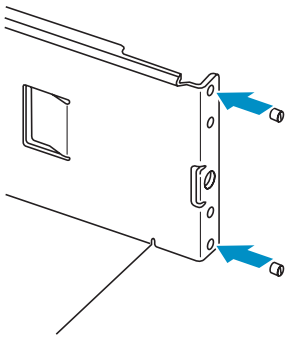
Racks having M6 threaded holes in the rack column (Sun Rack 900 and 1000).

- You will need the **Standard rack hardware** packet.

Racks having 9.5 mm square holes in the rack column (Sun StorageTek Rack).

- You will need the **Standard rack hardware** packet and the packet of alignment pins and clip nuts marked **9.5 mm square-hole rack**.

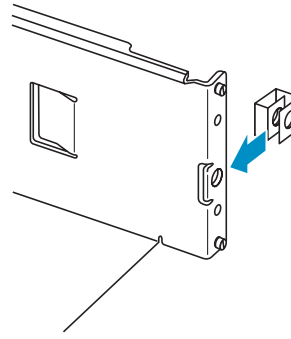
Customizing the rails for 10–32 threaded-hole racks



11421

Using a flat screwdriver, replace the two alignment pins on the front and back of each rail with the pins from the **10–32 threaded-hole rack** packet.

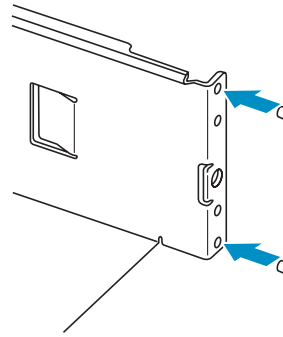
Customizing the rails for M6 threaded-hole racks



11422

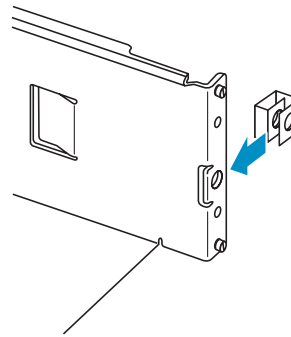
Insert a clip nut from the **Standard rack hardware** packet onto the back of the large hole on the front of each rail.

Customizing the rails for 9.5 mm square-hole racks



11421

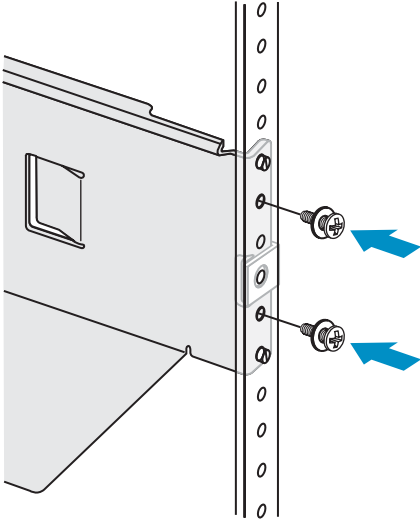
Using a flat screwdriver, replace the two alignment pins on the front and back of each rail with the pins from the **9.5 mm threaded-hole rack** packet.



11422

Insert a clip nut from the **Standard rack hardware** packet onto the back of the large hole on the front of each rail.

3 Securing the rails to the rack

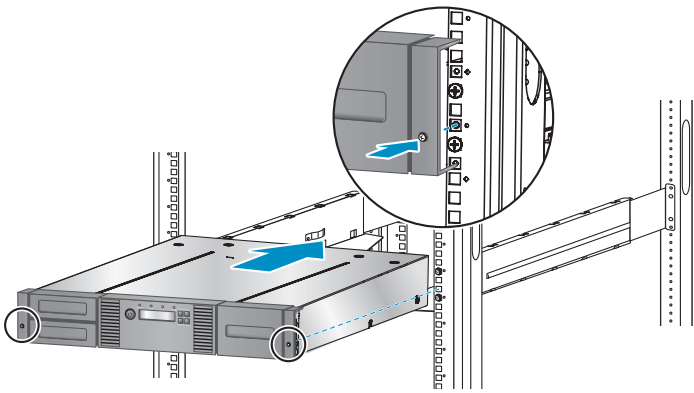


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Using two screws and flat washers from the **Standard rack hardware** packet, secure the front of one rail to the front of the rack. Extend the rail and secure the back of the rail to the rack using two screws and flat washers.

Secure the other rail in a similar fashion.

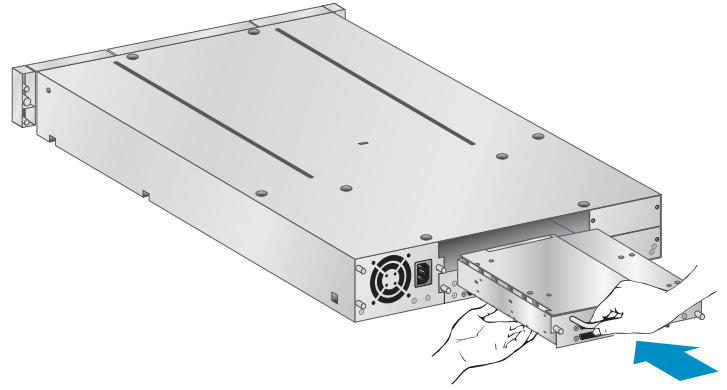
4 Installing the Autoloader



11404

Slide the Autoloader onto the rails. Secure the front bezel to the rack using a #2 Phillips screwdriver placed through the small holes in the mounting bracket to tighten the captive screws on each side of the Autoloader.

Optional: Adding a tape drive

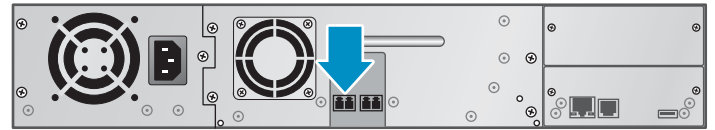


10807

With a tape drive upgrade kit, the Autoloader can hold up to two half-height LTO tape drives.

Remove the drive bay cover with a Phillips screwdriver. Slide the tape drive into the bay until it is firmly seated. Tighten the blue thumbscrews with your fingers until the tape drive is secure.

5a Planning the Fibre Channel configuration



11418

The Fibre Channel tape drive has two Fibre Channel ports. Only one port may be used at a time, but both ports can be connected for path failover if your application supports path failover.

Direct connection

You will need a 2 Gb or 4 Gb Fibre Channel HBA. A 4 Gb HBA is recommended for LTO-4 tape drives for optimum performance.

SAN connection

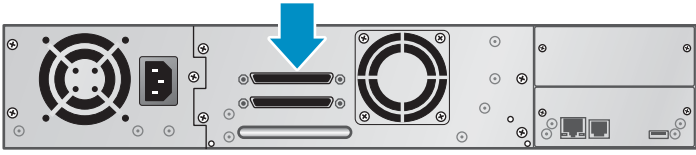
All switches between the host and the Autoloader must be of the appropriate type. A 2 Gb switch in the path may result in performance degradation when backing up highly compressible data to a 4 Gb tape drive.

Configure zoning on the Fibre switch so only the backup servers can access the Autoloader.

NOTE:

See Step 13 for additional Fibre Channel configuration information. See the *Sun StorageTek™ SL24 Tape Autoloader and SL48 Tape Library User and service guide* on the documentation CD for instructions on changing the Fibre Channel configuration.

5b Planning the parallel SCSI configuration



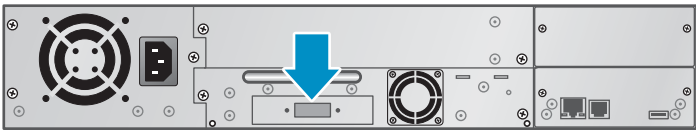
11414

If you are unfamiliar with configuring parallel SCSI devices, read the parallel SCSI configuration information in the *Sun StorageTek™ SL24 Tape Autoloader and SL48 Tape Library User and service guide* on the documentation CD.

Follow these general guidelines when planning the parallel SCSI configuration:

- The LTO-3 and LTO-4 tape drives are Ultra320 parallel SCSI devices. Only put one LTO-3 or LTO-4 tape drive on an Ultra320 bus. Putting an LTO-3 or LTO-4 tape drive on a lower performance bus may degrade its performance. Do not connect an LTO tape drive to an SE SCSI bus because it will seriously degrade performance.
- The LTO-2 tape drive is an Ultra160 parallel SCSI device. Up to two LTO-2 tape drives can share an Ultra320 bus or each tape drive can be on its own Ultra160 bus.
- Avoid putting the Autoloader on the same SCSI bus as a disk drive or SE device.
- The default SCSI ID of the bottom half-height or full-height tape drive is 4. The default SCSI ID of the top half-height tape drive is 5.

5c Planning the SAS configuration



11416

The server must have a SAS HBA with an external connector. Most SAS RAID controllers do not support Tape Autoloaders.

WARNING!

Do not connect the Autoloader to a SAS RAID controller unless the controller is qualified with the Autoloader. The server might not be able to boot when the Autoloader is connected to a non-supported SAS RAID controller.

6 Changing the SCSI ID

On a parallel SCSI Autoloader, if you need to change the SCSI ID for one or both of the tape drives, do so before connecting the Autoloader to the host computer.

1. Attach the power cord to the Autoloader.
2. Power on the Autoloader by pressing the power button on the front panel.
3. On the front panel, press **Enter**.
4. Press **Next** until the display shows Configuration. Press **Enter**.
5. Press **Next** until the display shows Change Drive 1 or Change Drive 2. Press **Enter** to select the tape drive that needs a new SCSI ID.
6. Press **Next** until the display shows the new SCSI ID. Press **Enter**.
7. Change the SCSI ID of the other tape drive if necessary.

TIP:

The SCSI ID can also be changed from the RMI **Configure: Drive** screen once the RMI is configured.

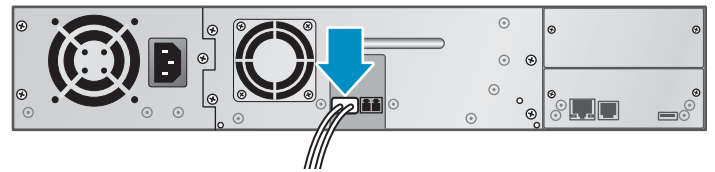
7 Preparing the host

If necessary, install software, a host bus adapter (HBA), and compatible drivers in the host computer.

For parallel SCSI and SAS Autoloaders, ensure that your HBA supports multiple LUNs. For parallel SCSI devices, verify that multiple LUN support is enabled for the HBA and operating system.

Sun recommends that the host server be powered off before attaching new devices.

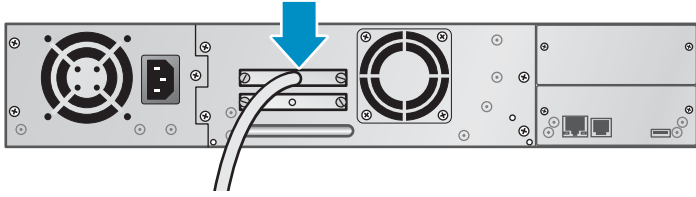
8a Connecting the Autoloader: Fibre Channel



11419

Remove the FC port dust cap from Port A. Attach one end of the FC cable to Port A on the tape drive. Attach the other end of the FC cable to a switch or HBA.

8b Connecting the Autoloader: parallel SCSI



11415

NOTE:

A parallel SCSI LTO-3 or LTO-4 tape drive should be the only device on the bus. A maximum of two LTO-2 tape drives can be on a single Ultra320 bus.

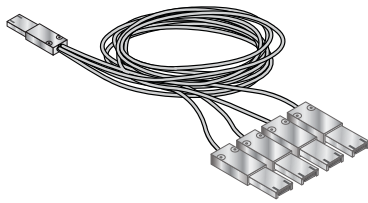
Attach one end of the parallel SCSI cable to one of the connectors on the tape drive. Attach the other end of the cable to the host bus adapter (HBA) or to the connector on the previous device on the SCSI bus.

Attach a terminator to the remaining SCSI connector on the tape drive.

Connect the second tape drive, if applicable.

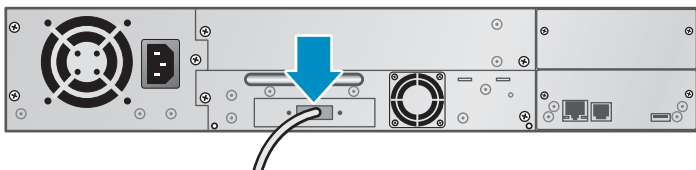
8c Connecting the Autoloader: SAS

The SAS cable supplied with the Autoloader has a mini-SAS connector on the HBA end and four mini-SAS connectors on the tape drive end. This cable can be used to connect up to four tape drives to a SAS HBA. Any of the four connectors can be used for any tape drive.



11622

SAS signal rates require clean connections with a minimum number of connections between the HBA and the Autoloader. Do not use adapters or converters between the HBA and the Autoloader. Sun recommends a maximum SAS cable length of six meters.

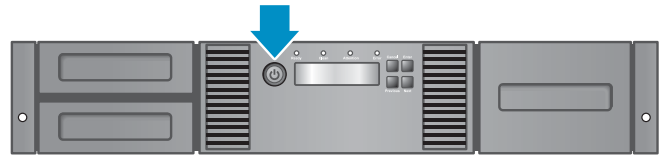


11417

Attach the HBA end of the cable to the SAS HBA. Attach a connector to each tape drive.

The unused ends are single channel and not suitable for use with most disk arrays. Use the other ends to connect tape drives, or coil and secure them to the rack to minimize stress on the connectors.

9 Powering on the Autoloader



11366

To use the web-based management interface, plug one end of the Ethernet cable into the Ethernet port on the back of the Autoloader. Plug the other end of the cable into an Ethernet LAN port.

Plug the power cable into the Autoloader and the power outlet.

Power on the Autoloader using the power button located on the front panel. Check the LCD screen to make sure the Autoloader is receiving power.

Power on the host server and all devices you powered off earlier.

10 Configuring the network

Configuring the network enables you to monitor, configure, and control Autoloader functions from the remote management interface (RMI). By default, the Autoloader will request an IP address from a DHCP server. You can configure the Autoloader to use a static IP address. Once the Autoloader has an IP address, you can change the network configuration from the OCP or RMI.

The Autoloader supports IPv4 and IPv6. By default, the Autoloader is configured to use IPv4, the most common current version. You can enable IPv6 or both Internet Protocols from the OCP or RMI, and then finish configuring IPv6 from the RMI.

NOTE:

To use the Web-based remote management interface, you must also set the administrator password.

To find the IP address obtained via DHCP:

1. From the Home screen, press **Next** until the display shows Status/Information. Press **Enter**.
2. Press **Next** until the display shows Network Information. Press **Enter**.
3. The display shows IPv4 Network Enabled. Press **Enter**.
4. Press **Next** until the display shows the IP address.
5. Press **Cancel** until the display shows the home screen.

To set the IPv4 IP address or enable IPv6:

1. From the Home screen, press **Next** until the display shows Configuration. Press **Enter**.
2. Press **Next** until the display shows Configure Network Settings. Press **Enter**.
3. The display shows IPv4 Network Enabled. To change the setting, press **Enter**. Press **Next** until the display shows the desired setting. Press **Enter** to accept the new setting.
4. Press **Next** until the display shows IPv6 Networking. To enable IPv6 networking, press **Enter**. The display shows IPv6 Network Disabled. To change the setting, press **Enter**. Press **Next** until the display shows the desired setting. Press **Enter** to accept the new setting.

If IPv4 networking is enabled, you can continue configuring the IPv4 network settings from the OCP:

1. From the Home screen, press **Next** until the display shows Configuration. Press **Enter**.
2. Press **Next** until the display shows Configure Network Settings. Press **Enter**.
3. Press **Next** until the display shows IPv4 Networking. Press **Enter**.
4. Press **Next** until the display shows DHCP (IPv4) Enabled. To change the setting, press **Enter**. Press **Next** until the screen displays the desired setting. Press **Enter** to accept the new setting.
5. If DHCPv4 is disabled, press **Next** to display the IP address. To change the IP address, press **Enter**. Set the new IP address with the **Next** and **Enter** keys.
6. Press **Next** to display the subnet mask. To change the subnet mask, press **Enter**. Set the new subnet mask with the **Next** and **Enter** keys.
7. Press **Next** to display the gateway address. To change the gateway address, press **Enter**. Set the new subnet address with the **Next** and **Enter** keys.

If you enabled IPv6, you must continue configuring IPv6 from the RMI after setting the administrator password in Step 12. You can find the IPv6 IP address obtained by the Autoloader from the OCP Information/Status > Network Information menu item. See the *Sun StorageTek SL24 Tape Autoloader and SL48 Tape Library User and Service Guide* included in the product documentation for additional information on configuring IPv6.

11 Setting the date and time

This option sets the date and time used by the Autoloader to record events and should be set during the initial installation process. You can also set the date and time from the RMI **Configure: System** screen.

Access to this feature requires the administrator password, if set.

To set the date and time from the OCP:

1. From the Home screen, press **Next** until the display shows Autoloader Date/Time. Press **Enter**.
2. Enter the administrator password, if requested.
3. A number in the year will flash. Click **Next** until the correct number is displayed. Click **Enter** to accept the number. Repeat for each number in the date and time.
4. Press **Cancel** until the display shows the home screen.

NOTE:

When setting the hours, the time is based on a 24-hour clock. There is no a.m. or p.m. designation. For example, 1:00 p.m. is 13:00.

NOTE:

The Autoloader time does not adjust itself for daylight saving time; you must adjust the time through the front panel or web-based management interface.

12 Setting the administrator password

Setting an administrator password provides access to the administrator functions with the remote management interface (RMI) to only those people who know the administrator password. The administrator password must be exactly eight digits consisting of the numbers 0 through 9.

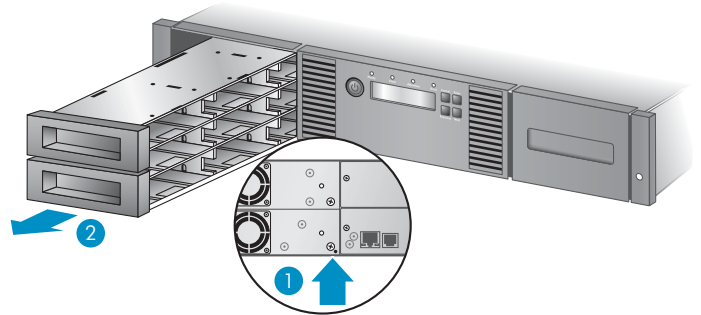
To set the administrator password:

1. On the front panel, press **Enter**.
2. Press **Next** until the display shows Configuration. Press **Enter**.
3. Press **Enter** to change the administrator password.
4. The first number will flash. Press **Next** until the first number for the new password is displayed. Press **Enter** to accept the number. The next number flashes. Repeat for each number in the password.
5. Press **Cancel** twice to move to the top of the menu.

13 Configuring the Fibre Channel ports

Sun recommends leaving the Fibre Channel ports at the default settings of **Port Speed: Automatic** and **Port Type: Auto Detect**. With these settings, the tape drive will choose the appropriate configuration. See the *Sun StorageTek™ SL24 Tape Autoloader and SL48 Tape Library User and service guide* on the documentation CD for instructions on changing the Fibre Channel configuration.

Magazine release



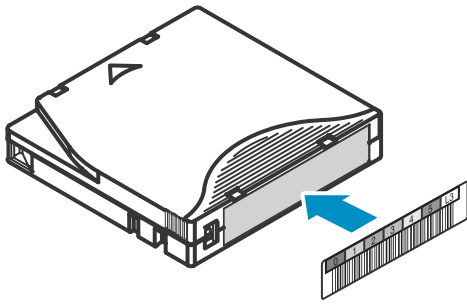
11342

When possible, release the magazines from the control panel or web-based interface. If you must remove the magazines from both sides of the Autoloader at the same time or when the Autoloader is not powered on: 1) insert a straightened paper clip or small pin about 1.5 cm (0.6 inch) into the magazine release hole, while 2) another person pulls out the magazine from that side.

IMPORTANT:

Do not force the pin once you encounter resistance. Doing so can damage the Autoloader.

14 Labeling tape cartridges

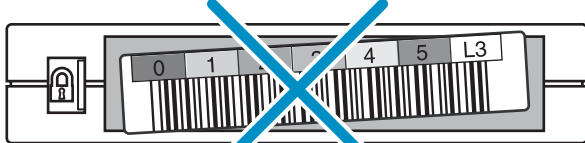
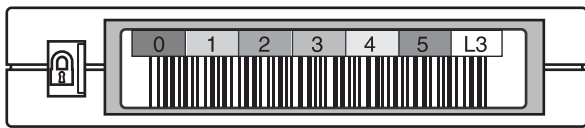


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Attaching a bar code label to each tape cartridge enables the Autoloader and application software to identify the cartridge quickly, thereby speeding up inventory time. Make it a practice to use bar code labels on your tape cartridges.

IMPORTANT:

The misuse and misunderstanding of bar code technology can result in backup and restore failures. To ensure that your bar codes meet Sun's quality standards, always purchase them from an approved supplier and never print bar code labels yourself.



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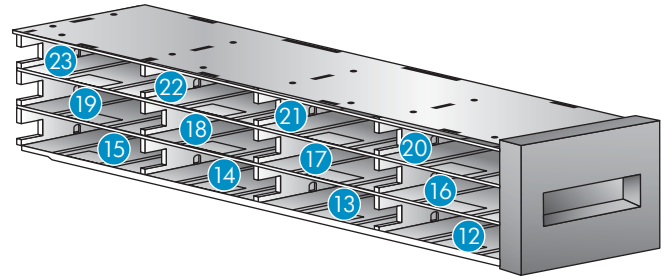
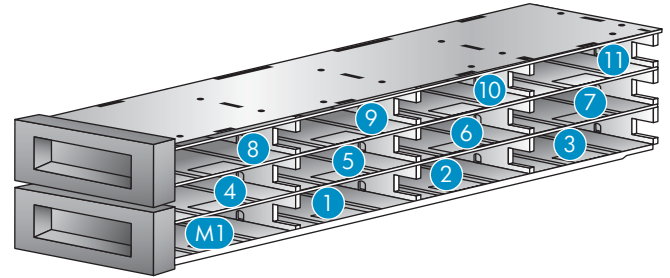
LTO tape cartridges have a recessed area located on the face of the cartridge next to the write-protect switch. Use this area for attaching the adhesive-backed bar code label. Only apply labels as designated.

15 Loading cartridges

Use the front panel **Operations > Unlock Left Magazine** option to release the left magazine. Pull the magazine straight out of the front of the Autoloader. You might be requested to provide the administrator password to access the magazines.

Insert the tape cartridges into the slots. By default, the slots are numbered 1 to 24, starting with the bottom front left slot.

To use the mailslot feature, leave the bottom slot in the front of the left magazine empty. The rest of the slot numbers are adjusted as shown.



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NOTE:

When the mailslot is disabled, the mailslot becomes slot 1 and all other slots are renumbered.

Replace the magazine in the Autoloader.

Repeat for the right magazine. The right magazine does not have a mailslot.

16 Verifying the installation

Verify that the Autoloader has the current firmware revision.

To find the firmware revision on the front panel:

1. From the Home screen, press **Next** until the display shows Status/Information. Press **Enter**.
2. Press **Next** until the display shows Autoloader Information. Press **Enter**.
3. Press **Next** until the display shows the Firmware Rev.
4. Press **Cancel** until the display shows the home screen.

To find the current firmware revision, visit the <http://sunsolve.sun.com> website.

After configuring the Autoloader, you can save the configuration database to a USB flash drive from the OCP or to a file from the RMI **Configuration > Save/Restore** screen. Having a backup of the Autoloader configuration is helpful when recovering from a configuration error, setting up multiple Autoloaders with similar configurations, or if the Autoloader needs service.

17 Configuring additional features

The Autoloader has many features to customize it for your organization. See the *Sun StorageTek™ SL24 Tape Autoloader and SL48 Tape Library User and Service Guide* on the documentation CD for more information about these features and instructions for their configuration.

- Partitioning an Autoloader with two tape drives into two logical libraries.
- Configuring IPv6 networking.
- Enabling and configuring SNMP network management.
- Naming the Autoloader.

Helpful websites

For other product information, see the following websites:

<http://sun.com>

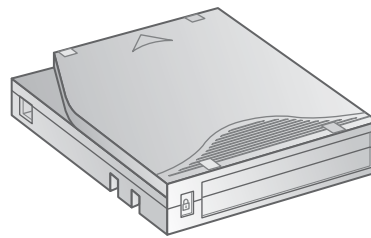
<http://sunsolve.sun.com>

<http://docs.sun.com/app/docs>

http://www.sun.com/storagetek/tape_storage

<http://www.sun.com/bigadmin/home/index.html>

Ordering media



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Use Sun storage media to prolong the life of the Autoloader and tape drives. To order data and cleaning cartridges please use the contact information below to locate the nearest Sun tape media reseller:
In the US contact 1-877-STK-Tape
In EAME contact 33 (0) 1 69 038341

Technical support

Call your local Sun Solution Center for warranty or contractual support. Contact numbers are at: <http://www.sun.com/service/contacting/>. Or, get self help at <http://sunsolve.sun.com>.

Related documentation

The *Sun StorageTek™ SL24 Tape Autoloader and SL48 Tape Library User and service guide* on the documentation CD includes additional information about installing, configuring, upgrading, and operating the Autoloader. English, Japanese, French, German, Spanish, Simplified Chinese, Korean, and Italian versions of the guide can be found on the Sun documentation website at: <http://docs.sun.com/app/docs>.

Operator control panel menu

