



IBM Datacenter Solution xSeries 440 Upgrade Instructions

This document is intended for upgrading an existing Microsoft® Windows® 2000 Datacenter Server installation on an IBM® @server™ xSeries™ 440 server to Microsoft Windows Server 2003 Datacenter Edition. This document is also available in HTML format as a README.HTM file on the *IBM Datacenter Device Drivers* CD that comes with this upgrade package.

Attention: Please read this document completely before beginning the upgrade process, and make sure that you complete the steps in the order that they appear within this document. Also, do not leave your server unattended during the upgrade process.

What you will need

You must have the following software and hardware available during the upgrade process:

- One licensed copy of the Microsoft Windows Server 2003 Datacenter Edition operating system (the *IBM Datacenter Upgrade* CD provided with this upgrade package)
- The *IBM Datacenter Device Drivers* CD provided with this upgrade package
- *IBM ServeRAID™ Setup* CD version 6.0.3.1
- Blank diskettes to create driver diskettes for the following:
 - IBM custom HAL for the xSeries 440 server
 - IBM FASTT FC2-133 Host Bus Adapter firmware update

Important: You must create these diskettes before you begin the upgrade procedure.

Once you have everything you need, you will complete the following procedures during the upgrade process:

1. "Creating HAL and other diskettes from the CD" on page 2
2. "Removing and disconnecting devices before upgrading" on page 3
3. "Upgrading the operating system" on page 4
4. "Installing and updating device drivers and firmware" on page 5
5. "Completing the upgrade" on page 12

Creating HAL and other diskettes from the CD

Complete the following steps to create the required HAL and other diskettes before you begin the upgrade process.

1. From any server with a Microsoft Windows operating system installed, insert the *IBM Datacenter Device Drivers* CD that comes with this upgrade package into the CD-ROM drive.
2. Create the HAL diskette:
 - a. Insert one of the blank diskettes into the server diskette drive.
 - b. Copy the contents of the HAL\ directory on the *IBM Datacenter Device Drivers* CD to the diskette.
 - c. Remove the diskette when done; then, label the diskette.
3. Create the FASiT FC2-133 Host Bus Adapter device driver diskettes:
 - a. Insert one of the blank diskettes into the server diskette drive.
 - b. In the HBA\QL2300\BIOS\ directory on the *IBM Datacenter Device Drivers* CD, run the 74P4831.EXE program.
 - c. Follow the on-screen instructions to create the diskette.
 - d. Remove the diskette when done; then, label the diskette.
4. Continue with “Removing and disconnecting devices before upgrading” on page 3 to prepare your xSeries 440 for the operating system upgrade.

Removing and disconnecting devices before upgrading

Before you continue the upgrade process, complete the following steps to prepare your xSeries 440 server for the upgrade.

Attention: If you have an existing IBM TotalStorage™ FAStT storage subsystem as part of your current installation, you can only perform this upgrade under the following conditions:

- The storage subsystem is not the startup device.
 - The Fibre Channel controllers are running firmware version 04.00.00.00 or higher.
1. Update the ServeRAID 4-MX firmware:
 - a. Turn on the server according to the documentation that comes with the server; then, insert the *IBM ServeRAID Setup* CD into the CD-ROM drive. The ServeRAID configuration program will start automatically.
 - b. When the window is displayed that contains the current firmware levels for the ServeRAID 4-MX adapter, click **Update** to update the firmware levels.
 - c. Wait for the firmware update to complete; then, restart the server and remove the *IBM ServeRAID Setup* CD as instructed.
 2. If you have an IBM Remote Expansion Enclosure, such as an IBM RXE-100, connected to your server, you must disconnect it at this time. Follow the instructions in the documentation that comes with your server or expansion enclosure for disconnect instructions.

Note: After upgrading the operating system, you can reconnect the RXE-100 according to “Connecting an RXE-100” on page 5.

3. Uninstall Windows 2000 Service Processor device drivers:
 - a. From the **Start** menu, select **All Programs**→**Administrative Tools**→**Computer Management**→**Device Manager**.
 - b. Select the **IBM Remote Supervisor + Serial Port + Mouse/Keyboard** device (located just underneath the Multi-Function Device icon).
 - c. Right-click on this device and choose **Uninstall**. Do not restart the server when prompted.
 - d. Click **Start**→**Search**→**For Files or Folders...** and type `ibmsp*.*` in the **Search** box; then, select **My Computer** from the **Look in** list and click **Search**.
 - e. After the search completes, select all the found files and delete them.
 - f. Restart the server and login; then, click **Cancel** when the Windows 2000 Found New Hardware Wizard displays.
4. Uninstall IBM TotalStorage FAStT Storage Management software:

Attention: To avoid possible data loss, you must uninstall any existing versions of this software before upgrading the operating system. After the upgrade, you can reinstall the FAStT Storage Management software.

 - a. From the **Start** menu, select **Settings**→**Control Panel**→**Add/Remove Programs**.
 - b. Uninstall each of the following: **SMagent**, **SMutil**, **RDAC**, and **SMclient**.
5. Continue with “Upgrading the operating system” on page 4 to begin upgrading the operating system on your server.

Upgrading the operating system

Before you continue the upgrade process, make sure that you have read this entire document completely, have created the required diskettes according to “Creating HAL and other diskettes from the CD” on page 2, and have completed the steps in “Removing and disconnecting devices before upgrading” on page 3. Complete the following steps to upgrade the operating system on your server.

1. Turn on the server according to the documentation that comes with the server; then, wait for the Windows 2000 Datacenter Server operating system to start.
2. Log in to the server as the Administrator.
3. Insert the *IBM Datacenter Upgrade* CD that comes with this Windows Server 2003 Datacenter Edition upgrade package. When prompted, select **Exit**.

4. From a command prompt, type

```
<cd-rom>:i386\winnt32 /s:<cd-rom>:\i386 /unattend:<cd-rom>:\i386\winnt.sif
```

(where <cd-rom> represents the drive letter of the server CD-ROM drive) and press Enter.

5. Read and agree to the terms and conditions of the License Agreement and Product Installation Key screens.

A Windows Server 2003 compatibility check is performed, and you will see a notification that a custom HAL is present and that some Windows services will be stopped during the upgrade process.

6. Click **Next** to continue with the upgrade, or click **Cancel** to return to the Windows Installation menu.

Installation files are copied from the CD to the hard disk drive. This process could take several minutes to complete; then, the server will automatically restart.

7. After the server restarts, the OS loader menu displays. A few seconds later the Windows Setup screen displays and the message Starting Windows 2003 Server Setup displays. Press the F5 key on the keyboard while this message is displayed.

Attention: Pressing the F5 key allows you to specify installation of the custom HAL from the diskette you created earlier. You have only a few seconds to press this key combination on the keyboard. You must specify the custom HAL during the upgrade process. Failure to do so can cause your server operating system to behave unexpectedly. If you do not press these keys in time, you must stop the upgrade process and begin at step 1 again.

8. When prompted, select **Other** as the **Computer Type** and press Enter.
9. Insert the HAL diskette that you created earlier into the server diskette drive; then, press Enter to install the custom HAL.

Note: Remove the HAL diskette when this process completes, but do not remove the diskette while the drive is still in use.

The installation file copying process will continue. You will be prompted to insert the HAL diskette again during this process. This process could take several minutes to complete.

The server will restart and the graphical user interface (GUI) for Windows Setup will continue the upgrade process. During this process, setup will automatically install and configure detected devices in the server.

10. When a message displays stating that the IBM Active PCI device driver is not signed, click **No** to continue. The device detection process could take several minutes to complete.
11. After the operating system installation completes, remove the *IBM Datacenter Upgrade* CD from the CD-ROM drive; then, click **Finish**. The server will restart automatically.
12. Log in to the Windows Server 2003 Datacenter Edition operating system; then, continue with “Installing and updating device drivers and firmware” on page 5 to continue configuring your server.

Note: For more information about the operating system, see the Microsoft documentation that comes with this upgrade package and the online help for the operating system.

Installing and updating device drivers and firmware

After upgrading the operating system on your server to Windows Server 2003 Datacenter Edition, you must update some of the device drivers. You can also connect your RXE-100 expansion enclosure, if applicable, and other devices to your server at this time.

Continue with the following sections in order as applicable for your IBM Datacenter Solution configuration:

1. "Connecting an RXE-100"
2. "Updating the Active PCI device driver"
3. "Updating the Advanced Systems Management device driver" on page 6
4. "Updating the 10/100 Ethernet adapter device driver" on page 6
5. "Updating the Broadcom NetXtreme Gigabit Ethernet adapter device driver" on page 6
6. "Updating the Adaptec AIC-7899 on-board SCSI device driver" on page 7
7. "Updating the FASTT FC2-133 Host Bus Adapter device driver and firmware" on page 7
8. "Installing TotalStorage FASTT Storage Manager software" on page 8
9. "Updating storage-subsystem firmware" on page 11

Connecting an RXE-100

If you have an RXE-100, complete the following steps to connect it to your server:

1. Shut down the operating system and turn off the server according to the documentation that comes with the server and operating system.
2. If the RXE-100 is connected to power, unplug the power cord and wait at least ten seconds before you plug it in again; then, connect the RXE-100 to your server according to the documentation that comes with your server and the RXE-100.
3. Turn on the server. If the RXE-100 does not automatically turn on, repeat step 1 and step 2.
4. Update the device drivers for any adapters installed in the RXE-100.
5. Continue with "Updating the Active PCI device driver".

Updating the Active PCI device driver

Complete the following steps to update the Active PCI™ device driver for your server:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. From the ActivePCI\ directory, run the Hotp5111.EXE program.
5. Follow the on-screen instructions for installing the Active PCI device driver. Note the location where the device drivers are installed for later in this procedure.
6. After the device driver installation completes, right-click the **My Computer** icon; then, select **Manage** from the menu.
7. Click **Device Manager**. The **IBM Active PCI device** is detected automatically and is displayed as an unknown device. Right-click the unknown device; then, select **Properties** from the menu.
8. In the Properties window, click **Update Driver**; then, in the Welcome to Hardware Update Wizard select **Install from a list or specific location** and click **Next**.
9. Make sure that **Search removable media (floppy, CDROM...)** is not selected. Select **Search for the best driver in these locations**, and check the **Include this location in the search** box.

10. Enter the location where you installed the IBM Active PCI device driver in the appropriate fields and click **Next**.
11. When the **System found a driver for your device** prompt displays, click **Next** to install the driver.
12. When prompted that the device driver installation has completed, click **Finished**. When prompted, click **Yes** to restart the server.
13. Continue with "Updating the Advanced Systems Management device driver".

Updating the Advanced Systems Management device driver

Complete the following steps to update the advanced systems management device driver on your server:

Attention: If IBM Director is already installed and running on your server, you must stop the program before you update the device drivers.

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. If IBM Director is installed and running, from a command prompt, type `net stop twgipc` and press Enter. For detailed information about how to shut down the IBM Director program, see the documentation that comes with IBM Director.
5. From the `ASM\Driver\Win2000\` directory, run the `setup.exe` program.
6. Follow the on-screen instructions to complete the device driver installation.

Note: If the Hardware Wizard starts before or during this installation because the operating system has detected the systems management hardware, close the Hardware Wizard window by clicking the **Cancel** button.

7. Continue with "Updating the 10/100 Ethernet adapter device driver".

Updating the 10/100 Ethernet adapter device driver

If you have an optional 10/100 Ethernet adapter installed, complete the following steps to update the device driver:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. Right-click the **My Computer** icon; then, select **Manage** from the menu.
5. Click **Device Manager**. Select the **IBM 10/100 Ethernet Server adapter** icon, located underneath the **Network Adapter** icon. Right-click the device; then, select **Update Driver** from the menu.
6. From the Welcome to Hardware Update Wizard select **Search removable media (floppy, CDROM...)** and click **Next**.
7. When the **System found a driver for your device** prompt displays, click **Next** to install the driver.
8. When prompted that the device driver installation has completed, click **Finished**.
9. Continue with "Updating the Broadcom NetXtreme Gigabit Ethernet adapter device driver".

Updating the Broadcom NetXtreme Gigabit Ethernet adapter device driver

Complete the following steps to update the device driver for the on-board Ethernet controller:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.

3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. Right-click the **My Computer** icon; then, select **Manage** from the menu.
5. Click **Device Manager**. Select the **Broadcom Gigabit Ethernet Server adapter** icon, located underneath the **Network Adapter** icon. Right-click the device; then, select **Update Driver** from the menu.
6. From the Welcome to Hardware Update Wizard select **Search removable media (floppy, CDROM...)** and click **Next**.
7. When the **System found a driver for your device** prompt displays, click **Next** to install the driver.
8. When prompted that the device driver installation has completed, click **Finished**.
9. Continue with "Updating the Adaptec AIC-7899 on-board SCSI device driver".

Updating the Adaptec AIC-7899 on-board SCSI device driver

Complete the following steps to update the device driver for the on-board SCSI controller:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. Right-click the **My Computer** icon; then, select **Manage** from the menu.
5. Click **Device Manager**. Select the **Adaptec AIC-7899 SCSI adapter** icon, located underneath the **SCSI and RAID Controllers** icon. Right-click the device; then, select **Update Driver** from the menu.
6. From the Welcome to Hardware Update Wizard select **Search removable media (floppy, CDROM...)** and click **Next**.
7. When the **System found a driver for your device** prompt displays, click **Next** to install the driver.
8. When prompted that the device driver installation has completed, click **Finished**.
9. Repeat steps 5 through 8 for the second on-board SCSI controller.
10. Continue with "Updating the FAStT FC2-133 Host Bus Adapter device driver and firmware".

Updating the FAStT FC2-133 Host Bus Adapter device driver and firmware

Complete the following steps to update the device driver for an IBM FAStT FC 133 Host Bus Adapter installed in your server:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. Right-click the **My Computer** icon; then, select **Manage** from the menu.
5. Click **Device Manager**. Select the **QLogic QLA23xx Fibre Channel adapter** icon, located underneath the **SCSI and RAID Controllers** icon. Right-click the device; then, select **Update Driver** from the menu.
6. From the Welcome to Hardware Update Wizard select **Search removable media (floppy, CDROM...)** and click **Next**.
7. When the **System found a driver for your device** prompt displays, click **Next** to install the driver.
8. When prompted that the device driver installation has completed, click **Finished**.
9. Repeat step 5 through step 8 for a second FAStT FC2-133 Host Bus Adapter installed in your server.
10. Shut down the operating system and restart the server according to the documentation that comes with the server and operating system.

11. Insert the FAStT FC2-133 Host Bus Adapter firmware diskette that you created earlier into the diskette drive on the server. The server will start from the diskette and wait at a RAM disk C:\ prompt.
12. From the command line, type 'flasutil /l /f /o ql2312rm.bin' and press Enter. This will update the BIOS and NVRAM firmware for all FAStT FC2-133 Host Bus Adapters installed in your server.

Note: For more information on this program you can type flasutil /? at the command prompt or refer to the documentation that comes with the FAStT FC2-133 Host Bus Adapter.

13. When the program completes, remove the diskette from the diskette drive and restart the server.
14. Continue with "Installing TotalStorage FAStT Storage Manager software".

Installing TotalStorage FAStT Storage Manager software

Before you install the TotalStorage FAStT Storage Manager software, see the documentation that comes with your hardware for specific configuration information. A specific configuration might be required for your hardware to support the storage management software in a clustered environment. You can only install the software on cluster-only nodes or cluster nodes and management workstations.

Management workstations:

A management workstation is a server that you use to manage the storage subsystem. You can attach the management workstation to the storage subsystem in the following ways:

- Through a TCP/IP Ethernet connection to the controllers in the subsystem
- Through a TCP/IP network connection to a cluster node with the host-agent software installed

You must install storage management software on a management workstation in the following order:

1. Microsoft Virtual Machine; see "Installing Microsoft Virtual Machine"
2. Storage Manager client (SMclient); see "Installing SMclient" on page 9

Cluster nodes:

The cluster nodes attach directly to the storage subsystem through a Fibre Channel I/O path.

You must install storage management software on each cluster node in the following order:

1. Microsoft Virtual Machine; see "Installing Microsoft Virtual Machine"
2. Storage Manager client (SMclient); see "Installing SMclient" on page 9
3. Remote Disk Access Control (RDAC); see "Installing RDAC" on page 9
4. Storage Manager agent (SMagent); see "Installing SMagent" on page 10
5. Storage Manager utility (SMutil); see "Installing SMutil" on page 10

Installing Microsoft Virtual Machine

Complete the following steps to install Microsoft Virtual Machine on management workstations or cluster nodes:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. From the FAStT.WS03\ directory, run the MSJavx86-3805.EXE program.
5. Follow the on-screen instructions to install the software.

Note: When prompted to restart the server, select **No, do not restart the system at this time.**

6. Continue with "Installing SMclient" on page 9.

Installing SMclient

Complete the following steps to install the SMclient software on management workstations or cluster nodes:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. From the FASTT.WS03\ directory, run the SMclient-WS32-08303502.EXE program.
5. Follow the on-screen instructions to install the software. Read and accept the End User License Agreement (EULA), when prompted.
6. Click **Finish** when the software installation is complete.
7. Verify that the SMclient software installed correctly:
 - a. Select **Start→All Programs** and verify that the **IBM FASTT Storage Manager 8 Client** is displayed in the list of installed programs.

Note: If the program is not displayed, repeat step 3 through step 6. If the program is still not displayed, contact your IBM support representative.
 - b. Select **Start→All Programs→Administrative Tools→Services** to display the Services window.
 - c. Verify that the **IBM FASTT Storage Manager 8 Event Monitor** is displayed with startup set to **Automatic** and the status **Started**. If the service is not started, click **Start**. Contact your IBM support representative if you have continued problems.
8. Continue with “Installing RDAC”.

Installing RDAC

RDAC contains the multipath device driver that is required for the FASTT storage controller failover support. Make sure that you have at least 1 MB of available hard disk space on each cluster node and that the appropriate host bus adapter is already installed. Complete the following steps to install the RDAC software on cluster nodes:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. From the FASTT.WS03\ directory, run the SMrdac-WS32-08303502_signed.EXE program.
5. Follow the on-screen instructions to install the software.
6. When the software installation is complete, select **Yes I want to restart my computer now**; then, click **Finish**.
7. When the server restarts, log in to the server again as the Administrator.
8. Verify that the RDAC software installed correctly:
 - a. Select **Start→All Programs→Accessories→System Tools→System Information** to display the System Information window.
 - b. Verify that the rdacbus32 is displayed in the list of device drivers and the state is **Running** with a status of **OK**.

Note: If the device driver is not started, repeat step 3 through step 7. If the device driver is still not started, contact your IBM support representative.
9. Continue with “Installing SMagent” on page 10.

Installing SMagent

You must install the SMagent software if you intend to manage the storage subsystem using the host-agent method. Before installing the SMagent software on a cluster node, ensure the following conditions are met:

- Each cluster node has at least 1 MB of available hard disk space
- RDAC is already installed on each cluster node; see “Installing RDAC” on page 9
- Microsoft Virtual Machine is already installed; see “Installing Microsoft Virtual Machine” on page 8

Complete the following steps to install the SMagent software on cluster nodes:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. From the `FASTT.WS03\` directory, run the `SMagent-WS32-08303501.EXE` program.
5. Follow the on-screen instructions to install the software.
6. When the software installation is complete, click **Finish**.
7. Verify that the SMagent software installed correctly:
 - a. Select **Start**→**All Programs**→**Administrative Tools**→**Services** to display the Services window.
 - b. Verify that the **IBM FASTT Storage Manager 8 Agent** is displayed with startup set to **Automatic** and the status **Started**. If the service is not started, click **Start**. Contact your IBM support representative if you have continued problems.

Note: If the device driver is not started, repeat step 3 through step 6. If the device driver is still not started, contact your IBM support representative.

8. Continue with “Installing SMutil”.

Installing SMutil

The SMutil software contains utilities that will register and map new logical drives to the operating system. Complete the following steps to install the SMutil software on cluster nodes:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. From the `FASTT.WS03\` directory, run the `SMutil-WS32-08303501.EXE` program.
5. Follow the on-screen instructions to install the software. Read and accept the End User License Agreement (EULA), when prompted.
6. When the software installation is complete, click **Finish**.
7. Browse to the `<installation_directory>\IBM_FASTT\Util\` directory (where `<installation_directory>` is the location you chose during installation), and verify that the following files exist:
 - `hot_add.EXE`
 - `SMdevices.BAT`
 - `SMflashcopyassist.EXE`
8. Continue with “Updating storage-subsystem firmware” on page 11.

Updating storage-subsystem firmware

Complete the following steps to update the storage-subsystem firmware and NVSRAM:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. Select **Start→All Programs→IBM FAStT Storage Manager 8 Client** to start the client software and display the Enterprise Management window.

Note: There might be a delay of several minutes before the window displays. No indication of progress is given during this time.

5. From the Enterprise Management window, select a storage subsystem.
6. Select **Tools→Manage Device** to display the Subsystem Management window.
7. Select **Storage Subsystem→Download→Firmware** to update the firmware. Follow the on-screen instructions. Browse to the FAStT.WS03\Firmware\ directory on the *IBM Datacenter Device Drivers* CD, when prompted.
8. Select **Storage Subsystem→Download→NVSRAM** to update the NVSRAM. Follow the on-screen instructions. Browse to the FAStT.WS03\NVSRAM\ directory on the *IBM Datacenter Device Drivers* CD, when prompted.
9. Continue with “Completing the upgrade” on page 12.

Completing the upgrade

To complete the upgrade process, you will need to complete the following procedures:

1. "Performing initial automatic discovery of storage subsystems"
2. "Verifying and defining the default host type" on page 13
3. "Updating the ServeRAID 4Mx adapter device driver" on page 14

For more information about these and other storage-subsystem management tasks, see the appropriate topics in the subsystem-management online help.

Performing initial automatic discovery of storage subsystems

Complete the following steps to perform an initial automatic discovery of storage systems:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Select **Start→All Programs→IBM FAStT Storage Manager 8 Client** to start the client software and display the Enterprise Management window.

Note: There might be a delay of several minutes before the window displays. No indication of progress is given during this time.

4. Click Yes to begin an initial automatic discovery of hosts and storage subsystems attached to the local subnetwork.

After the discovery completes, all hosts and storage subsystems attached to the local subnetwork are displayed.

Note: There might be a delay of up to a minute after the discovery completes before the display refreshes.

5. Verify that each host and storage subsystem is displayed in the Enterprise Management window. If a host or subsystem is not displayed, check the following:
 - Verify hardware connections between devices. Refer to the hardware documentation as necessary.
 - See the Enterprise Management online help for additional information about storage subsystem discovery.
 - If you are using the direct-management method, verify that all hosts and storage subsystems are connected to the same subnet on the network.
 - If you are using the host-agent method, ensure that the Fibre Channel connection between the host and storage subsystems is correct.

Make sure that you complete all of the preparation steps for configuring the storage subsystems for a directly-managed system; then, use the **Add Device** option to add the IP addresses of the storage subsystem. Make sure that you add both IP addresses of the controller to prevent the partially-managed device error message from displaying when you try to manage the storage subsystem.

Note: If you are using the host-agent management method, make sure that the SMagent is installed on the host. Also, verify that you have a Fibre Channel connection from the storage subsystems to the host that has the SMagent installed.

Continue with "Verifying and defining the default host type" on page 13.

Verifying and defining the default host type

Before using the logical drives in the host, you must specify the host type. The host type determines how the storage subsystem controllers work with each particular operating system on the hosts to which they are connected. If all of the host computers connected to the same storage subsystem are running the same operating system, and you do not intend to define partitioning, then you can define a default host type.

To verify the current default host type, complete the following steps:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Select **Start→All Programs→IBM FASTT Storage Manager 8 Client** to start the client software and display the Enterprise Management window.

Note: There might be a delay of several minutes before the window displays. No indication of progress is given during this time.

4. Select **Tools→Manage Device** to display the Subsystem Management window.
5. Select **View→Storage Subsystem** profile to display the Storage Subsystem Profile window.
6. Click the **Mappings folder** tab; then, scroll down to **NVSRAM Host Type Internal Definitions**.
The host type name of the index that has the **DEFAULT** setting next to it is the default host type.
7. Click **Close**.
8. To define a default host type:
 - a. Click **Storage subsystem→Change-Default host-type** to open the Default Host-type window.
 - b. Select the new default host type from the list; then, click **OK**.

Important: To use the heterogeneous host feature, you must do the following:

- Enable storage partitioning

Note: If you disable partitioning, you must contact your IBM support representative to obtain a key that will permit you to enable partitioning again.

- During host-port definition, you must set each host type to the appropriate operating system so that the firmware on each controller can respond correctly to the host.

Complete the following steps to start the heterogeneous host configuration:

1. From the Subsystem Management window, click **Mappings View**.
2. Follow the on-screen instructions to define the heterogeneous host configuration.
3. Continue with "Updating the ServeRAID 4Mx adapter device driver" on page 14.

Updating the ServeRAID 4Mx adapter device driver

Complete the following steps to update the IBM ServeRAID 4Mx adapter device driver for your server:

1. If the server is not already on, turn on the server according to the documentation that comes with the server; then, wait for the Windows Server 2003 Datacenter Edition operating system to start.
2. If you are not already logged into the server, log in to the server as the Administrator.
3. Insert the *IBM Datacenter Device Drivers* CD into the CD-ROM drive on the server.
4. Right-click the **My Computer** icon; then, select **Manage** from the menu.
5. Click **Device Manager**. Select the **IBM ServeRAID 4Mx adapter** icon, located underneath the **SCSI and RAID Controllers** icon. Right-click the device; then, select **Update Driver** from the menu.
6. From the Welcome to Hardware Update Wizard select **Search removable media (floppy, CDROM...)** and click **Next**.
7. When the **System found a driver for your device** prompt displays, click **Next** to install the driver.
8. When prompted that the device driver installation has completed, click **Finished**.
9. Restart the server before you start using your updated configuration.

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