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## Installing and configuring IBM xSeries 440 and 445 Datacenter Server with Microsoft Windows 2003 R2 Datacenter Server Edition

A complete IBM® Datacenter solution for server consists of supported software and hardware components that are interconnected and designed to provide scalability, reliability, and availability for applications and data access.

This documentation contains important information about how to upgrade your existing Windows® 2003 Datacenter solution to Windows 2003 Datacenter R2 Edition and how to restore and configure your IBM Datacenter solution. Except where otherwise stated in this document, use the documentation that comes with your server and optional devices to install, cable, and configure your hardware.

**Important:** Some IBM Datacenter solutions come with additional cabling instructions. Use those instructions in addition to the instructions in the documentation that comes with your server or optional devices.

The following items come with this software package:

- Microsoft® Windows Server 2003 Datacenter Edition publications package
- One Microsoft Windows 2003 Server Datacenter Edition Installation CD (CD 1 of 2).
- One Microsoft Windows 2003 Server R2 Datacenter Edition CD (CD 2 of 2).
- This documentation

**Important:** If you did not purchase this software package at the same time as your server, one or more Microsoft Certificate of Authenticity (COA) labels comes with the software package. You must attach the COA labels to your servers in accordance with the licensing agreement that come with the operating system. If you purchased servers with the operating system preinstalled, the COA labels might already be affixed to your servers.

Keep this documentation with the documentation that comes with your server and other optional devices that are part of your IBM Datacenter solution. Additional information is available from the IBM Datacenter Web site at: [www-3.ibm.com/pc/support/site.wss/MIGR-4P7RG3.html](http://www-3.ibm.com/pc/support/site.wss/MIGR-4P7RG3.html)

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## Upgrading your existing IBM Datacenter Solution from Microsoft Windows 2003 Service Pack 1 to Windows Server 2003 R2 Datacenter Edition

The following upgrade instructions assume that you have previously installed Windows 2003 Service Pack 1 on your IBM Datacenter Solution. Windows 2003 Service Pack 1 is required in order to upgrade to Windows Server 2003 R2 Edition. For more information on the requirements and features contained in Windows Server 2003 R2 Edition please refer to the Microsoft Windows Server 2003 R2 product CD. For instructions on how to install Windows 2003 Service Pack 1 contact your IBM Support Representative.

To upgrade from Windows Server 2003 with Service Pack 1 to Windows Server 2003 R2 using the product discs:

1. Log on to the computer as an administrator.
2. Insert the Microsoft Windows 2003 Server R2 CD (CD 2 of 2) into your CD-ROM drive. If the disc does not automatically open, open the disc, and in the \Cmpnents\R2 folder, click Setup2.exe.

3. Follow the instructions on your screen. When you enter the Product Key, enter the Product Key that comes with the Windows Server 2003 R2 product disc.

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## Recovering your IBM Datacenter solution

Before you turn on your server and optional devices, make sure that your hardware is correctly configured. See "Configuring your hardware" on page 7 for hardware configuration information.

**Note:** The following steps should only be used in the event that a complete operating system reinstallation or recovery procedure is required. If you are installing the Microsoft Windows 2003 Datacenter operating system on a IBM eServer™ xSeries® 440 or xSeries 445 system, please refer to the instructions listed below. Additional instructions for finalizing and configuring your IBM Datacenter Solution are included here: [www-3.ibm.com/pc/support/site.wss/MIGR-4P7RG3.html](http://www-3.ibm.com/pc/support/site.wss/MIGR-4P7RG3.html).

Complete the following steps to completely reinstall the Windows 2003 Datacenter operating system.

**Note:** This process will reformat your entire hard disk and all current data existing on the hard drive specified will be lost.

1. Turn on the server. Insert the Windows Server 2003 Datacenter Edition Installation CD (CD 1 of 2) into the CD-ROM drive.

**Note:** When the server restarts, you might be prompted with the message press any key to boot from CD. To boot from the Windows Server 2003 Setup CD, press any key.

2. The Windows Server 2003 Setup window is displayed after a short delay. The message "Windows Server 2003 will be installed on the server" is displayed. To continue with the installation, press **Enter** twice.
3. The licensing agreement is displayed. Read the licensing agreement, press the Page Down key to scroll to the bottom of the screen; and press **F8** to select "I Agree".
4. Setup displays all hard disk storage that is available on the server. Use one of the following options to choose or create a drive partition in which to install Windows Server 2003:
  - **Allow setup to create a partition** - To partition the entire disk as one primary partition, highlight the non partitioned space on your hard drive and press **Enter**.
  - **Create a Partition** - To create a partition, highlight the non partitioned space on the hard drive. Press the **C** key; you will be prompted to indicate how much available space to allocate from the non partitioned drive. Type the amount of space (in megabytes) and press **Enter**.
  - **Delete a Partition**
5. After you select a drive to partition, you are prompted to choose a file system. Select the NTFS file system.

**Notes:**

- a. Setup will format the selected partition and copy the appropriate files to the drive partition. This process will take several minutes.
  - b. The server restarts to the graphical portion of setup where setup will continue with the installation of Windows Server 2003. During this process, setup will automatically install and configure devices in the computer. This process will take several minutes.
6. The Regional Settings will default to U.S. settings. Make changes if you do not install the server in the US. Click **Next** to continue.

**Note:** You can modify the regional settings after you have installed Windows Server 2003 by selecting **Regional Options** in the Control Panel.

7. The **Personalize Your Software** window is displayed. You are prompted for your name and organization. Type your name in the Name field and type your organization in the Organization

field. The names you type will be used as default server names. Applications that you install on the server at a later time will use this information for the product registration and document identification. Click **Next** to Continue.

8. You are prompted for the Windows Server 2003 Setup CD-Key. Type the Windows Server 2003 Setup CD key in the appropriate fields. Click **Next** to continue.
9. In the **Licensing Modes** window, select the appropriate licensing mode for your organization. Click **Next** to continue.
10. At the server **Name and Administrator Password** window, you are prompted for an administrator password and computer name. Notice that Setup uses the organization name that you entered previously as a suggested name for the computer. Type your server name and password. Click **Next** to continue.

**Note:** Passwords are case sensitive. Be sure to use a combination of upper and lower case letters with at least one number for your password.

11. In the **Time Zone** window, set the current time for Windows Server 2003. To change the date, click the button to the right of the date. To change the time, highlight the value you want to change and enter the correct values by using the keyboard, or by using the up and down arrow keys. Click **Next** to continue.

**Note:** Windows Server 2003 services perform many tasks that are dependent on the successful completion of the computer's time and date settings. Be sure to select the correct time zone for the server location to avoid subsequent problems

12. In the Networking Settings window, select *Typical* or *Custom* settings. If you are prompted, type the appropriate network information. Click **Next** to install Windows networking components.

**Note:** If the network card is not functioning (expected for the server), you are not prompted for network information. You can set up the network from Windows after installation.

In the **Workgroup or Computer Domain** window, selected one of the following options:

- No, this computer is not on a network; it is a network without a domain
- Yes, make this computer a member of the following domain.

Type the workgroup or domain name in the appropriate fields. Click **Next** to continue. Setup will now install and configure the remaining operating system components according to the options you specified. The display in the left hand column indicates the amount of time left until the completion of Windows Server 2003 installation. This process might take several minutes.

13. Remove the Windows Server 2003 Setup CD from the CD-ROM drive and click **Finish**. Windows Server 2003 restarts and runs the newly installed version of Windows Server 2003. The Windows Server 2003 program starts, press **Ctrl+Alt+Delete** to logon. When the desktop is displayed, you will see Windows Server 2003 configure your server wizard. The server wizard will assist in the set up of any additional Windows Server 2003 components that you selected during the installation process.

## Post installation instructions: Installing and updating device drivers

After the installation is complete, make sure that you have the latest device drivers and firmware for the server. To install the device drivers and to identify hardware that is not functioning, open Device Manager. In Device Manager, non-functioning devices are usually listed under Other Devices and are indicated by a yellow exclamation point. To open Device Manager, complete the following steps:

1. Click **Start**.
2. Right-click **My Computer**.
3. Click **Manage** and select **Device Manager** in the left pane.

Use the procedures in the following sections to install the device drivers and to resolve any Unknown device.

## Updating the IBM ServeRAID 6M/4Mx device driver

Use the following procedure to download and install the IBM ServeRAID™ 6M/4Mx device driver:

1. Go to <http://www-3.ibm.com/pc/support/site.wss/MIGR-4P7RG3.html> and follow the appropriate links for your IBM Datacenter Server.
2. Click on the "Download driver and firmware". Follow this link and the instructions to download the IBM ServeRAID Device Driver.
3. Select a transfer protocol option.
4. Save the SRAID.zip file to a local drive or floppy disk for use with the procedures listed below.
5. Click to highlight the zipped folder and then right click and choose "Extract All..." The Extraction Wizard dialog box appears.
6. Click **Next**.
7. Create or Select a destination for the installation files. For example: C:\SRAID\Driver, where C:\ is your local disk drive. Click **Next**.
8. Click **Finish** to close the Extraction Wizard dialog box.
9. Open Device Manager and select the IBM ServeRAID SCSI Controller.
10. Right-click the adapter and select **Update Driver**. The Update Hardware Wizard opens.
11. Select **No, not at this time** and click **Next**.
12. Select **Install from a Specific Location** and click **Next**.
13. Click **Have Disk...** Navigate to the location specified in step 7 to locate the driver update files.
14. Click **Open** and at the next screen click **OK**.
15. Click **Next**.

**Note:** Windows might prompt you to make sure this is the correct driver for this adapter, or to locate additional files required for installation. Continue to use the installation directory specified earlier, C:\SRAID\Driver\Windows\Win2003\SCSI\ivdrv\, to install the new drivers.

## Updating the IBM TotalStorage FASTT FC-2 Host Bus Adapter

Use the following procedure to download and install the IBM ServeRAID 6M/4Mx device driver:

1. Go to <http://www-3.ibm.com/pc/support/site.wss/MIGR-4P7RG3.html> and follow the appropriate links for your IBM Datacenter Server.
2. Click on the "Download driver and firmware". Follow this link and the instructions to download the IBM FASTT FC-2 Device Driver.
3. Select a transfer protocol option.
4. Save the .zip file to a local drive or floppy disk for use with the procedures listed below.
5. Click to highlight the zipped folder and then right click and choose "Extract All..." The Extraction Wizard dialog box appears.
6. Click **Next**.
7. Create or Select a destination for the installation files. For example: C:\HBA\Driver, where C:\ is your local disk drive. Click **Next**.
8. Click **Finish** to close the Extraction Wizard dialog box.
9. Open Device Manager and select the QLogic Fibre Channel Adapter.
10. Right-click the adapter and select **Update Driver**. The Update Hardware Wizard opens.
11. Select **No, not at this time** and click **Next**.
12. Select **Install from a list or specific location** and click **Next**.
13. Select **Don't Search. I will choose driver to install** and click **Next**.
14. Click **Have Disk...** Navigate to the location specified in step 7 to locate the driver update files.
15. Select OEMSETUP.inf and select **Open**.
16. Select **QLogic Fibre Channel Adapter**.

17. Click **Next**.

Repeat this procedure for each Host Bus Adapter installed in your system.

## Resolving an Unknown device: Installing Broadcom NetXtreme Gigabit Ethernet device driver

To connect the server to the network, the Broadcom NetXtreme Gigabit Ethernet device driver must be installed. The Ethernet device driver is listed in Device Manager under Other Devices and is indicated by a yellow exclamation point. To install the Broadcom NetXtreme Ethernet controller device drivers, complete the following steps:

1. Go to <http://www-3.ibm.com/pc/support/site.wss/MIGR-4P7RG3.html> and follow the appropriate links for your IBM Datacenter Server. Once you have clicked on the link for your server type click on the link titled "Download driver and firmware". Follow this link and the instructions to download the Broadcom NetXtreme Ethernet device driver. This takes a few minutes. Select a transfer protocol option (FTP Recommended for most users).
2. Read the Terms and Conditions and select **I Agree** to download the package file
3. Save the device driver package to a location on the hard drive.
4. Right-click the folder and choose **Extract All....** The Extraction Wizard dialog box appears.
5. Click **Next**.
6. To create the destination directory, when prompted for the extracted file location, type `c:\drivers\Ethernet`, click **Next**, and then select **Yes**.
7. When the message "Extraction Complete" is displayed, click **Finish**.
8. In Windows 2003, open the Device Manager, right-click one of the Ethernet Controllers, click **Properties**, then click **Update Driver**.
9. In the **Hardware Update Wizard** window, when you are prompted to check the Internet for a device driver, select **No, not at this time**, and then click **Next**.
10. Select **Install from a list or specific location (Advanced)**, and then click **Next**.
11. When prompted for the file location, clear the check box for **Search removable media**, and select the **Include this location in the search check box**.
12. Type `c:\drivers\Ethernet\Win2003\IA32` and click **Next**.
13. After Windows installs the device drivers, click **Finish**.
14. Close the Properties window.
15. Return to Device Manager and right-click the remaining Ethernet Controller.
16. Click **Properties**, and then click **Update Driver**. Repeat steps 8 through 13.

To configure the network, select **Start->Settings->Control Panel->Network->Internet Connections**. Follow the prompts to set up a network connection. See your system administrator for the necessary details.

## Resolving an Unknown device: Installing the Active PCI software

To resolve the Unknown device in the Device Manager, complete the following steps:

1. 1. Go to <http://www-3.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-63733>. Locate the Active PCI device driver and follow the instructions to download the driver.
  - a. Select a transfer protocol (FTP recommended for most users)
  - b. Read the Terms and Conditions and select **I Agree** to download the package file.
  - c. Select **Save** to transfer the file to a location on the local drive. The **Save As** dialog box appears.
  - d. Select a location for the file and click **Save**.
  - e. The download dialog appears and, once the file save completes, it will disappear.
2. Double-click the IBM ActivePCI installation application saved in Step 1 above.

3. In the **License Agreement** window, read the agreement, select **I Accept the Terms in the License Agreement** and click **Next**.
4. Type `c:\drivers\activepci` for the folder where the files are to be saved. Later, you will need to point to this location when installing the device drivers. Click **Next**.
5. In the **Wizard Complete** window, click **Finish**.
6. Open Device Manager, right-click **Unknown device**, select **Properties**, and select **Reinstall Driver**.
7. In the **Welcome to the Hardware Update Wizard** window, select **Install from a list or specific location (Advanced)** and click **Next**.
8. Select **Search for the best driver in these locations**, clear the first check box, select the **Include this location in the search** check-box, and click **Browse**.
9. When prompted for the file location, browse to `c:\drivers\activepci` and click **OK**. Click **Next** to search for the new device drivers.
10. After the device drivers are installed, click **Finish**.
11. Close the Properties window.

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## Upgrading the IBM Datacenter Solution from Windows 2003 Service Pack 1 to Windows Server 2003 R2 Datacenter Edition.

The following upgrade instructions assume that you have previously installed Windows 2003 Service Pack 1 on your IBM Datacenter Solution. Windows 2003 Service Pack 1 is required in order to upgrade to Windows Server 2003 R2 Edition. For more information on the requirements and features contained in Windows Server 2003 R2 Edition please refer to the Microsoft Windows Server 2003 R2 product CD. For instructions on how to install Windows 2003 Service Pack 1 contact your IBM Support Representative.

## Upgrading from Windows Server 2003 with Service Pack 1 to Windows Server 2003 R2 using the product discs

To upgrade to Windows Server 2003 R2 using the product disks, use the following procedure:

1. Log on to the computer as an administrator.
2. Insert the Microsoft Windows 2003 Server R2 CD (CD 2 of 2) into your CD-ROM drive. If the disc does not automatically open, open the disc, and in the `\Cmpnents\R2` folder, click `Setup2.exe`.
3. Follow the instructions on your screen. When you enter the Product Key, enter the Product Key that comes with the Windows Server 2003 R2 product disc.

## Installing additional software or device drivers

After the initial configuration of your server, you may need to install additional software or device drivers.

**Important:** Do not install any device drivers that are not part of your IBM Datacenter solution or service pack release unless otherwise instructed by an IBM support representative. If a version of software is included with your solution or a service pack release, always use that version unless otherwise instructed by an IBM support representative.

The device drivers and installation instructions for the IBM eServer xSeries 445 Datacenter servers are located at the following web sites: <http://www-3.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-63733>.

The device drivers and installation instructions for the IBM eServer xSeries 440 Datacenter servers are located at the following web sites: <http://www-3.ibm.com/pc/support/site.wss/document.do?Indocid=MIGR-63706>.

Please refer to the installation and upgrade instructions for your particular IBM server and storage solution.

## Configuring your hardware

Use the information in this section and the documentation that comes with your server and optional devices to configure your IBM Datacenter solution. If applicable, install the server and optional devices in a rack cabinet according to the documentation that comes with the rack cabinet, server, and optional devices.

**Important:** To ensure compatibility between optional devices and your server, and reliability of your IBM Datacenter solution, make sure that you install and configure only supported hardware.

For your server to work correctly with IBM TotalStorage® Solutions, you must install both the Windows Datacenter Certified Host Bus Adapter device driver and the appropriate storage device driver and management software for your particular IBM TotalStorage solution for Windows. a. To download the appropriate storage device drivers for your IBM TotalStorage solution:

1. Go to <http://www-3.ibm.com/pc/support/site.wss/MIGR-4P7RG3.html>.
2. Select the appropriate Server and device drivers and storage management software from the links provided and download the software as instructed. It is important to update the code on the Remote Supervisor Adapter II. To download the software package, go to [www-307.ibm.com/pc/support/site.wss/MIGR-57169.html](http://www-307.ibm.com/pc/support/site.wss/MIGR-57169.html) and follow the installation instructions.

## Getting help and service

See the documentation that comes with your server and optional devices for warranty information and information about how to obtain help and service for your hardware. Software support is provided by several optional service offerings that are described in this section. Contact your IBM representative for information about how to purchase one of the optional service offerings.

## Hardware service and support

You can receive hardware service through IBM Integrated Technology Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. Go to <http://www.ibm.com/planetwide/> for support telephone numbers, or in the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378). IBM, or your IBM reseller, provides Solution Assurance at the time of purchase, which includes:

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- Datacenter Certified: ensuring the server, key hardware components, applications and storage are tested and certified with the Datacenter operating system as required
- ServerProven®, which ensures solution compliance.
- ClusterProven®, which ensures solution compliance for clustered configurations.
- Independent technical assessment of selected solution designs or proposals.
- Evaluation of the solution to ensure that your requirements are met.

## Optional service offerings

**Note:** Not all service offerings are available in all countries or regions. Your IBM representative can assist you in finding out what service offerings are available to you. For additional information about the IBM services available in your country, go to <http://www.ibm.com/services>.

The following optional service offerings are available for your IBM Datacenter solution on a fee basis:

- Technical Support Services:

- **ServicePac® for Systemx/xSeries with Datacenter:** Technical assistance is provided for Scalable Windows 2003 Datacenter and IBM Director to solve problems, correct operating-system errors, and answer usage, installation or "how to" questions. These ServicePacs come in 1 and 3 year packages.
- **Enhanced Technical Support:** This service provides proactive support, enhanced response for severity one calls, and an assigned IBM focal point to help keep your IT environment operating at peak efficiency. For more information, visit <http://www.ibm.com/services/us/index.wss/offering/its/a1009019>.
- **Operational Support Services:**
  - **Advanced Support:** This service is customized to meet your unique needs for continuous, business-critical system operation. IBM assigns a Technical Solution Manager (TSM) to be an interface for both software and hardware support. During the initial on-site visit, the TSM becomes thoroughly familiar with your business and systems environment. On an ongoing basis, the TSM manages your account, provides proactive assistance, generates usage reports, and hosts status calls. For more information, visit <http://www.ibm.com/services/us/index.wss/offering/its/a1009019>.
  - **Support Line:** Technical assistance is provided through support that is available from the IBM Support Line. The Support Line provides assistance for solving problems and correcting operating-system errors. Installation assistance is also available through the Support Line. For more information, visit <http://www.ibm.com/services/us/index.wss/offering/its/a1000030>.
  - **Account Advocate:** This service provides support from an assigned specialist who is thoroughly familiar with your solution and business environment from the time the problem is reported until the problem is resolved. For more information, visit <http://www.ibm.com/services/us/index.wss/offering/its/a1000149>.
- **Hardware Maintenance Agreements:** This service provides post-warranty support for your hardware for one year with 24-hour-a-day, 7-day-a-week support. It is available in 4-hour response time or 2-hour response time offerings in some countries or regions.
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- **System Management Services:** These services offer customized solutions that help provide a unified, standard management approach to computing environments across your enterprise. Our services encompass the entire systems management life cycle: assessment, strategy and design, implementation and deployment. For more information, visit <http://www.ibm.com/services/us/index.wss/offering/its/a1000023>.

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Processor speeds indicate the internal clock speed of the microprocessor; other factors also affect application performance.

CD-ROM drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives available from IBM.

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