

# *Compaq StorageWorks™*

## **Command Console for Tape Controller Management**

Getting Started Guide

Second Edition (November 2000)  
Part Number: AA-RLE2C-TE  
**Compaq Computer Corporation**

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Printed in the U.S.A.

Compaq StorageWorks Command Console for Tape Controller Management  
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# About This Guide

This guide is to be used for installation and configuration of StorageWorks Command Console (SWCC).

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**IMPORTANT:** Some of the software described in this guide may not be in your release. To determine which software is included, see Chapter 1 and readme.txt.

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## Intended Audience

This guide is intended for storage administrators. Before you install SWCC, you should have a basic understanding of the following:

- Your hardware:
  - Modular Data Router (MDR)
  - Fibre Channel Tape Controller II Version 2.6
- The TCP/IP network
- The Storage Area Network (SAN)

## List of Basic Terms

It is important you understand some of the basic terms that are used throughout this book. For a more complete list, refer to the glossary in the online Help.

**Table 1 List of Basic Terms**

Term	Definition
Agent System	A computer that has the Agent installed
Asynchronous Event Service (AES)	AES, which runs in the background as a service, collects and passes all traps from the subsystems to the appropriate Navigation Trees and individual pagers. Run AES for your client system to receive update.
Client System	<p>A Windows based computer that has one of the following:</p> <ul style="list-style-type: none"> <li>■ The Command Console Client</li> <li>■ A Web browser that can view the Tape Controller Management Page</li> </ul>
StorageWorks Command Console (SWCC)	Refers to the overall program
Command Console Client	Provides event notification and the Navigation Tree
<Device-Specific> Client; for example, HSG80 Client (Does not apply to this release.)	Provides a Storage Window for a particular device, such as the HSG80 controller
Fabric Window	Displays the status of your fabrics in the Windows-based Client software. Used to manage certain types of hubs, switches, and tape controllers.
Navigation Tree	<p>The Navigation Tree does the following:</p> <ul style="list-style-type: none"> <li>■ Provides access to the Storage Windows</li> <li>■ Shows the status of your storage systems. It displays your systems in a hierarchical order.</li> </ul>
Navigation Window	Contains the Navigation Tree
Storage Window	Displays the status of a particular storage subsystem.
Tape Controller Management Agent (TCM) Agent	The Tape Controller Management Agent collects data from Modular Data Router and Fibre Channel Tape Controller II. It then passes the information to the Navigation Tree and to the Tape Controller Management Page.
Tape Controller Management Page	Displays the status of your tape controllers on a Web page. Can be used to manage Modular Data Router and Fibre Channel Tape Controller II.

## Online Help

Most of the information about SWCC is provided in the online Help. Online Help is provided in two places:

- Navigation Window - online Help provides information on pager notification and a tour of the Command Console Client, in addition to information on how to add a system to the Navigation Tree.
- Tape Controller Management Page - online Help provides information about adding and removing tape controllers, in addition to the Agent configuration.

## Release Notes

The release notes are in several files:

- Readme.txt - Provides information on software components, installation, and Adobe Acrobat Reader.
- cclient.txt - Provides information relating to the Command Console Client, such as information on the Asynchronous Event Service, the Navigation Tree, and paging.
- TCMAgent.txt - Provides last-minute information relating to the Tape Controller Management Agent, including troubleshooting information.

## In This Guide

This guide contains the following chapters and appendixes:

**Chapter 1 - "About SWCC"** This chapter provides a brief overview on the software, its components, and its features. It also provides an installation and configuration table, in addition to information on how to integrate SWCC with a third-party storage management program.

**Chapter 2 - "Using the Command Console Client"** This chapter provides information about using the Command Console Client and its components.

**Chapter 3 - "Installing and Removing the Client"** This chapter provides instructions on how to install the Client on Microsoft Windows NT (Intel) version 4.0 and Microsoft Windows 2000. It also provides information on how to remove the Command Console Client.

**Chapter 4 - "Troubleshooting Connection Problems and the Command Console Client"** This chapter describes troubleshooting information for connection problems and the Command Console Client.

**Appendix A - "About the Network Connection for Tape Controllers"** This appendix describes the network connection for tape controllers.

**Appendix B - "Installing, Configuring, and Removing the TCM Agent for Windows NT and Windows 2000"** This appendix tells you how to install, configure, and remove the Tape Controller Management (TCM) Agent.

**Appendix C - "Web Browser Limitations"** This appendix provides information on settings you may need to change in your Web browser.

## Style Conventions

The following style conventions are found in this guide

Convention	Type of Information
<b>Bold</b>	Commands you enter
<i>italic type</i>	User interface text
Type	When you are instructed to type information, type the information without pressing the Enter key.
Enter	When you are instructed to enter information, type the information and then press the Enter key.
>	Indicates menu path

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

- Technical support registration number (if applicable)
- Product serial number (s)
- Product model name(s) and numbers(s)
- 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 <http://www.compaq.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.



# Chapter 1

## About SWCC

This chapter includes:

- ["Installation and Configuration Overview" Table](#)
- ["SWCC Overview"](#)
- ["Components of SWCC"](#)
- ["SWCC Features"](#)
- ["Using SWCC with a Third-Party Storage Management Program"](#)

**Table 1–1 Installation and Configuration Overview**

Step	Procedure
1	Verify that the hardware is configured properly. Refer to your hardware documentation.
2	Verify that the hardware is connected to a TCP/IP network. See <a href="#">Appendix A, "About the Network Connection for Tape Controllers"</a> .
3	To understand SWCC, read this chapter and <a href="#">Chapter 2, "Using the Command Console Client"</a> .
4	Install the Command Console Client. See <a href="#">Chapter 3, "Installing and Removing the Client"</a>
5	Install the Tape Controller Management Agent. See <a href="#">Appendix B, "Installing, Configuring, and Removing the TCM Agent for Windows NT and Windows 2000"</a> .
6	Add the name of the client system to the Agent's list of client system entries. For more information about adding the client system name, see <a href="#">Appendix B, "Installing, Configuring, and Removing the TCM Agent for Windows NT and Windows 2000"</a> .
7	Add tape controllers to the Tape Controller Management Page. For more information about the Tape Controller Management Page, see <a href="#">Appendix B, "Installing, Configuring, and Removing the TCM Agent for Windows NT and Windows 2000"</a> .

**Table 1-1 Installation and Configuration Overview**

Step	Procedure
8	To receive pager notification, add the agent system to the Navigation Tree and then set up pager notification. For more information, refer to the Command Console Client Help.
9	For troubleshooting information, see <a href="#">Chapter 4, "Troubleshooting Connection Problems and the Command Console Client"</a> and <a href="#">Appendix C, "Web Browser Limitations"</a> .

## SWCC Overview

SWCC lets you monitor and configure your tape controllers from a remote location by using your Web browser. You can access the Tape Controller Management Page by:

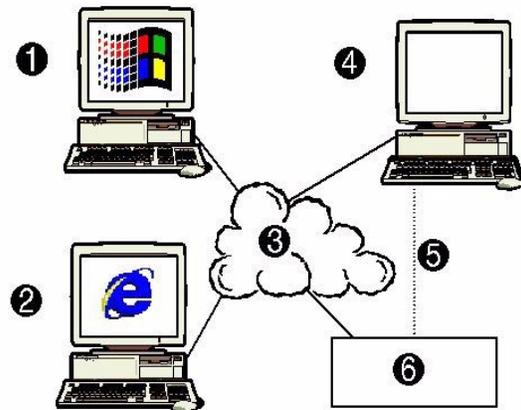
- Typing the URL of your agent system in your Web browser
- Double clicking on the Tape Controller Management Page icon in the Navigation Tree (*Start > Programs > Command Console > StorageWorks Command Console*)

You can set up pager notification in the Navigation Window to page you when a problem occurs. When you are away from your office, you can learn about the details of a problem with the tape controller from any computer that has the following:

- A supported Web browser
- Network access to the computer running the Agent software

For more information on pager notification, see [Chapter 2, "Using the Command Console Client"](#).

Figure 1-1 provides a graphical overview of the connections for the software.



SHR-1540

Figure 1-1. A brief overview of the software

- |   |  |   |                                     |
|---|--|---|-------------------------------------|
| 1 | Computer running the Windows-based software (client system)      | 4 | Computer running the Agent software |
| 2 | Computer using a web browser to access multiple tape controllers | 5 | Fibre cable (Optional)              |
| 3 | TCP/IP network connection  | 6 | Tape controller                     |

## Components of SWCC

In this release, Command Console has two components:

- The Command Console Client
- Tape Controller Management Agent

The following sections describe these SWCC components and how they provide a graphical window into the operation of your tape controller.

## About the Command Console Client

The Command Console Client provides the Navigation Window you see when you click *Start > Programs > Command Console > StorageWorks Command Console*. The Command Console Client contains the following:

- Navigation Tree
- Navigation Window
- Asynchronous Event Service
- Pager Notification

## About the Tape Controller Management Agent

The Tape Controller Management Agent does the following:

- Obtains the status of the tape controllers
- Passes the status of the tape controllers to the Tape Controller Management Page, which provides a way of viewing multiple tape controllers at once.
- Passes the status of the tape controllers to the Navigation Tree

For more information about the Tape Controller Management Page, see Appendix B or C.

## SWCC Features

- Fault notification by pager (For more information on this function, go to the section "Monitoring Using Pagers" in the online Help. You can access this section quickly by going to the index entry, *monitoring, faults using pagers*, in Command Console Client's online Help.)
- Easy access to the status of your tape controllers from a Web browser
- Network connection by means of TCP/IP
- Monitoring of the tape controllers by using colored icons
- The Tape Controller Management Agent places the SNMP traps in the Application Log of Event Viewer. For more information, see "[Viewing the SNMP Traps](#)" in Appendix B.

## Using SWCC with a Third-Party Storage Management Program

You can use SWCC with a third-party storage management program by adding the name of the computer that has the third-party storage management program to the Agent's list of client system entries. The Agent sends SNMP traps to client systems that are on its list of client system entries. For more information on how to add client system entries, see [Appendix B, "Installing, Configuring, and Removing the TCM Agent for Windows NT and Windows 2000"](#) in this Guide.

**NOTE:** Depending on your third-party software, you may need to complete additional steps. Refer to the documentation that came with your third-party storage management program.

**1-6** *SWCC for Tape Controller Management*

# Chapter 2

## Using the Command Console Client

This chapter includes the following:

- About the Navigation Tree
- About the Asynchronous Event Service
- About Pager Notification

SWCC is a remote management program for Compaq StorageWorks hardware. It lets you monitor and configure your storage system from a remote location.

For a complete list of hardware that SWCC supports, refer to the software product description (SPD) on the StorageWorks Command Console website:

```
http://www.compaq.com/products/storageworks/  
Storage-Management-Software/command_console.html
```

The features of Command Console differ according to your software release. For example, SWCC for an HS-Series controller would provide a Storage Window, while SWCC for a Fibre Channel switch would provide a Fabric Page. To determine which software is offered in your release, refer to the readme.txt file that is on the SWCC CD-ROM or if you downloaded the software from the website, refer to the readme.txt file on the website.

### About the Navigation Tree

The Navigation Window provides the Navigation Tree. The Navigation Tree provides a way for you to view the status of all your storage at once, as shown in Figure 2-1. Some of the items shown in the Navigation Tree may not represent the software in your release.

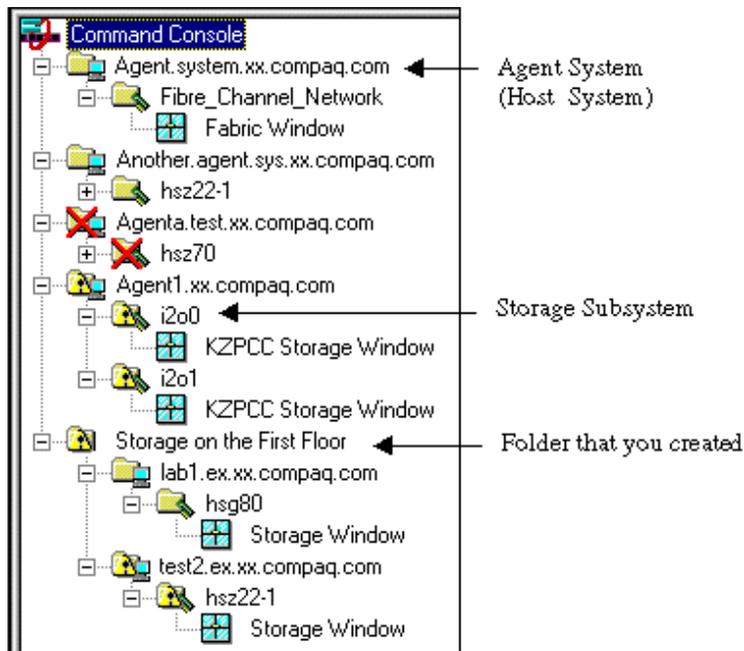


Figure 2-1. An example of the Navigation Tree

## Managing Storage Subsystems from the Navigation Tree

You can manage a storage subsystem from the Navigation Tree by double-clicking the subsystem's management window, icon. The name of this management window will change according to your software release. It may be called a Storage Window, a Fabric Window, or a Web page. The following steps tell you how to access a subsystem's management window:

1. Double-click the folder for the storage subsystem. An icon appears underneath the folder.

If you have two KZPCC controllers connected to the agent system and you have installed the KZPCC Client and KZPCC Agent, you may see two icons.

2. Double-click the subsystem's management window icon. Depending on your software release, one of the following will appear:
  - A Storage Window or Fabric Window - Its name will vary according to your release.

- A Web page - Its name will vary according to your release
- A CLI Window - It applies to only HS-Series controllers. It provides a command line interface that allows you to change the configuration of your subsystem.

## Organizing Your Storage in the Navigation Tree

After you have added systems to the Navigation Tree, you can use folders to organize your storage, as follows:

- You can place folders under the Command Console root or under another general folder in the Navigation Window.
- You can use folders to group systems and other general folders, but they cannot be used to group controllers.

For example, in Figure 2-1, the general folder *Storage on the First floor* was created and two agent systems were placed in the folder. If one of the systems in the folder is at a critical state, the status of the folder displays the same critical state.

**NOTE:** For a description of the Navigation Window, refer to the "Quick Tour" in the introduction of the Command Console Client Help.

## About the Asynchronous Event Service

The Asynchronous Event Service (AES) is a component of the Command Console Client. AES does the following:

- It runs in the background as a service that provides status updates of the subsystems to its client system. For a client system to receive updates, it needs to be running AES.
- It passes the trap (message) to the Navigation Tree. The Navigation Tree, in turn, passes the trap to the appropriate Storage Window or Fabric Window. When a trap provides information about a status change in a subsystem, one or more of the icons in the Navigation Tree change color.
- It send traps to pagers. To activate this feature, you must predefine each pager number in the User Profile section of the Event Notification menu in the Navigation Window.

**NOTE:** : Consult Command Console's Help for the latest information on how to diagnose problems that could occur when sending pages. Help provides instructions on how to put AES into a debug mode.

You can change whether AES starts at boot time. You can also stop or start AES manually. However, you need AES running to receive pages notifying you of faults and to provide updates to the Navigation Tree, Storage Windows, Fabric Windows, and Event Viewer. When you stop AES, you are telling the Client software to stop the following on its client system:

- Providing updates to the Navigation Tree, Storage Windows, and Fabric Windows
- Displaying updates obtained from the Asynchronous Event Service in the Application Log of the Event Viewer
- Paging when a fault occurs

## To Stop or Start AES:

### From Microsoft Windows NT

To stop or start AES manually:

1. Double-click *Services* in *Start > Settings > Control Panel*.
2. Click the *AsyncEventSvc* entry.
3. Click *Stop or Start*, then click *Close*.

To disable the automatic start of AES when your system boots, change the startup option to manual in the Services window, as described below:

1. Double-click *Services* in *Start > Settings > Control Panel*.
2. Double-click the *AsyncEventSvc* entry. The Service window appears.
3. Select *Manual* under Startup Type, and click *OK*.

### From Windows 2000

To stop or start AES manually:

1. Click *Start > Settings > Control Panel > Administrative Tools > Component Services*.
2. Under Console Root, select *Services (Local)*.
3. Under Services (Local), right-click *AsyncEventSvc*.
4. Click *Stop or Start*.

To disable the automatic start of AES when your system boots, change the startup option to manual, as described below:

1. Click *Start > Settings > Control Panel > Administrative Tools > Component Services*.
2. Under Console Root, select *Services (Local)*.
3. Under Services (Local), right-click *AsyncEventSvc*.
4. From the drop-down menu, select *Properties*. The AsyncEventSvc Properties (Local Computer) window appears.
5. Under the General tab, select *Manual* from the Startup Type drop-down menu.
6. Click *OK*.

## About Pager Notification

You can set up Command Console to notify you by pager when a critical event occurs. This feature works with alphanumeric and numeric pagers. You can configure this feature so it sends pages to numerous people at different times.

For example, if several people monitor the network in shifts, you can configure this feature so the software only pages the person currently working.

For more information on how to set up the pager notification, go to "Monitoring Using Pagers" in the online Help in the Command Console Client. You can access this section quickly by going to the index entry, *monitoring, faults using pagers*, in the online Help.

---

**IMPORTANT:** To receive pages, the following must occur:

- The Asynchronous Event Service (AES) must be running on the client system on which you set up the pager notification.
- The Agent must be running.
- The client system must be added to the Agent's list of client system entries.
- In the Agent's list of client system entries, you must select the TCP/IP notification scheme for your client system. This does not apply to the Tape Controller Management Agent.
- The agent system must be added to the Navigation Tree of the client system on which you set up pager notification.

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**NOTE:** : Pager notification uses an early version of the Telocator Alphanumeric Protocol (TAP) adopted in 1988 by the Personal Communications Industry Association (PCIA). Please verify your paging company uses this protocol.

**2-6** *SWCC for Tape Controller Management*

# Chapter 3

## Installing and Removing the Client

This chapter contains the following:

- [Installing the Client](#)
- [Troubleshooting the Client Installation](#)
- [Removing the Command Console Client](#)

### Installing the Client

Depending on your software release, you can install the Client from a CD-ROM or from a file downloaded from the Compaq StorageWorks website. The readme.txt file provides guidance on which way is suitable.

#### Before You Install the Client

1. Verify that you are logged into an account that is a member of the administrator group.
2. Check the SPD on the Compaq StorageWorks website for a list of supported hardware. For the URL, see [Chapter 2, "Using the Command Console Client"](#).
3. Verify that you have the SNMP service installed on your computer. You must have SNMP installed on your computer for this software to work properly. The Client software uses SNMP to receive traps from the Agent. The SNMP service is available on your Windows NT or Windows 2000 installation CD-ROM. To verify that you have the SNMP service:
  - ❑ For Windows NT, double-click *Services in Start > Settings > Control Panel*. The entry for SNMP is shown in this window. If you install the SNMP service and you already have a Windows NT service pack on your computer, reinstall the service pack after installing the SNMP service.

## 3-2 SWCC for Tape Controller Management

- ❑ For Windows 2000, click *Start > Settings > Control Panel > Administrative Tools > Component Services*. The entry for SNMP is shown in the Component Services window.
- 4. Read the release notes in the *ccclient.txt* file for the Command Console Client.
- 5. Read the release notes for your device-specific Client. The *readme.txt* file will have information on where you can find the release notes for the device-specific Client.
- 6. Read [“Troubleshooting the Client Installation” on page 3](#) in this chapter.
- 7. If you have the Command Console Client open, exit the Command Console Client.
- 8. If you have Command Console Client version 1.1b or earlier, remove the program by going into *Add/Remove Programs*.
- 9. If you have a previous version of Command Console, you can save your Navigation Tree configuration by copying the *swcc2.mdb* file to another directory. After you have installed the product, move *swcc2.mdb* to the directory to which you installed SWCC.
- 10. During the installation you will be given the option to install certain components. To determine which software is required, refer to the *readme.txt* file.

### Installing from the SWCC CD-ROM

1. Insert the CD-ROM into a computer running Windows 2000 or Windows NT 4.0 (Intel) with Service Pack 4 or later.
2. Using Microsoft Windows Explorer, go to the top-level directory on the CD-ROM, and double-click *setup.exe*.
3. Select the required Client components and click *N*e*x*t. To determine which software is required, refer to *readme.txt*.
4. Follow the instructions on the screen. After you install the software, the Asynchronous Event Service (AES) starts.

For more information on AES, read the section, [“About the Asynchronous Event Service” on page 3](#) in Chapter 2.

5. For information on how to install the Agent, see [Appendix B, “Installing, Configuring, and Removing the TCM Agent for Windows NT and Windows 2000”](#).

## Installing from the StorageWorks Website

This procedure assumes you have downloaded the file that contains the Client from the StorageWorks website to a computer running Windows 2000 or Windows NT 4.0 (Intel) with Service Pack 4 or later:

1. Open Windows Explorer and double-click the file you downloaded.  
The file self-extracts.
2. Go to the top-level directory created from the self-extracted zip file and double-click setup.exe.
3. Select the required Client components and click *N*ext. To determine which software is required, refer to readme.txt.
4. Follow the instructions on the screen. After you install the software, the Asynchronous Event Service (AES) starts.

For more information on AES, read the section, [“About the Asynchronous Event Service” on page 3](#) in Chapter 2.

For information on how to install the Agent, see [Appendix B, “Installing, Configuring, and Removing the TCM Agent for Windows NT and Windows 2000”](#).

## Troubleshooting the Client Installation

This section provides the following information on how to resolve some of the problems that may appear when you install the Client software:

- [Invalid Network Port Assignments During Installation](#)
- [“There is no disk in the drive” Message](#)

### Invalid Network Port Assignments During Installation

SWCC Clients and Agents communicate by using sockets. The SWCC installation attempts to add entries into each system list of services (services file or for UCX, the local services database). If the SWCC installation finds an entry in the local services file with the same name as the one it wants to add, it assumes the one in the file is correct.

The SWCC installation may display a message, stating that it cannot upgrade the services file. This happens if it finds an entry in the local services file with the same number as the one it wants to add, but with a different name. In that case, appropriate port numbers must be obtained for the network and added manually to the services file.

### 3-4 SWCC for Tape Controller Management

There are two default port numbers, one for Command Console (4998) and the other for the device-specific Agent and Client software, such as the Fibre Channel Interconnect Client and Agent (4989). There are two exceptions. The following software has two default port numbers:

- The KZPCC Agent and Client, (4991 and 4985)
- The RA200 Agent and Client, (4997 and 4995)

If the Network Information Services (NIS) are being used to provide named port lookup services, contact the network administrator to add the correct ports.

The following shows how the network port assignments appear in the services file:

spgui	4998/tcp	Command Console
ccdevmgt	4993/tcp	#Device Management Client and Agent
kzpccconnectport	4991/tcp	#KZPCC Client and Agent
kzpccdiscoveryport	4985/tcp	#KZPCC Client and Agent
ccfabric	4989/tcp	#Fibre Channel Interconnect Agent
spagent	4999/tcp	#HS-Series Client and Agent
spagent3	4994/tcp	#HSZ22 Client and Agent
ccagent	4997/tcp	#RA200 Client and Agent
spagent2	4995/tcp	RA200 Client and Agent

### “There is no disk in the drive” Message

When you install the Command Console Client, the software checks the shortcuts on the desktop and in the Start menu. The installation will check the shortcuts of all users for that computer, even if they are not currently logged on. You may receive an error message if any of these shortcuts point to empty floppy drives, empty CD-ROM drives, or missing removable disks. Do one of the following:

- Ignore the error message by clicking *Ignore*.
- Replace the removable disks, and place a disk in the floppy drive and a CD-ROM in the CD-ROM drive. Then, click *Retry*.

## Removing the Command Console Client

Before you remove the Command Console Client from your computer, remove AES. This will prevent the system from reporting that a service failed to start every time the system is booted. Steps 2 through 5 tell you how to remove the Command Console Client.

**NOTE:** When you remove the Command Console Client, the `swcc2.mdb` file is deleted. This file contains the Navigation Tree configuration. If you want to save this information, move the file to another directory.

1. Click *Start > Programs > Command Prompt* and change to the directory to which you installed the Command Console Client.
2. Enter the following command:  
`C:\Program Files\Compaq\SWCC> AsyncEventService -remove`
3. Do one of the following:
  - On Windows NT 4.0, click *Start > Settings > Control Panel*, and then double-click the *Add/Remove Programs* icon in the Control Panel. The Add/Remove Program Properties window appears.
  - On Windows 2000, click *Start > Settings > Control Panel > Add/Remove Programs*. The Add/Remove Program window appears.
4. Select *Command Console* located in the window.
5. Do one of the following:
  - On Windows NT 4.0, click *Add/Remove*.
  - On Windows 2000, click *Change/Remove*.
6. Follow the instructions on the screen.

**3-6** *SWCC for Tape Controller Management*

## Chapter 4

# Troubleshooting Connection Problems and the Command Console Client

This chapter provides general usage notes for troubleshooting connection problems and the Command Console Client.

## Troubleshooting the Command Console Client

- [Authorization Error When Adding an Agent System](#)
- [Increasing Screen Space for the Fabric Windows and Storage Windows](#)
- [Invalid or Missing Fault Displays and Event Logs](#)
- [Pager Notification Continues After Exiting the Command Console Client](#)
- [Some Graphics Do Not Scale Well with Large Fonts](#)
- [Starting Client from the Command Prompt](#)

### Authorization Error When Adding an Agent System

If you receive an authorization error when you add an agent system to the Navigation Tree, your client system may be missing from the Agent's list of client system entries. If you have more than one type of Agent installed on that agent system, the name of your client system must be on each Agent's list of client system entries.

## Increasing Screen Space for the Fabric Windows and Storage Windows

Run the Client on a monitor that has a minimum super VGA (SVGA) (800X600) display resolution. The Fabric Windows and Storage Windows require a certain amount of screen space to properly display its contents. When you use a VGA display resolution, screen space becomes more limited. If you must use a VGA resolution, select the *Auto Hide* check box in the Taskbar Properties window to increase screen space for the Fabric Windows and Storage Windows.

## Invalid or Missing Fault Displays and Event Logs

Invalid or lost notifications may occur when the client system's connection with a subsystem is broken. The client system receives notification for most changing subsystem faults at monitored intervals. This means that if the client system is no longer notified of subsystem faults, then changes to that subsystem will not be displayed in the client system's Navigation Tree, Storage Window (if applicable), Fabric Window (if applicable), and Event Viewer.

For example, while client system's connection with a subsystem is broken, you will not receive event logs pertaining to that subsystem, except to notify you that the connection is severed.

The following list provides the reasons for broken connections. After you have fixed the physical and/or software problem that is listed below, you will need to close and reopen the Storage Window pertaining to that subsystem to obtain its latest status.

- RAS connections - Remote Access Service (RAS) connections are not full time. When there is no RAS connection, events are not logged to the Application Log of Event Viewer.
- Serial controller connections - There may be a bad or missing serial cable. To repair this situation, replace or plug in the cable.
- Network connections - Agent may be missing or not running.
- Network connections - There may be network discontinuity.
- The Agent may not be properly configured for a client system.
- If your setup includes a controller, the controller may have halted, reset or hung. To repair the situation, restart or replace the controller.
- If your setup includes virtual disks, the virtual disk being used for communicating with the subsystem is no longer available.

## Pager Notification Continues After Exiting the Command Console Client

You may have noticed continuous pager notification in response to subsystem faults, even though you have exited Command Console Client. This behavior is normal.

AES runs under Windows NT and Windows 2000 as a service. It continues to run even after you have exited Command Console Client. AES communicates with Agents, and it activates paging when a subsystem event occurs.

To stop pager notification, stop AES. For information on how to stop AES, see [“About the Asynchronous Event Service” on page 3](#) in Chapter 2.

## Some Graphics Do Not Scale Well with Large Fonts

Display small fonts when using Client. Some of the graphics do not scale as well when large fonts are used.

## Starting Client from the Command Prompt

To start the Client with network connections from the command prompt, enter the following at the command prompt on the client system:

```
\path_to_client_directory\swcc.exe -d your_host_system your_host_subsystem
```

where *-d your\_host\_system your\_host\_subsystem* is an optional set of parameters that enables you to specify a system and a subsystem to start the Client.

For example:

```
C:\>\Program Files\Compaq\SWCC\swcc.exe -d hostsystem subsystem
```

If you specify these parameters, Client opens with the system selected and the subsystem displayed in the Storage Window, in the Fabric Window, or in a Web browser. If Client is not already aware of the system and the subsystem, it adds them to the Navigation Tree.

## Troubleshooting Connection Problems

SWCC is a TCP/IP socket-based application. As a result, SWCC requires that each node running a SWCC Client or Agent must have access to a valid hosts file or Domain Name Service (DNS) server. The valid hosts file must include at least the system itself and any other systems running a SWCC Client or Agent that it will connect to.

This section includes the following topics:

- [Access Denied Problem](#)
- [Adding New System by Using Internet Protocol Address May Cause Client to Stop Responding](#)
- [“No Agent Running” Message When Adding System to the Navigation Tree](#)

### Access Denied Problem

This section covers some of the most common reasons for a Client to receive an "Access Denied" message when it attempts to add an agent system to the Navigation Tree.

#### Aliases Not Checked

When SWCC Agents scan the Client authorization list, they do not check aliases. The entry in the Client authorization list must match that returned by a `gethostbyaddr` call in the `hostent h_name` field. SWCC will not scan the `hostent alias` list to verify if an alias may match the Client authorization list.

#### Client System Not on Agent's List

The client system may not be on the authorized client system list for the Agent. To verify that the client system is included, view the list of client system entries in the Agent Configuration utility.

#### Entry in the Client Authorization List Does Not Match

Generally, the entry in the Client authorization list for an Agent must match what `gethostbyaddr(<client IP address>)` will return in the `hostent h_name` field when `gethostbyaddr(<client IP address>)` is executed on the Agent system. If hosts files are not exactly the same on all systems, the `h_name` returned may vary on different Agent systems. For example,

```
xxx.xxx.xxx.xxx client.somewhere.com client
```

will return client.somewhere.com in the h\_name field, but

```
xxx.xxx.xxx.xxx client client.somewhere.com
```

will return client in the h\_name field.

In some situations, you can configure the way a system uses DNS and its local hosts file. Please refer to your system documentation to find how your system is configured. Some systems may be configured to do the following:

- Check its local hosts file first, then go to DNS.
- Go to DNS first, then check its local hosts file.
- Ignore DNS even if configured.
- Ignore the local hosts file.

The best way to verify what needs to be used for a Client name in the Clientauthorization list is to identify what h\_name is returned by the function gethostbyaddr(IP address) on the agent system.

### **Multiple Agents**

If the agent system is running multiple SWCC Agents (for example, to support different controller types) then the client system must be authorized for all Agents. If the client system is missing from any authorized Client list of an Agent, then that Agent cannot be added to the Navigation Tree.

## **Adding New System by Using Internet Protocol Address May Cause Client to Stop Responding**

The SWCC Client may stop responding when you attempt to add a system by using the agent system's IP address rather than the agent system's node name. This occurs when the client system does not have a DNS server configured that knows the agent system, and the agent system is not in the client system's hosts file. To correct this situation, add the agent system to the hosts file on the client system.

If you receive an "Invalid host" or "Host not known" message when you attempt to connect to an agent system, do not enter the IP address. Correct your DNS server configuration. If it is correct, confirm the DNS server knows the agent system. If you are not using DNS, verify the agent system is in the client system's hosts file.

## **“No Agent Running” Message When Adding System to the Navigation Tree**

When trying to add a new system to the Navigation Tree, you may see a message, stating "No Agent running on specified system." This message can appear for several reasons. The error most likely occurred as a result of one of the following:

- The wrong system name was entered.
- The Agent was not installed on the entered system.
- The Agent was installed on a system that stopped functioning.
- Port names and numbers in the services file may be missing or may not match between Client and Agent. This may occur if the default value for an SWCC port was already in use.
- The specific Client required to support an Agent was not installed. For example, if the agent system only has a KZPCC Agent and the client system has only an HSZ22 Client, the "No Agent Running" message will appear.

To verify that Client support for an Agent had been installed, look at the following registry key:

```
HKEY_LOCAL_MACHINE\Software\DigitalEquipmentCorporation\  
Command Console\AppletManager
```

You should see a series of keys for supported products.

# *Appendix* **A**

## **About the Network Connection for Tape Controllers**

This appendix provides an overview on connecting your hardware so you can use Command Console to manage your tape controller over the network. You need a TCP/IP network connection to link the Client to your Agent through the network. By using a network connection, you can configure and monitor your subsystem from:

- Your local area network (LAN)
- Your wide area network (WAN)
- A connection to the Internet

Command Console does not support the dynamic host configuration protocol (DHCP) or the Windows Internet Name Service (WINS); however, you can still use these protocols on systems that do not run Command Console.

For an example of a network connection with a tape controller, see Figure A-1.

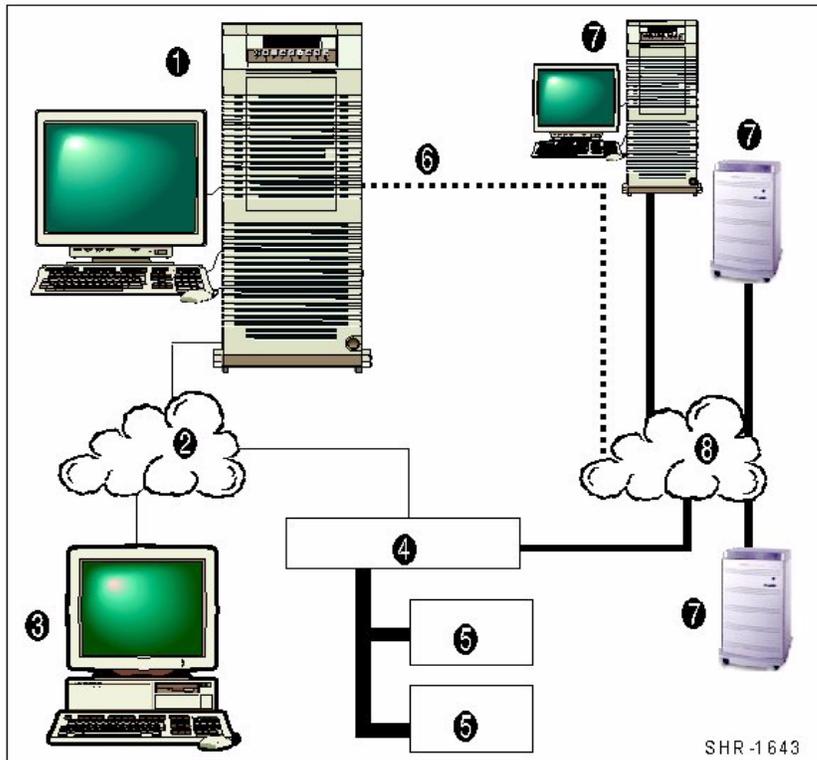


Figure A-1. An example of a network connection with tape controller

- |   |   |   |   |
|---|---|---|---|
| 1 | Agent system (server) with a monitor and keyboard. It must be TCP/IP network-accessible to the client systems and the tape controller. It can be a part of the SAN. | 4 | Tape controller connected to the agent system (host) by a TCP/IP network. |
| 2 | TCP/IP network  | 5 | Tape drives   |
| 3 | Client system, which must be TCP/IP network-accessible to the agent system  | 6 | Fibre Channel cable (optional for the agent system)                       |
|   |   | 7 | Hardware connected to the SAN, such as RAID arrays and servers            |
|   |   | 8 | SAN   |

## *Appendix B*

# Installing, Configuring, and Removing the TCM Agent for Windows NT and Windows 2000

The Tape Controller Management (TCM) Agent runs as a service in the background on the host system. It monitors the tape controller and sends updates to the Client software and to the Tape Controller Management Page.

This appendix contains the following information:

- [Before Installing the TCM Agent](#)
- [Installing the TCM Agent](#)
- [Configuring the TCM Agent](#)
- [Viewing the SNMP Traps](#)
- [Removing the TCM Agent](#)

## Before Installing the TCM Agent

Before you install the TCM Agent:

1. Verify that you are logged into an account that is a member of the administrator group. Perform all installations locally. Do not attempt to install the Agent over the network.
2. Verify that you have the SNMP service installed on your computer. You need SNMP installed on your computer for this software to work properly. If this service is not installed, the TCM Agent is unable to monitor your tape controllers. The SNMP service is available on your Windows NT or Windows 2000 installation CD-ROM. To verify you have the SNMP service:

## B-2 SWCC for Tape Controller Management

- ❑ For Windows NT, double-click *Services* in *Start > Settings > Control Panel*. The entry for SNMP is shown in this window. If you install the SNMP service and you already have a Windows NT service pack on your computer, reinstall the service pack after installing the SNMP service.
  - ❑ For Windows 2000, go to *Start > Settings > Control Panel > Administrative Tools > Component Services*. The entry for SNMP is shown in the Component Services window.
3. If you want to use pager notification, verify that you have installed the Client. See [Chapter 3](#).
  4. If you are running Windows NT, verify that you have Windows NT service pack 6 or later (*My Computer > Help > About*).
  5. Read the release notes in TCMAgent.txt.

## Installing the TCM Agent

This section tells you how to install your TCM Agent from the SWCC CD-ROM. Install the TCM Agent on only one system that has the following:

- TCP/IP network connection to the client systems
- TCP/IP network connection to the tape controller

## Installing from the SWCC CD-ROM

1. Insert the CD-ROM into a computer running Windows 2000 or Windows NT 4.0 with Service Pack 4 or later.
2. Using Microsoft Windows Explorer, go to the top-level directory on the CD-ROM, and double-click setup.exe.
3. Select Tape Controller Management under Agent Applications and click *N*ext.
4. Follow the installation instructions on the screen. The installation procedure will vary depending upon the presence of previously installed software.

The Tape Controller Management software consists of two agents that work together to retrieve and update information about the Modular Data Router and Tape Controller II hardware. These two agents are the Tape Controller Management (TCM) agent and the Compaq Web Agent. The Compaq Web Agent software is automatically installed on your system during the installation under the following conditions:

- No Compaq Web Agent is on your system

or

- A previous version of the software is installed from a previous Tape Controller Management Kit

For all other cases, a message is displayed recommending the installation of the latest Compaq Foundation Agents for Servers software. Compaq Web Agent is one of the agents included with this software. These agents can be downloaded from the

<http://www.compaq.com/support>

area as listed for your specific Compaq server.

When you complete the installation, the TCM Agent starts

5. Add your tape controller to the Tape Controller Management Page. For information on how to access the Tape Controller Management Page, see "[Accessing the Tape Controller Management Page](#)" in this appendix.

---

**IMPORTANT:** The TCM Agent only monitors the tape controllers that are added to the Tape Controller Management Page.

---

6. If you plan to use pager notification and/or the Navigation Tree:
  - a. Add the name of the client system that has the Client software to the Agent's list. For more information, see "[Adding a Client System Entry](#)"
  - b. Add this system to the Navigation Tree of each client system you added to the Agent's list (*File > Add System* in the Command Console Client). Refer to the Command Console Client Help.

## Configuring the TCM Agent

The following sections describe how to configure your Agent by using the Tape Controller Management Page. Use one of the supported browsers when accessing the Tape Controller Management Page:

- Microsoft Internet Explorer version 5.5 that runs on Intel computers
- Netscape Communicator version 4.75 that runs on Tru64 UNIX version 4 or 5

## How User Accounts Work

To access the Tape Controller Management Page, enter a user name and a password. In this software release you are given three predefined user names and passwords. You cannot add, delete, or modify the user names. However, you can as administrator, change the passwords of the user names. Table B-1 shows the available accounts.

**Table B-1 Available User Accounts**

Account	User Name	Password	Privileges
User	user	public	<ul style="list-style-type: none"><li>■ Cannot make changes to the Tape Controller Management Page</li><li>■ Cannot add, rename, or delete tape controllers</li></ul>
Operator	operator	operator	<ul style="list-style-type: none"><li>■ Cannot make changes to the Tape Controller Management Page</li><li>■ Cannot add, rename, or delete tape controllers</li></ul>
Administrator	administrator	administrator	<ul style="list-style-type: none"><li>■ Can make changes to the Tape Controller Management Page</li><li>■ Can change the password of an account</li><li>■ Can add, rename, or delete tape controllers</li></ul>

### Changing the Password of a User Account

If you have administrative privileges, you can change the password of a user account. To change the password, you must access the Account Login Page. For more information on how to access the Account Login Page, see "[Accessing the Tape Controller Management Page](#)".

## Accessing the Tape Controller Management Page

1. Verify that you have installed a supported Web browser.
2. Open your Web browser, type "http://", and then the name of the system on which you installed the Agent software followed by " :2301", as shown here:

**http://www.yoursystem.com:2301**

You see the Device Home Page. This page provides information about the status of the computer.

3. Click **StorageWorks** , as displayed in Figure B-1.



Figure B-1. Web link for StorageWorks Tape Controller Management Page

You are asked to enter your user name and password on the Account Login Page. For more information on your user name and password, see "[How User Accounts Work](#)".

4. Type your user name and password. Click *OK*.

---

**IMPORTANT:** Change the default passwords for the User, Operator, and Administrator accounts as soon as possible.

---

## Viewing the Latest Version of the Tape Controller Management Page

Some Web browsers are configured to view an earlier version of a Web page, stored in its cache, rather than view the latest version, posted to the Web. To verify your Web browser is configured to view the latest version of the Tape Controller Management Page:

In Internet Explorer 5.5:

1. Click *Tools > Internet Options*. The Internet Options window appears.
2. Click *Settings* on the General tab in the Internet Options window.
3. Select *Every visit to the page*, and click *OK*. When the Web browser goes to a Web page, the Web browser compares the version of the Web page in its cache with the version on the Web and displays the latest version.

In Netscape Communicator 4.75:

1. Click *Edit > Preferences*. The Preferences window appears.
2. In the Category field, double-click *Advanced*. The options expand under Advanced.
3. In the Category field, click *cache*. The preferences for the cache display.

4. Select *Every time*, and click *OK*. When the Web browser goes to a Web page, the Web browser compares the version of the Web page in its cache with the version on the Web and displays the latest version.

## Adding Tape Controllers

Add the tape controllers you want the TCM Agent to monitor.

---

**IMPORTANT:** When you add tape controllers to a Tape Controller Management Page, others who are accessing the same agent system see the tape controllers you added. When you delete or rename a tape controller, that change also appears in their Tape Controller Management Page that corresponds to the same agent system.

---

1. Log on the Tape Controller Management Page as administrator. Only administrators can add tape controllers. For more information, see "[Accessing the Tape Controller Management Page](#)" in this appendix.
2. Select "Add tape controller" from the drop-down menu and click *OK*.
3. Type a TCP/IP address and a device name that has less than nine characters.
4. Click *Add*.

The tape controller is added to the Tape Controller Management Page.

5. If you are finished adding tape controllers, click *Close*.

## Renaming and Removing Tape Controllers

The TCM Agent will stop monitoring the tape controller you remove from the Tape Controller Management Page.

1. Log on the Tape Controller Management Page as administrator. Only administrators can rename or remove tape controllers. For more information, see "[Accessing the Tape Controller Management Page](#)" in this appendix.
2. Select "Rename tape controller" or "Remove tape controller" from the drop-down menu and then follow the instructions on the screen.

## Adding a Client System Entry

For a client system to receive updates from the Agent, you must add it to the Agent's list of client system entries. The Agent will only send information to client system entries that are on this list.

**NOTE:** Put your most important client systems at the top of this list and the client systems that are connected infrequently to the network at the bottom. The Agent first contacts the client systems that are located at the top of the list.

1. Log on the Tape Controller Management Page as administrator. For more information, see "[Accessing the Tape Controller Management Page](#)" in this appendix.
2. Click *Agent Configuration*, which can be found on the menu bar.
3. Type the name of client system you want to receive updates from the Agent.
4. Click *Add Address*. The client system entry is added to the list.

## Removing a Client System Entry

When you remove a client system entry, the TCM Agent stops sending status updates to that system.

1. Log on as administrator to the Tape Controller Management Page. Only administrators can remove a client system entry. For more information, see "[Accessing the Tape Controller Management Page](#)" in this appendix.
2. Click *Agent Configuration*, which can be found on the menu bar.
3. Select the client system entry you want to remove, and click *Remove Address*.

## Changing the Agent's Polling Interval

The polling interval tells the TCM Agent how often to check the status of the tape controllers.

1. Log on the Tape Controller Management Page as administrator. Only administrators can change the polling interval. For more information, see "[Accessing the Tape Controller Management Page](#)" in this appendix.
2. Click *Agent Configuration*, which can be found on the menu bar.
3. Using the drop-down menu, select a polling interval, and click *Change Interval*.

## Stopping and Starting the Agent

The Agent runs as a service in the background. When you stop the Agent, you are instructing the software to stop monitoring the tape controllers that were added to the Tape Controller Management Page.

From Windows NT

1. Double-click *Services* in *Start > Settings > Control Panel*.
2. Click the *SWCC Tape Controller Management Agent*.
3. Click *Stop* or *Start*, then click *Close*.

From Windows 2000

1. Click *Start > Settings > Control Panel > Administrative Tools > Component Services*.
2. Under Console Root, select *Services (Local)*.
3. Under Services (Local), right-click *SWCC Tape Controller Management Agent*.
4. Click *Stop* or *Start*.

## Disabling and Enabling the Agent Startup at System Boot

By default, the Agent starts at system boot; however, you may want to change this option. For example, if you want to check your system, you may not want the Agent to start at system boot.

To disable the automatic start of TCM Agent when your system boots, change the startup option to manual in the Services window, as described below:

From Windows NT

1. Double-click *Services* in *Start > Settings > Control Panel*.
2. Double-click the *SWCC Tape Controller Management Agent*. The Service window appears.
3. Select *Manual* under Startup Type, and click *OK*.

From Windows 2000

1. Click *Start > Settings > Control Panel > Administrative Tools > Component Services*.
2. Under Console Root, select *Services (Local)*.

3. Under Services (Local), right-click *SWCC Tape Controller Management Agent*.
4. From the drop-down menu, select *Properties*. The SWCC Tape Controller Management Agent Properties window appears.
5. Under the General tab, select *Manual* from the Startup Type drop-down menu.
6. Click *OK*.

## Viewing the SNMP Traps

The TCM Agent gathers the SNMP traps and puts them in the Application Log of Event Viewer, which resides on its computer and on the client systems that it notifies. The events that the TCM Agent collected from Modular Data Router and Tape Controller II will be listed under the sources: AsyncEventSvc and SWCC Tape Controller Management Agent. To access Event Viewer:

- Windows NT 4.0 – (*Start > Programs > Administrative Tools > Event Viewer*) To access the Application Log, select *Application* from the Log menu.
- Windows 2000 – (*Settings > Control Panel > Administrative Tools > Event Viewer*) To access the Application Log, select *Application Log* in the Tree panel.

For your client system to receive traps, the Asynchronous Event Service (AES) needs to be running on that computer and the agent system must be added to the Navigation Tree. For information on how to start AES, see "[To Stop or Start AES:](#)" in Chapter 2.

## Removing the TCM Agent

1. Do one of the following:
  - On Windows NT 4.0, click *Start > Settings > Control Panel*, and then double-click the *Add/Remove Programs* icon in the Control Panel. The Add/Remove Program Properties window appears.
  - On Windows 2000, click *Start > Settings > Control Panel > Add/Remove Programs*. The Add/Remove Program window appears.
2. Select *SWCC Tape Controller Management Agent* located in the window.
3. Do one of the following:
  - On Windows NT 4.0, click *Add/Remove*.
  - On Windows 2000, click *Change/Remove*.
4. Follow the instructions on the screen.

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5. To remove the files left behind, change to the directory that contained the TCM Agent, and delete the files listed in the Table B-2. If you keep these files and you reinstall the TCM Agent, you will not need to reconfigure the Agent.

---

**CAUTION:** Other Agents use the client.ini and storage.ini file names, but their files are in different directories. If you cannot determine which files are for the TCM Agent, find the EBSAgent.cfg file. The storage.ini file for the TCM Agent is located in the directory referenced by the second line in the EBSAgent.cfg file.

---

---

**Table B-2 Program Files**

---

File Name	File Type
EBSAgent.cfg	Configuration File
client.ini	Contains the list of client system entries
Storage.ini	Contains the polling interval
ebsagent.db	Contains the names and the IP addresses of the tape controllers that have been added to the Tape Controller Management Page
sysinfo.agt	Contains information about the agent system

---

## *Appendix C*

### **Web Browser Limitations**

This section provides solutions to some of the problems you may have found while using your Web browser to manage your tape controllers.

#### **Java Disabled in Some Versions of Netscape Navigator**

Java may be disabled in some versions of Netscape Navigator. To enable it, select the Enable Java and Enable JavaScript options in the Advanced Preferences menu of Netscape Navigator (*Edit > Preference > Advanced*).

#### **Browser Hangs on Java Applications**

Internet Explorer may hang on Java applications on Windows NT with Service Pack 3 due to True Color. To work around this problem, either change the Windows NT display settings to other than True Color or download the Microsoft hotfix to modify the WIN32K.SYS file.

You do not need to install this hotfix if you have installed Service Pack 4 or 5 for Windows NT version 4.0. You can find the Microsoft hotfix from Microsoft Technical Support at <http://www.microsoft.com>.

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