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Hitachi Data Systems

MK-97DF8032EN-09

043-100478-01

Hitachi AMS 2500
Getting Started Guide

Congratulations on purchasing the Hitachi Adaptable Modular Storage (AMS) 2500 storage system.

Before using your storage system, some steps are required to install and configure the system and prepare your host server. The instructions in this guide are designed to get your storage system up and running quickly. If you prefer detailed instructions, please refer to the following:

- *AMS 2500 Storage System Hardware Guide* (MK-97DF8007) on the CD supplied with the storage system.
- *Storage Navigator Modular User's Guide* (MK-97DF8008) on the CD supplied with the storage system.
- Storage Navigator Modular 2 storage management software (hereinafter referred to as Navigator 2). To access the help, either:
  - Install the Navigator 2 software using the instructions in this guide, then click **Help** on the current screen being viewed

    OR

  - Click **Help > Help** in the main menu.

Installation & configuration checklist

The following checklist identifies the steps for getting your AMS 2500 storage system up and running. Please check each step as you complete it and record your settings on page 37.

Preparing for the installation

- ❒ 1. Prepare the site (page 3)
- ❒ 2. Provide user-supplied items (page 5)
- ❒ 3. Identify your configuration (page 8)

Installing the storage system

- ❒ 4. Install the base and expansion units (page 8)
- ❒ 5. Install drives (page 9)
- ❒ 6. Attach expansion units (optional) (page 10)
- ❒ 7. Connect cables to the base unit (page 13)
- ❒ 8. Power-up the base unit (page 14)
- ❒ 9. Attach the front bezel (page 15)

Configuring the storage systems

- ❒ 10. Set Java Runtime parameters if necessary (page 16)
- ❒ 11. Install and log in to Navigator 2 (page 17)
- ❒ 12. Add arrays (page 18)
- ❒ 13. Perform the initial setup (page 21)
- ❒ 14. Configure the other controller (page 34)
- ❒ 15. Add the newly configured array to Navigator 2 (page 34)

Completing your installation

- ❒ 16. Register your storage system (page 35)
- ❒ 17. Download the latest firmware (page 35)
- ❒ 18. Where to go from here (page 35)

Please read the Release Notes before installing and using this product. They may contain requirements and/or restrictions not fully described in this document, along with updates and/or corrections to this document.

Preparing for installation

1. Prepare the site

Planning the proper location and layout of the Hitachi AMS 2500 storage unit is essential for its successful operation. The site where you install the storage unit can affect its performance. For example, equipment placed too close together or in an inadequately ventilated area can cause over-temperature conditions. In addition, poor equipment placement can make the rear panel inaccessible.

To ensure normal operation and avoid unnecessary maintenance, plan your site configuration and prepare your site before installation. The site you choose for the Hitachi AMS 2500 storage unit should:

- Be fairly cool and dry for the acceptable temperature and humidity ranges:
  - Maximum temperature: 104º F (40ºC)
  - Relative humidity (non-condensing): 8% to 80%
- Be free of strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
- Provide a sturdy, level surface that can support the unit. A fully populated unit weighs approximately 4,686 lbs. (2,130 kg.).
- Be within six feet (1.82 meters) of a power outlet.
- Allow for at least six inches (152.3 mm) of space at the front and back of the array for ventilation.
- Not place the unit next to, on top off, or below any device that generates heat or will block the fee flow of air through the unit's ventilation slots.

Figure 1-1 on page 4 shows the installation and service clearance area for the Hitachi AMS 2500. Measurements shown are in millimeters. For more information about selecting a location, refer to the *AMS 2500 Storage System Hardware Guide* (MK-97DF8007).

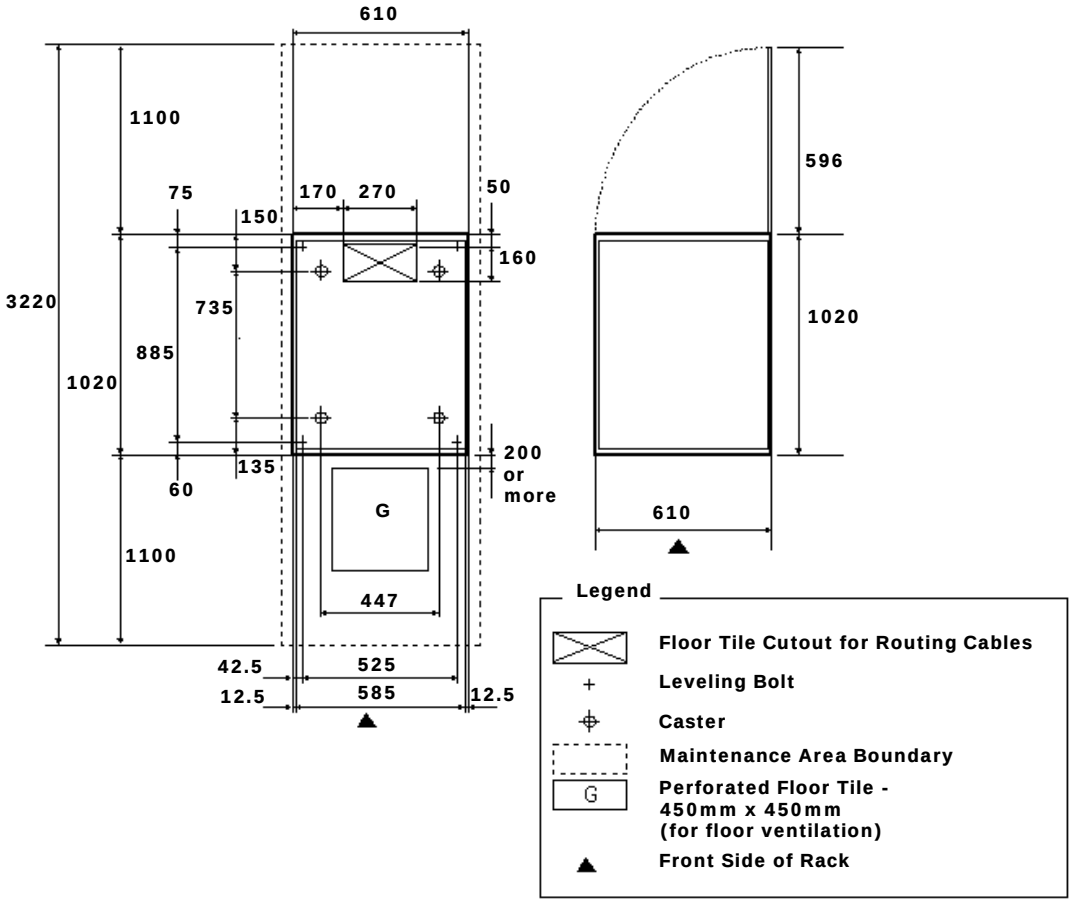


Figure 1-1: Installation Area and Service Clearance

2. Unpack items

a. Inspect all shipping cartons for signs of damage. If you see damage, contact the shipper.

b. Loosen the band around the cartons and open all cartons.

c. Remove all accessory boxes, packing materials, and envelopes from the cartons.

d. Have at least three people remove the base unit and any expansion units.

e. Open and remove the bag in which the base unit is enclosed. Repeat this step for any expansion units you may have ordered.

f. Compare the items received to the packing list. If any items are missing or damaged, contact the shipper immediately.

g. Each base unit has a key for locking and unlocking the front bezel. Place the key(s) in a safe place.

h. Please keep all packing materials and cartons in case you need to transport or ship the base or expansion unit.

2. Provide user-supplied items

To complete your installation, you need the following items.

NOTE: For the latest information about supported devices and operating systems, refer to the interoperability information at www.hds.com/products/interoperability.

Requirements for all installations

- A personal computer (PC) that will act as a management console (see Requirements for array management on page 6)
- The Hitachi AMS2*xxx* rack or an equivalent rack
- Two AC outlets (100 V to 120/200 V to 240 V)
- Internet access via Internet Explorer v7.0, Internet Explorer v6.0 (Service Pack 1), or Mozilla v1.7, with pop-up blockers disabled and Java Runtime Environment (JRE) v6.0

NOTE: JRE v6.0 can be downloaded from http://java.com/en/download/ and installed by following the on-screen prompts.

- A host server equipped as described under Host server requirements on page 7.

Fibre Channel installation requirements

- A multimode fiber-optic cable for each Fibre Channel port that will connect to your storage network (see Table 1-1)
- A host server that contains at least one Fibre Channel host bus adapter (HBA) (see Host server requirements on page 7)
- *Optional*: a Fibre Channel switch for switch configurations (see step 3. Identify your configuration on page 8)

Table 1-1: Supported Fiber-Optic Cables and Speeds

Cable Length	Data Transfer Rate (Mbps)		
	100	200	400
Max 50/125µ multimode fibre cable	500 m	300 m	150 m
Max 62.5/125µ multimode fibre cable	300 m	150 m	70 m

iSCSI installation requirements

- An IP address, subnet mask, gateway (if applicable), and Ethernet cable for each iSCSI data port that will connect to your storage network
- A host server that contains at least one iSCSI host bus adapter (HBA) or network-interface card (NIC, and a supported iSCSI initiator (see Host server requirements on page 7)
- An iSCSI initiator compatible with Hitachi 2000 Family storage systems
- *Optional*: a Gigabit Ethernet LAN switch for switch configurations (see step 3. Identify your configuration on page 8)

Requirements for array management

- An IP address for each management port on the base unit
- A PC that will act as a management console and meets the following requirements:

  Processor: 1 GHz (2,4 GHz recommended)

  Random Access Memory: 1 GB (2 GB recommended)

  Disk space: 1.5 GB or more

  Video resolution: 800 x 600 dots per inch (1024 x 768 or higher recommended), 256 colors or more

  A network-interface card (NIC)
- One of the following operating systems:

  Microsoft Windows 2000 (Service Packs 3/4)

  Microsoft Windows XP (Service Pack 2)

  Microsoft Windows 2003 (Service Packs 1/2)

  Microsoft Windows Vista (Service Pack 1)

  Microsoft Windows Server 2008, x64 and x86 (Service Pack 2)

  Microsoft Windows XP and 2003 R2 operated as a GUEST OS for the VMware ESX Server 3.1.x

  Microsoft Windows 7, x64 and x86 (no Service Pack)

  Microsoft Windows Server 2008 R2 (no Service Pack)

  Red Hat Enterprise Linux 4 (Update 1) and Red Hat Enterprise Linux 4 (Update 5)

  Solaris v8, v9, and v10
- One of the following Web browsers, with pop-up blockers disabled and Java Runtime Environment (JRE) v6.0 installed (JRE v6.0 can be downloaded from http://java.com/en/download/ and installed by following the on-screen prompts):

  Internet Explorer 6 for Microsoft Windows 2000, XP, and 2003

  Internet Explorer 7 for Microsoft Windows Vista

  Mozilla 1.7 for Red Hat Enterprise Linux 4 Update 1

  Mozilla 1.7 for Solaris 8, 9, and 10

  Firefox2 for Solaris 10

TIP: For an optimum experience with Navigator 2, we recommend that your management console be a new or dedicated personal computer (PC).

- An Ethernet LAN cable to attach the management console to the base unit's management ports. The management ports support Auto-MDI/MDIX technology, allowing you to use either standard (straight-through) or crossover Ethernet cables.

Host server requirements

- A server equipped with the following:

  An operating system supported by the base unit

  For Fibre Channel systems, one or more Fibre Channel host bus adapters (HBAs) supported by the base unit, with the latest drivers and BIOS installed

  For iSCSI systems, one or more NICs or iSCSI HBAs supported by the base unit, with the latest drivers and BIOS installed

- One of the following host operating systems:

  Apple Macintosh OSX

  Asianux

  HP-UX

  IBM AIX

  Microsoft Windows 2000 (Service Pack 4)

  Microsoft Windows 2003 and 2003 Server (Service Packs 1/2)

  Microsoft Windows 2003 and 2008

  Novell NetWare v6.5 Service Packs 6/7

  Novell OSE SLES9 (Service Pack 3) and SLES10 (Service Pack 1)

  Red Hat Linux

  Sun™ Solaris™ v8, v9, and v10

  SUSE Linux

NOTE: Microsoft Windows XP and Windows Server 2003 R2 can also operate as a guest operating system of VMware ESX Server 3.1.x when Windows update KB922760 or newer is installed.

3. Identify your configuration

The base unit can be used in a direct-connect point-to-point or switch configuration.

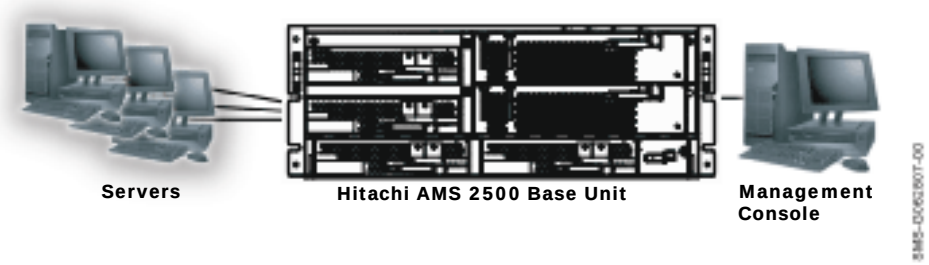


Figure 1-2: Example of a Direct-Connect Configuration

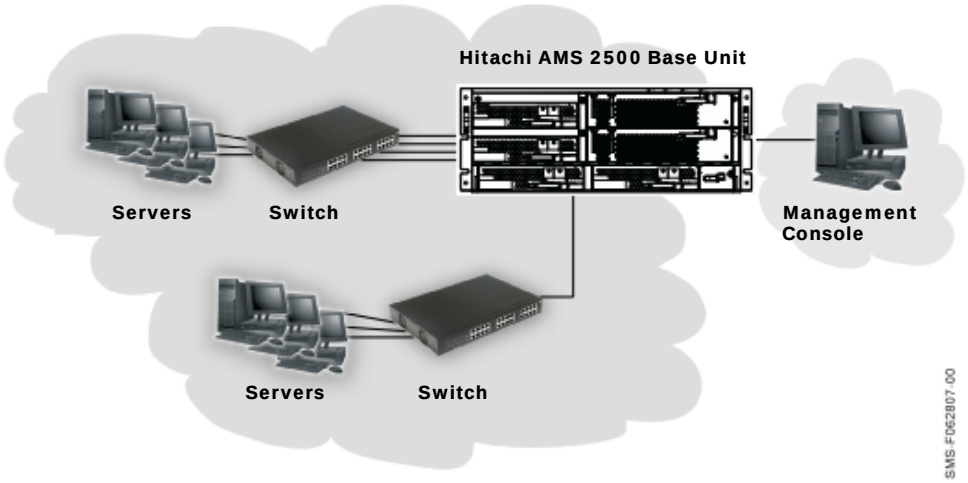


Figure 1-3: Example of a Switch Configuration

Installing the storage systems

4. Install the base and expansion units

Base and expansion units ordered with the Hitachi Global 19-inch rack are delivered preinstalled in the rack. If you use a different rack, refer to and follow all safety precautions in the documentation for the rack.

CAUTION! Observe all safety guidelines in the following documents:

- *AMS 2500 Storage System Hardware Guide* (MK-97DF8007)
- The documentation for your rack

To avoid damage to the storage unit or storage unit components due to electrostatic discharge (ESD), wear an anti-static wrist strap when handling the storage unit. Connect the clip to an unpainted part of the storage unit chassis frame to safely channel any static electricity generated by your body to ground. If no wrist strap is available, ground yourself by touching an unpainted part of the storage unit chassis frame.

5. Install drives

Drives are preinstalled. To install additional drives:

a. Wear an anti-static wrist strap connected to the chassis of the base or expansion unit.

b. Place a finger under the blue lever at the top of the drive tray. Then gently pull the lever forward.

c. Holding the lever, gently pull the drive tray toward you until the tray is about half way out of the slot.

d. Hold the top and bottom of the drive tray and remove it from the unit. If the slot where the drive is to be installed has a filler, remove the filler.

e. Orient the new drive so the gold edge connectors on the rear of the drive are at the rear of the drive tray and the label on the drive faces the right.

f. Insert the drive into the rear of the drive tray and slide the drive forward until the 3 rectangular hooks on the drive (2 on top and 1 on the bottom) enter the rectangular holes on the top and bottom of the drive tray.

g. Place the drive on the slot's guide rail, then gently slide the drive into the slot (shown by the arrow in Figure 1-4). Stop pushing when the blue lever at the top of the drive tray starts to rise.

h. Secure the drive tray in the unit by pushing the blue lever to the top until the lever snaps into place.

i. To install additional drives, repeat steps C through I.

NOTE: Drive slots that do not have a drive must have a filler. If a slot does not have a filler installed, insert a filler into the slot. Insert the filler slowly, so the latch (round dent) on the filler moves to the right.

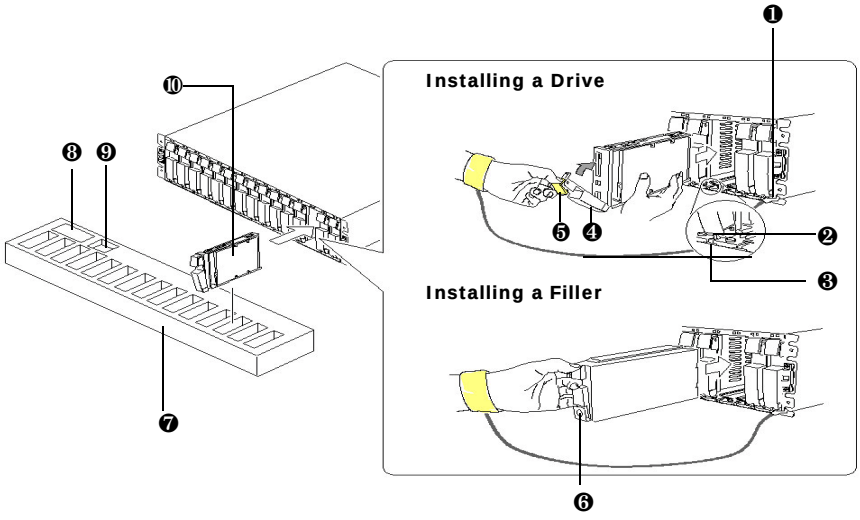


Figure 1-4: Installing a Drive or Drive Filler

Legend:	
❶	Guide rail
❷	Hook
❸	Rectangular hole
❹	Handle
❺	Stopper
❻	Latch (round dent)
❼	Storage area for components
❽	Address label
❾	Screw holder
❿	Disk drive

6. Attach expansion units (optional)

If you do not have expansion units, skip to page 13. Otherwise:

a. Connect one expansion unit to the base unit:

- Use a supplied ENC cable to connect the **PATH#0** port on controller 0 to the ENC0 **IN** port on the rear of the expansion unit.
- Use a supplied ENC cable to connect the **PATH#0** port on controller 1 to the ENC1 **IN** port on the rear of the expansion unit.
- Gather the excess part of the ENC cable in a circle, tighten it gently and secure, and place it inside the rack.

b. To connect a second expansion unit to the base unit:

- Use a supplied ENC cable to connect the **PATH#1** port on controller 0 to the ENC0 **IN** port on the second expansion unit.
- Use a supplied ENC cable to connect the **PATH#1** port on controller 1 to the ENC1 **IN** port on the second expansion unit.
- Gather the excess part of the ENC cable in a circle, tighten it gently and secure, and place it inside the rack.

c. To connect additional expansion units, follow the pattern in Figure 1-7 on page 12.

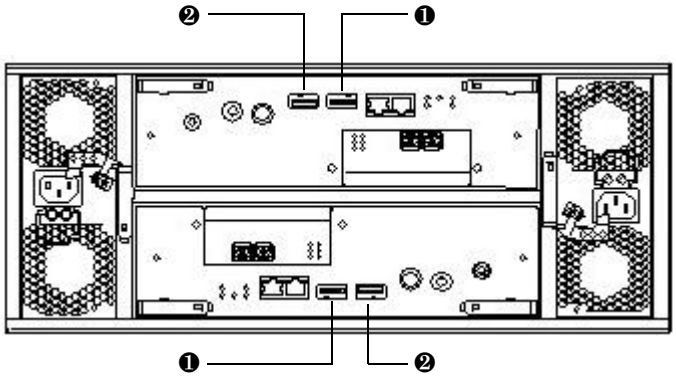


Figure 1-5: Location of PATH#0 and PATH#1 Ports (Base Unit)

Legend:

❶ PATH#0 port

❷ PATH#1 port

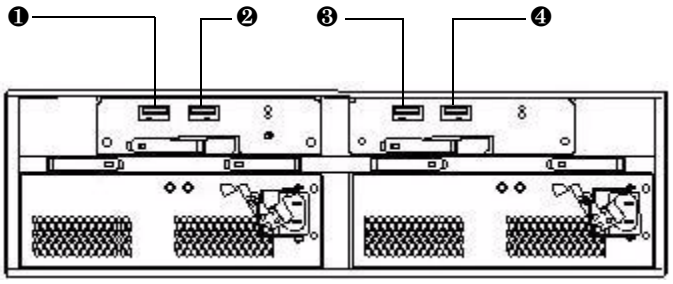


Figure 1-6: Location of IN and OUT Ports (Expansion Unit)

Legend:

❶ IN port (ENC0)

❷ OUT port (ENC0)

❸ IN port (ENC1)

❹ OUT port (ENC1)

d. To connect expansion units, use a supplied ENC cable to connect the **Path 0** and **Path 1** ports on the rear of the base unit to the **IN** port on the rear of each expansion unit.

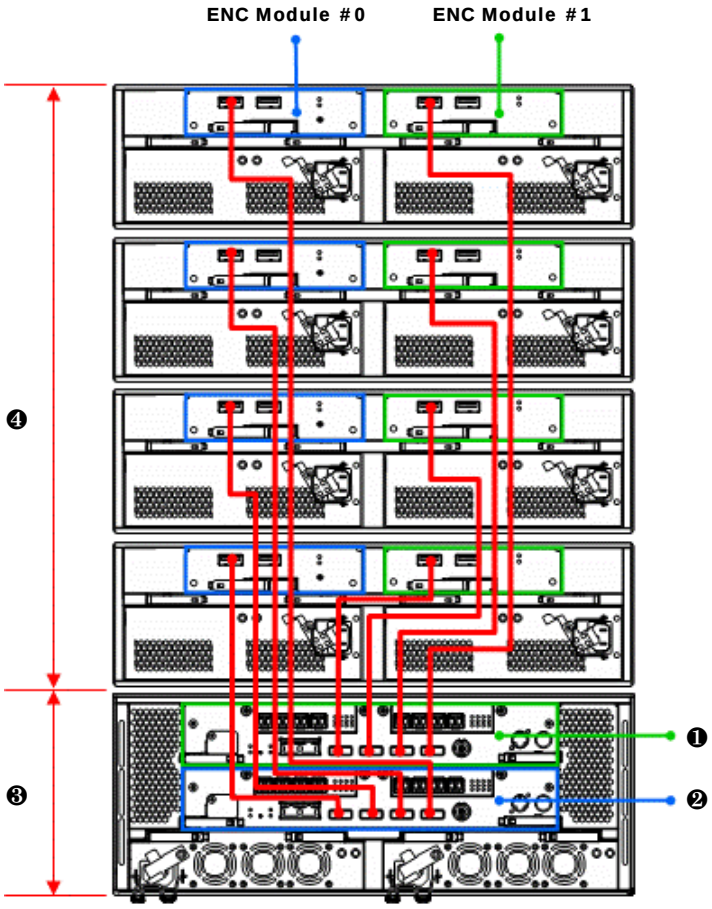


Figure 1-7: Example of Connecting Expansion Units

Legend:

❶	Controller #0
❷	Controller #1
❸	Base unit
❹	Expansion units (ENC0, ENC1)

7. Connect cables to the base unit

a. Make the connections to the rear panel of the base unit (see Figure 1-8).

b. When attaching a management console to the base unit's management (**LAN 1**) port, either connect the console directly to the port or via a switch or hub:

- A direct connection lets you configure one controller at a time.
- Connecting through a switch or hub lets you configure both controllers using the same procedure.

TIP: You can attach a portable ("pocket") hub between the management console and unit to configure both controllers in one procedure.

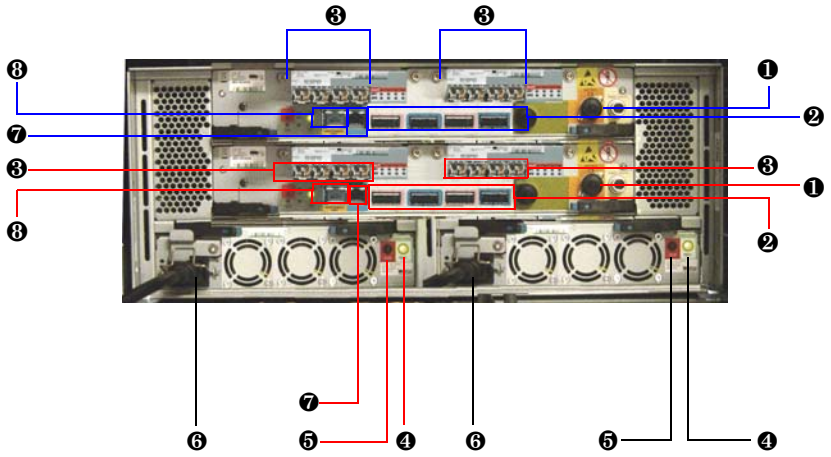


Figure 1-8: Rear View of the Fibre Channel Hitachi AMS 2500 Base Unit

Legend:

❶	Battery port (labeled **BATTERY**)
❷	Path 0, 1, 2, and 3 connectors for connecting to expansion unit
❸	FIbre Channel or iSCSI Ports For Fibre Channel ports, attach multimode fiber-optic cables For iSCSI ports, attach Category 5e or 6 Ethernet cables
❹	READY LED (green)
❺	ALARM LED (red). If this LED goes ON, refer to the User's Guide.
❻	Power receptacle (both power receptacles must be used)
❼	Management port (labeled **LAN 1**)
❽	Maintenance port (labeled **LAN 0**). These ports are for troubleshooting purposes and should not have to be used.

8. Power-up the base unit

a. Confirm that both power receptacles on the rear of the base unit are connected to working outlets. The green **READY** LEDs on the rear panel should be ON and the green front panel **READY** LED should blink.

NOTE: The outlets should not be controlled by a wall switch, which can inadvertently remove power form the storage units.

b. Press the **Power** switch on the lower right side of the front panel of the base unit to the ON position (see Figure 1-9 and Figure 1-10 on page 15):

The base unit performs its Power On Self Test and the activity LEDs on the drives flash and then go ON. After a few minutes, the front panel **READY** LED goes ON.

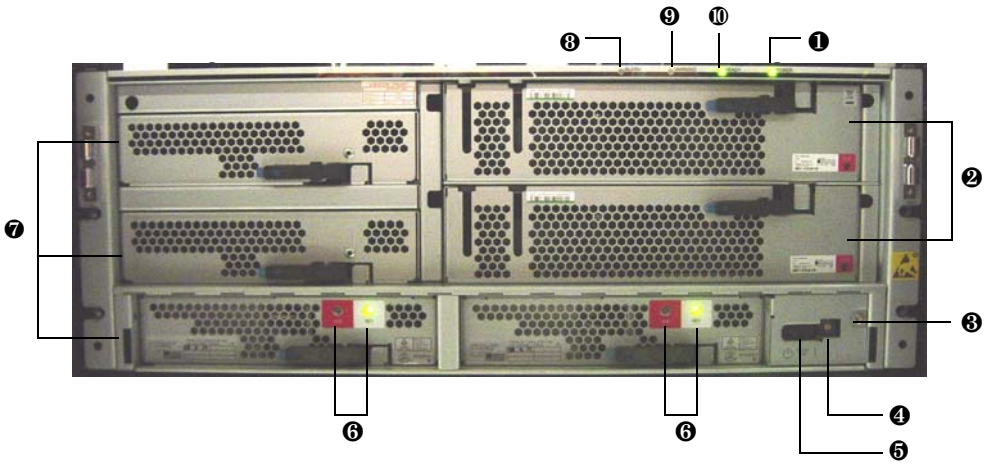


Figure 1-9: Front View of Base Unit (Front Bezel Removed)

Legend:

❶	Power LED (green)
❷	Fan assembly
❸	Panel assembly
❹	Mode switch
❺	POWER switch
❻	Alarm (left) and Ready (right) LEDs ALM LED (red). If this LED goes ON, refer to the User's Guide. READY LED (green)
❼	Battery unit
❽	Alarm LED (red). If this LED goes ON, refer to the User's Guide.
❾	Warning LED (orange). If this LED goes ON, refer to the User's Guide.
❿	Ready LED (green)

NOTE: When the bezel is removed, the **Power** switch is identified on the enclosure as **MAIN SW**.

9. Attach the front bezel

Attaching the front bezel is optional. To attach it:

a. Locate the two hooks on the front of the bezel, one on the lower right side and one on the upper right side (see Figure 1-10).

- Insert the hook on the lower right side of the bezel into the hole on the bottom right part of the base unit.
- Insert the hook on the upper right side of the bezel into the hole on the top right part of the base unit.

b. After the hooks are engaged, gently push the bezel against the ball catches until the bezel snaps into place.

c. Lock the bezel by inserting the key in the keyhole and turning counterclockwise.

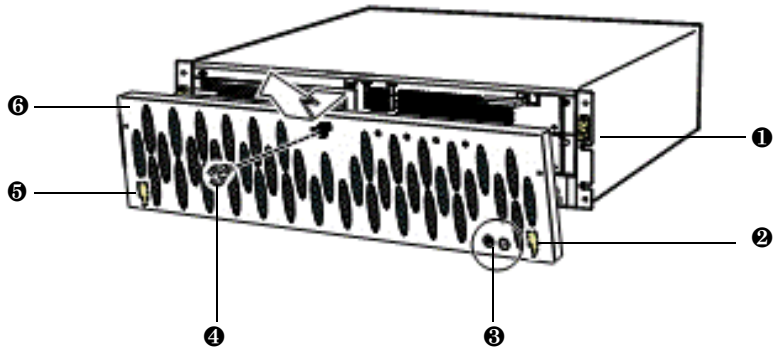


Figure 1-10: Attaching the Front Bezel

Legend:

❶	Ball catches
❷	Hook on right side
❸	**MAIN SW** (power) switch
❹	Key
❺	Hook on left side
❻	Front bezel

Configuring the storage systems

10. Set Java Runtime parameters if necessary

After you install the storage units, use the supplied Navigator 2 software to configure the storage units. If you intend to use the Advanced Settings in Navigator 2 on clients running the Microsoft Windows, Solaris, or Linux operating system, download JRE v6.0 (see page 5) and set the JRE parameters described in the following sections. Otherwise, skip to Step 11. Install and log in to Navigator 2 on page 17.

NOTE: Before accessing Advanced Settings, enter the following memory setting in the Java Console on the browser PC: **-Xmx192m**. Otherwise, Advanced Settings will fail, and you will be locked out and unable to access Advanced Settings until the login times out (20 minutes).

Clients running Microsoft Windows

If your client runs Microsoft Windows, perform the following procedure:

1. Click the Windows Start menu, point to **Settings**, and click **Control Panel**. The Windows Control Panel appears.
2. From the Windows Control Panel, double-click **Java Control Panel**. The Java Control Panel appears.
3. Click the **Java** tab. The **Java** tab is displayed (see Figure 1-11).

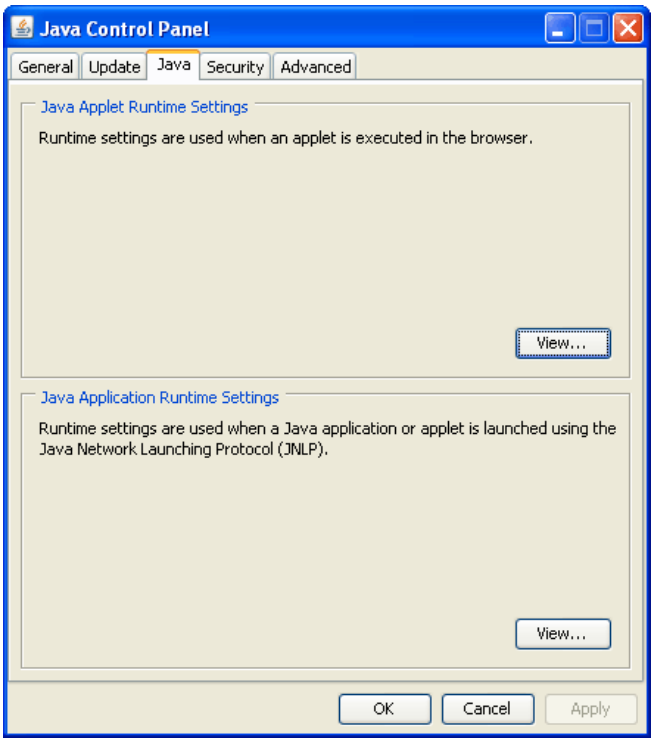


Figure 1-11: Java Tab

4. Click **View** in the **Java Applet Runtime Settings** section. The Java Runtime Settings dialog box appears.

5. In the **Java Runtime Parameters** field, type **-Xmx192m** (see Figure 1-12).

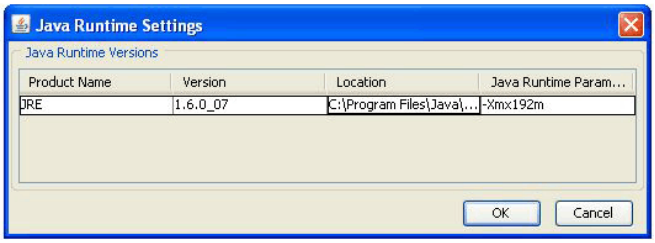


Figure 1-12: Java Runtime Settings Dialog Box

6. Click **OK** to exit the Java Runtime Settings dialog box.
7. Click **OK** in the **Java** tab to close the Java Control Panel dialog box.
8. Close the Windows Control Panel.

Clients running Solaris or Linux

If your client runs Solaris or Linux, perform the following procedure:

1. From an XWindows terminal, execute the <*JRE installed directory*>/bin/jcontrol to run the Java Control Panel.
2. Click **View** in the **Java Applet Runtime Settings** section. The Java Runtime Settings dialog box appears.
3. In the **Java Runtime Parameters** field, type **-Xmx192m**.
4. Click **OK** to exit the Java Runtime Settings dialog box.
5. Click **OK** in the **Java** tab to close the Java Control Panel dialog box.

11. Install and log in to Navigator 2

The following procedure describes how to install and log in to Navigator 2.

TIP: For the best Navigator 2 experience, we recommend you install Navigator 2 on a new or dedicated PC.

a. Find out the IP address of the management console (e.g., using ipconfig). Then change the console's IP address to 192.168.0.*x* where *x* is a number from 1 to 254, excluding 16 and 17. Write this IP address on a piece of paper. You will be prompted for it during the Navigator 2 installation procedure.

NOTE: The default IP address for Controller 0 management port is 192.168.0.16. The default IP address for Controller 1 management port is 192.168.0.17.

b. Disable pop-up blockers in your Web browser. We also recommend that you disable anti-virus software and proxy settings on the management console when installing the Navigator 2 software.

c. Insert the Navigator 2 CD in the management console CD drive and follow the installation wizard.

- If the CD does not auto-run, double-click the following file, where *nnnn* is the Navigator 2 version number:

  `\program\hsnm2_win\HSNM2-nnnn-W-GUI.exe`

- The installation process takes about 15 minutes to complete.
- During the installation, the progress bar may pause for several seconds. This is normal and does not mean the installation has stopped.

d. After the software is installed, launch a browser on the management console and log in to Navigator 2:

   http://<*IP address*>:23015/StorageNavigatorModular/Login

   OR

   https://<*IP address*>:23016/StorageNavigatorModular/Login

   where <*IP address*> is the IP address of the management console.

NOTE: If entering an IPv6 address in your Web browser, enter the URL in brackets. Example: http://[xxxx]:23015/StorageNavigatorModular/Login

e. At the login page, enter **system** as the default User ID and **manager** as the default case-sensitive password.

f. Click the **Login** button and go to Step 12. Add arrays on page 18.

12. Add arrays

The following procedure describes how to add arrays. During this procedure, you enter the default Account Authentication user ID and password for the controller (Account Authentication is a security protocol enabled by default on the AMS. For more information, refer to the *Storage Navigator Modular 2 Storage Features Reference Guide* (MK-97DF8148).

a. Disable your browser's pop-up blockers.

b. If the Arrays page is not displayed, click **Arrays** in the Explorer pane (see Figure 1-14 on page 20).

c. In the Arrays page:

- Look in the **Array Name** column for the name of the array you want to configure. Then record the array name in Table 1-6 on page 37 (you will refer to it later).
- Click the name of the array you want to configure. The Account Authentication Log in page prompts you for an Account Authentication user ID and password (see Figure 1-13 on page 19).

Figure 1-13: Account Authentication Log in Page

d. In the Account Authentication login page:

- Enter the default User ID of **root** in the **User ID** field.
- Enter the default case-sensitive password of **storage** in the **Password** field.

CAUTION! If you change the Account Authentication password, record the new password and keep it in a safe place. Without a valid password, you cannot access the array without reinstalling the firmware. Hitachi Data Systems Technical Support cannot retrieve the password for you. The user ID is not changeable.

- Click **Login** to close the Account Authentication Log in page and log in to Navigator 2.

e. In the Arrays page:

- Click the check box next to the array you want to configure.
- Click **Add Array** at the bottom of the window to launch the Add Array wizard.

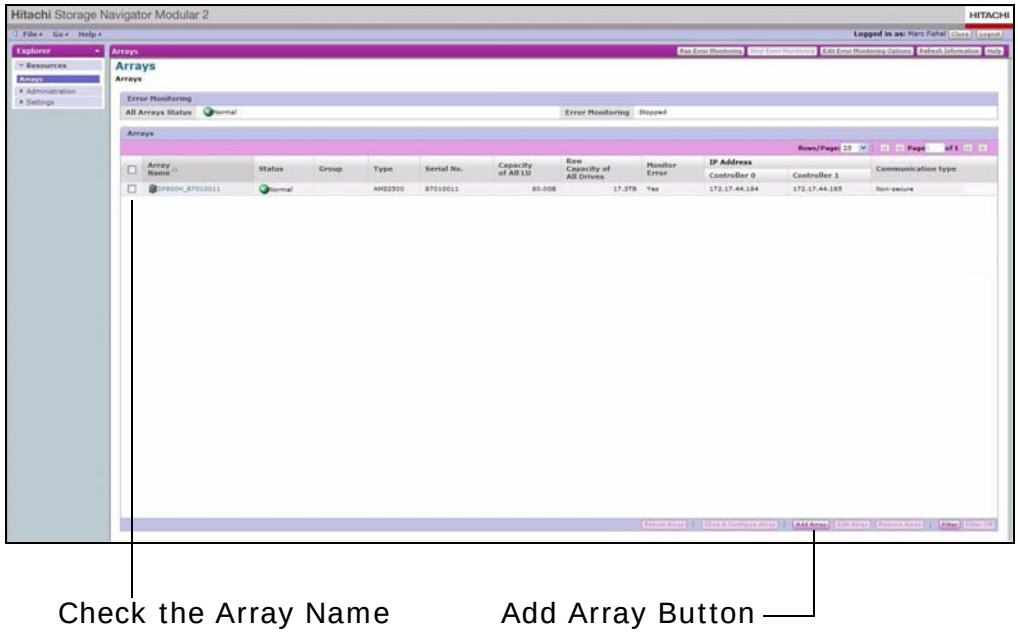


Figure 1-14: Arrays Page

f. When the introductory wizard page appears, click **Next**.

g. At the next page:

- Enter the following default IP address in the **Specific IP Address or Array Name** fields for each array management port.

  Controller 0: type **192.168.0.16**

  Controller 1: type **192.168.0.17**

NOTE: If your management console is directly connected to a management port, enter the default IP address just for that port. You will configure the other controller after you configure the current controller (described later in this guide).

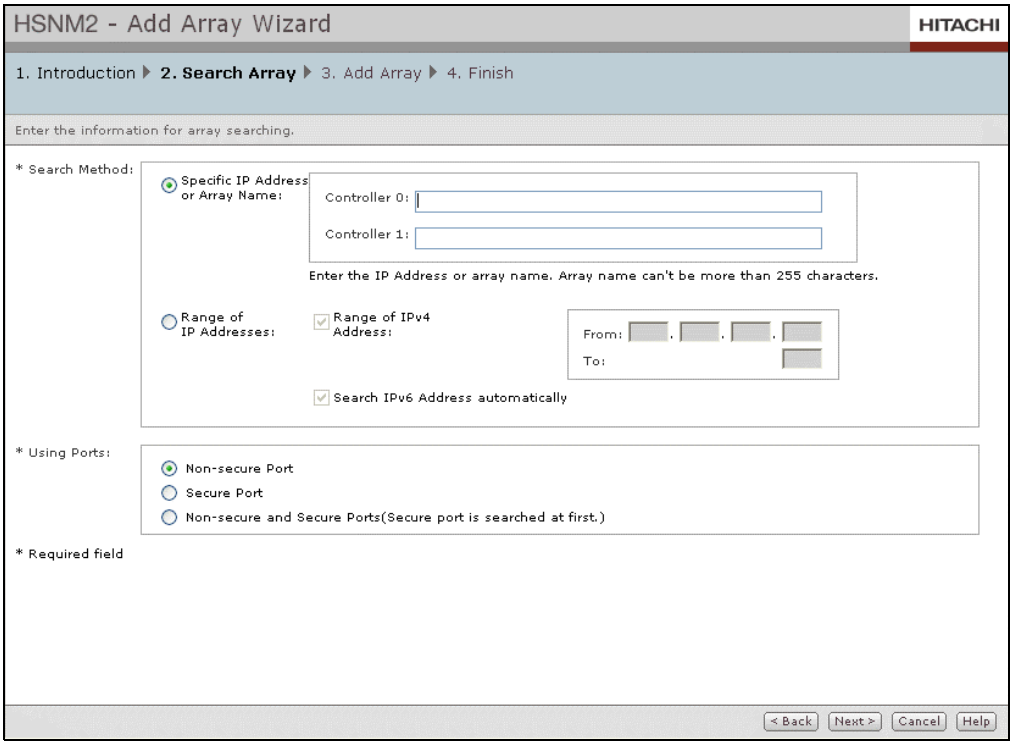


Figure 1-15: Entering IP Addresses in the Array Wizard

- In the **Using Ports** area, select whether the ports are secure, nonsecure, or both.
- Click **Next**.

h. When the next screen appears:

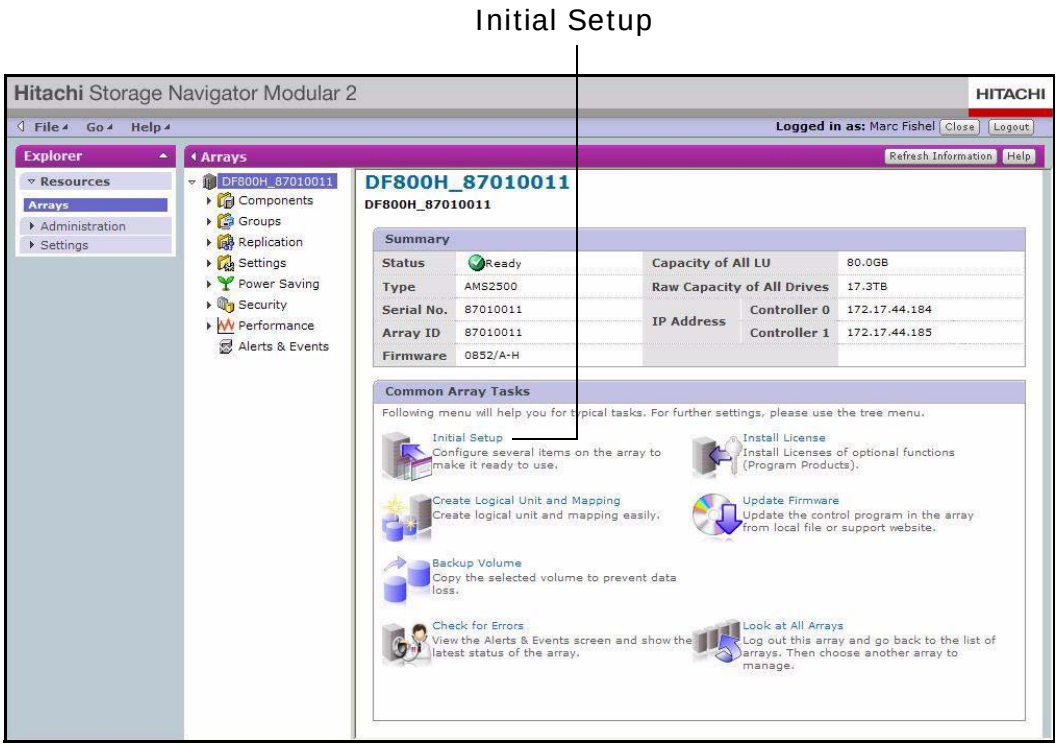
- Enter an array name in the **Array Name** field.
- Click **Next**.
- Click **Finish** and proceed to Step 13. Perform the initial setup.

13. Perform the initial setup

After you run the Add Array wizard, use the following procedure to perform the initial Navigator 2 setup.

a. In the Arrays page, click the name of the array you want to configure.

b. In the following page, under **Common Array Tasks**, click **Initial Setup**.



Enable email notifications

a. In the introductory page, click **Next** to display the Set up E-mail Alert page.

b. In the Set up Email Alert page:

- By default, email notifications are disabled. To accept this setting, click **Next** to display the Set up Management Ports page and skip to Configure management ports on page 23.
- To enable email notifications, complete the fields in Figure 1-16 on page 23 (see Table 1-2 on page 23).
- Click **Next** and go to Configure management ports on page 23.

This procedure assumes that your SMTP server is set up correctly to handle email. If desired, you can send a test message to confirm that email notifications will work. For more information, refer to the *Storage Navigator Modular 2 Graphical User Interface User's Guide* (MK-99DF8208) and the Navigator 2 online help

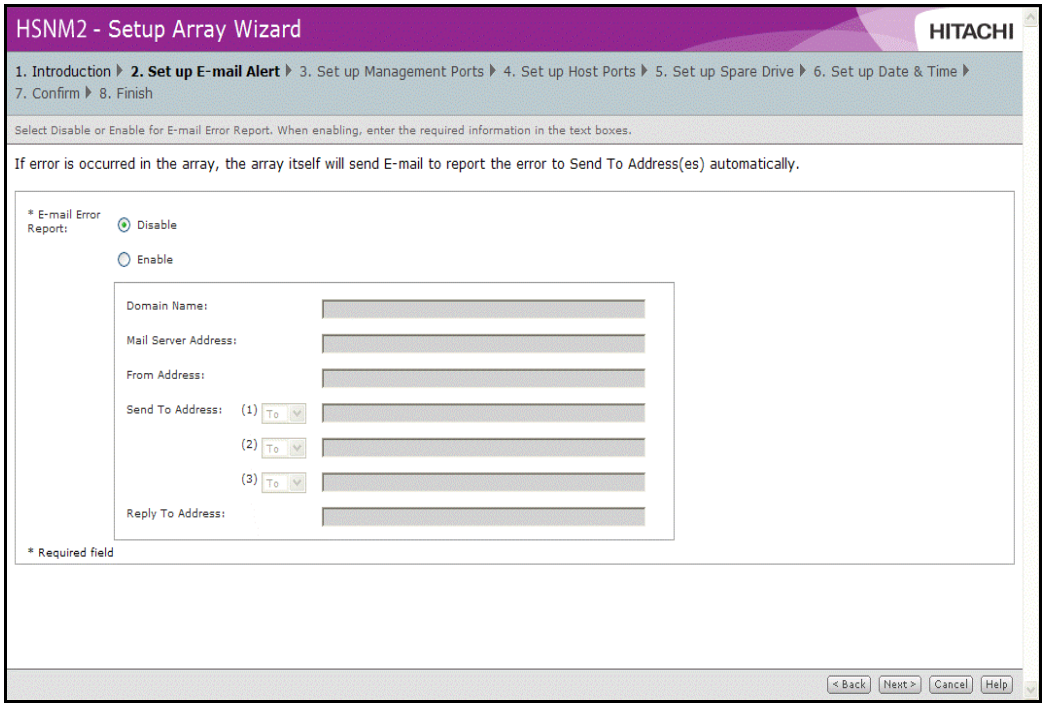


Figure 1-16: Set up Email Alert Page

Table 1-2: Enabling Email Notifications

Field	Description
Disable / Enable	To enable email notifications, click Enable, complete the remaining fields, and record your settings in Table 1-6 on page 37.
Domain Name	Domain appended to addresses that do not contain one.
Mail Server Address	Email address or IP address that identifies the base unit as the source of the email.
From Address	Each email sent by the base unit will be identified as being sent from this address.
Send to Address	Up to 3 individual email addresses or distribution lists where notifications will be sent.
Reply To Address	Email address where replies can be sent.

Configure management ports

a. In the Set up Management Ports page:

- Configure the controller management ports manually or automatically (see Figure 1-17 on page 24 and Table 1-3 on page 24).
- Click **Next**.
- Proceed to Set up host ports on page 25.

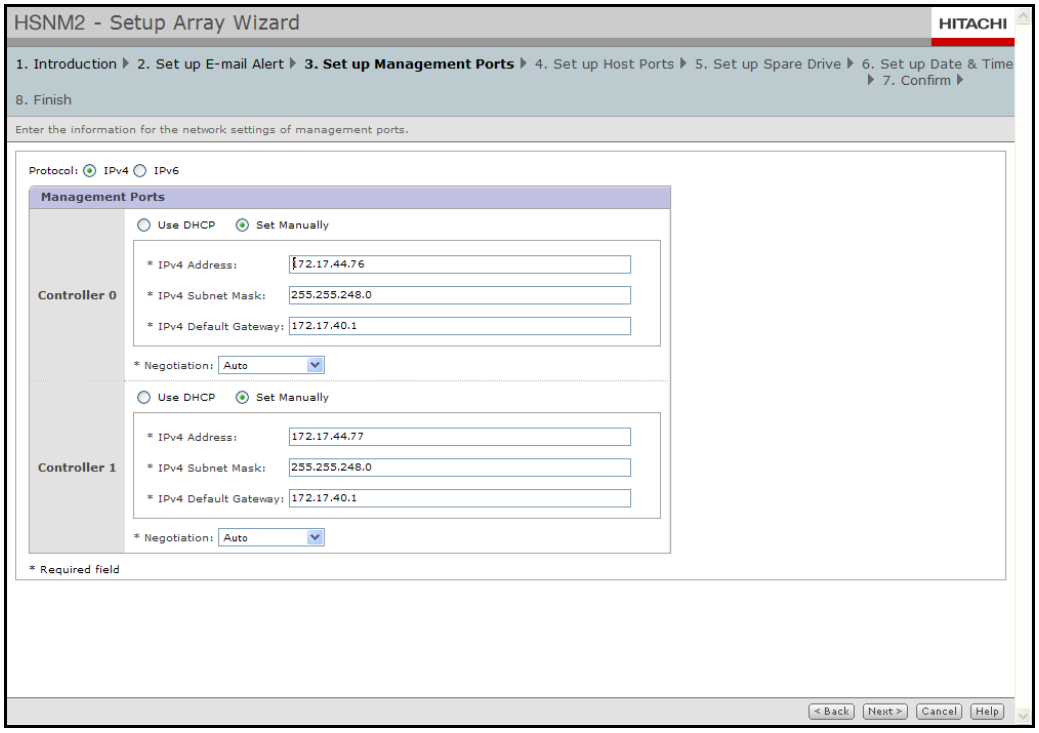


Figure 1-17: Set up Management Ports Page

Table 1-3: Configuring Management Ports

Field	Description
IPv4/IPv6	Select the IP addressing method you want to use.
Use DHCP/Set Automatically	For IPv4, **Use DHCP** configures the management port automatically, but requires a DHCP server. For IPv6, **Set Automatically** configures the management port automatically.
Set Manually	Lets you complete the remaining fields to configure the management port manually. If you use IPv6 addresses, note that these addresses are based on Ethernet addresses. If you replace the array, the IP address is changed. Therefore, you may want to consider using the manual setting. As you complete the settings, record them in Table 1-6 on page 37.
If You Selected the IPv4 Protocol in the Set Up Management Ports Page:	
IPv4 Address	Static Internet Protocol address that client PCs use to access the base unit's management port.
IPv4 Subnet Mask	Subnet mask that client PCs use to access the base unit's management port.
IPv4 Default Gateway	Default gateway that client PCs use to access the base unit's management port.
Negotiation	Use the default (**Auto**) setting to auto-negotiate speed and duplex mode, or select a fixed speed/duplex setting.
If You Selected the IPv6 Protocol in the Set Up Management Ports Page:	
IPv6 Address	Static Internet Protocol address that client PCs use to access the base unit's management port.

Table 1-3: Configuring Management Ports (Continued)

Field	Description
Subnet Prefix Length	Subnet prefix length that client PCs use to access the base unit's management port.
IPv6 Default Gateway	Default gateway that client PCs use to access the base unit's management port.
Negotiation	Use the default (**Auto**) setting to auto-negotiate speed and duplex mode, or select a fixed speed/duplex setting.

If your:

- Management console is directly connected to a management port on one controller, enter settings only for that controller (you will configure the management port settings for the other controller later).
- Management console is connected via a switch or hub, you can enter settings for both controllers now.

Set up host ports

a. In the Set up Host Ports page:

- Configure the array's default iSCSI or Fibre Channel data port settings to match the subnet where the array will be used.

  iSCSI data ports must match the subnet where the array will be used (see Figure 1-18). The default IP addresses for the data ports are shown in Table 1-4 on page 26.

  For Fibre Channel arrays, configure the port addresses, transfer rates, and topology for each Fibre Channel port (see Figure 1-19 on page 26 and Table 1-5 on page 26).

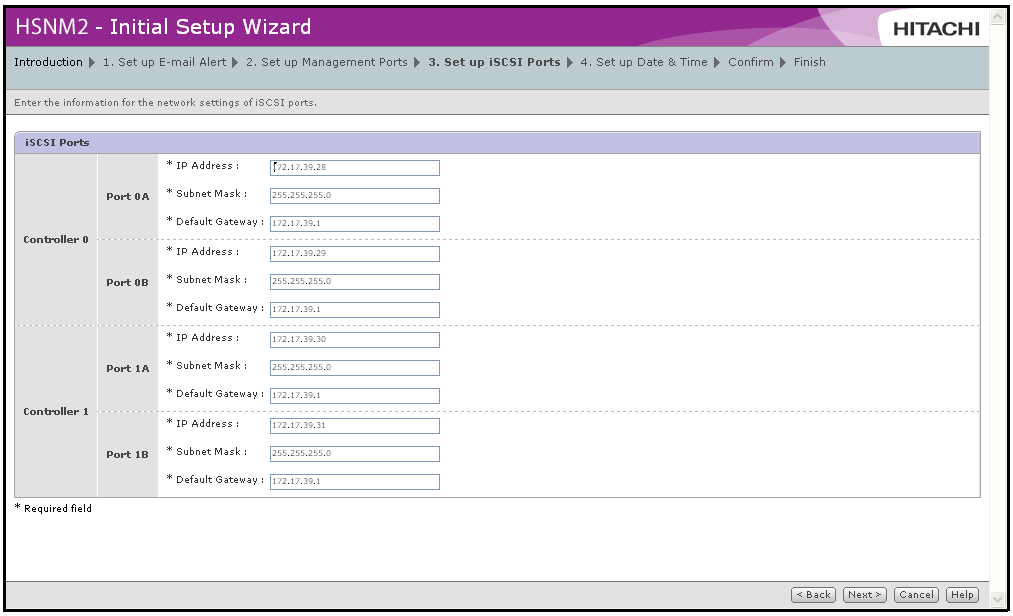


Figure 1-18: Set Up Host Ports Page (iSCSI)

Table 1-4: Default IP Addresses for iSCSI Data Ports

Controller	Port A	Port B
0	192.168.0.200	192.168.0.201
1	192.168.0.208	192.168.0.209

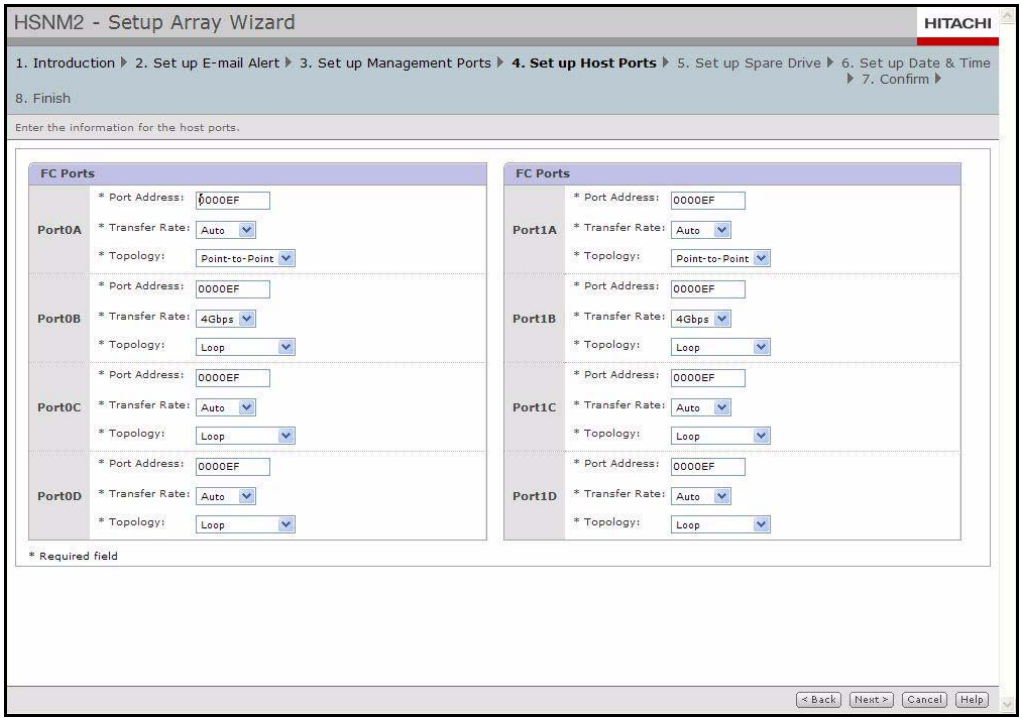


Figure 1-19: Set Up Host Ports Page (Fibre Channel)

Table 1-5: Configuring Fibre Channel Ports

Field	Description
Port Address	Enter the address for the Fibre Channel port.
Transfer Rate	Select a fixed data transfer rate from the drop-down list that corresponds to the maximum transfer rate supported by the device connected to the storage system, such as the server or switch.
Topology	Select the topology in which the port will participate: • Point-to-Point = port will be used with a Fibre Channel switch. • Loop = port is directly connected to the Fibre Channel port of an HBA installed in a server.

- After entering the settings, record them in Table 1-6 on page 37 (you will refer to them later). Refer to the note on the previous page regarding management consoles directly connected to a management port on one controller or connected via an Ethernet switch or hub, or arrays with one controller.

- Click **Next** to display the Set up Spare Drive page.

Configuring spare drives

The Set up Spare Drive page shows all the spares that can be used in case one of the drives fails. In this page:

a. Select the drives you want to use as spares. If the drives exceed what can be shown in the **Available Drives** area, use the controls at the top of this area to display other pages of drives.

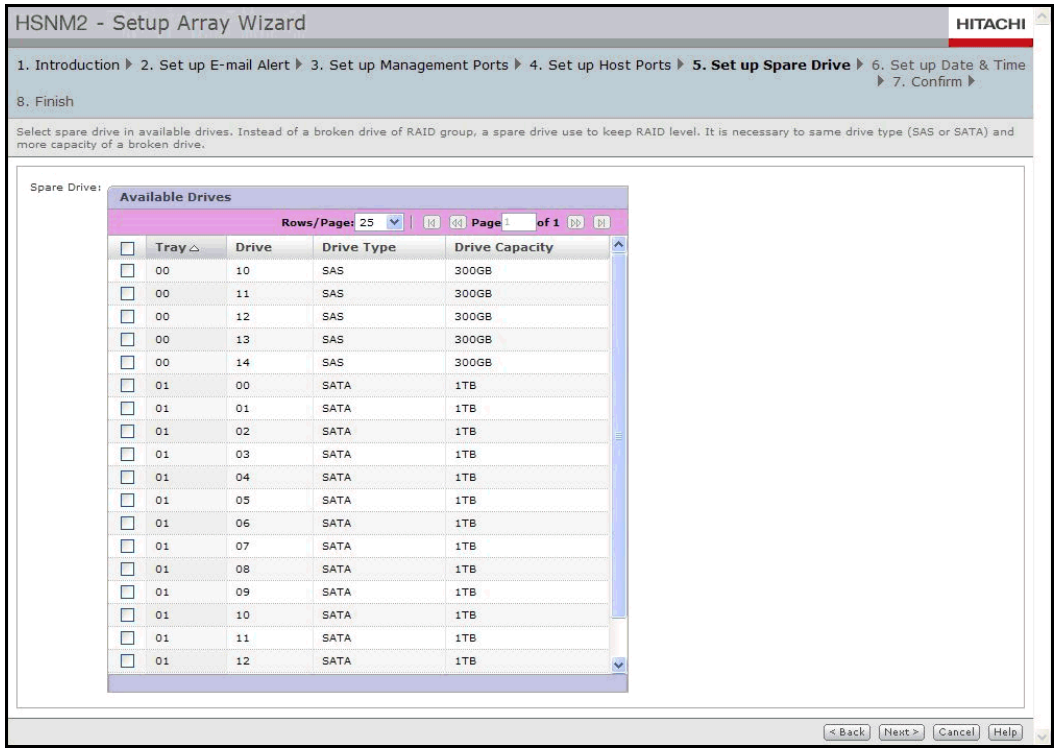


Figure 1-20: Set Up Spare Drive Page

b. After checking the spares you want to use, click **Next** to display the Set up Date & Time page.

Configure system date and time

In the Set up Date & Time page in Figure 1-21 on page 28:

a. Select whether the date and time are to be set automatically, manually, or not at all.

b. If you select **Set Manually**, enter the date and time (in 24-hour format) in the fields provided.

c. Click **Next**.

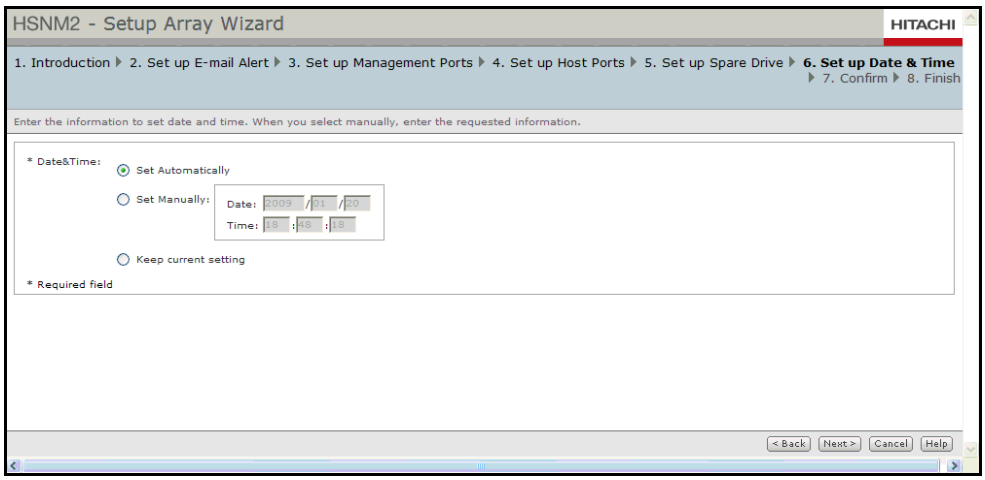


Figure 1-21: Set Up Date & Time Page

Confirming your selections

a. Review your selections in the next five confirmation pages:

- If no changes are required, click **Next**.
- If you need to change a selection, click **Back** to return to the appropriate page, make the desired changes, and then click **Next** to return the first confirmation page and verify that the change was made.
- At the last confirmation page, click **Confirm** to commit your selections.

b. When the finish page appears, click **Finish**.

c. When the next page tells you that the initial setup of the array was completed successfully, click **Finish**.

Change controller IP addresses

a. If the storage unit was not added to your storage network:

- Log out of Navigator 2.
- Power-off the storage unit (see If you need to power off the base and expansion units on page 36).
- Add the storage unit to the network.
- Reconnect the management console to the management port(s).
- Restart your browser and log in to Navigator 2 again.

NOTE: Configure the console for the same subnet on which the base unit is installed. Otherwise, an error message appears when you try to access Navigator 2.

b. If the Arrays page is not displayed, click **Arrays** in the Explorer pane.

c. In the Arrays page:

- Under the **Array Name** column, check the array name (which you recorded in Table 1-6 on page 37).

- Click **Edit Array**. An Edit Array page similar to the one in Figure 1-23 appears.

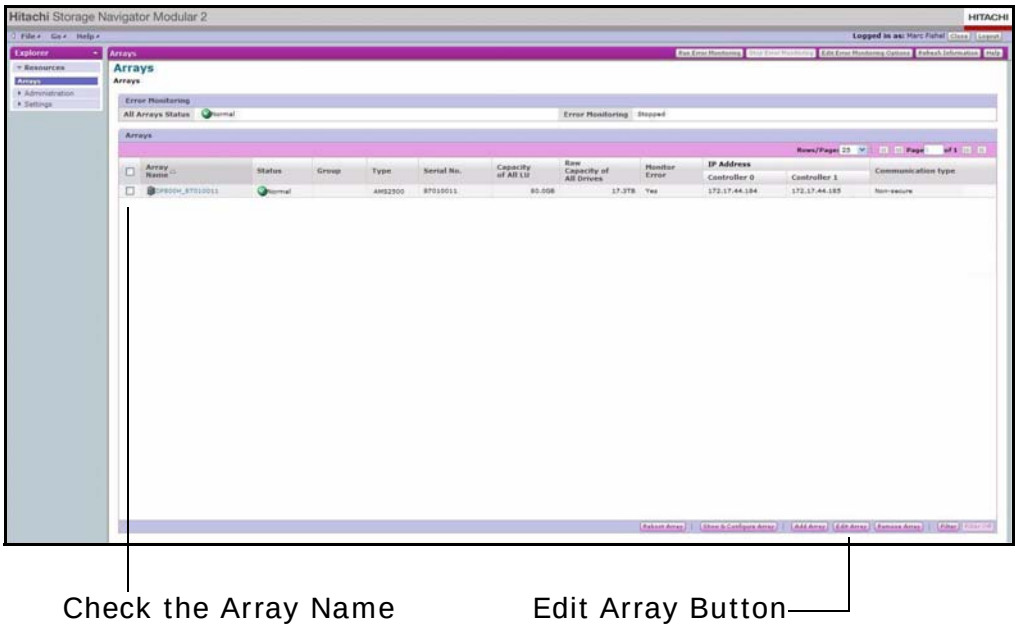


Figure 1-22: Edit Array Button and Example of Array Names

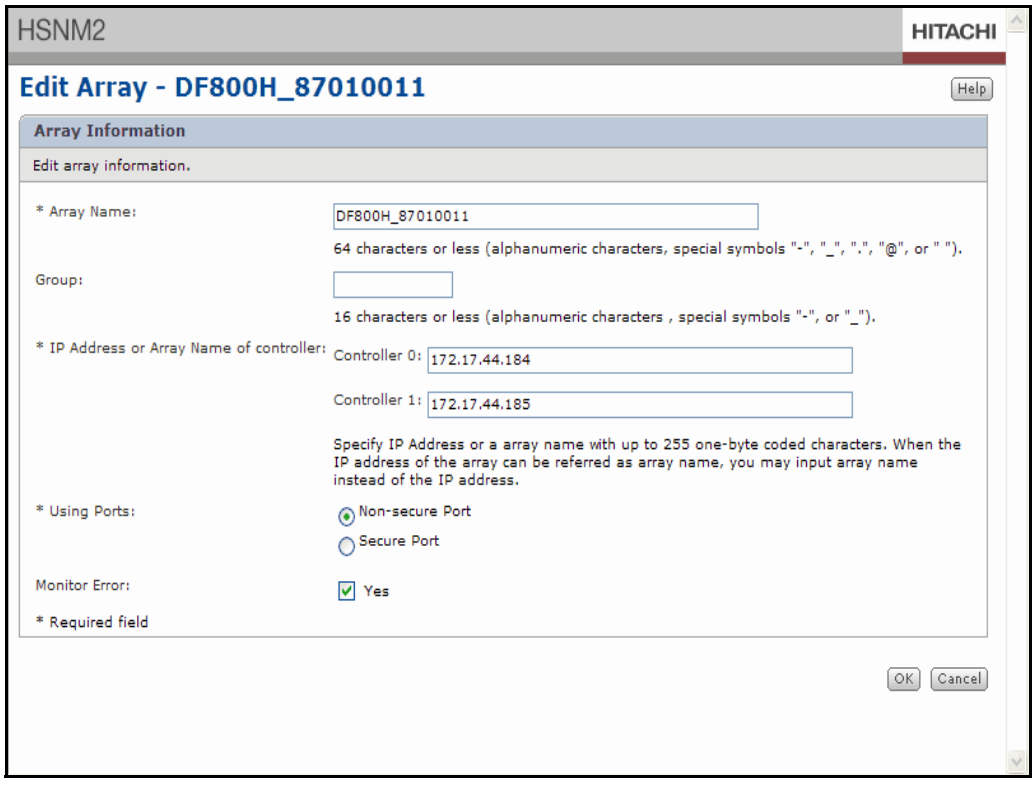


Figure 1-23: Example of Edit Array Page

d. In the **IP Address OR Host Name of controller** field, enter the same controller IP address(es) recorded in Table 1-6 on page 37. Refer to the note on page 25 regarding management consoles directly connected to a management port on one controller or connected via a switch or hub.

e. Click **OK**.

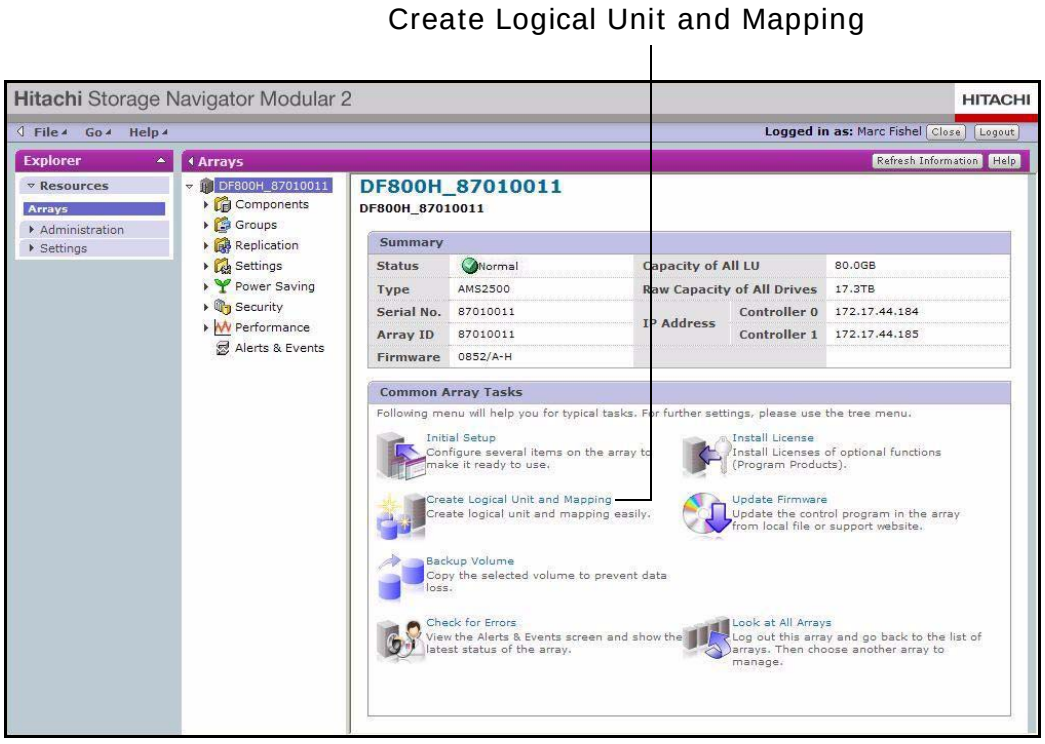
f. When the page tells you that the array information has been edited successfully, click **Close**.

Create RAID groups, logical units, and host groups

The following sections describe how to create RAID groups, logical units, and host groups. For additional information, refer to the Navigator 2 online help.

a. If the Common Array Tasks area is not displayed, click the storage unit under the **Array Name** column

b. In the Common Array Tasks area, click **Create Logical Unit**. The Create & Map New Volume wizard starts.



c. When the introductory page appears, click **Next**. The page in Figure 1-24 on page 31 appears.

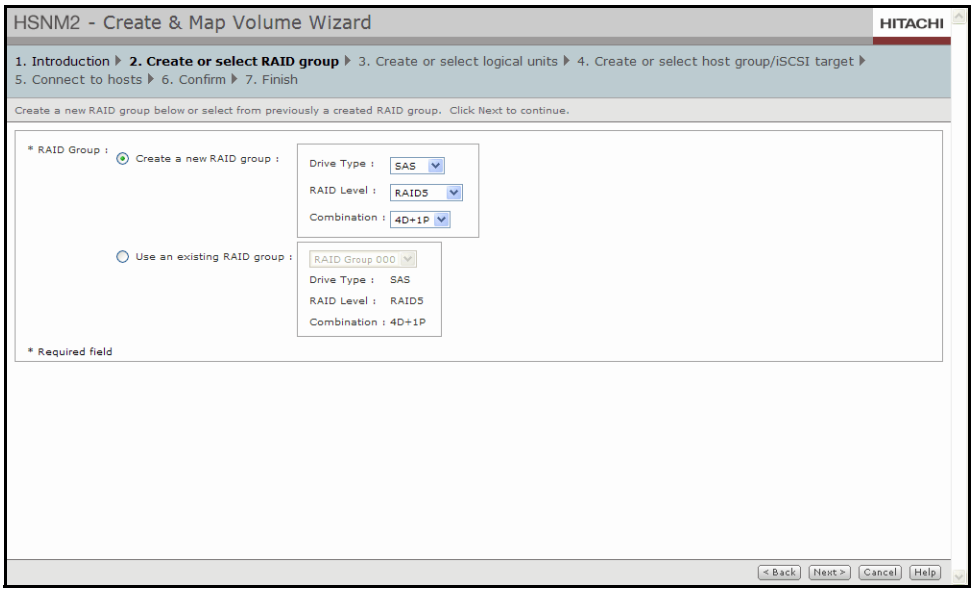


Figure 1-24: Create or Select RAID Group Page

d. Create a new RAID group or use ones that already exist:

- To create a new RAID group:

  Select **Create a new RAID group** if it is not selected.

  Use the drop-down lists to select a drive type, RAID level, and data + parity (D+P) combination for the RAID group.

- To use RAID groups that already exist:

  Select **Use an existing RAID group**.

  Select a RAID group from the drop-down list.

e. Click **Next**. The page in Figure 1-25 appears.

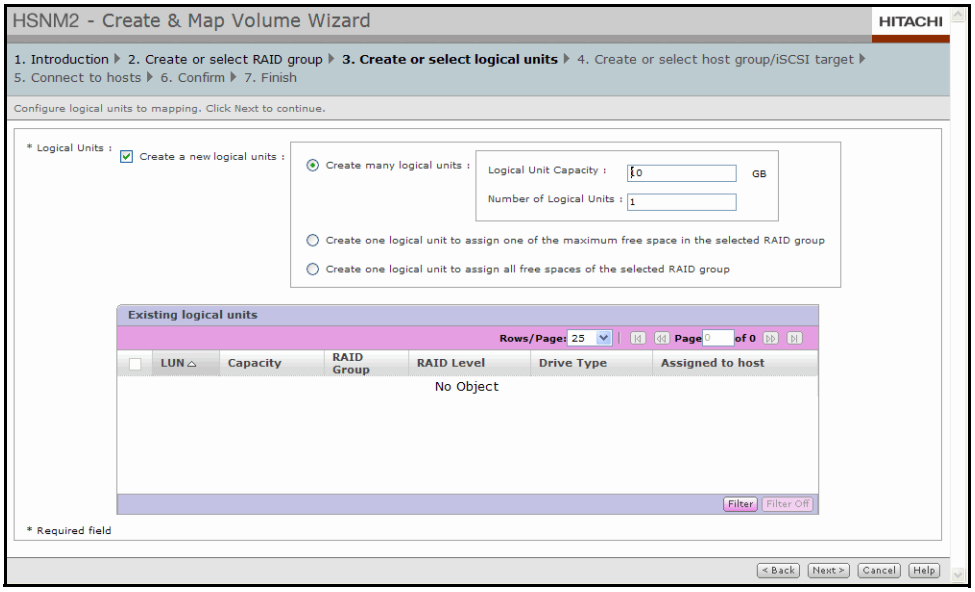


Figure 1-25: Create or Select Logical Units Page

f. Create new logical units or use ones that already exist:

- To create new logical units, select one of the following options:

  Create many logical units lets you create multiple logical units whose size and number you specify in the **Logical Unit Capacity** and **Number of Logical Units** fields. Each logical unit that will be created will be the same size that you specify in this field.

  OR

  To create a single logical unit consisting of the maximum available free space in the selected RAID group, click **Create one logical unit to assign one of the maximum free space in the selected RAID group**.

  OR

  To create a single logical unit consisting of all the available free space, click **Create one logical unit to assign all free spaces of the selected RAID group**.

- To use logical units that already exist:

  Under **Existing logical units**, check each existing logical unit you want to use. To check them all, click the check box to the left of **LUN**. (Clicking this check box again deselects all existing logical units.)

g. Click **Next**. A page similar to the one in Figure 1-26 appears.

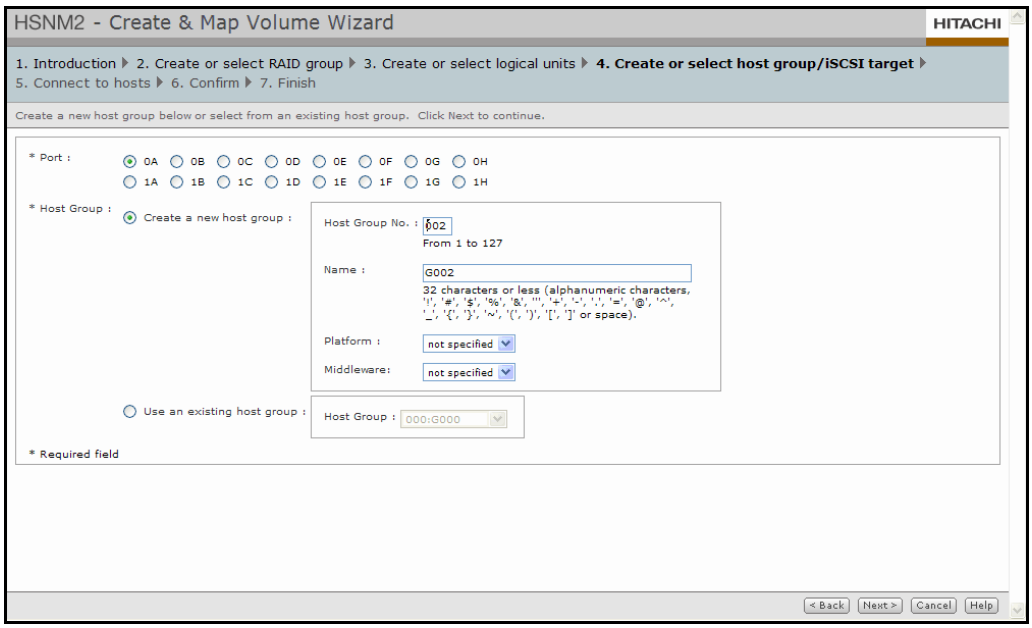


Figure 1-26: Create or Select Host Group Page

h. Select the physical port for the host group.

i. Create new host groups or use ones that already exist:

- To create new host groups:

  Select **Create a new host group**.

  In the **Host Group No** field, enter a host group number from 1 to 127.

In the **Name** field, enter a host group name from 1 to 32 characters.

Select a **Platform** and/or **Middleware** setting if appropriate for your configuration (refer to the Navigator 2 online help).

- To use host groups that have already been created:

  Select **Use an existing host group**.

  Use the **Host Group** drop-down list to select a host group.

j. Click **Next**. The Connect to Hosts page appears.

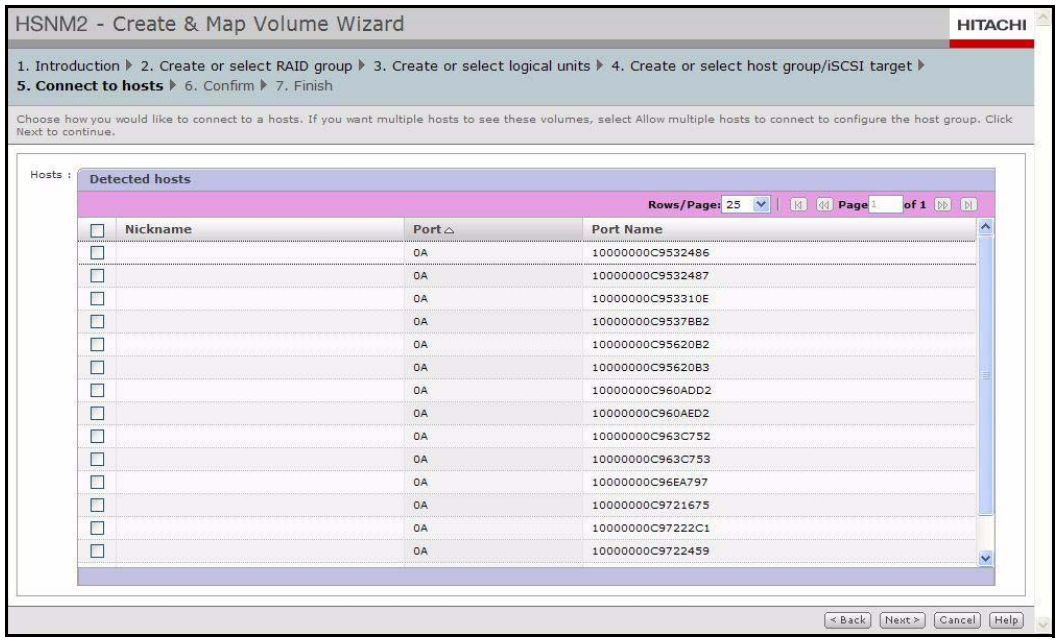


Figure 1-27: Connect to Hosts Page

k. Check all of the hosts to which you want the array to connect.

l. When you finish, click **Next**.

m. Review your selections in the next two confirmation pages:

- If no changes are required, click **Next**.
- If you need to change a selection, click **Back** to return to the appropriate page, make the desired changes, and then click **Next** to return the first confirmation page and verify that the change was made.
- At the last confirmation page, click **Confirm** to commit your selections.

n. The next page confirms that the Create & Map Volume Wizard completed successfully. To create additional RAID groups, logical units, and host groups, click **Create & Map More LU** and repeat this procedure. Otherwise, click **Finish.**

14. Configure the other controller

If you the connected the management console directly to one of the controller's management ports, perform the following procedure. Otherwise, skip to Step 15. Add the newly configured array to Navigator 2 on page 34.

a. Connect the console to the management port of the other controller and repeat the Navigator 2 procedure, starting with Step 12. Add arrays on page 18.

b. This time, follow the instructions in that step for launching the Add Array wizard manually and, when entering settings in fields, be sure to enter them in the field for the management port you have not yet configured.

c. When you finish, proceed to Step 15. Add the newly configured array to Navigator 2 on page 34.

15. Add the newly configured array to Navigator 2

After you configure both controllers, perform the following procedure to add the newly configured storage unit to Navigator 2.

a. If the Arrays page is not displayed, click **Arrays** in the left pane.

b. From the Arrays page, check the array you just configured under the **Array Name** column.

c. Click **Remove Array** to remove the selected base unit from the Arrays area.

d. When the message indicates that the base unit was removed successfully, click **Close** to remove the message.

e. In the Arrays page:

- Click **Add Array** to run the Array wizard.
- Click **Next** at the first page.

f. When the Search Array page appears (see Figure 1-28 on page 35), enter the IP address for each controller, which you recorded in Table 1-6 on page 1-37.

TIP: Alternatively, if you have many controllers, you can click **Range of IP Addresses** and enter the starting and ending IP address range in the **From** and **To** fields, respectively.

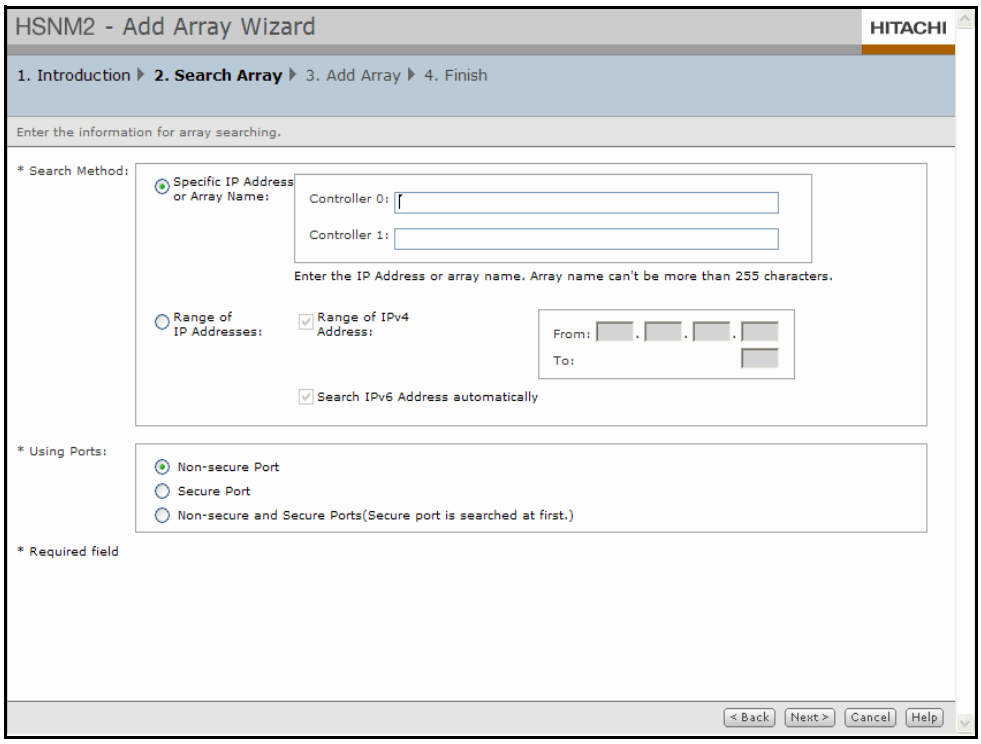


Figure 1-28: Search Array Page

g. Click **Next** and **Finish** to complete the wizard. The newly configured base unit appears in the Arrays area.

Completing your installation

16. Register your storage system

After you configure the storage system, please register it on the Hitachi Data Systems Web Portal at support.hds.com.

NOTE: If you encounter a problem registering your storage unit, please visit the Hitachi Data Systems SMB Resource Center at http://www.hds.com/solutions/smb/.

17. Download the latest firmware

After completing your installation, download the latest firmware to benefit from all product enhancements:

http://support.hds.com

18. Where to go from here

The documentation CD that came with your base unit includes a number of host installation guides for a variety of popular operating systems. To optimize the base unit for use with your operating system, we recommend

that you refer to the appropriate host installation guide for your operating system. The following host installation guides can also be downloaded from the Hitachi Data Systems Web Portal (see page 38).

Fibre Channel Host Installation Guide

- *AMS 2000 Family Host Installation Guide for Fibre Channel* (MK-08DF8189)

iSCSI Host Installation Guide

- *AMS 2000 Family iSCSI Host Installation Guide* (MK-08DF8188)

You may also need to select the appropriate platform and middleware settings using Navigator 2. For more information, refer to the *AMS 2500 Storage System Hardware Guide* (MK-97DF8007).

Perform any additional configuration activities

To complete the configuration procedure, perform the following configuration tasks based on your storage and environmental requirements (for details, see the Navigator 2 online help):

- Enable the unit's Secure Sockets Layer (SSL) feature
- Create, format, delete, and filter logical units
- Create, edit, initialize, delete, and filter targets
- Back up volumes to prevent data loss
- Perform local replication tasks (create, edit, split, resync, restore, and delete pairs)
- Enable license keys for any Hitachi storage features that require them
- Change nicknames for iSCSI hosts (iSCSI arrays only)
- Create, edit, and delete CHAP users (iSCSI arrays only)

If you need to power off the base and expansion units

Use the following procedure:

WARNING! Do not remove the power cords from the rear of the base unit without first setting the *Hitachi* switch to the OFF position.

a. Stop all host I/O to the base and expansion units.

b. Press the **Power** switch on the lower right side of the base unit front panel to the OFF position:

c. Confirm that the **Power** LED is OFF.

d. Turn off all breakers.

e. Remove the power cables from the power receptacles on the base unit rear panel.

f. Verify that the green LEDs above each power receptacle on the rear panel are OFF and that the green **READY** LED on the front panel is OFF.

Recording configuration settings

We recommend that you make a copy of the following table and record your configuration settings for future reference.

Table 1-6: Recording Configuration Settings

Field	Description
Array Name	
Email Notifications	
Email Notifications	❑ Disabled ❑ Enabled (record your settings below)
Domain Name	
Mail Server Address	
From Address	
Send to Address Address 1: Address 2: Address 3:	
Reply To Address	
Management Port Settings	
Controller 0	
Configuration	❑ Automatic (Use DHCP) ❑ Manual (record your settings below)
IP Address	
Subnet Mask	
Default Gateway	
Controller 1	
Configuration	❑ Automatic (Use DHCP) ❑ Manual (record your settings below)
IP Address	

Table 1-6: Recording Configuration Settings (Continued)

Field	Description
Subnet Mask	
Default Gateway	
LUN Settings	
RAID Group	
Free Space	
LUN	
Capacity	
Stripe Size	
Format the Logical Unit	❑ Yes ❑ No

Additional information

Late-breaking information

The Hitachi Adaptable Modular Storage 2500 Release Notes contain late-breaking information that may not be included in the product documentation. Refer to the supplied documentation CD or visit the Hitachi Data Systems Web Portal:

support.hds.com

Product registration

Refer to the Hitachi Data Systems Web Portal:

support.hds.com

NOTE: If you encounter a problem registering your storage unit, please visit the Hitachi Data Systems SMB Resource Center at http://www.hds.com/solutions/smb/.

Product documentation

Refer to the supplied documentation CD or visit the Hitachi Data Systems Web Portal:

support.hds.com

Compatibility

Refer to the interoperability information at:

www.hds.com/products/ interoperability

Firmware (microcode)

Refer to the Navigator 2 online help and to the Hitachi Data Systems Web Portal:

support.hds.com

Troubleshooting

Refer to the Hitachi Data Systems Web Portal:

support.hds.com

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