

Compaq StorageWorks

Command Console Getting Started Guide for the RA200, HS-Series*, and Device Management

*Refers to the HSD30, HSD50, HSJ30, HSJ40,
HSJ50, HSZ20, HSZ40, HSZ50, and HSZ70

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Compaq StorageWorks Command Console Getting Started Guide for the RA200, HS-Series*, and Device Management
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About This Guide

Thank you for choosing Compaq™ StorageWorks™ Command Console. The program is a remote management program for StorageWorks array controllers and adapters. It provides a method of monitoring, configuring, and troubleshooting storage.

StorageWorks Command Console (SWCC) can be connected to your StorageWorks hardware in several ways. Once connected, the program issues commands and interprets the responses sent by the controller or adapter. The user interface provides the status of a selected storage subsystem.

Intended Audience

This guide is intended for storage administrators. This document assumes that you have a basic understanding of networking. If you are planning to use SWCC to monitor the storage connected to your controllers, you should understand RAID (Redundant Array of Independent Disks) technology. First read the hardware documentation for your hardware to better understand the material in this book.

List of Basic Terms

It is important that 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. It is a component of the Command Console Client. AES needs to be running for your client system to receive updates.
Client System	A computer that has Windows NT 4.0, Windows 98, or Windows 95 and the Windows-based Client software installed
StorageWorks Command Console (SWCC)	Refers to the overall program
Command Console Client	Is the main program that provides event notification and the Navigation Tree

continued

Table 1
List of Basic Terms *continued*

Term	Definition
<Device-Specific> Client; for example, RA200 Client HSD Client Device Management Client	In this software release, it provides a Storage Window for a particular device, such as the HSJ40 controller.
<Device-Specific> Agent; for example, RA200 Agent HS-series Agent Device Management Agent	<ul style="list-style-type: none"> ■ The device-specific Agent collects data from the subsystems and passes the information along to the device-specific Client. ■ It enables the Client to communicate with your subsystems.
Navigation Tree	<p>The Navigation Tree does the following:</p> <ul style="list-style-type: none"> ■ Provides access to the Storage Window ■ Shows the status of your storage systems. It displays your systems in a hierarchical order. A subsystem is shown to be connected to a system, and the Storage Window is shown to be connected to a subsystem.
Navigation window	<ul style="list-style-type: none"> ■ Use to add a system ■ Contains the Navigation Tree ■ It is the window that you see when you click <i>StorageWorks Command Console</i> in <i>Start Programs Command Console</i>.
Storage Window	It displays the status of a particular storage subsystem.
Subsystems for Device Management	It is comprised of adapters.
Storage Subsystem for Controllers, for example; HSD50 HSG80	It is a controller and an array of physical devices.

Documentation

In this guide, you will learn how to install and configure the device-specific Clients and their Agents, in addition to installing the Command Console Client. For instructions on how to use all of Command Console's features, refer to the online Help.

First read the hardware documentation for your controller to better understand the material in this book. You should know how a RAID (redundant array of independent disks) controller works and be familiar with managing virtual devices on your hardware, in addition to basic networking.

Online Help

After you configure this software, you should refer to the online Help to learn more about this product. The online Help provides further information on how to use Command Console to manage your systems. You can access the online Help for the following:

- Features of the Command Console Client, such as the Navigation window, the Asynchronous Event Service, and pager notification. Help for these topics can be found by clicking *Help* in the Navigation Window.
- Features of the device-specific Client and Agent. Help for these topics can be found by clicking *Help* in a Storage Window.

The Navigation Tree is shown in the Navigation Window, which you will see when you click *StorageWorks Command Console* in *Start|Programs|Command Console*. Help also provides the following:

- Step-by-step instructions on how to use Command Console features
- Reference information about RAID (Redundant Array of Independent Disks)
- Glossary

Release Notes

You will be able to find late-breaking and supplemental information for Command Console by referring to the release notes. The release notes are separated into two types of files: one specific to Command Console Client and the other to the device. The following tells you how the information is divided between these two types of files:

Command Console Client (`ccclient.txt`) - This file covers software information relating to the Command Console Client, such as information on the Asynchronous Event Service, the Navigation Tree, and paging. This includes last minute notes specific to the Command Console Client, such as installation, removal of the Command Console Client.

Device-Specific Client and Agent (as listed in the `readme.txt` file) - These files are specific to the device. They include last-minute software information on installation, removal of the Agent, and troubleshooting the Agent and the device-specific Client, in addition to last minute device-specific notes that were too late for Getting Started.

In This Guide

This guide contains the following chapters and appendix:

Chapter 1 – “Introduction” This chapter provides a brief overview on how to set up the software, in addition to a list of basic terms. It also tells you about the documentation, such as Help, release notes, and style conventions.

Chapter 2 – “About Command Console” This chapter provides a description of the Command Console Client, the device-specific Clients, and the device-specific Agents, in addition to a list of features.

Chapter 3 – “Connecting the Client to Your Storage Subsystems” This chapter describes the various ways used to connect the client system to your storage subsystems.

Chapter 4 – “Installing the Command Console Client” This chapter provides instructions on how to install and remove Command Console on a Windows 98™, Windows 95™, and Windows NT™ (Alpha™ and Intel™) operating systems. It also provides useful information that can assist you in preparing for the installation.

Chapter 5 – “Installing the RA200 Agents” This chapter provides instructions on how to install the Command Console Agent on the following platforms: Tru64 UNIX, OpenVMS, and Windows NT (Alpha and Intel).

Chapter 6 – “Configuring the RA200 Agents” This chapter contains information to assist you in determining the RA200 Agents' configuration for the following platforms: Tru64 UNIX, OpenVMS, and Windows NT (Alpha and Intel).

Chapter 7 – “Installing the HS-Series Agents” This chapter provides installation instructions for the HS-Series Agents, including the HSD30, HSD50, HSJ30, HSJ40, HSJ50, HSZ20, HSZ40, HSZ50, and HSZ70.

Chapter 8 – “Configuring the HS-Series Agents.” This chapter provides information on how to configure the HS-Series Agents on the following platforms: OpenVMS, Tru64 UNIX, and Windows NT (Alpha and Intel).

Chapter 9 – “Installing the Device Management Agents” This chapter provides instructions on how to install the Device Management Agents on Windows NT (Alpha and Intel) and on Tru64 UNIX.

Chapter 10 – “Configuring the Device Management Agents” This chapter contains information to assist you in configuring the Device Management Agents on Windows NT (Alpha and Intel) and on Tru64 UNIX.

Chapter 11 - Setting Up ServerWORKS Support. This chapter describes how Compaq ServerWORKS interfaces with Command Console when an Agent detects an event with a controller, virtual disk, or physical device.

Appendix A – “Usage Notes and Troubleshooting” This appendix describes usage and troubleshooting information for Command Console. It also provides information on the following: cluster integration, the communication logical unit number (LUN), and system requirements.

Style Conventions

The following style conventions are found in this guide:

Table 2 Style Conventions

Convention	Type of Information
Bold type	Words or characters you type
<i>Italic type</i>	User interface text
Courier type	File and directory specifications that you use during installation.
Type	When you are instructed to <i>type</i> 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.

Special Captions

The following captions identify important information within this guide:



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.

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 Phone Support 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 world wide Technical Support Centers are listed on the Compaq website. Access the Compaq website by logging on to the Internet at <http://www.compaq.com>.

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 by logging on to the Internet 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 Command Console

StorageWorks Command Console (SWCC) provides a method of monitoring, configuring, and troubleshooting storage subsystems from a remote location.

SWCC can be connected to your StorageWorks controller in several ways. Once connected, the program sends commands and interprets the responses sent by the controller or adapter. The user interface displays the logical and physical layout and status of a selected subsystem, which is comprised of a controller and an array of physical devices attached to a host. In the case of Device Management, a subsystem is comprised of adapters.

How to Set Up This Software

Before you can monitor your subsystem, you need to install and configure several components of this software. The following provides a brief overview:

Table 1-1
Setting Up the Software

Step	Task
1	Set up a connection for the Clients, Agents, and subsystems. (Chapter 3)
2	<p>Install the Command Console Client and the device-specific Clients. (Chapter 4)</p> <p>When you install the Command Console Client, the software will automatically install the following:</p> <ul style="list-style-type: none"> RA200 Client HSD Client HSJ Client HSZ Client (Except HSZ22 and HSZ80) Device Management Client <p>The Command Line Interpreter window (HS-Series Agents Only). You use the Command Line Interpreter (CLI) window to type in commands that allow you to configure and monitor your storage subsystems.</p>
3	<p>Install the device-specific Agent on a system:</p> <ul style="list-style-type: none"> ■ RA200 Agents (Chapter 5) ■ HS-Series Agents (Chapter 7) ■ Device Management Agents (Chapter 9)
4	<p>Add the name of the client system to the Agent's list of client system entries:</p> <ul style="list-style-type: none"> ■ RA200 Agents (Chapter 6) ■ HS-Series Agents (Chapter 8) ■ Device Management Agents (Chapter 10)
5	Add the name of the agent system to the Navigation Tree. (Command Console Client Help)

Command Console is comprised of several components: the Command Console Client, the device-specific Clients, and the device-specific Agents. In this chapter, you will learn about these components and how they provide a graphical window into the operation of your subsystem.

Install the software in two steps, which can be done in any order as shown below:

About the Client

The Client allows you to monitor and manage subsystems that are in a remote location. Client runs on a local system with Microsoft Windows 98, Windows 95, or Windows NT version 4.0.

The Client is divided into two parts: the Command Console Client and the device-specific Client. The Command Console Client provides the Navigation window, which you see when you click *StorageWorks Command Console* in *Start/Programs/Command Console*. This Navigation window provides you with the Navigation Tree in addition to other functions. The Navigation Tree provides a way for you to manage your systems.

The device-specific Client (such as the RA200 Client) is an add-in for the Command Console Client. This add-in provides a Storage Window, which displays the status of a particular subsystem. You can access the Storage Window by using the Navigation Tree.

About the Agent

The device-specific Agent is a companion program for the device-specific Client. You need to install the Agent on systems (hosts) that are accessible to the Clients and the subsystems. The device-specific Agent collects data from the subsystems and passes the information along to the Client. The Agent also enables Client to communicate with your subsystem over a network.

Command Console Features

The following is a list of some of Command Console features:

- Automatic event logging on Windows NT
- Direct, serial port connection for HS-Series controllers
- Fault notification by pager
- Graphical view of the controller and its physical and logical storage elements
- Host-port SCSI bus virtual terminal connection for HSZ-series controllers
- Network connection by means of TCP/IP
- Security to protect access to storage subsystems (Except Device Management)
- Status monitoring of the storage subsystem by using colored icons

Client System Access Options

The access privilege level controls the client system's level of access to the storage subsystems. You can select overall status (no access), detailed status (show level access only), or configuration (storage subsystem configuration capability). The following explains the client system access options:

Table 1-2
Client System Access Options

Options	SWCC Function
Overall Status (No Access)	<ul style="list-style-type: none"> ■ Can use the Client software to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
Detailed Status (Show Level Access)	<ul style="list-style-type: none"> ■ Can use the Client software to open a Storage Window, but you cannot make modifications in that window
Configuration (Storage Subsystem Configuration Capability)	<ul style="list-style-type: none"> ■ Cannot use the Client software to make changes in a Storage Window to modify a subsystem configuration

Client System Notification Options

The notification scheme defines the network protocol to be used by the Agent when notifying the selected client system of a change in the state of a subsystem. The following describes how the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Simple Network Management Protocol (SNMP) work with SWCC:

Table 1-3
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Storage Window of subsystem changes provided AES is running ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

Agent Access Password

You can change the configuration of a subsystem (for example, upgrade firmware) by using your Agent access password, provided that you have the configuration access privilege level selected.

Chapter **2**

Connecting the Client to Your Storage Subsystems

This chapter describes the ways that you can connect your client systems to your subsystems:

- Direct serial connection (HS-Series only)
- Host-bus SCSI connection (HSZ-Series only)
- Network connection by means of the TCP/IP protocol

Direct Serial Connection (HS-Series Only)

The simplest connection to the storage subsystem is a direct cable connection from the local system that has the Storage Windows to one of the subsystem controller's serial maintenance ports. Because direct serial connections are only available with stand-alone Storage Windows, you will be unable to connect locally to a subsystem by means of the Navigation Tree.

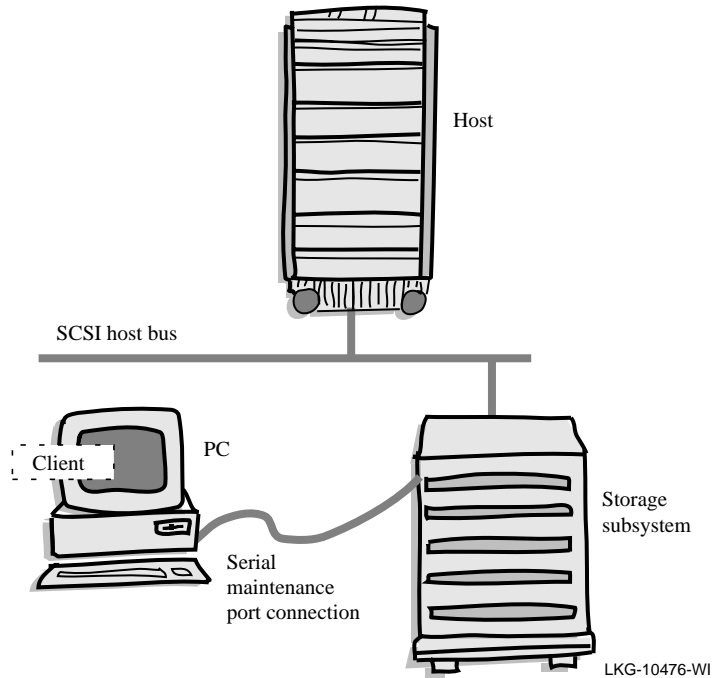


Figure 2-1. An example of the direct serial connection

Host-Bus SCSI Connection (HSZ-Series Only)

If you have an HSZ controller, you can connect the client system to your storage subsystems by using the host-bus SCSI (small computer system interface) connection. To do this, you must connect the Compaq StorageWorks controller subsystem to the client system. In addition, the subsystem must contain at least one configured virtual disk.

If your subsystem does not contain a configured virtual disk and you still want to use the host-bus SCSI connection, you must establish a temporary connection through the controller's serial maintenance port, so that you can create a virtual disk for the subsystem.

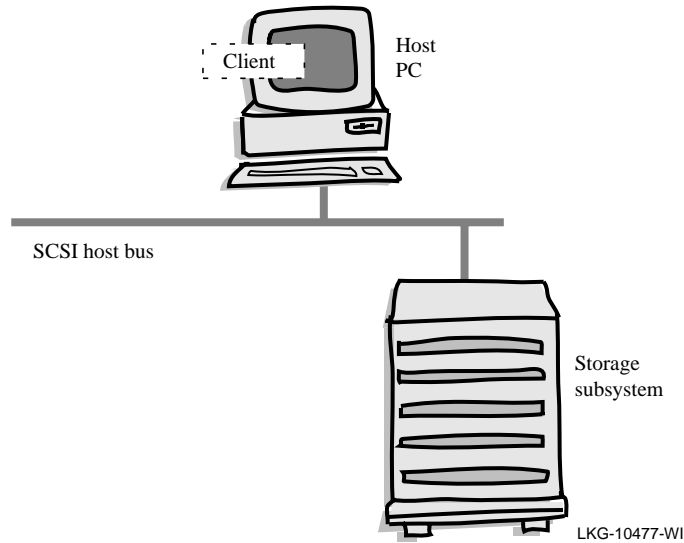


Figure 2-2. An example of the host-bus SCSI connection

Network Connection

SWCC has sophisticated networking capabilities. If Client is running on a local system that has a TCP/IP network connection, you can connect SWCC to an Agent through the network on a system connected to your storage subsystem. To connect this way, you must run the Command Console Agent program on your host.

Agent acts as Client's assistant in controlling your storage subsystem. Commands sent from Client are received by Agent and are routed to the storage subsystem through the subsystem's SCSI host bus. Subsystem status is transmitted back to Client from Agent through the network connection. You can also use Agent for access protection.

By using a network connection, you can configure and monitor your storage subsystem from anywhere on your local area network (LAN), which is a network confined to a single geographic location. If you have a wide area network (WAN) or a connection to the Internet, you can monitor your subsystem with the TCP/IP network protocol.

NOTE: Command Console does not support the dynamic host configuration protocol (DHCP) or the Windows Internet Name Service (WINS).

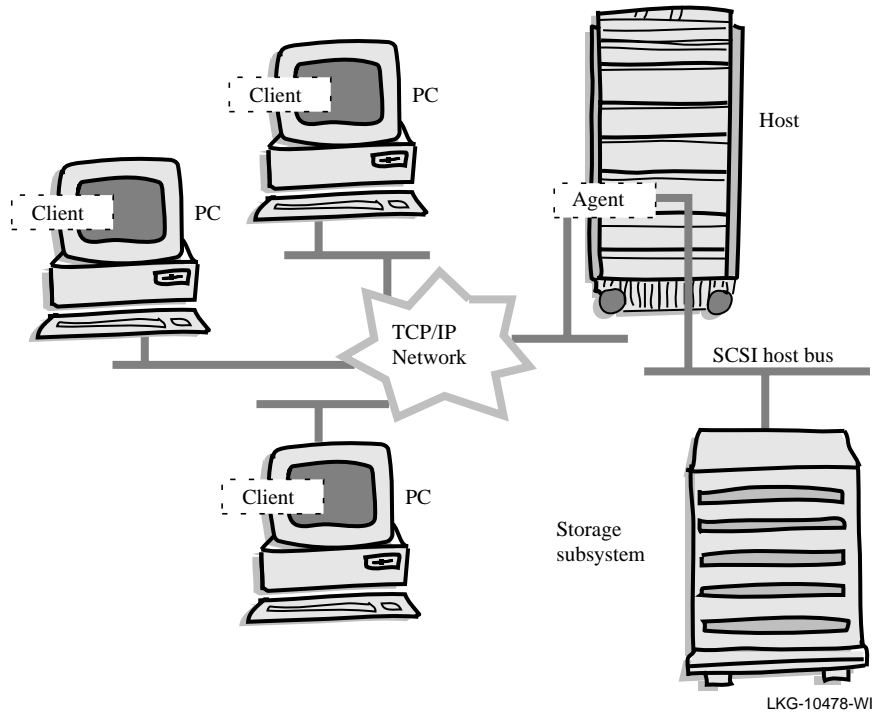


Figure 2-3. An example of the network connection

Choosing the Right Connection Type

There are many issues to consider when choosing a connection type to use for Client and your subsystems. Each connection type differs in the type of features and limits. Table 3-1 lists the connections supported by only the HS-Series controllers. Table 3-2 lists the connections supported by all controllers.

Table 2-1
Connections Supported by Only the HS-Series Controllers

Features	Local Serial Connection* (Navigation Tree and Agent not used)	Local SCSI Bus Connection** (Navigation Tree and Agent not used)
Create Virtual Disk	Supported	Supported
Delete Virtual Disk	Supported	Supported
Fault Events: Client Visual Notification	Supported	Supported
Fault Events: Paging Notification	Not Supported	Not Supported
Fault Events: Event Logging	Not Supported	Not Supported

*Only applies to the HS-Series controllers

**Only applies to the HSZ-Series controllers

Table 2-2
Connections Supported by All Controllers

Features	Client and Agent on the same computer Local Network Connection	Client and Agent on different computers Remote Network Connection	Client running on a remote system with a dial-up network connection to the Agent Dial-up Networking Connection (Non-DHCP)
Create Virtual Disk*	Supported	Supported. Follow-up operating system configuration cannot be performed remotely.	Supported. Follow-up operating system configuration cannot be performed remotely.
Delete Virtual Disk*	Supported	Supported. Follow-up operating system configuration cannot be performed remotely.	Supported. Follow-up operating system configuration cannot be performed remotely.
Fault Events: Client Visual Notification	Supported	Supported	Supported reliably at Agent end only. The Client may not be notified of some events while the dial-up connection is broken.
Fault Events: Paging Notification	Supported	Supported	Supported reliably at Agent end only. The Client may not be notified of some events while the dial-up connection is broken.
Fault Events: Event Logging	Supported	Supported	Supported reliably at Agent end only. The Client may not be notified of some events while the dial-up connection is broken.

*Not supported by the Device Management SCSI adapters

Operating System Considerations

You can reconfigure the storage subsystems by using SWCC. For the operating system to properly reflect these changes, you may need to take action outside the scope of SWCC, such as initialize the drive or reboot the system. For further information, read the documentation for your operating system.

Chapter 3

Installing the Clients

This chapter contains instructions on how to install the Client component of StorageWorks Command Console on Windows 98, Windows 95, or Windows NT (Alpha and Intel) platforms. It also provides information on how to access the online version of this document.

When you install the Command Console Client, you will also be installing the Clients for various controllers. The device-specific Clients (such as the RA200 Client) provide the Storage windows. If you are installing the Clients with a network connection, you must also install the individual Agents for each system.

The following software is installed with the Command Console Client:

- RA200 Client for the KZPSC and KZPAC controllers
- HSD Client for the HSD30 and HSD50 controllers
- HSJ Client for the HSJ30, HSJ40, and HSJ50 controllers
- HSZ Client for the HSZ20, HSZ40, HSZ50, and HSZ70 controllers
- Device Management Client for SCSI adapters
- The Command Line Interpreter window (HS-Series Agents only). You use the Command Line Interpreter (CLI) window to type in commands that allow you to configure and monitor your storage subsystems.

Before You Begin

Refer to the `ccclient.txt` file before you begin the installation. It contains any last-minute changes made to the Command Console Client, in addition to known problems with this release.

Also, an online copy of this guide (`GettingStarted.pdf`) is available in .PDF format on the CD-ROM that accompanies this software. You need Adobe Acrobat Reader version 3.0 or later to view the .PDF files. For further information on installing Adobe Acrobat Reader for Windows NT onto an Alpha platform, refer to the `ccclient.txt` file. There are two ways to obtain Adobe Acrobat Reader:

- From the StorageWorks Command Console CD-ROM. For more information, refer to the `ccclient.txt` file.
- From the Adobe Web site:

www.adobe.com

Installing the Clients

This section contains instructions on how to install the Clients on the Windows NT, the Windows 98, and the Windows 95 operating systems. There are two ways to install the Clients:

- From the StorageWorks Command Console (SWCC) CD-ROM
- From a file downloaded from the StorageWorks Web site



CAUTION: Before you install the Clients, do the following:

- Check the software product description list located on the StorageWorks Web site. This list will tell you whether Command Console supports your hardware.
- If you are using Windows NT, verify that you are logged into an account that is a member of the administrator group.
- If you have the Command Console Client open, exit the Command Console Client (*File|Exit*).
- If you have Command Console version 2.0 or earlier, remove the following Clients from your computer by going into *Add/Remove Programs*: HSD Client (*StorageWorksHSDClient*), HSJ Client (*StorageWorksHSJClient*), HSZ Client (*StorageWorksHSZClient*), and the Command-Line Interpreter (CLI) window (*StorageWorksCliWindow*).
- If you have Command Console Client version 1.1b or earlier, remove the program and the asynchronous event service.
- If any of your shortcuts point to a floppy drive, a CD-ROM drive, or a removable drive, verify that the floppy or CD-ROM drives are not empty and that the removable drive is present. The installation will check the shortcuts on the desktop and in the Start menu. If you have Windows NT, the installation will check the shortcuts of all users for that computer, even if they are not currently logged on.
- Read ccclient.txt.

From the SWCC CD-ROM

1. Insert the CD-ROM into the computer that you want to use as your client system.
2. Using Windows Explorer®, go to the following directory on the CD-ROM, and double-click *setup.exe*:

For the Alpha platform: \NTAlpha\client

For the Intel platform: \NTIntel\client

The asynchronous event service (AES) starts and the following software installs:

- ☐ Command Console Client
- ☐ RA200 Client for the KZPSC and KZPAC controllers
- ☐ HSD Client for the HSD30 and HSD50 controllers

- ☐ HSJ Client for the HSJ30, HSJ40, and HSJ50 controllers
- ☐ HSZ Client for the HSZ20, HSZ40, HSZ50, and HSZ70 controllers
- ☐ Device Management Client for SCSI adapters
- ☐ The Command Line Interpreter window (HS-Series Agents only). You use the Command Line Interpreter (CLI) window to type in commands that allow you to configure and monitor your storage subsystems.

For more information on AES, read the section, “Asynchronous Event Service,” in this chapter.

NOTE: After the Command Console Client is installed, you can access its Help, which provides detailed information on the configuration and use of Command Console. You can access Help for the Command Console Client by clicking *Help* in its window.

From a Downloaded File

It is assumed that you have downloaded the file, `swccv21axpclient.exe` for the Alpha platform or `swccv21x86client.exe` for the Intel platform, from the StorageWorks Web site to the computer that you want to use as your client system.

1. Open Windows Explorer and double-click the file that you downloaded.

The file self-extracts.

2. Go to the following directory and double-click `setup.exe`.

For the Alpha platform: `NTAlpha\client`

For the Intel platform: `NTIntel\client`

The asynchronous event service (AES) starts and the following software installs:

- ☐ Command Console Client
- ☐ RA200 Client for the KZPSC and KZPAC controllers
- ☐ HSD Client for the HSD30 and HSD50 controllers
- ☐ HSJ Client for the HSJ30, HSJ40, and HSJ50 controllers
- ☐ HSZ Client for the HSZ20, HSZ40, HSZ50, and HSZ70 controllers
- ☐ Device Management Client for SCSI adapters

- ❑ The Command Line Interpreter window (HS-Series Agents only).
You use the Command Line Interpreter (CLI) window to type in commands that allow you to configure and monitor your storage subsystems.

For more information on AES, read the following section, “Asynchronous Event Service.”

NOTE: After the Command Console Client is installed, you can access its Help, which provides detailed information on the configuration and use of Command Console. You can access Help for the Command Console Client by clicking *Help* in its window.

About the Asynchronous Event Service

The Asynchronous Event Service (AES) is a component of the Command Console Client. 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. When AES is running, it passes the trap (message) to the Navigation Tree. The Navigation Tree, in turn, passes the trap to the appropriate Storage windows. You can identify a new trap that has been passed to the Navigation Tree because the status of one or more of its icons will change.

AES can also send traps to pagers. To activate this function, 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. However, you need AES running to receive pages notifying you of faults and to provide updates to the Navigation Tree, Storage windows, and Windows NT Event Viewer. When you stop AES, you are telling the Client software to do the following on its client system:

- Stop providing updates to the Navigation Tree and Storage windows
- Stop displaying updates obtained from the Asynchronous Event Service in the Application Log of the Windows NT Event Viewer
- Not page others when a fault occurs

Stopping and Starting AES on Windows NT

To stop or start AES:

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

Stopping and Starting AES on Windows 98 and Windows 95

To stop or start AES:

1. Double-click the *Async Event Service* icon located in the Control Panel. The AES Service Settings window appears.
2. Click *Stop* or *Start*, then click *Apply*.

To disable the automatic start of AES when your system boots:

1. Double-click the *Async Event Service* icon located in the Control Panel. The AES Service Settings window appears.
2. Deselect Automatic Startup on Boot and click *Apply*.

Removing the Command Console Client

Before you remove the Command Console Client from your computer, remove AES from Windows NT or deactivate it from starting automatically at system boot on a computer, running Windows 98 or Windows 95. This will prevent the system from reporting that a service failed to start every time the system is booted. Steps 2 through 4 tell you how to remove the Command Console Client.

1. In this step, do one of the following:

- ☐ On Windows 98 and Windows 95:

Deactivate AES from starting automatically at system boot, by doing the following:

Go into *Start|Settings|Control Panel|Async Event Service*, and uncheck “Automatic startup on boot.”

- ☐ On Windows NT:

If you have Windows NT, remove AES from the computer.

2. Go to the command prompt (*Start|Programs|Command Prompt*) and change to the directory to which you installed the Command Console Client. Type the following command and then press *ENTER*:

```
C:\Program Files\SWCC> AsyncEventService -remove
```

3. 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.
 4. Select *Command Console V2.1* located in the window, and then click *Add/Remove*. The computer asks:
- Are you sure you want to completely remove the selected application and all of its components?
5. Click *Yes*. The computer removes only the Command Console Client.

NOTE: The procedure described only removed the Command Console Client. You can remove a device-specific Client by using the Add/Remove program (*Start|Settings|Control Panel|Add/Remove Programs*).

Chapter **4**

Installing the RA200 Agents

You need to install the RA200 Agent on a host in order for the RA200 Client software to receive information about your storage subsystems. The Agent software allows the Client to exchange information with your storage subsystem over a network.

This chapter contains instructions on how to install the RA200 Agents on Tru64 UNIX, Compaq OpenVMS, and the Windows NT (Alpha and Intel) operating systems. It also has instructions on how to install the RA200 Agent for Tru64 UNIX by using the Dataless Management Services (DMS) server installation or the Remote Installation Services (RIS) server installation.

Installing the Alpha Device Driver

Before you install the RA200 Agent, you may need to install a newer version of the device driver, `SYS$DRDRIVER.EXE`, if you have an Alpha platform with one of the following versions of OpenVMS:

- 6.2-1H3
- 7.1-1H1
- 7.1-1H2

This device driver is for the KZESC, KZPSC, KZPAC controllers, and it is required for the support of StorageWorks Command Console. The driver will create a new device unit, `DRMc0:`, for each controller. This unit serves as a communication point for the RA200 Agent to allow it to perform its configuration and monitoring functions.

To obtain the TIMA kit (ALPDRIV09_071) for OpenVMS versions 7.1-1H1 and 7.1-1H2, go to the following Web site:

http://ftp.service.digital.com/public/Readmes/vms/alpdriv12_071.html

To obtain the TIMA kit (ALPDRIV18_062) for OpenVMS version 6.2-1H3, go to the following Web site:

http://ftp.service.digital.com/public/Readmes/vms/alpdriv18_062.README

Refer questions to your Compaq Customer Service Representative.

Before Installing the RA200 Agent on OpenVMS

1. Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). That installation also installs version 2.1 of the RA200 Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
2. Read the release notes in the `ra200v21.txt` file for operating system and TCP/IP requirements.
3. Verify that one of the following TCP/IP stacks is running on your system: MultiNet®, TCPware®, or UCX.
4. If you have OpenVMS version 7.2, verify that the TCP/IP stacks on your computer meet the requirements listed in the section, “Requirements for TCP/IP Stacks on OpenVMS Version 7.2,” under “System Requirements” in Appendix A.

5. Verify that the RAID Array is running.
6. If you have an Alpha platform with OpenVMS version 6.2-1H3, 7.1-1H1, or 7.1-1H2, install the new version of the Alpha device driver. See the section, “Installing the Alpha Device Driver.”
7. If you have OpenVMS version 7.2 on an Alpha computer with MultiNet and/or TCPware TCP/IP stacks, you need to install the security patch from the Process Software Web site at <http://www.process.com>.
8. Verify that you have the appropriate firmware upgrades and drivers properly installed. For details, refer to the section, “System Requirements,” in Appendix A.
9. Verify that StorageWorks Fault Management is enabled for each KZPAC and KZPSC controller that you want to manage with Command Console. For details, refer to the section, “System Requirements,” in Appendix A.
10. If you are reinstalling the Agent, verify that you have stopped the Agent. Type the following at the command prompt and then press *RETURN* to stop the Agent:

```
$ stop ccagentra200
```

Installing the RA200 Agent on OpenVMS

Instructions on how to install the RA200 Agent on OpenVMS operating system are as follows:



CAUTION: Before you install the Agent, complete the steps found in “Before Installing the RA200 Agent on OpenVMS.”

Beginning the Installation

The method of installing the Agent on your system depends on whether you install the software from the StorageWorks Command Console (SWCC) CD-ROM or a file downloaded from the StorageWorks Web site.

NOTE: Do not install the software over the network. Install the software on the system that is connected to the controller.

From the SWCC CD-ROM

These steps tell you how to install the RA200 Agent from the SWCC CD-ROM. For the following examples, you can replace DKB600 and DKB100 : [RA200] with others more suitable for your system.

1. Insert the CD-ROM into the system that has the KZPSC and/or KZPAC controller(s).

For the examples in this section, assume the CD-ROM device is DKB600.

2. To mount the CD-ROM, type the following at the command prompt (substituting the name of your CD-ROM device) and then press *RETURN*:

```
$ MOUNT/OVER=ID/MEDIA=CD DKB600:
```

3. To create a local directory on your system, type the following at the command prompt and then press *RETURN*. You will copy the installation file from the CD-ROM to this directory. Replace DKB100 with the name of your hard drive on the system that has the KZPSC and/or KZPAC controller(s):

```
$ CREATE/DIRECTORY DKB100:[RA200]
```

A directory named DKB100 : [RA200] has been created.

4. To set the directory, type the following at the command prompt and then press *RETURN* (Replace DKB100 with the name of your hard drive.):

```
$ SET DEFAULT DKB100:[RA200]
```

5. Copy the self-extracting file from the CD-ROM to the default directory. Type the following command and then press *RETURN*. (Replace DKB600 with the name of your CD-ROM drive and replace DKB100 with the name of your hard drive.):

```
$ COPY DKB600:[VMS.AGENTS.MLG]AXPVMS.EXE DKB100:[RA200]
```

6. To run the self-extracting file, type the following and then press *RETURN* (Replace DKB100 with the name of your hard drive.):

NOTE: You need to run *AXPVMS . EXE* on OpenVMS.

```
$ RUN DKB100:[RA200]AXPVMS.EXE
```

7. To install the kit, type the following at the command prompt and then press *RETURN* (Replace DKB100 with the name of your hard drive.):

```
$ PRODUCT INSTALL CCAGENTRA200/SOURCE=DKB100:[RA200]
```

The following text appears:

The following product has been selected:

```
DEC xxxVMS SWCC V2.X-XX
```

Do you want to continue? [YES]

8. Go to the section, “Completing the Installation.”

From the StorageWorks Web Site

It is assumed that you have downloaded the file AXP22 . EXE to the directory DKB100 : [DOWNLOAD] from the StorageWorks Web site. In this section, you will tell the computer to uncompress the downloaded file before you begin the installation. For the following examples, you can replace DKB100 : [DOWNLOAD] and DKB100 : [RA200] with other names more suitable for your system.

1. Type the following at the command prompt and then press *RETURN* to create a directory named DKB100 : [RA200], which will hold the self-extracted files for the RA200 and the HS-Series Agents that run on OpenVMS. Replace DKB100 with the name of your hard drive on the system connected to the controller:

```
$ CREATE/DIRECTORY DKB100:[RA200]
```

2. To set the directory, type the following at the command prompt and then press *RETURN* (Replace DKB100 with the name of your hard drive.):

```
$ SET DEFAULT DKB100:[RA200]
```

Replace DKB100 with the name of the drive to which you will install the software.

3. To run the downloaded file, type the following at the command prompt and then press *RETURN* (This example assumes you downloaded the file into a directory named [DOWNLOAD].) (Replace DKB100 with the name of your hard drive.):

```
$ RUN DKB100:[DOWNLOAD]AXP22.EXE
```

NOTE: You need to run AXP22 . EXE on OpenVMS. The . EXE extension is used to assist Internet browsers in downloading the file.

4. To install the product, type the following at the command prompt and then press *RETURN*:

\$ **PRODUCT INSTALL ***

The computer displays the programs that are included in the self-extracting zip file.

Table 4-1
Files in AXP22.EXE

File Name	Function
dec-axpvms-ccagentra200-v0201-316a-1.pcsi	The RA200 Agent for OpenVMS version 7.2 or later
dec-axpvms-ccagentra200-v0202-503-1.pcsi	The RA200 Agent for OpenVMS version 7.1 or earlier
dec-axpvms-swcc-v0201-133-1.pcsi	The HS-Series Agent for OpenVMS (Alpha platform).

5. Select one of the files for the RA200 Agent.
6. Go to the section, "Completing the Installation."

Completing the Installation

In this section, you will complete the installation that you began in the section, “Beginning the Installation.”

1. Press *RETURN*. You will be asked to choose options, if any, for each selected product and for any products that may be installed to satisfy software dependency requirements. The Agent will start after the installation. The display shown below may vary from what is on your screen:

Configuration phase starting ...

DEC AXPVMS CCAGENTRA200 V2.1: StorageWorks Command Console RA200 Agent for OpenVMS AXP

© Compaq Computer Corporation 1998. All rights reserved.

Compaq Computer Corporation

This product does not use a PAK.

Do you want the defaults for all options? [YES] <return>

Do you want to review the options? [NO] <return>

Execution phase starting ...

The following product will be installed:

DEC AXPVMS CCAGENTRA200 V2.1 Layered Product

Portion done: 0%...70%...80%...90%...100%

The following product has been installed:

DEC AXPVMS CCAGENTRA200 V2.1 Layered Product

DEC AXPVMS CCRA200AGENT V2.1: StorageWorks Command Console RA200 Agent for OpenVMS AXP

Run @SYS\$MANAGER:RA200CONFIG.COM to configure this product.

Insert the following lines in SYS\$MANAGER:SYSTARTUP_VMS.COM:

@SYS\$MANAGER:CCAGENTRA200\$STARTUP.COM

2. If you used the CD-ROM to install the Agent, dismount the CD-ROM. For example, type the following at the command prompt and then press *RETURN* (The following example assumes that your CD-ROM drive is DKB600.):

\$ DISMOUNT DKB600:

3. The Agent starts automatically, but you can always check if the Agent is running by typing the following at the command prompt and then pressing *RETURN*:

\$ SHOW SYS

NOTE: For your client systems to communicate with this Agent, you need to first add those client systems to the Agent's list of client system entries. For more information, go to the next chapter, "Configuring the RA200 Agents."

Removing the RA200 Agent from OpenVMS

Before you remove the RA200 Agent, you need to stop the Agent from monitoring the subsystems. Instructions on how to remove the RA200 Agent on OpenVMS operating system are the following:

1. Stop the Agent by using the Configuration menu, as described in the following chapter, "Configuring the RA200 Agents."
2. Type the following at the command prompt and then press *RETURN*:

\$ PRODUCT REMOVE *

The computer displays the software that is installed.

3. Type the corresponding number for the software that you want to remove.
4. To remove the configuration and Client list files, change to the `sys$system` directory and delete the following files (If you delete these files, you will need to reconfigure the Agent after reinstallation.):

Table 4-2
Program Files

File Name	File Type
RA200.CFG	Configuration File
RACLIENT.INI	Client List File

Before Installing the RA200 Agent on Tru64 UNIX

1. Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). That installation also installs version 2.1 of the RA200 Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
2. Remove previous versions of the RA200 Agent from your computer; otherwise, the installation will stop.
3. Read the release notes in the `ra200v21.txt` file for operating system requirements.
4. Log in as root (superuser).
5. Verify that the RAID Array is running.
6. Verify that you have the appropriate firmware upgrades and drivers properly installed. For details, refer to the section, "System Requirements," in Appendix A.
7. Verify that StorageWorks Fault Management is enabled for each KZPAC and KZPSC controller that you want to manage with Command Console. For details, refer to the section, "System Requirements," in Appendix A.

Installing the RA200 Agent Locally on Tru64 UNIX

To install the Agent by using DMS or RIS, see the section, "Dataless Management Services (DMS) Server Installation" or "Remote Installation Services (RIS) Server Installation."



CAUTION: Before you install the Agent, complete the steps found in "Before Installing the RA200 Agent on Tru64 UNIX."

Beginning the Installation

The method of installing the Agent on your system depends on whether you install the software from the CD-ROM or a file downloaded from the StorageWorks Web site.

From the SWCC CD-ROM

The following instructions assume that you have a directory `/mnt` to which you can mount the CD-ROM. If you do not, you will have to create a mount point and replace `/mnt` in the following sequence with the mount point that you have created. It also assumes the drive name of your CD-ROM is `/dev/rz4c`. If not, replace `/dev/rz4c` with the actual CD-ROM device.

1. Insert the CD-ROM into the computer that has the KZPSC and/or KZPAC controller(s).
2. To mount the CD-ROM, type the following at the command prompt and then press *RETURN*:

```
# mount -t cdfs /dev/rz4c /mnt
```

3. To run the installation program, enter the following at the command prompt:

```
# setld -l /mnt/dunix/agents
```

You are shown a list of Agents that you can install.

4. Choose the Agents that you want to install.

You are asked if you want to install the listed subsets.

5. Go to the section, "Completing the Installation."

From the StorageWorks Web Site

It is assumed that you have downloaded the file `swcc21dunix.exe` to the `download` directory from the StorageWorks Web site. In this section, you will tell the computer to uncompress the downloaded file before you begin the installation. For the following examples, you can replace the `.../download` and `.../Agents` directory names and paths with others more suitable for your system.

1. To create a directory, type the following:

```
# mkdir .../Agents
```

2. To change to the `.../Agents` directory, type the following at the command prompt and then press *RETURN*.

```
# cd .../Agents
```

3. Move the file, `swcc21dunix.exe`, to the `.../Agents` directory by entering the following:

```
# mv .../download/swcc21dunix.exe .../Agents
```

4. To make the `swcc21dunix.exe` file executable, enter the following at the command prompt:

```
# chmod +x swcc21dunix.exe
```

5. Type the following at the command prompt and then press *RETURN*:

```
# swcc21dunix.exe
```

NOTE: You need to run `swcc21dunix.exe` on Tru64 UNIX. The `.exe` extension was added to assist Internet browsers in downloading the file.

6. To run the installation program, type the following at the command prompt and then press *RETURN*:

```
# setld -l .../Agents
```

You are shown a list of Agents that you can install.

7. Choose the Agents that you want to install.

You are asked if you want to install the listed subsets.

8. Go to the section, "Completing the Installation."

Completing the Installation

In this section, you will complete the installation that you began in the section, "Beginning the Installation."

1. Type **2** and then press *RETURN* to install all of the listed subsets. You are shown the subsets that you have decided to install.

A message, asking if your choice is correct, appears.

2. Type **y** and then press *RETURN* to continue with the installation. You are shown the number of subsets that will be installed, the copyright agreement, and a note warning you to remove previous versions of the Agent from your computer.

3. Press *RETURN* to continue. The software will check for existing installations found on the computer. If it does not find a previous version of the Agent, the software will do one of the following:
 - ❑ Ask you to type a password. Your case-sensitive password must have 4 to 16 characters. Go to step 4.
 - ❑ Tell you that it has already found existing configuration files and return you to the command prompt. If you installed the software from a CD-ROM, go to step 11 to unmount the CD-ROM. You will not see the following steps because the software has been installed.

If the software finds a previous version of the Agent, it will tell you to remove it. You cannot install the RA200 Agent until the previous version has been removed. You return to the command prompt.

4. Type your new password. Press *RETURN*.

A message, asking you to verify the new password, appears.

5. Type your new password again. Press *RETURN*.

A message, telling you that the password has been updated, appears. Press *RETURN* to continue. The computer asks you to add a client system entry.

6. Type the name of the client systems that you want to receive updates from this Agent, and then press *RETURN*.

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.

7. The software displays a menu, giving you three choices for selecting the client system access level.
8. From the displayed menu, type an access level for the client system.

Table 4-3 explains the client system access options:

Table 4-3
Client System Access Options

Options	SWCC Function
0 = Overall Status (No Access)	<ul style="list-style-type: none"> ■ Can use the Client to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
1 = Detailed Status (Show Level Access)	<ul style="list-style-type: none"> ■ Can use the Client to open a Storage Window, but you cannot make modifications in that window
2 = Configuration (Storage Subsystem Configuration Capability)	<ul style="list-style-type: none"> ■ Can use the Client to make changes in a Storage Window to modify a subsystem configuration

9. Press *RETURN*.

A menu for selecting the client system notification scheme appears.

10. From the displayed menu, type a notification scheme for the client system, **0**, **1**, **2**, **3**, or **4**.

The notification scheme defines the network protocol to be used by the Agent when notifying the selected client system of a change in the state of a subsystem. The following describes how the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Simple Network Management Protocol (SNMP) work with SWCC:

Table 4-4
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Storage Window of subsystem changes provided AES is running ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

11. Press *RETURN*.

The computer asks you if the entered information is correct.

12. Type **y** and then press *RETURN* to complete the installation.

A message, asking if you would like to add another Client, appears.

13. Type **y** and then press *RETURN* to add another client system. Repeat steps 6 through 12.

Or

Type **n** and then press *RETURN* for the main menu.

14. If you installed the Agent from the CD-ROM, type the following at the command prompt and then press *RETURN* to unmount the CD-ROM:

```
# umount /mnt
```

15. Go to the section, “Configuring Event Logging for the RA200 Agent on Tru64 UNIX,” for information on configuring event logging.

NOTE: Add this system to the Navigation Tree of each client system that you added to the Agent’s list (*File|Add System* in the Command Console Client). Refer to the Command Console Help.

Configuring Agent Event Logging on Tru64 UNIX

Events are logged by the Command Console Agent to Tru64 UNIX logging facility by using the syslog standard C Library function (man reference `syslog(3)`). When the syslog function is executed, the priority specified during the call is “notice.” The openlog standard C library function (man reference `syslog(3)`), which is used prior to the syslog function, specifies the facility as LOG_USER (messages generated by user processes).

To ensure that logging occurs for the Command Console Agent on Tru64 UNIX, the `/etc/syslog.conf` file (man reference `syslog(8)`) must be configured to include an entry to direct logging for the user facility. This entry must have a priority equal to or greater than the notice priority. In other words, if logging currently does not occur for the user facility, you must create an entry similar to the following in the `syslog.conf` file:

```
user.notice    /var/adm/syslog.dated/user.log
```

If an entry already exists in the `syslog.conf` file that logs user messages and has the same priority or higher than notice, you do not need to add an entry of the above format. This will result in duplicate logs.

Tru64 UNIX Agent is installed as a background task. The Agent will run continuously after it is installed.

Removing a Local Installation of the RA200 Agent from Tru64 UNIX

To remove the RA200 Agent from your computer, you will need to know the subset that you installed. When you installed this Agent, the software detected the version of Tru64 UNIX on your computer and installed the appropriate subset. A subset is a version of the Agent program.

1. To determine the subset that you installed, type the following and then press *RETURN*:

```
# setId -i | grep SWCC
```

You will see one or both of the subsets. Your computer is using the subset that has the word, “installed,” next to it. If you do not see one of these subsets, verify that you have installed the RA200 Agent that came with this kit.

2. Stop the Agent. For instructions, see the following steps:

- a. At the command prompt, type the following and then press *RETURN*:

```
# /usr/sbin/RA200config.sh
```

- b. The Configuration menu appears.
- c. Type **2** and then press *RETURN* to stop the Agent. You are given the status of the Agent and asked if you would like to stop or restart the RA200 Agent.
- d. Type **s** and then press *RETURN* to stop the Agent. The software stops the Agent.
- e. Press *RETURN* for the Configuration menu.
- f. Press **q** and then press *RETURN* to leave the Configuration menu.

3. Type the following at the command prompt and then press *RETURN* to remove the RA200 Agent: (This example is for subset SWCCRA210.)

```
# setId -d SWCCRA210
```

4. To remove the configuration and Client list files, change to the `/etc` directory and delete the following files (If you delete these files, you will need to reconfigure the Agent during reinstallation.):

Table 4-5
Program Files

File Name	File Type
RA200.CFG	Configuration File
RACLIENT.INI	Client List File

Dataless Management Services (DMS) Server Installation

This section tells you how to install the RA200 Agent on a Dataless Management Services (DMS) server on Tru64 UNIX.



CAUTION: Before you install the RA200 Agent, do the following:

- Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). This installation also installs version 2.1 of the RA200 Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
- Remove previous versions of the RA200 Agent from your computer; otherwise, the installation will stop.
- Read the release notes in the `ra200v2.1.txt` file for operating system requirements.
- Verify that the RAID Array is running.
- Verify that you have the appropriate firmware upgrades and drivers properly installed. For details, refer to the section, "System Requirements," in Appendix A.
- Verify that StorageWorks Fault Management is enabled for each KZPAC and KZPSC controller that you want to manage with Command Console. For details, refer to the section, "System Requirements," in Appendix A.

Before Installing the RA200 Agent on a DMS Server

When a DMS server/Client installation is detected, this Agent's installation behaves differently than a local installation. For instance, when you use DMS to install the RA200 Agent on a server or to set it up on a Client, the

installation will neither start the Agent nor will it create the configuration files or startup links. The following examples list the differences between a DMS installation and a local installation:

- When installing the RA200 Agent on a DMS server, the RA200 Agent files will be copied to the DMS area specified, and the appropriate `/usr` files system links will be established.
- When a DMS Client is booted and the RA200 Agent installation is invoked, only the TCP services will be set up on the Client.
- The `RA200config.sh` shell script now verifies and optionally repairs any problems with the installation when it is run.

Due to these changes in the default behavior of the installation in the DMS environment, you must run the RA200 Agent configuration script, `/usr/sbin/RA200config.sh`, on each DMS Client to properly configure the Agent prior to running it for the first time. When you first run the `/usr/sbin/RA200config.sh` script on your Client, the script will create the Agent configuration file. The following is an overview of the steps that you will perform when you install the RA200 Agent on a DMS server as described in the next section:

1. Type a password for the Agent on a DMS Client.
2. Specify the client systems that will access the Agent on a DMS Client.
3. Enable the RA200 Agent to start when the DMS Client boots.
4. Choose to start the Agent immediately.

For details on DMS server and Client setup, use and behavior, refer to the document *Sharing Software on a Local Area Network* in Tru64 UNIX documentation set.

NOTE: It is assumed that you have either added client systems to a DMS environment or you plan to do so after installing the RA200 subset to one or more environments.

Installing the RA200 Agent on a DMS Server

The following procedure lets you install the RA200 Agent for Tru64 UNIX with the Dataless Management Services (DMS) utility into the diskless server area. The examples in this section show you how to install the subsets to `/var/adm/dms/dms0.alpha`.

1. Log in and become the superuser.
2. To invoke the DMS utility, type the following command:

```
# dmdu
```

The computer displays the following menu:

```
*** DMU Main Menu ***
a - ADD a client
c - CONFIGURE software environments
d - DELETE software environments
i - INSTALL software environments
l - LIST registered clients
m - MODIFY a client
r - REMOVE a client
s - SHOW software environments
x - Exit
```

Enter your choice:

3. To select the *Install Software* option from the menu, type **i** and then press *RETURN*.

The computer displays the DMU Software Installation menu:

DMU Software Installation Menu:

- 1) Install software into a new area
- 2) Add software into an existing area
- 3) Perform configuration phase on an existing area
- 4) Return to previous menu

Enter your choice:

4. Type **2** and then press *RETURN* to add software to an existing area:

If the computer displays the available installation directories, as shown by the following, go to step 6:

You have chosen to install a product into an existing environment. The existing environment is /var/adm/dms/dms0.alpha.

Or

The computer will display the following if there is more than one installed DMS environment in the dataless server area:

Select the remote dataless environment:

1. /var/adm/dms/dms0.alpha
'Digital Operating System (Rev 106)'
2. /var/adm/dms/dms1.alpha
'Digital Operating System (Rev 106)'
'Sort Runtime Library'

Enter your choice:

5. If you have more than one installed DMS environment, type a number corresponding to an environment, such as **1**. Press *RETURN*.

You are prompted for an input device name or directory path where the software is located.

Enter the device special file name or path of the directory where the software is located (for example, /mnt/ALPHA/BASE):

6. Type the file name or path of the directory where the software is located, for example **/RA200**, and then press *RETURN*.

The RA200 Agent installation script appears.

7. Type **2** and then press *RETURN* to install all of the listed subsets. You are shown the subsets that you have decided to install.

The computer asks if your choice is correct.

8. Type **y** and then press *RETURN* to continue with the installation. You are shown the number of subsets that will be installed, the copyright agreement, and a note warning you to remove previous versions of the Agent from your computer.
9. Press *RETURN* to continue. The subsets are installed into the DMS environment. You are shown a note about configuring the DMS Client to run the RA200 Agent.
10. Press *RETURN* to continue. The DMS main menu appears for your next selection.
11. Repeat steps 1 through 10 for each `dmsn.alpha` that you plan to set up.
12. To install the RA200 Agent on a DMS Client, go to the following section, "Setting Up the RA200 Agent on a DMS Client."

Setting Up the RA200 Agent on a DMS Client

Before setting up the RA200 Agent on a DMS Client, complete the steps in the previous section, “Installing the RA200 Agent on a DMS Server.” Perform the following instructions:

1. If your Client has not been booted, type the following on a DMS Client and then press *RETURN* to boot the DMS Client with the bootp request (Replace W085 with the bootp request for your computer.):

boot W085

2. Configure the Agent on each DMS Client. For further information, refer to “Configuring the RA200 Agents.”
3. Go to the section, “Configuring Agent Event Logging on Tru64 UNIX,” in this chapter for information on configuring Agent event logging.

Remote Installation Services (RIS) Server Installation

This section tells you how to install the RA200 Agent on a Remote Installation Services (RIS) server on Tru64 UNIX.



CAUTION: Before you install the RA200 Agent, do the following:

- Remove previous versions of the RA200 Agent from your computer; otherwise, the installation will stop.
- Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). This installation also installs version 2.1 of the RA200 Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
- Read the release notes in the `ra200v21.txt` file for operating system requirements.
- Verify that the RAID Array is running.
- Verify that you have the appropriate firmware upgrades and drivers properly installed. For details, refer to the section, “System Requirements,” in Appendix A.
- Verify that StorageWorks Fault Management is enabled for each KZPAC and KZPSC controller that you want to manage with Command Console. For details, refer to the section, “System Requirements,” in Appendix A.

Before Installing the RA200 Agent

First check the following with your site system administrator before installing the RA200 Agent from a Remote Installation Services (RIS) server onto your RIS Client:

- A SWCC RA200 Agent for Tru64 UNIX kit is installed in the RIS server area and is available for use.
- Your system is registered as a RIS client.

If the RA200 Agent for Tru64 UNIX subsets are available to you on a RIS server system, you will need the name of that system to start the installation procedure described in this guide.

Installing the RA200 Agent

The following sample session describes how to add the RA200 Agent for Tru64 UNIX product to the `ris0.alpha` area:

1. Log in and become the superuser.
2. Type the following and then press *RETURN* to invoke the `ris` utility:

```
# ris
```

The RIS main menu is displayed:

```
Checking accessibility of RIS areas .... done
```

```
*** RIS Utility Main Menu ***
```

```
a - ADD a client
d - DELETE software products
i - INSTALL software products
l - LIST registered clients
m - MODIFY a client
r - REMOVE a client
s - SHOW software products in remote installation environments
x - Exit
```

```
Enter your choice:
```

3. To select the *Install Software* option from the RIS main menu, type **i** and then press *RETURN*.

The RIS Software Installation menu is displayed:

RIS Software Installation Menu:

- 1 Install software to a new area
- 2 Add software to an existing area
- 3 Return to previous menu

Enter your choice:

4. Type **2** and then press *RETURN* to add software to an existing area.

A list of available environments appears from which you might select `ris0.alpha`:

You have chosen to add a new product into an existing environment.

Select the remote installation environment:

- 1 `/usr/var/adm/ris/ris0.alpha`
'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
- 2 `/usr/var/adm/ris/ris1.alpha`
'Free Software Foundation GNU Source for Digital UNIX'

Enter your choice or press *RETURN* to quit:

5. Type a corresponding number for a remote installation environment and then press *RETURN*. You are prompted for an input device name:

Enter the device special file name or the path of the directory where the software is located, for example, `/mnt/ALPHA/BASE`:

6. Type the file name or path of the directory where the software is located, for example **/RA200**, and then press *RETURN*. The computer displays the following:

Choose one of the following options:

- 1) Extract software from `/RA200`
- 2) Create symbolic link to `/RA200`

Enter your choice:

7. Type **1** and then press *RETURN*. The computer displays a list of the software subsets that you selected for automatic installation.

The RIS Utility Main menu appears for your next selection, as shown by the following:

```
*** RIS Utility Main Menu ***
a - ADD a client
d - DELETE software products
i - INSTALL software products
l - LIST registered clients
m - MODIFY a client
r - REMOVE a client
s - SHOW software products in remote installation environments
x - Exit
```

Enter your choice:

8. Repeat the following steps a through f for each RIS Client allowed to install the Agent for Tru64 UNIX. You may be asked for additional information based on your Client's configuration, RIS setup, and the software products that you want to make available for installation. These steps assume that you have added Clients before performing this RIS installation.

- a. Type **m** and then press *RETURN* to select the Modify a Client option from the RIS menu:

The following is displayed:

The following clients are available to modify:

```
clienta clientb
```

Enter the client processor's hostname or press *RETURN* to quit:

- b. Type the name of the Client to be modified from the list of available Clients, for example **clienta**, and then press *RETURN*:

The computer displays the following:

Select the remote installation environment:

```
1 /usr/var/adm/ris/ris0.alpha
  'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
  'InfoServer Client for Digital UNIX'
... 'StorageWorks Command Console RA200 Agent'
```

```
2 /usr/var/adm/ris/ris1.alpha
  'Free Software Foundation GNU Source for Digital UNIX'
```

Enter your choice or press RETURN to quit:

- c. Choose the environment to which you want to add the Client and then press *RETURN*. If there is only one environment, RIS will skip this prompt.

The system shows you the environments and products that the Client can already access:

Client clienta currently can install the following products from /usr/var/adm/ris/ris0.alpha:

'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
Select one or more products for the client to install
from /usr/var/adm/ris/ris0.alpha:

Product	Description
1	'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
2	'InfoServer Client for DIGITAL UNIX '
3	'StorageWorks Command Console RA200 Agent'

Enter one or more choices as a space separated list
(for example, 1 2 3) or "all" for all products [all]:

- d. At the command prompt, type the corresponding number for the products that you would like this Client to be able to install including the RA200 Agent for Tru64 UNIX. Separate each choice with a space and then press *RETURN*.

The computer displays the following:

You chose the following products:

- 1 'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
- 2 'InfoServer Client for DIGITAL UNIX '
- 3 'StorageWorks Command Console RA200 Agent'

Is that correct? (Y/N) [Y]:

- e. Confirm your choice of products for this Client and then press *RETURN*.

The computer displays the following:

Network type:

- 1) Ethernet or FDDI
- 2) Token Ring

Enter your choice:

- f. Type the corresponding number for your network type, then press *RETURN*.

The computer displays the following:

Client clienta has been modified.

Installing the RA200 Agent on the RIS Client

The following steps tell you how to start the Agent installation on a RIS Client:

1. Type the following and then press *RETURN* (Replace *yourserver* with the name of the server.):

setld -l yourserver:

2. For information on configuring the event logging, go to the section, "Configuring Agent Event Logging on Tru64 UNIX," in this chapter.

Before Installing the RA200 Agent on Windows NT

1. Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). That installation also installs version 2.1 of the RA200 Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
2. Read the release notes in the `ra200v21.txt` file for operating system requirements.
3. If you have a previous version of the RA200 Agent, verify that you have stopped the Agent.
4. Verify that you are logged into an account that is a member of the administrator group. All RA200 Agent installations on Windows NT must be done locally. Do not attempt to install the Agent over the network.
5. Verify that the RAID Array is running.
6. Verify that you have the appropriate firmware upgrades and drivers properly installed. For details, refer to the section, "System Requirements," in Appendix A.
7. Verify that StorageWorks Fault Management is enabled for each KZPAC and KZPSC controller that you want to manage with Command Console. For details, refer to the section, "System Requirements," in Appendix A.

Installing the RA200 Agent on Windows NT (Alpha and Intel)



CAUTION: Before you install the Agent, complete the steps found in "Before Installing the RA200 Agent on Windows NT."

Beginning the Installation

The method of installing the Agent on your system depends on whether you install the software from the StorageWorks Command Console (SWCC) CD-ROM or a file downloaded from the StorageWorks Web site.

From the SWCC CD-ROM

1. Insert the CD-ROM into the computer that has the KZPAC and/or KZPSC controller(s). Using Windows Explorer, go to the following directory on the CD-ROM:

For the Alpha platform: \NTAlpha\Agents\mlg

For the Intel platform: \NTIntel\Agents\mlg

2. Double-click `setup.exe`.

The Command Console Setup window appears. The Command Console Setup window is the first of several windows that appear during the installation. You have the option of selecting the default configuration information that each window provides or you can configure your own site-specific information for the Agent.

3. Go to the section, "Completing the Installation."

From the StorageWorks Web Site

It is assumed that you have downloaded the file, `SWCC21NTAXP.EXE` for the Alpha platform or `SWCC21NTX86.EXE` for the Intel platform from the StorageWorks Web site.

1. Using Windows Explorer, go to the directory where you downloaded `SWCC21NTAXP.EXE` for the Alpha platform or `SWCC21NTX86.EXE` for the Intel platform and double-click on the file.

When the file self-extracts, it creates a directory structure that holds the installation files for the HS-Series and Device Management Agents for Windows NT, in addition to the installation files for the RA200 Agent for Windows NT.

2. Go to the following directory and double-click `setup.exe`.

For the Alpha platform: `NTAlpha\Agents\mlg`

For the Intel platform: `NTIntel\Agents\mlg`

The Command Console Setup window appears.

The Command Console Setup window is the first of several windows that appear during the installation. You have the option of selecting the default configuration information that each window provides or you can configure your own site-specific information for the Agent.

3. Go to the following section, "Completing the Installation."

Completing the Installation

In this section, you will complete the installation that you began in the section, "Beginning the Installation."

1. Click Next. A window, displaying the licensing agreement, appears.
2. Click Next. A window appears with the name of the directory that is to receive the new Agent.
3. Click Next. The computer displays the Folder Selection window, giving you the name of the folder that is to appear in the Programs submenu.
4. Click Next. The setup begins. A window, displaying one of the following, appears:
 - ☐ Type your case-sensitive password, which should have 4 to 16 characters. Type your password twice, and then click Next.
 - ☐ A previous configuration is being used. Click OK.

The installation is complete, and the Agent starts.

NOTE: For your Clients to communicate with this Agent, you need to first add those Clients to the Agent's list of client system entries. For more information, go to the following chapter, "Configuring the RA200 Agents."

Removing the RA200 Agent from Windows NT

To remove the software, perform the following:

1. Stop the Agent. For instructions, see the following steps:
 - a. Click *Control Panel*, double-click the *Services* icon, and select *SWCC RA200 Agent*.
 - b. Click *Stop* to stop the Agent. The computer asks the following:
Are you sure you want to stop the SWCC RA200 Agent service?
 - c. Click *Yes*. The computer says it is attempting to stop the service.
2. Click *Settings* under the *Start* menu, then click *Control Panel*.
3. Double-click the *Add/Remove Programs* icon in the Control Panel. The Add/Remove Program Properties window appears.
4. Select *StorageWorksRA200AGENT* located in the window, and then click *Add/Remove*. The computer asks:

Are you sure you want to completely remove the selected application and all of its components?
5. Click *Yes*. The computer removes the Agent.
6. To remove the configuration and Client list files, go to the C:\winnt\system32 directory and delete the following files (If you delete these files, you will need to reconfigure the Agent after reinstallation.):

Table 4-6
Program Files for the RA200 Agent

File Name	File Type
ra200.cfg	Configuration File
raclient.ini	Client List File

Chapter **5**

Configuring the RA200 Agents

This chapter contains instructions on how to configure the RA200 Agents on Compaq OpenVMS, Tru64 UNIX, and Windows NT (Alpha and Intel). Topics in this chapter include:

- Client System Access Options
- Client System Notification Options
- Agent Access Password
- Adding a Client System Entry
- Changing the Agent Access Password
- Modifying a Client System Entry
- Removing a Client System Entry
- Viewing a Client List (OpenVMS, UNIX)
- Restarting the Agent (OpenVMS, UNIX)
- Starting and Stopping the Agent
- Enabling and Disabling the Agent Startup at System Boot
- Modifying TCP/IP Port Numbers Used by the Agent and Clients (Windows NT)

Client System Access Options

The access privilege level controls the client system's level of access to the storage subsystems. You can select overall status (no access), detailed status (show level access only), or configuration (storage subsystem configuration capability). The following explains the client system access options:

Table 5-1
Client System Access Options

Options	SWCC Function
Overall Status (No Access)	<ul style="list-style-type: none"> ■ Can use the Client to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
Detailed Status (Show Level Access)	<ul style="list-style-type: none"> ■ Can use the Client to open a Storage Window, but you cannot make modifications in that window
Configuration (Storage Subsystem Configuration Capability)	<ul style="list-style-type: none"> ■ Can use the Client to make changes in a Storage Window to modify a subsystem configuration

Client System Notification Options

The notification scheme defines the network protocol to be used by the Agent when notifying the selected client system of a change in the state of a subsystem. The following describes how the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Simple Network Management Protocol (SNMP) work with SWCC:

Table 5-2
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Storage Window of subsystem changes provided AES is running ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

Agent Access Password

You can change the configuration of a subsystem (for example, upgrade firmware) by using your Agent access password, provided that you have the configuration access privilege level

Configuring the RA200 Agent on OpenVMS

You will use the StorageWorks Command Console (SWCC) RA200 Agent Configuration menu to configure your RA200 Agent on OpenVMS operating system. This menu is divided into two areas (Agent Administration Options and Client Options). Type the following at the command prompt and then press *RETURN* to access this menu:

```
$ @sys$manager:ra200config.com
```

The following is an example of the menu:

Agent Administration Options:

- 1) Change Agent password
- 2) Start/Stop the Agent
- 3) Toggle Agent Startup at system boot

Client Options:

- 4) Add a Client
- 5) Remove a Client
- 6) Modify a Client
- 7) View Clients
- Q) Quit

Changing the Agent Access Password

The password controls access to operations that modify the Agent configuration. To change the Agent access password, perform the following steps:

1. At the command prompt, type the following:

```
$ @sys$manager:ra200config.com
```

Press *RETURN*. The Configuration menu appears.

2. Type **1** and then press *RETURN*. The following appears:

Changing Agent Password

Enter a new password (4 - 16 characters):

3. Type your password, and then press *RETURN*.
4. Retype your password for verification, and then press *RETURN*. The following appears:

The Agent's password has been successfully updated!

Note: You must restart the SWCC RA200 Agent for changes to take effect.
5. Press *RETURN*. The Configuration menu appears.
6. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the RA200 Agent," in this chapter.

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 systems that are on this list. The following steps tell you how to add a client system entry:

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. At the command prompt, type the following:

```
$ @sys$manager:ra200config.com
```

Press *RETURN*. The Configuration menu appears.

2. Type option **4** and then press *RETURN*. The following appears:

```
Add a client system
```

```
-----
```

```
Enter the host name of the client system (return to exit):
```

3. Type the name of the client system, for example **bogus.shr.dec.com**.

Press *RETURN*. The computer displays the following:

```
Enter the subsystem access privilege (which controls the level of access a Client has
for communicating with storage subsystems). The possible options are:
```

```
0 = Overall Status
```

```
1 = Detailed Status
```

```
2 = Configuration
```

```
Enter Access Level (0, 1, 2):
```

The access privilege level controls the client system's level of access to the storage subsystems. For a definition of each access privilege level, read the section, "Client System Access Options," located at the beginning of this chapter.

4. Type the number for the corresponding subsystem access privilege, for example **1**. Press *RETURN*.

The computer displays the following notification schemes available:

0 = No Error Notification

1 = Notification via a TCP/IP Socket

2 = Notification via the SNMP protocol

3 = Notification via both TCP/IP and SNMP

Enter Error Notification Level (0, 1, 2, 3):

The notification schemes defines the network protocol to be used by the Agent when notifying the client system of a selected change in the state of a subsystem. For a definition of the client system notification options, read the section, "Client System Notification Options," located at the beginning of this chapter.

5. Type the number for the corresponding notification level for the subsystem, for example **0**. Press *RETURN*.

The Agent server can notify a client system when an error condition occurs.

The computer displays the following:

Adding Client--

name: bogus.shr.dec.com

access level: 1

error notification: 0

Is this information correct? [y,N]:

6. If the information is correct, type **Y** and then press *RETURN*.

Note: You must restart the SWCC RA200 Agent for changes to take effect.

Would you like to add another Client? [y,N]:

7. If you do not want to add another client system entry, type **N** and then press *RETURN*. The Configuration menu appears.
8. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the RA200 Agent," in this chapter.

9. Add this system to the Navigation Tree of each client system that you added to the Agent's list (*File/Add System* in the Command Console Client). Refer to the Command Console Client Help.

Modifying a Client System Entry

To modify a client system entry, perform the following steps:

1. At the command prompt, type the following:

```
$ @sys$manager:ra200config.com
```

Press *RETURN*. The Configuration menu appears.

2. To modify a client system entry, type **6** and then press *RETURN*. The computer displays the added client system entries, as shown by the following:

Modify a Client

Host Name	Access Level	Error Notification
-----	-----	-----
bigearmouse.cat.cmr.com	Configuration	via TCP/IP
mountain.rat.tre.com	Configuration	via TCP/IP and SNMP
water.ari.sea.com	Overall Status	No Notification
bogus.shr.dec.com	Detailed Status	No Notification

Enter the Client name (return to exit):

3. Type the client system's case-sensitive name, for example **bogus.shr.dec.com**. Press *RETURN*. The computer displays the following:

Current settings for Client bogus.shr.dec.com are:

- 1) Access level - Detailed Status
- 2) Error notification scheme - No Notification

Which entry would you like to change (c to cancel, d if done)?

4. Type the corresponding number of the option that you would like to change, for example **1**. Press *RETURN*. The computer displays the following:

The possible options are:

- 0 = Overall Status
- 1 = Detailed Status
- 2 = Configuration

New access level? (0, 1, 2):

For a definition of each access privilege level, read the section, "Client System Access Options," located at the beginning of this chapter.

5. Type the corresponding number for an access level, for example **2**. Press *RETURN*. The computer displays the following:

Current settings for Client bogus.shr.dec.com are:

- 1) Access level - Configuration
- 2) Error notification scheme - No Notification

Which entry would you like to change (c to cancel, d if done)?

6. Type the corresponding number of the option that you would like to change, for example **2**. Press *RETURN*. The computer displays the following:

The possible options are:

- 0 = No Error Notification
- 1 = Notification via TCP/IP
- 2 = Notification via SNMP
- 3 = Notification via both TCP/IP and SNMP

New error notification scheme? (0, 1, 2, 3):

7. Type the corresponding number for the error notification scheme, for example **3**. Press *RETURN*.

Current settings for Client bogus.shr.dec.com are:

- 1) Access level - Configuration
- 2) Error notification scheme - via TCP/IP and SNMP

Which entry would you like to change (c to cancel, d if done)?

8. Type **D** and then press *RETURN* when you are done. You are told that your entry has been modified and to restart the RA200 Agent for your changes to take effect.

9. Press *RETURN*. The Configuration menu appears.
10. Restart the Agent for your changes to take effect. For instructions, refer to the section, “Restarting the RA200 Agent,” in this appendix.

Removing a Client System Entry

When you remove a client system entry from the Agent’s list, you are telling the Agent to no longer send updates to that client system. In addition, you will no longer be able to access this agent system from the Navigation Tree. The following instructions tell you how to remove a client system entry:

1. At the command prompt, type the following:

```
$ @sys$manager:ra200config.com
```

Press *RETURN*. The Configuration menu appears.

2. Type **5** and then press *RETURN*. The computer displays the added client system entries, as shown by the following:

Remove a Client

```
-----
```

Host Name	Access Level	Error Notification
-----	-----	-----
mountain.rat.tre.com	Configuration	via TCP/IP
water.ari.sea.com	Overall Status	No Notification
bogus.shr.dec.com	Configuration	via TCP/IP and SNMP

Enter the Client name (return to exit):

3. Type the client system entry that you would like to remove, and then press *RETURN*. The computer displays the following:

Are you sure you want to remove bogus.shr.dec.com [y,N]:

4. Type **Y** and then press *RETURN*. You are told that the client system entry that you specified has been removed from the client list and to restart the RA200 Agent for your changes to take effect.
5. Press *RETURN*. The Configuration menu appears.
6. Restart the Agent for your changes to take effect. For instructions, refer to the section, “Restarting the RA200 Agent,” in this chapter.

Viewing a Client List

To view the Clients, perform the following steps:

1. At the command prompt, type the following:

```
$ @sys$manager:ra200config.com
```

Press *RETURN*. The Configuration menu appears.

2. Type **7**, and then press *RETURN*. The computer displays the following:

Authorized Client list

Host Name	Access Level	Error Notification
-----	-----	-----
mountain.rat.tre.com	Configuration	via TCP/IP
water.ari.sea.com	Overall Status	No Notification
bogus.shr.dec.com	Configuration	via TCP/IP and SNMP

3. Press *RETURN*. The Configuration menu appears.

Restarting the RA200 Agent

You must restart the Agent after making any changes to the configuration. To restart the Agent, perform the following steps:

1. At the command prompt, enter the following:

```
$ @sys$manager:ra200config.com
```

The Configuration menu appears.

Type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to stop or restart the RA200 Agent or return to the Configuration menu.

2. Type **R** and then press *RETURN*. The Agent is restarted.
3. Press *RETURN* for the Configuration menu.

Stopping the Agent

When you stop the Agent, it stops monitoring the storage connected to the KZPSC and KZPAC controllers. To stop the Agent, perform the following:

1. Verify that the RA200 Storage Windows on all of your client systems are closed.
2. At the command prompt, enter the following:

\$ @sys\$manager:ra200config.com

The Configuration menu appears.

3. Type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to stop or restart the RA200 Agent.
4. Type **S** and then press *RETURN*. The software stops the Agent.
5. Press *RETURN* for the Configuration menu.

Starting the Agent

To start the Agent, perform the following:

1. Verify that the RA200 Storage Windows on all of your client systems are closed.
2. At the command prompt, type the following:

\$ @sys\$manager:ra200config.com

Press *RETURN*. The Configuration menu appears.

3. Type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to start the RA200 Agent.
4. Type **Y** and then press *RETURN*. The software starts the Agent.
5. Press *RETURN* for the Configuration menu.

Enabling and Disabling the Agent Startup at System Boot

The default is for the Agent not to start at system boot; however, you may find it useful to have the Agent start at system boot. The following instructions tell you how to change the default:

1. At the command prompt, type the following:

```
$ @sys$manager:ra200config.com
```

Press *RETURN*. The Configuration menu appears.

2. Type **3** and then press *RETURN* to enable the Agent to start at system boot. You are told the startup at system boot is currently disabled, and you are asked if you would like to enable this option.
3. Type **Y** and then press *RETURN*. The Agent will start at system boot.
4. Press *RETURN* for the Configuration menu.
5. You can return the Agent startup option to the system default by repeating steps 1 through 4. When you repeat the steps, you will be asked if you want to disable the Agent startup at system boot.

Configuring the RA200 Agent on Tru64 UNIX

In this section, describes how configure the Agent by using the Configuration menu. Type the following at the command prompt and then press *RETURN* to access this menu:

```
# /usr/sbin/RA200config.sh
```

The following is an example of the menu:

Agent Administration Options:

- 1) Change Agent password
- 2) Start/Stop the Agent
- 3) Toggle Agent Startup at system boot

Client Options:

- 4) Add a Client
- 5) Remove a Client
- 6) Modify a Client
- 7) View Clients
- Q) Quit

Enter Selection:

Changing the Agent Access Password

The password controls access to operations that modify the Agent configuration. To change the Agent access password for the RA200 Agent on Tru64 UNIX system, perform the following steps:

1. At the command prompt, enter the following:

```
# /usr/sbin/RA200config.sh
```

The Configuration menu appears.

2. Type **1** to change the Agent access password. Press *RETURN*.

A message, telling you to type a new password, appears. Your case-sensitive password must be 4 to 16 characters.

3. Type your new password. Press *RETURN*.

A message, asking you to verify the new password, appears.

4. Type your new password again. Press *RETURN*.

You are told that your password has been updated and to restart the RA200 Agent for your changes to take effect.

5. Press *RETURN*. The Configuration menu appears.
6. Restart the Agent for your changes to take effect. For instructions, refer to the section, “Restarting the RA200 Agent,” in this chapter.

Adding a Client System Entry

For a client system to receive updates from the Agent, you must add the client system to the Agent’s list of client system entries. The Agent will only send information to client systems that are on this list. In addition, adding a client system entry allows you to access the agent system from the Navigation Tree on that client system. The following steps tell you how to add a client system entry:

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. At the command prompt, type the following:

```
# /usr/sbin/RA200config.sh
```

Press *RETURN*. The Configuration menu appears.

2. Type **4** to add a Client. Press *RETURN*.

A message, asking you to type the name of the client system, appears.

3. Type the name for the new client system. Press *RETURN*.

The computer displays the following menu:

0 = Overall Status

1 = Detailed Status

2 = Configuration

For a definition of each access privilege level, read the section, “Client System Access Options,” located at the beginning of this chapter.

4. Type the access level for the new client system entry, and then press *RETURN*. The computer displays the following menu:

0 = No Error Notification
 1 = Notification via a TCP/IP Socket
 2 = Notification via the SNMP Protocol
 3 = Notification via both TCP/IP and SNMP

For more information on the notification schemes, read the section, "Client System Notification Options," located at the beginning of this chapter.

5. Type an error notification scheme for the client system entry, and then press *RETURN*.

The computer asks you if the entered information is correct.

6. Type **y** if the information is correct. Press *RETURN*.

You are asked if you want to add another client system entry.

7. If you are finished, type **n** and then press *RETURN*. You return to the Configuration menu.
8. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the RA200 Agent," in this chapter.

Modifying a Client System Entry

Instructions for changing the client system's current access level and error notification scheme are as follows:

1. At the command prompt, type the following:

```
# /usr/sbin/RA200config.sh
```

Press *RETURN*. The Configuration menu appears.

2. Type **6** to modify a client system entry. Press *RETURN*.

The computer displays the added client system entries with their access level and error notification scheme. You are then asked for the entry that you want to modify.

3. Type the client system's name and then press *RETURN*.

The current settings of the client system are displayed, as shown in the following example:

Current settings for client 'rain.tre.wet.com' are:

- 1) Access level - Configuration
- 2) Error notification scheme - Notification via the SNMP protocol

Which entry would you like to change (c to cancel, d if done)?

4. Type **1** and then press *RETURN* to change the current access level of the client system. You have three choices:

- 0 = Overall Status
- 1 = Detailed Status
- 2 = Configuration

For a definition of each access privilege level, read the section, "Client System Access Options," located at the beginning of this chapter.

5. Type the corresponding number for a new access level for the client system, for example **1**. Press *RETURN*.

The software displays the new settings for the client system.

6. Type **2** and then press *RETURN* to change the error notification scheme. The software displays the following menu:

- 0 = No Error Notification
- 1 = Notification via a TCP/IP Socket
- 2 = Notification via the SNMP Protocol
- 3 = Notification via both TCP/IP and SNMP

7. At the command prompt, type the new error notification scheme for the client system entry, for example **2**. Press *RETURN*.

The software displays the new settings for the client system.

8. If you are finished, type **d** and then press *RETURN*. You are told that your entry has been modified and to restart the RA200 Agent for your changes to take effect.
9. Press *RETURN*. You return to the Configuration menu.
10. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the RA200 Agent," in this chapter.

Removing a Client System Entry

When you remove a client system from the Agent's list, you are telling the Agent to no longer send updates to that client system. In addition, you will no longer be able to access this agent system from the Navigation Tree. The following instructions tell you how to remove a client system entry:

1. At the command prompt, type the following:

```
# /usr/sbin/RA200config.sh
```

Press *RETURN*. The Configuration menu appears.

2. Type **5** to remove a client system. Press *RETURN*.

The computer displays the added client system entries with their access level and error notification scheme. You are then asked for the client system entry that you want to remove.

3. Type the name of the client system entry that you want to remove. Press *RETURN*. A message, asking if you are sure about removing the client system, appears.
4. Type **y** and then press *RETURN* to remove the client system.
5. Press *RETURN* for the Configuration menu.
6. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the RA200 Agent," in this chapter.

Viewing the Authorized Client List

To view a list of client systems that are authorized to access the RA200 Agent, follow these steps:

1. At the command prompt, type the following:

```
# /usr/sbin/RA200config.sh
```

Press *RETURN*. The Configuration menu appears.

2. Type **7** to view the client systems. Press *RETURN*.

A list of Clients authorized to access the Agent appears.

3. Press *RETURN* for the Configuration menu.

Restarting the RA200 Agent

You must restart the Agent after making any changes to the configuration. To restart the Agent, perform the following steps:

1. Verify that the RA200 Storage Windows on all of your client systems are closed.
2. At the command prompt, type the following:

```
# /usr/sbin/RA200config.sh
```

Press *RETURN*. The Configuration menu appears.

3. Type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to stop or restart the RA200 Agent.
4. Type **r** and then press *RETURN*. The Agent is restarted.
5. Press *RETURN* for the Configuration menu.

Stopping the Agent

When you stop the Agent, it will stop monitoring the storage connected to the KZPSC and KZPAC controllers. To stop the Agent, perform the following:

1. Verify that the RA200 Storage Windows on all of your client systems are closed.
2. At the command prompt, type the following:

```
# /usr/sbin/RA200config.sh
```

Press *RETURN*. The Configuration menu appears.

3. Type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to stop or restart the RA200 Agent.
4. Type **s** and then press *RETURN*. The software stops the Agent.
5. Press *RETURN* for the Configuration menu.

Starting the Agent

To start the Agent, perform the following:

1. Verify that the RA200 Storage Windows on all of your client systems are closed.
2. At the command prompt, type the following:

```
# /usr/sbin/RA200config.sh
```

Press *RETURN*. The Configuration menu appears.

3. Type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to start the RA200 Agent.
4. Type **y** and then press *RETURN*. The software starts the Agent.
5. Press *RETURN* for the Configuration menu.

Disabling and Enabling the Agent Startup at System Boot

The default is for the Agent to start at system boot; however, you may want to change this option. For example, if you need to check your system, you may not want the Agent to start at boot time. The following instructions tell you how to change the default:

1. At the command prompt, type the following:

```
# /usr/sbin/RA200config.sh
```

Press *RETURN*. The Configuration menu appears.

2. Type **3** to disable the Agent startup at system boot. Press *RETURN*. You are told the startup at system boot is currently enabled, and you are asked if you would like to disable this option.
3. Type **y** and then press *RETURN*. The Agent will no longer start at system boot.
4. Press *RETURN* for the Configuration menu.
5. You can return the Agent startup option to the system default by repeating steps 1 through 4. When you repeat the steps, you will be asked if you want to enable the Agent startup at system boot.

Configuring the RA200 Agent on Windows NT

Click the Agent Configure entry in *Start/Programs/StorageWorks* to add client computers, change security options, and modify network ports. When you first install the Windows NT Agent, the host computer is registered as a Client with full privileges.

Changing the Agent Access Password

The password controls access to the Agent configuration. To change the Agent access password, follow these steps:

1. Click the Agent Configure entry in *Start/Programs/StorageWorks*, and then click Password.
2. Type your new case-sensitive password, which should have 4 to 16 characters. Type it again for verification.
3. Click OK. You are told that you have successfully entered the password.
4. Click OK for the main menu.
5. Stop and restart the Agent for your changes to take effect. For instructions, refer to the section, “Stopping and Starting the RA200 Agent,” in this chapter.

Adding a Client System Entry

For a client system to receive updates from the Agent, you must add the client system to the Agent’s list of client system entries. The Agent will only send information to client systems that are on this list. The following steps tell you how to add a client system entry:

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. Click the Agent Configure entry in *Start/Programs/StorageWorks*, and then click Clients.
2. Type the client system’s name in the Selected Clients field.
3. Select the *Notification Scheme* (TCP/IP and/or SNMP). For additional information on the notification scheme, see the section, “Client System Notification Options,” located at the beginning of this chapter.

4. Select an *Access Privilege Level*. For a definition of each access privilege level, read the section, “Client System Access Options,” located at the beginning of this chapter.
5. Click *Add Client* to add the client system entry to the list of client system entries.
6. Click *OK* for the main menu.
7. Stop and restart the Agent for your changes to take effect. For instructions, refer to the section, “Stopping and Starting the RA200 Agent,” in this chapter.
8. Add this system to the Navigation Tree of each client system that you added to the Agent’s list (*File|Add System* in the Command Console Client). Refer to the Command Console Client Help.

Modifying a Client System Entry

This section contains instructions on how to modify a client system entry on Windows NT by changing the access privilege level and the notification scheme.

1. Click the Agent Configure entry in *Start|Programs|StorageWorks*. Then click *Clients*.
2. Select the client system entry that you want to modify from the list of client system entries.
3. Select the *Notification Scheme* (TCP/IP and/or SNMP).

Select an *Access Privilege Level*. For a definition of each access privilege level, read the section, “Client System Access Options,” located at the beginning of this chapter.

4. Click *Modify Client*, and then click *OK*. You return to the main menu.
5. Stop and restart the Agent for your changes to take effect. For instructions, refer to the section, “Stopping and Starting the RA200 Agent,” in this chapter.

Deleting a Client System Entry

When you delete a client system entry from the Agent's list, you are telling the Agent to no longer send updates to that client system. In addition, you will no longer be able to access this agent system from the Navigation Tree. The following instructions tell you how to delete a client system entry:

1. Click the Agent Configure entry in *Start/Programs/StorageWorks*, and then click Clients.
2. Select the client system entry that you want to delete from the list of client system entries. The client system's properties appear.
3. Click Delete Client. The client system entry and its properties disappear from the Client Access Configuration window.
4. Click OK. You return to the main menu.
5. Stop and then start the Agent for your changes to take effect. For instructions, refer to the section, "Stopping and Starting the RA200 Agent," in this chapter.

Modifying TCP/IP Port Numbers Used by the Agent and Client

The port numbers are the Windows NT TCP/IP network socket numbers for Client and Agent. Refer to the section, "Network Port Assignments," in Appendix A. The following instructions tell you how to modify the TCP/IP port numbers:

1. Click the Agent Configure entry in *Start/Programs/StorageWorks*, and then click Network Ports.
2. Type the new Client or Agent Port numbers, and then click OK.
3. Stop and then start your Agent for the changes to take effect. For instructions, refer to the section, "Stopping and Starting the RA200 Agent," in this chapter.

Stopping and Starting the RA200 Agent

You must stop and restart your Agent for your changes to take effect. Perform the following steps:

1. Verify that the RA200 Storage Windows on all of your client systems are closed.
2. Click *Control Panel*, double-click the *Services* icon, and select *SWCC RA200 Agent*.
3. Click *Stop* to stop the Agent. The computer asks the following:
Are you sure you want to stop the SWCC RA200 Agent service?
4. Click *Yes*. The computer says it is attempting to stop the service.
5. Click *Start* to start the Agent. The computer says it is attempting to start the service.

Disabling and Enabling the Agent Startup at System Boot

The default is for the Agent to start at system boot; however, you may want to change this option. For example, if you need to check your system, you may not want the Agent to start at system boot. The following instructions tell you how to change the default:

1. Open the Services window (*Start|Settings|Control Panel|Services*), and double-click on the entry for the RA200 Agent. The Service window appears.
2. Select *Manual* under Startup Type, and click *OK*.

NOTE: If you want to enable the RA200 Agent to start at system boot, you need to change the startup type to automatic.

Installing the HS-Series Agents

You need to install an HS-Series Agent on a host in order for the HS-Series Client software to receive information about your storage subsystems. The Agent software allows the Client to exchange information with your storage subsystem over a network.

This chapter contains instructions on how to install the HS-Series Agents on Compaq OpenVMS, on Tru64 UNIX (local installations only), and on Windows NT (Alpha and Intel).

This documentation is for following HS-Series controllers:

- HSD30 (OpenVMS only)
- HSD50 (OpenVMS only)
- HSJ30 (OpenVMS only)
- HSJ40 (OpenVMS only)
- HSJ50 (OpenVMS only)
- HSZ20
- HSZ40
- HSZ50
- HSZ70



CAUTION: Do not install the HS-Series Agent by using Dataless Management Services (DMS) or Remote Installation Services (RIS) server installations.

Before Installing the HS-Series Agent on OpenVMS

1. Remove previous versions of the HS-Series Agent from your computer. If you are removing the Agent version 1.1b, delete the file, `change_register.com`, from the `SYS$SYSDEVICE:[SWCC$AGENT]` directory.
2. If your computer is running OpenVMS version 6.2, install the following.

For Alpha:

- ☐ `ALPY2K02_062`

For VAX:

- ☐ `VAXCLUSIO01_062`
- ☐ `VAXY2K02_062`
- ☐ `VAXLIBR03_062`

NOTE: The file(s) can be found at <http://www.service.digital.com/patches/index.html>. Use the "search patches" option found on the Web page.

3. Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). This installation also installs version 2.1 of the HS-Series Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
4. Verify that one of the following TCP/IP stacks is running on your system: MultiNet®, TCPware®, or UCX.
5. If you have OpenVMS version 7.2, verify that the TCP/IP stacks on your computer meet the requirements listed in the section, "Requirements for TCP/IP Stacks on OpenVMS Version 7.2," under "System Requirements" in Appendix A.
6. Create a virtual disk by using a serial connection or enable the Command Console LUN (HSZ70). For more information, refer to the *Getting Started Installation Guide* for your controller.
7. For further information on your installation, refer to the corresponding release notes for your controller: `hszserie.txt`, `hsdserie.txt`, or `hsjserie.txt`.
8. If you have OpenVMS version 7.2 on an Alpha computer with MultiNet and/or TCPware TCP/IP stacks, you need to install the security patch from the Process Software Web site at <http://www.process.com>.

8. If you have an HSZ22 controller connected to your system, shut off the controller. After the installation, turn on the controller and reboot the system. When this HS-Series Agent (except for the HSZ22) scans for subsystems, it identifies your HSZ22 controller as an HSZ20. Please refer to the section, “HS-Series Agent Interaction,” in Appendix A.
9. If you have an HSJ40 controller, check the controller firmware revision level. If your controller is at version 3.2J you need to upgrade to version 3.4J before installing the HS-Series Agent. This is due to an issue with the 3.2J firmware that causes controller hangs intermittently when used with the HS-Series Agent.

Installing an HS-Series Agent on OpenVMS

All HS-Series Agent installations on OpenVMS must be done locally. Do not attempt to install the Agent over the network.



CAUTION: Before you install the HS-Series Agent, complete the steps found in “Before Installing the HS-Series Agent on OpenVMS.”

Instructions on how to install the HS-Series Agent on OpenVMS operating system are separated into two sections: “Beginning the Installation” and “Completing the Installation.” The first section tells you how to access the installation file from the StorageWorks Command Console (SWCC) CD-ROM or the Web. The second section describes how to configure your Agent during the installation.

Beginning the Installation

The method of installing the Agent on your system depends on whether you install the software from the StorageWorks Command Console (SWCC) CD-ROM or a file downloaded from the StorageWorks Web site.

NOTE: Do not install the software over the network. Install the software on the system that is connected to the HS-Series controller.

From the SWCC CD-ROM

These steps tell you how to install the HS-Series Agent from the SWCC CD-ROM. For the following examples, you can replace DKB600 and DKB100 : [HSAGENT] with others more suitable for your system.

1. Insert the SWCC CD-ROM into the CD-ROM drive of the system that is connected to the subsystem controller.

For the examples in this section, assume the CD-ROM device is DKB600.

2. To mount the CD-ROM, type the following at the command prompt (Replace DKB600 with the name of your CD-ROM device.) and then press *RETURN*:

```
$ MOUNT/OVER=ID/MEDIA=CD DKB600:
```

3. To create a local directory on your system, type the following at the command prompt and then press *RETURN*. You will copy the installation file from the CD-ROM to this new directory. Replace DKB100 with the name of your hard drive on the system that is connected to the controller.

```
$ CREATE/DIRECTORY DKB100:[HSAGENT]
```

A directory named DKB100 : [HSAGENT] has been created.

4. To set the directory, type the following at the command prompt and then press *RETURN* (Replace DKB100 with the name of your hard drive.):

```
$ SET DEFAULT DKB100:[HSAGENT]
```

5. Copy the self-extracting file from the CD-ROM to the default directory. Type the following command and then press *RETURN* (Replace DKB600 with the name of your CD-ROM drive and replace DKB100 with the name of your hard drive.):

If your system is an Alpha, type the following and then press *RETURN*:

```
$ COPY DKB600:[VMS.AGENTS.HSA]swcc21vms.EXE DKB100:[HSAGENT]
```

If your system is a VAX, type the following and then press *RETURN*:

```
$ COPY DKB600:[VMS.AGENTS.HSA]swcc21vax.EXE DKB100:[HSAGENT]
```

6. To run the self-extracting file, type the following and then press *RETURN* (Replace DKB100 with the name of your hard drive.):

NOTE: You need to run SWCC21VMS . EXE and SWCC21VAX . EXE on Compaq OpenVMS.

If your system is an Alpha, type the following and then press *RETURN*:

```
$ RUN DKB100:[HSAGENT]SWCC21VMS.EXE
```

If your system is a VAX, type the following and then press *RETURN*:

```
$ RUN DKB100:[HSAGENT]SWCC21VAX.EXE
```

7. To install the kit, type the following at the command prompt (Replace DKB100 with the name of your hard drive.) and then press *RETURN*:

```
$ PRODUCT INSTALL SWCC/SOURCE=DKB100:[HSAGENT]
```

The following text appears:

The following product has been selected:

```
DEC xxxVMS SWCC V2.X-XX
```

Do you want to continue? [YES]

8. Go to the section, “Completing the Installation.”

From the StorageWorks Web Site

It is assumed that you have downloaded the file AXP22 . EXE for Alpha OpenVMS operating systems or SWCC21VAX . EXE for VAX OpenVMS operating systems to the directory DKB100 : [DOWNLOAD] from the StorageWorks Web site. In this section, you will tell the computer to uncompress the downloaded file before you begin the installation. For the following examples, you can replace DKB100 : [DOWNLOAD] and DKB100 : [HSAGENT] with others more suitable for your system.

1. To create a directory named DKB100 : [HSAGENT] on the system connected to the controller, type the following at the command prompt and then press *RETURN*. In the following example, you can replace the name [HSAGENT] for another directory name and DKB100 for another drive:

```
$ CREATE/DIRECTORY DKB100:[HSAGENT]
```

This directory will hold the self-extracted files for the HS-Series and the RA200 Agents that run on OpenVMS.

2. To set the directory, type the following at the command prompt and then press *RETURN*. This example assumes that your directory's name is [HSAGENT] and your hard drive is DKB100.

```
$ SET DEFAULT DKB100:[HSAGENT]
```

3. For the downloaded file to self-extract, type the following at the command prompt and then press *RETURN*. This example assumes that you downloaded the file into the DKB100 : [DOWNLOAD] directory.

For the Alpha platform:

\$ RUN DKB100:[DOWNLOAD]AXP22.EXE

For the VAX platform:

\$ RUN DKB100:[DOWNLOAD]SWCC21VAX.EXE

The file self-extracts into your current directory, which you created in step 1.

NOTE: You need to run AXP22 .EXE and SWCC21VAX .EXE on OpenVMS. The .EXE extension is only used to assist Internet browsers in downloading the file.

4. To install the product, do one of the following:

☐ Alpha platform –

a. Enter the following at the command prompt:

\$ PRODUCT INSTALL *

b. Select dec-axpvms-swcc-v0201-133-1.pcsi. The other two files are for the RA200 Agent. For information on how to install the RA200 Agent, see Chapter 4.

☐ VAX platform – Enter the following at the command prompt:

\$ PRODUCT INSTALL SWCC/SOURCE=DKB100:[HSAGENT]

5. Go to the section, “Completing the Installation.”

Completing the Installation

In this section, you will complete the installation that you began in the section, “Beginning the Installation.”

1. Press *RETURN* to continue. An installation verification message appears. The last line of the message is the following:

To configure SWCC Agent for HS* controllers: @sys\$manager:swcc_config

2. If you have an OpenVMS cluster running the MultiNet TCP/IP stack, the command procedure SWCC_CONFIG.COM will only upgrade the services of each system disk’s first node. Type the following to upgrade the services database of the other nodes that share the system disk:

\$ @MULTINET:INSTALL_DATABASES

or

Rebooting the system will also achieve the same result.

3. If you used the CD-ROM to install the Agent, dismount the CD-ROM. For example, type the following at the command prompt and then press *RETURN* (The following example assumes that your CD-ROM drive is DKB600.):

\$ DISMOUNT DKB600:

NOTE: For your client systems to communicate with this Agent, you need to first add those client systems to the Agent's list of client system entries. For more information, go to the following chapter, "Configuring the HS-Series Agents."

Removing the HS-Series Agent from OpenVMS

Instructions on how to remove the HS-Series Agent from OpenVMS operating system are the following:

NOTE: Do not uninstall HS-Series Agent if you want to preserve configuration information. If you only want to install an upgrade, stop the HS-Series Agent, and then install the new version. Older versions will be automatically removed before the update, but all configuration information will be preserved.

1. Type the following at the command prompt and then press *RETURN*:

\$ @sys\$manager:swcc_config

The Configuration menu appears.

2. To remove the Agent, press **4** and then press *RETURN*.
3. Type **Y** and then press *RETURN*. The computer tells you that the Agent has been stopped and SWCC is being disabled. You are then asked if you want to continue.
4. Type **Y** and then press *RETURN*.

NOTE: This option does the following:

- Stops all instances of the Agent on all cluster nodes
- Deletes all Agent files, except the .PCSI file that was transferred to your host when the Agent was originally installed

Before Installing the HS-Series Agent on Tru64 UNIX

1. Remove previous versions of the HS-Series Agent from your computer.
2. Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). That installation also installs version 2.1 of the HS-Series Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
3. Create a virtual disk by using a serial connection or enable the Command Console LUN (HSZ70). For more information, refer to the *Getting Started Installation Guide* for your controller.
4. Log in as root (superuser). All HS-Series Agent installations on Tru64 UNIX must be done locally. Do not attempt to install the Agent over the network.
5. If you are installing the HS-Series Agent on Tru64 UNIX 3.2G system, install the SWRAID product from the platform CD-ROM that you received with your StorageWorks controller.
6. Read the release notes in the `hszserie.txt` file.
7. If you have an HSZ22 controller connected to your system, shut off the controller. After the installation, turn on the controller and reboot the system. When this HS-Series Agent (except for the HSZ22) scans for subsystems, it identifies your HSZ22 controller as an HSZ20. Please refer to the section, "HS-Series Agent Interaction," in Appendix A.

Installing the HS-Series Agent on Tru64 UNIX

Instructions on how to install the HS-Series Agent on Tru64 UNIX system are separated into two sections: “Beginning the Installation” and “Completing the Installation.” The first section tells you how to access the installation file from the StorageWorks Command Console (SWCC) CD-ROM or the Web. The second section describes how to configure your Agent during the installation.



CAUTION: Before you install the Agent, complete the steps in “Before Installing the HS-Series Agent on Tru64 UNIX.”

Beginning the Installation

The method of installing the Agent on your system depends on whether you install the software from the StorageWorks Command Console (SWCC) CD-ROM or a file downloaded from the StorageWorks Web site.



CAUTION: Do not install the HS-Series Agent by using Dataless Management Services (DMS) or Remote Installation Services (RIS) server installations.

From SWCC CD-ROM

The following instructions assume that you have a directory `/mnt` to which you can mount the StorageWorks Command Console (SWCC) CD-ROM. If you do not, you will have to create a mount point and replace `/mnt` in the following sequence with the mount point you created. It also assumes your CD-ROM device is `/dev/rz4c`. If not, replace `/dev/rz4c` with the actual CD-ROM device. Instructions for installing the HS-Series Agent on Tru64 UNIX system are as follows:

1. You need to know the computer’s version of UNIX to install the correct subset. To find the version, type the following and then press *RETURN*:

```
# /usr/sbin/sizer -v
```

You may want to write down the version of UNIX as you will need to use this information later in the installation.

2. Insert the SWCC CD-ROM into the host computer connected to the subsystem controller.
3. At the command prompt, type the following and then press *RETURN*:

```
# mount -t cdfs /dev/rz4c /mnt
```

4. To run the installation program, enter the following at the command prompt:

```
# setld -l /mnt/dunix/agents
```

You are shown a list of Agents that you can install.

5. Choose the Agents that you want to install.

You are asked if you want to install the listed subsets.

6. Go to the section, "Completing the Installation."

From the StorageWorks Web Site

It is assumed that you have downloaded `swcc21dunix.exe` to the `download` directory. In this section, you will tell the computer to uncompress the downloaded file before you begin the installation. For the following examples, you can replace the `.../download` and `.../Agents` directory names and paths with others more suitable for your system.

Instructions for installing the HS-Series Agent on Tru64 UNIX are as follows:

1. To create a directory, enter the following:

```
# mkdir .../Agents
```

This directory holds the self-extracted files for the RA200, HS-Series, and Device Management Agents that run on Tru64 UNIX.

2. To change to the `.../Agents` directory, enter the following at the command prompt:

```
# cd .../Agents
```

3. Move the file, `swcc21dunix.exe`, to the `.../Agents` directory by entering the following:

```
# mv .../download/swcc21dunix.exe .../Agents
```

4. To make the `swcc21dunix.exe` file executable, enter the following at the command prompt:

```
# chmod +x swcc21dunix.exe
```

5. Type the following at the command prompt and then press *RETURN*:

```
# swcc21dunix.exe
```

The file self-extracts in the current directory, which is `.../Agents`. This directory holds the self-extracted files for the RA200, the HS-Series, and the Device Management Agents that run on Tru64 UNIX.

NOTE: You need to run `swcc21dunix.exe` on Tru64 UNIX. The `.exe` extension was added to assist Internet browsers in downloading the file.

6. To run the installation program, type the following at the command prompt and then press *RETURN*:

```
# setld -l ../Agents
```

You are shown a list of Agents that you can install.

7. Choose the Agents that you want to install.

You are asked if you want to install the listed subsets.

8. Go to the section, "Completing the Installation."

Completing the Installation

In this section, you will complete the installation that you began in the section, "Beginning the Installation."

1. Type the corresponding number of the software and then press *RETURN*.

A message, asking if the above choice is correct, appears.

2. To continue with the installation, type **y** and then press *RETURN*.

As the installation continues, you see several system messages, telling you that the subset has been installed and is being loaded. The computer asks you to add a client system entry.

3. Type the name of the client systems that you want to receive updates from this Agent. Press *RETURN*. In addition, by adding a client system entry you can access the agent system from the Navigation Tree on that client system.

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.

The software displays a menu, giving you three choices for selecting the client system access.

4. From the displayed menu, type an access level for the client system.

The access privilege level controls the client system's level of access to the storage subsystems. You can select overall status, detailed status, or configuration and status. Table 6-1 explains the client system access options:

Table 6-1
Client System Access Options

Options	SWCC Function
Overall Status (No Access)	<ul style="list-style-type: none"> ■ Can use the Client to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
Detailed Status (Show Level Access)	<ul style="list-style-type: none"> ■ Can use the Client to open a Storage Window, but you cannot make modifications in that window
Configuration (Storage Subsystem Configuration Capability)	<ul style="list-style-type: none"> ■ Can use the Client to make changes in a Storage Window to modify a subsystem configuration

5. Press *RETURN*.

A menu for selecting a client system notification scheme appears.

6. Type a notification scheme for the client system, **0**, **1**, **2**, or **3**.

The notification scheme defines the network protocol to be used by the Agent when notifying the selected client system of a change in the state of a subsystem. The following describes how the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Simple Network Management Protocol (SNMP) work with SWCC:

Table 6-2
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Storage Window of subsystem changes provided AES is running ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

7. Press *RETURN*.

The computer asks you if the entered information is correct.

8. To complete the installation, type **y** and then press *RETURN*.

A message, asking if you would like to add another Client, appears.

9. To stop adding client systems, type **n** and then press *RETURN*.

You are asked for a password, which is required to do configurations in the SWCC Client. If an old password is found, you are asked if you want to use it.

10. Type your case-sensitive password that has 4 to 16 characters, and then press *RETURN*. You are asked to retype the password.

11. Retype the password and then press *RETURN*.

Once the password has been entered, the system scans for subsystems. You will be asked for the name and monitoring interval of each RAID subsystem found.



CAUTION: If the software detects an HSZ22 controller connected to your system, it will identify it as an HSZ20 controller. This will cause the Agent to read the HSZ22 subsystem configuration incorrectly. Delete the subsystem entry for this HSZ22 controller or shut off the HSZ22 controller. After this Agent has scanned for subsystems, turn on the controller and reboot the system. Please refer to the section, "HS-Series Agent Interaction," in Appendix A.

12. Type the subsystem name in lowercase letters, and then press *RETURN*. You are asked for the monitoring interval. The monitoring interval is the rate at which the Agent queries the specified subsystem for status.

13. Type the monitoring interval in seconds, and then press *RETURN*. You are asked if the displayed information is correct.

14. If the displayed information is correct, type **y** and then press *RETURN*.

You are asked if you want E-mail enabled.

15. To enable the E-mail, type **y** and then press *RETURN*. The software asks for the address of the person to notify.
16. Type the address of the person to notify, and then press *RETURN*. The software asks for the notification levels.
17. From the displayed menu, type a notification level, **1**, **2**, or **3**.

Table 6-3 provides the definitions of the E-mail notification options:

Table 6-3
Definitions of E-Mail Notification Options

E-mail Notification Option	Definition
Fatal Errors	Notifies you of errors that would prevent you from accessing data; for example, a disk failing or a Client PC not available on the network.
Warnings	Notifies you when something is broken, but its breakage does not prevent you from accessing data; for example, the RAID degrading or losing a fan.
Information	Provides messages, but they do not indicate that something is broken. Examples of informational messages are the following: an Agent startup message or a message, saying that an error has been resolved.

18. Press *RETURN*.

The software asks if the displayed information is correct.

19. If the displayed information is correct, type **y** and then press *RETURN*.

A message, asking if you would like to add another person to notify, appears.

20. Type **n** to end the dialog or **y** to add another person to notify. Press *RETURN*.

When you have finished with the E-mail notification section, the system will start the new Agent. If the installation script detects a problem at Agent startup, it will alert you of the problem.

21. If you installed the software from a CD-ROM, type the following and then press *RETURN* to unmount the CD-ROM:

```
# umount /mnt
```

NOTE: Add this system to the Navigation Tree of each client system that you added to the Agent's list (*File* | *Add System* in the Command Console Client). Refer to the Command Console Client Help.

Removing the HS-Series Agent from Tru64 UNIX

To remove this Agent from your computer, you will need to know the subset that you installed. When you installed this Agent, the software detected the version of Tru64 UNIX on your computer and installed the appropriate subset. A subset is a version of the Agent program. If you have Tru64 UNIX version 4.0D or 4.0E, you probably installed SWCC204.

1. To determine the subset that you installed, type the following and then press *RETURN*:

```
# setld -i | grep SWCC
```

You will see one or both of the subsets. Your computer is using the subset that has the word, "installed," next to it. If you do not see one of these subsets, verify that you have installed the HS-Series Agent that came with this kit.

2. Stop the Agent. For instructions, see the following:
 - c. At the command prompt, type the following and then press *RETURN* (If you installed SWCC200, replace SWCC204 with SWCC200.):


```
# /usr/opt/SWCC204/scripts/swcc_config
```

The Configuration Utility menu appears.
 - d. Type **7** to stop the Agent. Press *RETURN*.
 - e. Type **y** to stop the Agent. Press *RETURN*. You see a message, telling you that the Agent has been killed and disabled.
 - f. Press *RETURN* for the main menu, and return to the command prompt.
3. In this step, you will remove the program.

If you installed subset SWCC204, type the following and then press *RETURN*:

```
# setld -d SWCC204
```

Or

If you installed subset SWCC200, type the following and then press *RETURN*:

```
# setld -d SWCC200
```

The procedure to remove the Agent asks the following:

Are you sure you want to delete all Agent data?

4. If you type **y** and then press *RETURN*, all of the configuration files for the Agent will be deleted.

Or

If you type **n** and then press *RETURN*, the computer will save the configuration data, which includes the following:

- ☐ Subsystem list of entries
- ☐ Client system access options
- ☐ Password
- ☐ E-mail notification

You will still be able to use the data if you reinstall the Agent or install a newer version of the Agent.

Before Installing the HS-Series Agent on Windows NT

1. Remove previous versions of the HS-Series Agent from your computer.
2. Read the release notes that are in the file, `hszserie.txt`.
3. Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). This installation also installs version 2.1 of the HSZ-Series Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
4. Create a virtual disk by using a serial connection. For more information, refer to the *Getting Started Installation Guide* in the Solution kit for your controller.
5. If you have an HSZ70 controller, disable the Command Console LUN. For more information, refer to the file, `hszserie.txt`.
6. Log into an account that is a member of the administrator group. All HS-Series Agent installations on Windows NT must be done locally. Do not attempt to install the Agent over the network.
7. If you have an HSZ22 controller connected to your system, shut off the controller. After the installation, turn on the controller and reboot the system. When this HS-Series Agent (except for the HSZ22) scans for subsystems, it identifies your HSZ22 controller as an HSZ20. Please refer to the section, "HS-Series Agent Interaction," in Appendix A.
8. If any of your shortcuts point to a floppy drive, a CD-ROM drive, or a removable drive, verify that the floppy or CD-ROM drives are not empty and that the removable drive is present. The installation will check the shortcuts on the desktop and in the Start menu. If you have Windows NT, the installation will check the shortcuts of all users for that computer, even if they are not currently logged on.

Installing the HS-Series Agent on Windows NT (Alpha and Intel)

Instructions on how to install the HS-Series Agent on Windows NT are separated into two sections: “Beginning the Installation” and “Completing the Installation.” The first section tells you how to access the installation file from the StorageWorks Command Console (SWCC) CD-ROM or the Web. The second section describes how to configure your Agent during the installation.



CAUTION: Before you install the Agent, complete the steps in “Before Installing the HS-Series Agent on Windows NT.”

Beginning the Installation

The method of installing the Agent on your system depends on whether you install the software from the StorageWorks Command Console (SWCC) CD-ROM or a file downloaded from the StorageWorks Web site.

From the SWCC CD-ROM

These steps tell you how to install the HS-Series Agent from the SWCC CD-ROM.

1. Insert the SWCC CD-ROM into the host computer connected to the subsystem controller. Using Windows Explorer, go to the following directory on the CD-ROM:

For the Alpha platform: \NTAlpha\Agents\hsa

For the Intel platform: \NTIntel\Agents\hsa

2. Double-click `setup.exe`.

The software displays the Welcome window.

3. Go to “Completing the Installation.”

From the StorageWorks Web site

It is assumed that you have downloaded the file, SWCC21NTAXP . EXE for the Alpha platform or SWCC21NTX86 . EXE for the Intel platform from the StorageWorks Web site.

1. Using Windows Explorer, go to the directory where you downloaded SWCC21NTAXP . EXE for the Alpha platform or SWCC21NTX86 . EXE for the Intel platform, and double-click on the file.
2. Go to the following directory and double-click setup . exe.

For the Alpha platform: NTAlpha\Agents\hsa

For the Intel platform: NTIntel\Agents\hsa

3. Go to “Completing the Installation.”

Completing the Installation

In this section, you will complete the installation that you began in the section, “Beginning the Installation.”

1. Click *N*ext. If you do not have a previous version of the HS-Series on your computer, the Choose Destination Location window will appear. You can change the destination of the software by clicking the *B*rowse button.

NOTE: If you have a previous version of the Agent installed, the installation will automatically overwrite the previous version; however, your configuration files (client.ini, storage.ini, and steam.cfg) will be saved.

2. Click *N*ext. The computer installs the software. After the computer has installed the software, you are asked if you want to configure the Agent.
3. Click *C*ontinue to configure your Agent. The NT Agent Configuration Step 1 of 3 window appears.
4. Type your password in the New field, and retype it in the Verification field. The password must have 4 to 16 characters.
5. Click *N*ext to continue. The following message appears:

Password Validation Successful.

6. Click *O*K to continue. The NT Agent Configuration Step 2 of 3 window appears.

7. In the Selected Client field, type the name of the client system entry that you want to receive updates from this Agent. In addition, adding a client system entry allows you to access the agent system from the Navigation Tree on that client system. Choose TCP/IP and/or SNMP for your notification scheme.

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.

The following describes how the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Simple Network Management Protocol (SNMP) work with SWCC:

Table 6-4
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Fabric window of subsystem changes ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window (depending on the subsystem) to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

8. Select one of the following for your access privileges: overall status, detailed status, and configuration. The access privilege level controls the client system's level of access to the storage subsystems. The following explains the client system access options:

Table 6-5
Client System Access Options

Options	SWCC Function
Overall Status	<ul style="list-style-type: none"> ■ Can use the Client to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
Detailed Status	<ul style="list-style-type: none"> ■ Can use the Client to open a Storage Window, but you cannot make modifications in that window
Configuration	<ul style="list-style-type: none"> ■ Can use the Client to make changes in a Storage Window to modify a subsystem configuration

9. Click *Add Client* to add the client system entry to the Client list. For more information on adding, deleting, or modifying a Client, see “Configuring the HS-Series Agent on Windows NT.”
10. Repeat steps 7 through 9 for each client system entry that you want to add.
11. Click *Next* to continue. If the NT Agent Configuration Step 3 of 3 window appears, go to step 12.

If you had previously added a subsystem, the following message appears:

A previous storage list is detected. Would you like to scan the subsystem to update the information? The subsystem names will revert to default settings.

If you click *Yes*, the software will automatically add entries for the new subsystems and restore default subsystem information for the existing entries.

Or

If you click *No*, the software will keep the current settings.

The NT Agent Configuration Step 3 of 3 window appears.

12. The configuration wizard should have created an entry for the subsystems attached to this system. To modify the name or other settings for a subsystem, see “Configuring the HS-Series Agent on Windows NT.”



CAUTION: If the software detects an HSZ22 controller connected to your system, it will identify it as an HSZ20 controller. This will cause the Agent to read the HSZ22 subsystem configuration incorrectly. Delete the subsystem entry for this HSZ22 controller or shut off the HSZ22 controller. After this Agent has scanned for subsystems, turn on the controller and reboot the system. Please refer to the section, "HS-Series Agent Interaction," in Appendix A.

13. Click *Finish*. A message, warning you to restart your Agent, appears.
14. Click *OK*. The computer asks the following:
Would you like to start the NT Agent service now?
15. Click Yes. The Agent starts.

NOTE: Add this system to the Navigation Tree of each client system that you added to the Agent's list (*File|Add System* in the Command Console Client). Refer to the Command Console Client Help.

Removing the HS-Series Agent from Windows NT

To remove the software, perform the following:



CAUTION: Do not use *Add/Remove Programs* to remove the HS-Series Agent. Instead, use the *Uninstall Agent* icon, as described in the following procedure.

1. If you want to keep your `client.ini` file, which holds the Agent's list of client system entries, rename the `client.ini` file to `client.sav`. You will find the `client.ini` file in the `\steam\etc` directory. This uninstall will remove the `client.ini` file along with the HS-Series Agent.
2. Click *Start|Programs|HS Series Agent|Uninstall HS-Series Agent*.

NOTE: The software will only remove the HS-Series Agent (except the HSZ22) and the `client.ini` file from the system.

3. Click *Uninstall*. The computer asks:
Are you sure you want to completely remove the selected application and all of its components?
4. Click *Yes*. The computer removes the Agent and the `client.ini` file, which holds the lists of client system entries for that Agent.

5. To remove the configuration and subsystem list files, delete the `storage.ini` file in the `\Steam\etc` directory and the `steam.cfg` file in the `\Steam\bin` directory.



CAUTION: Other Agents use the `client.ini` and `storage.ini` file names, but their files are in different directories. If you cannot locate the `storage.ini` file, use the Find command in Windows Explorer to find the `steam.cfg` file (in the `\Steam\bin` directory). The `storage.ini` file is most likely in the `\Steam\etc` directory.

Table 6-6
Program Files

File Name	File Type
steam.cfg	Configuration File
client.ini	Client List File (removed automatically during the uninstall)
storage.ini	Subsystem List File

Configuring the HS-Series Agents

This chapter contains instructions on how to configure the HS-Series Agents on the following platforms: OpenVMS, Tru64 UNIX, and Windows NT (Alpha and Intel). Topics in this chapter include:

- Client System Access Options
- Client System Notification Options
- Agent Access Password
- Changing the Agent Access Password
- Adding a Client System Entry
- Modifying a Client System Entry (Windows NT)
- Deleting a Client System Entry
- Adding a Subsystem Entry
- Modifying a Subsystem Entry (Windows NT)
- Deleting a Subsystem Entry
- Enabling and Disabling the Agent at System Boot
- Stopping and Starting the Agent

Client System Access Options

The access privilege level controls the client system's level of access to the storage subsystems. You can select overall status (no access), detailed status (show level access only), or configuration (storage subsystem configuration capability). The following explains the client system access options:

Table 7-1
Client System Access Options

Options	SWCC Function
Overall Status (No Access)	<ul style="list-style-type: none"> ■ Can use the Client to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
Detailed Status (Show Level Access)	<ul style="list-style-type: none"> ■ Can use the Client to open a Storage Window, but you cannot make modifications in that window
Configuration (Storage Subsystem Configuration Capability)	<ul style="list-style-type: none"> ■ Can use the Client to make changes in a Storage Window to modify a subsystem configuration

Client System Notification Options

The notification scheme defines the network protocol to be used by the Agent when notifying the selected client system of a change in the state of a subsystem. The following describes how the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Simple Network Management Protocol (SNMP) work with SWCC:

Table 7-2
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Storage Window of subsystem changes provided AES is running ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

Agent Access Password

You can change the configuration of a subsystem (for example, upgrade firmware) by using your Agent access password, provided that you have the configuration access privilege level selected.

Configuring the HS-Series Agent on OpenVMS

You can change your configuration by accessing the HS-Series Agent Configuration menu. To access the Configuration menu, enter the following at the command prompt:

```
$ @sys$manager:swcc_config
```

The following is an example of the HS-Series Agent Configuration menu:

SWCC Agent Configuration Menu

Agent is enabled as TCP/IP Services for OpenVMS service.

Agent is now: active

Agent Admin Options:

- 1) Change Agent password
- 2) Agent Enable/Start
- 3) Agent Disable/Stop
- 4) Uninstall Agent

Client Options:

- 5) Add a Client
- 6) Remove a Client
- 7) View Clients

Storage Subsystem Options:

- 8) Add a subsystem
- 9) Remove a subsystem
- 10) View subsystems
- E) Exit configuration procedure



CAUTION: After you make a change to the configuration, such as adding a client system, you must stop and then start the Agent for your changes to take effect. When you stop and then start the Agent, the Storage Windows for the subsystems connected to the agent system lose their connection. To regain that connection, close and then reopen the Storage Windows connected to the agent system after you restart the Agent.

Table 7-3 explains the required configuration information.

Table 7-3 Information Needed to Configure Agent	
Term	Description
Client system	Network names for the computers on which the Client software runs.
Client system access options	<p>The access privilege level controls the client system's level of access to the storage subsystems.</p> <p><u>0 = No Access</u> - Can use the Client software to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system. You cannot use Client to open a Storage Window</p> <p><u>1 = Show Level Access</u> - You can use the Client software to open a Storage Window, but you cannot make modifications in that window.</p> <p><u>2 = Storage Subsystem Configuration Capability</u> - You can use the Client software to make changes in a Storage Window to modify a subsystem configuration.</p>
Password	It must be a text string that has 4 to 16 characters. It can be entered from the client system to gain configuration access. It can be changed by accessing the Agent Configuration menu.

continued

Table 7-3
Information Needed to Configure Agent *continued*

Term	Description
Client system notification options Note: For all of the client system notification options, local notification is available through an entry in the system error log file and E-mail (provided that E-mail notification in PAGESMAIL.COM has not been disabled).	<p><u>0 = No Error Notification</u> - No error notification is provided over network.</p> <p><u>1 = Notification via a TCP/IP Socket (Transmission Control Protocol/Internet Protocol)</u> - It updates the Storage Window of subsystem changes. Required for Windows NT event logging and pager notification. If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.</p> <p><u>2 = Notification via the SNMP protocol (Simple Network Management Protocol)</u> - Requires you to use an SNMP-monitoring program to view SNMP traps.</p> <p><u>3 = Notification via both TCP/IP and SNMP</u> - Combination of options 1 and 2.</p>
Subsystem name	Device name associated with subsystem name
Monitoring interval in seconds	How often the subsystem is monitored
E-mail notification	<p>The default is for PAGESMAIL.COM to send mail to the SYSTEM account when a serious problem occurs. You can disable and configure this feature by editing the following according to the instructions in its file:</p> <p>SYS\$MANAGER : PAGESMAIL . COM</p> <p>When an error is logged, the Agent executes the PAGESMAIL.COM command. You can modify this file for Agent to log errors in a log file and/or change the account to which Agent sends messages. You can also modify for which level of errors you will be notified. Client does not need to be running to perform these actions.</p>
Subsystem	It is a controller and an array of physical devices.

Configuring the HS-Series Agent on Tru64 UNIX

This section tells you how to configure your HS-Series Agent on Tru64 UNIX. The path that you type to access the Configuration menu will depend on the subset that you installed. A subset is a version of the Agent program. To access the Configuration menu, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

NOTE: If you do not know whether you installed SWCC204 or SWCC200, go to the `/usr/opt` directory and list its contents. You will see a directory named SWCC204 or SWCC200. If you do not find one of these directories, verify that you have installed the HS-Series Agent that came with this kit.

Changing the Agent Access Password

The password controls access to operations that modify the Agent configuration.

1. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. To change the Agent access password, type **3** and then press *RETURN*.

A message, telling you to type a new password, appears.

3. Type your new password. Your case-sensitive password must have 4 to 16 characters. Press *RETURN*.

A message, asking you to verify the new password, appears.

4. Type your new password. Press *RETURN*.

A message, telling you that the password has been changed, appears.

5. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the HS-Series Agent," in this chapter.

Adding a Client System Entry

For a client system to receive updates from the Agent, you must add the client system to the Agent's list of client system entries. The Agent will only send information to client systems that are on this list. In addition, adding a client system entry allows you to access the agent system from the Navigation Tree on that client system. The following steps tell you how to add a client system entry:

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. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. Type **1** and then press *RETURN*.

The following prompt appears:

Do you want to Add, Delete or Quit? [a,d,q]

3. Type **a** and then press *RETURN*. A message, asking you to type the name of the client system, appears.
4. Type the name of the client system. Press *RETURN*. A message, asking you to type the subsystem access privilege, appears. The subsystem access privilege controls the capabilities a Client has when communicating with a storage subsystem.

5. Type a subsystem access privilege for the Client, and then press *RETURN*. You have three choices:

0 = Overall Status
 1 = Detailed Status
 2 = Configuration + Status

For a definition of each access privilege level, read the section, “Client System Access Options,” located at the beginning of this chapter.

6. Type an error notification scheme for the client system entry, and then press *RETURN*. You have four choices:

0 = No Error Notification
 1 = Notification via a TCP/IP Socket
 2 = Notification via an SNMP Protocol
 3 = Notification via both TCP/IP and SNMP

A review of the client system information appears with a message, asking you if the information is correct.

7. If the information is correct, type **y** and then press *RETURN*.

Do you want to Add, Delete or Quit? [a,d,q]

8. To quit, press **q** and then press *RETURN*.

9. Restart the Agent for your changes to take effect. For instructions, refer to the section, “Restarting the HS-Series Agent,” in this chapter.

Deleting a Client System Entry

When you delete a client system entry from the Agent’s list, the Agent stops sending updates to that client system and you are unable to access this agent system from the Navigation Tree. The following instructions tell you how to delete a client system entry:

1. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. To delete a client system entry, type **1** and then press *RETURN*.

The following appears:

Do you want to Add, Delete or Quit? [a,d,q]

3. Type **d**, and then press *RETURN*. The following appears:

Enter number of client system to delete:

4. Type the number of the client system that you want to delete, as it appears on the display. Press *RETURN*.

The following appears:

Are you sure that you want to DELETE Number *?

5. To delete the client system, type **y** and then press *RETURN*. The computer displays the following:

Do you want to Add, Delete or Quit? [a,d,q]

6. Type **q** and then press *RETURN* for the Configuration menu.
7. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the HS-Series Agent," in this chapter.

Adding and Deleting a Subsystem Entry

You need to tell the Agent the subsystems that it needs to monitor. You can either add the subsystems manually, or you can have the Agent scan your SCSI buses for new and/or modified RAID subsystems. The following instructions tell you how to add and delete a subsystem entry:

NOTE: Compaq does not recommend running this procedure during normal system usage because the possibility of bus resets.

1. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204): In addition, adding a client system entry allows you to access the agent system from the Navigation Tree on that client system.

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. Type **2** and then press *RETURN*.

The computer shows the subsystems configured and their properties. You are asked the following:

Do you want to Add, Delete or Quit? [a,d,q]



CAUTION: If the software detects an HSZ22 controller, it will identify it as an HSZ20 controller. This will cause the Agent to read the HSZ22 subsystem configuration incorrectly. Delete the subsystem entry for this HSZ22 controller or shut off the HSZ22 controller. After this Agent has scanned for subsystems, turn on the controller and reboot the system. Please refer to the section, "HS-Series Agent Interaction," in Appendix A.

3. To add a storage subsystem, type **a** and then press *RETURN*. You are asked if you would like to invoke the scan and discover new modified subsystems. You need to perform this scan if you have added or modified RAID subsystems since your last scan.

4. Press **y** and then press *RETURN*. You are given a status of the scan.

5. To continue, press *RETURN*. You are asked the following:

Do you want to Add, Delete or Quit? [a,d,q]

6. To delete a subsystem, type **d** and then press *RETURN*.



CAUTION: The Agent stops monitoring the deleted subsystem.

7. Type the number of the subsystem that you want to delete and then press *RETURN*.

You are asked if you are sure about deleting the specified subsystem.

8. To confirm your choice, type **y** and then press *RETURN*. You are asked the following:

Do you want to Add, Delete or Quit? [a,d,q]

9. Type **q** and then press *RETURN* for the Configuration menu.

10. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the HS-Series Agent," in this chapter.

Enabling the E-mail Notification Option

1. At the command prompt, enter one of the following:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. Type **4** and then press *RETURN*. The following appears:

Do you want to Enable it? [y, n, q]

3. To change the E-mail notification status to enabled, type **y** and then press *RETURN*.

A message, telling you the new status of the E-mail notification option, appears. You are asked the following:

Do you want to Disable it? [y, n, q]

4. Type **q** and then press *RETURN* for the Configuration menu.
5. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the HS-Series Agent," in this chapter.

Disabling the E-mail Notification Option

1. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E:

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX versions 4.0C and earlier:

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. Type **4** and then press *RETURN*. The message appears:

Do you want to Disable it? [y, n, q]

3. To change the E-mail notification status to disabled, type **y** and then press *RETURN*.

A message, telling you the new status of the E-mail notification option, appears. You are asked the following:

Do you want to Enable it? [y, n, q]

4. Type **q** and then press *RETURN* for the Configuration menu.
5. Restart the Agent for your changes to take effect. For instructions, refer to the section, “Restarting the HS-Series Agent,” in this chapter.

Adding a Storage E-mail Notification User

Instructions for adding a storage E-mail notification user are as follows:

1. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. Type **5** and then press *RETURN*.

A list of the current storage E-mail notification users appears with a message:

Do you want to Add, Delete or Quit? [a, d, q]

3. Type **a** and then press *RETURN* to add a new storage E-mail notification user to the list. A message appears:

Enter the E-mail address of a person to notify.

4. Type the E-mail address of the person that you want to notify. Press *RETURN*. A message, displaying the three levels of E-mail notification, appears:

- 1 Fatal Errors
- 2 Warnings and Fatal Errors
- 3 Information Warnings and Fatal Errors

5. Type an E-mail notification level for the new E-mail recipient, and press *RETURN*.

You are asked if the information displayed is correct.

6. If the information is correct, type **y** and then press *RETURN*.
7. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the HS-Series Agent," in this chapter.

Deleting a Storage E-mail Notification User

Instructions for deleting a storage E-mail notification user are as follows:

1. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. Type **5** and then press *RETURN*.

A list of the storage E-mail notification users appears with a message:

Do you want to Add, Delete or Quit? [a, d, q]

3. To remove a storage E-mail notification user from the list, type **d** and then press *RETURN*.

The following message appears:

Enter number of the person to delete.

4. Type the number of the person that you want to delete, as it appears on the display. Press *RETURN*.

The following message appears:

Are you sure you want to DELETE Number *?

5. If the E-mail recipient that you want to delete is correct, type **y** and then press *RETURN*.
6. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the HS-Series Agent," in this chapter.

Restarting the HS-Series Agent

When you modify the configuration data of an Agent, you must restart the Agent for the changes to take effect. If you choose not to restart the Agent immediately after making configuration changes, you can do so at a later time by entering an `init q` command or by doing a system reboot.

Instructions for restarting the Agent immediately after making changes to its configuration are as follows:

1. Verify that the HSD, HSJ, and HSZ Storage Windows on all of your client systems are closed.
2. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

3. Type **6** and then press *RETURN*. The following appears:

```
Do you want to Restart the Agent NOW? [y, n, q].
```

4. To immediately restart the Agent, type **y** and then press *RETURN*. A message, telling you that the Agent has been restarted, appears. This message includes the process identification (PID) of the Agent.
5. Press *RETURN* for the Configuration menu.

Enabling and Disabling the Agent

When you enable the Agent, it will start and remain running until you disable it by selecting this option again from the Configuration Utility menu.

Instructions for enabling and disabling the Agent are as follows:

1. At the command prompt, type the following and then press *RETURN*:

On Tru64 UNIX version 4.0D or 4.0E (installed SWCC204):

```
# /usr/opt/SWCC204/scripts/swcc_config
```

On Tru64 UNIX version 4.0C or earlier (installed SWCC200):

```
# /usr/opt/SWCC200/scripts/swcc_config
```

The Configuration Utility menu appears.

2. To enable the Agent, type **7** and then press *RETURN*. The following message appears:

```
Do you want to ENABLE and start the Agent NOW?[y, n, q]
```

3. To confirm your choice, type **y** and then press *RETURN*. You see a message, telling you that the Agent has been enabled, along with the process ID of the Agent.
4. Press *RETURN* for the Configuration menu.
To disable the Agent, type **7** and then press *RETURN*.
5. Type **y** and then press *RETURN*. The Agent has been disabled.
6. Press *RETURN* for the Configuration menu.

Configuring the HS-Series Agent on Windows NT

To add client computers, change security options, and add storage subsystems, click the following:

Start|Programs|HS Series Agent|HS Series Agent Configurator

Changing the Agent Access Password

The password controls access to the Agent configuration. Instructions for changing the Agent access password are as follows:

1. Click the following:

Start|Programs|HS Series Agent|HS Series Agent Configurator

The Welcome NT Agent Configuration Utility window appears.

2. Click Continue. The NT Agent Configuration Step 1 of 3 window appears.
3. Type your new password in the New field, and retype it in the Verification field. The password must have 4 to 16 characters.
4. Click Next to continue. The following message appears:

Password Validation Successful.

5. Click OK to continue. The NT Agent Configuration Step 2 of 3 window appears.
6. Click Next to continue. If the NT Agent Configuration Step 3 of 3 window appears, go to step 7.

The following message appears if you had previously added a subsystem:

A previous storage list is detected. Would you like to scan the subsystem to update the information? (Subsystem names will revert to default settings.)

If you click Yes, the software will automatically add entries for the new subsystems and restore default subsystem information for the existing entries.

Or

If you click No, the software will keep the current settings.

The NT Agent Configuration Step 3 of 3 window appears.

7. Click *Finish*. The following message appears:

No subsystem information was added to the storage subsystem list. Storage subsystem list will not be created or modified.

8. Click *OK*. The Welcome NT Agent Configuration Utility window appears.
9. Click *E*x*i*t to quit the NT Agent Configuration Utility.
10. You must stop and restart the Agent for your changes to take effect. For instructions, see “Stopping and Starting the Agent” in this appendix.

Adding a Client System Entry

For a client system to receive updates from the Agent, you must add the client system to the Agent’s list of client systems. The Agent will only send information to client systems that are on this list. In addition, adding a client system entry allows you to access the agent system from the Navigation Tree on that client system. The following steps tell you how to add a client system entry:

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. Click the following:

*Start|P**r**ograms|H**S* *Series Agent|H**S* *Series Agent Configurator*

The Welcome NT Agent Configuration Utility window appears.

2. Click *C**o**n**t**i**n**u**e*. The NT Agent Configuration Step 1 of 3 window appears.
3. Click *N**e**x**t* to continue. You do not need to type your password. The NT Agent Configuration Step 2 of 3 window appears.
4. Type the name of the client system entry that you want to have access to this Agent in the Selected Client field.
5. Select TCP/IP and/or SNMP for your notification scheme. For a definition of the client system notification options, read the section, “Client System Notification Options,” located at the beginning of this appendix.
6. Select one of the following for your access privileges: overall status, detailed status, and configuration. For a definition of each access privilege level, read the section, “Client System Access Options,” located at the beginning of this appendix.

7. Click *Add Client* to add the client system entry to the list of client system entries.
8. Repeat steps 4 and 5 for each client system entry that you want to add.
9. Click *Next* to continue. If the NT Agent Configuration Step 3 of 3 window appears, go to step 10.

The following message appears if you had previously added a subsystem:

A previous storage list is detected. Would you like to scan the subsystem to update the information? (Subsystem names will revert to default settings.)

If you click *Yes*, the software will automatically add entries for the new subsystems and restore default subsystem information for the existing entries.

Or

If you click *No*, the software will keep the current settings.

The NT Agent Configuration Step 3 of 3 window appears.

10. Click *Finish*. The following message appears:
No subsystem information was added to the storage subsystem list. Storage subsystem list will not be created or modified.
11. Click *OK*. The Welcome NT Agent Configuration Utility window appears.
12. Click *Exit* to quit the NT Agent Configuration Utility.
13. You must stop and restart the Agent for your changes to take effect. For instructions, see “Stopping and Starting the Agent” in this appendix.

Modifying a Client System Entry

1. Click the following:

Start|Programs|HS Series Agent|HS Series Agent Configurator

The Welcome NT Agent Configuration Utility window appears.

2. Click *Continue*. The NT Agent Configuration Step 1 of 3 window appears.
3. Click *Next* to continue. You do not need to type your password. The NT Agent Configuration Step 2 of 3 window appears.

4. Select the client system entry that you want to modify. You can change your notification scheme and/or your access privileges.
5. Click *M*odify Client to confirm your changes.
6. Repeat steps 4 and 5 for each client system entry that you want to modify.
7. Click *N*ext to continue. If the NT Agent Configuration Step 3 of 3 window appears, go to step 8.

The following message appears if you had previously added a subsystem:

A previous storage list is detected. Would you like to scan the subsystem to update the information? (Subsystem names will revert to default settings.)

If you click *Y*es, the software will automatically add entries for the new subsystems and restore default subsystem information for the existing entries.

Or

If you click *N*o, the software will keep the current settings.

The NT Agent Configuration Step 3 of 3 window appears.

8. Click *F*inish. The following message appears:

No subsystem information was added to the storage subsystem list. Storage subsystem list will not be created or modified.

9. Click *O*K. The Welcome NT Agent Configuration Utility window appears.
10. Click *E*xit to quit the NT Agent Configuration Utility.
11. You must stop and restart the Agent for your changes to take effect. For instructions, see “Stopping and Starting the Agent” in this appendix.

Deleting a Client System Entry

When you delete a client system entry from the Agent’s list, the Agent stops sending updates to that client system and you are unable to access this agent system from the Navigation Tree. The following instructions tell you how to delete a client system entry:

1. Click the following:

*Start|P*rograms|*H*S Series Agent|*H*S Series Agent Configurator

The Welcome NT Agent Configuration Utility window appears.

2. Click Continue. The NT Agent Configuration Step 1 of 3 window appears.
3. Click Next to continue. You do not need to type your password. The NT Agent Configuration Step 2 of 3 window appears.
4. Select the client system entry that you want to delete in the Selected Client field. Click Delete Client.
5. Repeat step 4 for each client system entry that you want to delete.
6. Click Next to continue. If the NT Agent Configuration Step 3 of 3 window appears, go to step 7.

The following message appears if you had previously added a subsystem:

A previous storage list is detected. Would you like to scan the subsystem to update the information? (Subsystem names will revert to default settings.)

If you click Yes, the software will automatically add entries for the new subsystems and restore default subsystem information for the existing entries.

Or

If you click No, the software will keep the current settings.

The NT Agent Configuration Step 3 of 3 window appears.

7. Click Finish. The following message appears:

No subsystem information was added to the storage subsystem list. Storage subsystem list will not be created or modified.
8. Click OK. The Welcome NT Agent Configuration Utility window appears.
9. Click Exit to quit the NT Agent Configuration Utility.
10. You must stop and restart the Agent for your changes to take effect. For instructions, see “Stopping and Starting the Agent” in this appendix.

Adding a Subsystem Entry

You need to tell the Agent the subsystems that it needs to monitor. The following steps tell you how to add a subsystem entry:



CAUTION: Verify that you have the correct communication drive before you manually add a subsystem.

1. Click the following:

Start|Programs|HS Series Agent|HS Series Agent Configurator

The Welcome NT Agent Configuration Utility window appears.

2. Click Continue. The NT Agent Configuration Step 1 of 3 window appears.
3. Click Next to continue. You do not need to type your password. The NT Agent Configuration Step 2 of 3 window appears.
4. Click Next to continue. If the NT Agent Configuration Step 3 of 3 window appears, go to step 5.

The following message appears if you had previously added a subsystem:

A previous storage list is detected. Would you like to scan the subsystem to update the information? (Subsystem names will revert to default settings.)

If you click Yes, the software will automatically add entries for the new subsystems and restore default subsystem information for the existing entries.

Or

If you click No, the software will keep the current settings.

The NT Agent Configuration Step 3 of 3 window appears.



CAUTION: If the software detects an HSZ22 controller connected to your system, it will identify it as an HSZ20 controller. This will cause the Agent to read the HSZ22 subsystem configuration incorrectly. Delete the subsystem entry for this HSZ22 controller or shut off the HSZ22 controller. After this Agent has scanned for subsystems, turn on the controller and reboot the system. Please refer to the section, "HS-Series Agent Interaction," in Appendix A.

5. Type the name of the subsystem in the Selected Subsystem field. Type the communication drive letter and monitoring interval in seconds. The monitoring interval is the rate at which the Agent queries the specified subsystem for status. A reasonable monitoring interval in seconds would be 120. You may also select *Subsystem Enabled*.

When you select *Subsystem Enabled*, the subsystem is included in the Agent's scans. When *Subsystem Enabled* is selected, the software configures the `storage.ini` file so that the subsystem selected in the dialog box is visible to the host. The `storage.ini` file holds information about the RAID devices connected to your server.

6. Click *Add Subsystem*. The name of the added subsystem appears in the Storage Subsystems field.
7. Repeat steps 5 and 6 for each subsystem that you want to add.
8. Click *Finish*. A message, warning you to restart your Agent, appears.
9. Click *OK*. You exit the NT Agent Configuration Utility.
10. You must stop and restart the Agent for your changes to take effect. For instructions, see "Stopping and Starting the Agent" in this appendix.

Modifying a Subsystem Entry

Instructions for modifying a subsystem entry are as follows:

1. Click the following:

Start|Programs|HS Series Agent|HS Series Agent Configurator

The Welcome NT Agent Configuration Utility window appears.

2. Click *Continue*. The NT Agent Configuration Step 1 of 3 window appears.
3. Click *Next* to continue. You do not need to type your password. The NT Agent Configuration Step 2 of 3 window appears.
4. Click *Next* to continue. If the NT Agent Configuration Step 3 of 3 window appears, go to step 5.

The following message appears if you had previously added a subsystem:

A previous storage list is detected. Would you like to scan the subsystem to update the information? (Subsystem names will revert to default settings.)

If you click *Yes*, the software will automatically add entries for the new subsystems and restore default subsystem information for the existing entries.

Or

If you click *No*, the software will keep the current settings.

The NT Agent Configuration Step 3 of 3 window appears.

5. Select the subsystem that you want to modify in the Storage Subsystems field. You may change the communication drive letter, the monitoring interval, and the subsystem's name. The monitoring interval is the rate at which the Agent queries the specified subsystem for status. A reasonable monitoring interval in seconds would be 120.

You may also select *Subsystem Enabled*. When you select *Subsystem Enabled*, the subsystem is included in the Agent's scans. When *Subsystem Enabled* is selected, the subsystem is visible in the Client GUI.

When you select the subsystem, the following properties are shown: controller type, devices, EMU type, firmware version, serial number of controller 1, serial number of controller 2, and total number of devices.

6. Click *Modify Subsystem* to confirm your changes.
7. Repeat steps 5 and 6 for each subsystem that you want to modify.
8. Click *Finish*. A message, warning you to restart your Agent, appears.
9. Click *OK*. You exit the NT Agent Configuration Utility.
10. You must stop and restart the Agent for your changes to take effect. For instructions, see "Stopping and Starting the Agent" in this appendix.

Deleting a Subsystem Entry

When you delete a subsystem entry, the Agent stops monitoring that subsystem.

1. Click the following:

Start|Programs|HS Series Agent|HS Series Agent Configurator

The Welcome NT Agent Configuration Utility window appears.

2. Click *Continue*. The NT Agent Configuration Step 1 of 3 window appears.
3. Click *Next* to continue. You do not need to type your password. The NT Agent Configuration Step 2 of 3 window appears.
4. Click *Next* to continue. If the NT Agent Configuration Step 3 of 3 window appears, go to step 5.

The following message appears if you had previously added a subsystem:

A previous storage list is detected. Would you like to scan the subsystem to update the information? (Subsystem names will revert to default settings.)

If you click Yes, the software will automatically add entries for the new subsystems and restore default subsystem information for the existing entries.

Or

If you click No, the software will keep the current settings.

The NT Agent Configuration Step 3 of 3 window appears.

5. Select the subsystem that you want to delete in the Storage Subsystems field. Click Delete Subsystem.
6. Click *Finish*. A message, warning you to restart your Agent, appears.
7. Click *OK*. You exit the NT Agent Configuration Utility.
8. You must stop and restart the Agent for your changes to take effect. For instructions, see “Stopping and Starting the Agent” in this appendix.

Stopping and Starting the Agent

Instructions on how to stop and then start the Agent are as follows:

1. Verify that the HSD, HSJ, and HSZ Storage Windows on all of your client systems are closed.
2. Click Control Panel, double-click the *Services* icon, and select *Steam*. The acronym, STEAM, stands for StorageWorks Enterprise Array Manager.
3. Click Stop to stop the Agent. The computer asks the following:
Are you sure you want to stop the Steam service?
4. Click Yes. The computer says it is attempting to stop the service.
5. Click Start to start the Agent. The Agent starts.

Disabling and Enabling the Agent Startup at System Boot

The default is for the Agent to start at system boot; however, you may want to change this option. For example, if you need to check your system, you may not want the Agent to start at system boot. The following instructions tell you how to change the default:

1. Open the Services window (*Start|Settings|Control Panel|Services*), and double-click on the entry for the HS-Series Agent. The Service window appears.
2. Select Manual under Startup Type, and click *OK*.

NOTE: If you want to enable the HS-Series Agent to start at system boot, you need to change the startup type to automatic.

Installing the Device Management Agents

You need to install the Device Management Agents on a host for your Device Management Client software to receive information about your storage devices. The Agent software allows the Client to exchange information with your storage subsystem over a network and monitor the storage devices connected to the SCSI adapters.

This chapter contains instructions on how to install the Device Management Agents on Windows NT version 4.0 (Alpha and Intel) and on Tru64 UNIX. There are several ways to install the Agent on Tru64 UNIX:

- Local Installation
- Dataless Management Services (DMS) Server Installation
- Remote Installation Services (RIS) Server Installation

Installing the Device Management Agent Locally on Tru64 UNIX

This section tells you how to install the Device Management Agent locally on Tru64 UNIX. Instructions for installing the Device Management Agent locally on Tru64 UNIX system are separated into two sections: “Beginning the Installation” and “Completing the Installation.” The first section tells you how to access the installation file from the StorageWorks Command Console (SWCC) CD-ROM or the Web. The second section describes how to configure your Agent during the installation.



CAUTION: Before you install the Device Management Agent, do the following:

- Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). That installation also installs version 2.1 of the Device Management Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
- Read the release notes in the `devicem.txt` file for the Device Management Agent. This file contains the latest information that you should know about installing your Agent.
- Log in as root (superuser) for all installations. The Agent can be installed on the local computer or distributed to remote Clients by means of RIS or DMS.

Beginning the Installation

The method of installing the Agent on your system depends on whether you install the software from the StorageWorks Command Console (SWCC) CD-ROM or a file downloaded from the StorageWorks Web site.

From the SWCC CD-ROM

The following instructions assume that you have a directory `/mnt` to which you can mount the CD-ROM. If you do not, you will have to create a mount point and replace `/mnt` in the following sequence with the mount point that you have created. It also assumes your CD-ROM device is `/dev/rz4c`. If not, replace `/dev/rz4c` with the actual CD-ROM device.

1. Insert the SWCC CD-ROM into the CD-ROM drive of the host computer that has the SCSI adapter.
2. To mount the CD-ROM, type the following at the command prompt, and then press *RETURN*:

```
# mount -t cdfs /dev/rz4c /mnt
```

3. To run the installation program, enter the following at the command prompt:

```
# setld -l /mnt/dunix/agents
```

You are shown a list of Agents that you can install.

4. Choose the Agents that you want to install.

You are asked if you want to install the listed subsets.

5. Go to the section, “Completing the Installation.”

From the StorageWorks Web Site

It is assumed that you have downloaded the file `swcc21dunix.exe` to the `download` directory from the StorageWorks Web site. In this section, you will tell the computer to uncompress the downloaded file before you begin the installation. For the following examples, you can replace the `.../download` and `.../Agents` directory names and paths with others more suitable for your system.

1. To create a directory, type the following:

```
# mkdir .../Agents
```

This directory holds the self-extracted files for the RA200, HS-Series, and Device Management Agents that run on Tru64 UNIX.

2. To change to the `.../Agents` directory, type the following at the command prompt and then press *RETURN*.

```
# cd .../Agents
```

3. Move the file, `swcc21dunix.exe`, to the `.../Agents` directory by entering the following:

```
# mv .../download/swcc21dunix.exe .../Agents
```

4. To make the `swcc21dunix.exe` file executable, enter the following at the command prompt:

```
# chmod +x swcc21dunix.exe
```

5. Type the following at the command prompt and then press *RETURN*:

```
# swcc21dunix.exe
```

The file self-extracts in the current directory, which is `.../Agents`. This directory holds the self-extracted files for the RA200, the HS-Series, and the Device Management Agents that run on Tru64 UNIX.

NOTE: You need to run `swcc21dunix.exe` on Tru64 UNIX. The `.exe` extension was added to assist Internet browsers in downloading the file.

6. To run the installation program, type the following at the command prompt and then press *RETURN*:

```
# setld -l .../Agents
```

You are shown a list of Agents that you can install.

7. Choose the Agents that you want to install.

You are asked if you want to install the listed subsets.

8. Go to the section, "Completing the Installation."

Completing the Installation

In this section, you will complete the installation that you began in the section, "Beginning the Installation."

1. Type **2** and then press *RETURN* to install all of the listed subsets. You are shown the subsets that you have decided to install.

A message, asking if your choice is correct, appears.

2. Type **y** and then press *RETURN* to continue with the installation. You are shown the copyright agreement and a warning about removing previous versions of the Agent.
3. Press *RETURN* to continue. The software will check for existing installations found on the computer. If it does not find a 1.x Agent, the software will do one of the following:

- ☐ Ask you to type a password. Your case-sensitive password must have 4 to 16 characters. Go to step 4.
- ☐ Say it has already found existing configuration files and return you to the command prompt. The software has been installed.

If the software finds a 1.x Agent, it will tell you to remove it. You cannot install the Device Management Agent until the previous version has been removed. You return to the command prompt.

4. Type your new password. Press *RETURN*.

A message, asking you to verify the new password, appears.

5. Type your new password again. Press *RETURN*.

A message, telling you that the password has been updated, appears. Press *RETURN* to continue. The computer asks you to add a client system entry.

6. Type the name of the client systems that you want to receive updates from this Agent, and then press *RETURN*. In addition, adding a client system entry allows you to access the agent system from the Navigation Tree on that client system.

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.

7. From the displayed menu, type an access level for the client system.

Table 8-1 explains the client system access options:

Table 8-1 Client System Access Options	
Options	SWCC Function
0 = Overall Status (No Access)	<ul style="list-style-type: none"> ■ Can use the Client to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
1 = Detailed Status (Show Level Access)	<ul style="list-style-type: none"> ■ Can use the Client to open a Storage Window, but you cannot make modifications in that window
2 = Configuration (Storage Subsystem Configuration Capability)	<ul style="list-style-type: none"> ■ Can use the Client to make changes in a Storage Window to modify a subsystem configuration

8. Press *RETURN*.

A menu for selecting the client system notification scheme appears.

9. From the displayed menu, type a notification scheme for the client system, **0**, **1**, **2**, or **3**.

The notification scheme defines the network protocol to be used by the Agent when notifying the selected client system of a change in the state of a subsystem. The following describes how the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Simple Network Management Protocol (SNMP) work with SWCC:

Table 8-2
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Storage Window of subsystem changes provided AES is running ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

10. Press *RETURN*.

The computer asks you if the entered information is correct.

11. If you type **y** and then press *RETURN* to confirm the information is correct, you will be asked if you would like to add another client system entry.

Or

If you type **n** and then press *RETURN* to change the information, you will repeat steps 6 through 11.

12. If you type **y** and then press *RETURN* to add another client system entry, you will repeat steps 6 through 12.

Or

If you type **n** and then press *RETURN* to complete the installation, the Agent will start.

13. If you installed the software from a CD-ROM, type the following and then press *RETURN* to unmount the CD-ROM:

```
# umount /mnt
```

NOTE: Add this system to the Navigation Tree of each client system that you added to the Agent's list (*File|Add System* in the Command Console Client). Refer to the Command Console Client Help.

About Agent Event Logging for Tru64 UNIX Agent

Events are logged by the Command Console Agent to Tru64 UNIX logging facility by using the syslog standard C Library function (man reference syslog(3)). When the syslog function is executed, the call for high priorities is “LOG_ALERT” and “LOG_CRIT”, for warnings “LOG_WARN”, and for low priorities “LOG_INFO”. The openlog standard C library function (man reference syslog(3)), which is used prior to the syslog function, specifies the facility as LOG_DAEMON (messages generated by system daemons).

Removing the Device Management Agent from Tru64 UNIX

1. Stop the Agent. Perform these steps to stop the Agent:
 - a. Type the following and then press *RETURN* for the Configuration menu:


```
# /usr/sbin/dmconfig.sh
```
 - b. Type **2** and then press *RETURN* to stop the Agent. You are given the status of the Agent and asked if you would like to stop or restart the Device Management Agent.
 - c. Type **s** and then press *RETURN* to stop the Agent. The software stops the Agent.
 - d. Press *RETURN* for the Configuration menu.
 - e. Press **q** and then press *RETURN* to quit the Configuration menu.
2. To remove the Device Management Agent, type the following at the command prompt and then press *RETURN*:


```
# setId -d SWCCDM200
```
3. To remove the configuration, Client list, and device list files, change to the `/etc` directory and delete the following files (If you delete these files, you will need to reconfigure the Agent during reinstallation.):

Table 8-3
Program Files

File Name	File Type
dmagent.cfg	Configuration
dmclient.ini	Client List
dmdev.cfg	Device List

Dataless Management Services (DMS) Server Installation

This section tells you how to install the Device Management Agent on a Dataless Management Services (DMS) server on Tru64 UNIX.



CAUTION: Before you install the Device Management Agent, do the following:

- Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). That installation also installs version 2.1 of the Device Management Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
- Read the release notes in the `devicem.txt` file for the Device Management Agent. This file contains the latest information that you should know about installing your Agent.
- Log in as root (superuser) for all installations. The Agent can be installed on the local computer or distributed to remote Clients by means of RIS or DMS.

Before Installing the Device Management Agent on a DMS Server

When a DMS server/Client installation is detected, this Agent's installation behaves differently than a local installation. For instance, when you use DMS to install the Device Management Agent on a server or to set it up on a Client, the installation will neither start the Agent nor will it create the configuration files or startup links. The following examples list further differences between a DMS installation and a local installation:

- When installing the Device Management Agent on a DMS server, the Device Management Agent files will be copied to the DMS area specified, and the appropriate `/usr` files system links will be established.
- When a DMS Client is booted and the Device Management Agent installation is invoked, only the TCP services will be set up on the Client.

Due to these changes in the default behavior of the installation in the DMS environment, you must run the Device Management Agent configuration script, `/usr/sbin/dmconfig.sh`, on each DMS Client to properly configure the Agent prior to running it for the first time. When you first run the `/usr/sbin/dmconfig.sh` script on your Client, the script will create the Agent configuration file. The following is an overview of the steps that

you will perform when you install the Device Management Agent on a DMS server as described in the next section:

1. Type a password for the Agent on a DMS Client.
2. Specify the client systems that will access the Agent on a DMS Client.
3. Enable the Device Management Agent to start automatically when the DMS Client boots.
4. Choose to start the Agent immediately.

For details on DMS server and Client setup, use and behavior, refer to the document *Sharing Software on a Local Area Network* in Tru64 UNIX documentation set.

NOTE: It is assumed that you have either added Clients to a DMS environment or you plan to do so after installing the Device Management subset to one or more environments.

Installing the Device Management Agent on a DMS Server

The following procedure lets you install the Device Management Agent for Tru64 UNIX with the Dataless Management Services (DMS) utility into the dataless server area. The examples in this section show you how to install the subsets to `/var/adm/dms/dms0.alpha`.

1. Log in and become the superuser.
2. To invoke the DMS utility, type the following command:

```
# dmu
```

The computer displays the following menu:

```
*** DMU Main Menu ***
```

```
a - ADD a client
c - CONFIGURE software environments
d - DELETE software environments
i - INSTALL software environments
l - LIST registered clients
m - MODIFY a client
r - REMOVE a client
s - SHOW software environments
x - Exit
```

Enter your choice:

3. To select the *Install Software* option from the menu, type **i** and then press *RETURN*.

The computer displays the DMU Software Installation menu:

DMU Software Installation Menu:

- 1) Install software into a new area
- 2) Add software into an existing area
- 3) Perform configuration phase on an existing area
- 4) Return to previous menu

Enter your choice:

4. Type **2** and then press *RETURN* to add software to an existing area:

If the computer displays the available installation directories, as shown by the following, go to step 6:

You have chosen to install a product into an existing environment. The existing environment is `/var/adm/dms/dms0.alpha`.

Or

The computer will display the following if there is more than one installed DMS environment in the dataless server area:

Select the remote dataless environment:

1. `/var/adm/dms/dms0.alpha`
'Digital Operating System (Rev 106)'
2. `/var/adm/dms/dms1.alpha`
'Digital Operating System (Rev 106)'
'Sort Runtime Library'

Enter your choice:

5. If you have more than one installed DMS environment, type a number corresponding to an environment, such as **1**. Press *RETURN*.

You are prompted for an input device name or directory path where the software is located.

Enter the device special file name or path of the directory where the software is located (for example, `/mnt/ALPHA/BASE`):

6. Type the file name or path of the directory where the software is located, for example */SWCCDM* and then press *RETURN*.

The Device Management installation script appears.

7. Type **2** and then press *RETURN* to install all of the listed subsets. You are shown the subsets that you have decided to install.

The computer asks if your choice is correct.

8. Type **y** and then press *RETURN* to continue with the installation. You are shown the copyright agreement and a warning about removing previous versions of the Agent.
9. Press *RETURN* to continue. The subsets are installed into the DMS environment. You are shown a note about configuring the DMS Client to run the Device Management Agent.
10. Press *RETURN* to continue. The DMS main menu appears for your next selection.
11. Repeat steps 1 through 10 for each *dmsn.alpha* area that you plan to set up.
12. To install the Device Management Agent on a DMS Client, go to the following section, "Setting Up the Device Management Agent on a DMS Client."

Setting Up the Device Management Agent on a DMS Client

Before setting up the Device Management Agent on a DMS Client, complete the steps in the previous section, "Installing the Device Management Agent on a DMS Server." Perform the following instructions:

1. If your Client has not been booted, type the following on a DMS Client and then press *RETURN* to boot the DMS Client with the bootp request (Replace W085 with the bootp request for your computer.):

boot W085
2. Configure the Agent on each DMS Client. For further information, refer to the following chapter, "Configuring the Device Management Agent."
3. Go to the section, "Configuring Agent Event Logging for Tru64 UNIX," in this chapter for information on configuring Agent event logging.

Remote Installation Services (RIS) Server Installation

This section tells you how to install the Device Management Agent on a Remote Installation Services (RIS) server on Tru64 UNIX.

Before Installing the Device Management Agent

First check the following with your site system administrator before installing the Device Management Agent from a Remote Installation Services (RIS) server onto your RIS Client:

- A SWCC Device Management Agent for Tru64 UNIX kit is installed in the RIS server area and is available for use.
- Your system is registered as a RIS Client.

If the Device Management Agent for Tru64 UNIX subsets are available to you on a RIS server system, you will need the name of that system to start the installation described in this guide.



CAUTION: Before you install the Device Management Agent, do the following:

- Install the Command Console Client version 2.1 on a computer that has Windows 98, Windows 95, or Windows NT (See Chapter 4). That installation also installs version 2.1 of the Device Management Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
- Read the release notes in the `devicem.txt` file for the Device Management Agent. This file contains the latest information that you should know about installing your Agent.
- Log in as root (superuser) for all installations. The Agent can be installed on the local computer or distributed to remote Clients by means of RIS or DMS.

Installing the Device Management Agent on the RIS Server

The following sample session describes how to add the Device Management Agent for Tru64 UNIX product to the `ris0.alpha` area:

1. Log in and become the superuser.

2. Type the following and then press *RETURN* to invoke the `ris` utility:

```
# ris
```

The RIS main menu is displayed:

Checking accessibility of RIS areas done

*** RIS Utility Main Menu ***

```
a - ADD a client
d - DELETE software products
i - INSTALL software products
l - LIST registered clients
m - MODIFY a client
r - REMOVE a client
s - SHOW software products in remote installation environments
x - Exit
```

Enter your choice:

3. To select the *Install Software* option from the RIS main menu, type **i** and then press *RETURN*.

The RIS Software Installation menu is displayed:

RIS Software Installation Menu:

```
1 Install software to a new area
2 Add software to an existing area
3 Return to previous menu
```

Enter your choice:

4. Type **2** and then press *RETURN* to add software to an existing area.

A list of available environments appears from which you might select `ris0.alpha`:

You have chosen to add a new product into an existing environment.

Select the remote installation environment:

```
1 /usr/var/adm/ris/ris0.alpha
  'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
  'InfoServer Client for Digital UNIX'
```

```
2 /usr/var/adm/ris/ris1.alpha
  'Free Software Foundation GNU Source for Digital UNIX'
```

Enter your choice or press *RETURN* to quit:

5. Select a remote installation environment and then press *RETURN*. You are prompted for an input device name:

Enter the device special file name or the path of the directory where the software is located, for example, /mnt/ALPHA/BASE: /SWCCDM

6. Type the file name or path of the directory where the software is located, for example **/SWCCDM** and then press *RETURN*. The computer displays the following:

Choose one of the following options:

- 1) Extract software from /SWCCDM
- 2) Create symbolic link to /SWCCDM

Enter your choice:

7. Type **1** and then press *RETURN*. The computer displays a list of the software subsets that you select for automatic installation.

The RIS Utility Main menu appears for your next selection, as shown by the following:

*** RIS Utility Main Menu ***

- a - ADD a client
- d - DELETE software products
- i - INSTALL software products
- l - LIST registered clients
- m - MODIFY a client
- r - REMOVE a client
- s - SHOW software products in remote installation environments
- x - Exit

Enter your choice:

8. Repeat the following steps a through f for each RIS Client allowed to install the Agent for Tru64 UNIX. You may be asked for additional information based on your Client's configuration, RIS setup, and the software products that you want to make available for installation. These steps assume that you have added Clients before performing this RIS installation.

- a. Type **m** and then press *RETURN* to select the Modify a Client option from the RIS menu:

The following is displayed:

The following clients are available to modify:

clienta clientb

Enter the client processor's hostname or press RETURN to quit:

- b. Type the name of the Client to be modified from the list of available Clients, for example **clienta**, and then press *RETURN*:

The computer displays the following:

Select the remote installation environment:

```
1 /usr/var/adm/ris/ris0.alpha
  'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
  'InfoServer Client for Digital UNIX'
... 'StorageWorks Command Console Device Management Agent'
```

```
2 /usr/var/adm/ris/ris1.alpha
  'Free Software Foundation GNU Source for Digital UNIX'
```

Enter your choice or press *RETURN* to quit:

- c. Choose the environment to which you want to add the Client and then press *RETURN*. If there is only one environment, RIS will skip this prompt.

The system shows you the environments and products that the Client can already access:

Client clienta currently can install the following products from /usr/var/adm/ris/ris0.alpha:

'DEC C++ Class Libraries Version 4.0 for Digital UNIX'

Select one or more products for the client to install from /usr/var/adm/ris/ris0.alpha:

Product	Description
1	'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
2	'InfoServer Client for DIGITAL UNIX '
3	'StorageWorks Command Console Device Management Agent'

Enter one or more choices as a space separated list (for example, 1 2 3) or "all" for all products [all]:

- d. At the command prompt, type the corresponding numbers for the products that you would like this Client to be able to install including the Device Management Agent for Tru64 UNIX. Separate each choice with a space and then press *RETURN*.

The computer displays the following:

You chose the following products:

- 1 'DEC C++ Class Libraries Version 4.0 for Digital UNIX'
- 2 'InfoServer Client for DIGITAL UNIX '
- 3 'StorageWorks Command Console Device Management Agent'

Is that correct? (Y/N) [Y]:

- e. Confirm your choice of products for this Client and then press *RETURN*.

The computer displays the following:

Network type:

- 1) Ethernet or FDDI
- 2) Token Ring

Enter your choice:

- f. Type the corresponding number for your network type, then press *RETURN*.

The computer displays the following:

Client clienta has been modified.

Installing the Device Management Agent on the RIS Client

The following steps tell you how to start the Agent installation on a RIS Client:

1. Type the following and then press *RETURN* (Replace *yourserver* with the name of the server.):

setld -l yourserver:

2. Go to the section, "Configuring Agent Event Logging for Tru64 UNIX Agent," in this chapter for information on configuring the event logging.

Installing the Device Management Agent on Windows NT (Alpha and Intel)

When you first install the Windows NT Agent, the host computer is automatically registered as a Client with full privileges. Instructions on how to install the Device Management Agent on Windows NT are the following:



CAUTION: Before you install the Device Management Agent, do the following:

- Install the Command Console Client version 2.1 (See Chapter 4). This installation also installs version 2.1 of the Device Management Client. If you prefer not to install the Clients now, you can install them after you have installed the Agent.
- Verify that you are logged into an account that is a member of the administrator group. All Device Management Agent installations on Windows NT must be done locally. Do not attempt to install the Agent over the network.

Beginning the Installation

The method of installing the Agent on your system depends on whether you install the software from the StorageWorks Command Console (SWCC) CD-ROM or a file downloaded from the Web. In this section, you will tell the computer to uncompress the downloaded file before you begin the installation.

From the SWCC CD-ROM

1. Insert the SWCC CD-ROM into the host computer that has the SCSI adapter. Using Windows Explorer, go to the following directory on the CD-ROM:

For the Alpha platform: \NTAlpha\Agents\dvg

For the Intel platform: \NTIntel\Agents\dvg

2. Double-click `setup.exe`.

The program then displays a window, thanking you for purchasing StorageWorks Command Console.

3. Go to the section, “Completing the Installation.”

From the StorageWorks Web Site

It is assumed that you have downloaded the file `SWCC21NTAXP.EXE` for the Alpha platform or `SWCC21NTX86.EXE` for the Intel platform from the StorageWorks Web site. In this section, you will tell the computer to uncompress the downloaded file before you begin the installation.

1. Using Windows Explorer, go to the directory where you downloaded `SWCC21NTAXP.EXE` for the Alpha platform or `SWCC21NTX86.EXE` for the Intel platform, and double-click on the file.

When the file self-extracts, it creates a directory structure that holds the installation files for the RA200 and HS-Series Agents for Windows NT, in addition to the installation files for the Device Management Agent for Windows NT.

2. Go to the following directory and double-click `setup.exe`.

For the Alpha platform: NTAlpha\Agents\dvg

For the Intel platform: NTIntel\Agents\dvg

The program then displays a window, thanking you for purchasing StorageWorks Command Console.

3. Go to the following section, "Completing the Installation."

Completing the Installation

In this section, you will complete the installation that you began in the section, "Beginning the Installation."

1. Click *N*ext. The program displays a window, showing you the license agreement.
2. Click *N*ext. If the Device Management Agent is running, you will be asked if you want to stop the Agent and continue with the installation. Click *Y*es to continue with the installation.

The program displays a window, showing the directory where it will install the Device Management Agent. To change the installation directory, use the *B*rowse option to change the directory.

3. Click *N*ext. The following message appears:

Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the Existing Folders list.

4. Click *N*ext. One of the following messages appears:

- ☐ An empty known - Client file was created. The Agent Configure application will be run during this installation. Set the Agent password at that time.
- ☐ Existing configuration file found. The installation will use the existing server password.

5. Click *OK*.

When the computer has finished installing the program, one of the following will occur:

- ❑ The Agent Configuration Utility window appears. You can receive additional assistance by clicking *Info*. Continue to follow the steps listed below.
- ❑ You will exit out of the installation program if the software has found an existing configuration. You will not see the following steps. To learn how to configure the Agent, refer to the following section, “Configuring the Device Management Agents.”

6. Click *Password*. The software displays the Password window, showing one field for entering your new password and another for verifying it.

7. Type your case-sensitive password in the New field, and retype it in the Verification field. The password must have 4 to 16 characters.

8. Click *OK*. The following message appears:

Password Validation Successful.

9. Click *OK*. You return to the Agent Configuration Utility window.10. Click *Client*. The Client window for adding, modifying, and deleting a Client appears.

11. Type the name of the client system entry that you want to receive updates from this Agent. By adding a client system entry, you can access the agent system from the Navigation Tree on that client system. Choose TCP/IP and/or SNMP for your notification scheme.

Table 8-4
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Storage Window of subsystem changes ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

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.

12. Select one of the following for your access privileges: overall status, detailed status, and configuration. The following explains the client system access options:

Table 8-5
Client System Access Options

Options	SWCC Function
Overall Status (No Access)	<ul style="list-style-type: none"> ■ Can use the Client to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
Detailed Status (Show Level Access)	<ul style="list-style-type: none"> ■ Can use the Client to open a Storage Window, but you cannot make modifications in that window
Configuration (Storage Subsystem Configuration Capability)	<ul style="list-style-type: none"> ■ Can use the Client to make changes in a Storage Window to modify a subsystem configuration

For more information on adding, deleting, or modifying a Client see the following chapter, “Configuring the Device Management Agents.”

13. Click A*dd Client* to add the client system entry to the Client list.
14. Repeat steps 11 through 13 for each client system entry that you want to add. Click O*K*. You return to the Agent Configuration Utility window.
15. Click E*xit* to leave the Agent Configuration Utility window.
16. The Agent starts automatically.

NOTE: Add this system to the Navigation Tree of each client system that you added to the Agent's list (*File|Add System* in the Command Console Client). Refer to the Command Console Client Help.

Removing the Device Management Agent from Windows NT

To remove the software, perform the following:

1. Stop the Agent. For instructions, see the following:
 - a. Click Control Panel, double-click Services, and select SWCC Dev Mgmt Agent.
 - b. Click Stop to stop the Agent. The computer asks the following:
Are you sure you want to stop the SWCC Dev Mgmt Agent service?
 - c. Click Yes. The computer says it is attempting to stop the service.
2. Click Settings under the *Start* menu, then click Control Panel.
3. Double-click the *Add/Remove Programs* icon in the Control Panel. The Add/Remove Program Properties window appears.
4. Select *StorageWorksDMAGENT* located in the window, and then click *Add/Remove*. The computer asks:

Are you sure you want to completely remove the selected application and all of its components?
5. Click *Yes*. The computer removes the Agent.
6. To remove the configuration, Client list, and device list files, change to the directory to which you installed the Device Management Agent and delete the following files (If you delete these files, you will need to reconfigure the Agent during reinstallation.):

Table 8-6
Program Files

File Name	File Type
dmagent.cfg	Configuration
dmclient.ini	Client List
dmdev.cfg	Device List

Configuring the Device Management Agents

This chapter contains instructions on how to configure the Device Management Agents on Windows NT (Alpha and Intel) and on Tru64 UNIX. Topics in this chapter include:

- Client System Access Options
- Client System Notification Options
- Agent Access Password
- Changing the Agent Access Password
- Adding a Client System Entry
- Modifying a Client System Entry
- Deleting a Client System Entry
- Restarting the Agent
- Stopping and Starting the Agent
- Disabling and Enabling Agent Startup at System Boot

Client System Access Options

The access privilege level controls the client system's level of access to the storage subsystems. You can select overall status (no access), detailed status (show level access only), or configuration (storage subsystem configuration capability). The following explains the client system access options:

Table 9-1
Client System Access Options

Options	SWCC Function
Overall Status (No Access)	<ul style="list-style-type: none"> ■ Can use the Client to add a system to a Navigation Tree, set up a pager, and view properties of the controller and the system ■ Cannot use Client to open a Storage Window
Detailed Status (Show Level Access)	<ul style="list-style-type: none"> ■ Can use the Client to open a Storage Window, but you cannot make modifications in that window
Configuration (Storage Subsystem Configuration Capability)	<ul style="list-style-type: none"> ■ Can use the Client to make changes in a Storage Window to modify a subsystem configuration

Client System Notification Options

The notification scheme defines the network protocol to be used by the Agent when notifying the selected client system of a change in the state of a subsystem. The following describes how the Transmission Control Protocol/Internet Protocol (TCP/IP) and the Simple Network Management Protocol (SNMP) work with SWCC:

Table 9-2
Client System Notification Options

Options	SWCC Function
Transmission Control Protocol/Internet Protocol (TCP/IP)	<ul style="list-style-type: none"> ■ Automatically updates the Storage Window of subsystem changes provided AES is running ■ Required for Windows NT event logging and pager notification ■ If you do not select TCP/IP, you will need to refresh the Storage Window to obtain the latest status of a subsystem.
Simple Network Management Protocol (SNMP)	<ul style="list-style-type: none"> ■ Requires you to use an SNMP-monitoring program to view SNMP traps

Agent Access Password

You can change the configuration of a subsystem (for example, upgrade firmware) by using your Agent access password, provided that you have the configuration access privilege level selected.

Configuring the Device Management Agent on Tru64 UNIX

In this section, you will learn how to configure the Device Management Agent by using the Configuration menu. Type the following at the command prompt and then press *RETURN* to access this menu:

```
# /usr/sbin/dmconfig.sh
```

NOTE: When configuring the Agent, log in as root (superuser) and set your path to `/usr/sbin`.

The following is an example of the Configuration menu:

Agent Admin Options:

- 1) Change Agent password
- 2) Start/Stop the Agent
- 3) Toggle Agent Startup at system boot

Client Options:

- 4) Add a Client
- 5) Remove a Client
- 6) Modify a Client
- 7) View Clients
- Q) Quit

Changing the Agent Access Password

The password controls access to operations that modify the Agent configuration. To change the Agent access password for the Device Management Agent on Tru64 UNIX system, perform the following:

1. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```

Press *RETURN*. The Configuration menu appears.

2. To change the Agent access password, type **1** and then press *RETURN*.

A message, telling you to type a new password, appears. Your case-sensitive password must be 4 to 16 characters.

3. Type your new password. Press *RETURN*.

The computer asks you to verify the new password.

4. Type your new password again. Press *RETURN*.

The computer tells you that the password has been changed.

5. Press *RETURN* for the Configuration menu.

6. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the Agent on Tru64 UNIX."

Adding a Client System Entry

For a client system to receive updates from the Agent, you must add the client system to the Agent's list of client systems. The Agent will only send information to client systems that are on this list. In addition, adding a client system entry allows you to access the agent system from the Navigation Tree on that client system. The following steps tell you how to add a client system entry:

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. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```

Press *RETURN*. The Configuration menu appears.

2. To add a client system entry, type **4** and then press *RETURN*.

A message, asking you to type the name of the client system, appears.

3. Type the name for the new client system and then press *RETURN*.

The computer displays the following menu:

- 0 = Overall Status
- 1 = Detailed Status
- 2 = Configuration

For a definition of each access privilege level, read the section, "Client System Access Options," located at the beginning of this chapter.

4. Type the access level for the client system, and then press *RETURN*.

The computer displays the following menu:

- 0 = No Error Notification
- 1 = Notification via a TCP/IP Socket
- 2 = Notification via the SNMP Protocol
- 3 = Notification via both TCP/IP and SNMP

For a definition of the client system notification options, read the section, "Client System Notification Options," located at the beginning of this chapter.

5. Type an error notification scheme for the client system entry, and then press *RETURN*.

The computer displays the entered information and asks you if the entered information is correct.

6. If the information is correct, type **y** and then press *RETURN*.

You are asked if you want to add another client system entry.

7. Type **n** and then press *RETURN* for the Configuration menu.

8. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the Agent on Tru64 UNIX."

Modifying a Client System Entry

Instructions for changing a client system's access level and error notification scheme are as follows:

1. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```

Press *RETURN*. The Configuration menu appears.

2. Type **6** to modify a Client. Press *RETURN*.

The computer displays the added client system entries with their access level and error notification scheme. You are then asked for the entry that you want to modify.

3. Type the client system's name and then press *RETURN*.

The current settings of the Client are displayed, as shown in the following example:

Current settings for client 'rain.tre.wet.com' are:

- 1) Access level - Configuration
- 2) Error notification scheme - Notification via the SNMP protocol

Which entry would you like to change (c to cancel, d if done)?

4. To change the current access level of the client system, type **1** and then press *RETURN*. You have three choices:

0 = Overall Status

1 = Detailed Status

2 = Configuration

For a definition of each access privilege level, read the section, "Client System Access Options," located at the beginning of this chapter.

5. Type the corresponding number for a new access level for the client system, for example **1**. Press *RETURN*.

6. To change the error notification scheme, type the **2** and then press *RETURN*. The software displays the following menu:

0 = No Error Notification
 1 = Notification via a TCP/IP Socket
 2 = Notification via the SNMP Protocol
 3 = Notification via both TCP/IP and SNMP

For a definition of each access privilege level, read the section, “Client System Access Options,” located at the beginning of this chapter.

7. At the command prompt, type the new error notification scheme for the client system, for example **2**. Press *RETURN*. The software displays the new settings for the client system.
8. If you are finished, type **d** and then press *RETURN*. You return to the Configuration menu.
9. Restart the Agent for your changes to take effect. For instructions, refer to the section, “Restarting the Agent on Tru64 UNIX.”

Removing a Client System Entry

When you remove a client system entry from the Agent’s list, the Agent stops sending updates to that client system and you are unable to access this agent system from the Navigation Tree. The following instructions tell you how to remove a client system entry:

1. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```

Press *RETURN*. The Configuration menu appears.

2. To remove a client system entry, type **5** and then press *RETURN*.

The computer displays the added client system entries with their access level and error notification scheme. You are then asked for the entry that you want to remove.

3. Type the name of the client system entry that you want to remove, and then press *RETURN*. A message, asking if you are sure about removing the client system, appears.
4. To remove the client system entry, type **y** and then press *RETURN*.
5. Press *RETURN* for the Configuration menu.

6. Restart the Agent for your changes to take effect. For instructions, refer to the section, "Restarting the Agent on Tru64 UNIX."

Viewing the Authorized Client List

To view a list of the client systems that are authorized to access the Device Management Agent, follow these steps:

1. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```
2. Press *RETURN*. The Configuration menu appears.
3. Type **7** to view the Clients. Press *RETURN*.

A list of Clients authorized to access the Agent appears.

4. Press *RETURN* for the Configuration menu.

Restarting the Agent on Tru64 UNIX

You must restart the Agent after making any changes to the configuration. To restart the Agent perform the following steps:

1. Verify that the Device Management Storage Windows on all of your client systems are closed.
2. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```
3. To restart the Agent, type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to stop or restart the Device Management Agent.
4. Type **r** and then press *RETURN*. The Agent is restarted.
5. Press *RETURN* for the Configuration menu.

Stopping the Agent

You will need to stop the Agent before you remove the Agent software. To stop the Agent, perform the following:

1. Verify that the Device Management Storage Windows on all of your client systems are closed.
2. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```

Press *RETURN*. The Configuration menu appears.

3. To stop the Agent, type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to stop or restart the Device Management Agent.
4. Type **s** and then press *RETURN*. The software stops the Agent.
5. Press *RETURN* for the Configuration menu.

Starting the Agent

To start the Agent, perform the following:

1. Verify that the Device Management Storage Windows on all of your client systems are closed.
2. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```

Press *RETURN*. The Configuration menu appears.

3. To start the Agent, type **2** and then press *RETURN*. You are given the status of the Agent and asked if you would like to start the Device Management Agent.
4. Type **y** and then press *RETURN*. The software starts the Agent.
5. Press *RETURN* for the Configuration menu.

Disabling and Enabling the Agent Startup at System Boot

The default is for the Agent to start at system boot; however, you may want to change this option. If you need to check your system for faults, you may not want the Agent to start at boot time. The following instructions tell you how to change the default:

1. At the command prompt, type the following:

```
# /usr/sbin/dmconfig.sh
```

Press *RETURN*. The Configuration menu appears.

2. To disable the Agent startup at system boot, type **3** and then press *RETURN*. You are told the status of the startup at system boot, and you are asked if you would like to disable this option.
3. Type **y** and then press *RETURN*. The Agent will not start at system boot. You will need to start the Agent manually.
4. Press *RETURN* for the Configuration menu.
5. You can return the Agent startup option to the system default by repeating steps 1 through 4. When you repeat the steps, you will be asked if you want to enable the Agent startup at system boot.

Configuring the Device Management Agent on Windows NT

Click the Device Management Agent Configure entry in *Start|Programs|StorageWorks* to add Clients, change security options, and modify network ports. When you first install the Windows NT Agent, the host is automatically registered as a Client with full privileges.

Changing the Agent Access Password

The password controls access to operations that modify the Agent configuration. To change the Agent access password, follow these steps:

1. Click the Device Management Agent Configure entry in *Start|Programs|StorageWorks*. The Agent Configuration Utility window appears.
2. Click *Password*. The software displays the Password window, showing one field for entering your new password and another for verifying it.

3. Type your case-sensitive password in the New field, and retype it in the Verification field. The password must have 4 to 16 characters.
4. Click OK. The following message appears:
Password Validation Successful.
5. Click OK. You return to the Agent Configuration Utility window.
6. Click Exit to leave the Agent Configuration Utility window.

NOTE: You must stop and restart the Agent for your changes to take effect. For instructions, see the section, "Stopping and Starting the Device Management Agent."

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 systems that are on this list. In addition, adding a client system entry allows you to access the agent system from the Navigation Tree on that client system. To add a client system entry, follow these instructions:

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. Click the Device Management Agent Configure entry in *Start|Programs|StorageWorks*. The Agent Configuration Utility window appears.
2. Click Clients. The Client window appears.
3. Type the name of the client system entry in the Selected Clients field.
4. Select the *Notification Scheme*: TCP/IP and/or SNMP.
5. Select an *Access Privilege Level*. For a definition of each access privilege level, read the section, "Client System Access Options," located at the beginning of this chapter.
6. Click Add Client to add the client system entry to the Client list.
7. Click OK to confirm your addition. You return to the Agent Configuration Utility window.
8. Click Exit to leave the Agent Configuration Utility window.

NOTE: You must stop and restart the Agent for your changes to take effect. For instructions, see the section, "Stopping and Starting the Device Management Agent."

Modifying a Client System Entry

This section contains instructions on how to modify a client system entry on Windows NT.

1. Click the Agent Configure entry in *Start|Programs|StorageWorks*. The Agent Configuration Utility window appears.
2. Click Clients. The Client window appears.
3. Select the Client that you want to modify in the Client list.
4. Change the client system access privilege level and/or its notification scheme.
5. Click Modify Client.
6. Click OK to confirm your changes. You return to the Agent Configuration Utility window.
7. Click Exit to leave the Agent Configuration Utility window.

NOTE: You must stop and restart the Agent for your changes to take effect. For instructions, see the section, "Stopping and Starting the Device Management Agent."

Deleting a Client System Entry

When you remove a client system entry from the Agent's list, the Agent stops sending updates to that client system and you are unable to access this agent system from the Navigation Tree. This section contains instructions on how to delete a client system entry on Windows NT.

1. Click the Agent Configure entry in *Start|Programs|StorageWorks*. The Agent Configuration Utility window appears.
2. Click Clients. The Client window appears.
3. Select the client system entry to delete in the Client list.
4. Click Delete Client. The client system entry is deleted.
5. Click OK to confirm the deletion. You return to the Agent Configuration Utility window.
6. Click Exit to leave the Agent Configuration Utility window.

NOTE: You must stop and restart the Agent for your changes to take effect. For instructions, see the section, "Stopping and Starting the Device Management Agent."

Stopping and Starting the Device Management Agent

This section contains instructions on how to stop and then start the Device Management Agent:

1. Verify that the Device Management Storage Windows on all of your client systems are closed.
2. Click Control Panel, double-click Services, and select SWCC Dev Mgmt Agent.
3. To stop the Agent, click *S*top. The computer asks the following:
Are you sure you want to stop the SWCC Dev Mgmt Agent service?
4. Click *Y*es. The computer says it is attempting to stop the service.
5. To start the Agent, click *S*tart.

Disabling and Enabling the Agent Startup at System Boot

The default is for the Agent to start at system boot; however, you may want to change this option. For example, if you need to check your system, you may not want the Agent to start at system boot. The following instructions tell you how to change the default:

1. Open the Services window (*Start|Settings|Control Panel|Services*), and double-click on the entry for the Device Management Agent. The Service window appears.
2. Select Manual under Startup Type, and click *O*K.

NOTE: If you want to enable the Device Management Agent to start at system boot, you need to change the startup type to automatic.

Chapter 10

Setting Up ServerWORKS Support

Command Console provides two methods of using ServerWORKS. The first allows you to launch Command Console from the ServerWORKS toolbar for a selected node. The second allows ServerWORKS to receive SNMP traps from Command Console Agents.



CAUTION: Do not install StorageWorks Command Console from the ServerWORKS CD-ROM because it contains an older version of the program.

Starting SWCC from the ServerWORKS Toolbar

To start Command Console from the ServerWORKS toolbar, you must configure the agent system and the client system. The following sections, “Configuring the Agent System” and “Configuring the Client System,” tell you how to do this.

Configuring the Agent System

On the agent system, the system connected to the storage devices, you must install the following:

- The ServerWORKS Agent
- The Command Console Agents

Configuring the Client System

On the client system, you must do the following:

1. Install the ServerWORKS Client software on a computer that has the Intel platform.
2. Install the Command Console Client software on a computer that has Windows 98, Windows 95, or Windows NT (Intel). Exit out of all programs running on your computer.
3. Copy the integration programs from the CD-ROM or Web.

The integration files are in the \NTIntel\srwrwrks directory, either on the SWCC CD-ROM or in the Web distribution self-extracting zip file SWCC21CLIENT.EXE. Copy the files from that directory to the directory to which Command Console was installed (the directory that contains the file swcc.exe).

As an example, if your CD-ROM is drive E: and you installed Command Console to the default location, you would copy

E:\NTIntel\srwrwrks*. * to C:\Program Files\swcc*. *

4. Run the integration program, SWInt32, and specify the directory to which Command Console is installed. As an example:

```
SWInt32 C:\progra~1\SWCC
```

NOTE: Directory names longer than eight characters must be shortened to the eight character by three character form (12345678.123), as an example:

C:\program_files\SWCC would be shortened to C:\progra~1\SWCC.

5. Start ServerWORKS and find systems (refer to ServerWORKS documentation for details on this operation).
6. Nodes with Command Console Agents will display the Command Console icon in the toolbar. Click that icon to launch Command Console.
7. Before removing Command Console, run the SWDis32 program to remove the ServerWORKS integration.

About Command Console SNMP Traps

Command Console provides support for Compaq ServerWORKS by sending alarms to ServerWORKS when events occur. When a Command Console Agent detects an event with a controller, virtual disk, or physical device, it generates SNMP traps and sends them to ServerWORKS. These traps are standard traps. Although ServerWORKS provides a means of executing some action when an alarm occurs, Command Console does not support the automatic launching of Command Console when an alarm occurs.

Command Console Agents generate SNMP traps that specify:

- Category (subsystem, virtual disk, or physical device)
- Computer (where event occurred)
- Date
- Description of the event
- Severity level (error, warning, or informational)
- Source (will always be Command Console)
- Time
- User

Manually Configuring an Agent to Send SNMP Traps

You can manually configure an Agent to send SNMP traps to a host running ServerWORKS. Refer to the appropriate Agent configuration section for adding a ServerWORKS client system name and SNMP notification.

About Tuning Fault Notification

Because an inactive system has the ability to force time-outs that slow Client responses to your commands, consider removing any unused client system names from each of your Agent configurations to establish a faster fault notification. Also, ensure that you are not using event notification while using RAS connections.

Adding the RA200 MIB

ServerWORKS allows you to add a management information base, which is a database containing all of the systems that Command Console manages. To add Command Console support to ServerWORKS, follow these steps:

NOTE: You need to install the Command Console Client on Windows 98, Windows 95, or Windows NT (Intel) before setting up ServerWORKS support.

1. Start ServerWORKS.
2. From the *Tools* menu, select the *MIB Enroller*.
3. From the *Compile* menu, select the *MIB Compiler*.
4. Click *OK* to the warning about compiling a new MIB group.
5. In the MIB compiler, select *File* and then *Open*.
6. Choose the file `swccv2.mib` in the `swcc\ra200window` subdirectory from the same directory to which you installed the Command Console Client.
7. Select *Enroll* in the MIB Compiler window.
8. Click *OK* to store the MIB in the permanent database.
9. Follow the remaining instructions in the MIB Compiler window.

NOTE: If you need further assistance in compiling the RA200 MIB, refer to ServerWORKS Help.

After you have compiled and enrolled the RA200 MIB, you can define alarms based on the Command Console SNMP traps. For more information about defining alarms, refer to ServerWORKS Help or hard copy documentation.

Usage Notes and Troubleshooting

This appendix describes the following general usage notes and tips for troubleshooting problems for Command Console Client and Agent:

- System Requirements
- General Usage Notes
- Cluster Integration (HS-Series Agents)
- Configuring the Command Console LUN as the Communications LUN (HSZ70 Only)
- Troubleshooting for the RA200 Client and Agents
- Troubleshooting for the HS-Series Client and Agents
- Troubleshooting for the Device Management Client and Agents
- Troubleshooting Connection Problems

System Requirements

This section describes the special considerations for various operating systems and Agents. It contains the following topics:

- Add System Error - Windows 95, Windows 98 Service File
- Enabling RA200 Host Event Logging
- Enabling StorageWorks Fault Management for the RA200
- Firmware Upgrades for the RA200
- Minimal RA200 Driver for Windows NT

- Network Port Assignments
- Reconfiguration After Controller Replacement (HS-Series Agents)
- Requirements for TCP/IP Stacks on OpenVMS Version 7.2
- Running SWXCR and SWXCRMGR Utilities for the RA200 Agents

Add System Error - Windows 95, Windows 98 Service File

You will receive an “Add System Error” message when you try to add or delete a system if you changed the items regarding the system network (for example, removing the network adapter, and then adding it back in) after installing SWCC version 2.1. The error window states: No Agent running on specified host.

This error occurred because the entries for Command Console were removed when Windows 95 or Windows 98 upgraded the \windows\services file. You are still able to access the systems that are already listed in the Navigation Tree without problems.

To fix this problem, reinstall Client or edit the \windows\services file on Windows 98 or Windows 95 and re-enter the following that correspond to your system:

Spgui	4998/tcp	#Command Console
Ccdevmgt	4993/tcp	#Device and Enclosure Management Client and Agent
Emu	4990/tcp	#Environmental Monitoring Unit
Ccfabric	4989/tcp	#Fibre Channel Interconnect Client and 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

The last line in the file must end with a carriage return. The system does not need to be rebooted after editing the services file.

Enabling RA200 Host Event Logging

Version 2.1 RA200 Agents have the ability to retrieve and log certain SCSI information that is useful to Compaq personnel attempting to diagnose problems with the physical devices installed behind your RA200 controller. This function is disabled by default because the information logged can occupy large amounts of disk space and it is generally meaningful to only trained service personnel. If you wish to enable this logging, you perform the following:

Create a file called `RA200EventLogEnable` (no extension) in one of the following directories:

- For Windows 98 and Windows 95: Create the directory, `C:\Windows\System32\SWCCSupLogs`, and create the aforementioned file in it.
- For Windows NT: Create the directory, `C:\Winnt\System32\SWCCSupLogs`, and create the aforementioned file in it.
- For Tru64 UNIX: Create the aforementioned file in the `/var/adm` directory.
- For OpenVMS: Create the aforementioned file in the directory pointed to by the logical `SYS$ERRORLOGS`.

NOTE: If the logical `SYS$ERRORLOGS` is not defined on your OpenVMS operating system, create a directory for your log files and define this logical to point to it prior to enabling this function. Refer to your OpenVMS documentation on how to properly define this logical.

The RA200 Agent will dynamically detect the existence of the `RA200EventLogEnable` file (The contents do not matter.) and enable the logging function accordingly. Restarting the RA200 Agent is not necessary.

Once enabled, any SCSI sense data recorded will be logged to files in the same directory as the `RA200EventLogEnable` file. The log files will be named “`RA200Events_<system_name>_<controller_name>.log`” where `<system_name>` will be the name of the system that the Agent is running on, and `<controller_name>` will be the name of the controller as it is identified by the RA200 Agent. The files will contain formatted ASCII entries that will relay the necessary support information to service personnel.



CAUTION: The log files created can grow rapidly in size if there are many problems with the controller and/or storage devices. Monitor the size of the log files created. Archive or delete them as needed.

Enabling StorageWorks Fault Management for the RA200

Before starting the RA200 Agent, verify that StorageWorks Fault Management is enabled for each KZPAC and KZPSC controller that you want to manage with SWCC.

You must enable StorageWorks Fault Management by using the stand-alone RAID Configuration Utility (RCU) so StorageWorks Command Console can support these controllers.

To enable StorageWorks Fault Management, perform the following:

1. Run the RCU.
2. From the Main menu of the RCU, highlight the *Controller Setup* option by using the arrow keys. Then press *RETURN*.

The Edit/View Parameters menu appears.

3. If necessary, use the arrow keys to highlight *Hardware Parameters*. Then press *RETURN*.

The Hardware Parameters screen appears.

4. Use the arrow keys to highlight *StorageWorks Fault Management*. If this parameter is displayed as Disabled, press *RETURN* to change the setting to Enabled.
5. Press *ESC* to return to the Edit/View Parameters screen. Press *ESC* again. If you made no parameter changes, the Main menu appears.
6. If you changed a controller setting, the RCU will prompt you to save the altered controller configuration. Use the arrow keys to highlight *Yes*, then press *RETURN*. The Main menu appears.
7. For the complete instructions on using the RCU, refer to the manual, "RAID Array 230/Plus Subsystem RAID Configuration Utility - User's Guide," part number AA-R07GA-TE.

Firmware Upgrades for the RA200

Before starting the RA200 Agent, you must first upgrade your RA200 controller's firmware to version 2.49. The firmware is available on the StorageWorks Command Console (SWCC) Web page or from the SWCC CD-ROM.

The SWCC 2.x distribution contains firmware v2.49 for the RA230/230+. The Web firmware distribution consists of two zip files (`fw249axp.zip` for Alpha and `fw249x86.zip` for Intel). On the CD-ROM, the unzipped files are in the following directories: `\kzpxc\fw\alpha` and `\kzpxc\fw\intel`

The firmware upgrade program must be run from an MS-DOS bootable floppy for an Intel platform. For an Alpha platform, the ARC (or AlphaBIOS) console must be used with either an MS-DOS formatted floppy or the SWCC CD-ROM (only supported on some Alpha consoles).

The SWCC CD-ROM and the zip file from the Web page contain the following files:

■ `\KZPXC\Intel`

`readme.txt`

`Ra200fl.exe` Firmware download program for Intel

`Ra200rcu.exe` RCU program for Intel

`SWXCRFWP.249` Revision 249 firmware for RA230/230+

■ `\KZPXC\Alpha`

`readme.txt`

`Ra200fl.exe` Firmware download program for Alpha

`Ra200rcu.exe` RCU program for Alpha

`Ra200srl.exe` Serial RCU for Alpha

`Swxcrfwp.249` Revision 249 firmware for RA230/230+

NOTES:

- For complete installation instructions, refer to the manual, "RAID Array 230/Plus Subsystem RAID Configuration Utility - User's Guide," part number AA-R07GA-TE Appendix A.
- If you mount the above directories from the SWCC CD-ROM onto an OpenVMS operating system, the directories will appear to be empty. This occurs because the OpenVMS operating system cannot read the directories; however, these files are not intended to be used except from the system console.
- Read the following section, "RA200 Firmware Loader Release Notes for AlphaServer 8x00."

RA200 Firmware Loader Release Notes for AlphaServer 8x00

Read the introductory paragraphs in the "Firmware Upgrade" section. Version 3.10A of the RA200fl utility is the only version that should be used on the AlphaServer 8x00.

- If your AlphaServer 8x00 is capable of executing the AlphaBIOS console (Windows NT based systems), then version 3.10A of the RA200fl utility can be run from a CD-ROM or a floppy.
- If your AlphaServer 8x00 has a SRM console (Tru64 UNIX and OpenVMS operating systems), then version 3.10A of the RA200fl utility can only be run from a floppy.

The following is the procedure for running RA200fl from a floppy for the 8x00 Alpha servers that have a SRM console:

1. Type the following at the SRM console to enable the ARC emulation code and then press *RETURN*:

set arc_enable on

2. Type the following at the SRM console to reinitialize the system and then press *RETURN*:

init

The system reinitializes.

3. Type the following at the SRM console and then press *RETURN*:

Set mode advanced

4. Type the following at the SRM console to obtain the name of the floppy and then press *RETURN*:

```
sho dev floppy
```

Assume the command returns the name of the floppy as dva0.

5. Type the following command at the SRM console (replace dva0 with the name that you obtained in step 4) and then press *RETURN*:

```
run fat:ra200fl.exe -d dva0 -p 0 -s "swxcrfwp.249"
```

The computer loads new firmware on the first RA200 in Hose 0.

6. Type the following command on one line at the SRM console (replace dva0 with the name that you obtained in step 4) and then press *RETURN*:

```
run fat:ra200fl.exe -d dva0 -p 1 -s "swxcrfwp.249 swxcrfwp.249 swxcrfwp.249"
```

The computer loads new firmware on the first three RA200 controllers in Hose 1.

To upgrade the firmware, you must run the "fat:ra200fl" for each hose that has RA200 controllers installed. Change the number following the "-p" to specify the different hoses.

The -v option is not available when using the SRM console. This may be supported at a later date.

If you do not have a floppy drive and you have an AlphaServer 8x00 with a SRM console, you will have to move your RA200 controller from your AlphaServer 8x00 to a different system and upgrade the firmware there.

Read the following sections: "Upgrading Controllers on an Alpha platform" and "Upgrading Controllers on an Intel platform."

Upgrading Controllers on an Alpha Platform

Read the introductory paragraphs in the "Firmware Upgrade" section before performing the following steps:

1. On some systems you will be able to upgrade the RA230 or RA230/Plus firmware from the SWCC CD-ROM. Start the ARC (or AlphaBIOS) console on your system. Refer to your system documentation for this procedure. At the ARC menu select *run program* (run the maintenance utility on AlphaBIOS). At the "program to run" prompt, enter the following:

```
cdrom:\kzpxc\fw\alpha\ra200fl <required switches>
```

You may need to replace “cdrom” with the actual path to the CD-ROM device, for example “scsi(0)cdrom(4)fdisk(0)”.

If you do not have the SWCC CD-ROM or if you are using a system that does not understand the command above, you will need to create a floppy with the firmware upgrade utility and firmware image.

2. Obtain an MS-DOS formatted floppy. If you have the SWCC CD-ROM, copy the files from \kzpxc\fw\alpha onto the floppy.

If you want to download the firmware file from the Web, perform the following (This procedure may vary on different systems.):

- a. Go to the following Web site:

[www.compaq.com/products/storageworks/
Storage-Management-Software/command_console.html](http://www.compaq.com/products/storageworks/Storage-Management-Software/command_console.html)

- b. Click download the software.
 - c. Complete the form and check the box for the license terms. Click Continue.
 - d. Click the link for the file that you want to download.
 - e. Click Save File.
 - f. Click Create New Folder, and call your folder firmload. Ensure this new folder receives the file.
 - g. Click Save to download the file.
 - h. Insert a 3½-inch floppy into the computer.
 - i. Unzip the file onto the floppy. For instructions, refer to the documentation for your unzip utility. To find an unzip utility for your platform, go to the section, “Finding an Unzip Utility.”
3. Start the ARC (or AlphaBIOS) console on your system. Refer to your system documentation for this procedure. At the ARC menu, select *run program* (run maintenance utility on AlphaBIOS). At the “program to run” prompt, enter the following:

a:\ra200fl <required switches>

For information on how to run the RA200fl, see “RAID Array 230/Plus Subsystem RAID Configuration Utility - User’s Guide” part number AA-R07GA-TE Appendix A. Instructions for running the RA200 are also included on the SWCC CD-ROM.

4. Follow the steps listed in the section, “Specifying Command-Line Parameters.”

Upgrading Controllers on an Intel Platform

Read the introductory paragraphs in “Firmware Upgrade” before performing the following steps:

1. You will need an MS-DOS bootable floppy to upgrade the controllers.
The easiest way to create this is to make a disk copy of the RAID Array 230/Plus RAID Configuration Utility on an Intel floppy disk. This disk should have accompanied your controller. If you cannot locate this floppy, you can create a bootable disk on an operating system with MS-DOS, Windows 98 or Windows 95 by using the Format/s command. For additional instructions on how to create a bootable floppy, refer to your MS-DOS, Windows 95, or Windows 98 documentation.

If you have the SWCC CD-ROM, perform the following:

- a. Copy the files from \kzpxc\fw\intel to the bootable floppy that you have created.
- b. Select *YES* when asked if you wish to replace the existing files.

If you want to download the firmware file from the Web, perform the following (This procedure may vary on different systems.):

- a. Go to the following Web site:
[www.compaq.com/products/storageworks/
Storage-Management-Software/command_console.html](http://www.compaq.com/products/storageworks/Storage-Management-Software/command_console.html)
- b. Click *download the software*.
- c. Complete the form and check the box for the license terms. Click *Continue*.
- d. Click the link for the file that you want to download.
- e. Click *Save File*.
- f. Click *Create New Folder*, and call your folder firmload. Ensure this new folder receives the file.
- g. Click *Save* to download the file.
- h. Insert a 3½-inch floppy into the computer.
- i. Unzip the file onto the floppy. For instructions, refer to the documentation for your unzip utility.

To find an unzip utility, go to the section, “Finding an Unzip Utility.”

2. Boot your system from the floppy you have created.

If you have created the floppy by copying your RAID Array 230/Plus RAID Configuration Utility floppy, then follow the instructions in the

“RAID Array 230/Plus Subsystem RAID Configuration Utility - User’s Guide” part number AA-R07GA-TE, Appendix A.

If you created a bootable floppy, you will not be given the option of reading the `Readme.txt` file when the system boots. Follow the instructions in the “RAID Array 230/Plus Subsystem RAID Configuration Utility - User’s Guide” as if you answered no to the prompt, asking if you wish to see the `Readme.txt` file. Instructions for running the firmware upgrade program are also on the SWCC CD-ROM.

3. Follow the steps listed in “Specifying Command-Line Parameters.”

Specifying Command-Line Parameters

Read the introductory paragraphs in the “Firmware Upgrade” section.

To upgrade the firmware, you must first shut down the operating system. There are two ways to specify command-line parameters for the firmware download utility:

- An explicit name for the downloaded image for each controller in the system, up to four controllers
- The `-v` option when the same image was used for each controller in the system

With different RA200 controllers, specify the firmware for each.

At the console, run the RA200FL.EXE program, contained on the CD-ROM. Type the following at the prompt:

```
RA200FL.EXE xxxx yyyy zzzz aaaa
```

where `xxxx yyyy zzzz aaaa` are firmware image names, for example, `SWXCRFWP.249`. Dummy parameters can be specified if you do not wish to load the firmware for a specific controller. Leaving `yyyy` in the command above would cause the second controller’s firmware to stay the same.

As an option, you can type the following:

```
RA200FL.EXE -v xxxx
```

where `xxxx` is the revision of the firmware, for example, 249. This will use the same firmware image for each controller in the system.

To run the RAID Configuration Utility (RCU), refer to the manual, “RAID Array 230/Plus Subsystem RAID Configuration Utility - User’s Guide,” part number AA-R07GA-TE, Chapter 1. Contact your Compaq sales representative for additional copies of the manual.

Finding an Unzip Utility

The following versions have been used to unzip the firmware files:

- | | |
|------------------------|---|
| ■ Microsoft Windows NT | Info-ZIP unzip 5.32 (Alpha and Intel) |
| | Winzip 6.3 (Intel native, Alpha
by means of emulation) |
| ■ Microsoft Windows 9x | Info-ZIP unzip 5.32 |
| | Winzip 6.3 |

Always indicate that the unzip utility should retain the directory structure (default for Info-ZIP unzip).

To obtain Info-ZIP unzip for an operating system, go to the following Web site:

www.cdrom.com/pub/infozip/

Minimal RA200 Driver for Windows NT

You should upgrade your RA200 driver to version 4.16.

On the Intel platform, you can find the version of your RA200 driver as follows:

1. Open Windows Explorer.
2. Select the folder WINNT\SYSTEM32\DRIVERS.
3. Right click the file DAC960NT.SYS, and choose *Properties* from the pop-up menu that appears.
4. At the top of the Properties dialog, click the *Version* tab to view the driver's version information for the driver. You will find the version number listed at the top of the property sheet, labeled *File Version*.

The upgraded Intel driver is part of the KZPAC controller kit. For further information on obtaining the drivers, please call 1-800-STORWORK.

Version 4.16 of the Alpha driver correctly supports the KZPSC, KZPAC and KZESC controllers. If you have the version 4.12 driver for the Alpha platform, you should upgrade to the version 4.16 driver. The version 4.12 driver does not correctly support the KZESC controllers.

NOTE: The KZESC controller is not supported by SWCC.

For the Alpha platform, you can find the DAC960 .SYS driver version 4.16 at the following Web site:

www.compaq.com/support/files/alphant/drivers/index.html

Network Port Assignments

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 already 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.

There are two default port numbers, one for Command Console (4998) and the other for the device-specific Agent and Client software. The exception is the software for the RA200 Agent and Client, which has two default network port numbers.

The OpenVMS configuration files add the services entries, not the PCSI installation kit.

The following are the port names and the default numbers as they appear in the services file:

Spgui	4998/tcp	#Command Console
Ccdevmgt	4993/tcp	#Device and Enclosure Management Client and Agent
Emu	4990/tcp	#Environmental Monitoring Unit
Ccfabric	4989/tcp	#Fibre Channel Interconnect Client and 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

Port names and numbers must be exactly the same for all systems that need to communicate with each other on the network, running SWCC.

Reconfiguration After Controller Replacement (HS-Series Agents)

If you replace a controller in your subsystem, you must reconfigure your Agent's storage list to match the new hardware.

Requirements for TCP/IP Stacks on OpenVMS Version 7.2

The following provides the requirements for TCP/IP stacks on OpenVMS version 7.2.

Table A-1 Requirements for TCP/IP Stacks			
TCP/IP Stack	Minimum Version	Supported/ Not Supported	Notes
UCX	4.x	Not Supported	This stack is not supported under OpenVMS version 7.2
TCPIP (formerly UCX)	5	Supported	Minimum ARB_SUPPORT setting of 2. **
MultiNet	4.1B	Supported*	Minimum ARB_SUPPORT setting of 2. **
TCPware	5.3-3	Supported*	Minimum ARB_SUPPORT setting of 2. **

* This stack requires a security patch from Process Software to support OpenVMS version 7.2. Go to www.process.com.

** If you have MultiNet and/or TCPware TCP/IP stacks on your computer, set ARB_SUPPORT to less than 2. ARB_SUPPORT is a security setting for OpenVMS version 7.2. For further information on ARB_SUPPORT, please refer to your documentation on OpenVMS version 7.2.

Running SWXCR and SWXCRMGR Utilities for the RA200 Agents

Do not run RA200 Agents on the same computer with the old SWXCR and SWXCRMGR utilities. If SWXCR, SWXCRMGR, and SWCC are running simultaneously, each utility might not obtain certain state changes and events. This can result in the reporting of erroneous information.

General Usage Notes

This section provides general information on the software to help you understand certain error messages. It contains the following topics:

- Authorization Error When Adding an Agent System
- Delayed Pager and Event Notification on RAS Connections
- Help Files Still Appear After Uninstall
- HS-Series Agent Interaction
- Increasing Screen Space for the Storage Window
- Invalid or Missing Fault Displays and Event Logs
- Pager Notification and Event Logging Continues After Exiting the Command Console Client
- Some Graphics Do Not Scale Well with Large Fonts
- Starting Client with Network Connections
- Storage Window Does Not Display Status Changes
- Windows 95 Memory Leak
- Windows 95 and Windows 98 Monitor Energy Saver Mode

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.

Delayed Pager and Event Notification on RAS Connections

Pager and event notification may be delayed significantly when multiple client systems are using Remote Access Service (RAS) connections. The Agent sends fault messages to each client system listed in the file that contains its list of client systems to notify (for example, `raclient.ini` for the RA200) when a fault occurs. Client systems that are not frequently connected to the network delay this process. The delay occurs because the Agent must wait for its connections to time out before notifying the other client systems.

Move your most important systems, such as the one that performs pager notification, to the top of the list of client systems in the configuration utility and the systems with RAS connections to the bottom. The Agent begins communicating to each client system from the top of this list. This will allow your more important systems to first receive fault messages.

You may also want to deselect the TCP/IP notification scheme for less important systems, especially for those using RAS connections. The Agent is prevented from sending fault messages to client systems without the TCP/IP notification scheme. The client systems that are not configured to received TCP/IP notification will not update their Navigation Tree nor will they generate pager notification for that Agent.

Help Files Still Appear After Uninstall

After you have uninstalled a storage subsystem Client, its help files will still appear. Delete the `CCONSOLE.GID` file, which may be hidden (*Windows Explorer|View|Options|View*).

HS-Series Agent Interaction

If you have an HSZ22 controller connected to a system, the HS-Series Agent for Tru64 UNIX and Windows NT will identify the HSZ22 controller as an HSZ20 whenever it scans for subsystems. These Agents scan for subsystems in two instances: during the installation (Tru64 UNIX and Windows NT) and when you request that it scan for subsystems. There are two ways to handle this interaction:

- Avoid the problem - Shut off the HSZ22 controller during the HS-Series Agent installation. After the installation, turn on the HSZ22 controller and reboot the system.
- Repair the problem - During the installation of the HS-Series Agent, delete the erroneous entry. The installation runs the Agent configuration utility. The second screen of the configuration utility lists the subsystems found during the installation. The HSZ22 entry can be identified by its serial number, by its firmware version, and by the drive used to access the subsystem.

Increasing Screen Space for the Storage Window

It is highly recommended that you run the Client on a monitor that has a minimum of super VGA (SVGA) (800X600) display resolution because the Storage Window requires 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 Storage Window.

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, and Windows NT Event Viewer.

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

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

- For RAS connections - Remote Access Service (RAS) connections are not full time. Events that occur when there is no RAS connection are not logged to the Windows NT Event Logging facility.
- For serial controller connections - There may be a bad or missing serial cable. To repair this situation, replace or plug in the cable.
- For host port SCSI connections - There may be a bad or missing SCSI host cable. There may be no logical units configured on the controller that was selected at the time of Client startup.
- For network connections - Agent may be missing or not running. There may be network discontinuity. The Agent may not be properly configured for your Clients.
- The controller may have halted, reset or hung - To repair this situation, restart or replace the controller.
- The virtual disk being used for communicating with the subsystem is no longer available.

Pager Notification and Event Logging Continues After Exiting the Command Console Client

You may experience continuous paging notification and Windows NT event logging in response to subsystem faults, even though you have exited Command Console Client. This behavior is normal. It is the result of Client starting the paging and event logging activity while it was running.

Client's asynchronous event service (AES) module runs under Windows 98, Windows 95, or Windows NT as a service. It continues to run, even after you have exited the program. The AES module communicates with Agents, and it activates paging and event logging when a subsystem event occurs.

NOTE: When you stop AES on a client system, you are telling the Agent software to no longer send updates to that client system.

To stop paging and event logging on a client system, perform the following:

- Windows NT - Go to *Start|Settings|Control Panel|Services*. Select *AsyncEventSvc* (stands for asynchronous event service), and then click *Stop*.

- Windows 98 and Windows 95 - Go to *Start|Settings|Control Panel|Async Event Service*, and then click *Stop*.

Some Graphics Do Not Scale Well with Large Fonts

It is recommended that small fonts be displayed when using the SWCC client software on Windows 95 and Windows NT. Some of the graphics do not scale as well when large fonts are used.

Starting Client with Network Connections

To start Command Console Client with network connections to your storage subsystems, click *StorageWorks Command Console* in *Start|Programs|Command Console*.

You can also type the following line at a command prompt on Windows 98, Windows 95, or Windows NT to start the Client with network connections:

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

Storage Window Does Not Display Status Changes

When a Storage Window loses a connection with a subsystem, it is unable to display that subsystem's change of status. This is because the Storage Window receives notification for most changing subsystem conditions at monitored intervals.

For example, while the client system's connection is broken with a subsystem, the Storage Window may display old faults that were cleared.

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

- For RAS connections - Remote Access Service (RAS) connections are not full time. Events that occur when there is no RAS connection are not logged to the Windows NT Event Logging facility.

- For serial controller connections - There may be a bad or missing serial cable. To repair this situation, replace or plug in the cable.
- For host port SCSI connections - There may be a bad or missing SCSI host cable. There may be no logical units configured on the controller that was selected at the time of Client startup.
- For network connections - Agent may be missing or not running. There may be network discontinuity. The Agent may not be properly configured for your Clients.
- This controller may have halted, reset or hung - To repair this situation, restart or replace this controller.

Windows 95 Memory Leak

When you run SWCC on Windows 95, the operating system will gradually increase its use of memory, especially when SWCC opens and closes a large number of sockets. Microsoft has released an upgraded version of kernel32.dll that corrects this situation. This file is available from the following website:

www.microsoft.com/windows95/downloads/contents/wuadmintools/s_wunetworkingtools/w95kernel32/default.asp

NOTE: Microsoft may not support the Kernel32 upgrades on all versions of Windows 95. Check Microsoft's website to determine if it is supported for your operating system revision and language kit. Do not install the kernel32 upgrade unless Microsoft supports it.

Windows 95 and Windows 98 Monitor Energy Saver Mode

In certain instances, Command Console may be incompatible with Windows 95 and Windows 98 monitor energy saver mode. If you use Command Console with a Windows 95 (Windows 98) monitor and/or graphic adapter in the "low power" mode, there is a possibility that your system could lock up with a blank screen.

Cluster Integration for the HS-Series Agents

You can integrate SWCC with the Windows NT Server, Enterprise Edition™ (with Microsoft Cluster Server™) so that you can configure and monitor a subsystem within the cluster environment. You will need the following to perform cluster integration:

- A valid, working stable cluster
- An Agent installed on a disk that is on a non-shared SCSI bus
- An Agent on each cluster node of the cluster

Instructions for integrating a Windows NT cluster with SWCC are as follows:

1. Click *S*ettings under the *S*tart menu, then click *C*ontrol Panel. Double-click *S*ervices. The Services window appears.
2. Select *S*team listed in the Service field, and then click the *S*top button. STEAM, which stands for StorageWorks Enterprise Array Manager, is the service name. This action will stop *S*team, and its status will no longer be shown as *S*tarted in the Services window.
3. Click the *S*tartup button. A smaller Services window appears.
4. Select *M*anual, and then click *O*K to disable the automatic starting of the service. You return to the main Services window.
5. Click *C*lose to leave the Services window.
6. Repeat steps 1 through 5 for each cluster node.
7. Click the Cluster Administrator Utility entry under the Administrative Tools group. The program's main screen appears.

NOTE: Microsoft develops Cluster Administrator Utility™. For further information on the software, see Microsoft's documentation.

8. Click your cluster group. The resources that are in your cluster group appear.
9. Verify that the quorum disk is in the cluster group.
10. Right click the cluster group. A drop-down menu appears.
11. Select *N*ew, then *R*esource. The New Resource window appears.
12. Type the SWCC Agent's name and description. Under *R*esource Type choose "Generic Service" from the drop-down menu. Under *G*roup select "cluster group."

13. Click *Next*. The Possible Owners window appears.
14. In the Possible Owners field, select the nodes in your cluster where you want the SWCC Agent to run.
15. Click *Next*. The Dependencies window appears.
16. Select the following resources, then click *Add*: Cluster IP Address, Cluster Name, and quorum disk. This action brings these resources online before starting the SWCC Agent.
17. Click *Next*. The Generic Service Parameters window appears.
18. Type *Steam* in the Service Name field. STEAM stands for StorageWorks Enterprise Array Manager. Leave the Start-up Parameters field empty.
19. Select *Use Network Name for computer name*.
20. Click *Next*. The Registry Replication window appears.
21. Click *Finish*. A message, saying that you have successfully created a generic service resource, appears.

Multiple Communication Lost Messages

AES on a client system monitors each agent system currently in the Client's Navigation Tree. If an Agent fails on any of the systems that AES is monitoring, AES will generate a page and an event log entry for the failed Agent at each polling interval, indicating that communication has been lost. Remove the system entry in the Command Console's Navigation Tree to stop the pages and event log entries.

Event Updates

Any node that you add to the Navigation Tree by using cluster alias and any Storage Window open off of that cluster alias must be manually updated. If you have a pager configured, you will need to add the individual nodes of the cluster to the Navigation Tree for automatic updates.

Multiple Pages

AES may send multiple pages when an Agent moves from a failing node to a better one. When the Agent fails over, a TCP/IP peer reset error may appear in the running Storage Window that had been connected to that Agent.

Configuring the Command Console LUN as the Communications LUN (HSZ70 Only)

This section provides suggestions to prevent errors when configuring the Command Console LUN (CCL), which is not supported on Windows NT. It contains the following topics:

- Enabling and Disabling the Command Console LUN
- The Fixed/Floating Option
- Cautions When Using the Command Console LUN

With a local SCSI or network connection, Command Console communicates with your controller through a communications LUN that you must specify. There must be at least one virtual disk on your subsystem or the Command Console LUN must be enabled, so that the Agent can make a connection with the subsystem. If you want to use the HSZ Storage Window (local SCSI) to connect to a subsystem that has the HSZ70 controller, then you need to create a virtual disk and disable the Command Console LUN. Command Console sees the Command Console LUN as a virtual disk; however, no information can be stored on the Command Console LUN. It is only used for a path of communication between the HSZ70 controller and Command Console.

If you enable the Command Console LUN in your controller, the controller reserves one LUN address for Client or Agent use. The reserved LUN address is displayed in the Communications LUN tab. Refer to your controller hardware guide for further information.

Enabling and Disabling the Command Console LUN



CAUTION: Do not use your controller's Command Line Interpreter (CLI) to disable the Command Console LUN while Command Console is running. You may not only lose communication between the Client and the Agent, but you may also corrupt your data. For most situations, you should leave the Command Console LUN enabled when you use Command Console. If your agent system is running Windows NT, disable the Command Console LUN and create a virtual disk before you run Command Console.

- Using an initial configuration – There may be no virtual disks for Command Console to use because your storage subsystem may be completely unconfigured when you first install it. You cannot configure virtual disks because you cannot establish a connection. The Command Console LUN provides the means to establish that first connection.

Before you run Command Console, enable the Command Console LUN on your controller by using the CLI window. For detailed information on enabling and disabling the Command Console LUN, refer to the release notes in the file, `hszserie.txt`, and your controller documentation.

- **Preserving Virtual Disk IDs** – You may want to disable the Command Console LUN to preserve virtual disk IDs in some operating systems. On Windows NT, for instance, the LUN appears as a drive letter that is otherwise unusable. In this case, you must use your controller's CLI window to configure at least one virtual disk for communication purposes before you run Command Console.
- **Safely Disabling the LUN** – If you want to disable the Command Console LUN while Command Console is connected, ensure that at least one virtual disk remains on your subsystem. Then, exit Client and stop Agent from running. Disable the CCL by using the CLI window. Reconfigure Agent and Client to use the remaining virtual disk for communications.

The Fixed/Floating Option

In Command Console, the Command Console LUN stays at a fixed location if you select the Fixed option. Client reserves the LUN's address, preventing you from using it to create virtual disks by using the Add Virtual Disk wizard.



CAUTION: The Fixed option only works if you are using the Add Virtual Disk wizard. By using the CLI window, you can still overwrite a LUN address occupied by the communications LUN, even if you have the Fixed option selected.

By selecting the Floating option, you can use the LUN address currently occupied by the communications LUN to create a virtual disk. If you use this address, your controller automatically “floats” its Command Console LUN to another address and you will lose communications with your subsystem.

Setting the Fixed/Floating Option

1. Access your controller's property sheets by double-clicking the controller's icon in the Device window. If you have a dual-redundant controller configuration, you can use either controller's property sheets.
2. Click the Communications LUN tab. The operating parameters for the communications LUN are displayed.
3. Click either Floating or Fixed, depending upon your needs.

NOTE: Any changes to your controller configuration require password access. The program prompts you in such cases for the appropriate password on your first attempt to make changes.

Cautions When Using the Command Console LUN

Be aware of the following cautions when using the Command Console LUN:

- If you select Client's Floating option and use the Command Console LUN's address to create a virtual disk, you will lose communication between Client and your Agent. You must then reconfigure and restart your Agent to recognize either the new Command Console LUN address or one of your existing virtual disks for communication purposes.
- Within your controller, the Command Console LUN always floats to another LUN address if you attempt to use its address to create a virtual disk. Client's Floating/Fixed option only affects the way Client presents available LUN combinations to you in the Add Virtual Disk Wizard.

If you restart your controller, its Command Console LUN moves to the lowest, available LUN combination that is not already assigned to a virtual disk. This action occurs regardless of the setting of Client's Floating/Fixed option. If you delete a virtual disk at a LUN address lower than that of the Command Console LUN and subsequently restart the controller, the LUN automatically moves to the lower address. This action will result in loss of communication with your subsystem. You must then reconfigure and restart your Agent to recognize either the new Command Console LUN address or one of your existing virtual disks for communications purposes.

Troubleshooting for RA200 Client and Agents

The following information provides solutions for various problems. For additional troubleshooting, see the `ra200v21.txt` file. This section contains the following topics:

- Changing the RA200 Controller Settings
- Commands from the Storage Window Fail to Reach the RA200 Agent
- Virtual Disk Initialization Warning

Changing the RA200 Controller Settings

To change the controller settings, first shut down your operating system. You can then run the RAID Array 200 Series Stand-Alone Configuration Utility that came with your controller. Run this utility at the console level. Controller parameters that you can modify include the following:

- Battery backup (enable or disable)
- Command tagging (enable or disable)
- Controller read ahead (enable or disable)
- Default rebuild rate
- Delay the interval the controller waits before spinning up the next number of devices
- Device spin up option (automatic or on power up)
- Number of devices to spin up at a time
- SCSI data transfer rate
- StorageWorks Fault Management (enable or disable)
- Stripe size

For more information about controller parameters, refer to the documentation provided with your RA200 Series controller kit.

Commands from the Storage Window Fail to Reach the RA200 Agent

Whenever you stop the Agent, you need to close and reopen the RA200 Storage Windows on all client systems to restore the connection. When you stop the Agent, the connection to the RA200 Storage Window is lost. As a result, your Storage Window will not receive messages of failed TCP/IP communications. Your commands from a RA200 Storage Window may also fail to reach the RA200 Agent. When this occurs, you will receive no warnings.

Virtual Disk Initialization Warning

Your data may become corrupt if you allow other applications to access a virtual disk during its initialization. This is because an initialization writes “blank data” to the entire virtual disk. Confirm that the initialization of a RA200 virtual disk is completed before allowing another application to use the disk.

When you used the RA200 Client to create a virtual disk on a remote system, the operating system immediately makes this disk available to all processes. Other processes are able to read data from and write data to the new virtual disk while the RA200 Client initializes the disk.

Initialization of Logical Drive Will Take Some Time

To reduce the resources needed by the RA200 Agent and ensure user initiated inputs/outputs are processed by the RA200 in a reasonable manner, the initialization of logical drives is done in a background process where a small number of inputs/outputs are issued every few seconds. This means that initialization of a logical drive may take some time, but inputs/outputs to existing logical drives will not suffer.

Troubleshooting for HS-Series Client and Agents

The following information provides solutions for various situations. For additional troubleshooting, see the `ccclient.txt` file. This section contains the following topics:

- Agent Sensitive to Alphanumeric Names
- Client Hangs When LUN is Deleted
- Command Line Interpreter (CLI) RUN Commands
- Event Notification for Subsystems Connected to a Client System
- HSZterm Utility Interaction Problems
- Invalid Cache Errors

- Mirrored Cache Mode not Retained After Configuration Restore (HSZ-Series Only)
- Storage Window Will Not Open
- Virtual Disk Recovery from a Configuration File
- Warning Message Windows

Agent Sensitive to Alphanumeric Names

Agent may not accept some numeric name forms, particularly those with embedded underscores. If you experience difficulties with a particular node name, change the name of the node to one that Agent will accept.

Client Hangs When LUN Is Deleted

If you delete the logical unit number (LUN) that is used by the communication drive, you will no longer be able to communicate with the controller. You must reassign another LUN to the monitored subsystem before deleting the original LUN.

If you disable the Command Console LUN (HSZ70), the Client may lose its connection with the subsystem. If you wish to disable the communications LUN, you must first reassign another LUN as the communications LUN.

Command Line Interpreter (CLI) RUN Commands

Do not issue RUN commands in the Command Line Interpreter (CLI) window. Instead, input RUN commands from a maintenance terminal connection.

Event Notification for Subsystems Connected to a Client System

To use the event notification features, an Agent must be installed and running. Create a local network connection by running Client and Agent on the same Windows NT host computer. Install each component as if Client was to run on a remote system.

HSZterm Utility Interaction Problems

If you use the HSZterm Utility (Set host/SCSI), do not use the same controller that SWCC is accessing. If this is done, the connection will interfere with SWCC.

Invalid Cache Errors

Your controller module, cache module, and subsystem contain configuration information that is used to keep their activity synchronized. This configuration information is named metadata. The firmware reports an invalid cache error on the affected controller when there is a mismatch between the metadata in the controller module and a cache module containing unwritten data. This mismatch can result in the loss of the unwritten cache data if the error is not cleared properly.

You may lose valid data if you clear unwritten cache data. Client displays a message and prompt box when an invalid cache error occurs. Use the CLI window to clear unwritten cache data as the error is cleared. If you are not sure how to clear unwritten cache data, see the topic “Invalid Cache Errors” in Help.

Mirrored Cache Mode Not Retained After Configuration Restore (HSZ-Series Only)

The mirrored cache setting may not be properly enabled if you restore your controller configuration from a configuration file. Use the CLI window to manually restore the mirrored cache setting.

Storage Window Will Not Open

If you cannot open a Storage Window from the Navigation Tree or in stand-alone mode, the client system access option for the subsystem that you wish to connect to is probably set to Overall Status (0), disabling access to the Storage Window.

Virtual Disk Recovery from a Configuration File

When you delete a virtual disk, the disk's member drives are all reinitialized and data is lost. You cannot restore a virtual disk's data by changing your configuration. A configuration file contains only information about the structure of a virtual disk. It does not hold the disk's data.

Warning Message Windows

You may see "Warning" messages, containing such indications as "Command Execution Error" along with detailed information. The controller software is responding to problems in parsing and executing commands from Client and Agent by sending these messages. These messages indicate problems with the controller, rather than with the software.

Troubleshooting for the Device Management Client and Agents

The following information provides solutions for various problems. For additional troubleshooting, see the `devicem.txt` file. This section contains the following topics:

- "Drive not ready" Message
- ATAPI/IDE Buses and Devices Displayed on the Intel platform
- SCSI Bus Hangs on Reinsertion of Disks

"Drive not ready" Message

The system, where the Device Management Agent is running, may display a dialog box with the following message:

```
dmagent.exe                Drive not ready
```

Storage Windows connected to the Agent will also appear to be hung. The Agent will not operate until you close the dialog box. It may be displayed during one of the following circumstances:

- The Agent performs bus polling before a newly inserted drive has completed spun up.
- Windows NT has not written a signature to the drive.

When there is a configuration change involving the addition of one or more disk drives, it is recommended that you run the Disk Administrator utility to make the operating system aware of the change.

The drive is not ready for use; its door may be open. Check the following drive: `\device\harddisk6\partition0`. Verify that a disk is inserted and that the drive door is closed.

ATAPI/IDE Buses and Devices Displayed on the Intel Platform

Because Windows NT does not differentiate between the ATAPI/IDE and SCSI bus types, the Device Management software will display ATAPI/IDE buses and devices on the Intel platform. The Device Management software is capable of displaying general and vendor specific data for ATAPI devices; however, mode page and firmware upgrade support may not be available.

SCSI Bus Hangs on Reinsertion of Disks

The SCSI bus may hang if you remove and then reinsert a disk that contains file systems known to the Windows NT operating system at boot time, while the computer is operating. Disks without file systems can be removed and reinserted without any adverse side effects to the SCSI bus.

The workaround for this problem is to shutdown the system, power off the storage shelf, and reinsert the disk with the file system into the shelf. Then, turn on the shelf, and boot the system.

Troubleshooting Connection Problems

This section documents known connection problems and suggests some solutions. 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.

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 check 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.

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 Client authorization list is to write a program that runs on the agent system and prints the `h_name` field returned by `gethostbyaddr(<client IP address>)`. Remember, the dynamic IP address allocation is not supported.

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.

Add 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, the solution is not to try the IP address. Fix your DNS server configuration, or if that is correct, confirm the DNS server knows the agent system. If you are not using DNS, make sure the agent system is in the client system's hosts file. Remember, WINS is not supported by SWCC.

"No Agent Running" Message When Adding System to the Navigation Tree

When trying to add a new system to the Navigation Tree, you may receive 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:

- Wrong system name was entered.
- Agents were not installed on the entered system.
- Agents were installed on a system that stopped functioning.
- The specific Client required to support the Agents, running on the agent system, was not installed. For example, if the agent system only has a Fibre Channel Interconnect Agent and the client system has only an HSZ22 Client, the "No Agent Running" message will appear.

To check if 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.

- 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 a SWCC port was already in use. There is a list of port numbers and their default values in “Add System Error – Windows 95, Windows 98 Services File.”
- If you change the network card on a computer running Windows 98 or Windows 95, your services file may be deleted and replaced by the version on the Windows 98 or Windows 95 distribution kit. In this case, you will need to add the entries required for SWCC. For a list of the ports and their defaults, please see “Add System Error – Windows 95, Windows 98 Services File.”

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