



# Quick Setup Guide

**RA8000/ESA12000 Fibre Channel  
Storage Subsystem for Novell NetWare**

## ***Before You Begin***

In this Quick Setup Guide, we tell you how to create an initial hardware configuration for both the Compaq StorageWorks RAID Array 8000 Fibre Channel Storage Subsystem and the Compaq StorageWorks Enterprise Storage Array 12000 Fibre Channel Storage subsystem (the “RA8000/ESA 12000 storage subsystem” or the “storage subsystem”).

To create this configuration you will:

- Install Storage Building Blocks (SBBs) and a Program Card in the RA8000/ESA 12000 controller
- Install a Compaq Fibre Channel Host controller printed circuit board (PCB) in the storage subsystem NetWare server
- Connect the server adapter PCB to the storage subsystem cabinet via a fibre channel hub
- Connect a Windows 95 or Windows NT client to the HSG80 controller to act as a maintenance terminal
- Turn on the AC power to the storage subsystem
- Install device drivers on the NetWare server
- Install the StorageWorks Command Console (SWCC) Client Graphical User Interface on the Windows 95 or Windows NT client
- Configure a Stageset
- Activate the storage system

Unless otherwise noted, the instructions for installing and connecting storage subsystem components are given for the RA8000 pedestal unit, but apply equally to other Compaq cabinet options.

Before you start these steps, follow the instructions on the shipping container to unpack the RA8000/ESA 12000 storage subsystem. Everything you need to create the initial hardware configuration is in the container, except for a flat-blade screwdriver and a #2 Phillips screwdriver.

### **NOTE:**

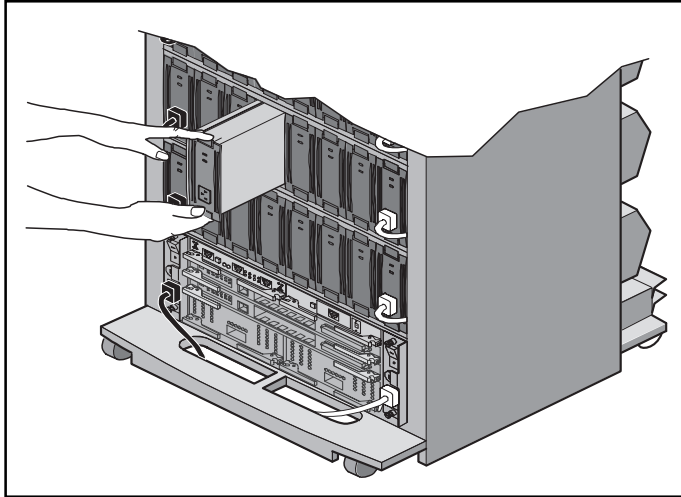
---

You can find complete instructions for unpacking and installing the RA8000/ESA 12000 storage subsystem in the RA8000/ESA 12000 Fibre Channel Solution Software V8.3 for Novell NetWare Install Guide, AA-RFB9A-TE, and the RA8000/ESA 12000 Storage Subsystem User's Guide, EK-SMCPR-UG. A01.

---

# 1

## Install the SBBs and a Program Card

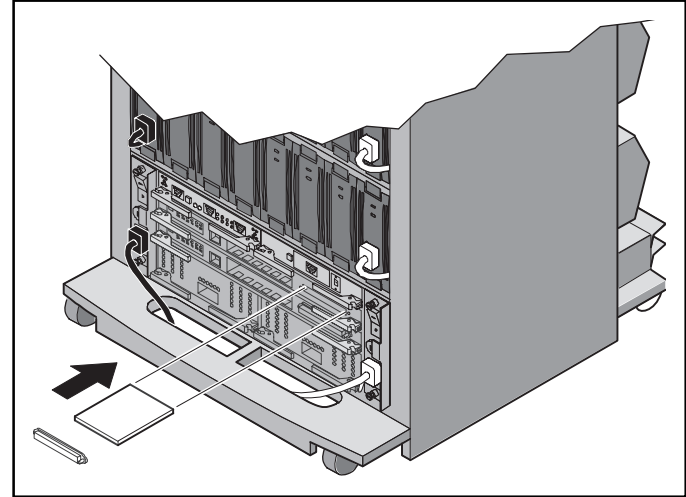


### Install the SBBs in the RA8000/ESA 12000 Storage Subsystem Cabinet

1. Insert an SBB into the shelf guide slots and slide the SBB into the shelf until the mounting tabs snap into place.

#### **NOTE:**

For optimum SCSI bus distribution, install the SBBs from left-to-right and from bottom-to-top.

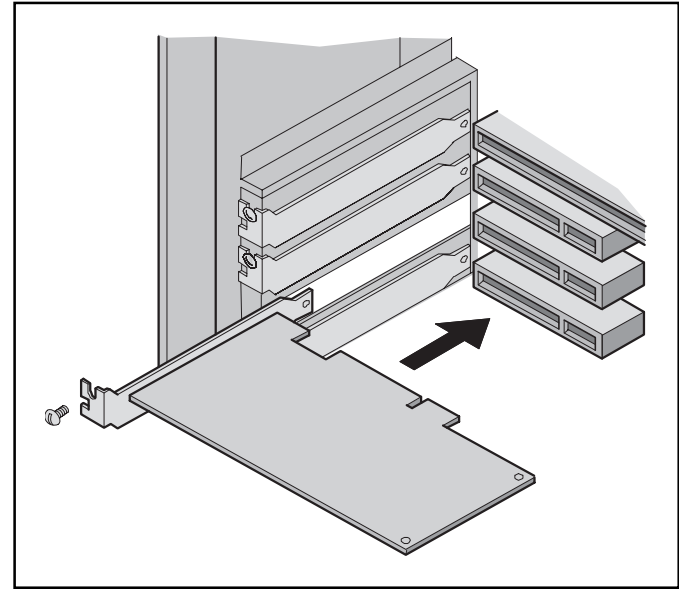
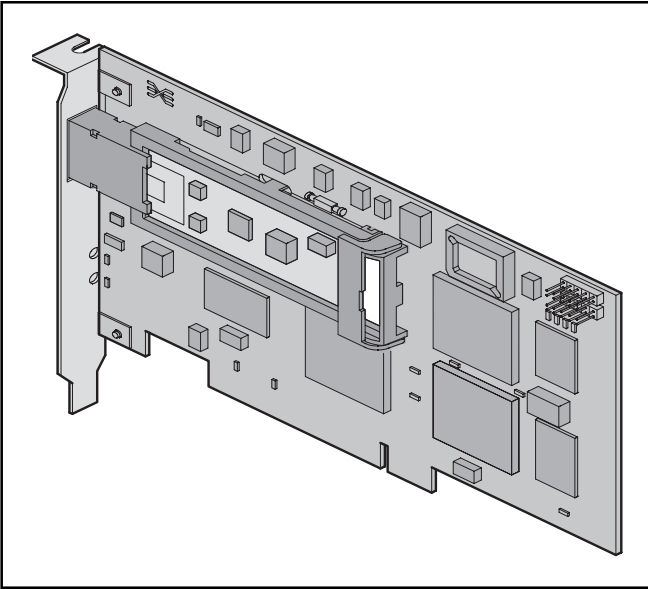


### Install the PCMCIA Card in the HSG80 Controller

1. Remove the ESD cover from the controller PCMCIA slot.
2. Insert the PCMCIA card into the controller slot.
3. Replace the ESD cover over the controller slot.

# 2

## Install the Compaq Fibre Channel Host PCB into Your NetWare Server



### NOTE:

Your adapter PCB may not look like this.

### Turn Off the Server

1. Shut down the operating system running your server.
2. Turn off the power to the server and all attached peripherals.
3. Disconnect power cables from the server.

### Insert the Adapter PCB in the Server

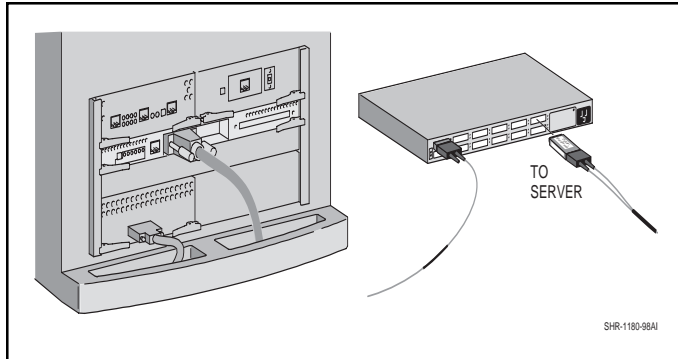
1. Open the server to gain access to the adapter PCB expansion slots.
2. Insert the adapter PCB in an empty PCI expansion slot.
3. Secure the adapter PCB in the slot with the screw provided.

# 3

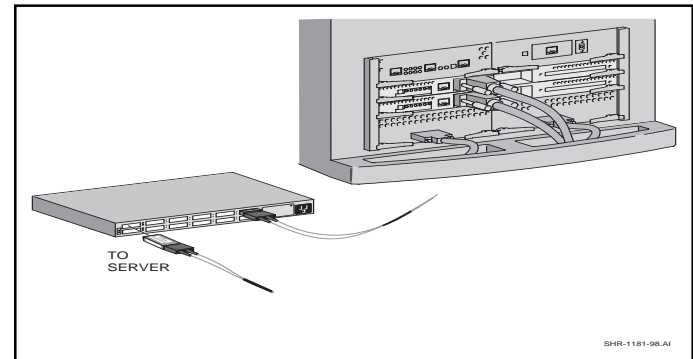
## Connect the Compaq Fibre Channel Host Controller PCB to the Storage Subsystem Cabinet

Connect the Compaq Fibre Channel Host Controller PCB to the hub and the hub to the storage subsystem controller with the fiber cables supplied. Be sure to install a GBIC-SW module on

each end of the cable before connecting the cable. Shown are two possible configurations of RA8000/ESA12000 storage subsystem servers and controllers.



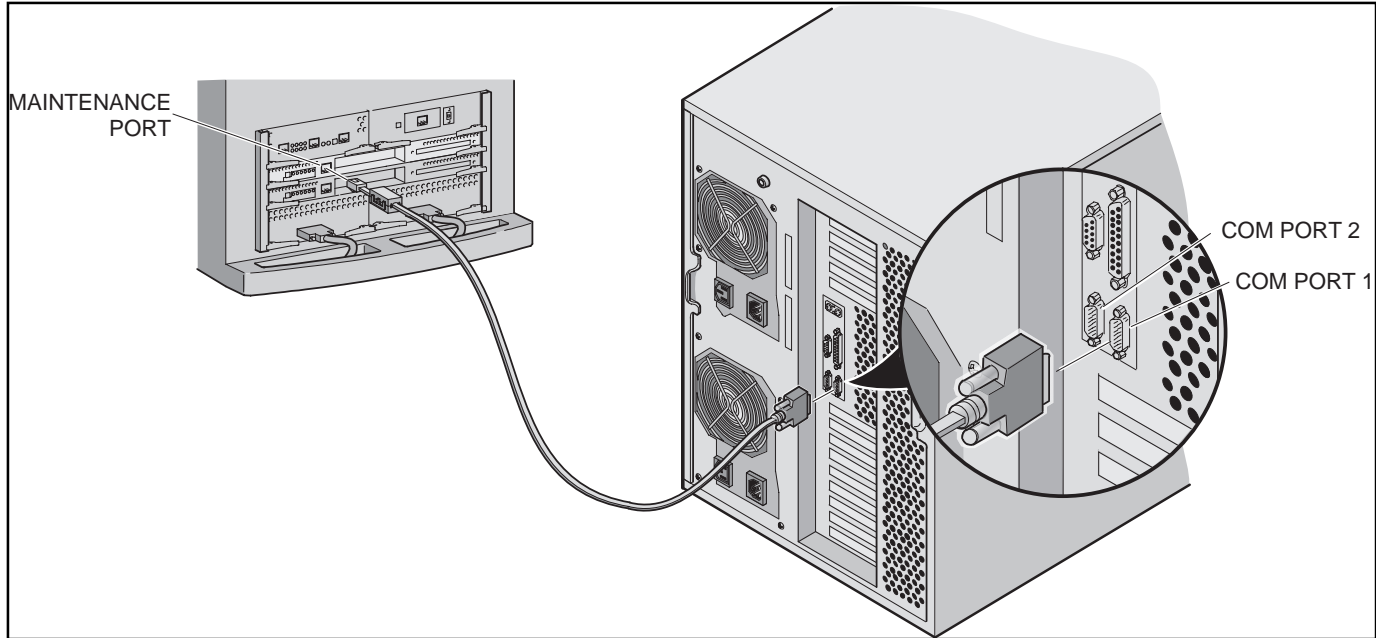
*Single Controller, One Server*



*Dual Controller, One Server*

# 4

## Connect a Windows 95 or Windows NT Client as a Maintenance Terminal



### Connect the Server to the HSG80 Controller to Provide for a Maintenance Terminal

1. Connect the RJ12 connector on the communications cable to the maintenance port on the HSG80 controller.
2. Connect the 9-pin serial connector on the communications cable to either the COM1 or COM2 port on the server.

#### **NOTE:**

Make a note of the serial port you use; you will need to know it when you set up your communication program.

# 5 Turn On the Subsystem Power

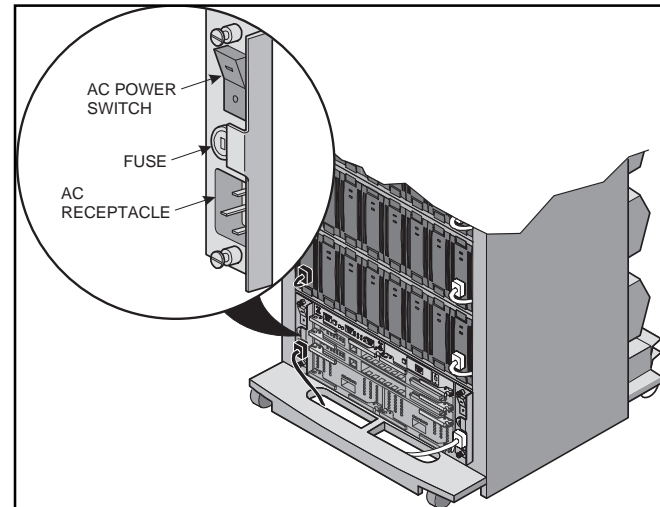
## Connect the Hub to an AC Power Outlet

1. Connect one end of the hub AC power cord to the hub.
2. Connect the other end of the AC power cord to an AC outlet.
3. Turn on the Windows Client.
4. Turn on the Server.
5. Turn on the Storage Subsystem Power:
  - A. Connect one end of the storage subsystem cabinet AC power cord to the cabinet AC receptacle.
  - B. Connect the other end of the power cord to an AC outlet.
  - C. Turn on the AC power switch.

### NOTE:

If your subsystem has two AC power modules, repeat the first three steps. If there are two power sources, ensure the cords are plugged into their associated AC receptacles.

6. When the RESET LED on the HSG80 controller blinks at a rate of once per second, the storage subsystem is testing for anomalies and is functioning properly.



# 6

## ***Install and Launch the Storageworks Command Console (SWCC) Client***

### **Install the SWCC Client**

1. Insert the storage subsystem CD-ROM in the CD-ROM drive on the Windows client.
2. Run Windows *File Manager* or Windows *Explorer*.
3. Move to the folder *drive\_letter:\SWCC\Client*.
4. Choose *Intel client*, then double-click *Setup*.
5. When the setup wizard appears, follow the instructions to complete the installation.

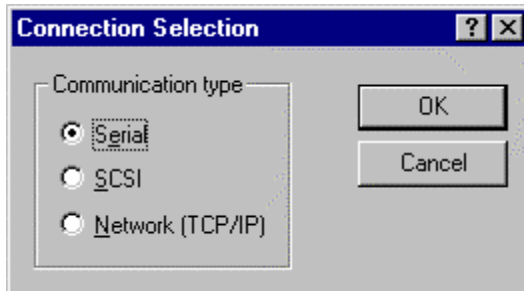
### **Launch the SWCC Client**

1. Click the Windows taskbar *Start* button.
2. Move the pointer to *Programs*.
3. Move the pointer to *Command Console*.
4. Click *Storage Window* to display the *Connection Selection* dialog box.

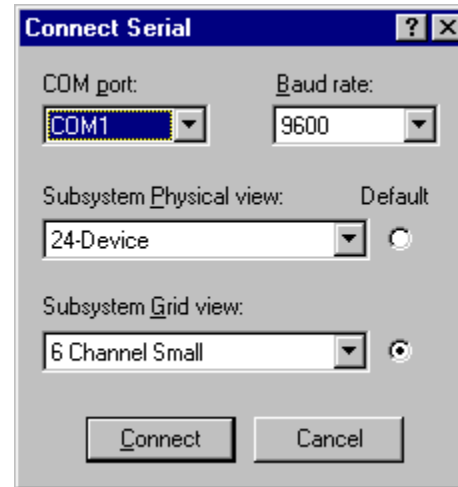


# 7

## Establish Communication Between the Client and the Storage Subsystem



1. When the *Connection Selection* dialog appears, click the *Serial* radio button to display the *Connect Serial* dialog box.
2. Click **OK**.



3. On the *Connect Serial* screen, select the server COM port that the HSG80 controller is connected to (COM1 or COM2).
4. Select a baud rate of 9600.
5. Click the **Connect** button; the Storage Window is displayed, indicating that the communication link has been established between the client and the storage subsystem.

# 8

## Verify Controller Properties

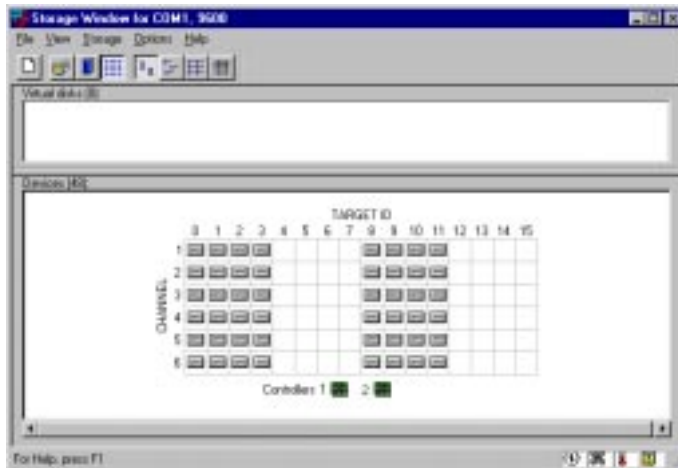
The top windowpane in the Storage Window displays the virtual disks you create. The bottom windowpane displays the devices you have installed in the storage subsystem. To display the devices:

1. Click **Storage** in the Storage Window menu line.
2. Move the pointer down to *Device* and to the right to *Add*.

### NOTE:

If this is your first time running SWCC and you have not named the drives, SWCC may take a few minutes to name them.

3. Click **Add**; SWCC finds installed drives and displays them in a grid by channel and SCSI ID number.



4. Double-click on a controller icon in the Storage Window; the *Controller Properties* screen is displayed.

5. Click on the tabs of the *Controller Properties* screen successively and confirm that the following values are set:

General tab:	Allocation class – 0 SCSI version – SCSI-2
Cache tab:	Cache flush time (seconds) – 10 Respond to internal cache battery condition – selected
Battery tab:	Confirm that the battery is fully charged
Connection tab:	Windows NT – Selected Unit offset – 0 for Port 1

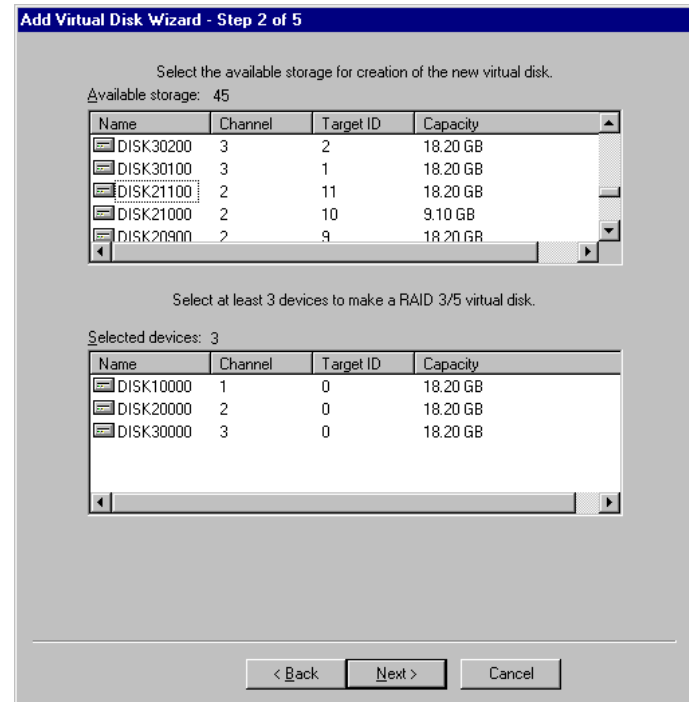
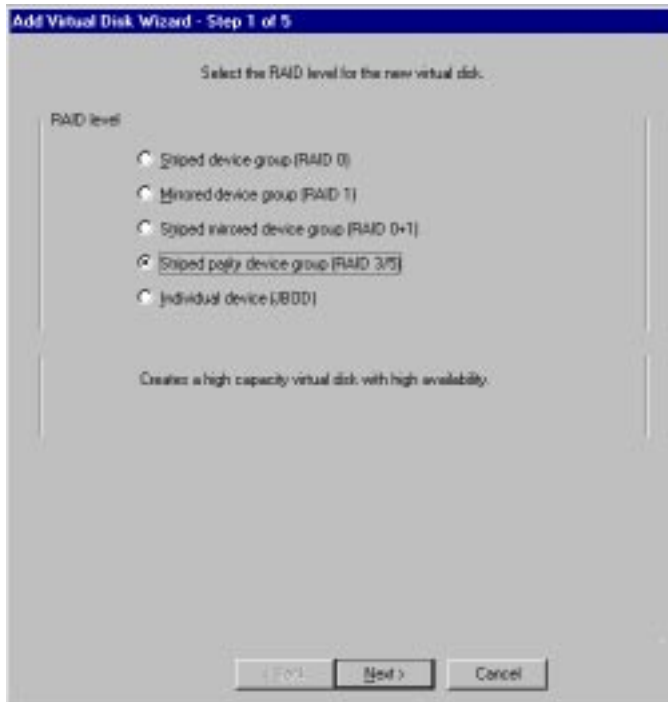
### NOTE:

The Communications LUN is not used with NetWare. You must disable it so that the tab is grayed out. Close the Storage Window and establish a CLI connection as described in Appendix A of the *RA8000/ESA 12000 Fibre Channel Solutions Software V8.3 for Novell NetWare*. At the *Start* menu select *Command Console V2.0*, then *CLI Window*. Click *OK* on the *Connection Selection* window and click *Connect* on the *Connect Serial* window. At the HSG80 prompt type: `set this_controller nocommand_console_lun` to disable the Communications LUN. Return to the *Start* menu and select *HSG80 Storage Window* to re-start the Storage Window.

# 9

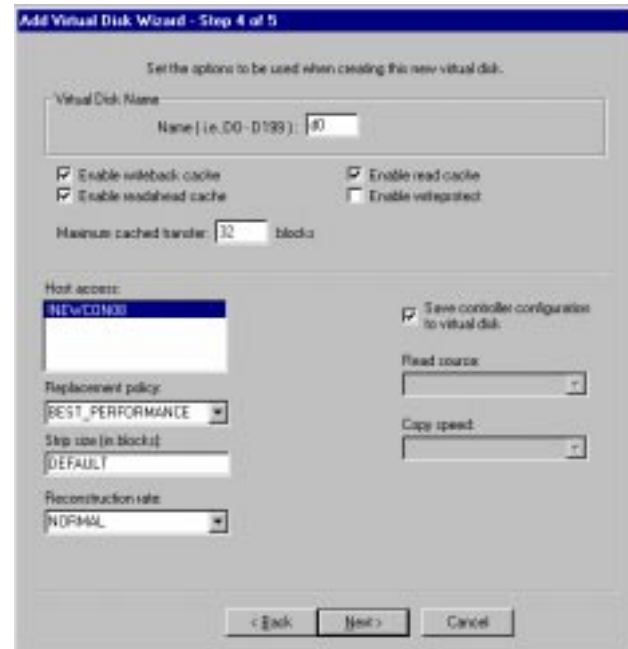
## Configure a Storageset

1. Click *Storage* in the *Storage Window* menu selection line.
2. Select *Add Virtual Disk* from the *Storage* drop-down menu.  
The *Add Virtual Disk Wizard-Step 1 of 5* screen is displayed.
3. Click the striped parity device group (RAID 3/5) radio button.
4. Click *Next*. The *Add Virtual Disk Wizard-Step 2 of 5* screen is displayed.



## 9 Configure a Storageset (Cont'd)

5. Go to the Available Storage windowpane to select the devices you want to include in the virtual disk. As you select a disk, it is listed in the *Selected Devices window-pane*.
6. When all the disks are selected, click **Next**. The *Add Virtual Disk Wizard-Step 3 of 5* screen is displayed.
7. Select the capacity for the virtual disk. You can select the maximum capacity or create partitions by selecting only a portion of the available maximum. If you create partitions, complete all steps for this partition, then access the wizard again, make the same choices, and create another partition.
8. When you have selected the virtual disk capacity, click **Next**. The *Add Virtual Disk Wizard-Step 4 of 5* is displayed.



## 9 Configure a Storageset (Cont'd)

9. Enter the virtual disk name. NetWare recognizes D0 through D99.
10. Click on the checkbox *Save controller configuration to virtual disk*.
11. Click **Next**. The *Add Virtual Disk Wizard-Step 5 of 5* is displayed.

**Add Virtual Disk Wizard - Step 5 of 5**

A virtual disk with the following characteristics will be created on the subsystem:

Characteristics:

RAID level:	3/5 (striped)	Virtual Disk Name:	d0
Capacity:	36.41 GB	Write-back cache:	ON
Lun ID Alias:	NONE	Readahead cache:	ON
Save configuration:	ON	Read cache:	ON
Member devices:	3	Write protect:	OFF
Max cached transfer:	32		

Name	Channel	Target ...	Capacity
DISK10000	1	0	18.20 GB
DISK20000	2	0	18.20 GB
DISK30000	3	0	18.20 GB

Replacement policy: BEST\_PERFORMANCE  
 Strip size: DEFAULT  
 Reconstruction rate: NORMAL

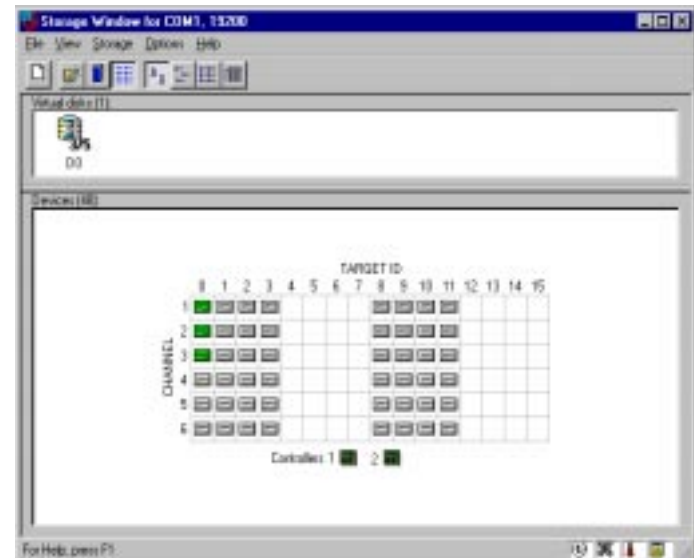
Host access:

If you are satisfied with these characteristics, select Finish to create the virtual disk.

< Back   Finish   Cancel

This screen recaps your choices. If you are not satisfied, you can return to the applicable wizard step using the *Back* button (if you change the choices, be sure to click again on the *Save controller configuration to virtual disk* box in Step 4). When you are satisfied with your choices click *Finish*.

When you return to the Storage Window, the virtual disk you created is shown in the virtual disk windowpane. The hour glass on the disk icon indicates the configuration is being initialized. It disappears within an hour. The drives you used to create the RAIDset are highlighted in the Devices windowpane.



# 10

## Configure Your Novell NetWare Host

---

**NOTE:**

To configure your RA 8000 Fibre Channel subsystem for access from two hosts, perform the procedures below on both hosts systems.

---

### Installing the Device Driver

Install the Novell NetWare Driver on the server from either the SmartStart CD or from the RA8000/ESA 12000 Solution Software V8.3 for the Novell NetWare CD. To perform either of these procedures, follow the installation instructions below.

---

**NOTE:**

Your adapter package and the RA8000/ESA 12000 Solution Software V8.3 for Novell NetWare both include the required adapter-specific software. Use only the adapters and drivers supplied, since these are tested and certified to function with the RA8000/ESA 12000 HSG80 controller.

---

### Installing the Novell NetWare Driver on the Server from the SmartStart CD

1. From the NetWare 4.x console, type “Load Install” or from the NetWare 5.x console, type “Load NWconfig”.
2. Select *Product Options* from the menu and press **Enter**.
3. Select *Install a Product Not Listed* and press **Enter**.
4. Press **F3** to specify a different path.
5. Insert the Compaq SmartStart and Support Software CD-ROM V4.23 or later into the server’s CD-ROM drive.

6. Execute one of the following procedures:
  - Either mount the CD-ROM as a NetWare volume and enter the path “CPQSMST423:\CPQSUPSW\NSSD” and press **Enter**. Volume name will vary pending SmartStart version.
  - Or, if the DOS CD-ROM driver support is loaded, enter the path “<CD-ROM drive letter>:\CPQSUPSW\NSSD” and press **Enter**.
7. Press **Enter** to proceed past the *Welcome* screen.
8. Select *Compaq NWPA Storage Support* from the menu by scrolling cursor to it and press **F5** to mark the selection.
9. To access the main menu, press **Tab**.
10. To select *Install Selected Files*, press **Enter**.
11. After reviewing the Install Results, press **Enter**.
12. Select *To Reboot Server* and follow the instructions displayed on the screen to install the upgraded or new device drivers loaded on the server.

---

**NOTE:**

The STARTUP.NCF file will automatically be updated with the appropriate driver load statements.

---

### **Installing the Novell NetWare Driver from the RA8000/ESA 12000 Solution Software V8.3 for the Novell NetWare CD**

1. Mount the RA8000\_V83\_NW CD as a NetWare volume.
2. Type “Load Install” from the NetWare 4x console or type “Load NWCONFIG” from the NetWare 5.0 console.
3. Select *Driver Options* from the menu and press **Enter**.
4. Select *Configure Disk and Storage Device Drivers* from the menu and press **Enter**.
5. Select *Additional Drivers* from the menu and press **Enter**.
6. Press the **Insert** key to Install the Unlist Driver.
7. Press **F3** to specify an additional path.
8. Type the following path to the driver:  
“RA8000\_V83\_NW:CPQFC\”.
9. Select *CPQFC.HAM* and select *Yes* to copy the driver to the default server boot path C:\NWSERVER.
10. Select *Save the parameters and load the driver*.
11. Select *Load additional driver*.
12. Select *CPQSHD.CDM* and select *Yes* to copy the driver to the default server boot path :\NWSERVER.
13. Select *Save the parameter and load the driver*.
14. Type “Scan for new devices” from the NetWare 4.0 console or type “Scan all” from the NetWare 5.0 console.
15. Type “List Devices” from the console.
16. If a storageset is configured on the RA8000, it will be listed as “Compaq StorageWorks FC Array Disk Idx LUNy,” where x is the ID number and y is the lun number.

---

**NOTE:**

The STARTUP.NCF file will automatically be updated with the appropriate driver-loaded statements.

---

### **Completing Your Configuration under Novell NetWare**

Novell NetWare will recognize new RA8000/ESA 12000 Fibre Channel Storage subsystem devices or changes to existing configurations. You do not need to restart the NetWare server.

# 10

## Configure Your Novell NetWare Host (Cont'd)

### Configure a NetWare Volume on the Storageset for NetWare 5.0

1. From the NetWare 5.x console, type “load NWconfig”.
2. Select *Disk Options*.
3. Select *Modify disk partitions and Hot Fix*.
4. When the *Available Disk Drives* screen is displayed, select *Compaq StorageWorks FC Array Disk x Lun y*.

#### NOTES:

---

*x* is a number that is created by the driver to signify the HSG80 port and *y* represents the Storageset Lun number.

---

5. Select *Create NetWare disk partition* and press **F10**.
6. To create the NetWare partition, select *Yes*.
7. To continue to the *Available Installation Disk Options* screen, press the **Esc** key two times.
8. Select *NetWare Volume Options* from the *Available Disk Options* menu.
9. To add NetWare Volume, press the **Insert** key.
10. Select the newly created NetWare partition and press **Enter**.
11. Select *Make this segment a new volume*, or *Add this segment to an existing volume*.

12. Provide a NetWare volume name in the text box and press **Enter**.
13. To save the volume name, press **F10**.
14. To exit the Volume creation menu, press **F10**, then the **Esc** key.
15. To save volume changes, select *Yes*.
16. Enter your administrator password.
17. Select *Mount all volumes* and press the **Esc** key.
18. To exit NWconfig, select *Yes*.

To delete NetWare volumes and partitions prior to deleting or reconfiguring Compaq StorageWorks virtual disks, type “NWCONFIG.”

#### NOTE:

---

Prior to deleting or reconfiguring Compaq StorageWorks virtual disks, you must delete NetWare volumes and partitions residing on them using INSTALL.NLM or NWCONFIG.NLM.

---

### Congratulations!

You have now completed all the steps required to create an initial hardware configuration for your controller. Compaq recommends that you verify and record your configuration for future reference.