

Compaq StorageWorks

Enterprise/Modular Storage RAID Array for Novell
NetWare
Quick Setup Guide

AA-RFB7B-TE

(October 2001)

COMPAQ

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Printed in the U.S.A.

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Before you Begin

In this Quick Setup Guide, we tell you how to create an initial hardware/software configuration for the Enterprise/Modular Storage RAID Array.

To create this configuration you will:

- Install a Compaq Fibre Channel Host Bus Adapter (HBA) in the storage subsystem NetWare server
- Connect the server HBA to the storage subsystem cabinet via a fibre channel hub or switched SAN
- Connect a Windows NT or Windows 2000 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 NT or Windows 2000 client
- Configure a Storageset
- Activate the storage system

Unless otherwise noted, the instructions for installing and connecting storage subsystem components are given for the 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 Enterprise/Modular Storage RAID Array. 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 Novell NetWare Install Guide.

Install the SBBs and a Program Card

Install the SBBs in the Enterprise/Modular Storage RAID Array Cabinet

1. Insert a StorageWorks Building Block (SBB) into the shelf guide slots and slide the SBB into the shelf until the mounting tabs snap into place. The illustration below is only an example your configuration may differ.

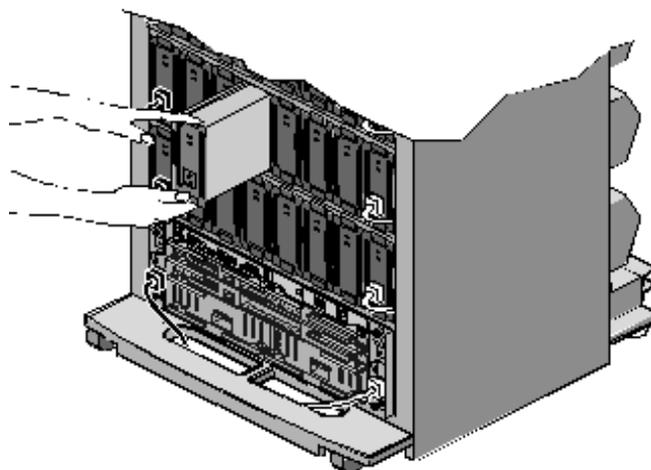


Figure 2-1:

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.

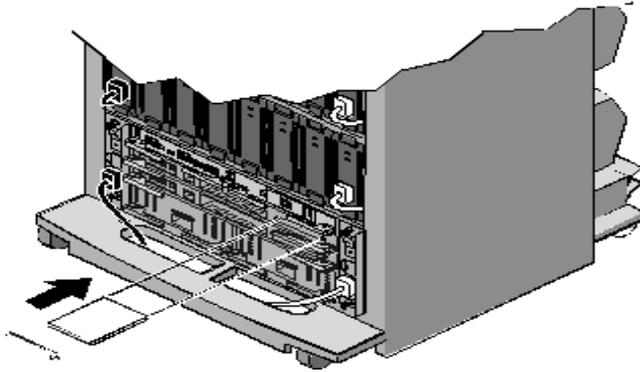


Figure 2-2:

Install Fibre Channel Host Bus Adapter into NetWare Server

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.

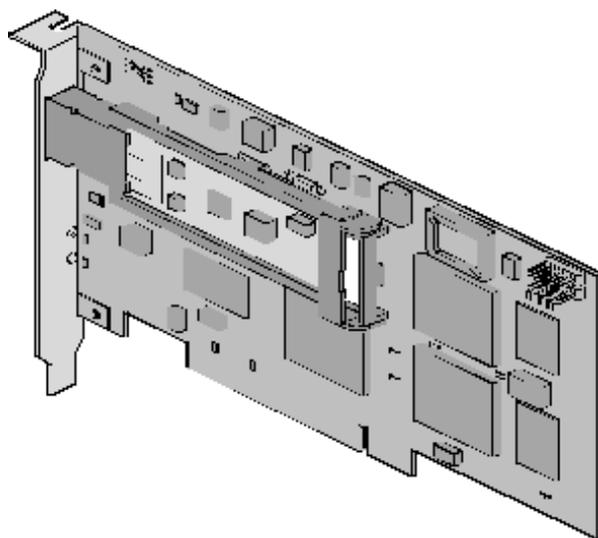


Figure 3–1:

NOTE: If your system supports HOT plug-in. Refer to your system manual.

Insert the HBA in the Server

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

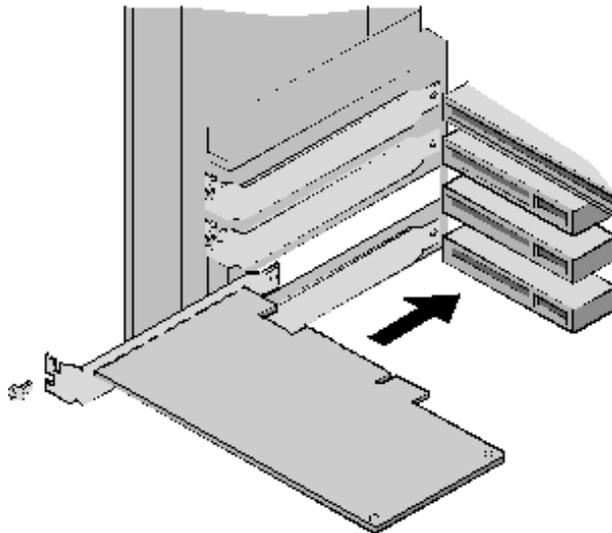


Figure 3–2:

Connect the Fibre Channel Host Bus Adapter to the Storage Subsystem Cabinet

Connect the Compaq Fibre Channel Host Bus Adapter to the hub or switched SAN. Connect the hub or switched SAN 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 Enterprise/Modular Storage RAID Array storage subsystem servers and controllers. Wiring varies with each configuration, the illustration below is only an example.

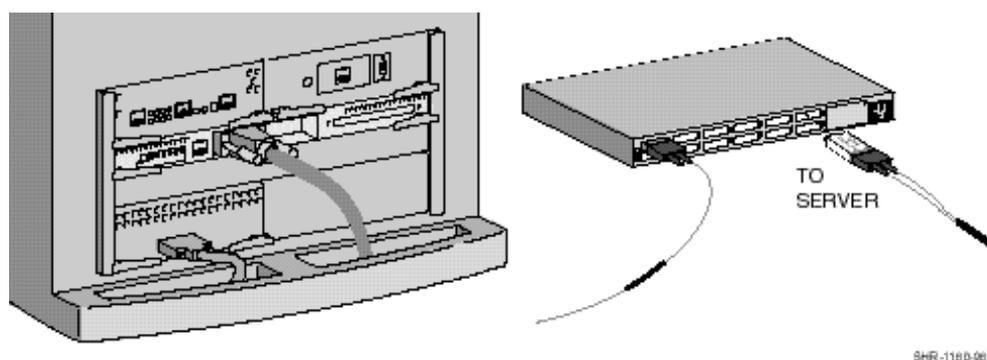
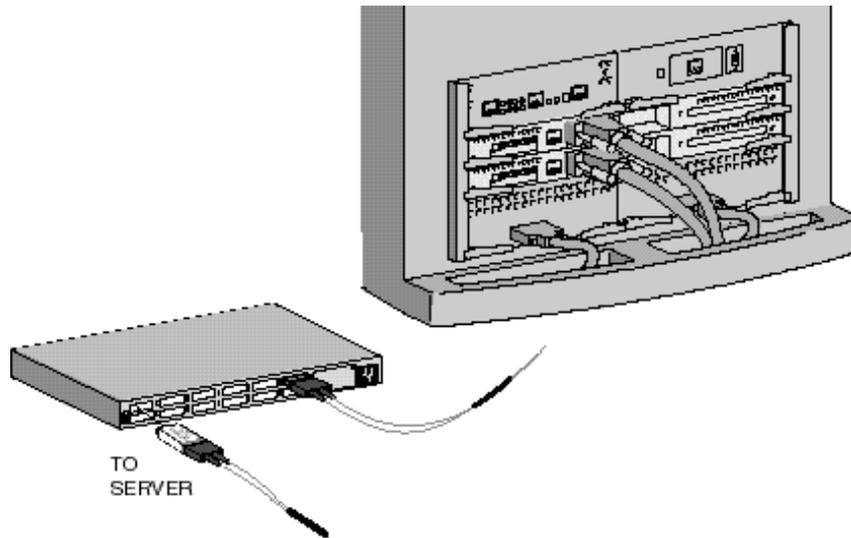


Figure 4-1: Single controller, one server

NOTE: For redundant configurations, refer to the installation manuals provided in your kit.



SHR-1161-06 AJ

Figure 4-2: Dual controller, one server

Connect a Windows NT or Windows 2000 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 Windows NT or Windows 2000 client.

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

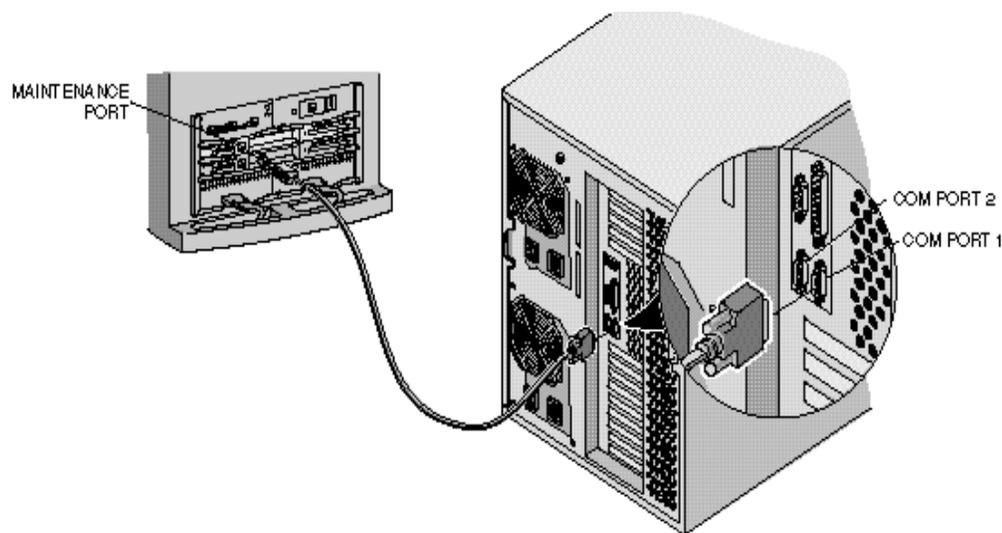


Figure 5-1:

Connect a Windows NT or Windows 2000 Client as a Maintenance Terminal

Turn On the Subsystem Power

Connect the Hub or Switch to an AC Power Outlet

1. Connect one end of the hub or switch AC power cord to the hub or switch and the other to an AC outlet.
2. Turn on the Windows Client.
3. Turn on the Server.
4. 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.

5. 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.

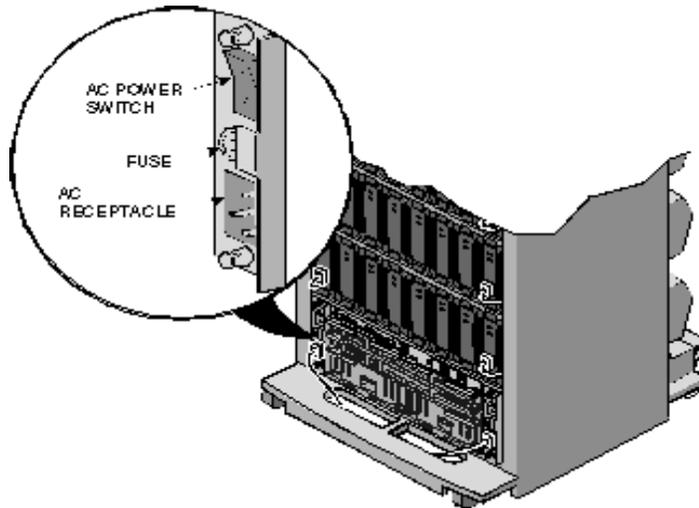


Figure 6-1:

Establish Communication Between the Client and the Storage Subsystem

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. Chose 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.
5. When the Connection Selection dialog appears (Figure 7-1), click the Serial radio button.

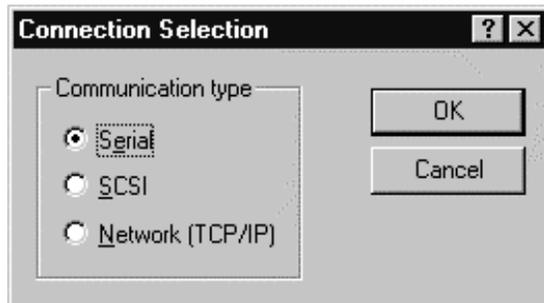


Figure 7-1:

6. Click OK.
7. The Connect Serial dialog box (Figure 7-2) appears.
8. On the Connect Serial screen, select the server COM port that the HSG80 controller is connected to (COM1 or COM2).
9. Select a band rate of 9600.
10. Click the Connect button; the Storage Window is displayed, indicating that the communication link has been established between the client and the storage subsystem.

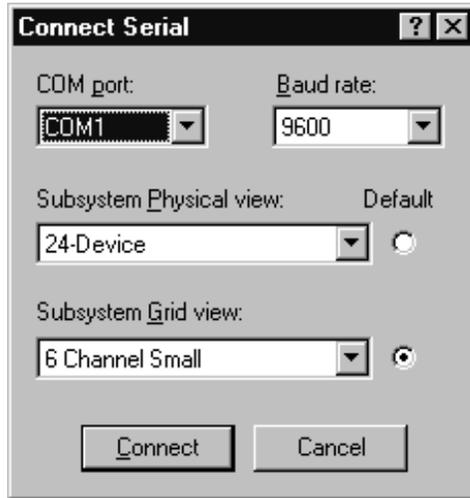


Figure 7-2:

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.

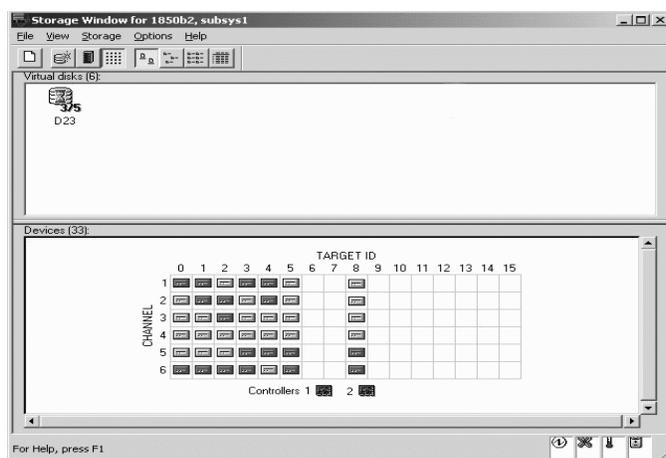


Figure 8–1:

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 or SCSI-3
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:	Novell - 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 V8.6 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.

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.

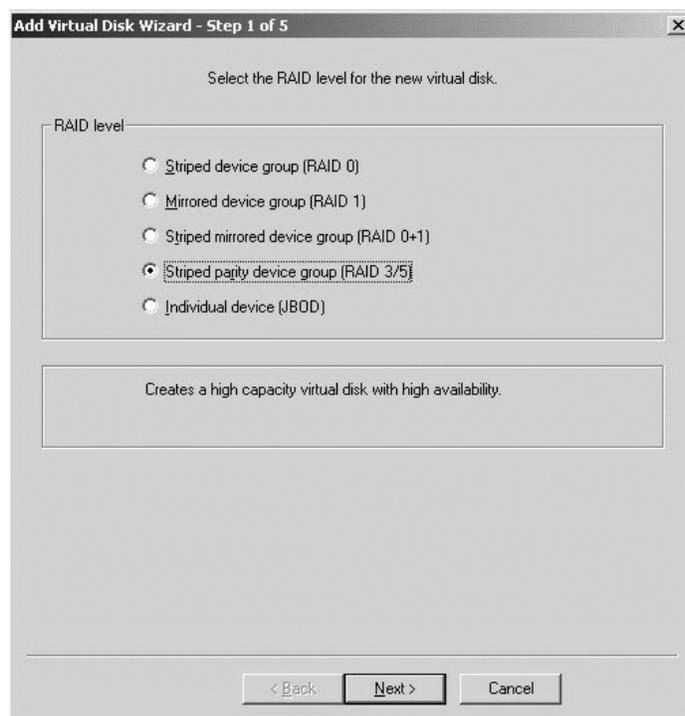


Figure 9-1:

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.

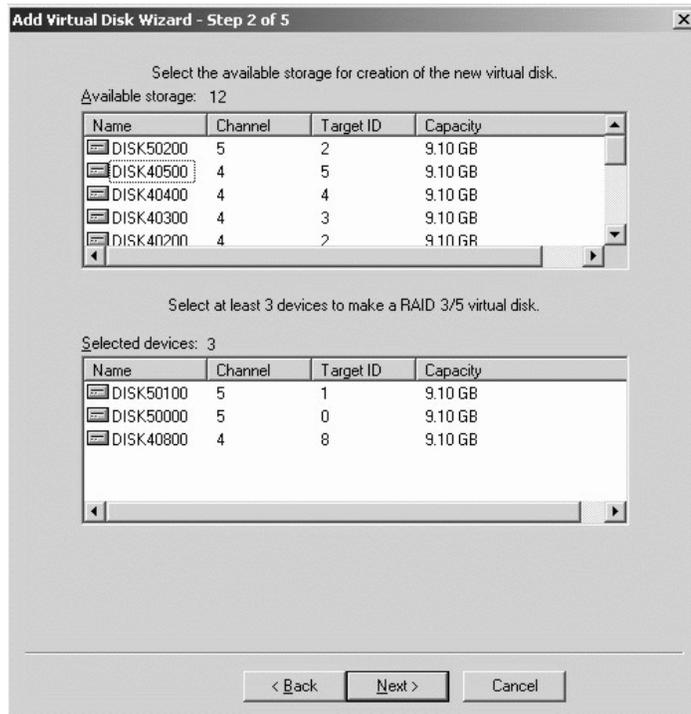
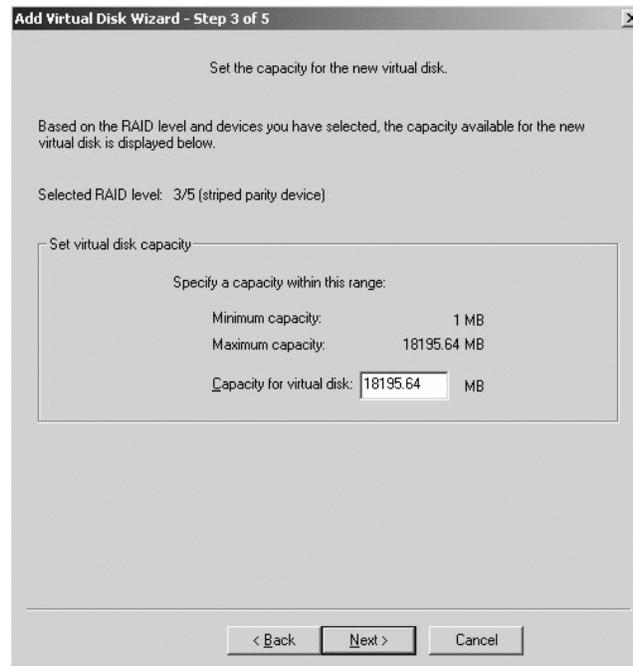


Figure 9-2:

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 windowpane.
6. When all the disks are selected, click Next. The Add Virtual Disk Wizard-Step 3 of 5 screen is displayed.

**Figure 9-3:**

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.

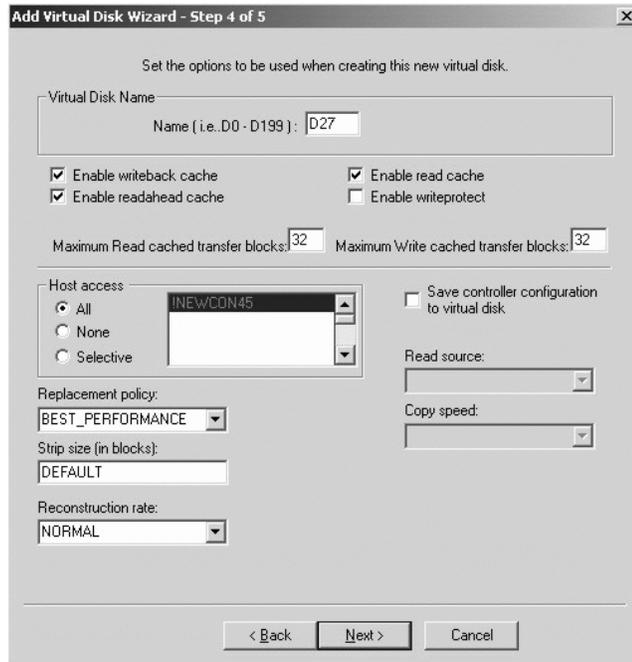


Figure 9-4:

9. Enter the virtual disk name. NetWare recognizes D0 through D199.
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.

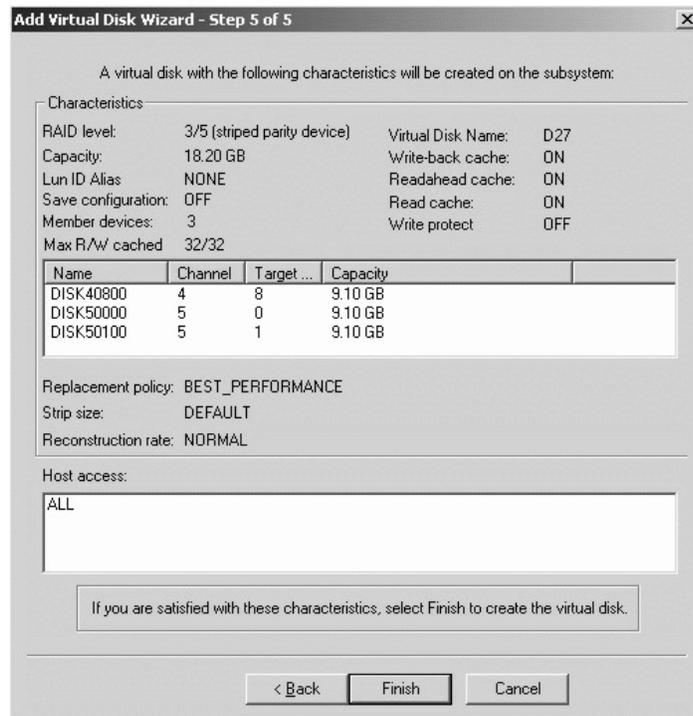


Figure 9-5:

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.

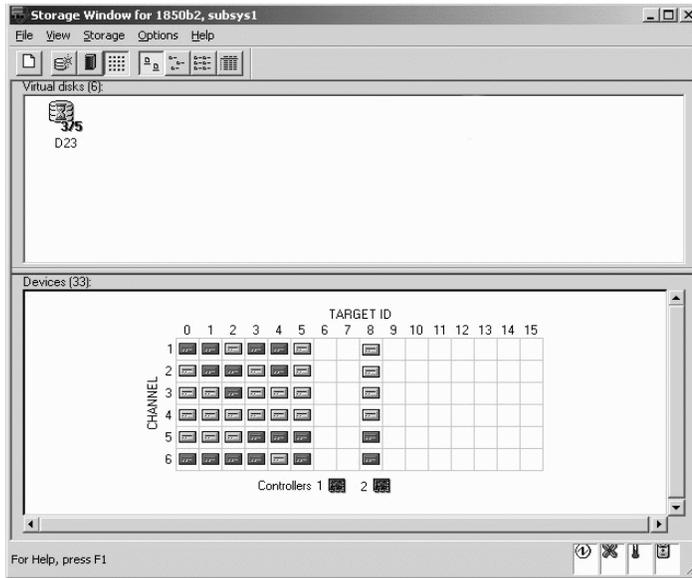


Figure 9-6:

Configure your Novell NetWare Host

NOTE: To configure your 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 V8.6 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 V8.6 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 from the RA8000/ESA 12000 Solution Software V8.6 Novell NetWare CD

1. Mount the CD as a NetWare volume.
2. Type "Load Install" from the NetWare 4x console or type "Load NWCONFIG" from the NetWare 5x or 6x 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 path to the driver.

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.

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.

Configure a NetWare Volume on the Storageset for NetWare 6.0

Novell NetWare 6.0 requires the use of Console 1 to configure both NSS and Legacy volumes.

1. Start Console 1.
2. Login to Console 1 choosing the correct Tree and Context.
3. Select "Tools", "Disk Management", "Devices".
4. Select the NDS tree and Server that you wish to configure NSS luns.

5. Note which device/lun you want to configure your Volume on.

If you are doing NSS:

1. Select "Media", "NSS POOLS".
2. Select "NEW"
3. Enter a name for the Pool, Next.
4. Select device/lun you decided on above and select "NEXT", "Finish", "YES".
5. Select "Media" "NSS Logical Volumes" "NEW"
6. Enter the name of the new volume you are creating.
7. Enter "NEXT"
8. Select the new Volume you just created and select "allow volume to grow to the pool size"
9. Enter "NEXT"
10. Review and select the attributes you wish, the Defaults work??
11. Select "Finish"

If you are using the Console 1 on the System Console cycle to console screen -"Enter CTRL-ESC" "1".

At the console screen enter "VMVOLUMES".

The volume you just created appears on your Array.

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.

NOTE: 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.