



Hitachi Simple Modular Storage 100

Auto Migration Assistant Guide

FASTFIND LINKS

Auto Migration Assistant Guide



MK-97DF8168-10



043-100279-01

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Hitachi Simple Modular Storage 100 Auto Migration Assistant Guide

Welcome to the Hitachi Simple Modular Storage 100 Auto Migration Assistant Guide.

The Hitachi Simple Modular Storage 100 array is a powerful storage solution that provides a range of benefits, features, and economics from its ability to use familiar, proven, and widespread networking technologies. Your Hitachi Simple Modular 100 is designed for businesses that want to improve the reliability, availability, serviceability, and performance of their storage systems.

This document contains all the information you need to relocate data from your current (“source”) array to a new (“target”) array. If you encounter a problem, refer to the troubleshooting suggestions in the *Hitachi Simple Modular Storage 100 User's Guide* (MK-97DF8061) on the supplied documentation CD.

Overview

There are two methods for migrating data from a source array to a target array: a direct connect method and a switch method. The following figure shows a flow chart that indicates the conditions when each migration method can be used. For more information, refer to the sections that follow.

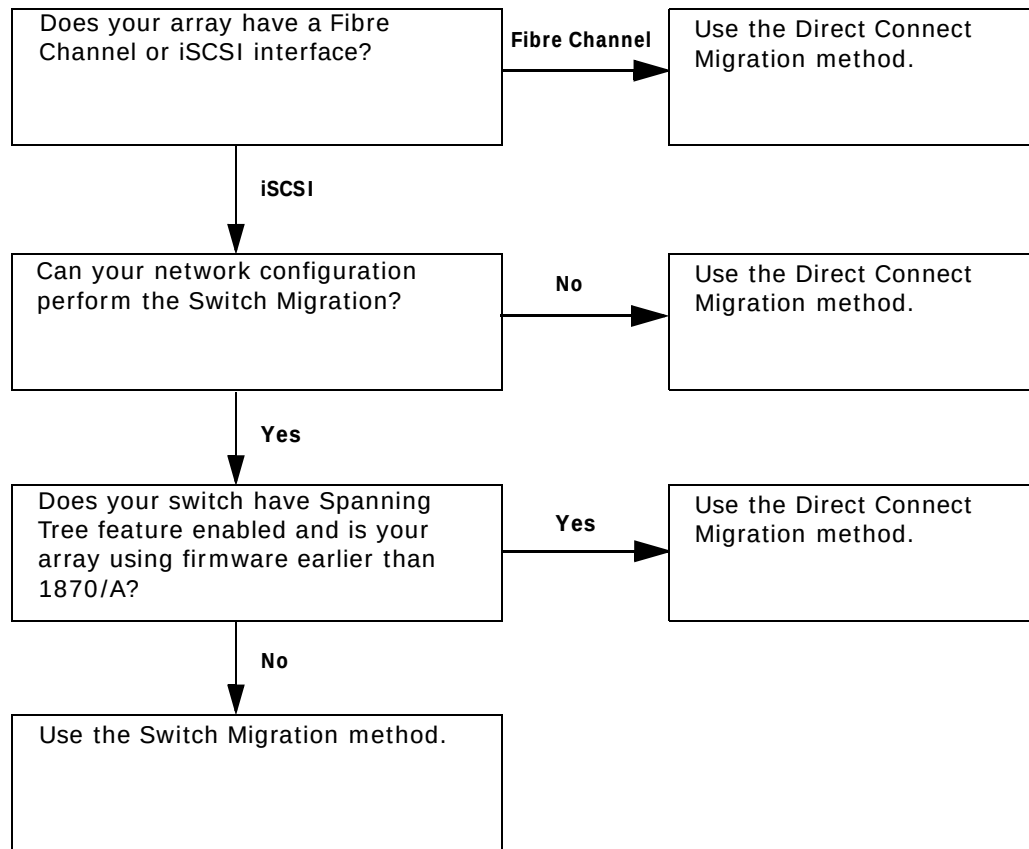


Figure 1: Auto Migration Flowchart

Direct connect migration method

The direct connect migration method is the only migration method for Fibre Channel arrays. This migration method can also be used with iSCSI arrays connected to a network switch that either does not support a Spanning Tree Protocol (STP) function, or where it is not desirable or not possible to disable the switch's STP function (for more information about STP, see [About the Spanning Tree Protocol on page 4](#)).

With this migration method, the source and target arrays are directly connected to each other using data migration cables. This migration method requires host input/output (I/O) operations to stop before switching arrays.

Switch migration method

The switch migration method is supported by arrays with the following requirements:

- Solaris v8, v9, v10, with MPxIO enabled
- Microsoft Windows 2003 Service Pack 1, Microsoft Windows Server 2003 R2 Service Pack 2, or Microsoft Windows Server 2008 with one of the following:
 - Microsoft Windows MPIO enabled and array firmware is 1870/A or later
 - Hitachi Dynamic Link Manager (HDLM) enabled, with no array firmware restrictions
- Red Hat Linux v3.9, v4.5, v4.6, v5.1, or v5.2 with Device Mapper enabled
- A network switch is used with Spanning Tree functionality enabled

This migration method can be used with iSCSI arrays that interface to network switches that either do not support STP or have STP features that can be disabled during the auto-migration operation.

This migration method cannot be used with arrays whose firmware is earlier than 1870/A and whose host operating systems is one of the Microsoft Windows operating systems shown above with Microsoft Multipath Input/Output (MPIO) enabled (see [Multipathing considerations on page 35](#)).

This migration method allows data to migrate from one array to another, without having to stop host I/O operations. In addition to migrating data, this method migrates the serial number and IP addresses from the iSCSI ports on the source array to the target array. To use the switch migration method, the host, source array and target array must be connected to the same network switch. This means:

- The switch must have enough available ports to accommodate the host and all controllers on the source and target arrays.
- An Ethernet local-area network (LAN) cable is required for each connection to the switch.
- There must be a sufficient number of IP addresses in the network segment to allocate to the iSCSI ports on the source and target arrays. For example, migrating data between dual-controller arrays requires 12 IP addresses
 - Four for the source array
 - Four for the target array
 - Four that will be assigned to the source array after the migration

[Figure 2 on page 4](#) shows an example where port 0A on the source array must communicate with ports 0A, 0B, 1A, and 1B on the target array using a switch connected to both arrays.

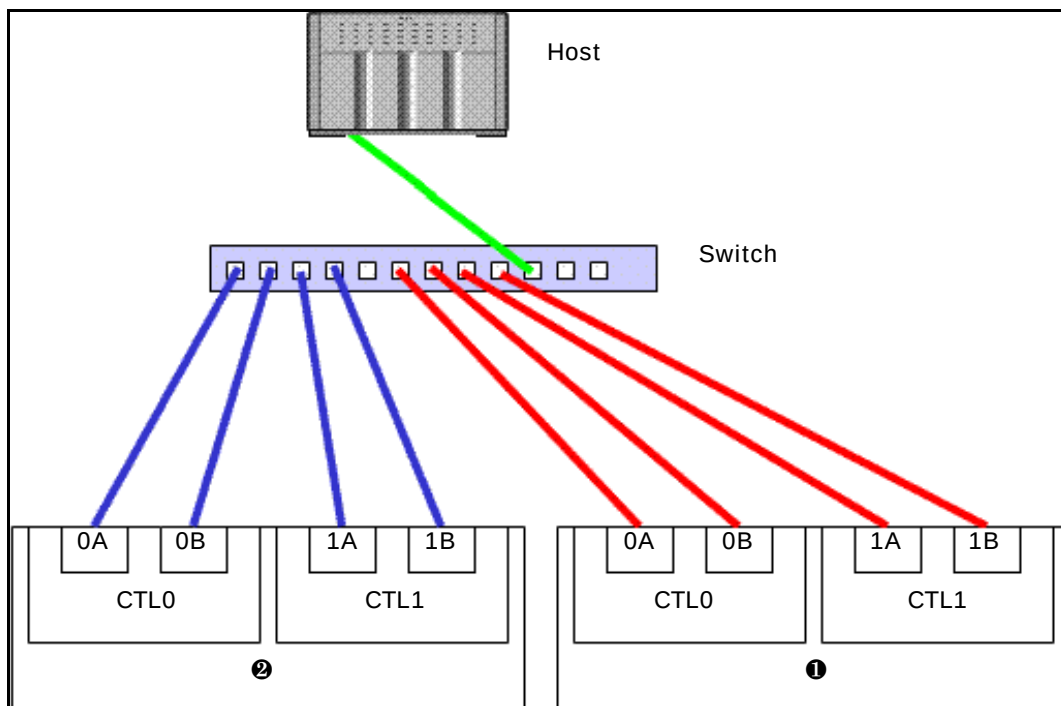


Figure 2: Example of Controllers Connected to a Switch

Legend:

- ❶ Target array
- ❷ Source array

When you use this method to migrate data, the settings in [Table 1](#) can be changed on iSCSI arrays.

Table 1: Settings That Can Be Changed During Auto Migration

Setting Target	Command	Option
Setting CHAP information	auchapuser	-add, -chg, -rm, -assign, -release
Changing a Nickname	autargetini	-chg
Setting a Host name	autargetini	-add, -rm

About the Spanning Tree Protocol

STP is a link-management protocol that provides path redundancy, while preventing undesirable loops in a network that are created by multiple active paths between stations. Loops occur when there are alternate routes between hosts.

To establish path redundancy, STP creates a tree that spans all of the switches in an extended network, forcing redundant paths into a standby (or blocked) state. In this way, STP allows only one active path at a time between any two network devices to prevent broadcast storms spawned by loops, while establishing the redundant links as a backup if the initial link fails. If one network segment in the STP becomes unreachable, the STP algorithm reconfigures the spanning tree topology and reestablishes the link by activating the standby path.

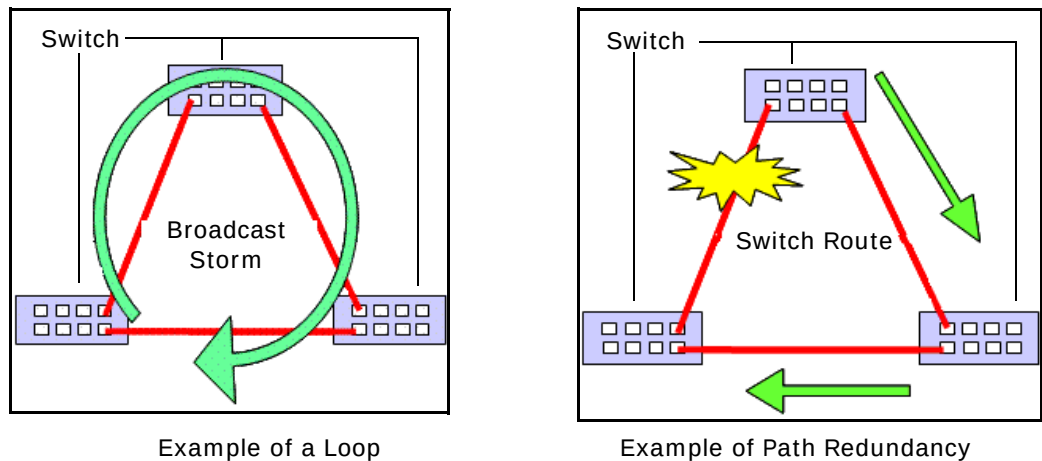


Figure 3: Avoiding Loops with STP

Without STP, both connections can become live at the same time, which can cause an endless loop of traffic on the network. With STP, a switch recognizes an I/O stoppage as a network failure and tries to reconstruct network-path information. During this time, the switch cannot communicate with the target array. For this reason, if your iSCSI array interfaces to a switch that supports STP, disable the switch's STP function to use the switch migration method or use the direct connect migration method.

Multipathing considerations

If your host uses multipathing applications, consider all multipathing implications before migrating data to the new array. For example, if your host uses MPXIO on a Microsoft Windows 2003 or 2008 host, you can only use the direct connect migration method to migrate data to a new array and should refer to the information in [Multipathing considerations on page 35](#) before migrating data to the new array.

If you use other multipathing solutions and operating systems, there may be other guidelines to consider before you migrate data. For more information, refer to the documentation for your operating system, multipathing application, and the following documents from Hitachi Data Systems:

- *Hitachi Simple Modular Storage Host Installation Guide for Fibre Channel* (MK-08DF8187)
- *Hitachi Simple Modular Storage Host Installation Guide for iSCSI* (MK-08DF8186)

Getting started

Perform the following steps to start the auto-migration procedure.



NOTE: Auto migration can take several hours to complete. Migration times depend on various factors such as drive type, drive capacity, and host I/O operations during the migration process. Migrating an array with 400 GB SAS drives, for example, can take from seven to 11 hours. To improve auto-migration times, use the Copy Pace option (described later).

1. Unpacking

Your Auto Migration Kit includes a target array that has the same drive capacity and number of controllers as the source and two auto-migration cables used for the direct connect migration method. If the target has less capacity than the source array, the migration will fail. Please return the auto-migration cables and source array when done.

2. User-supplied items

To complete your migration, you need a server connected to the source and administrator permission on Storage Navigator Modular 2 (Modular 2).

3. Verify the status of the source array

- A. Start your Web browser, launch Navigator 2 and log in.
- B. In the Explorer pane, click **Arrays**.
- C. In the Arrays window, check the source array checkbox and click **Show & Configure Array** (or click the name of the source array).
- D. In the **Summary** panel on the right, find the source array hardware serial number displayed in the **Serial No.** field., and record it below.

Source array serial number:

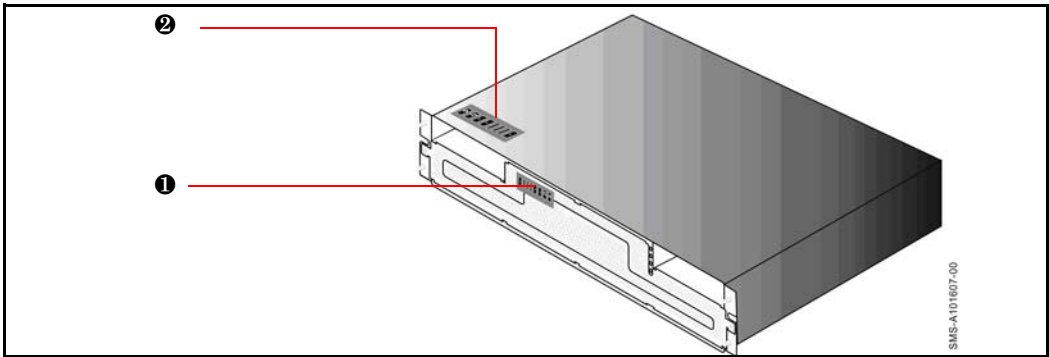


Figure 4: Finding the Serial Number on a Source Array

Legend:

- ① Serial no. field
- ② Summary panel

- E. Verify that the serial number in the **Serial No.** field matches the one on the top of the source array and on its front panel, behind the front bezel.
- F. In the **Summary** panel, record the source array firmware version shown in the **Firmware** field. Then record the IP addresses of controllers 0 and 1 for the source array shown in their respective fields in the **Summary** panel:

Source array firmware version:

Source array controller 0 IP address:

Source array controller 1 IP address

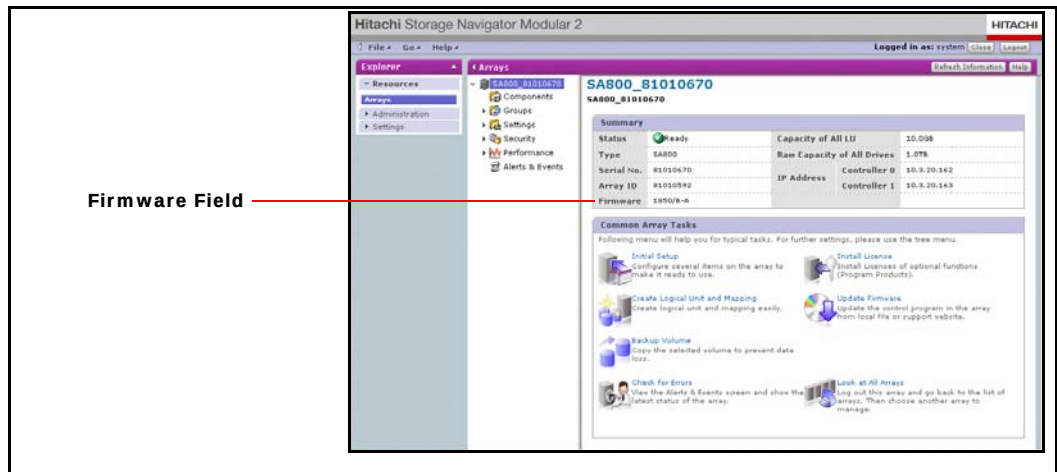


Figure 5: Firmware Field in the Summary Panel

4. Install the target array

- A. Unpack, install, and turn on your new target array using the instructions in the *Hitachi Simple Modular Storage 100 Quick Installation Guide* (MK-97DF8059).
- B. Connect the power cables, but no Ethernet cables.
- C. Turn on power to the target array and verify that the **Ready** LED on the front panel goes ON. Then turn off the target array.

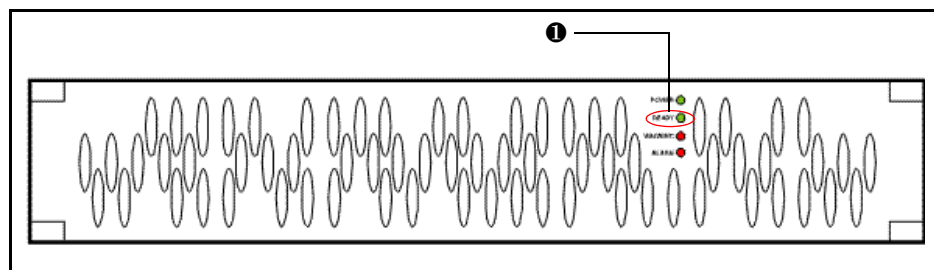


Figure 6: Finding the Ready LED

Legend:

① Ready LED

- D. Connect a console PC to a management port on the target array and then use Navigator 2 to confirm that the target array firmware is the same or higher than the source array firmware you recorded on [page 7](#). If it isn't, visit the Hitachi Data Systems Web Portal.
- E. In the Navigator 2 Explorer pane, click **Arrays**.
- F. In the Arrays window, check the target array checkbox and click **Show & Configure Array** (or click the name of the target array).
- G. Record the serial number and IP addresses of controllers 0 and 1 for the target array:

Target array serial number:

Target array controller 0 IP addresses:

Target array controller 1 IP address.



NOTE: If you wrote data to the target array, release the migration guard before migrating data to the array (see [Release the migration guard on page 31](#)). Then return to the step below.

- H. If you created TrueCopy remote replication pairs on the source array, delete them. Refer to the Navigator 2 online help and the *Hitachi TrueCopy® Remote Replication User's Guide* (MK-09DF8194). If you created Copy on Write Snapshot pairs, you do not have to delete them manually because they are deleted during the auto migration operation.
- I. Proceed to the section for the migration method you want to use:
 - To use the direct connect migration method, proceed to [Using the direct connect \(DC\) migration method](#), below.
 - To use the switch migration method, proceed to [Using the switch \(SW\) migration method on page 18](#).

Using the direct connect (DC) migration method

After performing the steps under [Getting started on page 6](#), perform the following procedure to migrate data from the source array to the target array using the direct connect migration method. Before continuing, be sure you read [Direct connect migration method on page 2](#).



NOTE: This migration method requires host I/O operations to stop before switching arrays. Please consider this when planning your auto migration.

DC-1. Connect auto-migration cables

- A. Slide the **MODE** switch on the target array back panel to the **E** position.

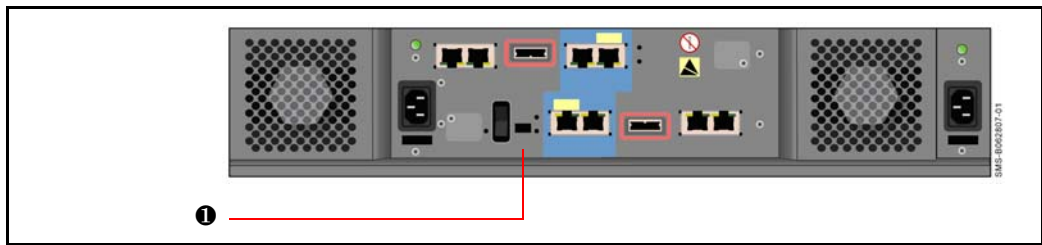


Figure 7: Finding the MODE Switch on the Target Array Back Panel

Legend:

① MODE switch

- B. Attach an auto-migration cable to the bottom auto-migration port (labeled **EXT PORT**) on the back of the source and target arrays.
- C. Attach the other auto-migration cable to the top auto-migration port (labeled **EXT PORT**) on the back of the source and target arrays.
- D. Your setup should resemble the following one.

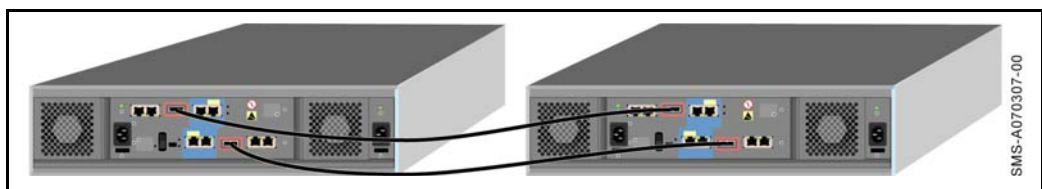


Figure 8: Confirming the Cabling Between Source and Target Arrays



WARNING! Be careful not to connect the top port on one controller with the bottom port on the other controller.

- E. Turn on power to the target array. The **Power** LED goes ON.

DC-2. Migrate data to the target array

- A. In the Navigator 2 Explorer pane, click **Arrays**.
- B. In the Arrays window, check the source array checkbox and click **Show & Configure Array** (or click the name of the source array).
- C. In the Arrays pane, click **Settings > Replacement of Array**. The Replacement of Array window appears.
- D. In the Replacement of Array window, click **Auto Migration**. The Auto Migration window appears.

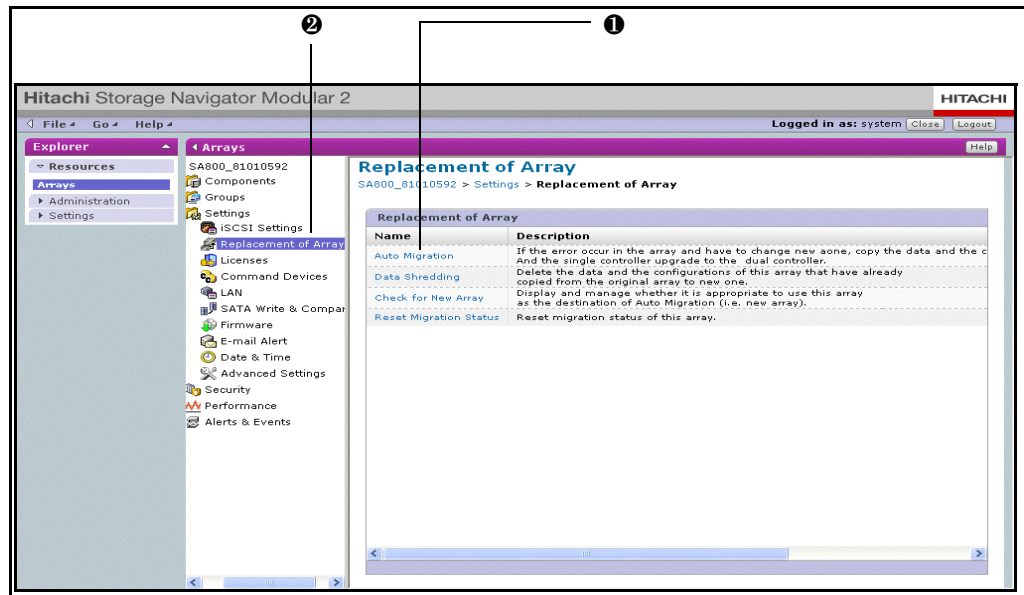


Figure 9: Auto Migration Option in the Replacement of Array Window

Legend:

- ① Click Auto Migration
- ② Click Settings > Replacement of Array

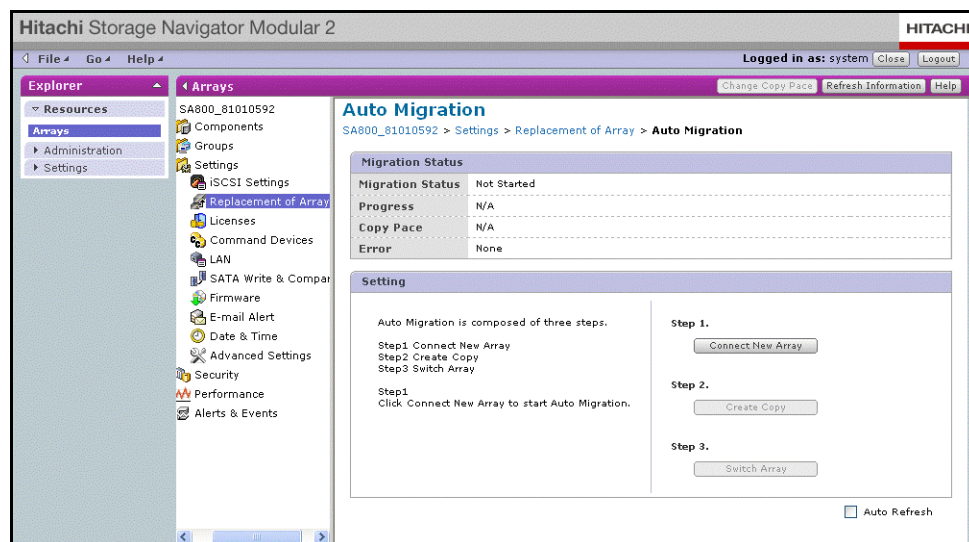


Figure 10: Auto Migration Window



NOTE: If a message appears, check that all cables are secure, click **Close** to remove the message, and click **Connect New Array** again. If the target drives do not start and an error message appears, wait a few minutes and click **Auto Migration** again.

- E. At the lower right side of the Auto Migration window, below **Step 1**, click **Connect New Array**. The Connect New Array window appears.

Figure 11: Connect New Array Window

- F. Confirm that the top option, **This lets you switch to the new array with the arrays powered off**, is selected. Then click **OK**. The following window appears.

Figure 12: Confirmation Message in the Connect New Array Window

- G. Read the information in the window. To proceed, check **Yes, I have read the above warning and wish to continue** and click **Confirm**. A Connect New Array message appears as the target array is connected to the source array, then the following window appears.

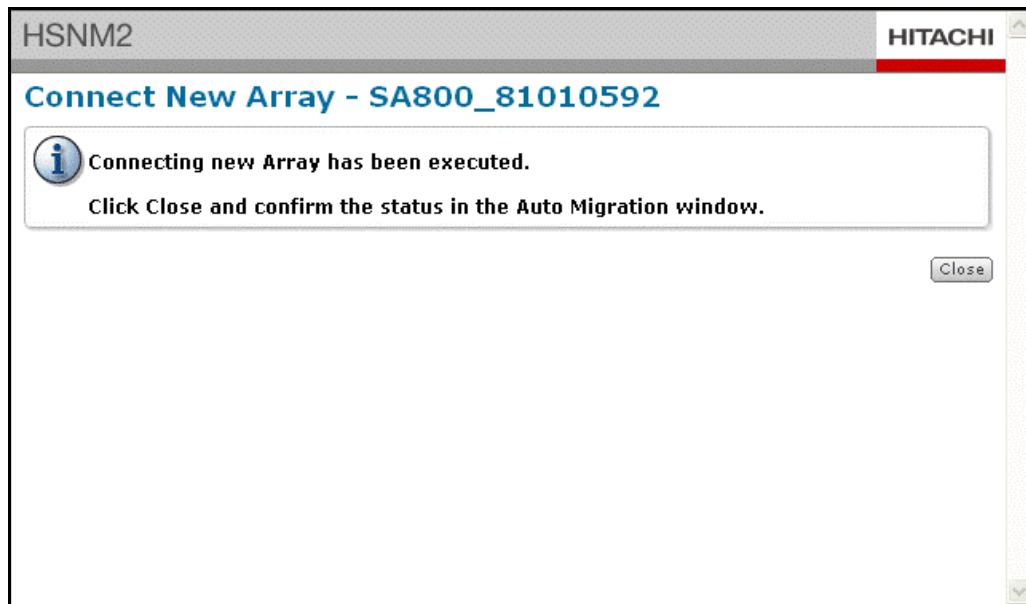


Figure 13: Connect New Array Confirmation Message

- H. Click **Close** to close the window. When the connection to the new array is completed, the Auto Migration window appears with the **Create Copy** button under **Step 2** enabled.

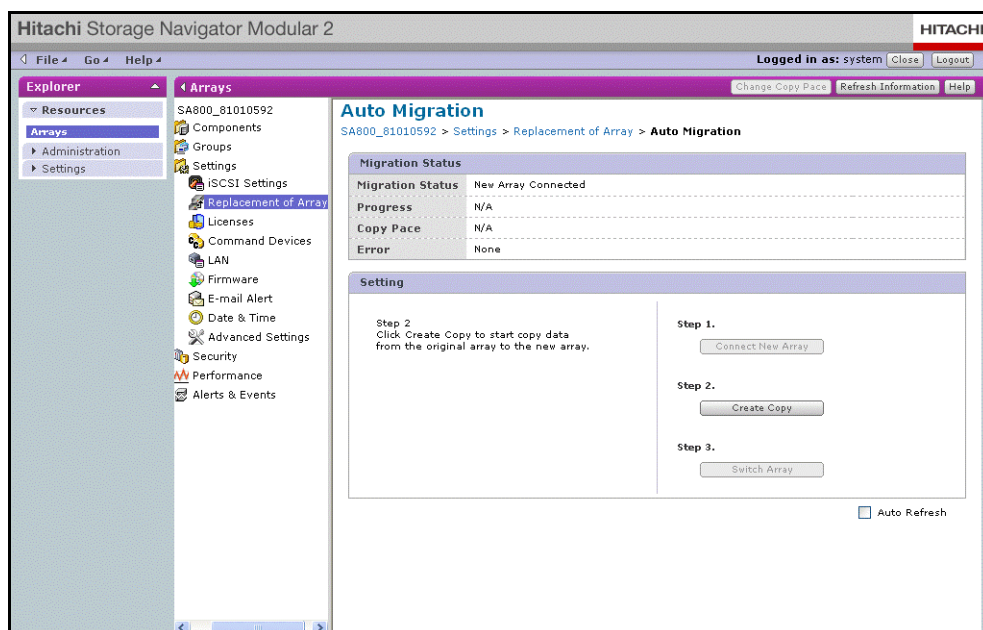


Figure 14: Auto Migration Window

- I. Click **Create Copy**. A confirmation window asks you to agree that you really want to execute this function.

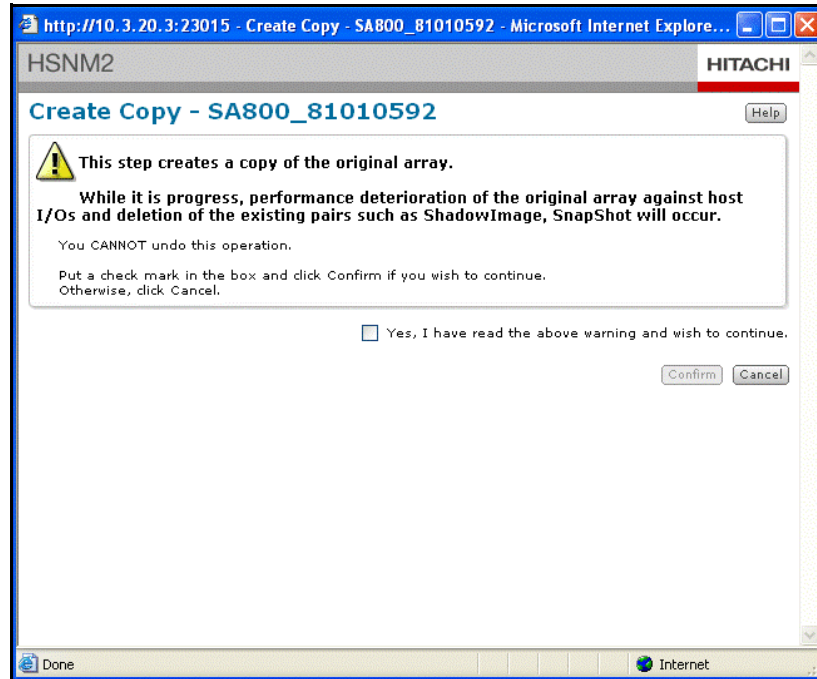


Figure 15: Confirmation Message in the Create Copy Window

- J. Read the information in the window. To proceed, check **Yes, I have read the above warning and wish to continue** and click **Confirmed**. When the Create Copy window shows that “Creating Copy” started, click **Close** to close the window and redisplay the Auto Migration window.

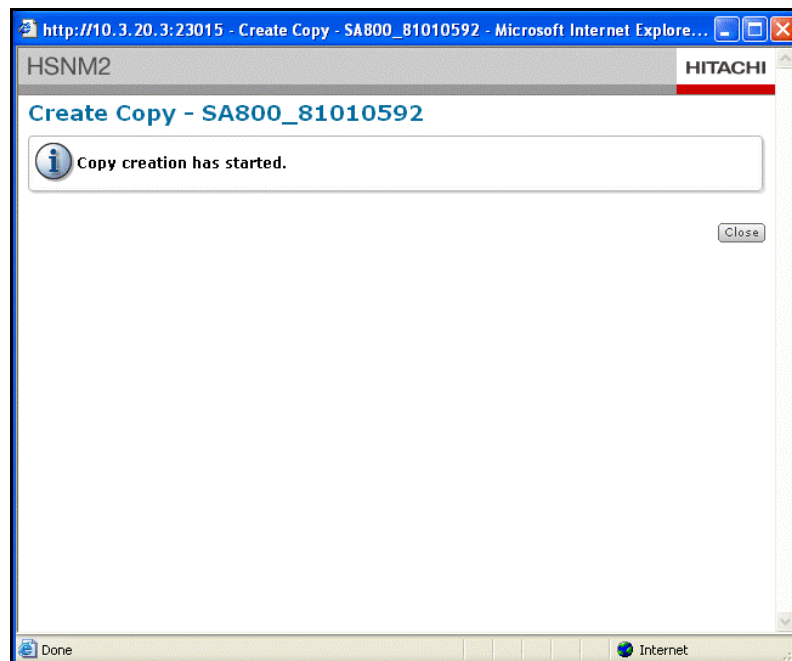


Figure 16: Creating Copy Message in the Create Copy Window

- K. When the Auto Migration window reappears, the **Migration Status** field shows the progress of the migration. To refresh the information shown, either click **Refresh Information** in the top-right area of the window periodically or check the **Auto Refresh** checkbox to automatically update the displayed information on a regular basis.



TIP: To change source array performance during migration, click **Change Copy Pace** at the top-right of the window, select one of the following options, and click **OK** and **Close**:

- Fast = copying has priority (host I/O may be slow).
- Medium = copying and host I/O have same priority.
- Slow = host I/O has priority (copying may be slow).

When the migration operation finishes, the **Migration Status** shows **Copy Created** and the **Switch Array** button under **Step 3** is enabled. Any the host writes to the source (original) array is also reflected on the target (new) array.

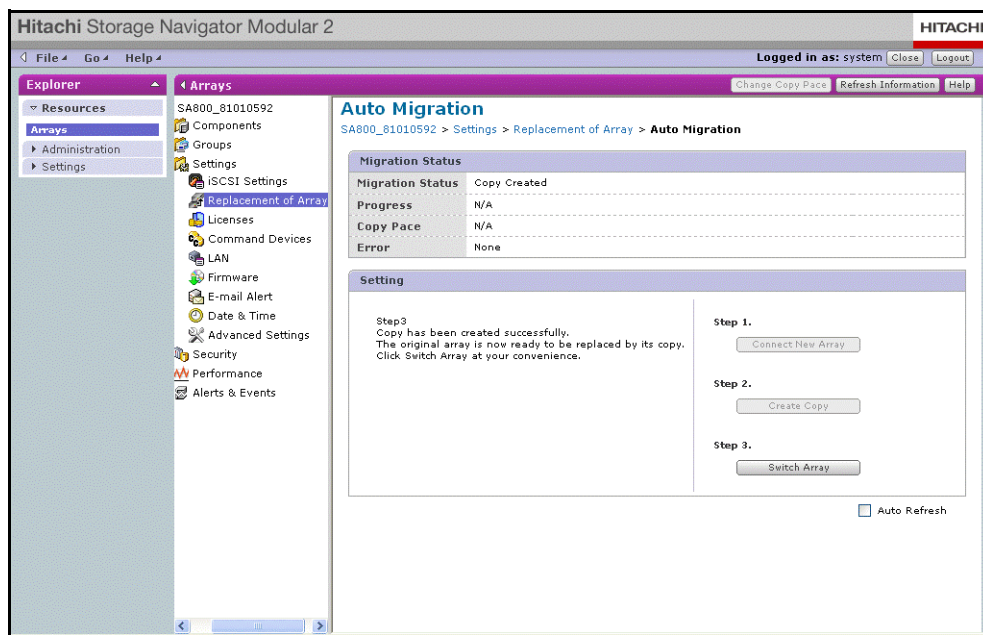


Figure 17: Auto Migration Window

- L. Click **Switch Array**. The Switch Array window appears, with a tab for each array controller.

Figure 18: Switch Array Window

M. In the **Controller 0** tab:

- Confirm the IP address, subnet mask, and gateway for controller 0 of the target array.
- For the source array, enter an unused IP address, subnet mask, and gateway for controller 0. If you do not normally specify a gateway setting, type **0.0.0.0**. Select the negotiation to be used for controller 0 of the source array. Record the IP address below (you will refer to it if you shred the data on the source array).

Controller 0 IP addresses:

N. Click the **Controller 1** tab. Then repeat the previous step for controller 1 and record the IP address below.

Controller 1 IP addresses:



TIP: We recommend that you not select **Use DHCP** for the original array settings. Otherwise, it may be difficult to ascertain the IP address of the source array if you want to shred data at the end of the migration procedure.

O. Click **OK**. The following window appears.

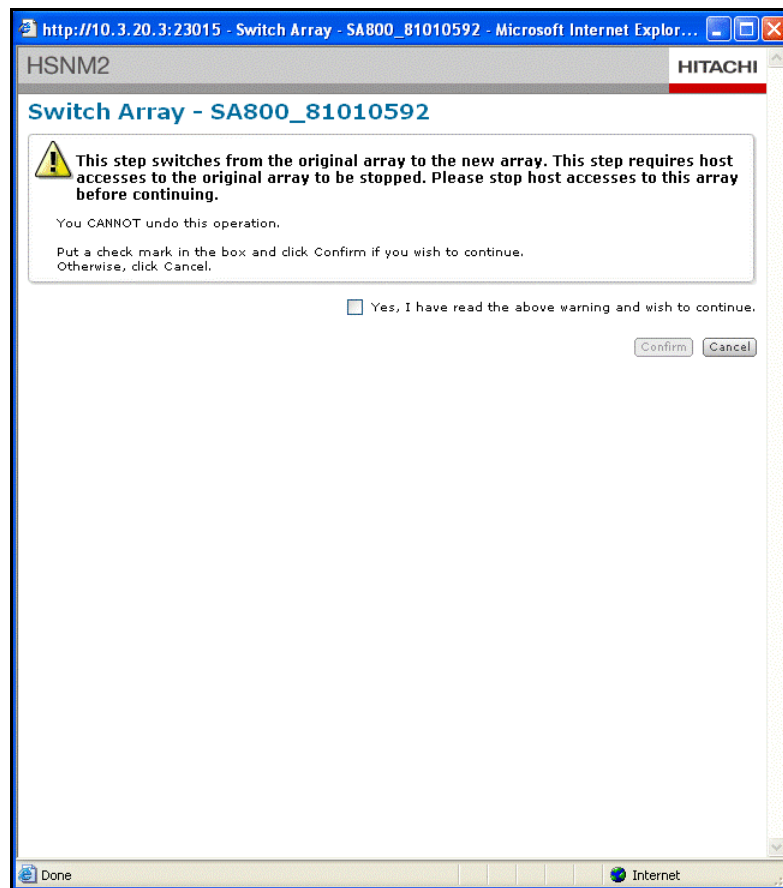


Figure 19: Confirmation Message in the Switch Array Window

- P. Read the information in the window. To proceed, check **Yes, I have read the above warning and wish to continue** and click **Confirm** to continue. A message states the array switching procedure is in progress. When the operation completes, the following window appears.



Figure 20: Switch Array Completed Message

- Q. Click **Close** to close the window and redisplay the Auto Migration window.
- R. Stop all host and application I/O to the source array. Remove the data port cables from the source array and attach them to the target. Do not remove the management port and auto-migration cables.
- S. Use the **MAIN SW** switch on the back of the source array to turn off the array. Then turn off the target array using its **MAIN SW** switch, remove the cables from the auto-migration ports, and return the target **MODE** switch to the **N** position.
- T. Turn on the target array. When the **READY** LED goes ON, use the target array as you did the source array. If the **Ready** LED does not go ON after 20 minutes, see "Hitachi Storage Navigator Modular 2 cannot communicate with the array" in the user's guide. (Hosts using QLogic HBAs may take up to 20 minutes to see logical units on the new array.)
- U. Proceed to [Completing the auto-migration procedure on page 25](#).

Using the switch (SW) migration method

After performing the steps under [Getting started on page 6](#), perform the following procedure to migrate data from the source array to the target array using the switch migration method. This migration method is supported by arrays using the host operating systems and associated requirements described under [Switch migration method on page 3](#).



NOTE: This migration method cannot be used with Microsoft Windows 2003 and 2008 operating systems that have MPIO enabled (see [Multipathing considerations on page 35](#)).

SW-1 Connect the cables to the target array

- A. Using Ethernet cables, connect all iSCSI ports on the source and target arrays to the same network switch. The arrays and switch must be on the same subnet.

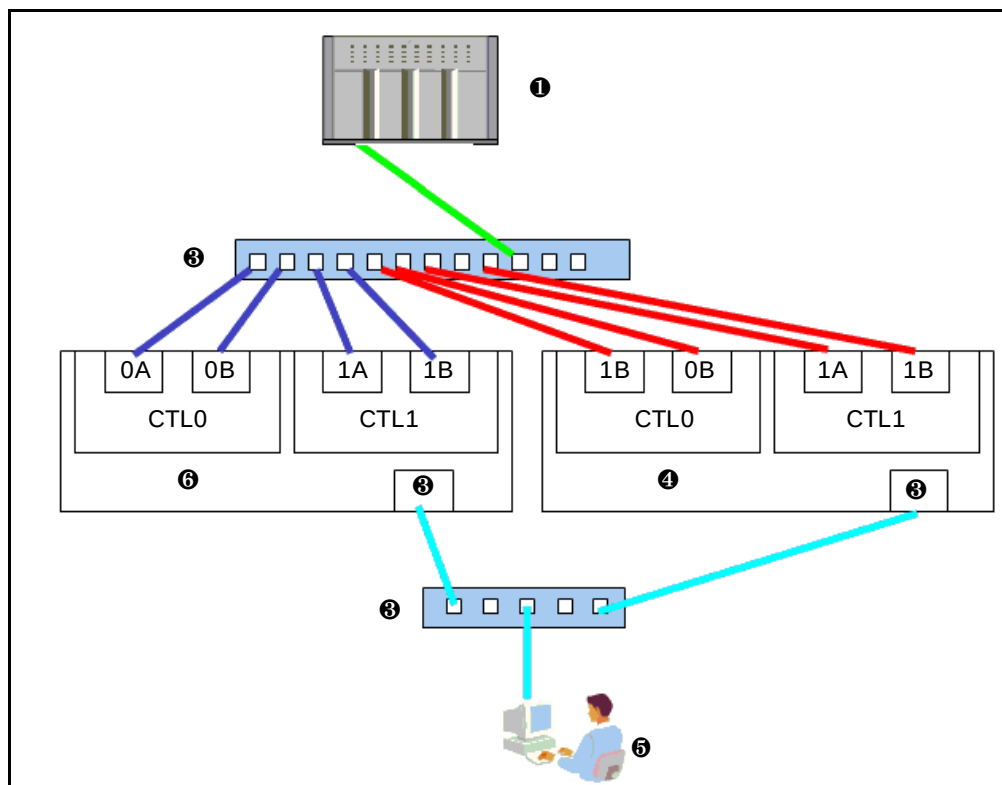


Figure 21: Switch Migration Method

Legend:

- | | |
|---|------------------|
| ① | Host |
| ② | Switch |
| ③ | LAN |
| ④ | Target array |
| ⑤ | Navigator 2 user |
| ⑥ | Source array |

- B. If the switch supports STP, disable STP. (refer to the documentation for your switch).

SW-2 Record pair information

- A. If you are using local or remote replication, record the pair information, the LUs that make up the volumes, LU size, bandwidth if applicable, and other information about the pairs, so the pair information can be recreated using the target array. Refer to the Navigator 2 online help.
- B. If you use Copy-on-Write SnapShot to back up volumes on the source array, back up the data to an external device such as a tape library. Refer to the *Hitachi Simple Modular Storage Copy-on-Write SnapShot User's Guide* (MK-97DF8018).



CAUTION! Auto migration deletes all Shadow Image and Copy-on-Write SnapShot pairs, and all data in the S-VOL of the Copy-on-Write SnapShot pair.

SW-3 Copy data to the target array

- A. In the Explorer pane, click **Arrays**.
- B. In the Navigator 2 **Arrays** pane for the source array, click **Settings > Replacement of Array**. The Replacement of Array window appears.

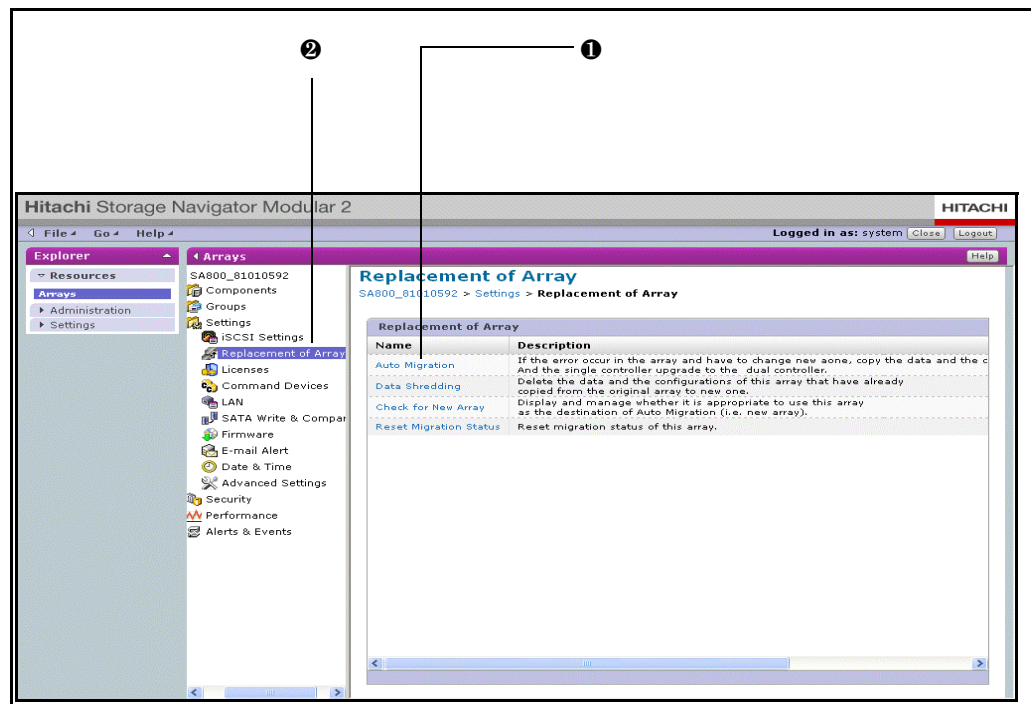


Figure 22: Replacement of Array Screen

Legend:

- ① Click Auto Migration
- ② Click Settings > Replacement of Array

- C. In the Replacement of Array window, click **Auto Migration**. The Auto Migration window appears.

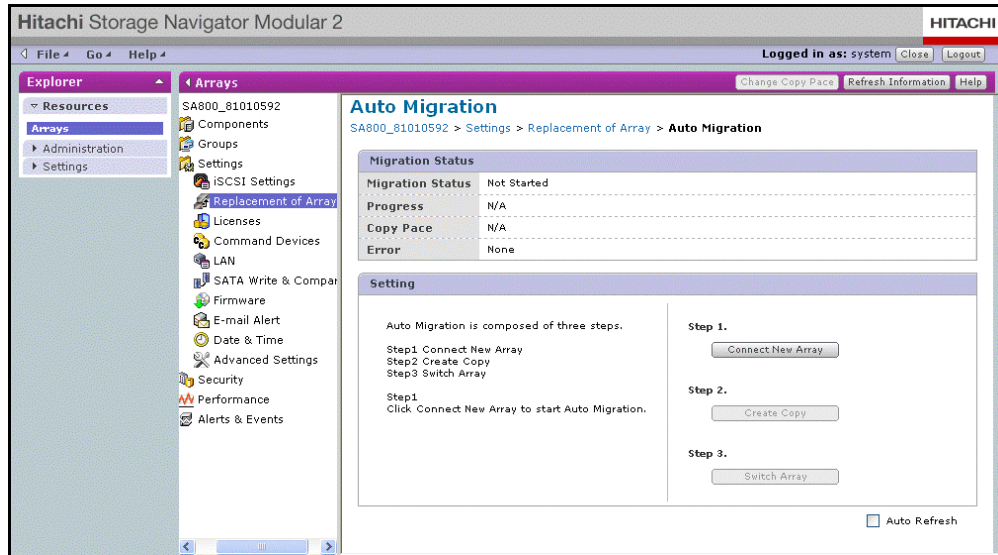


Figure 23: Auto Migration Window

- D. At the lower right side of the Auto Migration window, below **Step 1**, click **Connect New Array** (shown in the orange circle below). The Connect New Array window appears.

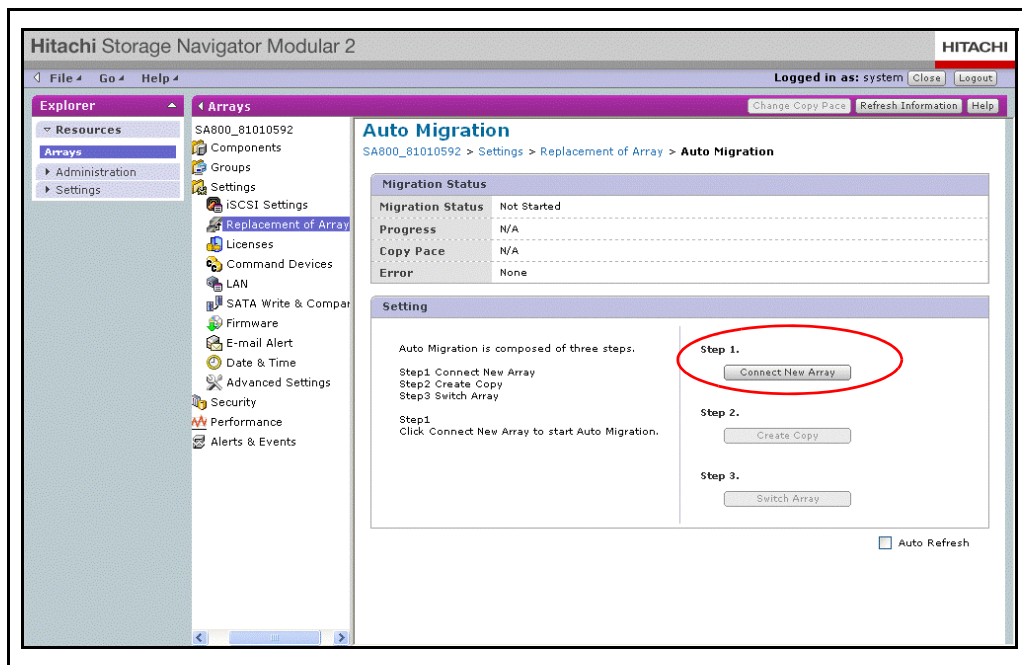


Figure 24: Auto Migration Window with Connect New Array Highlighted

- E. Click the bottom radio button: **This lets you switch to the new array while the arrays are running. (iSCSI interface only).**



NOTE: If the source array has Fibre Channel ports, the bottom radio button will be gray and unavailable.

HSNM2 HITACHI

Connect New Array - SA800_81010592

Help

Connect New Array

Select connection type between this array and the new array.

Connection Type: ☐ This lets you switch to the new array with the arrays powered off.

☒ This lets you switch to the new array while the arrays are running. (iSCSI interface only)

New Array Information:

* Array ID:

Controller 0:

* IP Address for Port 0A:

* Port Number for Port 0A:

* IP Address for Port 0B:

* Port Number for Port 0B:

Controller 1:

* IP Address for Port 1A:

* Port Number for Port 1A:

* IP Address for Port 1B:

* Port Number for Port 1B:

* Required field

OK Cancel

Figure 25: Connect New Array Window

- F. In the **Array ID** field, enter the target array serial number you recorded on [page 8](#).
- G. In the **IP Address** fields, enter the default IP addresses for each target array controller, which you recorded on [page 8](#).
- H. Leave the port values at their default settings.
- I. Click **OK**. The following window appears.

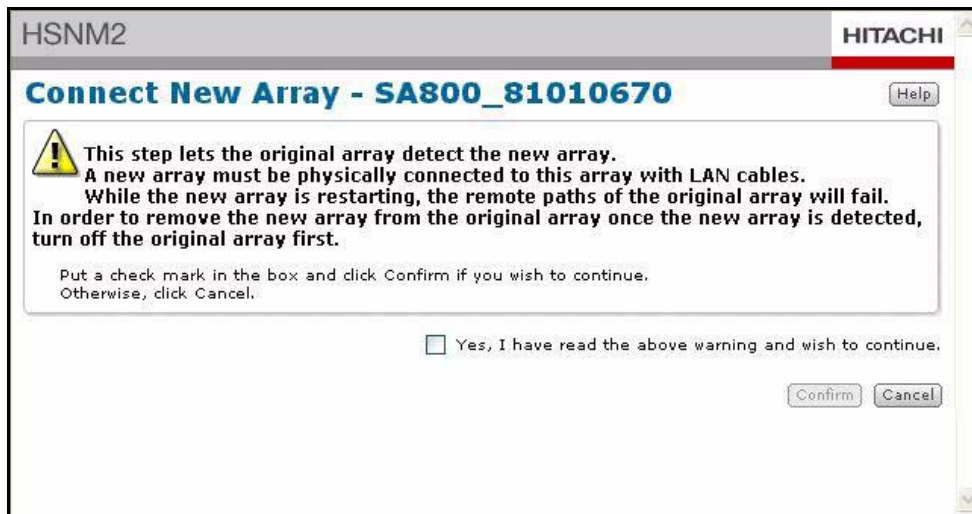


Figure 26: Confirmation Message in the Connect New Array Window

- J. Read the information in the window. To proceed, check **Yes, I have read the above warning and wish to continue** and click **Confirm**. A Connect New Array message appears as the target array is connected to the source array, then the following window appears.



Figure 27: Connect New Array Confirmation Message

K. Click **Close** to remove the window. The following actions occur:

- The target array reboots.
- A path connection failure warning is generated.
- The migration status in the Auto Migration window changes as data is copied from the source array to the target.

To refresh the information shown, either click **Refresh Information** in the top-right area of the window periodically or check the **Auto Refresh** checkbox to automatically update the displayed information on a regular basis.



TIP: To change source array performance during migration, click **Change Copy Pace** at the top-right of the window, select one of the following options, and click **OK** and **Close**:

- Fast = copying has priority (host I/O may be slow).
- Medium = copying and host I/O have same priority.
- Slow = host I/O has priority (copying may be slow).

When the migration operation finishes, the **Migration Status** shows **Copy Created** and the **Switch Array** button under **Step 3** is enabled. Any the host writes to the source (original) array is also reflected on the target (new) array

L. When the array status changes to **Copy Completed**, click **Switch Array** (shown in the orange circle below).

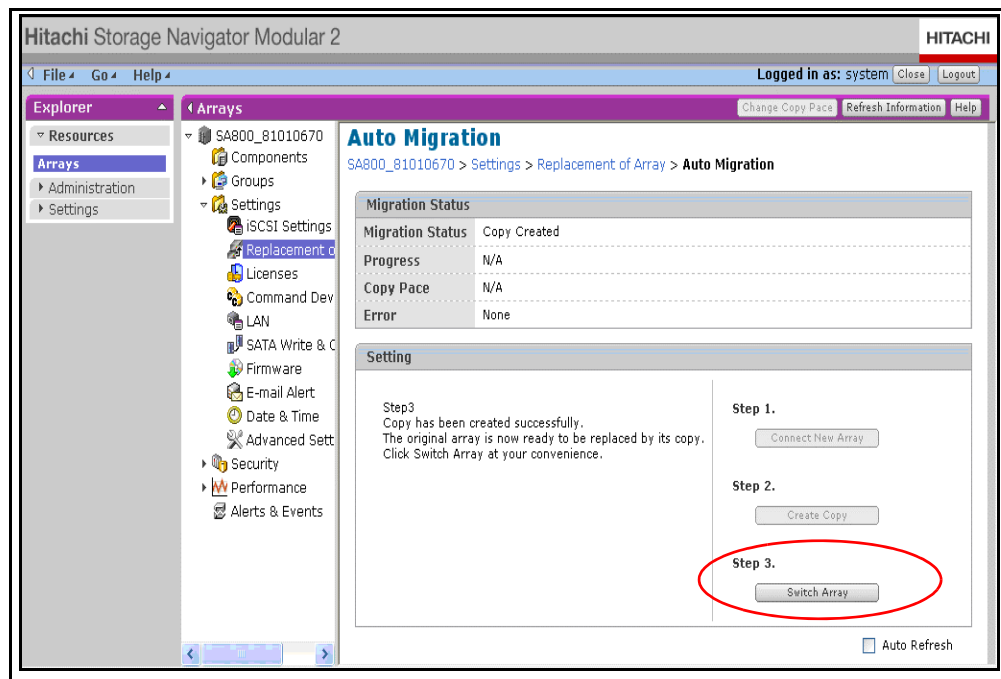


Figure 28: Auto Migration Window with Switch Array Highlighted

SW-4 Switch to the target array

- A. When the following window appears, enter new IP addresses for the four iSCSI ports on the source array.

HSNM2 HITACHI

Switch Array - SA800_81010670

Help

Switch Array

Please input the information in the required fields. IP address of iSCSI port in the original array is copied in new array. Therefore it is necessary to input IP address of iSCSI port in the original array. Please input the IP address that is not used in the network where iSCSI Port of original array is connected.

iSCSI Port	
Controller 0	IP Address:
	* Port 0A:
	* Port 0B:
Controller 1	IP Address:
	* Port 1A:
	* Port 1B:

* Required field

OK Cancel

Figure 29: Switch Array Window

- B. Click **OK**. The Switch Array window appears.

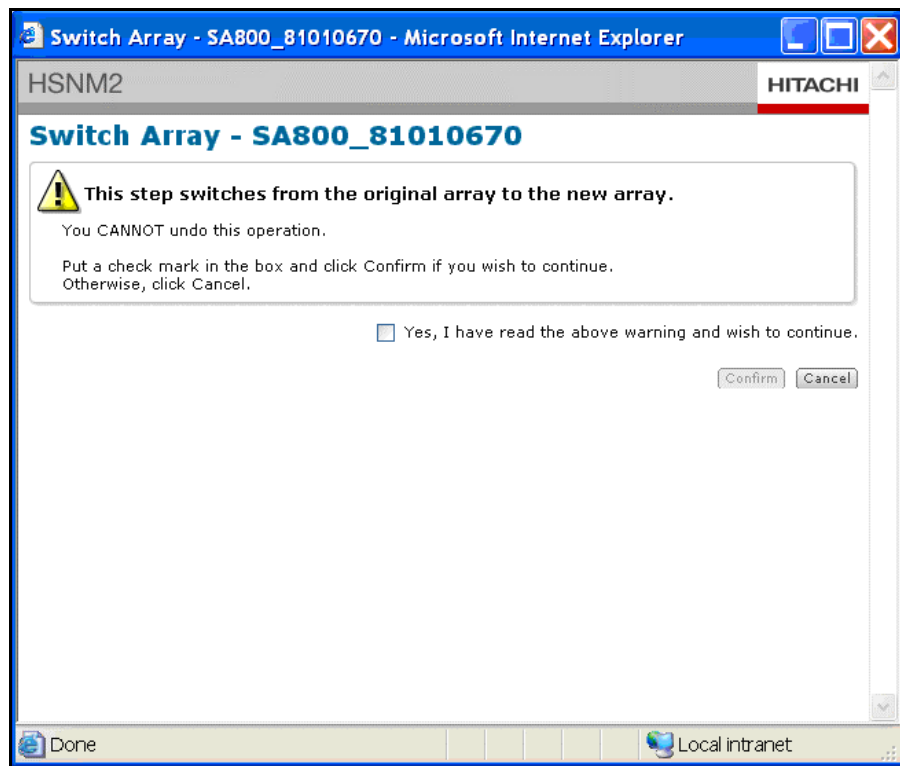


Figure 30: Switch Array Window

- C. Read the information in the window. To proceed, check **Yes, I have read the above warning and wish to continue** and click **Confirm**. A Switch Array message appears.
- D. Click **Close** to close the window. The array status changes to **Normal** and regular host I/O operations resume with the target array.
- E. Proceed to [Completing the auto-migration procedure](#), below.

Completing the auto-migration procedure

After migrating data to the target array and confirming that the target array is operating normally, use the following procedure to validate the migrated data on the target array, set the date and time on the target array, and shred the data on the source array.

Validate the migrated data

Use your operating system's tools (such as Windows Explorer for Windows operating systems) to validate the migrated data structures and content on the target array. After several validations, you may find that you only need to validate a few important files.

Set the date and time on the target array

- A. Log in to Navigator 2.
- B. From the Arrays page, click the name of the target array in the **Array Name** column.

- C. In the Arrays pane, click **Settings > Date & Time** (shown in the orange circle below).

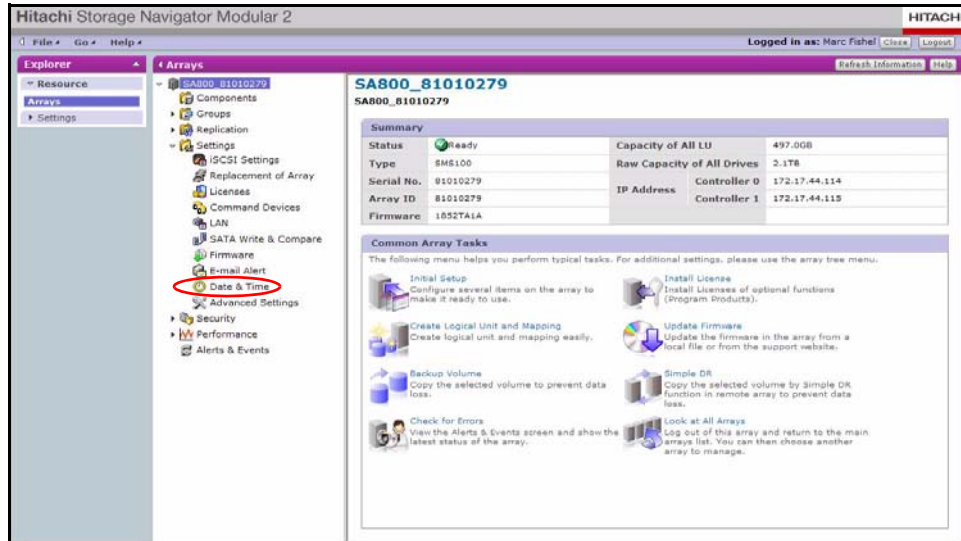


Figure 31: Arrays Pane with Date & Time Highlighted

- D. Click the **Edit Date & Time** button in the top-right area of the Date & Time window (shown in the orange circle below).

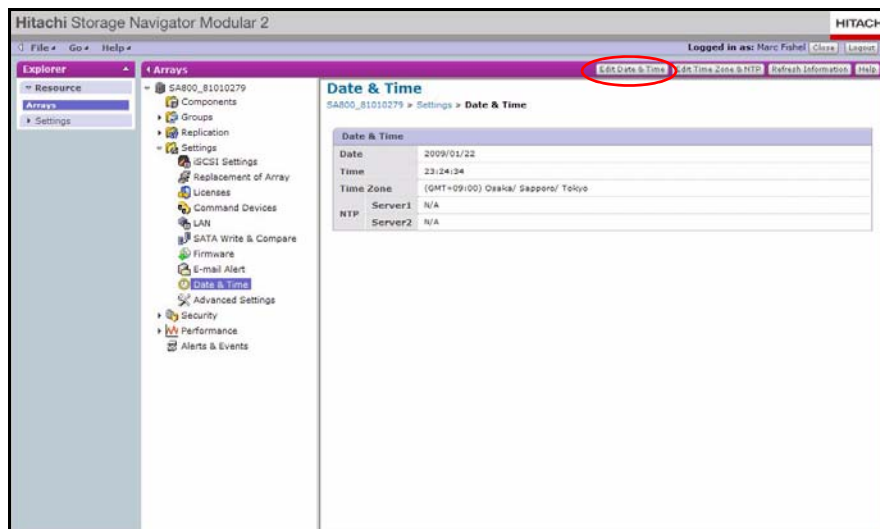


Figure 32: Date & Time Window

- E. When the Edit Date and Time window appears, select **Set Manually**, enter the date and time in their respective fields, and click **OK**.

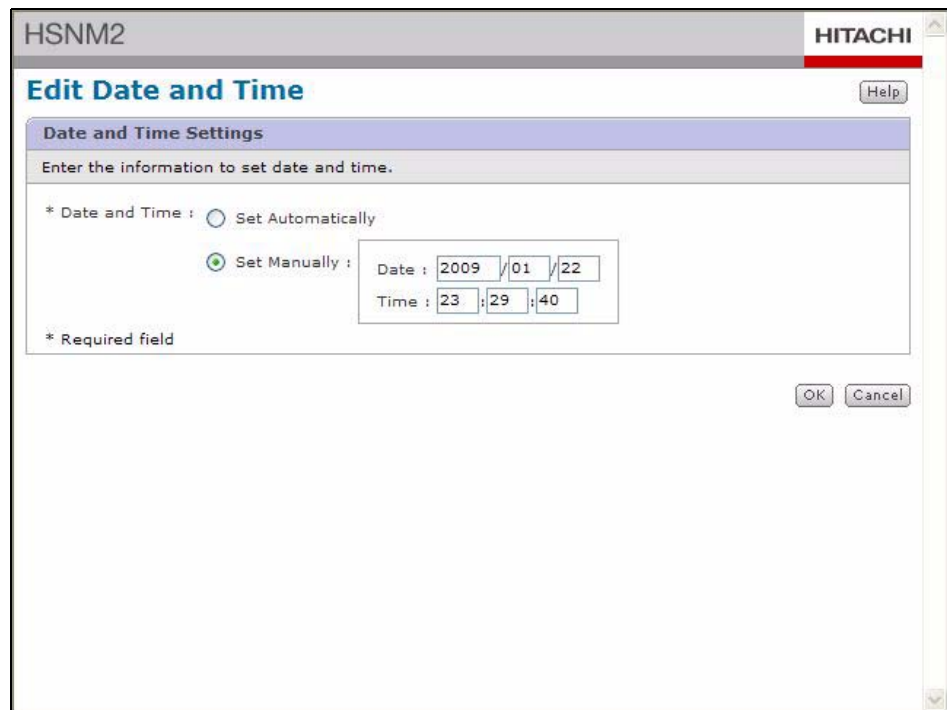


Figure 33: Date and Time Settings Window

- F. When the completion message appears, click the **Close** button.

Shred data on the source array

- A. Attach an Ethernet cable to the management port of the source array, then turn on the source array if the array is powered off.
- B. Check that the **POWER** LED on the front panel goes ON, and that the **READY** LED on the front panel goes ON about four minutes later.
- C. Log in to Navigator 2 using the new IP address for the source array that you recorded earlier:
 - If you used the direct connection migration method, see [page 15](#).
 - If you used the switch migration method, see [page 7](#).
- D. In the Arrays window, check the source array checkbox and click **Show & Configure Array** (or click the name of the source array).
- E. In the Arrays pane, click **Settings > Replacement of Array**. The Replacement of Array window appears.
- F. In the Replacement of Array window, click **Data Shredding** (shown in the [Figure 34 on page 28](#)).

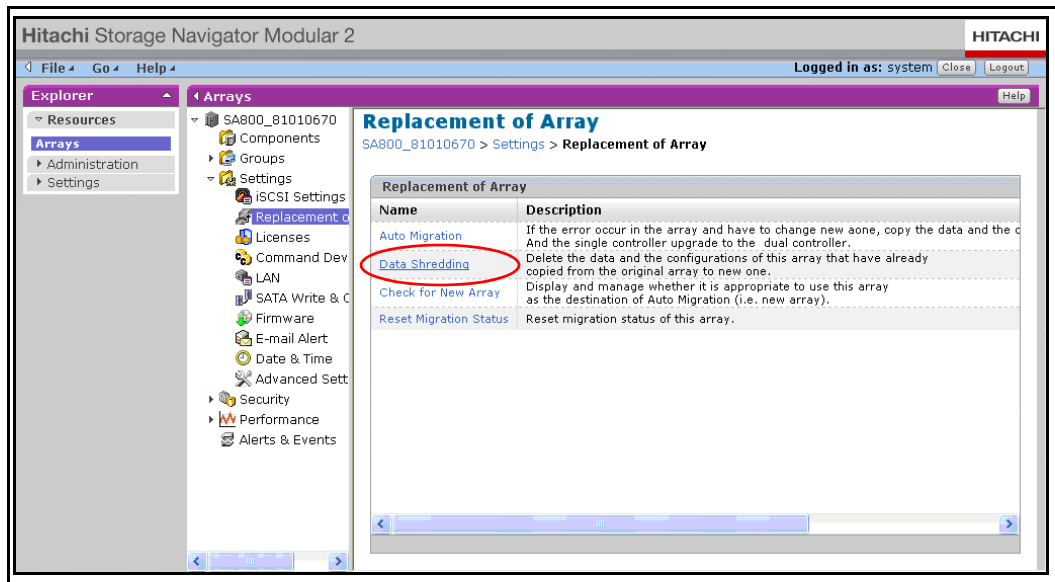


Figure 34: Replacement of Array Window with Data Shredding Highlighted

G. Click **Shred Data**. The Shred Data window appears.

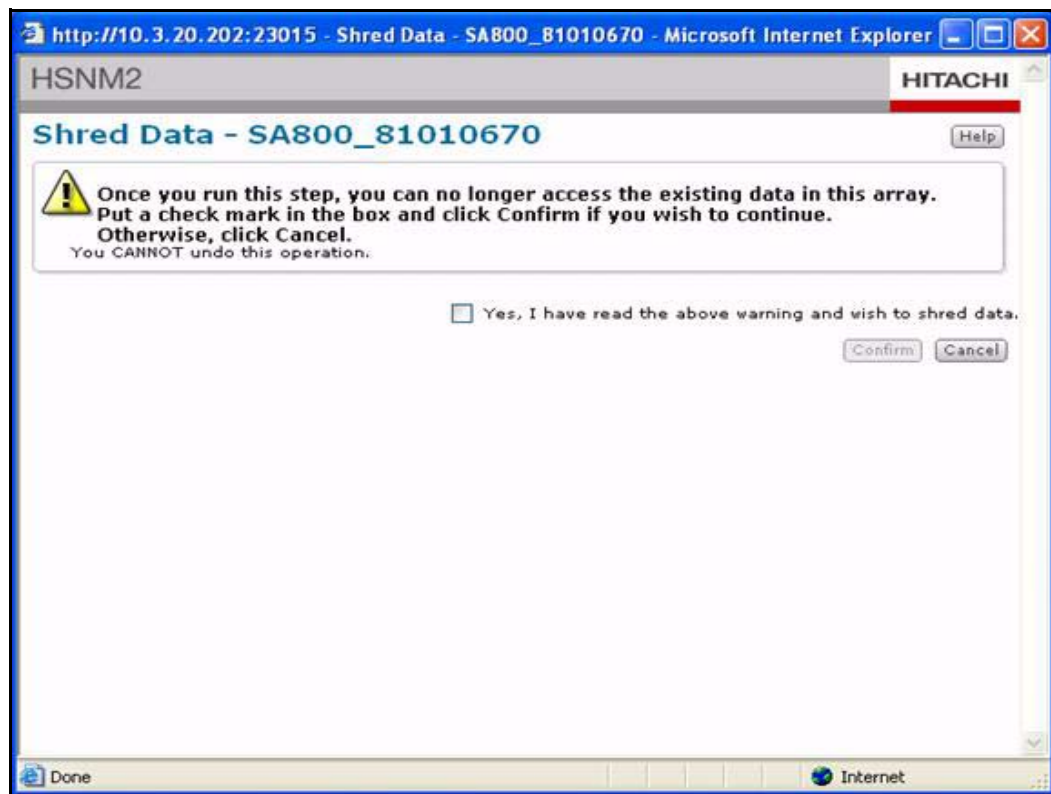


Figure 35: Shred Data Window

- H. Read the information in the window. To proceed, check **Yes, I have read the above warning and wish to shred data** and click **Confirm**. Shredding times vary. For example, a 1 TB drive can take from 21 to 48 hours. When data shredding is complete, the following Reboot Array window appears.

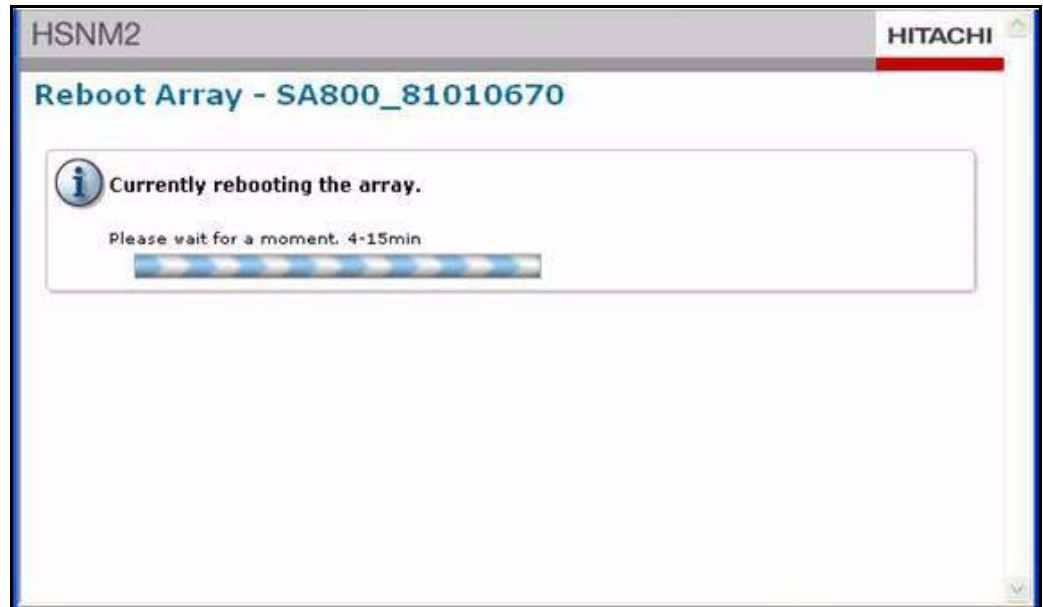


Figure 36: Reboot Array Window

- I. After the array reboots, the following Reboot Array window appears.



Figure 37: Reboot Successful Message

- J. Click **Close** to close the Reboot Array window.
- K. Exit Navigator 2 and turn off the source array.
- L. Remove the data cable from the management port on the source array, and attach the cable to the management port on the target array.
- M. Return the source array and auto-migration cables to your place of purchase.

Recreate pair information on the target array

The auto migration procedure deletes all ShadowImage pairs and SnapShot pairs on the source array, without migrating this information to the target array. To recreate these pairs, restore the pair status manually on the target array.

For more information about restoring ShadowImage and SnapShot on the target array, refer to the Navigator 2 online help and the following documents:

- Hitachi Simple Modular Storage ShadowImage In-system Replication User's Guide (MK-97DF8048)
- Hitachi Simple Modular Storage Copy-on-Write SnapShot User's Guide (MK-97DF8018)
- Hitachi Storage Navigator Modular 2 Storage Features Reference Guide for Simple Modular Storage 100 (MK-97DF8147)

Release the migration guard

If you need to release the migration guard as instructed earlier in this document, perform the following steps.

1. If you are performing the direct connection migration method:
 - Confirm that the **MODE** switch on the back panel of the target array is set to **N** and. If it is set to **E**:
Move the **MAIN SW** switch on the rear panel of the source array to the OFF position. Verify that the **POWER** LED goes OFF.
Move the **MAIN SW** switch on the rear panel of the target array to the OFF position. Verify that the **EXT** and **POWER** LEDs go OFF.
 - If you attached migration cables between the source and target arrays, remove the cables.
 - Connect your storage network to the management port on the target array.
 - Move the **MAIN SW** switch on the rear panel of the source array to the ON position. Verify that the **POWER** LED goes ON and that the **READY** LED goes ON in a few minutes.
 - Log in to Navigator 2 if you are not currently logged in.
 - If the array has not yet been added to Navigator 2, use the **Add Array** button in the Arrays window and add the array to the Navigator 2 database.
2. In the Navigator 2 Arrays pane, click **Settings > Replacement of Array**. The Replacement of Array window appears.

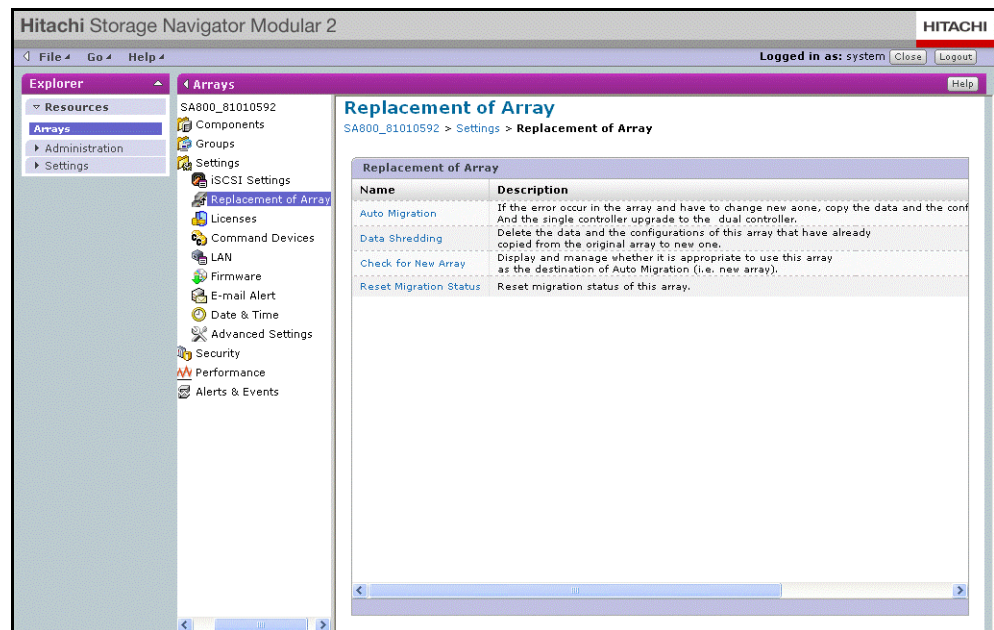


Figure 38: Replacement of Array Window

3. Select **Check for New Array**. The Check for New Array window appears.

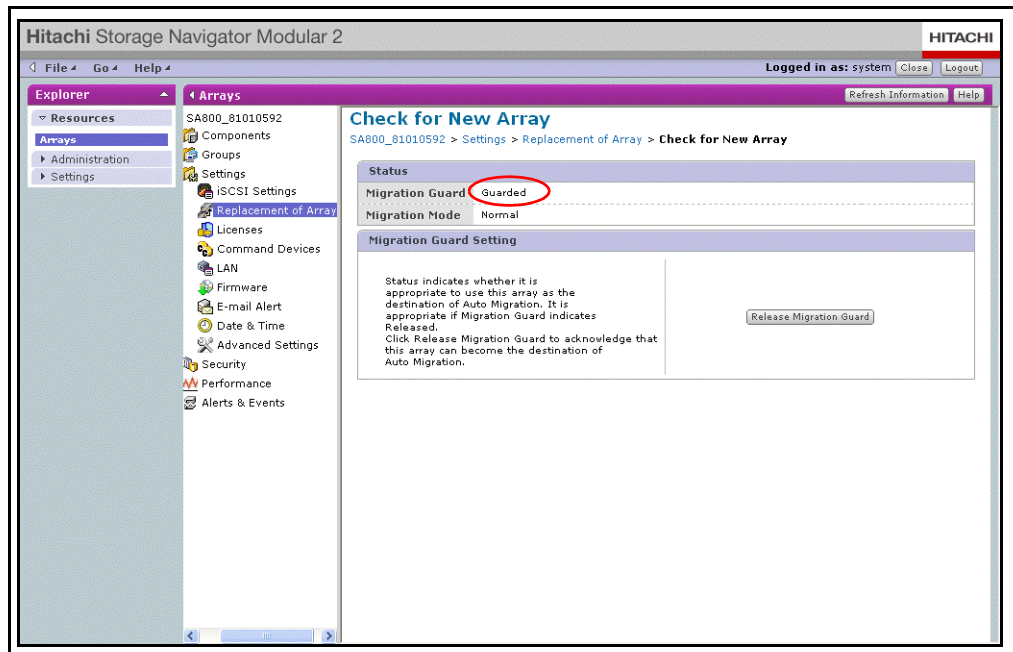


Figure 39: Check for New Array Window

4. A migration guard status of **Guarded** (shown in the orange circle below) means the migration guard is enabled. To disable it, click **Release Migration Guard**. A confirmation dialog box appears.

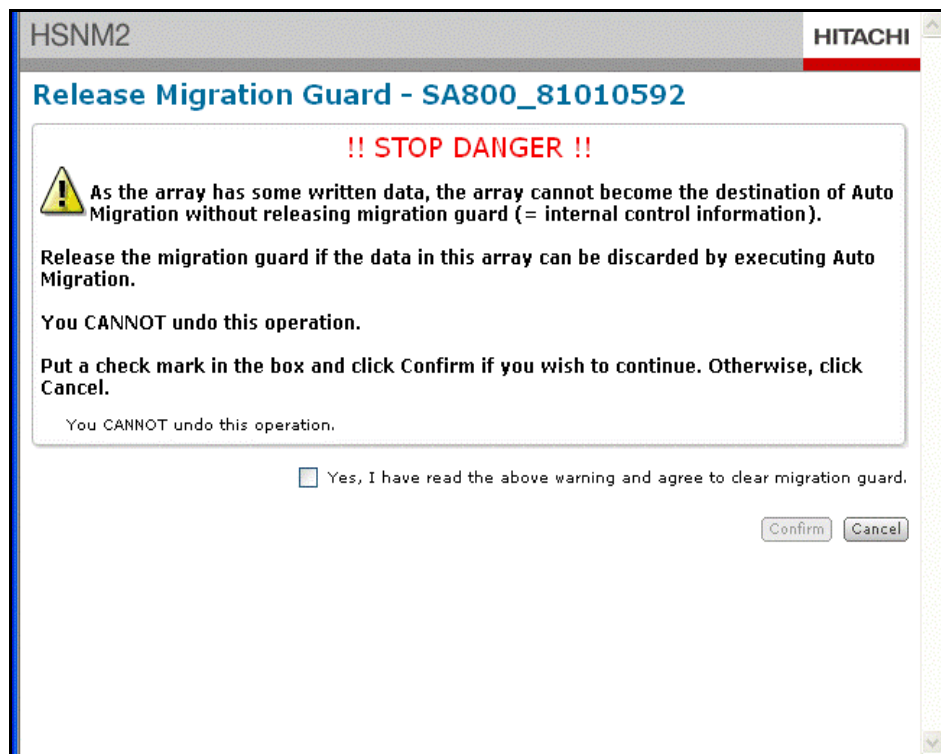


Figure 40: Release Migration Guard Message

5. Read the information in the window. To proceed, check **Yes, I have read the above warning and agree to clear migration guard** and click **Confirm**. A Connect New Array message appears as the target array connects to the source array, then the following window appears.
6. Click the checkbox, then click **Confirm** to continue. The migration guard is released and a confirmation message appears.



Figure 41: Release Migration Guard Confirmation Message

7. Click **Close** to close the message. The Check for New Array window appears, with the Migration Guard Status shown as **Released** (shown in the orange circle below).

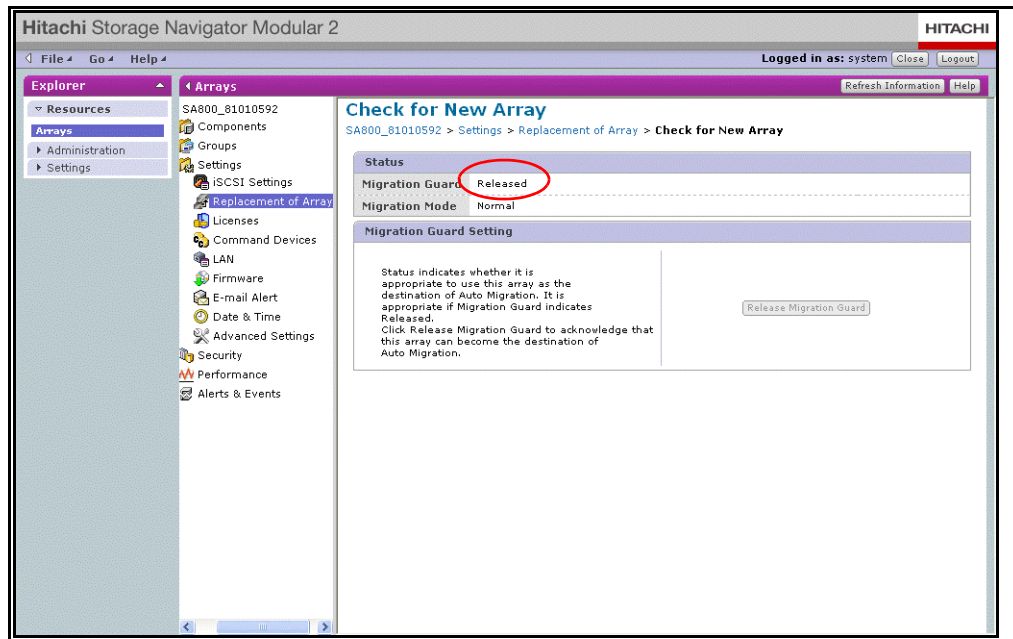


Figure 42: Check for New Array Window with Migration Guard Status Highlighted

8. Move the **MAIN SW** switch on the rear panel of the target array to the OFF position. Verify that the **POWER** LED goes OFF.
9. Remove the cable from the management port of the target array.
10. Return the **MODE** switch on the target array to the **E** position.
11. Connect the auto migration cables to the source and target arrays.
12. Move the **MAIN SW** switch on the rear panel of the target array to the ON position. Verify that the **EXT** and **POWER** LEDs go ON.
13. Move the **MAIN SW** switch on the rear panel of the source array to the ON position. Verify that the **POWER** LED goes ON and that the **READY** LED goes ON in a few minutes.
14. Continue with the auto migration operation described in this guide.

Multipathing considerations

The switch migration method can be used with these multipathing applications enabled on the following host operating systems:

- MPxIO
 - Solaris v8
 - Solaris v9
 - Solaris v10
- Hitachi Dynamic Link Manager (HDLM)
 - Microsoft Windows 2003, Service Pack 1
 - Microsoft Windows Server 2003 R2, Service Pack 2
 - Microsoft Windows Server 2008
- Device Mapper
 - Red Hat Linux v3.9
 - Red Hat Linux v4.5
 - Red Hat Linux v4.6
 - Red Hat Linux v5.1
 - Red Hat Linux v5.2

The switch migration method cannot be used with the Microsoft Windows operating systems described above that have MPIO enabled on an array using firmware versions earlier than 1870/A. In these cases, upgrade the array firmware to a version later than 1870/A using the instructions in the problem, refer to the troubleshooting suggestions in the *Hitachi Simple Modular Storage 100 User's Guide* (MK-97DF8061).

The following section describes how to determine whether MPIO is enabled on Windows 2003 operating systems. For information about how to determine whether MPIO is enabled on Windows 2003, see [page 41](#). For more information about multipathing for Windows and other operating systems, refer to the following documents:

- *Hitachi Simple Modular Storage Host Installation Guide for Fibre Channel* (MK-08DF8187)
- *Hitachi Simple Modular Storage Host Installation Guide for iSCSI* (MK-08DF8186)

Checking MPIO on Windows 2003 operating systems

To check whether MPIO is enabled on Windows 2003 operating systems:

1. Open Microsoft iSCSI Initiator.
2. From the iSCSI Initiator Properties dialog box, click the **Targets** tab.

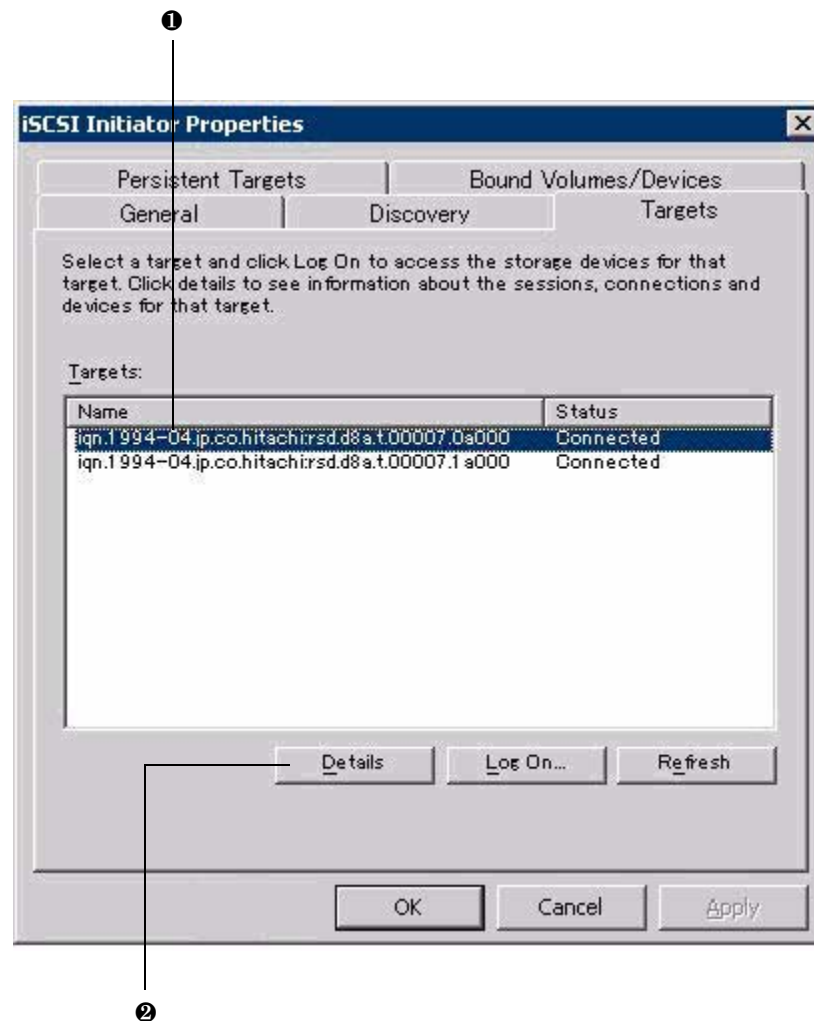


Figure 43: iSCSI Initiator Properties Dialog Box — Targets Tab

Legend:

- ❶ Click a target from this list
- ❷ Details button

3. Under **Targets**, click a target from the list and click **Details**. The Target Properties dialog box appears.
4. Click the **Devices** tab.

5. Select one device from the list and click **Advanced**. The Device Details dialog box appears.

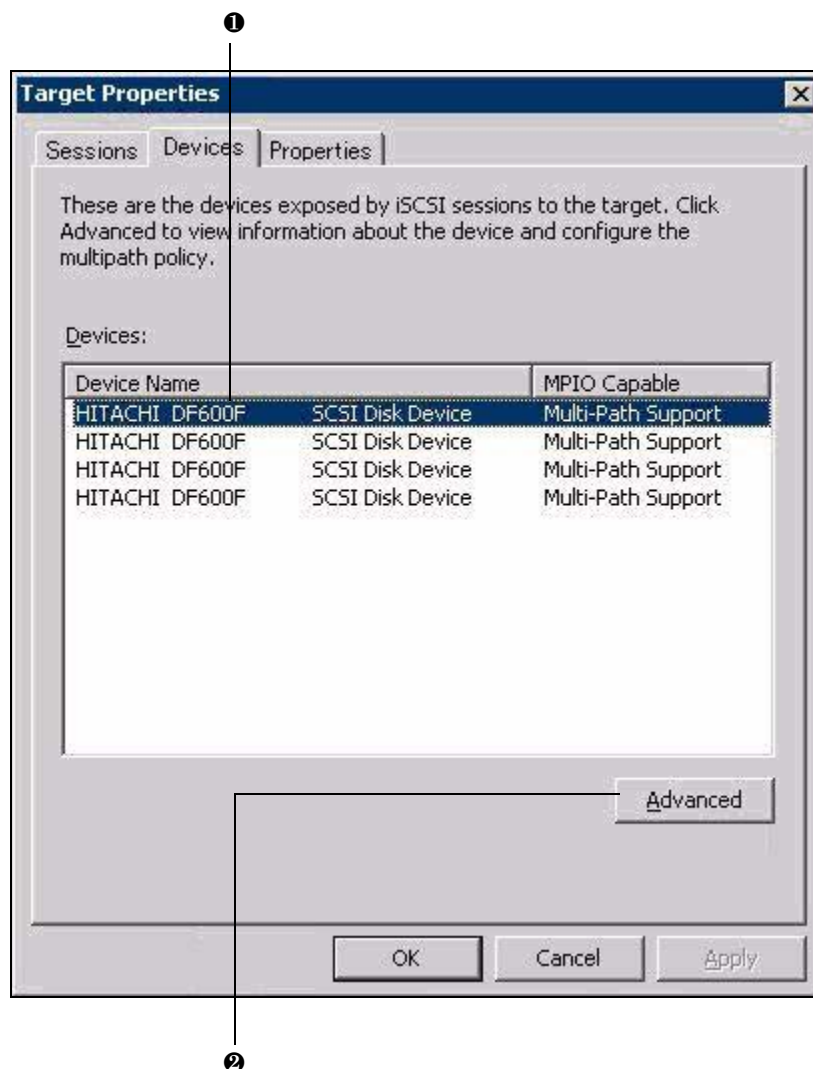


Figure 44: Target Properties Dialog Box — Devices Tab

Legend:

- ① Click a device from this list
- ② Advanced button

6. If an **MPIO** tab appears in Device Details dialog box, it means MPIO is enabled and you cannot perform the switch migration method.

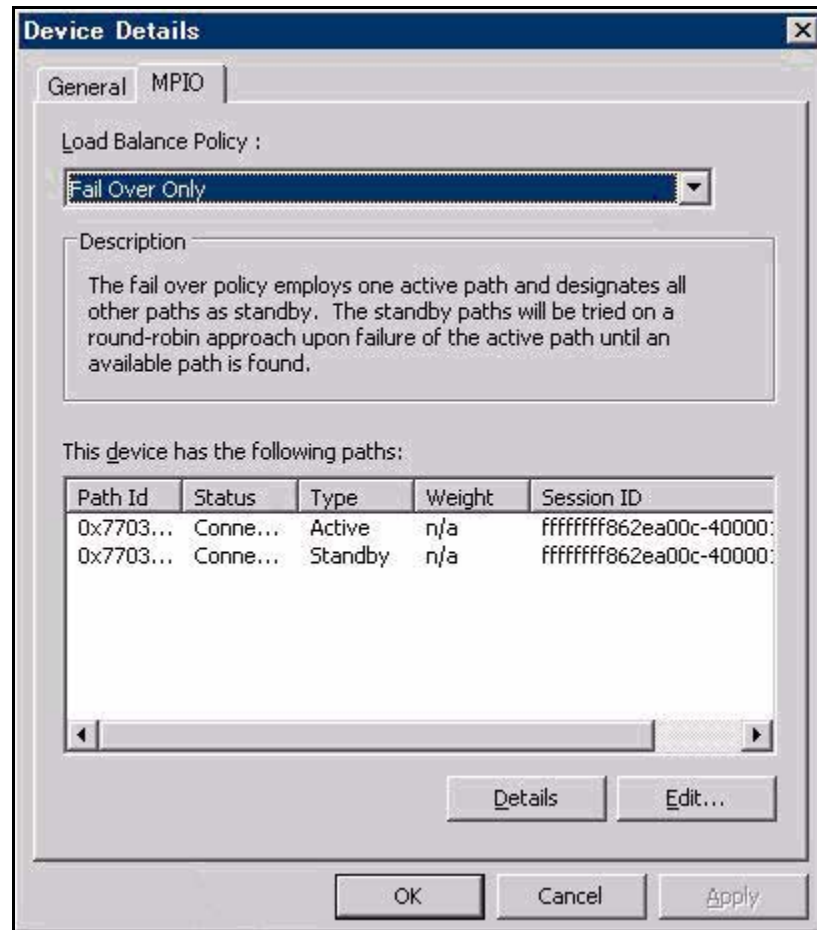


Figure 45: Device Details Dialog Box — MPIO Tab

If you perform the switch migration on a Windows 2003 system with MPIO enabled, the migration succeeds, but the host recognizes some logical units as a different device than device that was recognized by the original array. This can cause problems and errors with applications that reference those logical units on the array.

To correct this problem:

1. Stop the application that accesses the array.
2. Open Microsoft iSCSI Initiator.
3. From the iSCSI Initiator Properties dialog box, click the **Targets** tab.
4. Click a target from the list and click **Details**.

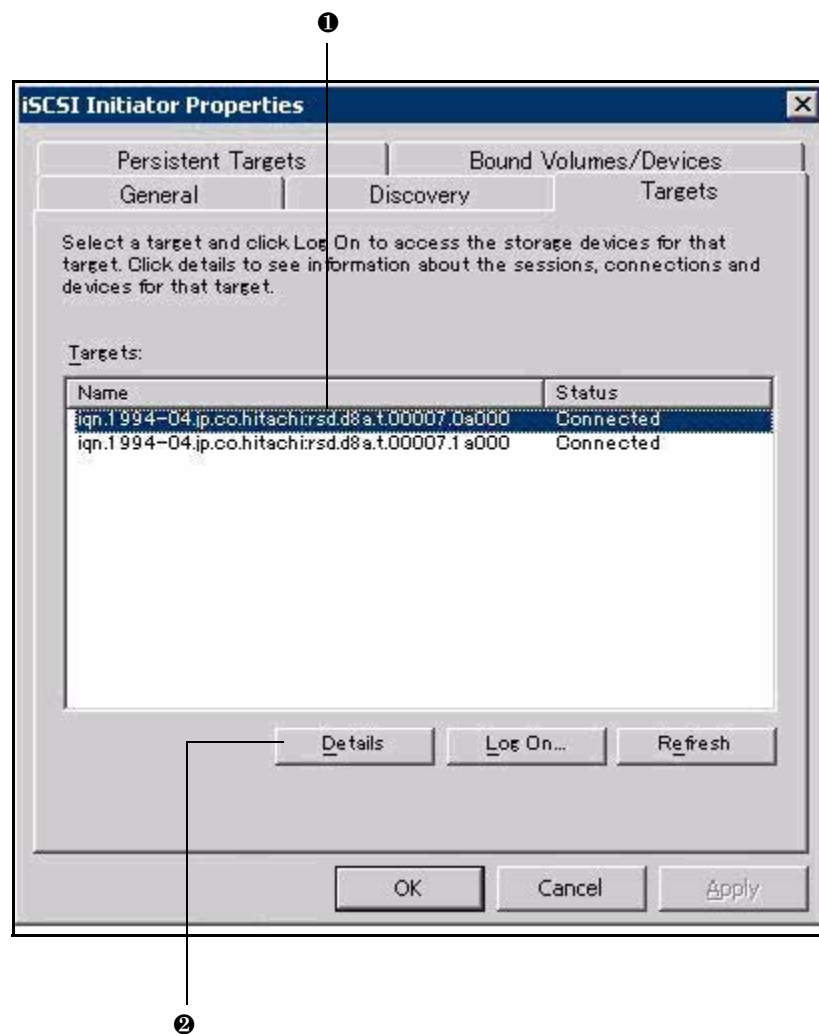


Figure 46: iSCSI Initiator Properties Dialog Box — Targets Tab

Legend:

- ❶ Click a target from this list
- ❷ Details button

5. Click the **Sessions** tab.
6. Under **Identifier**, check the check box of the Session shown on the list and click **Log off**.

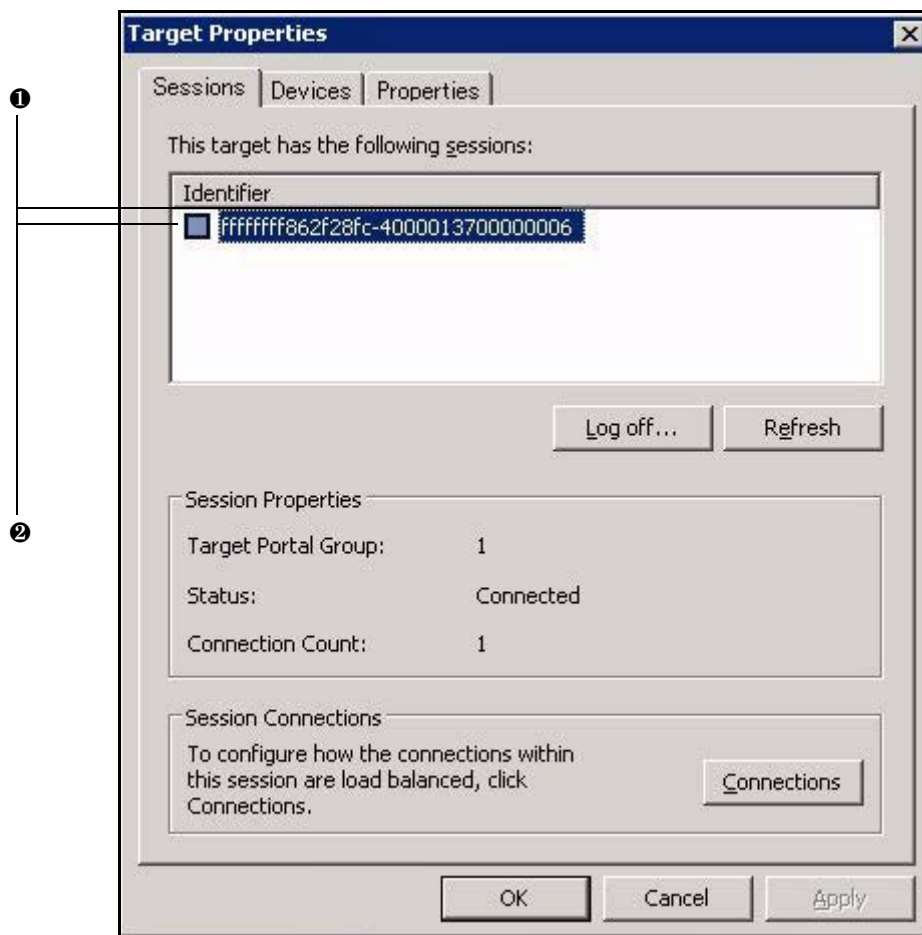


Figure 47: Target Properties Dialog Box — Sessions Tab

Legend:

- ❶ Checkbox
- ❷ Logoff button

7. Log in each target from the **Targets** tab.
8. Launch the Disk Management console (diskmgmt.msc), which can also be found in the Computer Management console, and click **Rescan Disks**.
9. Restart the application.

Checking MPIO on Windows 2008 operating systems

To check whether MPIO is enabled on Windows 2008 operating systems:

1. Open Microsoft iSCSI Initiator.
2. From the iSCSI Initiator Properties dialog box, click the **Targets** tab.

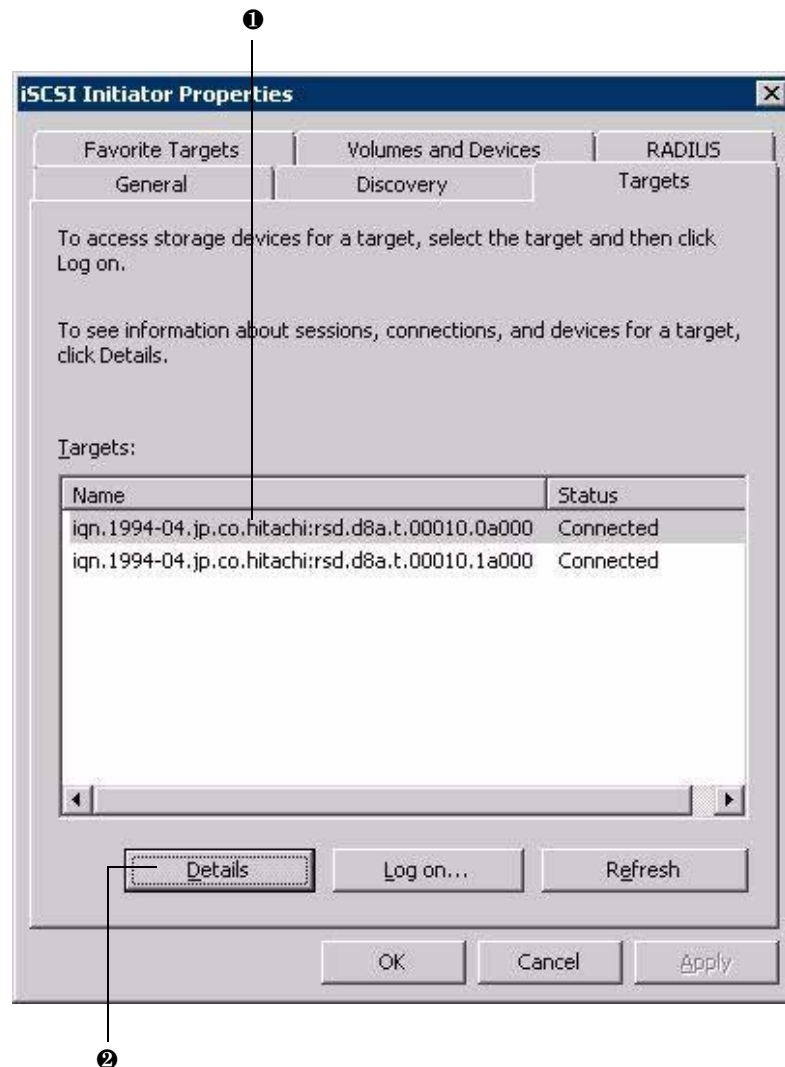


Figure 48: iSCSI Initiator Properties Dialog Box — Targets Tab

Legend:

- ① Click a target from this list
- ② Details button

3. Click a target from the list and click **Details**. The Target Properties dialog box appears.
4. Click the **Devices** tab.

5. Select one device from the list and click **Advanced**. The Device Details dialog box appears.

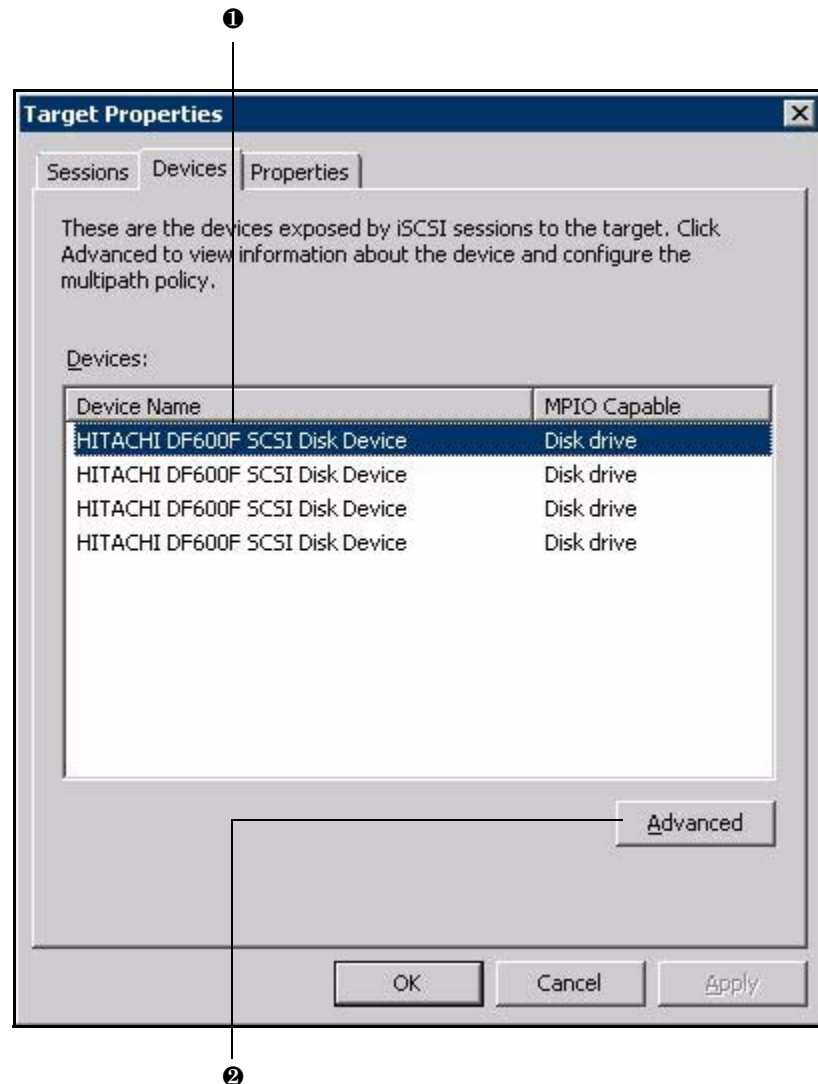


Figure 49: Target Properties Dialog Box — Devices Tab

Legend:

- 1 Click a device from this list
- 2 Advanced button

6. If an **MPIO** tab appears in Device Details dialog box, it means MPIO is enabled and you cannot perform the switch migration method.

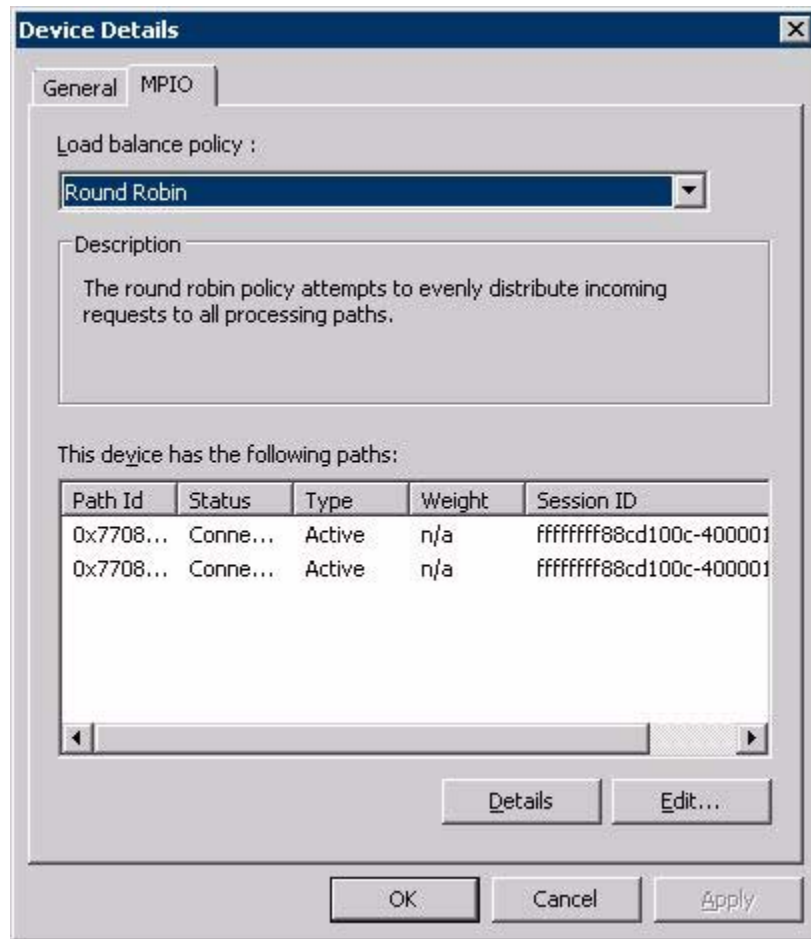


Figure 50: Device Details Dialog Box — MPIO Tab

If you perform the switch migration on a Windows 2008 system with MPIO enabled, the migration succeeds, but the host recognizes some logical units as a different device than device that was recognized by the original array. This can cause problems and errors with applications that reference those logical units on the array.

To correct this problem:

1. Stop the application that accesses the array.
2. Open Microsoft iSCSI Initiator.
3. From the iSCSI Initiator Properties dialog box, click the **Targets** tab.
4. Click a target from the list and click **Details**.

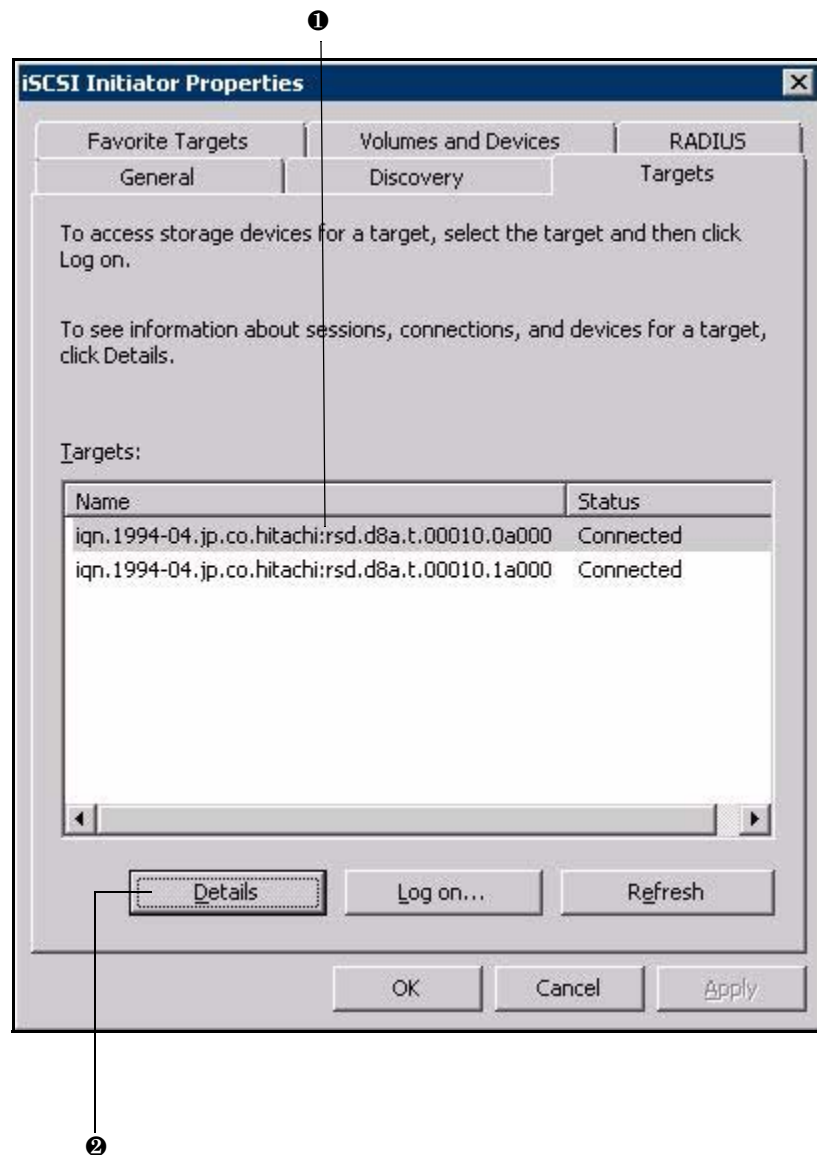


Figure 51: iSCSI Initiator Properties Dialog Box — Targets Tab

Legend:

- ❶ Click a target from this list
- ❷ Details button

5. Click the **Sessions** tab.
6. Under **Identifier**, check the check box of the Session shown on the list and click **Log off**.

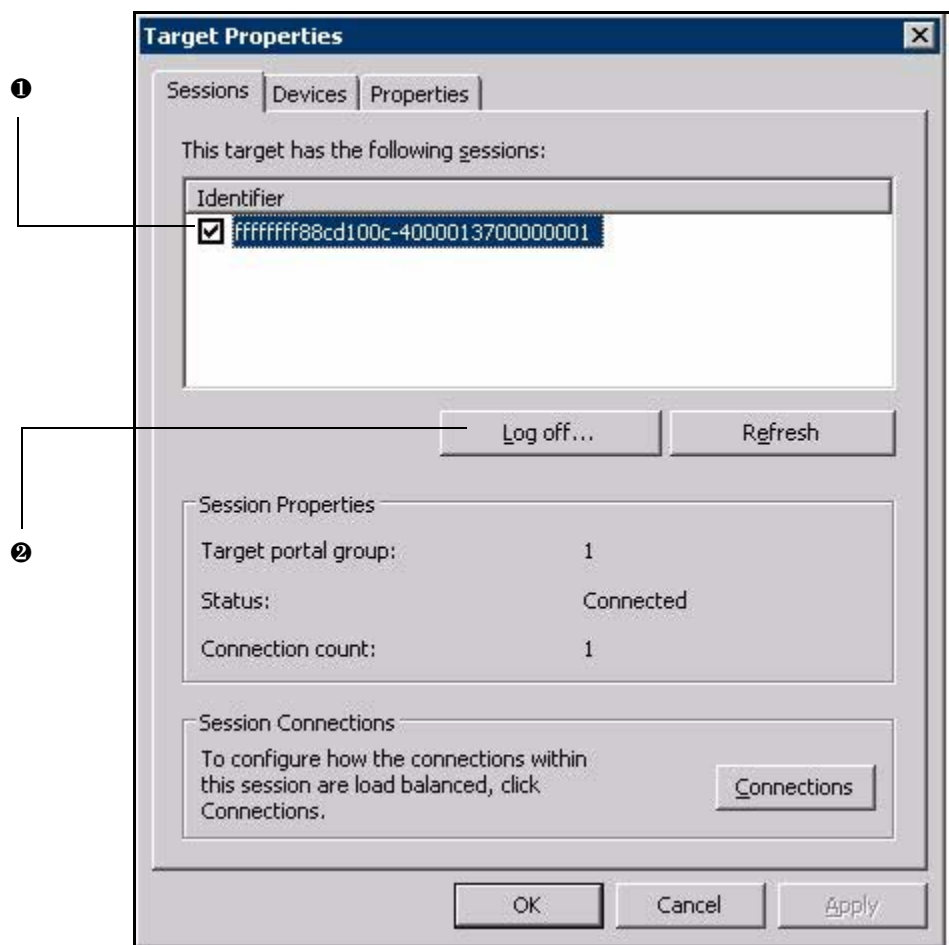


Figure 52: Target Properties Dialog Box — Sessions Tab

Legend:

- ❶ Checkbox
- ❷ Logoff button

7. Log in each target from the **Targets** tab.
8. Launch the Disk Management console (diskmgmt.msc), which can also be found in the Computer Management console, and click **Rescan Disks**.
9. Restart the application.

Hitachi Data Systems Web Portal

The Hitachi Data Systems Web Portal is designed to be the point of access for information about your Simple Modular Storage 100 and other enabling technologies available from Hitachi Data Systems.

To visit, please click support.hds.com

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MK-97DF8168-10