Kodak

Printing Workflow Solutions

Configuring an IBM Linear Tape Open (LTO) Tape Library

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1. SCOPE

This document describes the process of packing and unpacking, configuring, and testing the Qualstar® Tape Library Systems (TLS) and IBM® Linear Tape-Open (LTO™) drives for use in a Kodak® Prinergy® workflow system.

1.1 Prerequisites

This document assumes:

- You will connect the library to a Prinergy primary or secondary server.
- You are running Microsoft® Windows® 2000 or Windows Server® 2003 R2 with SP2 (or the latest qualified service pack) operating system.
- You are running Prinergy software version 3.0.3.1 or later.
- You have the IBM LTO3 Ultrium™ tape device driver, version 6.0.8.2 or a later Kodak-qualified version.
- You have the Adaptec® Ultra 320 LVD SCSI controller device driver, version 3.0.0.0 (or a later qualified version), for the Adaptec PCI-based dual channel AHA39320 Ultra 320 SCSI controller.

  Note: Drivers are available in the server image DVD that is shipped with the Prinergy server. You can also download them from TechPlanet at http://techplanet.creo.com/software_solutions/workflow_hardware/tape_drives_libraries/nav/index.htm.

The following items are required before you start:

- Available PCI-X slot. You will use it to install the Adaptec 39320 card that is supplied with the LTO tape device.
- Cross-head and flat-head screwdrivers
- Five blank LTO3 tapes with bar code labels (supplied with the LTO tape device)
- VHD68 to HD68 SCSI cable (16-4491) (supplied with the LTO tape device). You will use this cable to connect the Adaptec dual channel AHA39320 Ultra 320 SCSI controller to the LTO tape device.
- If a Qualstar library is to be logically partitioned (two hosts):
  - Two LVD SCSI ports per host. One port is connected to the medium changer bus, and the other to the drive bus. If there are not enough LVD SCSI ports, verify whether there is an available compatible slot and order the Adaptec AHA39320 Ultra 320 SCSI controller (609-00404).
  - Four external SCSI cables. Order additional SCSI cables as required—16-4491, VHD68 Male to HD68 Male, 6 ft for use with the AHA39320 SCSI controller.
  - Two LVD SCSI terminators (16-4501)
  - The RSMConfig utility (**RSMConfg.exe**), available in the Windows Resource Kit

1.2 References

- *Dell Server Hardware Setup* (72-3572A)
- *Dell Server 9G Hardware Setup* (709-00667A)
- *Qualstar TLS-8000 Library Installation and Operation Manual* (Qualstar 501450)
- *Qualstar Q-Link Addendum to the TLS Installation & Operation Manuals* (Q-Link features and configuration)
- *Qualstar TLS-8000 Technical Service Manual* (Qualstar 501090)
- *HP Server Hardware Setup* (709-00285A)
- *HP 5th Generation Server Hardware Setup* (709-00840A)

2. CONFIGURING THE PRINERGY SERVER

The low-voltage differential (LVD) SCSI interface is used in all tape libraries covered in this procedure.

Use a Dell/Adaptec dual-channel AHA39320 PCI SCSI controller (609-00404) to provide the appropriate SCSI interface. The AHA39320 controller requires a VHD68-HD68 SCSI cable (16-4491). The SCSI adapter and the cable are supplied with the tape device.

2.1 Installing Adaptec AHA39320 SCSI Controllers

Install the AHA39320 SCSI controller in the Dell server using the procedures in the appropriate hardware setup guide (see *References* on page 1).

2.2 Configuring SCSI Controller BIOS Settings

Configure the SCSI channels used for the tape devices.

1. Turn on the server. When the AHA39320 BIOS prompt appears, press CTRL+A.

   The Adaptec SCSI Select Utility appears.

2. For the SCSI channel used for the tape device, do the following:

   a. On the Main Menu screen, select **Configure/View Host Adapter Settings**.

   b. Press F6, and select **Yes** to reset the options to the defaults.

   c. If the library is logically partitioned (connected to more than one server), select **Advanced Configuration**.

      - Disable the Reset SCSI Bus at IC Initialization setting for the channel connected to the medium changer of a logically partitioned library.

        Note: Leave this setting enabled (the default) if the library is connected to only one server.

      - Press ESC.

   d. Select **SCSI Device configuration**.

   e. For all SCSI IDs, set **Send Start Unit Command** to **No**.

f. Press ESC twice, and click **Yes** to save the settings.

g. Quit the SCSI Select Utility.

3. CONFIGURING THE QUALSTAR TLS-84XX

The TLS 84xx that Kodak supplies is available in two versions: the TLS 8433 (33 slots) and the TLS 8466 (66 slots). The TLS 8433 can have two or four drives; the TLS 8466 has four drives. The TLS 8433 can be upgraded to 66 slots.

3.1 Unpacking

1. Check that the following items are included with the tape library unit. Put them aside—you will use them later.
    - One power cord
    - Two door keys
    - *Qualstar TLS-8000 Library Installation and Operation Manual*
    - Three or six magazines (TLS 8433 or TLS 8466, respectively)
    - Two stabilizer feet
    - One set of bar code tape labels
    - One SCSI LVD terminator
    - Four SCSI bridge cables (Qualstar 501087-01-9)
    - One VHD68 HD68 SCSI cable (Qualstar 738-0127-6)
    - Five LTO3 tapes
    - One LTO3 cleaning tape
2. Unpack the tape library unit. For instructions, see Section 2 of the *Qualstar TLS-8000 Library Installation and Operation Manual*.

Note: Keep all packing materials in case you need to repack the unit for shipping.

3. Read the product description in Section 3 of the *Qualstar TLS-8000 Library Installation and Operation Manual*. It explains how to identify the Qualstar product model-numbering scheme and the names of all the major assemblies that make up the library.
4. Install the library stabilizer feet. For instructions, see Section 5 of the *Qualstar TLS-8000 Library Installation and Operation Manual*.

3.2 Setup

3.2.1 Mounting the Tape Cartridge Magazines

Mount the tape cartridge magazines. For instructions, see Section 5 of the *Qualstar TLS-8000 Library Installation and Operation Manual*.

Depending on the model ordered, you may need to install up to six magazines.

3.2.2 Configuring the SCSI Bus

Note: For library logical partitioning, see Appendix A on page 19.

Configure the unit (with up to four LTO3 tape drives installed) into a single SCSI bus configuration by installing the four optional bridges. The bridges are Qualstar 501087-01-9, 1 ft, HD68-HD68 SCSI cable.

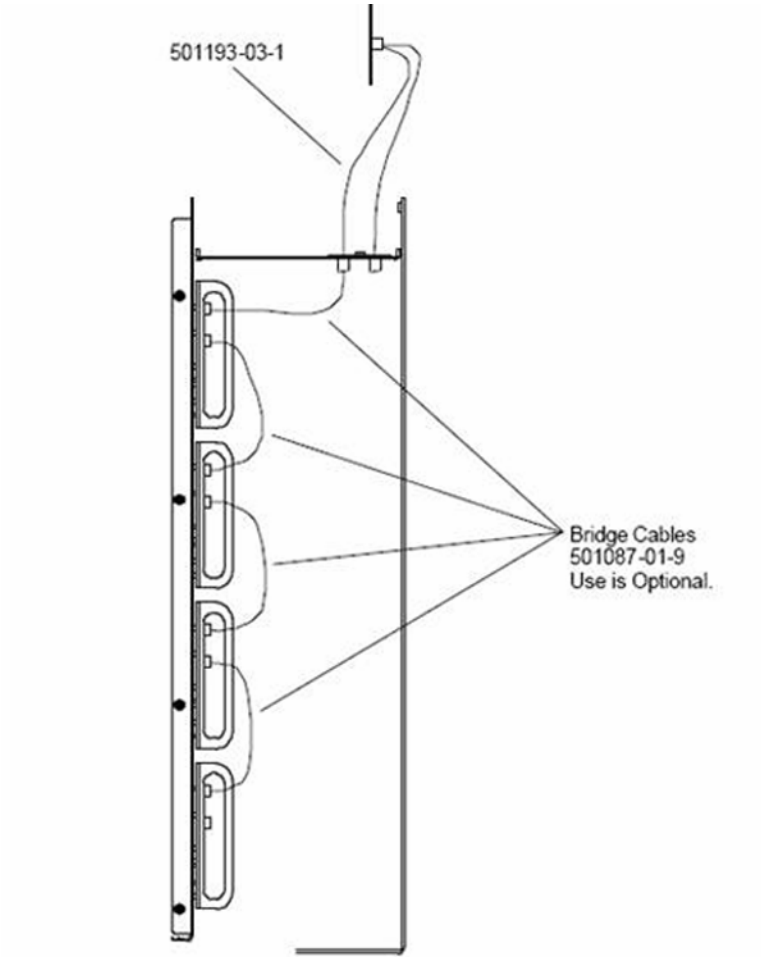


Figure 1: Installing the four optional bridges

The single SCSI bus configuration is installed in the library, including the tape changer (robotic tape carrier) at SCSI ID 0 and up to four LTO3 tape drives with SCSI IDs from 1 through 4. An Adaptec 7899 or 39160 can support up to two drives in the same bus. For libraries with more than two drives, an Adaptec 39320 SCSI controller should be used to ensure sufficient data bandwidth in the single SCSI bus.

3.3 Configuring Q-Link

1. Secure a static IP address from the customer. The IP address must be in the same LAN as the Prinergy system.

2. Connect the Qualstar Library Q-Link port to the network.

3. Configure Q-Link from the front panel of the library. Enter the static IP address and subnet mask.
4. Add the IP address of the Q-Link to the **hosts** file of the server that is hosting the library. This helps with troubleshooting.
5. Test the Q-Link web interface.

For more information, see the *Qualstar Q-Link Addendum to the TLS Installation & Operation Manuals* (see *References* on page 2).

3.4 Packing

Use the original packing materials when packing the library. For instructions, see the *Qualstar TLS-8000 Library Installation and Operation Manual*.

4. CONFIGURING THE QUALSTAR TLS-82XX

4.1 Unpacking

1. Check that the following items are included with the tape library unit. Put them aside—you will use them later.
    - One power cord
    - Two door keys
    - *Qualstar TLS-8000 Library Installation and Operation Manual*
    - One or two magazines (TLS 8211 or TLS 8222, respectively)
    - Two stabilizer feet
    - One set of bar code tape labels
    - One SCSI LVD terminator
    - Two SCSI bridge cables (Qualstar 501087-01-9)
    - One VHD68 HD68 SCSI cable (Qualstar 738-0127-6)
    - Five LTO3 tapes
    - One LTO3 cleaning tape
2. Unpack the tape library unit. For instructions, see Section 2 of the *Qualstar TLS-8000 Library Installation and Operation Manual*.

Note: Keep all packing materials in case you need to repack the unit for shipping.

3. Read the product description in Section 3 of the *Qualstar TLS-8000 Library Installation and Operation Manual*. It explains how to identify the Qualstar product model-numbering scheme and the names of all the major assemblies that make up the library.
4. Install the library stabilizer feet. For instructions, see Section 5 of the *Qualstar TLS-8000 Library Installation and Operation Manual*.

4.2 Setup

4.2.1 Mounting the Tape Cartridge Magazines

Mount the tape cartridge magazines. For instructions, see Section 5 of the *Qualstar TLS-8000 Library Installation and Operation Manual*.

Depending on the model ordered, you may need to install up to two magazines.

4.2.2 Configuring the SCSI Bus

Note: For library logical partitioning, see Appendix A on page 19.

Configure the unit (with one or two LTO3 tape drives installed) into a single SCSI bus configuration by installing the two optional bridges. The bridges are Qualstar 501087-01-9, 1 ft, HD68-HD68 SCSI cable.

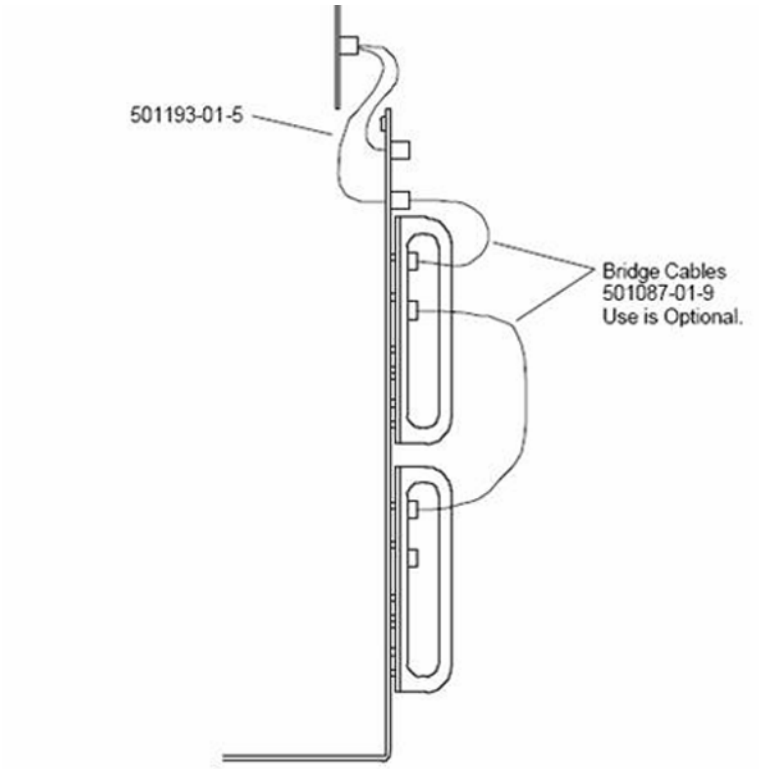


Figure 2: Installing the two optional bridges

The single SCSI bus configuration is installed in the library, including the tape changer (robotic tape carrier) at SCSI ID 0 and up to two LTO3 tape drives with SCSI IDs 1 and 2. An Adaptec 7899, 39160, or 39320 SCSI controller can be used with this library.

4.3 Configuring Q-Link

1. Secure a static IP address from the customer. The IP address must be in the same LAN as the Prinergy system.
2. Connect the Qualstar Library Q-Link port to the network.

3. Configure Q-Link from the front panel of the library. Enter the static IP address and subnet mask.
4. Add the IP address of the Q-Link to the **hosts** file of the server that is hosting the library. This helps with troubleshooting.
5. Test the Q-Link Web interface.

See the *Qualstar Q-Link Addendum to the TLS Installation & Operation Manuals* (see *References* on page 2).

4.4 Packing

Use the original packing materials when packing the library. For instructions, see the *Qualstar TLS-8000 Library Installation and Operation Manual*.

5. CONFIGURING THE STAND-ALONE LTO3 TAPE DRIVE

5.1 Unpacking

Check that the following items are included with the LTO3 tape drive. Put them aside—you will use them later.

- One power cord
- *LTO Tape Drive Installation and Operations Manual*
- One VHD68-HD68 SCSI cable (Qualstar 738-0127-6)
- One set of bar code tape labels
- Five LTO3 tapes
- One LTO3 cleaning tape

5.2 Setup

Follow the instructions in *Configuring Windows Tape Device Drivers* on page 10. Ensure that you follow proper SCSI bus termination and cabling procedures.

6. CONNECTING THE DEVICE, UPGRADING FIRMWARE, AND TESTING

This section describes procedures for configuring the Prinergy server Windows RSM Console to establish the interface between Windows applications (such as Windows 2000 Backup utility, and Prinergy Archiver) and the device (the tape drive or library). When these procedures are completed successfully, the tape drive or library unit is ready for normal operation.

6.1 Connecting the Tape Device to the Server

Important: Never connect external SCSI devices to the two VHD-68 SCSI ports (PCI slot 5) on the PE 6400 server. These ports are for the PERC 2/DC internal RAID controller.

The server and the tape device must be switched off when connecting or disconnecting the SCSI cables.

6.1.1 Connecting to the Server

1. Turn off the server and the tape device.
2. Connect the supplied VHD68-HD68 SCSI cable as follows:
   a. Connect the VHD68 end (very high-density male 68-pin) to an available SCSI port on the server.
   b. Connect the HD68 end to the stand-alone tape drive or to the tape library SCSI port.
3. Install the SCSI LVD terminator on the last SCSI port on the drive or library.

6.1.2 Starting the Device

1. Plug the power cord of the stand-alone drive or tape library into the wall power outlet.
2. Turn the unit on and wait for the drive/library to complete its initialization.
3. Start the server and check that the library's media changer and all tape drive devices are listed on the appropriate SCSI controller channel.

6.2 Upgrading the Qualstar Library Firmware (Tape Libraries Only)

Kodak has qualified Qualstar library firmware version 2.24b. This section describes procedures to verify the firmware version and upgrade it if necessary.

6.2.1 Verifying the Library Executive Board and Firmware Version

1. With the library running and fully initialized, on the LCD front panel, press MENU and select **Maintenance > Display Revision**.
2. Verify that the revision is firmware version 2.24b or later. If the firmware is not 2.24b or later, you must upgrade it.
3. If you are going to upgrade the firmware, record the part number of the existing firmware version (700115 or 700105). When you do the upgrade, you will use the firmware file name that matches the part number.
4. Press EXIT three times to close all the submenu screens.

6.2.2 Upgrading the Library Firmware

1. Download the compressed library firmware file from http://techplanet.creo.com/. The firmware update utility is included in this file.
2. Decompress the firmware file to the hard drive.
3. Verify the ID of the changer SCSI bus:
   a. From the **Settings** menu, select **Administrative Tools > Computer Management**. Disable and stop RSM.

b. Open a command-prompt window and change the directory to the location of the decompressed firmware files.

c. Type
`SCANSCSI *,*,*`

The output will be similar to:

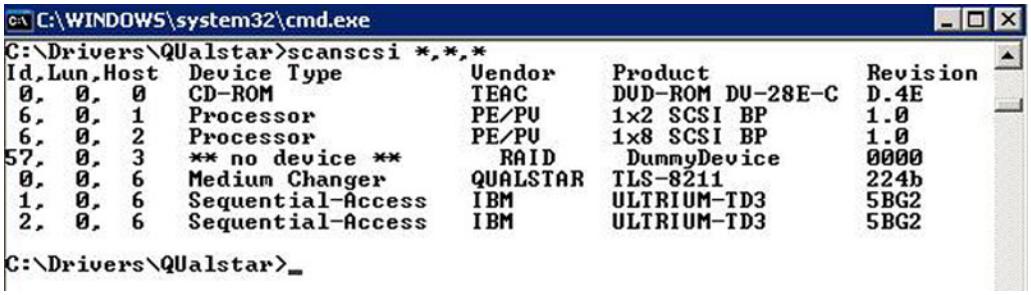


Figure 3: Locating the ID of the changer SCSI bus

d. Record the **ID**, **Lun**, **Host** data that is listed for **Medium Changer**.

For example, the system shown in Figure 3 has a Qualstar library with an ID, Lun, Host of 0, 0, 6.

4. Upload and install the new firmware.

a. Open a command-prompt window and change the directory to the location of the firmware files.

b. Type
`upload <ID,LUN,HOST> f:<firmware file name>`

For example: `upload 0,0,6 f:70115B.224`

Important: Ensure that power to the server and library is not interrupted during the upload or the library may not work.

Note: The device ID, LUN, Host data are different for different servers, depending on which SCSI controller the library is connected to. Do not use the IDs shown in the example. The file name of the firmware has the format 700115B.224, in which 700115 refers to the Executive Board type (IV in this case), and 224 refers to the firmware version (2.24).

c. When the update utility indicates that the upload is successful and the library is fully initialized, set the RSM service back to automatic.

d. Start the RSM service.

e. If the library changer driver was previously installed, restart the server. The operating system may redetect the library as a new one because of the firmware change. If this is the case, reinstall the library changer driver.

f. Resume normal system operations.

6.2.3 Configuring Windows Tape Device Drivers

Important: You must use the RSMConfig utility in the Windows Resource Kit to configure the RSM when the library's changer and tape drives are not on the same SCSI bus. For instructions, see *Using the RSMConfig Utility* on page 23.

When you start the server, Windows will automatically detect the tape and library devices. You must do the following steps:

- Update the device drivers for these devices.
- Update the LTO3 tape drive in Device Manager to the IBM LTO3 tape device driver, version 6.0.8.2 or a later Kodak-qualified version.

  The driver is available on the Prinergy W2K Resources CD, or from http://techplanet.creo.com/.

Note: When installing drivers for the library, it is very important to configure the tape drive before loading the device driver for the medium changer. Otherwise, RSM may detect a changer with no associated drives and auto-configuration will fail. You can use the RSMConfig utility to recover from a failed auto-configuration—see *Using the RSMConfig Utility* on page 23.

To update the tape device driver:

1. On the desktop, right-click **My Computer** and select **Manage**.
2. In the Computer Management window, in the left pane, click **Device Manager**.

   The IBM LTO3 tape drive device appears in the right pane under **? Other devices**. If a multiple tape drive library is installed, it appears multiple times.
3. Right-click the LTO3 device, and select **Properties**.
4. On the **Driver** tab, click **Update Driver**.
5. On the wizard screen, click **Next**.
6. Select **Display a list of known drivers for this device so that I can choose a specific driver**, and click **Next**.
7. In the Hardware Tape dialog box, select **Tape drives**, and click **Next**.
8. Select **Have Disk** and click **Browse**. Locate the device driver directory on the Prinergy W2K Resources CD (or the directory on the hard drive to which the driver has been copied). The device driver setup information is in the **MAGTAPE.INF** file.
9. Click **Open** and **OK**.
10. Select **IBM ULTRIUM III TAPE DRIVE**, and click **Next**.
11. If a warning prompt appears, click **Yes**.
12. Click **Next**, **Finish**, and then **Close** to complete the driver update.

    The LTO3 tape drive device is now listed as an IBM ULTRIUM-TD3 SCSI sequential.
13. Repeat this procedure for each device in the **? Other devices** list.

To update the Qualstar libraries changer device driver:

1. On the desktop, right-click **My Computer**, and select **Manage**.
2. In the Computer Management window, in the left pane, select **Medium Changer**. The tape library entry will appear as unknown medium changer.
3. Right-click **unknown medium changer**, and select **Properties**.
4. On the **Driver** tab, click **Update Driver**.
5. On the wizard screen, click **Next**.
6. Select **Display a list of known drivers for this device so that I can choose a specific driver**, and click **Next**.
7. In the manufacturers' list, select **Show all hardware**.
8. Select **Qualstar TLS and ADIC QLS Medium Changers**.
9. Click **Next**.

6.2.4 Creating the RSM Console

1. On the desktop, from the **Start** menu, select **Run**.
2. Type `MMC` and click **OK**.
3. In the Microsoft Management Console (MMC) dialog box, select **Console > Add/Remove Snap-in**.
4. Click **Add**.
5. In the **Snap-ins** list, select **Removable Storage Management**. Click **Add**.
6. Select **Local Computer**.
7. Click **Finish**, **Close**, and **OK**.

   The RSM snap-in is added to the base MMC console.
8. Save the newly created snap-in as **RSM.msc**.

6.2.5 Preparing the RSM Media

The Removable Storage (Local) tree should appear in the left pane of the RSM window.

1. Double-click **+** to expand the tree.

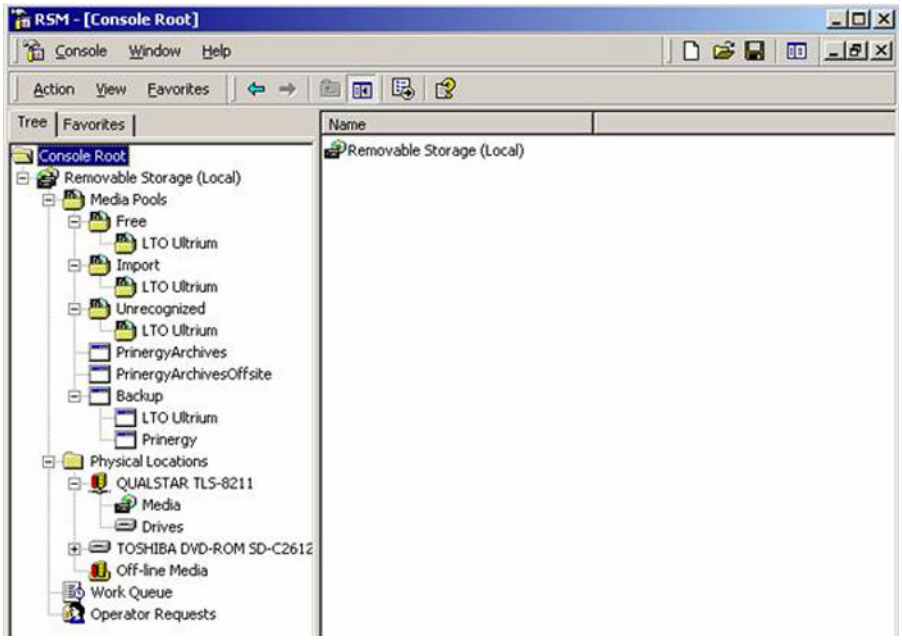


Figure 4: Removable storage tree expanded

The Media Pools branch includes three default media pools: **Free**, **Import**, and **Unrecognized**.

- The Backup and Prinergy Archiver software draw new media from the **Free** pool if there are no media in their unique pools, which are usually defined as **Backup** for the Backup utility and PrinergyArchives for Prinergy Archiver.
- When a new tape is dropped into the Free pool, the tape is automatically prepared to accept data from the software.

2. If there are allocated media in any unique pool, deallocate them before moving them to the Free pool for reuse.

   a. Right-click the media and select **All Tasks > De-allocate**.

   b. Click **Yes**.

      In the **State** column, when **Idle, Available** appears, the media has been de-allocated.

3. Drag the deallocated media to the **Free** pool to prepare them for reuse.

6.3 Testing Windows Backup

1. Ensure that there is a new prepared tape (or tapes) available in the Free pool.
2. From the **Start** menu, select **Programs > Accessories > System Tools > Backup**.
3. In the Backup software dialog box, click the **Backup** tab.
4. On the wizard screen, click **Cancel** to select manual dataset backup.
5. Select the dataset you want, such as **<SystemDrive>\drivers*.***, and click **System State**. This backs up the system registry information.

6. In the **Backup Destination** list, select **LTO Ultrium**.
7. In the **Backup media or file name** area, select **New media** so that a tape can be drawn from the **Free** pool for backup use.
8. Click **Start Backup**.
9. In the Backup Job Information dialog box:
    a. Select **Replace the data on the media with this backup**.
    b. (Optional) In the **Backup Description** box, type information that identifies the media areas. If the media is overwritten, this description will help you to identify the tape.
10. Click **Start Backup**.
11. During the backup, monitor the RSM window for changer movement activity in the library. This activity appears in the **Work Queue** branch.
12. When the backup is complete, click **Report**. Verify that the backup was successful. If the backup failed, troubleshoot the system to determine if the cause was a hardware or software problem.
13. Perform a restore test to an alternate location. For information about how to perform a restore operation, see the NTBackup help system.

6.4 Testing Prinergy Archiver

6.4.1 Configuring the Prinergy Archiver JTP

1. Start the Prinergy Administrator software, if it is not already running.
2. Check that Prinergy is running and functioning normally. If Prinergy is not running normally, contact a service representative.
3. In the Administrator window, click the **JTPs** tab.
4. Select **JTP > Add JTP > Archive**. Wait for the Archive JTP to appear in the window with a **Ready** status.
5. Create a Disk Purge (or Purge) JTP.

6.4.2 Testing Prinergy Job Archive/Retrieve

1. In the RSM window, right-click **Media pool** and select **Create a New Media Pool**.
2. On the **General** tab, do the following:
    a. In the **Name** box, type `PrinergyArchives`.
    b. In the **Media information** area, click **Contains media of type**. In the list, select **LTO Ultrium**.
    c. In the **Allocation/Deallocation policy** area, click **Draw media from Free media pool**.

d. Click **OK**.

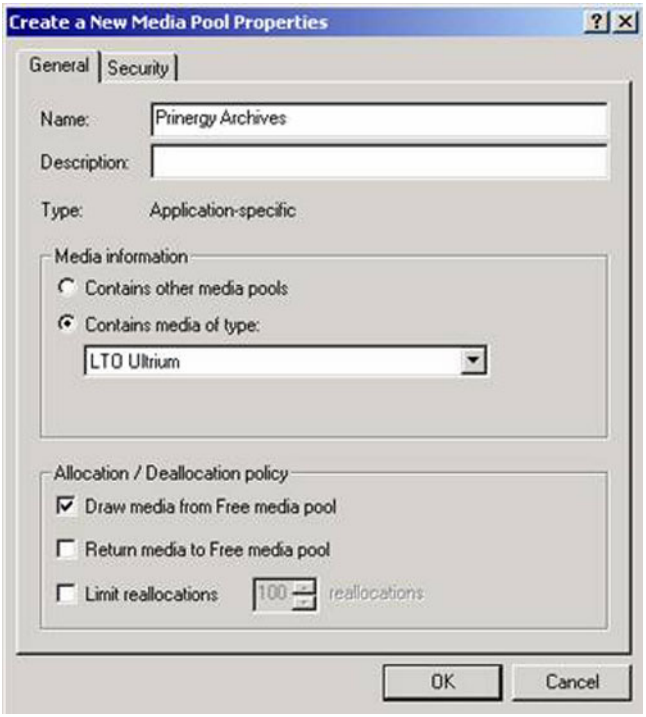


Figure 5: Creating a PrinergyArchives media pool

3. Start Prinergy Workshop and create a new test job.
4. Add new input Adobe® PostScript® files, refine the input files, and wait for all processes to finish, without errors. If problems occur, contact a service representative.
5. Configure the archive and restore process template to use the **PrinergyArchives** media pool.
6. On the Prinergy User Toolbar, select **Storage** to perform an archive task. Ensure that all files related to the job (PostScript, PDF, imposition plan, and so on) appear in the middle pane.
7. From the **Storage** menu, select **Storage > Archive All**, and click **OK**.
8. Verify that the archive completed successfully. If archiving fails, contact a service representative.
9. Purge the contents of the test job.
10. Retrieve all files for the test job. Verify that the retrieve was successful. If errors occur, contact a service representative.

6.5 Managing Cleaning

6.5.1 Inserting the Cleaning Cartridge

1. In the RSM window, expand the **Physical Locations** branch.
2. Right-click **Qualstar TLS and ADIC QLS Medium Changers** and select **Cleaner Management**.

3. Click **Next**.
4. Select **Add a cleaning cartridge**, and click **Next**.
5. At the **Number of cleans left** prompt, type the appropriate number (typically about 70 consecutive cleanings for a new cartridge). Click **Next**.

Note: The Clean one or more drives and Remove a cleaning cartridge options are not available because there is currently no cleaning cartridge in the library.

The library reserves a slot for the cleaning cartridge.

6. Click **Next** to open the slot.
7. Insert the cleaning cartridge, and click **OK** at the prompts.
8. When the `Add a cleaning cartridge operation is complete` message appears, click **Next**.
9. When the `I'm done; return to other tasks` message appears, click **Next**.
10. Click **Finish**.

6.5.2 Cleaning the Tape Drives

1. To start cleaning a tape drive, select the **Drive** branch in the right pane.
2. Right-click the drive and select **Clean**.

Note: In RSM, you can clean multiple drives at once by selecting **Clean one or more drives**, and then selecting the drives in the **Cleaner Management** list.

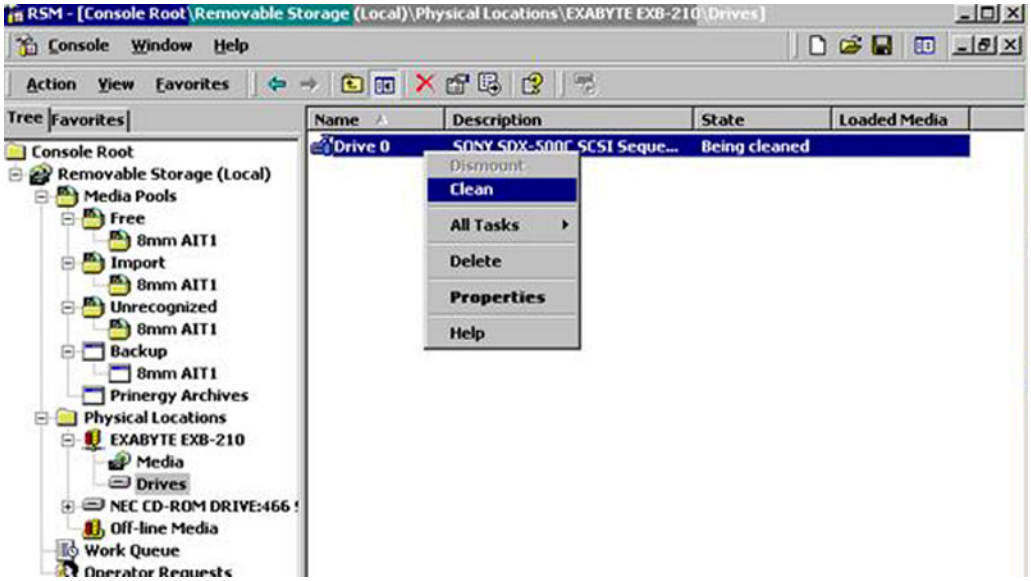


Figure 6: Cleaning a tape drive

3. In the RSM window, click **Work Queue** to see the status of the drive cleaning.

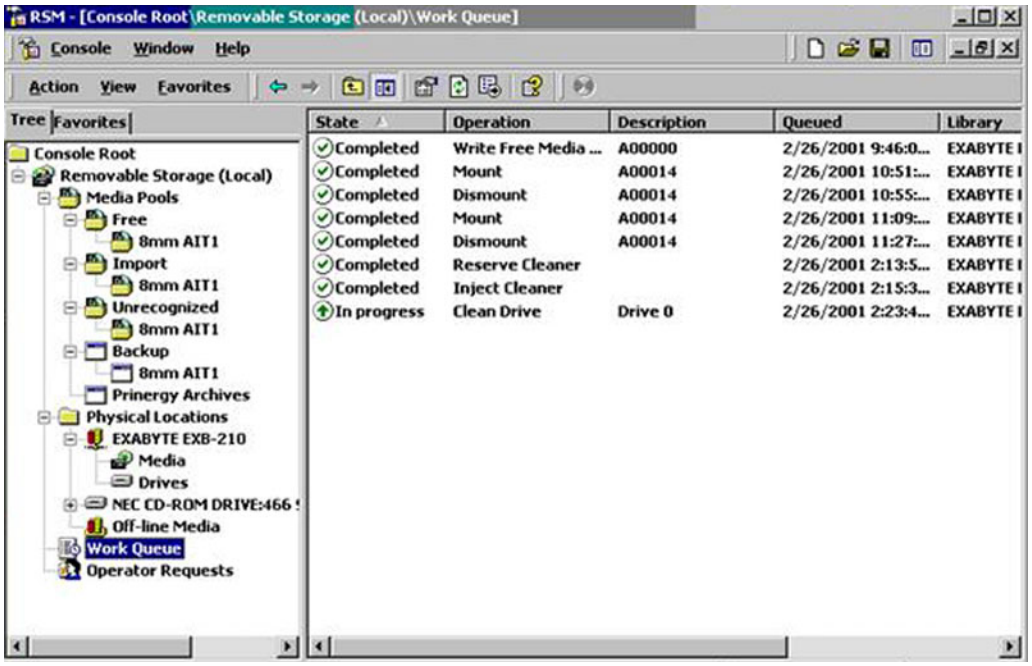


Figure 7: Monitoring the tape-drive cleaning

6.5.3 Removing the Cleaning Cartridge

1. In the **Physical Locations** tree, right-click the name of the library and select **Cleaner Management**.
2. Click **Next**.
3. Select **Remove a cleaning cartridge**, and click **Next**.

   The cleaner slot is unreserved and the cleaning cartridge is moved to the front slot of the magazine.
4. Remove the cleaning cartridge from the slot.
5. When the `I'm done; return to other tasks` message appears, click **Next** twice.
6. Click **Finish**.

7. MAINTAINING THE LIBRARIES (OFFLINE)

All Qualstar tape libraries have configuration parameters stored in NVRAM that the operator can access and modify using the front panel.

Normally, the default Qualstar factory parameters will work with the Prinergy server without modification. This section covers key parameters to check when necessary. For example, you must access the PRIVATE menu from the operator panel when upgrading the number of tape drives or slots to maximum capacity, such as upgrading a two-drive, 33-slot TLS-84xx to a four-drive, 66-slot configuration.

If you need to access other configuration changes that are not covered in this section, see the *Qualstar TLS-8000 Library Installation and Operation Manual*.

7.1 Changing the Library Model Name Display

1. On the Operator panel, press MENU.
2. Select **Configuration > Advanced > Control Panel > Display**.
3. Use DOWN ARROW to locate Line 1-10.
4. Using UP ARROW or DOWN ARROW and then ENTER, change the text line to read `Kodak` instead of `Qualstar`.
5. Use DOWN ARROW to locate `COPY TO SAVED`.
6. Press ENTER to save the name change.

7.2 Upgrading the Library Configurations

7.2.1 Accessing the Private Menu

1. Open the front door of the tape library.
2. On the Operator panel, press MENU.
3. Select **Maintenance > Test LC Display**.
4. Press DOWN ARROW until the string of letters `PQRSTUVWXYZ` appears on the second line of the display. Immediately (within five seconds), simultaneously press DOWN ARROW, ENTER, and MENU.

   A block cursor prompt for a password appears after `Access:`.
5. Type `Update`. The private menu is activated, as shown on the first line of the LCD display.
6. Modify the library configurations, such as the updated number of tape drives installed, number of slots, and so on.
7. When the modifications are complete, return to the **Maintenance > Test LC Display** menu and initiate the CLEAR ACCESS command to prevent unauthorized access to the menu.

7.2.2 Modifying the Library Configurations

1. Open the front door of the tape library.
2. On the Operator panel, press MENU.
3. Select **Configuration > Advanced > Library > ENABLED**, and press ENTER.
   a. To modify the total number of tape drives installed, select **Drives**. The **Drive Last** number should be one higher than the number of tape drives modified.
   b. To modify the total number of slots installed, select **Slots**. The **Slot Last** number should be one higher than the number of slots modified.
   c. To enable or disable a tape drive, select **Configuration > Drive > T1 to Tn** and set the **Enabled** option to **YES** or **NO**.

4. When the modifications are complete, return to the **Maintenance > Test LC Display** menu and initiate the CLEAR ACCESS command to prevent unauthorized access to the menu.

5. When installing additional hardware, such as drives or magazines, it may be necessary to perform a **Calibrate** command. For instructions, see the *Qualstar TLS-8000 Technical Service Manual*.

APPENDIX A: CONFIGURING QUALSTAR LIBRARIES INTO TWO LOGICAL PARTITIONS

Background

Qualstar libraries support logical partitions in which resources (drives, slots, and I/O ports) can be allocated to different hosts. Each logical library acts as a smaller, individual library.

This procedure describes how to set up sharing of Qualstar TLS-82xx, and TLS-84xx libraries between two Windows 2000 hosts. The procedure normally takes about two hours.

Requirements

For the Host:

- Windows 2000 with Service Pack 4 or Windows 2003 R2 SP2
- Each host should have two LVD SCSI ports for library connections. If required, order an Adaptec 39320 SCSI Adaptor, dual channel (609-00404).
- Each host should have two external SCSI cables. If required, order the required quantity of external SCSI cable, HD68 Male – VHDCI Male, for Adaptec 39320 and 39160 (16-4491) .

For TLS-8xxx:

- Two LVD SCSI Terminators, External (16-4501)

Other Requirements:

- Latest Kodak-qualified driver for the IBM drives and SCSI host adapter—available from the server image DVD or from TechPlanet at http://techplanet.creo.com/software_solutions/workflow_hardware/tape_drives_libraries/nav/index.htm
- RSMConfig utility (RSMConfg.exe) from the Windows Resource Kit

Library SCSI Cabling

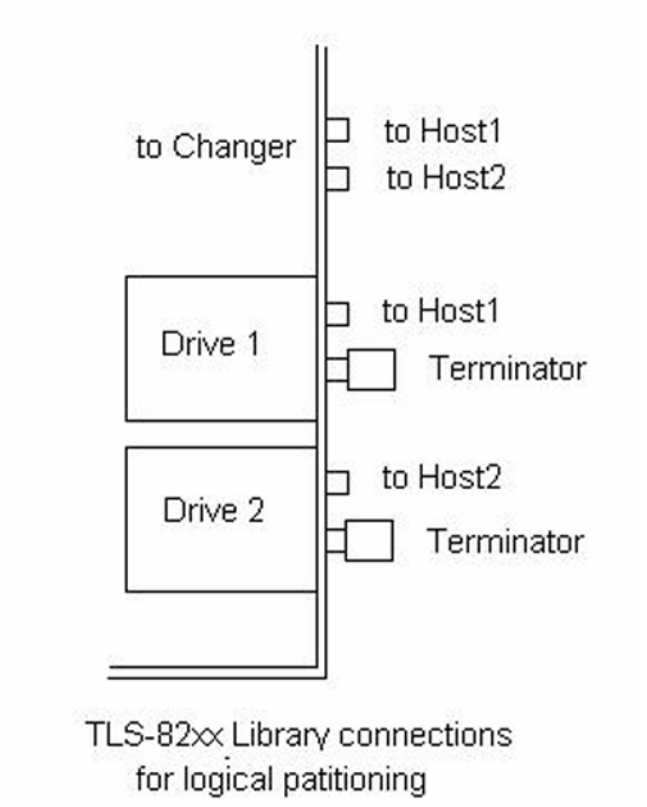
TLS-82xx Cabling

Two external LVD terminators (16-4501) are required to allow partitioning of the TLS-82xx library. A total of four external SCSI cables are also required to connect the library and drives to both hosts. The type of external SCSI cable needed depends on the SCSI card in the host server. One SCSI bus connects the library's controller to one SCSI port in each host. A separate SCSI bus connects each host to its assigned tape drive. An external LVD terminator is installed on each tape drive.

Table 1: TLS-82xx parts (to be ordered if not available on-site)

Kodak Part Number	Manufacturer Part Number	Quantity	Description
609-00404	Adaptec 39320	As needed	SCSI Card, Dual channel, SE/LVD
16-4491	Qualstar 738-0127-6	As needed	SCSI Cable, External, HD68-VHD68, 6ft.
16-4501	Qualstar 117-0011-9	Two	SCSI Terminator, External LVD

Note: Two SCSI channels are needed per host. The 39320 has a VHD68 connector.



TLS-82xx Library connections for logical patitioning

TLS-84xx Cabling

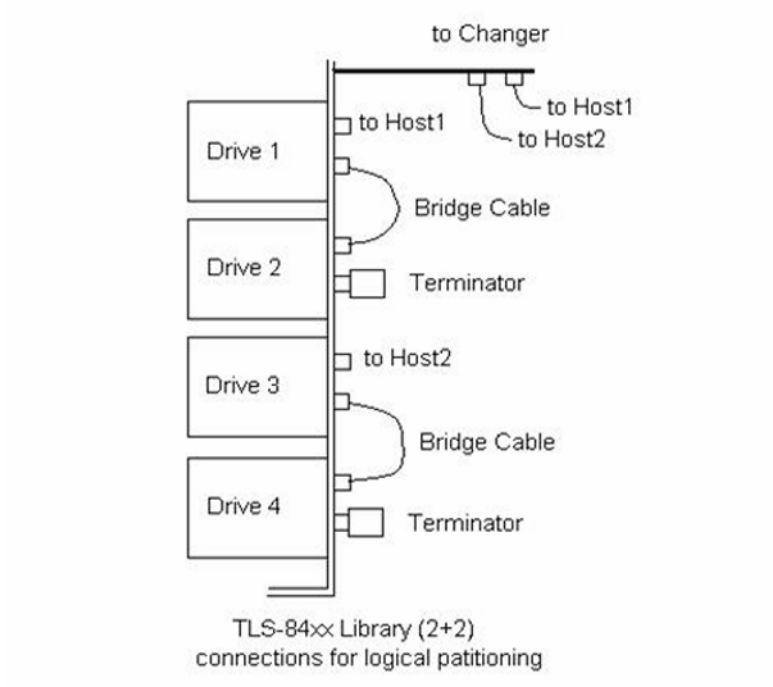
A four-drive TLS-84xx can be partitioned in a 2+2 or 3+1 drive configuration. If the library has three drives, it can be partitioned in a 2+1 configuration. If the library has two drives, see *TLS-82xx Cabling* on page 19 for cabling information.

Two external LVD terminators (16-4501) are required to allow partitioning of the TLS-84xx library. A total of four external SCSI cables are also required to connect the library and drives to both hosts. The type of external SCSI cable needed depends on the SCSI card in the host server. One SCSI bus connects the library's controller to one SCSI port in each host. A separate SCSI bus connects each host to its assigned tape drive. An external LVD terminator is installed on each tape drive.

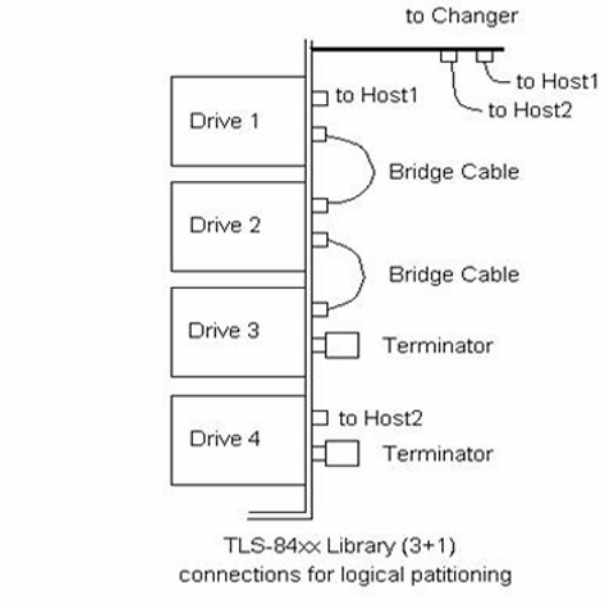
Table 2: TLS-84xx parts (to be ordered if not available on-site)

Kodak Part Number	Manufacturer Part Number	Quantity	Description
609-00404	Adaptec 39320	As needed	SCSI Card, Dual channel, SE/LVD
16-4491	Qualstar 738-0127-6	As needed	SCSI Cable, External, HD68-VHD68, 6ft.
16-4501	Qualstar 117-0011-9	Two	SCSI Terminator, External LVD

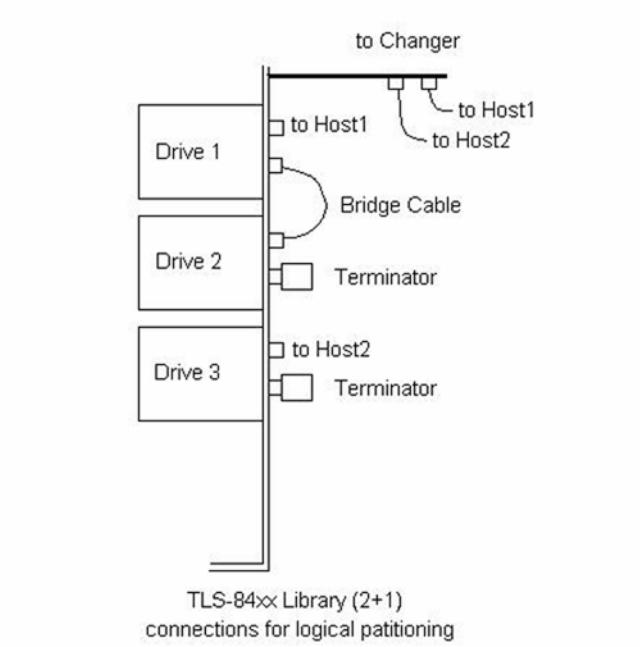
Note: Two SCSI channels are needed per host. The 39320 has a VHD68 connector.



TLS-84xx Library (2+2)
connections for logical patitioning



TLS-84xx Library (3+1)
connections for logical patitioning



Before Installation

1. Plan ahead how you will divide the library's resources between the two hosts. The I/O port can be assigned only to one host. Tapes for logical library without an I/O port must be manually inserted through the library door.

   You can use the procedure in the *Resource Inventory* section in the *Qualstar TLS-8000 Installation and Operation Manual* to record resource allocation.

2. For each host, verify how many LVD SCSI ports can be used for the library connection. Two SCSI ports are required. If you need an additional SCSI adapter, verify that there is an available PCI slot for the Adaptec 39320. Order the necessary SCSI adapters.

3. Order the necessary hardware for the library. See *Library SCSI Cabling* on page 19.

Configuring the SCSI Controllers

1. Shut down the Qualstar library, the host connected to it, and the other host.

2. Install SCSI cards in the hosts if required (*see Configuring the Prinergy Server* on page 2). Use the latest approved driver, which you can download from http://techplanet.creo.com/.

3. Modify the SCSI cabling according to the diagrams in *Library SCSI Cabling* on page 19. One SCSI bus connects the library controller/media changer to one SCSI port in each host. A separate SCSI bus connects each host to its assigned tape drives.

4. In each host, modify the SCSI host adapter configuration from the SCSI BIOS setup program (see *Configuring SCSI Controller BIOS Settings* on page 2).

5. In Host A, configure the SCSI host adapter connected to the library controller bus to use SCSI ID 6, using the SCSI BIOS setup program.

6. The Host B SCSI host adapter connected to the library controller bus will use default SCSI ID 7.

7. From the library control panel, configure logical library a (controlled by Host A) and logical library b (controlled by Host B) to assign library resources, based on the resource allocation done in Step 1 of *Before Installation* on page 22.

   The resources allocated to each library are assigned in **\Configuration\Advanced\Library x** (where **x** is either a or b).

   Note: The I/O port can only be assigned to one host. Ideally, the I/O port should be assigned to the host that has the most slots assigned. For details, see the *Qualstar TLS-8000 Installation and Operation Manual*.

8. Modify the SCSI initiator for library b to match the SCSI ID of Host B SCSI host adapter (7). This is set in **\Configuration\Advanced\SCSI\Library** from the library control panel. Set Initiator 7 to “b”.

   The library is now partitioned as two logical libraries.

Configuring the Library in Windows

To load the tape device drivers for each host, see *Configuring Windows Tape Device Drivers* on page 10.

Note: A warning may appear that RSM was not able to configure the device. You must use the RSMConfig utility (**RSMConfg.exe**) from the Windows Resource Kit to configure the library in RSM.

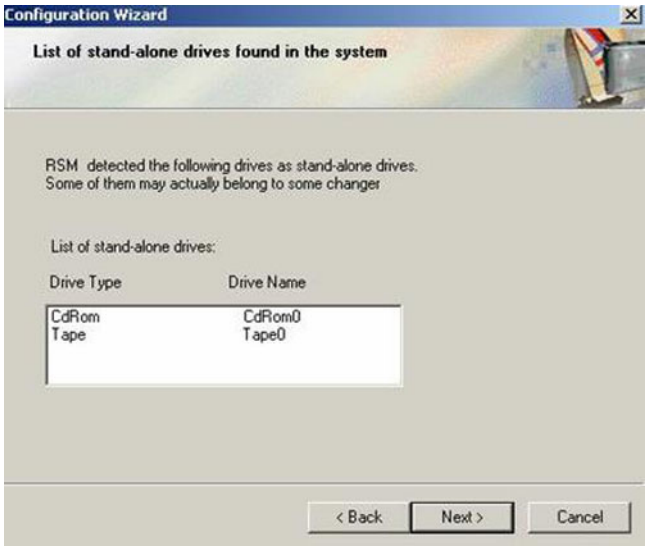
Using the RSMConfig Utility

If RSM does not automatically configure the tape library, run **RSMConfg.exe** from the Windows Resource Kit.

1. In the RSM Configuration Wizard Welcome dialog box, click **Next**.

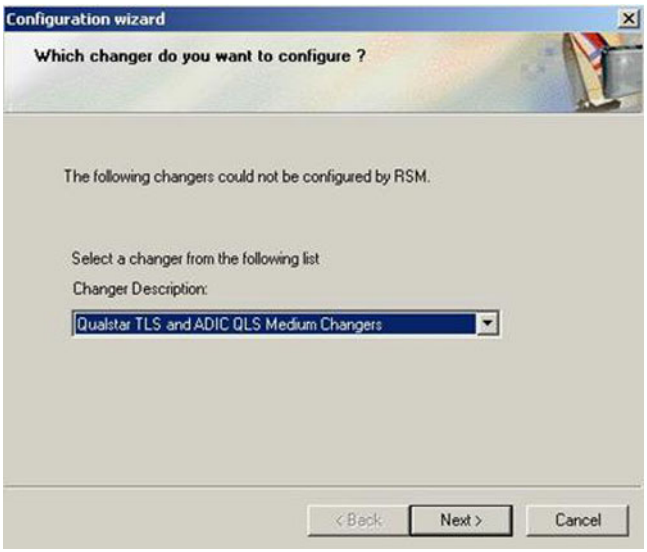
Note: The screen captures in this procedure show a Windows 2000 server.

The detected drives are listed.



2. Click **Next**.

3. In the Which changer do you want to configure dialog box, select the Qualstar library. Click **Next**.

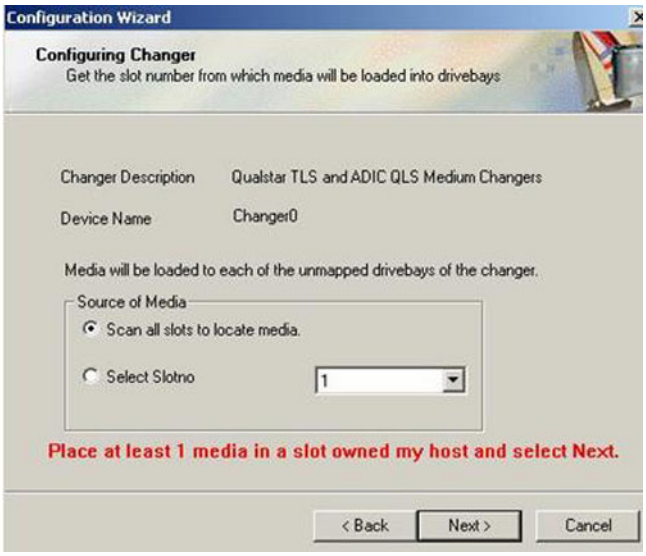


4. In the Configuring Changer dialog box:

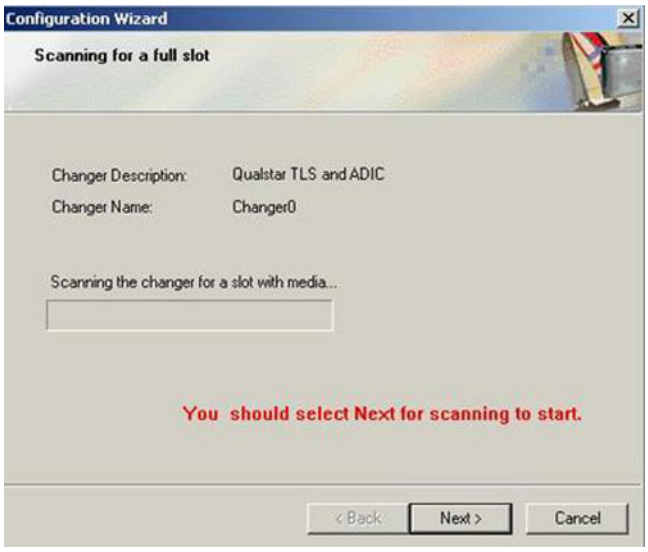
   a. Click **Scan all slots to locate media**.

   b. Place at least one media in a slot owned by the host.

   c. Click **Next**.



5. In the Scanning for a full slot dialog box, click **Next** to start scanning.



6. In the Mounting media from slot to drive bay dialog box, click **Next** to mount the media. This may need to be repeated for each unmapped drive.



7. When the `Drivebay successfully mapped` message appears, click **Next** to finish the process.

Testing and Commissioning

The logical partitioning of the library is complete. The library will now function as two separate libraries, with each logical library controlled by a separate host.

Test the library as described in *Testing Windows Backup* on page 12 and *Testing Prinergy Archiver* on page 13.

After the library is successfully tested, it can be put into regular production.