

Tape Storage Management Console

Reference Guide

Part Number 201652-007

September 2002 (Seventh Edition)

TSMC is a software-based management tool designed to aid in the installation and maintenance of Compaq tape drives, tape arrays, and tape automation products. TSMC incorporates a browser-based screen for the graphical user interface, and includes multiple diagnostics, advanced tests, and system management functions designed to be used by both Compaq storage customers and trained service personnel.

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About This Guide

This guide provides reference information for the operation and troubleshooting of Tape Storage Management Console software.

Important Safety Information

Before installing this product, read the *Important Safety Information* document provided.

Symbols on Equipment

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions:



WARNING: This symbol, in conjunction with any of the following symbols, indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your documentation for specific details.



This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.



This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure



This symbol on an RJ-45 receptacle indicates a network interface connection.

WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.



This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.



These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electric shock, remove all power cords to completely disconnect power from the system.



Weight in kg
Weight in lb

This symbol indicates that the component exceeds the recommended weight for one individual to handle safely.

WARNING: To reduce the risk of personal injury or damage to the equipment, observe local occupational health and safety requirements and guidelines for manual material handling.

Rack Stability



WARNING: To reduce the risk of personal injury or damage to the equipment, be sure that:

- The leveling jacks are extended to the floor.
 - The full weight of the rack rests on the leveling jacks.
 - The stabilizing feet are attached to the rack if it is a single-rack installation.
 - The racks are coupled in multiple-rack installations.
 - Only one component is extended at a time. A rack may become unstable if more than one component is extended for any reason.
-

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.



WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.



CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Text Conventions

This document uses the following conventions:

- *Italic type* is used for complete titles of published guides or variables. Variables include information that varies in system output, in command lines, and in command parameters in text.
- **Bold type** is used for emphasis, for onscreen interface components (window titles, menu names and selections, button and icon names, and so on), and for keyboard keys.
- `Monospace typeface` is used for command lines, code examples, screen displays, error messages, and user input.
- Sans serif typeface is used for uniform resource locators (URLs).

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Technical Support

In North America, call the Compaq Technical Support Phone Center at 1-800-OK-COMPAQ. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored. Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for worldwide Technical Support Centers are listed on the Compaq website, www.compaq.com.

Be sure to have the following information available before you call Compaq:

- Technical support registration number (if applicable)
- Product serial number
- Product model name and number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

Compaq Website

The Compaq website has information on this product as well as the latest drivers and flash ROM images. You can access the Compaq website at www.hp.com.

Compaq Authorized Reseller

For the name of your nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, see the Compaq website for locations and telephone numbers.

Introduction

TSMC is a software-based management tool designed to aid in the installation and maintenance of Compaq tape drives, tape arrays, and tape automation products. TSMC incorporates a browser-based screen for the graphical user interface and includes multiple diagnostics, advanced tests, and system management functions designed for both Compaq storage customers and trained service personnel.

The TSMC diagnostic tools search for and report problems and failures with all Compaq tape products connected via Fibre Channel, SCSI, or a serial interface. This functionality is primarily accomplished with Standard and Custom tests built into TSMC. These tests emulate No Trouble Found (NTF) tests developed by Compaq. The advanced diagnostics let you test specific areas of functionality. For example, if you are installing a device for the first time, you can run TSMC to verify that the tape device is properly installed and is available to your system before you attempt to load any other application software. The system management functions of TSMC provide users with the ability to view information regarding each tape device, to change the system settings, and to upload firmware revisions for your tape device. If you are connected to the World Wide Web, TSMC searches the appropriate Compaq website for the latest available firmware needed by your tape device. The newest versions of TSMC can also be delivered to you over the Internet.

IMPORTANT: When using TSMC, make sure that you are in offline mode and that no other applications are issuing tape commands to your devices.

Assumptions about the Reader

This document assumes that you have a working knowledge of Microsoft Windows NT 4.0, Windows 2000, Novell Netware, or Tru64 5.1a (depending on which operating system you are using with TSMC). You should know how to use a Web browser. You should also have a basic knowledge of the terms employed in describing and using the SCSI interface and the application of SCSI devices. These are suggested levels and not absolute requirements. TSMC is a flexible tool and can be used equally well by both the novice and the expert.

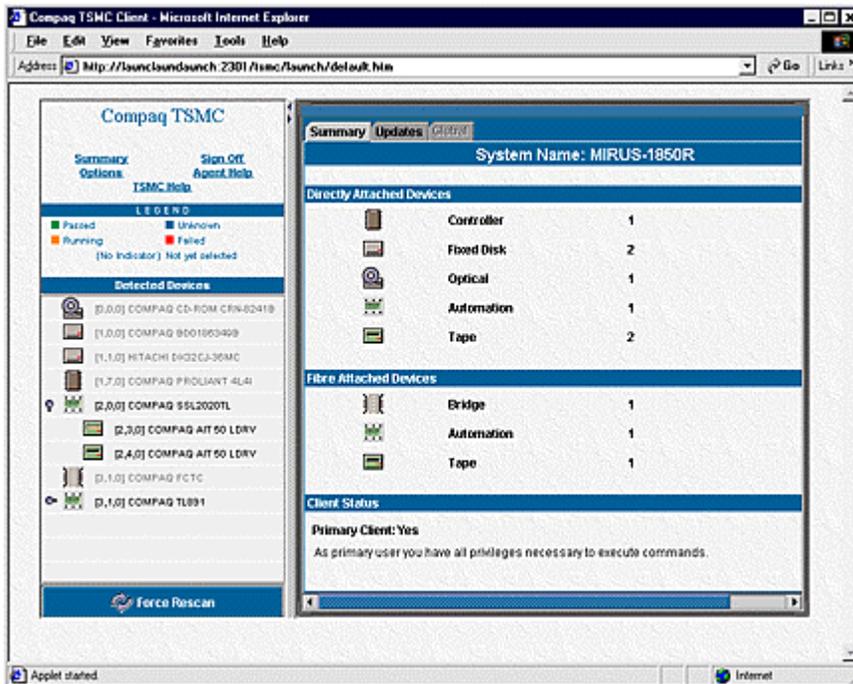


Figure 1-1: TSMC client as it is displayed in the browser

SCSI Requirements

This section discusses SCSI concepts that you should understand for a successful installation of TSMC.

Every SCSI system bus requires that you:

1. Have a target device (such as a tape drive) connected to an initiator (server) via a host bus adapter (HBA).
2. Connect the target device to the HBA in the initiator via SCSI cables. Multiple targets can be daisy chained to the initiator.
3. Terminate devices at both ends, either at the device/adaptor, or by adding an inline/external terminator.

SCSI ID

Your devices are displayed by TSMC in the Device Tree window, as shown in Figure 1-2.

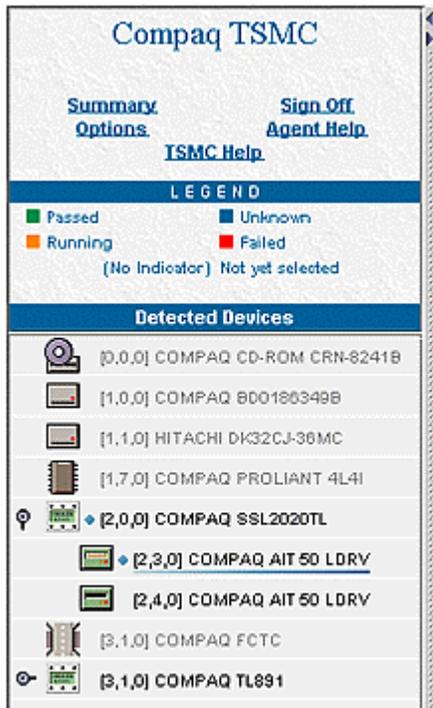


Figure 1-2: SCSI information displayed in Device Listing

Icons indicate if the device is a tape drive, tape library, or Fibre device. TSMC also identifies other devices, but unsupported devices are grayed out in the “Detected Devices” section. The CD-ROM listing in Figure 1-2 is an example of an unsupported device. Next to each icon, TSMC displays the corresponding SCSI bus, SCSI ID, and logical unit number (LUN), respectively, in the brackets before each device name. In addition, a small diamond is displayed next to a device after it has been selected. The color of the diamond indicates the status of the device. An explanation of each color is indicated in the legend.

Device Listing Icons

Table 1-1: Device Listing Icons

Icon	Description
	Hard disk NOTE: This icon is not active in TSMC
	Optical device NOTE: This icon is not active in TSMC
	Controller NOTE: This icon is not active in TSMC
	Fibre bridge
	Tape device with tape inserted
	Tape device with no tape inserted
	Tape automation or Library
	Hard disk NOTE: This icon is not active in TSMC

Fibre Products

The following devices are supported in the Compaq Storage Area Network (SAN):

- Any tape drive or tape automation device connected directly to a Fibre-to-SCSI bridge
- Any tape drive or tape automation device connected to a fabric switch

NOTE: Fibre hubs are not identified on the bus.

Fibre Bridge

With a Fibre Channel bridge, a SCSI device is attached to the SCSI connections on the bridge. The bridge is displayed as one device, regardless of the number of internal SCSI buses.

Installing TSMC on Windows

System Requirements for Windows

The following are the system requirements for TSMC for Windows NT 4.0 and Windows 2000:

- Any Intel-based Compaq server that supports:
 - Windows NT 4.0 with Service Pack 4 or greater
 - Windows 2000 Professional, Server, and Advanced Server with Service Pack 1 or greater
- Any Compaq fast-wide SCSI 2 host adapter or Low Voltage Differential (LVD) with the driver *CPQ32FS2.SYS* installed (available on the Compaq *SmartStart* CD-ROM)
- Any Compaq 64-Bit/66-MHz Wide Ultra 3 host adapter with the driver *ADPU160M.SYS* installed (available on the Compaq Smart Start CD-ROM)
- 64-Bit/66-MHz PCI-to-Fibre Channel Adapter
- 64-Bit/33-MHz PCI-to-Fibre Channel Adapter
- A Web browser, such as Microsoft Internet Explorer 5.5 with Java Support, to view HTML help files and to view the client

- Internet Access. Although not a requirement, Internet access facilitates program updates and access to firmware files. Without Internet access, you must copy files from a network server or local media.

NOTE: Support is constantly updated. For the latest information on supported adapters, check the Compaq website at:

www.compaq.com/storage

NOTE: TSMC is intended for use with Compaq hardware. TSMC may also be used with hardware from other vendors, but some features may be deactivated.

Installing TSMC

The following sequence should be performed when installing your TSMC software for the first time.

IMPORTANT: Before continuing, exit any Windows programs.

1. If installing from a CD, insert your TSMC CD into the CD-ROM drive. If the installation does not start automatically, locate the file *TSMCSERVER<xxx>.EXE* (where <xxx> is the version number. For example, *TSMCSERVER232.EXE* or *TSMCSERVER233.EXE*) on your CD and double-click it to start your installation. If you downloaded *TSMCSERVER<xxx>.EXE* from the Internet, locate the file and double-click it to start the TSMC installation.
2. When the system has finished unpacking files, the InstallShield Wizard is displayed. Click **Next** to continue the installation.

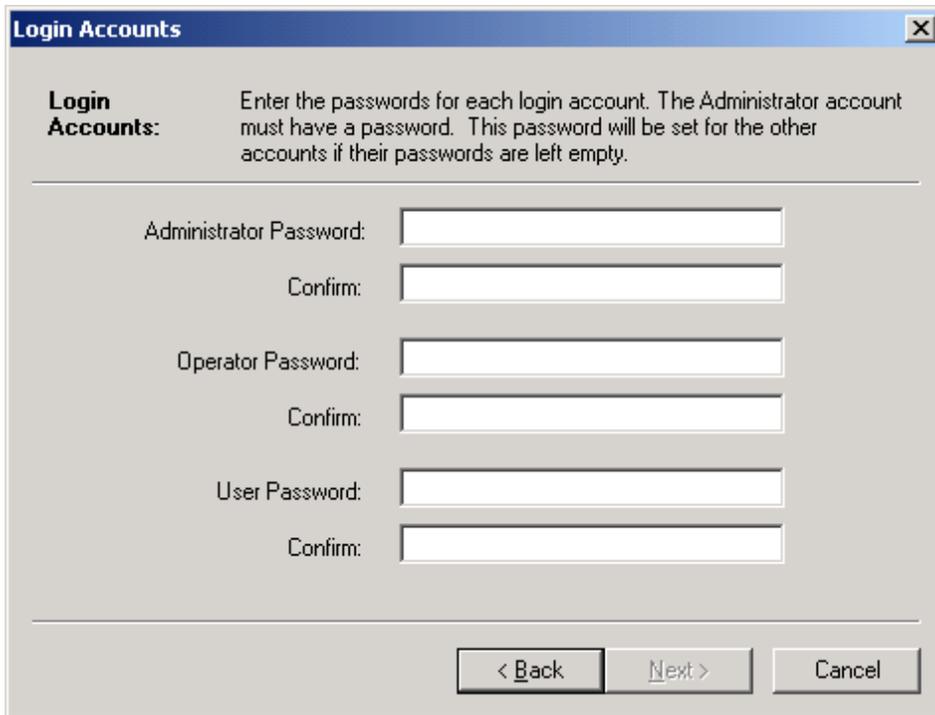
NOTE: To abort the installation at any time, click **Cancel** on any of the Setup screens.

3. The **License Agreement** screen is displayed. Read the agreement and choose **Yes** if you agree to the terms or **No** if you would like to abort the installation. If you choose **Yes**, an information screen is displayed. This screen contains valuable instructions on how to access the TSMC Server from your browser.
4. Click **Next** to continue. The **Choose Destination Location** screen is displayed. This specifies the folder where TSMC files are installed. You may accept the default destination folder or click **Browse** to specify another location.

5. Click **Next**. The **Setup Type** screen is displayed. This screen lets you choose the type of setup you want for TSMC.
6. Select **Typical** (default selection) as the setup type unless directed otherwise by Compaq personnel.
7. Click **Next** to continue. The **Select Program Folder** screen is displayed. This screen specifies the name of the program folder where the TSMC icons reside. The default folder is TSMC Server. You can choose to create your own folder name or select from the list of existing folders.
8. Click **Next** to begin the installation. When the installation is complete, TSMC checks to see if the HP web software administrator password has been previously set.

If the HP web software administrator password has been set, the **Install Shield Wizard Complete** screen is displayed. **Start TSMC Server** and **Start TSMC Client** are automatically checked. If you want to start TSMC Server and Client software, click **OK**.

If the HP web software administrator password has not been set, then the Web-based **Management Setup Wizard** is displayed. Click **Next** to display the **Login Accounts** screen.



Login Accounts

Login Accounts: Enter the passwords for each login account. The Administrator account must have a password. This password will be set for the other accounts if their passwords are left empty.

Administrator Password:

Confirm:

Operator Password:

Confirm:

User Password:

Confirm:

< Back Next > Cancel

Figure 2-1: Login Accounts screen

TSMC only uses the administrator password, so that is the only password you need to set. Type the password you want to use for the administrator account in both the **Administrator Password** and subsequent **Confirm** field and click **next**. The **Trust Mode** screen is displayed.

The **Trust Mode** screen presents three options:

- **Trust By Certificates**—The managed device will only trust servers in the certificate list and will verify its digital signature. This is the most secure option since it validates the digital signature of the request against a locally stored certificate, authenticating the sender and ensuring message integrity. See the *Compaq Insight Manager 7 Technical Reference Guide*, Chapter 12, “Settings for Security” for further information about adding servers to the Trusted Servers list.

- **Trust All**—The managed device will trust any server without verifying its digital signature. Use this option with caution.
 - **Trust By Name**—The managed device will trust any servers specifically named in the Trusted Servers list, without verifying the digital signature. Use this option with caution. See the Insight Manager 7 Technical Reference Guide, Chapter 12, “Settings for Security” for further information about adding servers to the Trusted Servers list.
9. Click **OK**.

Starting TSMC Server on Windows

1. When you have completed the installation, the TSMC Server and Client software automatically start if you accepted the defaults during the installation. To start TSMC Server manually, go to the Compaq TSMC Server folder in the Start Menu under Programs and select **Launch Server**.
2. A TSMC icon is displayed on the taskbar. Moving the cursor over the icon shows the message "TSMC server activated." If you need to deactivate TSMC server, right-click the icon and select **Deactivate TSMC Server**. Depending on your system configuration, the TSMC Server launch may take up to 45 seconds or more to complete.
3. Open a browser and enter the following URL:

```
https://<yourserver>:2381
```

In the above URL, <yourserver> is the network name of the computer you are trying to access. If you are unsure of the name of the computer, locate the name in System Properties (see Figure 2-2). For example, if your computer name is longspeak, type the following:

```
https://longspeak:2381
```

4. Instructions for locating computer name on Windows 2000:
 - a. Right click the **My Computer** icon on your desktop.
 - b. Select **Properties**.
 - c. Click the **Network Identification** tab.
 - d. Your computer name is shown along with your Workgroup, as shown in Figure 2-2.

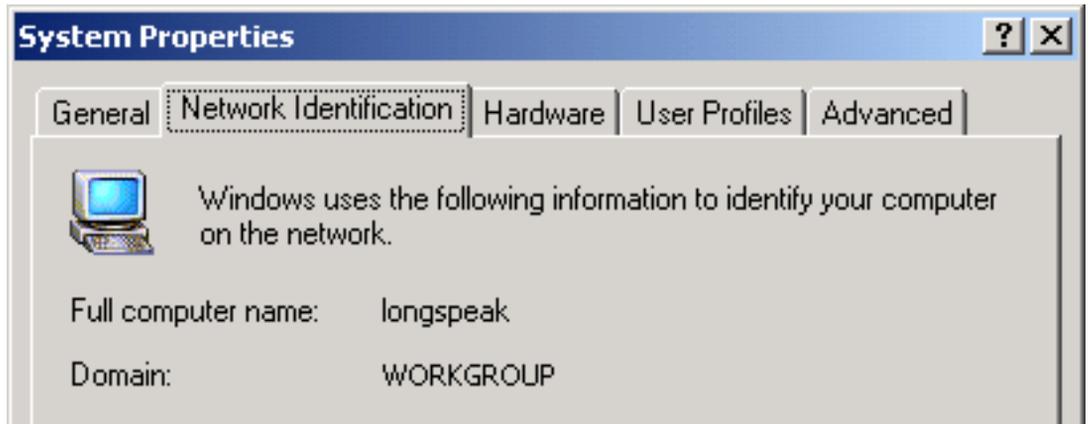


Figure 2-2: Locating computer name on Windows 2000

5. Instructions for locating computer name on Windows NT:
 - a. Select **Control Panel**.
 - b. Select **Network** from Control Panel.
 - c. Computer name is located on the **Identification** tab.
6. The **Device Home Page** screen is displayed. Locate the Tape Storage Management Console icon on this screen and click it. The **Java Plug-In Information** screen is displayed.

7. If you do not have Java installed, a Java certificate is displayed asking you if you would like to install the Java plug-in available from Sun Microsystems. Click **Yes** and follow the instructions to install Java.

NOTE: If you do not have Internet access, click the link at the bottom of the page to install the Java plug-in. Follow the instructions on the screen. After installing the Java plug-in, restart the computer. When complete, click the **Refresh** button in your web browser to continue.

NOTE: Now is a good time to verify that your client machine is set up correctly. The Java Plug-in and cache should be verified now in order to prevent potential problems. This step must be performed after the Java Plug-in installation has completed successfully.

8. The web software comes with a Secure Socket Layer (SSL) server certificate. If you have not previously installed this certificate, you may encounter the security alert shown in Figure 2-3.

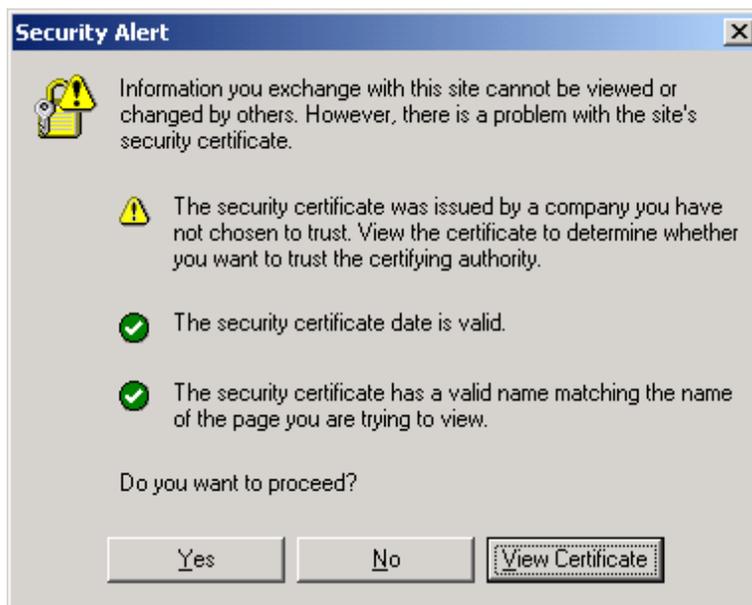


Figure 2-3: Security Alert

This security alert requires that you install the certificate. To install the certificate, do the following:

- a. Click **View Certificate**.
- b. On the next screen, select the **Install Certificate** option. This option displays the **Certificate Import Wizard**. The **Certificate Import Wizard** guides you through the steps to successfully import the certificate to the certificate store on your server.
- c. After installing the certificate, return to the **Security Alert** dialog and click **Yes** to continue.

After the certificate is successfully installed, you should no longer see this security alert on any subsequent logins to TSMC.

9. After the Java plug-in is installed (if necessary), log into TSMC using the web software password. The only user valid for logging into TSMC web software is **administrator** (all lower case). If you previously had any web software installed or enabled on a ProLiant system and you set the administrator password, use the password that you previously set. Otherwise, use the password **administrator**.

NOTE: If you are already authenticated, the login screen is not displayed.

10. You may briefly see a **TSMC Client** screen with a status bar. This screen disappears and the **TSMC Summary** screen is displayed. Check the Client status at the bottom of the screen to make sure that you are the primary user (only primary users are able to issue commands to devices; secondary users can only view the screens). You are now ready to start using TSMC.
11. When you are finished using TSMC, click the **Sign Off** link in the upper left corner of the screen. On the following screen, click the **Logout** link.

IMPORTANT: It is important to log off as described in step 11. If you close the browser without logging off, you will have to wait for a 15-minute timeout period before you can log on again as a primary user.

Setting Up Client Machines

To configure the Internet Options Control Panel:

1. **Check proxy settings**—If you are running the client and server on the same computer and you have a proxy server or firewall, make sure that your IP address is bypassed. For Internet Explorer, select **Internet Options...** from the **Tools** menu. Select the **Connections** tab. Click the **LAN Settings** button. Verify that the **Bypass proxy server for local addresses** link is checked. Click the **Advanced** button. Make sure that your IP address is listed under the Exceptions list at the bottom.
2. **Check browser cache setting**—The browser must be set to check for newer versions of pages on every visit. For Internet Explorer, select **Internet Options...** from the **Tools** menu. Click the **General** tab. In the **Temporary Internet files section**, click the **Settings...** button. Under **Check for newer versions of stored pages**, select **Every visit to the page**.

Installing TSMC on Netware

System Requirements for Netware

The following are the system requirements for TSMC for Novell Netware:

- Any Intel-based Compaq server that supports Novell Netware 5.1 with Support Pack 3 or greater
- Any Compaq fast-wide SCSI 2 host adapter or Low Voltage Differential (LVD)
- Any Compaq 64-Bit/66-MHz Wide Ultra 3 host adapter
- 64-Bit/66-MHz PCI-to-Fibre Channel Adapter
- 64-Bit/33-MHz PCI-to-Fibre Channel Adapter
- A Web browser, such as Microsoft Internet Explorer 5.5 with Java Support, to view HTML help files and to view the client. You need to run TSMC on a Windows NT 4.0 or Windows 2000 computer.
- Internet Access. Although not a requirement, Internet access facilitates program updates and access to firmware files. Without Internet access, you need to copy files from a network server or local media.

NOTE: Support is constantly updated. For the latest information on supported adapters, check the Compaq website at:

www.compaq.com/storage

NOTE: TSMC is intended for use with Compaq hardware. TSMC may also be used with hardware from other vendors, but some features may be deactivated.

Installing TSMC

The following sequence should be performed when installing TSMC software for the first time.

1. The TSMC Installation files are contained within a zip file named *TSMC_NW_<xxx>.ZIP* (where <xxx> is the version number. For example, *TSMC_NW_201.ZIP*). Transfer this zip file to the SYS volume on the Netware server.
2. On the Netware server, run the unzip command (using the UNZIP.NLM utility) on the *TSMC_NW_<xxx>.ZIP* file. If you previously installed TSMC on your Netware server, enter `STOPTSMC` before proceeding. To unzip the *TSMC_NW_<xxx>.ZIP* file to the SYS volume on the Netware volume, type the following command:

```
unzip tsmc_nw_<xxx>.zip
```

IMPORTANT: If you previously installed TSMC on your Netware server, you must overwrite the existing files. When prompted by the unzip command, select the option to overwrite all files.

3. You must now install the TSMC CDM (Custom Device Module).
 - a. Type `NWCONFIG` on the console and press **Enter**.
 - b. Select **Driver Options**.
 - c. Select **Configure Disk and Storage Device Drivers**.
 - d. Select **Select an additional driver**.
 - e. Press **Insert**. At the next prompt, press **F3**.
 - f. Type the directory path `sys:\system\compaq\tsmc\drivers` and press **Enter**.
 - g. Select **TSMC.cdm** and press **Enter**.
 - h. Exit `NWCONFIG`.

4. Netware users with Internet access need to verify and modify some Netware settings to be able to download firmware from the Compaq FTP site. If you do not have Internet access, skip to Step 5.
 - a. If you have a network gateway, modify the *GATEWAYS* file as follows. Assuming your Netware server is at IP address 10.10.10.5 and your proxy server is at IP address 10.10.10.1, add the following statement:

```
Host 10.10.10.5 gateway 10.10.10.1
```
 - b. Review the *AUTOEXEC.NCF* file. If the *AUTOEXEC.NCF* file has a reference to the file *INITSYS.NCF* and the lines immediately following that reference are commented out, you need to make the following modifications:
 - 1) Uncomment the lines immediately following the line that references *INITSYS.NCF*. To do this, remove the "#" characters from those commented lines.
 - 2) Locate the line that defines the BIND statement to the IP address. If the gateway is not defined in that line, add the following statement:

```
gate=10.10.10.1
```
 - 3) If you access a DNS server, modify the *RESOLV.CFG* file as follows. Assuming your proxy server is at IP address 10.10.10.1 and the name of your server is NETWARE, add the following statement:

```
netware 10.10.10.1
```
5. Verify that your Netware server IP address is listed in the *HOSTS* file (found at *SYS\ETC\HOSTS*). Assuming your Netware server IP address is 10.10.10.5 and your Netware server name is NETWARE1, the entry in the *HOSTS* file on the Netware server should read as follows:

```
10.10.10.5 NETWARE1
```

Starting TSMC Server on Netware

Follow these steps to start TSMC Server on Netware:

1. Switch to the console on the Netware server.
2. Type `TSMCSTART` and press **Enter**.

IMPORTANT: TSMC changes the **CPU Hog Timeout Amount** to 5. This is necessary so that certain TSMC processes do not encounter the CPU Hog Timeout Amount condition. This value is set each time the `TSMCSTART` command is executed. If you need to change the **CPU Hog Timeout Amount** back to its original setting, you will need to do so each time you finish using TSMC. To set this value, type the following in the Netware console and press **Enter**:

```
SET CPU Hog Timeout Amount = <x> (where <x>=number of minutes)
```

3. Go to a client machine and open an Internet Explorer browser to run the TSMC Client. Assuming the IP address of your Netware server is 10.10.10.2, then you would enter the following address in the browser:

```
http://10.10.10.2:2301
```

4. Select the **TSMC** icon on the **Device Home Page** screen displayed in your browser. The **Java Plug-In Information** screen is displayed.
5. If you do not have Java installed, a Java certificate is displayed asking if you would like to install the Java plug-in available from Sun Microsystems. Click **Yes** and follow the instructions to install Java.

NOTE: If you do not have Internet access, click the link at the bottom of the page to install the Java plug-in. Follow the instructions on the screen. After installing the Java plug-in, restart the computer. When complete, click the **Refresh** button in your web browser to continue.

NOTE: Now is a good time to verify that your client machine is set up correctly. The Java Plug-in and cache should be verified now in order to prevent potential problems. This step must be performed after the Java Plug-in installation has completed successfully.

6. After the Java plug-in is installed (if necessary), a login screen is displayed. Enter your user name and password to access the computer, and then click **OK** to continue. The default user name and password is **administrator** (valid users are documented in the Server Agent help files in the TSMC application).

NOTE: If you are already authenticated, the login screen is not displayed.

7. You may briefly see a **TSMC Client** screen with a status bar. This screen disappears and the **TSMC Summary** screen for the computer is displayed. Check the Client status at the bottom of the screen to ensure that you are the primary user (only primary users are able to issue commands to devices – secondary users can only view the screens). You are now ready to start using TSMC.
8. When you are finished using TSMC, click the **Sign Off** link in the upper left corner of the screen. On the following screen, click the **Logout** link.

IMPORTANT: It is important to log off as described in step 8. If you close the browser without logging off, you will have to wait for a 15-minute timeout period before you can log on again as a primary user.

9. Go to the Netware server and open the Netware console. Enter `TSMCSTOP` to unload TSMC.

Installing TSMC on Tru64

System Requirements for Tru64

- Any Compaq AlphaServer system running Tru64 v5.1a.
- Any Compaq LVD (Low Voltage Differential) or HVD (High Voltage Differential) host bus adapter.
- Any Compaq 1-GB Fibre Channel host bus adapter.
- Compaq Insight Manager for Tru64 version 3.0 (or greater when available).
- A Web browser with Java Support, such as Microsoft Internet Explorer 5.5 or Netscape Navigator 4.7 or above, to view HTML help files and to view the client. If you are using Netscape, see the “Preparing Netscape” section for the necessary prerequisites.
- Internet Access. Although not a requirement, Internet access facilitates program updates and access to firmware files. Without Internet access, you need to copy files from a network server or local media.

NOTE: Support is constantly updated. For the latest information on supported adapters, check the Compaq website at:

www.compaq.com/storage

NOTE: TSMC is intended for use with Compaq hardware. TSMC may also be used with hardware from other vendors, but some features may be deactivated.

Preparing Netscape

For Netscape to function properly with TSMC in a Tru64 environment, perform the following steps:

1. Install the 1.3.1-3 Java Plugin Kit (see note below).
2. Install the Optional Enhanced Environment (see note below).

NOTE: Information for installing the 1.3.1-3 Java Plugin Kit and the Optional Enhanced Environment can be obtained in the following release note:

www.compaq.com/java/documentation/1.3.1/unix/docs/release_notes.html

3. Set and export the NPX_PLUGIN_PATH variable in the *.dtprofile* file. Open the file using a text editor and add the following lines at the bottom of the file:

```
NPX_PLUGIN_PATH=/usr/opt/java131/jre/plugin/alpha/ns4
export NPX_PLUGIN_PATH
```

Installing TSMC

To install TSMC on a client machine, complete the following steps:

1. Verify the following:
 - The server name is fully qualified by a domain name (for example, mysystem.domain.net)
 - Compaq Insight Manager v3.0 (or greater) is running on the server

IMPORTANT: TSMC will not run without Compaq Insight Manager v3.0 or greater, and Compaq Insight Manager v3.0 will not run on the server unless the server name is fully qualified by a domain name.

2. Log on to the target machine as root.
3. Enter the following commands to create a TSMC server directory:

```
cd /
mkdir TSMC
```

4. Navigate to the TSMC server directory:

```
cd /TSMC
```

5. Tar the server files:

```
tar -xvf tsmc_tru64_200.tar
```

Starting TSMC Server on Tru64

IMPORTANT: With Tru64, the firmware update feature of TSMC is not supported with the StorageWorks DDS3 Autoloader in a direct-attach environment.

IMPORTANT: There is a conflict with TSMC and Tru64 Single Sign On for Windows 2000 (SSOW2K200). If this software package is installed, TSMC will not run.

To start TSMC, do the following:

1. Verify that Compaq Insight Manager v3.0 is running on the server.
2. Navigate to the TSMC server directory and enter the following command:

```
./tsmcext3
```

3. Open a browser and enter the following URL:

```
https://<yourserver>:2381
```

Where <yourserver> is the network name of the computer you are trying to access. For example, if your computer name is longspeak, type the following:

```
https://longspeak:2381
```

4. The **Device Home Page** screen is displayed. Locate the Tape Storage Management Console icon on this screen and click it. The **Java Plug-In Information** screen is displayed.
5. If you do not have Java installed, a Java certificate is displayed asking you if you would like to install the Java plug-in available from Sun Microsystems. Click **Yes** and follow the instructions to install Java.

NOTE: If you do not have Internet access, click the link at the bottom of the page to install the Java plug-in. Follow the instructions on the screen. After installing the Java plug-in, restart the computer. When complete, click the **Refresh** button in your web browser to continue.

NOTE: Now is a good time to verify that your client machine is set up correctly. The Java Plug-in and cache should be verified now in order to prevent potential problems. This step must be performed after the Java Plug-in installation has completed successfully.

6. The web software comes with a Secure Socket Layer (SSL) server certificate. If you have not previously installed this certificate, you may encounter the security alert shown in Figure 2-3.



Figure 2-4: Security Alert

This security alert requires that you install the certificate. To install the certificate, do the following:

- a. Click **View Certificate**.
- b. On the next screen, select the **Install Certificate** option. This option displays the **Certificate Import Wizard**. The **Certificate Import Wizard** guides you through the steps to successfully import the certificate to the certificate store on your server.
- c. After installing the certificate, return to the **Security Alert** dialog and click **Yes** to continue.

After the certificate is successfully installed, you should no longer see this security alert on any subsequent logins to TSMC.

7. You may briefly see a **TSMC Client** screen with a status bar. This screen disappears and the **TSMC Summary** screen for the computer is displayed. Check the Client status at the bottom of the screen to ensure that you are the primary user (only primary users are able to issue commands to devices – secondary users can only view the screens). You are now ready to start using TSMC.
8. When you are finished using TSMC, click the **Sign Off** link in the upper left corner of the screen. On the following screen, click the **Logout** link.

IMPORTANT: It is important to log off as described in step 8. If you close the browser without logging off, you will have to wait for a 15-minute timeout period before you can log on again as a primary user.

9. To stop TSMC, do one of the following:
 - From the Common Desktop Environment (CDE), close the applet.
 - From the Command Line Interface (CLI), look up the process ID and then execute the `kill -9` command on that ID. For example, if the process ID is 1012, enter the following command:

```
kill -9 1012
```

Using the Summary Screen

After TSMC starts, access the TSMC client using your web browser. The first screen that is displayed is the **Summary** screen, which lists all Fibre Channel and direct-attached devices, along with the client status. From the **Summary** screen, you can check the status of each device and update your firmware list. The **Global** tab includes enhancements for future releases of TSMC.

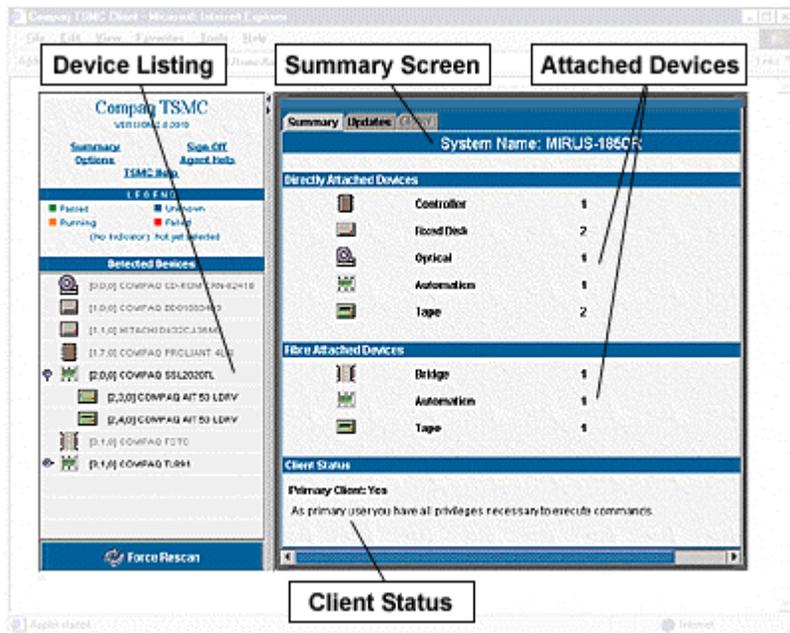


Figure 3-1: TSMC main screen

NOTE: TSMC supports primary and secondary clients. A primary client has full access and control. A secondary client can only view information; it cannot control it.

Using the Device Listing

When scanning is complete, the **Device Listing** screen is displayed, showing each SCSI or Fibre Channel device. The number of SCSI devices on a bus can range from 0 to 7, or 0 to 15 with Wide SCSI. Fibre devices can be attached directly or as part of a switch network, so the number of Fibre Channel devices on a bus can be very high.

NOTE: TSMC supports large LUN setups.

The screenshot displays the Compaq TSMC Client interface in a Microsoft Internet Explorer browser window. The address bar shows the URL `http://90.0.0.5:2301/tsmc/launch/default`. The main content area is titled "Compaq TSMC" and features a navigation menu with links for "Summary", "Options", "TSMC.Help", "Sign Off", and "Agent Help". Below the menu is a "LEGEND" section with color-coded indicators: a green square for "Passed", an orange square for "Running", a blue square for "Unknown", and a red square for "Failed". The "Detected Devices" section lists various hardware components with their LUN addresses and names:

LUN Address	Device Name
[0,0,0]	QUANTUM VIKING II 9.1SCA
[0,1,0]	SEAGATE ST34371W
[1,0,0]	TOSHIBA DVD-ROM SD-M1201
[2,0,0]	COMPAQ FCTC
[2,0,0]	COMPAQ TL631
[2,0,4]	COMPAQ 35/70GB DLT LDRV
[2,1,0]	COMPAQ SSL2020TL
[2,1,1]	COMPAQ AIT 50 LDRV
[2,1,2]	COMPAQ AIT 50 LDRV
[2,1,1]	COMPAQ DATA

At the bottom of the interface is a "Force Rescan" button. Three callout boxes on the left identify specific elements: "Menu Commands" points to the navigation links, "Automation" points to the automation icon in the device list, and "Tape Devices" points to the AIT 50 LDRV devices.

Figure 3-2: Device Listing

NOTE: Drives in libraries are displayed in association with the libraries in which they reside. Some drives may not display correctly if the library is in standby mode or if a drive is unavailable and the user has not reconfigured the library. To ensure correct display, place the library online or reconfigure the library as needed.

Identifying Devices

Icons in the device listing indicate if the device is a tape drive, tape automation, or Fibre Channel device. Next to each icon, in the brackets before each device name, TSMC displays the corresponding SCSI bus, ID, and LUN. A special icon is displayed for tape drives loaded with media. Devices that are listed but not supported by TSMC are grayed out.

Selecting a Device to Analyze

Click a tape device on the **Device Listing** screen. This opens the **Device Qualifier** screen for the selected device.



Figure 3-3: Tape drive with media inserted

Using the Device Screens

All SCSI diagnostic commands are executed from the **Device** screens. The appropriate screen is automatically selected when you click a tape device on the **Device Listing** screen. For example, in testing DLT-based libraries you test the individual DLT drive with tape **Device** screens, or test the library with the automation **Device** screens. Click a device on the **Device Listing** screen to open the corresponding **Device** screen.

Tape Device Screens

Tape device screens include:

- Status
- Tests
- Firmware
- Logs

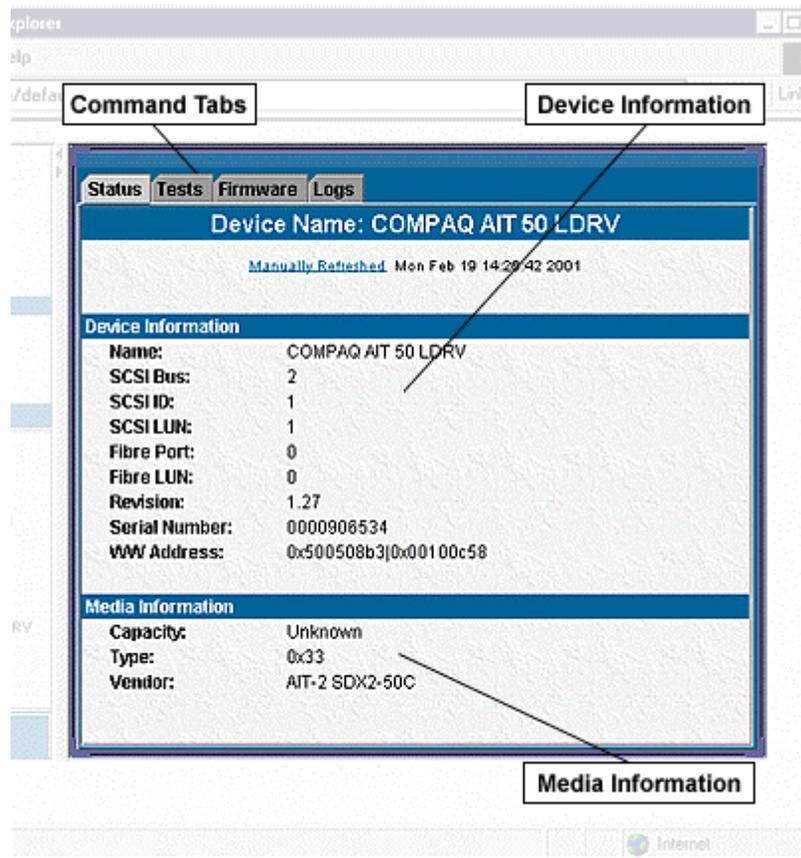
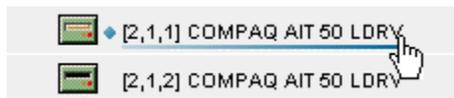


Figure 3-4: Tape Status screen

Table 3-1: Tape Device Tabs

Tab Name	Description
Status	Displays the current status of a tape or automation device.
Tests	Lists tests and commands that are available for the device.
Firmware	Lets you download and update firmware for device.
Logs	Displays the Message, Error, and SCSI logs.

The current selected device is displayed with a double line under the device name.

**Figure 3-5: Device Listing screen with device selected**

Automation Device Screens

These screens are associated with libraries and automation.

The screenshot displays a web-based interface for managing automation devices. At the top, there are navigation tabs: 'Command Tabs' and 'Device Information'. Below these, a sub-menu includes 'Status', 'Tests', 'Firmware', 'Logs', and 'Layout'. The main content area shows the 'Device Name: COMPAQ TL891' and a 'Manually Refreshed' timestamp of 'Tue Feb 27 11:07:51 2007'. A table titled 'Device Information' lists the device's details, including Vendor, Product, Rev Level, Serial, Bus ID, LUN, and MAC. Below this, a section titled 'Associated Devices' lists two related devices with their respective specifications.

Vendor	Product	Rev Level	Serial	Bus ID	LUN	MAC	
COMPAQ	TL891	0514	3G9BCR043001	3	1	0	0x100000e0 0x02004d0c

Associated Devices

COMPAQ	35/70GB DLT LDRV	2561 (V97)	CX9X9S0404	3	1	4	0x100000e0 0x02004d0c
COMPAQ	35/70GB DLT LDRV	2561 (V97)	CX9X9S0504	3	1	5	0x100000e0 0x02004d0c

Figure 3-6: Automation Device screen

The **Associated Devices** section displays only tape drives that are members of the automation device or library.

Table 3-2: Automation Tabs

Tab Name	Description
Status	Displays the current status of a tape or automation device.
Tests	Provides tests and commands that are available for the device.
Firmware	Lets you download and update firmware for device.
Logs	Displays the message, error, and SCSI logs.
Layout	Lets you inventory and transport media between drives.

Menu and Toolbar Commands

Using the Menu Commands

TSMC uses menu commands such as **Summary**, **Sign Off**, **Options**, **Agent Help**, and **Force Rescan**. With the exception of the **Force Rescan** command, all commands are located on the menu bar in the upper left corner of the TSMC screen. **Force Rescan** is located at the bottom left of the screen.

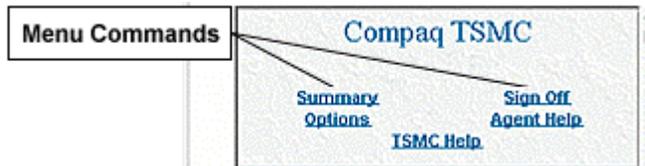


Figure 4-1: Menu Commands

The menu commands are described in the following table.

Table 4-1: Menu Commands

Menu Item	Function
Summary	Opens the Summary screen that shows all attached devices.
Sign Off	Closes the application. To avoid losing or corrupting data, you must abort or cancel all running or pending tests before closing the application window.
Options	Sets behavior and display characteristics of TSMC using the options shown in Figure 4-2.
Agent Help	Launches Compaq web-based management help.
Force Rescan	Initializes all attached SCSI buses and discovers any devices on them. It also updates the Windows NT or Windows 2000 device list, even if the devices were not attached at startup. On Windows 2000, this issues the Scan for Hardware Changes command. On Novell Netware, this issues the Scan for New Devices command. This function is found at the bottom left corner of the Device Listing screen.

Using the Options Screen

From the **Options** screen, you can set behavior and display characteristics for TSMC using the options shown in Figure 4-2.

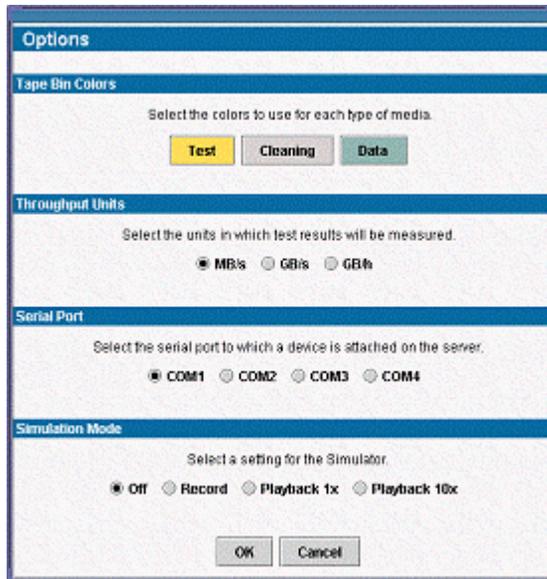


Figure 4-2: Options screen

Tape Bin Colors

These options let you set the colors for the test, cleaning, and data media. Test media barcodes begin with "TST" and cleaning media barcodes begin with "CLN." Those settings affect the display of the media in the **Layout** tab for automation devices.

Throughput Units

These options let the user establish the throughput units displayed for tests in the message log. Available options include:

- MB/s – Megabytes per second
- GB/min – Gigabytes per minute
- GB/h – Gigabytes per hour

Serial Port

If you have tape libraries that support firmware updates via serial ports, you can enable the serial port for use. This field lets you specify the serial port number on the server that is used for sending the firmware image.

Simulation Mode

The simulation feature is unsupported at this time.

IMPORTANT: Use this option only if directed by Compaq support personnel.

Basic Functionality

SCSI devices must often be programmed or set up to function properly in a particular operating environment. Additionally, the media often need to be examined, formatted, partitioned, or otherwise prepared.

Use TSMC to determine if devices or media require programming or setup. Both Standard and Custom tests are available for tape devices. Standard and Extended tests are available for automation devices. These are all available through the **Tests** tab.



Figure 5-1: Location of the Tests tab

Standard and Extended Tests

The Standard and Extended tests examine various features of automation devices. The time required to perform these tests varies, depending on the devices. See Appendix A for descriptions of the tests.



CAUTION: Media partitioning is a feature for ESL and MSL libraries in which multiple generations of DLT drives (such as DLT 35/70 and SDLT) and media reside in the same library. If you use media partitioning on an ESL or MSL library, **DO NOT** run the Standard or Extended tests for the library. Running these tests can result in the incorrect media type being inserted into a DLT drive, causing damage to the drive or media.

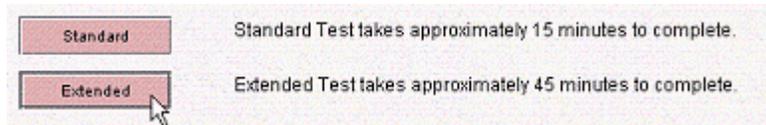


Figure 5-2: Standard and Extended test buttons

Standard and Custom Tests

The Standard and Custom tests examine features of tape devices. The Custom test starts with a default list that you can subtract items from. The time required to perform this test varies, depending on the devices. See Appendix A for descriptions of the tests.

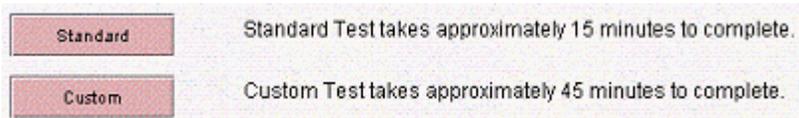


Figure 5-3: Standard and Custom test buttons



Figure 5-4: Custom Test options

Advanced Functionality

In addition to performing tests, TSMC lets you execute device specific commands. There are commands specific to tape automation and to tape devices.

Automation and Device Commands

The automation and device commands are comprised of Status, Info, and Setup commands. Descriptions of each of these commands can be found in tables 5-1 through 5-3.

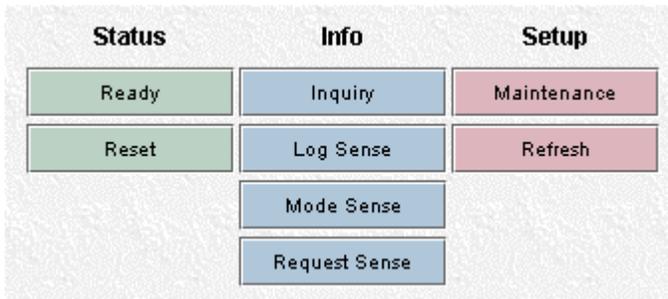


Figure 5-5: Automation tool commands available for a library

NOTE: Some command buttons are disabled if no internal testing information is available for the device.

Status	Info	Setup
Ready	Inquiry	Erase
Reset	Log Sense	Refresh
Eject	Mode Sense	
Rewind	Request Sense	

Figure 5-6: Commands available for a tape device or tape device in a library

Status Commands

The Status commands include **Ready**, **Reset**, **Eject**, and **Rewind**. Only the **Ready** and **Reset** commands are available in the automation screen.

Table 5-1: Status Commands

Command Name	Description
Ready	Issues a Test Unit Ready command to detect if the device is ready.
Reset	Issues a soft reset to the device.
Eject	Causes the device to eject the media.
Rewind	Causes the device to rewind the media.

Info Commands

The info commands are **Inquiry**, **Log Sense**, **Mode Sense**, and **Request Sense**. These commands are used to provide operational and error information for SCSI devices. By selecting these commands, you can view available log, mode, or inquiry pages and page contents. These pages are also written to the message log.

Table 5-2: Info Commands

Command Name	Description
Inquiry	Shows the inquiry pages maintained for the device. See Figure 5-7.
Log Sense	Shows the log pages maintained for the device. See Figure 5-8.
Mode Sense	Displays mode parameter pages for the device. See Figure 5-9.
Request Sense	Displays status information for the device. See Figure 5-10.

Inquiry

The **Inquiry** dialog, shown in Figure 5-7, displays detailed device parameters. Click a page in the **Available Pages** column to view its contents.

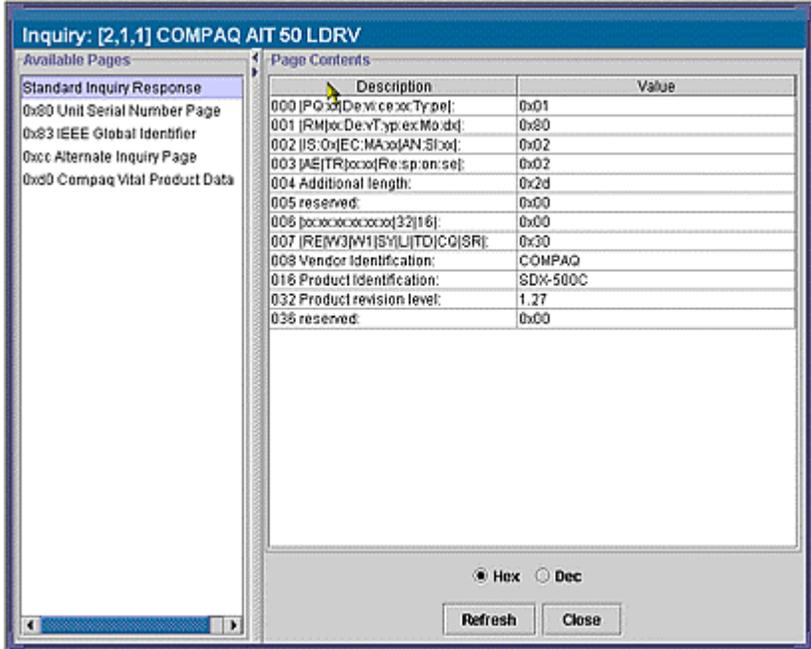


Figure 5-7: Inquiry dialog

Log Sense

The **Log Sense** dialog, shown in Figure 5-8, displays current and historical statistical information about the device. Click a page in the **Available Pages** column to view its contents.

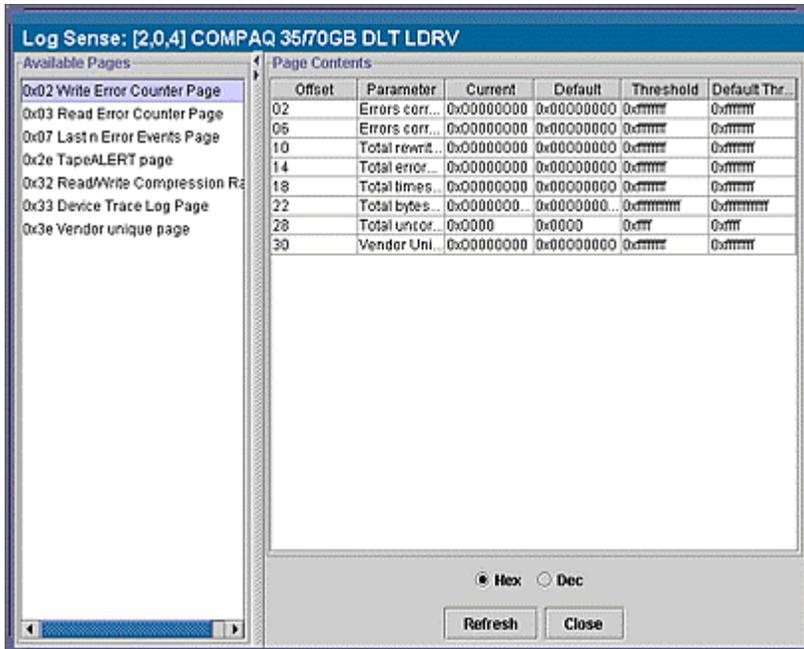


Figure 5-8: Log Sense dialog

Mode Sense

The **Mode Sense** dialog, shown in Figure 5-9, displays mode parameter pages for the device. Click a mode page in the **Available Pages** column to view its contents.

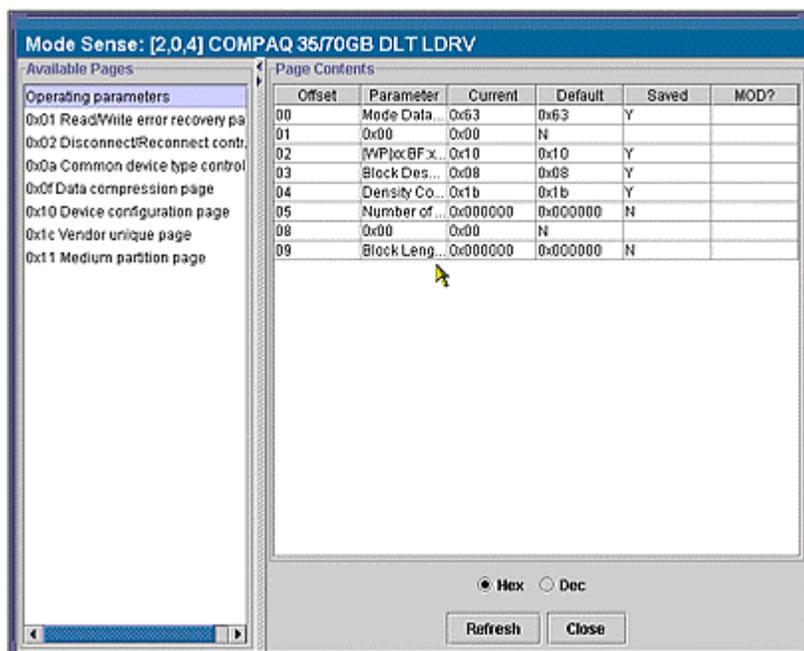


Figure 5-9: Mode Sense dialog

Request Sense

The **Request Sense** dialog, shown in Figure 5-10, displays status information for the device.

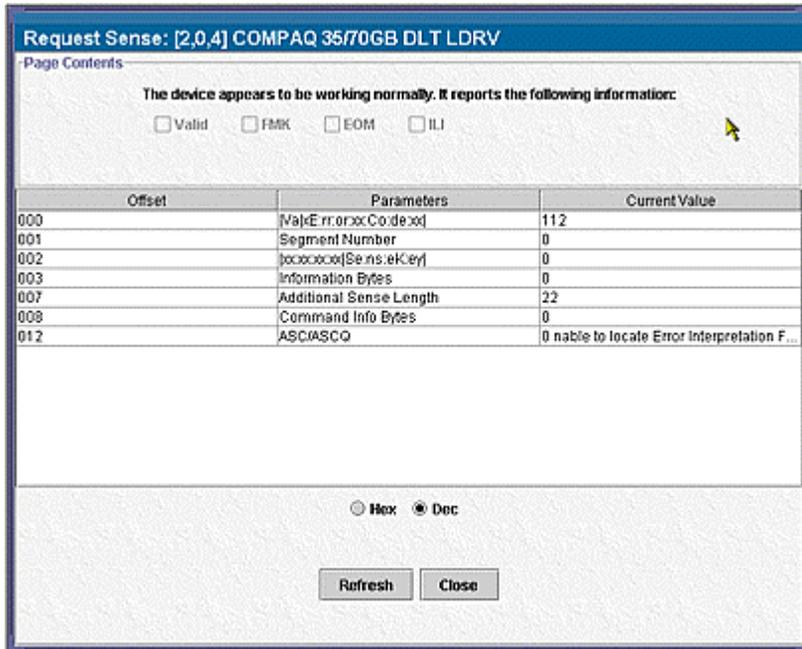


Figure 5-10: Request Sense dialog

Setup Commands

The setup commands include **Ready**, **Move Element**, **Position to Element**, and **Erase**.

Table 5-3: Setup Commands

Command Name	Description
Home	This command resets the robotics arm to its starting point. Some devices do not reposition their arm physically in response to this command. Available for automation commands only.
Move Element	Lets you move cartridges within an automation device. Available for automation commands only.
Position to Element	This command moves the robotics arm to the slot address you specify. Available for automation commands only.
Erase	Erases data on selected media. Options include a long erase and a quick erase. Long erases can be lengthy, so use caution when requesting one. Available for tape device commands only.

Utilities and Other Commands

Downloading Firmware Updates

TSMC keeps track of all available firmware versions for specific Compaq products. TSMC has three options to retrieve firmware or application updates from the Web. You can use the **Download** command available in the TSMC program, the File Retrieval program located in the TSMC directory, or the **Updates** tab from the **Summary** screen.

Updates Tab

To display the **Updates** tab, click the **Summary** link in the upper left corner of the screen. The **Updates** tab functions much like the Firmware Retrieval utility. When you select the **Updates** tab, the **Update** screen is displayed, as shown in Figure 6-1. You can select individual or multiple files for download. Make your selections, and then click the **Retrieve Selections** button. You can also download the TSMC application from this screen.

The firmware database listing contains information regarding firmware for your Compaq tape devices that is available for download from Compaq. The name of this database is the **Compaq Firmware Listing**. Choose the **Compaq Firmware Listing** file and click the **Retrieve Selections** button. When this has been downloaded successfully, a green check mark is displayed to the right of the Compaq Firmware Listing file in the **Updates** tab listing. Click the **Refresh List** button to have the **Updates** tab read the new firmware database listing you have downloaded. This refreshes the listing of firmware on the **Updates** tab.

Remember, the firmware database shipped with your version of TSMC is current as of the release date of that version of TSMC. It is important to periodically update this database to take advantage of new versions of firmware for your Compaq tape drives and tape devices.

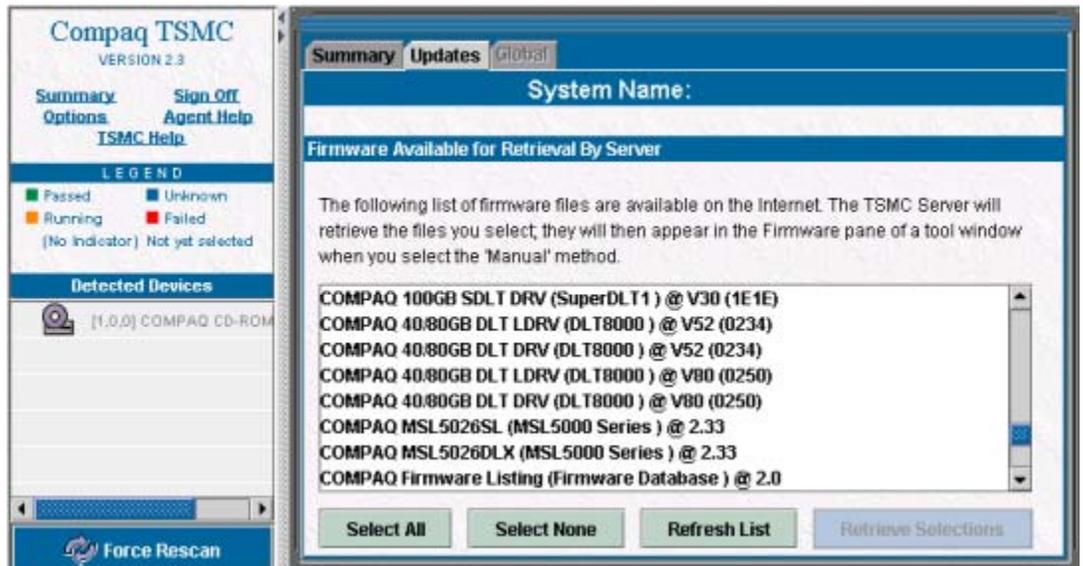


Figure 6-1: Updates tab

Table 6-1: Updates Tab Commands

Command Name	Description
Select All	Selects all firmware files for download from the Compaq FTP site.
Select None	Clears all selections.
Refresh List	After retrieving the Compaq Firmware Listing , this command reads the updated firmware listing you downloaded. This firmware listing contains listings for new firmware that has become available since the version of TSMC that you are using was released.
Retrieve Selections	Downloads all of the selected files from the Compaq FTP site.

Firmware Tab

The **Firmware** tab is accessible for each tape automation device. Click **Auto** if you want to use the Compaq recommended firmware updates (from the Compaq FTP site). Click **Manual** if you have a specific firmware file that you want to use.

NOTE: Manual firmware files must be located in the *Downloads* folder of the parent TSMC directory. Typically, this is located at *C:/Program Files/Compaq/TSMC Server/Downloads*.

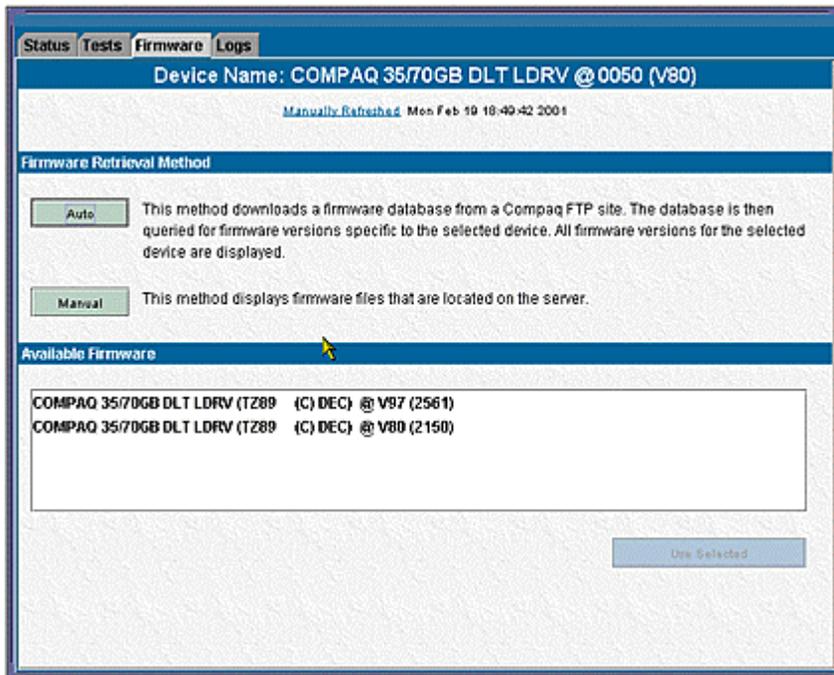


Figure 6-2: Firmware tab showing files available

When you select a firmware file, the following dialog box is displayed:

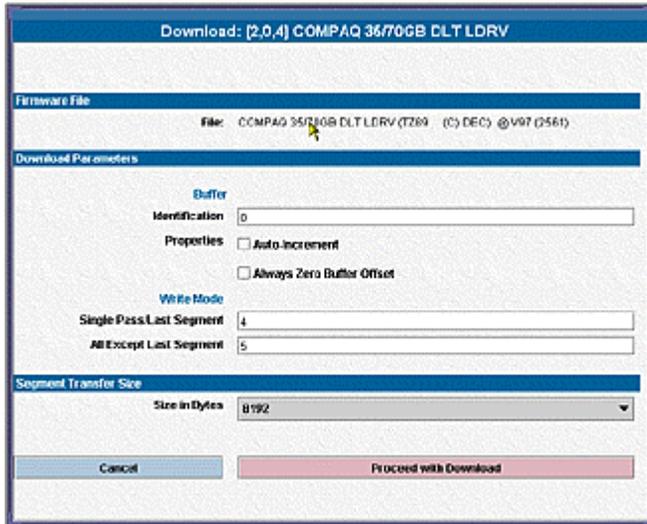


Figure 6-3: Download Options screen

Before proceeding, read the following cautions:

 **CAUTION:** Do not interrupt the download process or interrupt power to the device while the download process is running. Doing so may damage the device.

 **CAUTION:** ESL9000 and TL895 libraries use serial port downloads. Make sure that a serial cable is connected to the device and to your host computer. If a download fails, TSMC enforces a "forced re-download." Follow the instructions given to complete the procedure.

TSMC determines download parameters when you select a firmware file. If you must change download parameters, consult Compaq support personnel.

Your tape device may need to be in a specific state to receive new firmware. For example, the media may need to be ejected before the firmware download. Check your tape device documentation for specific instructions.

After specifying a file or arriving at this dialog box after using the firmware database, click **Download**. Do not interrupt the download process or interrupt power to the device while the download process is running. Doing so may damage the device.

After firmware updates are made to devices, execute the **Force Rescan** command. This command updates the device (library or drive) information to show the firmware update.

Logs

Test results are displayed in the message log, error log, and SCSI log. To view these logs, select the **Logs** tab.

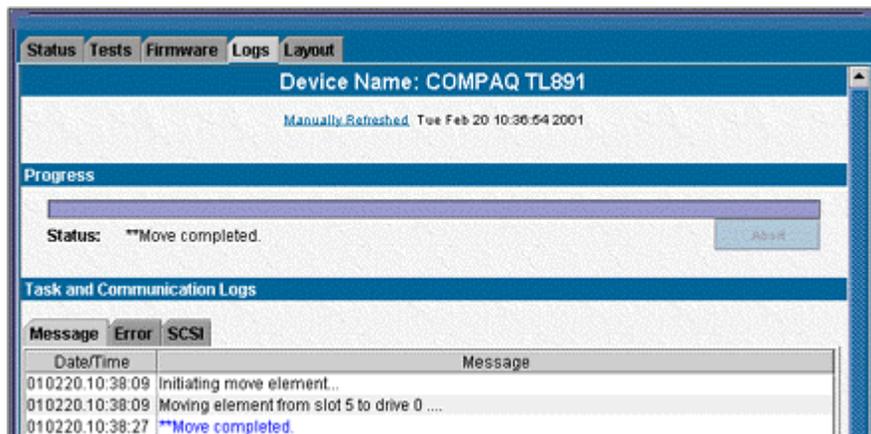


Figure 6-4: Logs screen

Message Log

The message log shows the progress of the current test and the results of every command executed.

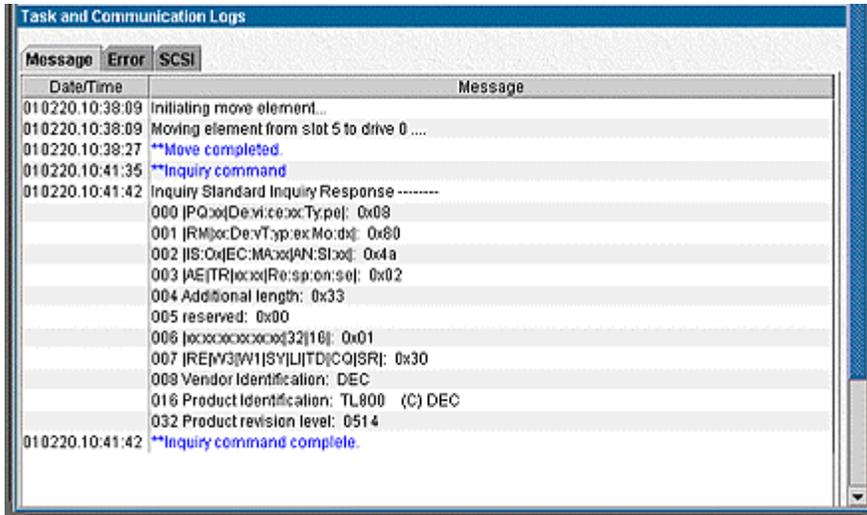


Figure 6-5: Message log being updated during test

Error Log

The error log lists SCSI commands that failed or returned an error.

Date/Time	Bus	ID	LUN	CDB	Error	Status	SenseKey	ASC	Details
010220.10:57:07	02	01	10	00 40 00 00 00 00	0x02	0x02	0x02	0x3a)0x00	

Figure 6-6: Error log showing a Device Not Ready response

SCSI Log

The SCSI log lists every SCSI command issued to the current device.

Task and Communication Logs									
Message	Error	SCSI							
Date/Time	Bus	ID	LUN	CDB	Error	Status	SenseKey	ASC	Details
010220.16:49:54	02	00	4	00 80 00 00 00 00	0x02	0x02	0x02	0x3a 0x00	
010220.16:50:02	02	00	4	12 81 00 00 fc 00	0x00	0x00	0x00	0x00 0x00	
010220.16:50:08	02	00	4	12 81 00 00 fc 00	0x00	0x00	0x00	0x00 0x00	
010220.16:50:08	02	00	4	12 81 cc 00 fc 00	0x00	0x00	0x00	0x00 0x00	

Figure 6-7: SCSI log showing several different CDBs being executed sequentially

Layout Tab

Click an automation device on the **Device Listing** screen to open the **Automation** screen. The **Layout** tab lets you perform media moves, test automation functions, and search for barcode media.

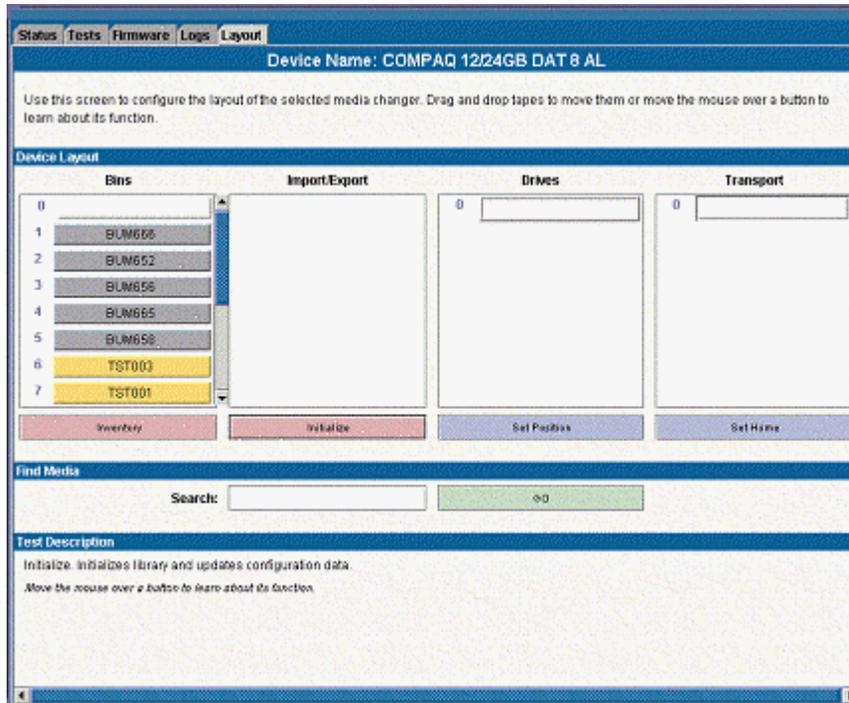


Figure 6-8: Layout screen for a DAT 8 Autoloader

To move a tape from one location to another, drag the media with your mouse to the desired location.

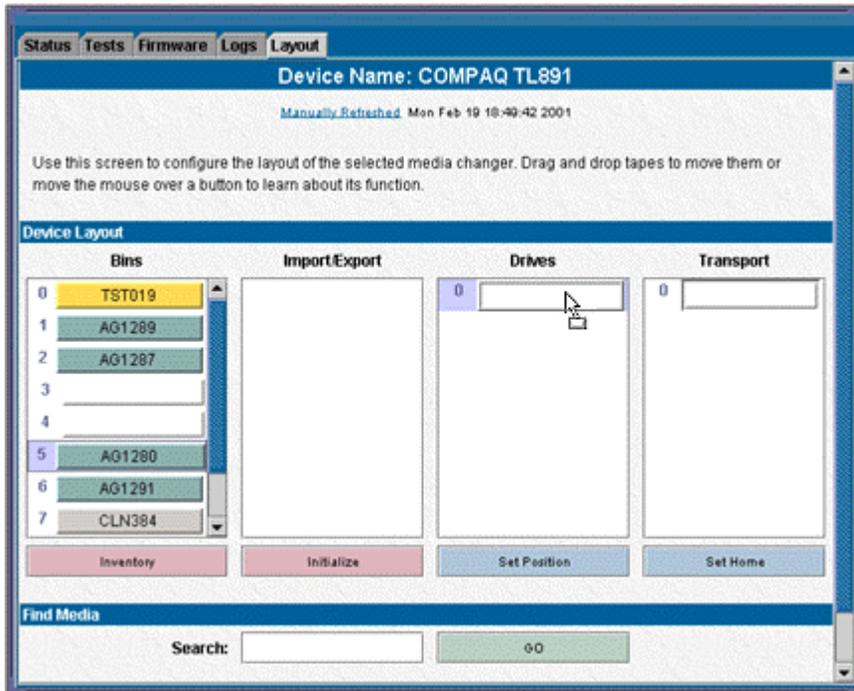


Figure 6-9: Dragging a tape to execute a move

In this case, the tape labeled AG1280 is moved from slot 5 to drive 0. Both the **Source** and **Destination** screens are updated when the move is complete.

The following automation commands are available from the **Layout** tab:

- **Search**
- **Inventory**
- **Initialize**
- **Set Position**
- **Set Home**

Search

The **Search** command lets you locate a specific tape in the library by barcode. Type the desired barcode and click **Go**. The search is case sensitive.

NOTE: If you leave the field blank, the **Search** command begins at the first cartridge.

Inventory

The **Inventory** command issues an inventory request from the tape library. The information returned from the library to TSMC is from the last inventory performed by the library. The following sections of the TSMC screen are updated:

- Bins
- Import/Export (if applicable)
- Drives
- Transport (if applicable)

Initialize

The **Initialize** command performs a forced inventory of tapes inside the library. Barcodes are scanned and stored in memory.

NOTE: Depending on the size of your library, this process can take a long time to complete.

Set Position

The **Set Position** command positions the picker/transport to the indicated media or drive. Click the desired destination point of the picker/transport and click **Set Position**.

Set Home

The **Set Home** command tells the server to save the current position of all media as the "home" position. This is useful when you want to test your library by moving cartridges around, but you want to return all of the media to their original locations. When **Set Home** is executed, the button changes to **Home**. Click **Home** to restore all of the media back to their original locations established by the **Set** command.

IMPORTANT: Media position is only stored while the TSMC Client is open.

Frequently Asked Questions

How do I run a Request Sense test?

Follow these steps to determine if the device reports an error:

1. Click a tape device in the **Device Listing** screen.

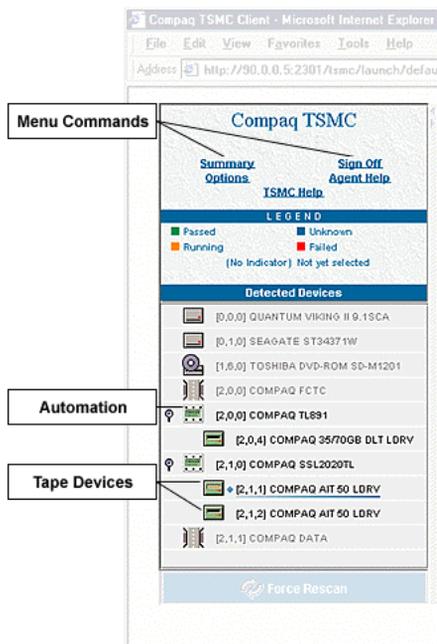


Figure 7-1: Device tree listing

2. On the resulting **Status** screen, click the **Tests** tab.
3. Select **Request Sense** under the **Info Commands** option. The **Request Sense** dialog displays the status of the device.

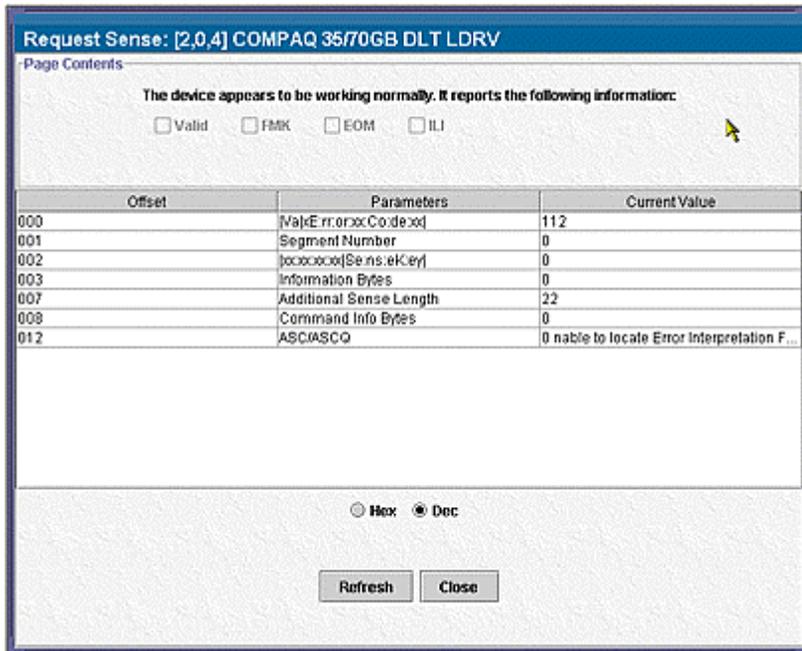


Figure 7-2: The Request Sense dialog

How do I look at soft error rates?

IMPORTANT: Soft errors may indicate worn media or dirty tape heads.

Follow these steps to view the soft errors recorded by a drive.

IMPORTANT: These instructions are for DAT drives.

1. Select the device you want to analyze from the **Device Listing** screen.
2. On the resulting **Status** screen, click the **Tests** Tab.
3. Select **Log Sense** under the **Info Commands** option.
4. Select **Drive Counters Log Page** from **Available Log Pages**.
5. In the **Page Contents** pane, examine the **Offset**, **Parameters**, **Current Value**, and **Threshold** defaults for the error rates you are interested in.

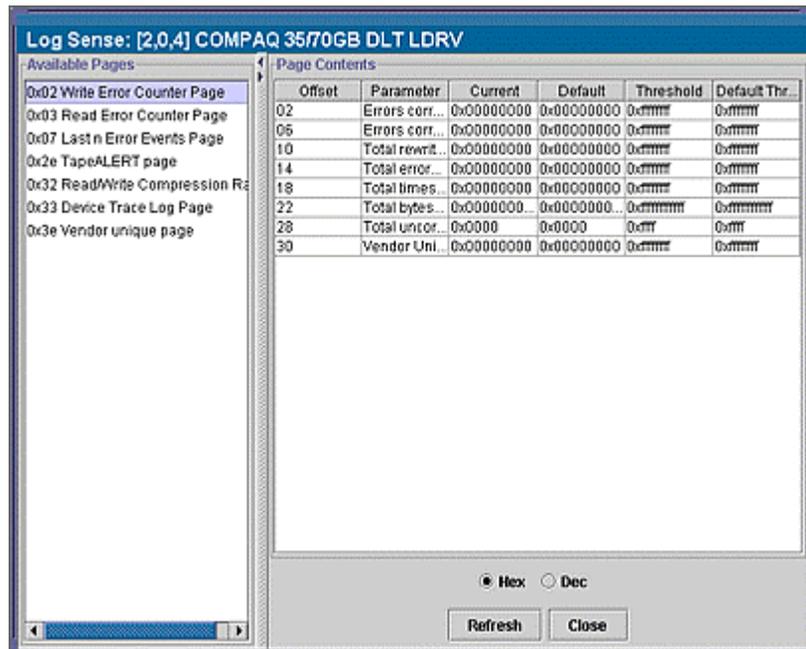


Figure 7-3: Log Sense dialog displaying write error data

How do I update my firmware and software?

Firmware and TSMC software updates can be downloaded from the **Updates** screen. To download an update or file:

1. Click the **Updates** tab.
2. Select the file you want to download from the list provided. The firmware database listing contains information regarding firmware for your Compaq tape devices that is available for download from Compaq. The name of this database is the **Compaq Firmware Listing**. Choose the **Compaq Firmware Listing** file and click the **Retrieve Selections** button.

When this has been downloaded successfully, a green check mark is displayed to the right of the Compaq Firmware Listing file in the **Updates** tab listing. Click the **Refresh List** button to have the **Updates** tab read the new firmware database listing you have downloaded. This refreshes the listing of firmware on the **Updates** tab. Remember, the firmware database shipped with your version of TSMC is current as of the release date of that version of TSMC. It is important to periodically update this database to take advantage of new versions of firmware for your Compaq tape drives and tape devices.

3. Click the **Retrieve Selections** button. The files are downloaded to the TSMC download directory:

```
C:\Program Files\Compaq\TSMC Server\Downloads
```

IMPORTANT: Be sure to keep your database version current. TSMC uses this database to show the most current versions of firmware available for Compaq tape drives and tape libraries.

What if my device fails the test?

If the tape device fails to pass a Standard or Custom test, perform the following steps if possible:

1. Rerun the test.
2. Replace the cartridge and rerun the test.

NOTE: If the replacement cartridge is new, try a cartridge from a different batch. Compaq recommends that you set aside a cartridge employed in any previously successful test as a reference.

3. Clean the drive using a recommended cleaning cartridge. Rerun the test.
4. Contact Compaq if the device still fails.

What if the tests fail to complete?

If standard tests are not complete in 30 minutes or less, TSMC may have sent a **Mode** command, causing the device to run slowly. Look at the log to see if there is activity. If activity is occurring very slowly, or if the logs are no longer updating, abort the test. If you choose to abort the test, try rerunning the test.

What if I am having trouble seeing devices on my SAN?

SAN environments can become unstable, and TSMC may report erroneous results. Check and reset Fibre-to-SCSI bridges if you suspect that TSMC is having a problem with a device attached to a bridge.

Understanding TSMC Components

The following diagram shows the major components of TSMC. The client is a Java plug-in compatible applet running in your browser. It communicates with the server via HTTP over the Internet or an Intranet. The server in turn executes diagnostic commands on the devices to which it is attached.

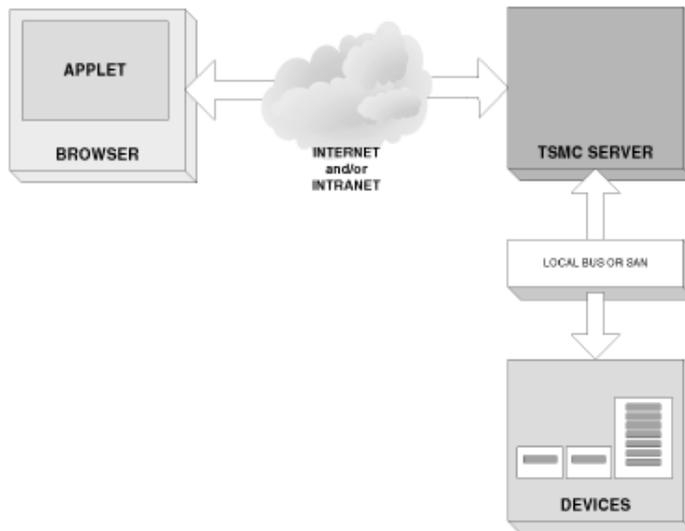


Figure 8-1: Relationship between the various components that comprise TSMC

There are two major areas for potential problems. The first is the network. The second area is in the SCSI bus itself, whether contained within the computer chassis or extended by Fibre Channel. With the combined potential for issues with a web server and a SCSI diagnostic, it is helpful if you can recognize in which area a particular problem occurs.

Network Problems

Table 8-1: Network Problems

Problem	Symptoms	Possible fixes
Browser cannot connect to server.	Browser returns error "430 Not found" or "unable to resolve name."	<ol style="list-style-type: none"> 1. Check physical connection. Are the network cables connected? Are the hubs powered on? 2. Check proxy settings. Is the browser configured properly to use the proxy server? If you are running the client and server on the same computer and you have a proxy server or firewall, ensure that the IP address is bypassed. In the Internet Options control panel, select the Connections tab. Click the LAN Settings... button. Verify that the Bypass proxy server for local addresses link is checked. Click the Advanced button. Make sure that the IP address is listed under the exceptions list at the bottom of the screen. 3. Check network access. Can you open other web sites with the browser? Can you ping or otherwise communicate with the server? 4. Check server status. Has the server crashed? Move your mouse over the TSMC icon in the system tray. If the icon disappears, the server has crashed. You can also check the process list in Windows Task Manager for the TSMC Server executable. If the server is running properly, Windows Task Manager displays <i>TSMCEXT3.EXE</i> in the process list. If the server has crashed, <i>TSMCEXT3.EXE</i> is not displayed in the process list.

continued

Table 8-1: Network Problems *continued*

Problem	Symptoms	Possible fixes
Java applet cannot communicate with server.	You see an error message with text "DB Connection Java. Security. Access Control Exception error: access denied."	<ol style="list-style-type: none"> <li data-bbox="625 288 1258 487">1. Use a different method to access the server. If you tried connecting using https://localhost:2381/ or something similar, try the hostname or IP address instead. For example, use https://hostname:2381 or https://90.0.0.5:2381 (substitute your correct IP address). If your server has multiple IP addresses, try using a different one. <li data-bbox="625 513 1258 1078">2. Verify that the Java Plug-In control panel is set up correctly. Run the control panel and verify the following settings: <ul style="list-style-type: none"> <li data-bbox="672 618 786 640">Basic tab: <li data-bbox="672 661 1029 683">Enable Java Plug-In = CHECKED <li data-bbox="672 704 1025 727">Show Java Console = CHECKED <li data-bbox="672 748 1122 770">Cache JARs in memory = NOT CHECKED <li data-bbox="672 791 843 814">Advanced Tab: <li data-bbox="672 835 1258 857">Java Run Time Environment = Use Java Plug-in Default <li data-bbox="672 878 1129 900">Enable Just In Time Compiler = CHECKED <li data-bbox="672 921 815 944">Proxies Tab: <li data-bbox="672 965 1036 987">Use browser settings = CHECKED <li data-bbox="672 1008 1250 1078">If any of these settings were not set correctly, set them and click Apply. Restart your browser.

continued

Table 8-1: Network Problems *continued*

Problem	Symptoms	Possible fixes
Network cache issues	Devices are displayed when they should not be. Media descriptions are inaccurate when client first connects. Client status is incorrect on first connection.	<ol style="list-style-type: none"> 1. Check for the correct browser cache setting. The browser must be set to check for newer versions of pages on every visit. With Internet Explorer, select Internet Options from the Tools menu. Click the General tab, and then click Temporary Internet Files settings. Select the option Check for newer versions of stored pages Every visit to the page. The factory default setting of Automatically does not work and is known to cause problems. 2. Verify proxy settings. See possible fixes for the problem "Browser cannot connect to server" presented earlier in this table.
Client Status not clearing	Client status is incorrect on first connection. Message "Invalid Client ID" appears when you issue a command in TSMC Client.	Sign out of TSMC Client and Server. The correct way to sign out of the TSMC Client is to click the Sign Off button (located in the upper left corner of the screen). To close the browser, click Close on the File menu. To deactivate the TSMC Server agent, right-click the TSMC icon (located on your desktop toolbar) and choose the Deactivate TSMC Server option. If you log back into TSMC Server and TSMC Client and still encounter the "Invalid Client ID" message, close TSMC Server and TSMC Client and wait 10 minutes before attempting to log back in. If you are running TSMC remotely (TSMC Server is running on a host server while you are logging in from a remote computer), you can simply sign off from the application and wait 10 minutes before attempting to log back into TSMC Client.

SCSI Bus Problems

Table 8-2: SCSI Bus Problems

Problem	Symptoms	Possible fixes
SCSI bus issues	Server crashes on launch. Splash screen never goes away, client cannot connect.	<ol style="list-style-type: none"> 1. There might be a problem with your SAN or local bus. Check termination, device status, bridge status, and so on. 2. Unreliable SAN components can make the network unstable. To debug, remove one suspect component at a time and restart the server each time. When the server starts up, replace one device at a time until you have isolated exactly which device has caused the problem.

Netware Problems

Table 8-3: Netware

Problem	Symptoms	Possible fixes
TSMC.CDM was not loaded.	Message on Netware Console states: "Loader cannot find public symbol: TSMC-Entry..."	<p>The TSMC CDM (Custom Device Module) is not properly installed. To reinstall the CDM, do the following:</p> <ol style="list-style-type: none"> 1. Type <code>nwconfig</code> on the console and press Enter. 2. Select Driver Options. 3. Select Configure Disk and Storage Device Drivers. 4. Select Select an additional driver. 5. Press Insert. At the next prompt, press F3. 6. Type the directory path <code>sys:\system\compaq\tsmcd\drivers</code> and press Enter. 7. Select TSMC.cdm and press Enter. 8. Exit NWCONFIG.

Test Descriptions

Appendix Overview

This appendix describes the various diagnostic tests that TSMC performs. The testing tools and qualifiers are procedures suggested by Compaq to serve as a vendor return test for a variety of tape drives. In addition, you can run the tests to verify that the devices, libraries, and auto-changers are properly installed. There are two types of tests associated with the tape drives: Standard and Custom. The automation device tests consist of Standard and Extended tests. The Standard and Custom tests on the tape drives run an Initialization, Buffer test, Write/Read test, and a Filemark test.

Testing Tape Devices

The Standard and Custom tests for tape devices consist of the following four basic test types:

- **Initialization Test**—This test issues **Test Unit Ready**, **Standard Inquiry**, **Rewind Tape**, and **Save and Reset Log Page Parameters** commands. The **Rewind** command rewinds the tape to the beginning.
- **Buffer Test**—This test issues **Write Buffer/Read Buffer** commands to the device.
- **Write/Read Test**—The Read test allows blocks of data to be viewed. The Write test allows you to write data to any accessible byte and block on the drive.
- **Filemark Test**—This test is used to separate data. It can also be used at the beginning of tape to set the density of certain devices. These devices function by positioning to the beginning of tape, detecting the density of the data in the block following, and then automatically switching to the detected density.

The **Space** command causes a tape device to space forward a specified number of filemarks, allowing you to skip datasets and position the tape exactly where you want it.

Standard Test Procedure for Tape Devices

Testing times vary, depending on the device.

Table A-1: Standard Test for Tape Drives

Test Type	Test performed
Initialization	Issue a Test Unit Ready command request.
	Issue standard inquiry commands.
	Issue Rewind Command.
	Save and reset log page parameters.
Buffer Test	Issue Write Buffer/Read Buffer .
Write/Read Test	Write/Read/Verify X blocks, with an increasing pattern with compression on.
	Save and reset log pages.
	Write/Read/Verify X blocks, with a decreasing pattern with compression off.
	Save and reset the parameters of log pages.
	Reset all log pages.
	Read/Verify.
	Write/Read/Verify X blocks, with a random pattern with compression on.

continued

Table A-1: Standard Test for Tape Drives *continued*

Test Type	Test performed
Write/Read Test (<i>continued</i>)	Save and reset the parameters of log pages. Reset all log pages.
Filemark Test	Issue a Test Unit Ready command request. Issue Rewind command. Issue a Filemark command. Issue a Space command to go back. Issue a Space command to go ahead. Issue an Erase command.
Partition Test (Helical Scan Devices)	Add a partition. Remove the partition.

Custom Test Procedures for Tape Devices

The Custom NTF test lets you select which tests to run: Test Unit Ready, Inquiry, Rewind, Buffer Test, Filemark Test, Clear All Logs, and Write/Read/Verify. These tests are similar to the Standard tests, but they implement the tests more often, and in more locations. These times vary, depending on the device. By default, all tests are selected.

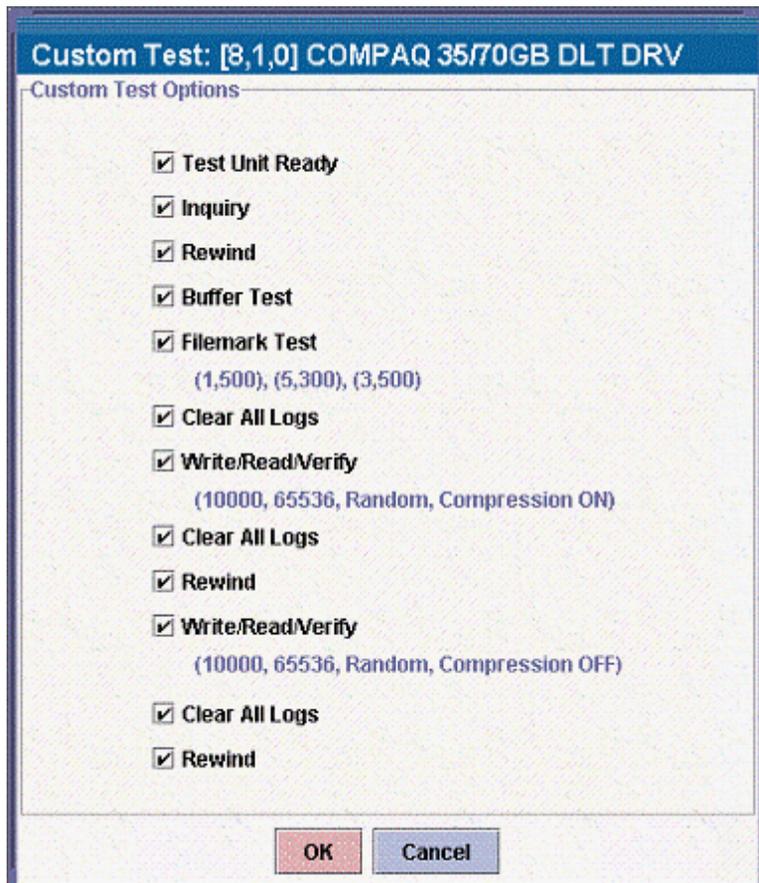


Figure A-1: Custom NTF with default selections

Table A-2: Custom Test for Tape Drives

Test Type	Test performed
Initialization	Issue a Test Unit Ready command request.
	Issue a Standard Inquiry command request.
Buffer Test	Issue a Write Buffer command.
	Issue Read Buffer command.
Filemark Test	Issue a Test Unit Ready command request.
	Issue Rewind command.
	Issue a Filemark command.
	Issue a Space command to go back.
	Issue a Space command to go ahead.
	Issue an Erase command.
	Issue a Test Unit Ready command request.
	Issue Rewind command.
	Issue Filemark commands.
	Issue a Space command to go back.
	Issue a Space command to go ahead.
	Issue an Erase command.
	Issue a Test Unit Ready command request.
	Issue Rewind command.
	Issue Filemark commands.
	Issue a Space command to go back.
	Issue a Space command to go ahead.
	Reset all log pages.
	Save and reset the parameters of log pages.

continued

Table A-2: Custom Test for Tape Drives *continued*

Test Type	Test performed
Write/Read Test	Write/Read/Verify certain blocks with a random pattern with compression on. Save the parameters of log pages. Reset all log pages.
	Write/Read/Verify certain blocks with a random pattern with compression on. Save the parameters of log pages. Reset all log pages.

Testing Automation Devices

TSMC provides Standard and Extended tests for automation devices.

Standard Test for Automation Devices

The standard test procedure for libraries performs a series of moves from the slots to drives and from drives to slots. The following moves are performed:

- Move from a slot to a drive
- Move from a drive to a slot
- Move from a slot to the load port (libraries containing load ports)
- Move from a load port to a slot (libraries containing load ports)
- Move from a slot to a slot

Extended Test for Automation Devices

The extended test procedure for libraries performs the same tests as the standard test for libraries, but the moves performed are more extensive. The following moves are performed:

- Move from a slot to a drive
- Move from a drive to a slot
- Move from a slot to the load port (libraries containing load ports)
- Move from a load port to a slot (libraries containing load ports)
- Move from a slot to a slot

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