

adaptec[®]

iSCSI Storage Appliance Getting Started Guide

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This *Getting Started Guide* explains how to configure your iSCSI Storage Appliance, install Adaptec® Storage Manager™, and create and provision storage to the systems on your network. For more detailed installation and usage instructions, refer to the *iSCSI Storage Appliance User's Guide* on the Adaptec Storage Manager Installation CD.

Introduction to Adaptec Storage Manager

Adaptec Storage Manager is a 32-bit software application that helps you build a storage space for your online data using Adaptec RAID controllers, disk drives, and enclosures. You can use Adaptec Storage Manager to create *internal* RAID storage (direct-attached) and *external* RAID storage (accessed over a network), and monitor and manage all your storage from a single ‘one-view’ GUI. This *Guide* describes how to use Adaptec Storage Manager to set up external storage.

Note: For more information about managing internal RAID controllers, refer to the *Adaptec Storage Manager User’s Guide for Internal RAID Storage* on the Installation CD.

Currently, some operating systems don’t support every external storage feature of Adaptec Storage Manager. Depending on which operating system is running on an individual server, either the full set *or* a basic subset of Adaptec Storage Manager features is available for that server (see [Which Features are Supported by My Systems? on page 5](#)).

In this *Guide*, servers that support the full set of Adaptec Storage Manager external storage features are referred to as *full-support systems* (see below). Servers that support a subset of Adaptec Storage Manager external storage features are referred to as *basic-support systems* (see below).

Storage set-up and management tasks for an individual server vary depending on which Adaptec Storage Manager features are supported. Tasks described in this *Guide* as being ‘for full-support systems only’ are not supported on basic-support systems.

Note: At this time, although you can access storage on the iSCSI Storage Appliance (the *iSCSI target*) from systems running Windows Vista™, no features of Adaptec Storage Manager are supported. These systems are referred to in this *Guide* as *target access-only systems*.

What’s a Basic-support System?

A basic-support system is a server running one of these operating systems. Basic-support systems support a subset of Adaptec Storage Manager external storage features (see [page 5](#)).

- Microsoft® Windows Server® 2003 64-bit (all versions)
- Windows XP (all versions)
- Windows 2000 (all versions)
- Red Hat® Enterprise Linux 4
- SUSE Linux Enterprise Server 9 or 10

What’s a Full-support System?

A full-support system is a server running one of these operating systems. Full-support systems support the complete set of Adaptec Storage Manager external storage features (see [page 5](#)).

- Windows Server 2003 32-bit:
 - Enterprise Edition or Enterprise Edition R2
 - Standard Edition or Standard Edition R2
 - Web Edition
- Small Business Server 2003 or Small Business Server 2003 R2

Note: See [page 9](#) for a complete list of supported operating systems and system requirements.

Target Access-Only Systems

Adaptec Storage Manager is currently not supported on other operating systems besides those listed on [page 4](#). iSCSI targets on the iSCSI Storage Appliance can be accessed by systems running Windows Vista; however, you can't use Adaptec Storage Manager to monitor or manage those systems.

Note: Refer to the Adaptec Web site at www.adaptec.com for the most up-to-date list of supported operating systems with target-access only.

Which Features are Supported by My Systems?

This table lists the storage management features supported by basic- and full-support systems. Systems with target-access only (see previous section) do not support any of these features.

Note: Refer to the *User's Guide* on the Installation CD for a complete list of supported Adaptec Storage Manager features by operating system.

| Features | Basic-support System | Full-support System |
|---|----------------------|---------------------|
| Creating RAID storage—pools and volumes (iSCSI targets)—on your iSCSI Storage Appliance | ✓ | ✓ |
| Managing and monitoring your iSCSI Storage Appliance | ✓ | ✓ |
| Managing and monitoring all Adaptec internal RAID storage on your network Note: You can't manage non-Adaptec RAID controllers with Adaptec Storage Manager. | ✓ | ✓ |
| Windows Support Features | | |
| Provisioning storage automatically | | ✓ |
| Creating snapshots of volumes | | ✓ |
| Creating synchronous mirrors of volumes, with automatic failover ¹ | | ✓ |

¹ At least two iSCSI Storage Appliances required.

Which Features are Supported by My IP SAN Configuration?

This table describes which storage management features are available, depending on the configuration of your IP SAN.

| If your IP SAN includes: | You can use Adaptec Storage Manager to: |
|---|--|
| One or more basic-support systems only | <ul style="list-style-type: none"> ● Create RAID storage on your iSCSI Storage Appliance (Standard manual storage provisioning required) ● Manage and monitor your iSCSI Storage Appliance ● Manage and monitor all Adaptec internal RAID storage on your network |
| One or more full-support systems only | Access functions available on basic-support systems, plus: <ul style="list-style-type: none"> ● Provision storage automatically ● Create snapshots of volumes ● Create synchronous mirrors¹ with automatic failover |

¹ At least two iSCSI Storage Appliances required

When you combine basic- and full-support systems in the same IP SAN, the full set of Adaptec Storage Manager features are available only on full-support systems.

Important Terms and Concepts

This section introduces the terms and concepts you should understand before you install Adaptec Storage Manager and build your IP SAN.

Note: More terms and conceptual information can be found in the *iSCSI Storage Appliance User's Guide* on the Installation CD.

Adaptec Storage Manager

Adaptec Storage Manager is a software application that helps you build a storage space for your data, using Adaptec RAID controllers, disk drives, and enclosures.

Note: In this *Guide*, when the term 'Adaptec Storage Manager' is used, it refers to the graphical user interface—the window that opens on your monitor when you run the software.

Agent (Internal RAID Only)

When Adaptec Storage Manager is installed, the Adaptec Storage Manager Agent is also installed automatically. The Agent runs in the background, without user intervention, and its job is to monitor and manage system health, event notifications, tasks schedules, and other on-going processes on that system. It sends notices when tasks are completed successfully, and sounds an alarm when errors occur.

The Agent is only required on systems with Adaptec internal RAID controllers. For more information, refer to the *Adaptec Storage Manager User's Guide for Internal RAID Storage* on the Installation CD.

Console

The console is the GUI of Adaptec Storage Manager that lets you monitor both internal *and* external RAID storage in a single window. The console is the window that opens on your monitor when you run the software. The console must be installed on any system that you will be using as a management system (see [page 7](#)).

For simplicity, in this *Guide*, once the Adaptec Storage Manager installation is complete, the term *Adaptec Storage Manager* is used instead of the term 'console'.

External RAID (or External RAID Storage)

In this *Guide*, the term 'external RAID' refers to storage space—a RAID controller and the disk drives connected to it—that resides external to the systems that access it (for instance, on a network). External storage can be shared between multiple systems. (Compare to the next term, *Internal RAID (or Internal RAID Storage)*.)

Internal RAID (or Internal RAID Storage)

In this *Guide*, the term 'internal RAID' refers to storage space—a RAID controller and the disk drives connected to it—that resides inside, or directly attached to, the workstation that accesses it. Internal RAID storage is not shared but is accessible only to the workstation to which it is connected. (Compare to the previous term, *External RAID (or External RAID Storage)*.)

Internal RAID storage is sometimes referred to as *direct-attached storage*.

iSCSI Storage Appliance

Your iSCSI Storage Appliance contains a RAID controller and all the storage space that will be shared by the systems in your IP SAN. The iSCSI initiators in your basic- and full-support systems access the iSCSI targets you create on your iSCSI Storage Appliance using Adaptec Storage Manager.

Management Service (External RAID Only)

The Management Service is a component of Adaptec Storage Manager that runs in the background, without user intervention. Its job is to monitor and manage event notifications, job schedules, user access, and other on-going processes on your iSCSI Storage Appliance and the full-support systems on your IP SAN.

You must install the Management Service on one basic- or full-support system in your IP SAN. (You don't have to install the Management Service on every system.) It can be installed on any system that meets the minimum system requirements (see [page 9](#)) and is on the same network (or *subnet*) as your iSCSI Storage Appliance and your full-support systems.

The system on which the Management Service is running is referred to in this *Guide* as the *Management Service system*.

Management System

A management system is any basic- or full-support system in your IP SAN from which you manage your iSCSI Storage Appliance using Adaptec Storage Manager.

Almost any system in your IP SAN can be a management system, as long as it has Adaptec Storage Manager Agent and Console installed (see [page 11](#)), is on the same network as your iSCSI Storage Appliance and full-support systems, and meets the minimum system requirements (see [page 9](#)).

You can use a single management system to manage any Adaptec internal RAID controllers you have on your network, as well (see [page 6](#)).

Note: A single system may have more than one role on your IP SAN. For example, your management system may also be the Management Service system.

Multipath Driver

The Multipath Input Output (MPIO) Device Specific Module (DSM) driver is a component of Adaptec Storage Manager that allows you to set up multiple redundant physical paths between your iSCSI Storage Appliance and your full-support systems, and create synchronous mirrors. In a multipath IP SAN, if one path fails, all IO activity automatically switches over (*fails over*) to the remaining path.

To install the Multipath Driver, select **Windows Support** (see [page 8](#)) during Adaptec Storage Manager installation. Windows Support must be installed on all full-support systems on your IP SAN *if* you want to create volume mirrors or a multipath IP SAN.

Note: Adaptec Storage Manager supports failover only. Load balancing is not supported.

Pool

A pool is a disk drive or collection of disk drives which can be divided into logical devices, which then become the iSCSI targets that are accessed by the iSCSI initiators in your full- and basic-support systems.

Provisioning Agent

The Provisioning Agent is a component of Adaptec Storage Manager that automates functions on full-support systems such as volume and snapshot creation.

To install the Provisioning Agent, select **Windows Support** (see [page 8](#)) during Adaptec Storage Manager installation. Windows Support must be installed on all full-support systems on your IP SAN if you want to be able to provision storage automatically and access other automated features.

Virtual Disk Services (VDS) Provider

The VDS Provider is a component of Adaptec Storage Manager that lets you configure a mixed storage environment—a network with both Adaptec and non-Adaptec storage devices—from single user interface without using separate management tools for each device.

To install the VDS Provider, select **Windows Support** (see [page 8](#)) during Adaptec Storage Manager installation. Windows Support must be installed on all full-support systems on your IP SAN if you have a mixed storage environment.

Volume

A volume is storage that has been fully provisioned to a full-support system on your IP SAN. A volume has a drive letter, and has been formatted for data storage.

Volume ShadowCopy Service (VSS) Provider

The VSS Provider is a component of Adaptec Storage Manager that lets you back up your data by creating application- and file-consistent point-in-time copies (true data snapshots) of the volumes on your full-support systems.

To install the VSS Provider, select **Windows Support** (see below) during Adaptec Storage Manager installation. Windows Support must be installed on all full-support systems on your IP SAN if you want to be able to back up your data with snapshots.

Windows Support

Windows Support is a collection of enhanced Adaptec Storage Manager components that can be installed on full-support systems only. When Windows Support is installed, you can provision storage automatically and perform other automated tasks, take snapshots of your data, build a multipath IP SAN and create synchronous mirrors, and include both Adaptec and non-Adaptec storage devices on your network.

To install Windows Support, select **Windows Support** during Adaptec Storage Manager installation.

Windows Support comprises these components:

- Multipath Driver (see [page 7](#))
- Provisioning Agent (see [page 8](#))
- VDS Provider (see [page 8](#))
- VSS Provider (see [page 8](#))

System Requirements

Note: For more information about full-support and basic-support systems, see [Introduction to Adaptec Storage Manager on page 4](#).

- For basic-support systems, see the following section.
- For full-support systems, see [page 10](#).

Basic-support System

- PC-compatible computer with a single Intel Pentium 1.2 GHz processor or better, or equivalent (dual processors and dual cores are not supported)
- One of these operating systems:

Note: All operating systems must have the latest Service Packs or Updates installed.

- Windows Server 2003 64-bit:
 - Enterprise Edition or Enterprise Edition R2
 - Standard Edition or Standard Edition R2
- Windows XP (all versions), 32- or 64-bit
- Windows 2000 (all versions)
- Red Hat Enterprise Linux 4, 32- or 64-bit
- SUSE Linux Enterprise Server 9 or 10, 32- or 64-bit
- One of these iSCSI initiators:
 - Microsoft iSCSI Software Initiator v.2.02 or higher
 - Q-Logic® QLA4050C Host Bus Adapter
 - Q-Logic QLA4052C Host Bus Adapter
 - Bundled Microsoft iSCSI Initiator (Windows Vista only)
 - Bundled Cisco® iSCSI Initiator (Linux only)

Note: See [page 32](#) to find the supported iSCSI initiators for your operating system.

- Microsoft iSCSI Initiator 2.02 package (Windows only)
- At least 512 MB of RAM
- 80 MB of free drive space
- CD drive
- 256 color video mode (*optional*—required only on a Windows or Linux system if it will be used as a management system)

You can create iSCSI targets for basic-support systems on the iSCSI Storage Appliance. However, to access those targets you must log in manually from each basic-support system and partition and format each new drive (see [page 27](#)).

Adaptec Storage Manager does not need to be installed on a basic-support system unless it's being used as a management system (see [page 7](#)) or Management Service system (see [page 7](#)).

Full-support System

- PC-compatible computer with single Intel Pentium 1.2 GHz processor or better, or equivalent (dual processors and dual cores are not supported)
- One of these operating systems:

Note: All operating systems must have the latest Service Packs or Updates installed.

- Windows Server 2003 32-bit:
 - Enterprise Edition or Enterprise Edition R2
 - Standard Edition or Standard Edition R2
 - Web Edition
- Small Business Server 2003 or Small Business Server 2003 R2

Note: VDS is supported by Windows Server 2003 R2 operating systems only.

- At least 512 MB of RAM
- 80 MB of free drive space
- One of these iSCSI initiators:
 - Microsoft iSCSI Software Initiator v.2.02 or higher
 - Q-Logic QLA4050C Host Bus Adapter
 - Q-Logic QLA4052C Host Bus Adapter

Note: See [page 32](#) to find the supported iSCSI initiators for your operating system.

- Microsoft iSCSI Initiator 2.02 package
- Microsoft Hotfix 913648 or equivalent (*optional*—required only if the VSS Provider is being installed)
- CD drive
- 256-color video mode (*optional*—required only if this system will be used as a management system)

Planning IP SAN Configuration and Installation

As you plan your IP SAN configuration, use this table to understand which components of Adaptec Storage Manager can or must be installed on your full- and basic-support systems. Remember that Adaptec Storage Manager can't be installed on target access-only systems (see [page 5](#)).

| | Install... | On... | To... |
|-----------------|--------------------|---|--|
| Required | Console and Agent | Any full- or basic-support system on your IP SAN that will be a management system | Build, manage, and monitor your IP SAN |
| | Console and Agent | All full- or basic-support systems on your IP SAN that contain Adaptec internal RAID storage | Manage all Adaptec internal RAID on your network |
| | Management Service | One full- or basic-support system on the same subnet as your iSCSI Storage Appliance | Build your IP SAN |
| Optional | Windows Support | All full-support systems on your IP SAN | Provision storage automatically, create volume snapshots, create synchronous mirrors, configure a mixed storage environment from single user interface |

For additional help planning your IP SAN, see [Sample IP SAN Configurations on page 12](#).

Note: Refer to the *iSCSI Storage Appliance User's Guide* on the Installation CD for a complete list of supported Adaptec Storage Manager features by operating system.

Maximum Supported Connections

By default, your iSCSI Storage Appliance supports up to 16 disk drives (up to 36 TeraBytes). To expand your IP SAN with additional disk drives, you must purchase an Expansion Feature Enablement Key. See [Adding Enhanced Features on page 31](#) for more information.

When building or expanding your IP SAN, ensure that you don't exceed these connection limitations for your iSCSI Storage Appliance.

Disk Drives

To each separate iSCSI Storage Appliance, you can connect:

- Up to 100 Serial Attached SCSI (SAS) disk drives
- Up to 48 SATA II disk drives
- Up to 30 SCSI disk drives

Note: Re-initialize any previously used disk drive that was originally initialized by another RAID controller before connecting it to your iSCSI Storage Appliance.

Enclosures (JBODs)

To each separate iSCSI Storage Appliance, you can connect:

- Up to 8 Adaptec S50 JBOD enclosures, *or*
- Up to 4 Promise® VTrak™ J300s JBOD enclosures

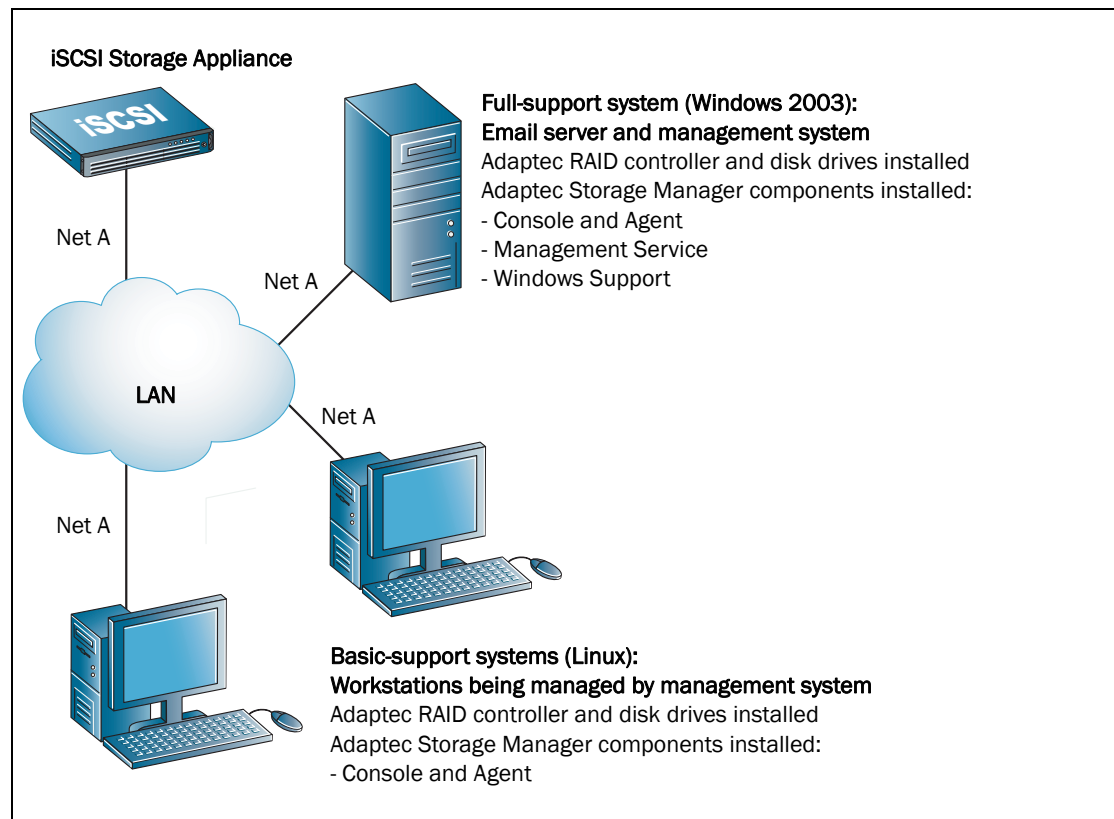
Sample IP SAN Configurations

This section provides configuration examples that illustrate the storage management options and Adaptec Storage Manager installation requirements for each option.

Note: For more information managing internal RAID storage (see [page 6](#)), refer to the *Adaptec Storage Manager User's Guide for Internal RAID Storage* on the Installation CD.

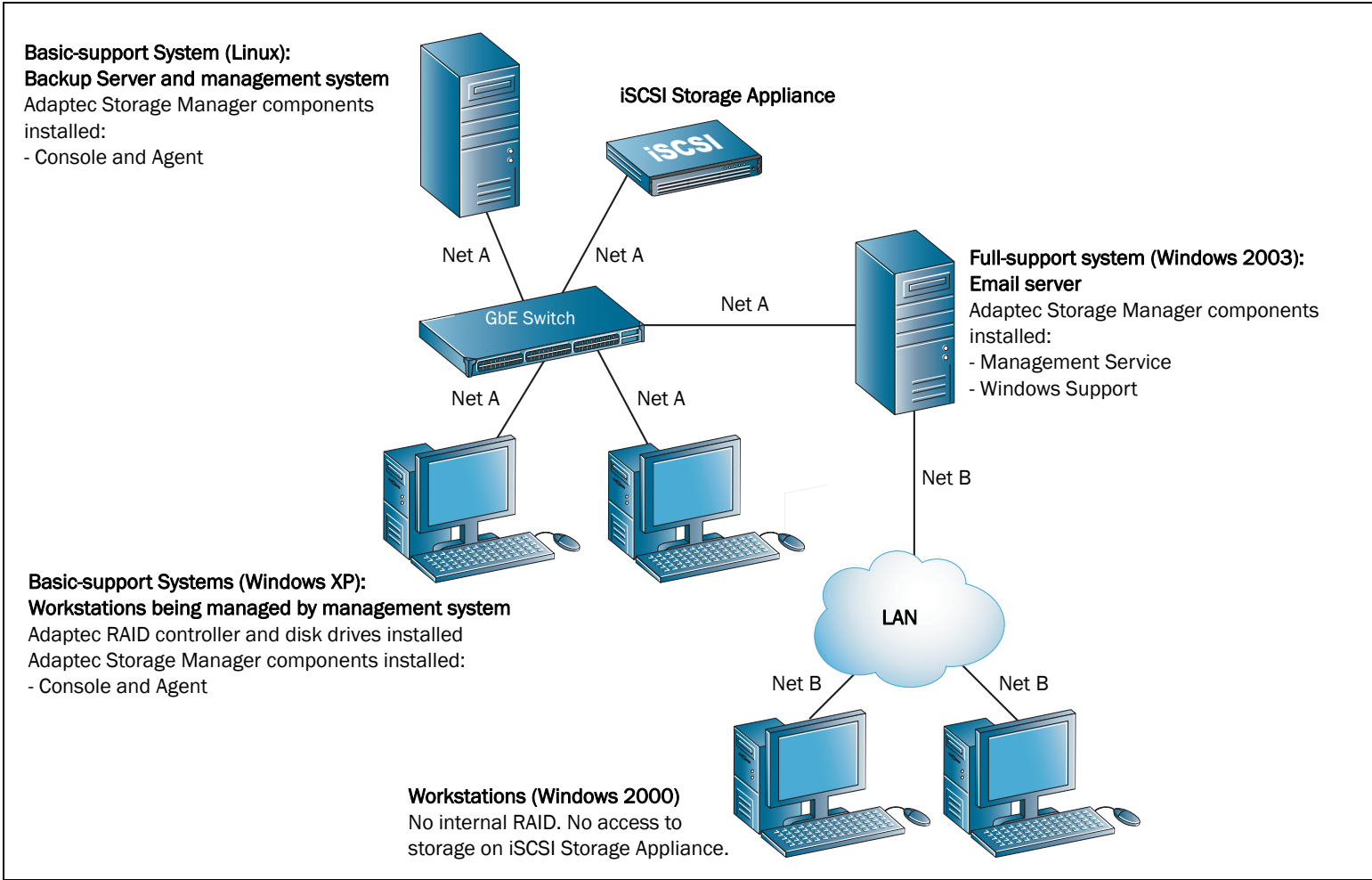
Full and Basic Storage Management Support #1

Note that the Management Service is installed on one system only. Note also that because there is only one iSCSI Storage Appliance on this network, mirroring is not supported.



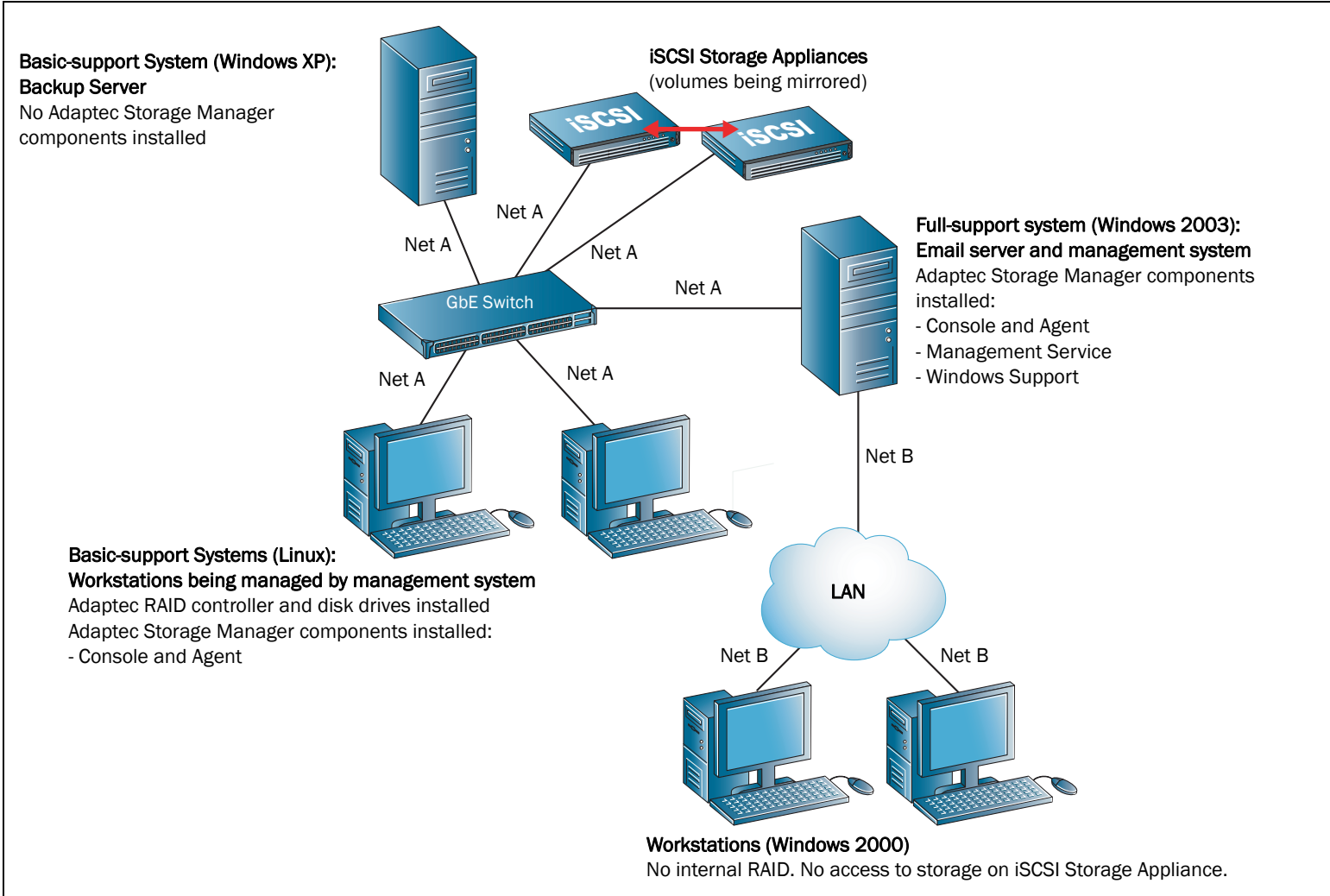
Full and Basic Storage Management Support #2

Note that the Linux backup server is also the management system, from which the system administrator can manage and monitor the external RAID storage *and* the internal RAID storage on the other two basic-support systems. Note that the Management Service is installed on one system only (on the same subnet as the iSCSI Storage Appliance), and that it is not installed on the management system.



Full and Basic Storage Management Support with Mirroring

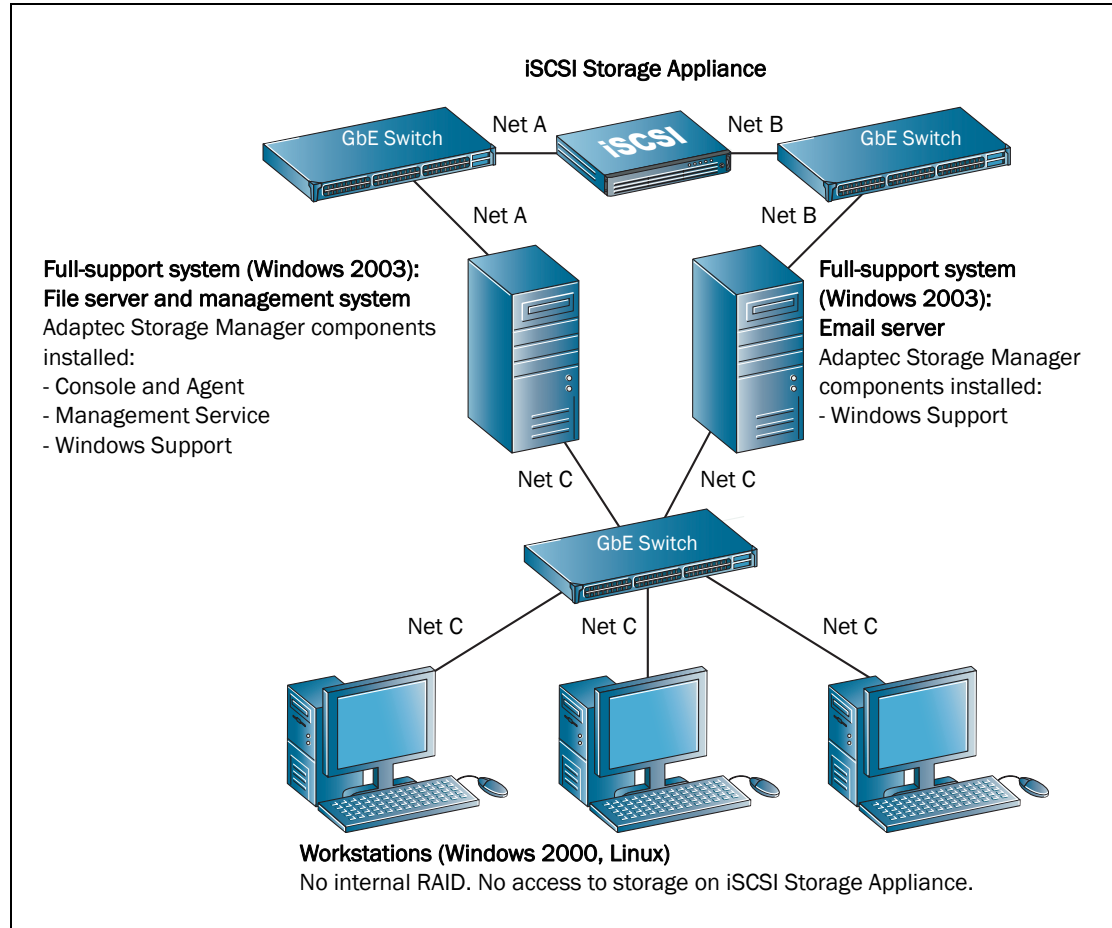
Note that the Management Service is installed on one system only. Note also that because there are two iSCSI Storage Appliances on this network, mirroring is supported.



Full Storage Management Support with Two Subnets

In this example, the file server is also the management system. Note that because there is only one iSCSI Storage Appliance on this network, mirroring is not supported.

Note: Each Ethernet port on your iSCSI Storage Appliance must be on a separate subnet.

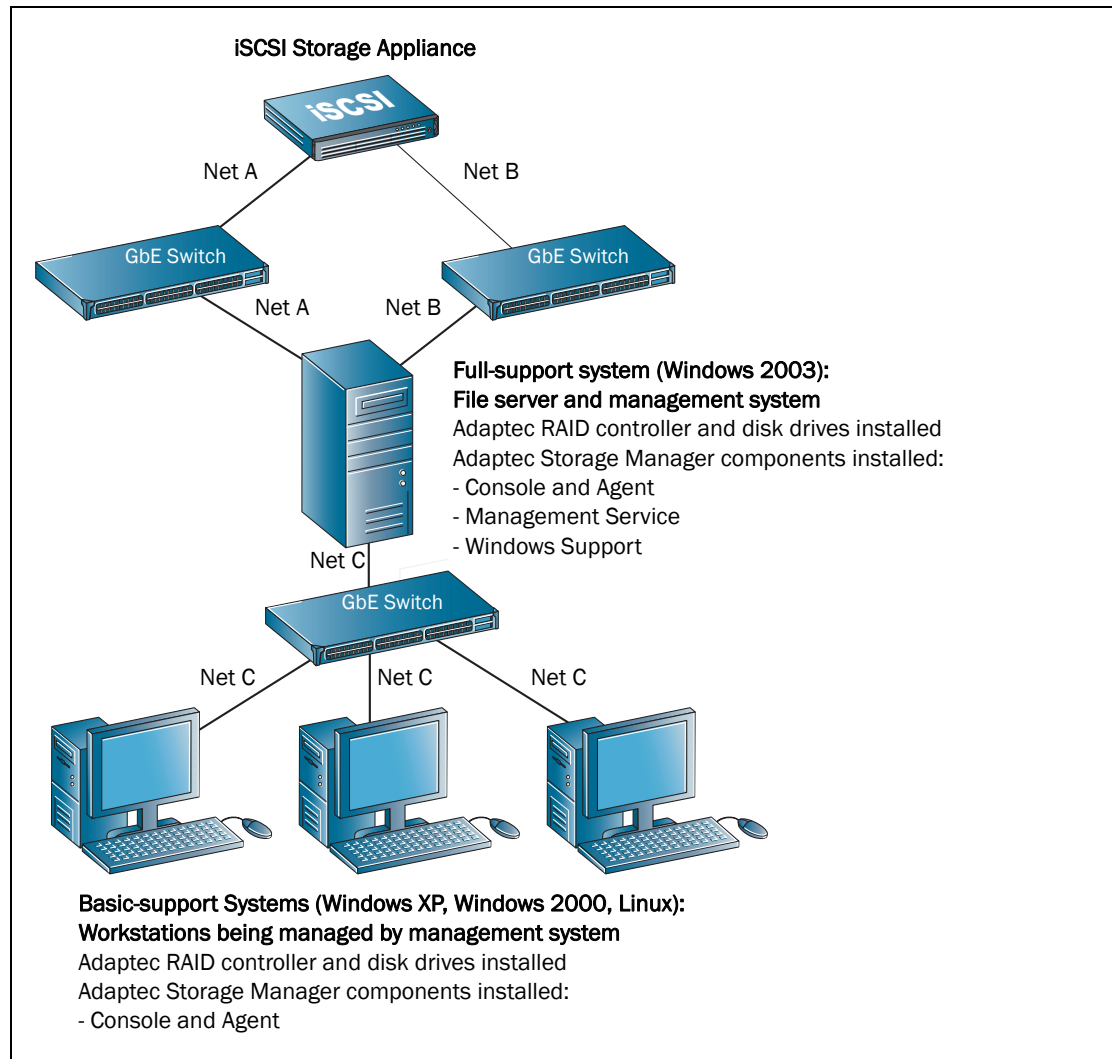


Full Storage Management Support with Multipath Access

In this example, the file server is also the management system, from which the system administrator can monitor and manage both external RAID storage and the internal RAID storage on the basic-support systems.

Notice that because there is only one iSCSI Storage Appliance on this network, mirroring is not supported.

Note: Each Ethernet port on your iSCSI Storage Appliance must be on a separate subnet.



Step 1: Connect to the iSCSI Storage Appliance

Note: This step may have been completed already by your iSCSI Storage Appliance provider. If so, skip to the next section, [Step 2: Configure the iSCSI Storage Appliance](#).

Use either of these two methods:

- Connect a monitor and keyboard to the iSCSI Storage Appliance, *or*
- Use a serial cable to connect the COM 1 port of a system running a terminal emulation program to the iSCSI Storage Appliance's serial port.

Use these settings for the terminal emulation program:

- Null Modem Cable
- Baud Rate: 115,200
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: Off

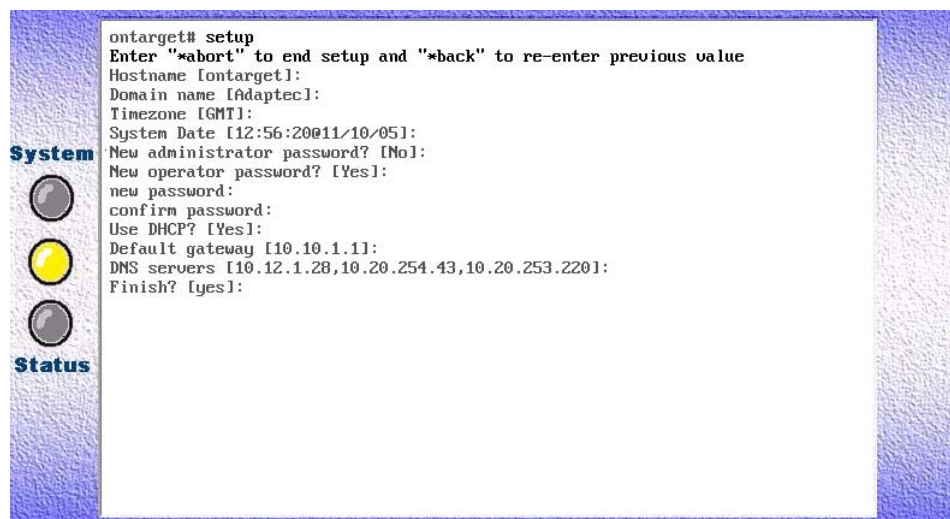
Step 2: Configure the iSCSI Storage Appliance

Note: This step may have been completed already by your iSCSI Storage Appliance provider.

- 1 Power on the iSCSI Storage Appliance.

The Command Line Interface Installation Wizard opens and prompts you to enter values (or *parameters*) for your iSCSI Storage Appliance.

Note: Adaptec recommends that you record the values you enter during this task and store them for future reference.




- 2 At the Hostname prompt, type a name for the iSCSI Storage Appliance, then press **Enter**. Use alphanumeric characters, such as `Adaptec` or `Adaptec1`.

- 3 Type the network domain to which the iSCSI Storage Appliance belongs, then press **Enter**. Use alphanumeric characters, such as `Domain` or `Domain1`.
- 4 Press **Enter** to accept the current System Date, or type a new date, then press **Enter**. Use this format: `[hh:mm:ss@mm/dd/yy]`
- 5 Press **Enter** to accept the current Timezone, or type a new date, then press **Enter**. Use this format: `GMT+12 - GMT-12`
- 6 Type `yes` to create a new administrative password, then press **Enter**. Type the new password, then press **Enter**. Confirm the new password, then press **Enter**.
- 7 Type `yes` to create a new operator password, then press **Enter**. Type a new operator password, then press **Enter**. Confirm the new password, then press **Enter**.
- 8 Press **Enter** to accept the DHCP default setting (No).
- 9 Press **Enter**, or type a default gateway address, then press **Enter**.
- 10 Press **Enter**, or type the IP address of a DNS server, then press **Enter**.
- 11 Type the IP address for the iSCSI Storage Appliance, then press **Enter**. Use this format:
`xxx.yyy.zzz.aaa`
- 12 Type the netmask of the iSCSI Storage Appliance, then press **Enter**. Use this format:
`xxx.yyy.zzz.aaa`
- 13 Type the IP address to be used for broadcasts, then press **Enter**. Use this format:
`xxx.yyy.zzz.aaa`
- 14 When the configuration is complete, the host name given to the iSCSI Storage Appliance displays (for example, `myhostname#`).
- 15 Type `quit`, then press **Enter** to log out of the Command Line Interface.

Note: Once the configuration is complete, if you are using an non-American English keyboard, you can use a command to have your iSCSI Storage Appliance recognize your keyboard's language. Refer to the *iSCSI Storage Appliance User's Guide* on the Installation CD for more information.

- 16 Disconnect from the iSCSI Storage Appliance.

 **Caution:** To avoid permanent data loss, *do not* modify the default BIOS settings of the RAID controller. To safely configure or modify the iSCSI Storage Appliance, use either the CLI or Adaptec Storage Manager only.

Step 3: Install Adaptec Storage Manager

Before You Begin

- Ensure you understand the terms, concepts, and installation options described on [page 6](#).
- Ensure that you have installed an iSCSI initiator in each server that will be accessing storage on your iSCSI Storage Appliance. Supported iSCSI initiators are listed on [page 32](#). (For the most up-to-date list of currently supported iSCSI initiators, refer to the Adaptec Web site at www.adaptec.com.)
- Ensure that each server meets the requirements for either a full- or basic-support system, as listed in [System Requirements on page 9](#).

Note: If you are installing the Windows Support components on a full-support system, Microsoft Hotfix 913648 or equivalent must be installed before you begin.

Installing on Windows

Note: You will need the Installation CD to complete this task.

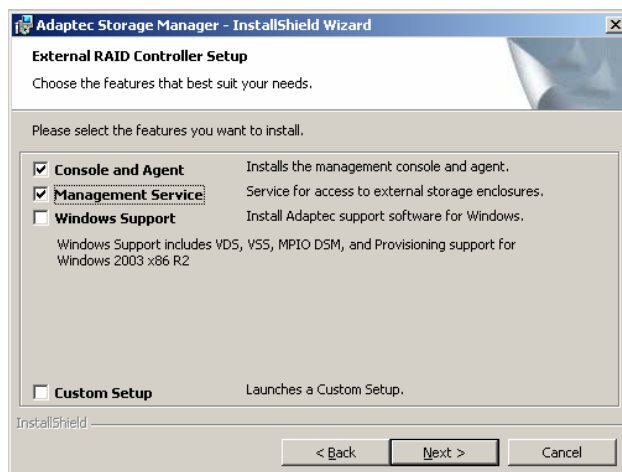
- 1 Power on the system, then insert the CD into the CD drive.

The Adaptec Storage Manager InstallShield Wizard opens automatically. (If it doesn't, use Windows Explorer to display the CD contents, then click `setup.exe`.)

- 2 Click Next to begin the installation.
- 3 Select I accept..., then click Next.
- 4 Select **External RAID Controller...**, then click Next.



5 Select the features you want to install.



Ensure that you select these minimum required features:

- **Console and Agent**—Required for a management system
- **Management Service**—Required on only one system per IP SAN
- **Windows Support**—Required for a full-support system

Note: Windows Support does not appear as an installation option on basic-support systems. For more information, see [Which Features are Supported by My Systems?](#) on page 5.

6 Click Next.

7 If prompted, set a user name and password for the Management Service, then click Next.

8 Click Install.

9 When the installation is complete, click **Finish** and remove the CD.

Repeat these steps to install Adaptec Storage Manager on other Windows systems¹ that will be part of your IP SAN.

Installing on Linux

Note: You will need the Adaptec Storage Manager Installation CD to complete this task.

If a previous version of Adaptec Storage Manager is installed on your system, you must remove it before beginning this installation. Any customization files you created with the previous version are saved and used in the upgrade. To remove Adaptec Storage Manager, type the `rpm -e StorMan` command.

Adaptec Storage Manager includes the Java Runtime Environment (JRE).

1 Insert the CD, then mount it:

For Red Hat `mount /dev/cdrom /mnt/cdrom`

For SUSE `mount /dev/cdrom /media/cdrom`

¹ Except systems running Windows Vista

2 Change to the cdrom directory:

For Red Hat `cd /mnt/cdrom/linux/manager`

For SUSE `cd /media/cdrom/linux/manager`

3 Extract the RPM package and install it:

`rpm --install ./StorMan*.rpm`

4 Unmount the CD:

For Red Hat `umount /mnt/cdrom`

For SUSE `umount /media/cdrom`

Repeat these steps to install Adaptec Storage Manager on every Linux system that will be part of your IP SAN.

Step 4: Start Adaptec Storage Manager

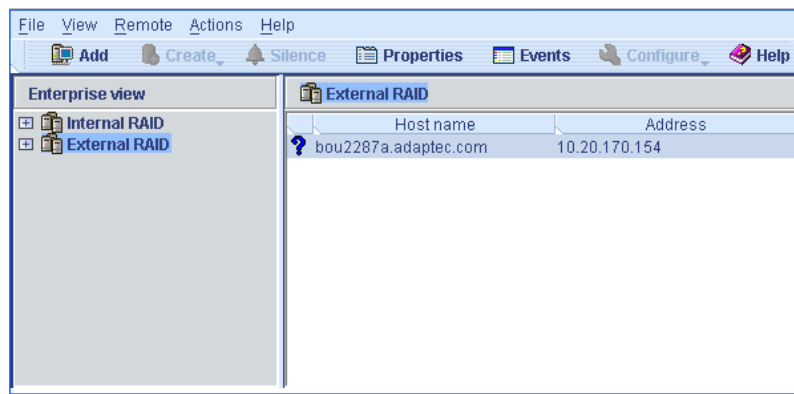
Note: You need root privileges to run Adaptec Storage Manager.

To start Adaptec Storage Manager on your management system:

- On Windows:
 - Click **Start > Programs > Adaptec Storage Manager**.
- On Linux:
 - a Type this command to change to the Adaptec Storage Manager installation directory:


```
cd /usr/StorMan
```
 - b Type this command, then press **Enter**: `sh StorMan.sh`

Adaptec Storage Manager opens.



Using Adaptec Storage Manager with a Firewall

If your network includes a firewall, you must unblock the ports listed in this section.

Unblock this port to ensure that Adaptec Storage Manager and the Management Service operate properly:

- 8003 (TCP)
- 8080 (TCP)

Unblock these ports to allow Adaptec Storage Manager remote access to systems on your network:

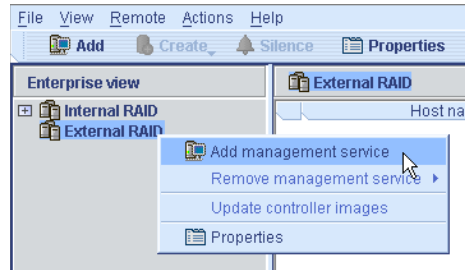
- 34570 to 34580 (TCP)
- 34570 (UDP)
- 34577 to 34580 (UDP)

Step 5: Log in to Your IP SAN

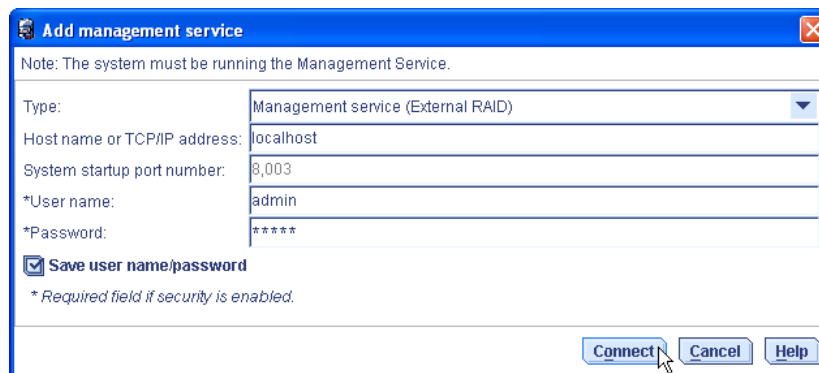
Log in to the Management Service

You must complete this task even if the Management Service is installed *on* your management system.

- 1 In the left panel (the *Enterprise View*) of the Adaptec Storage Manager main window, right-click **External RAID**, then select **Add management service**.



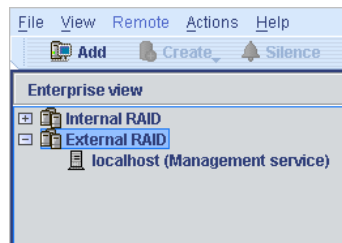
- 2 In the Add Management Service window, ensure that **Management Service (External RAID)** is selected in the **Type** drop-down menu, then enter the host name or TCP/IP address of the system on which you installed the Management Service.



Note: If the Management Service is installed on your management system, you can enter localhost instead of an IP address.

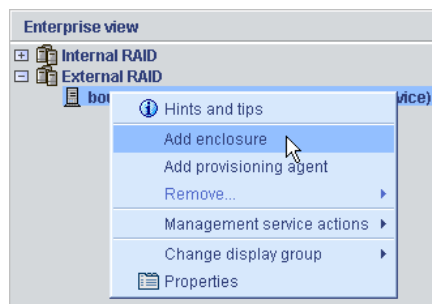
- 3 Enter the user name and password that you set in [Step 7 on page 20](#).
- 4 Click **Connect**.

The Management Service appears under External Storage in the Enterprise View.



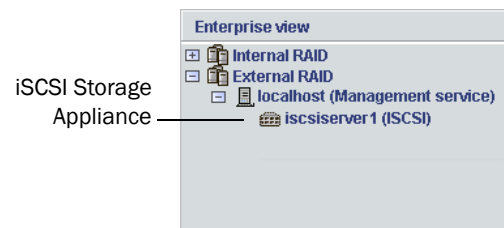
Log In to the iSCSI Storage Appliance

- 1 In the Enterprise View of the Adaptec Storage Manager main window, right-click the Management Service, then select **Add enclosure**.



- 2 In the Add Enclosure dialog box, enter the IP address of the iSCSI Storage Appliance (set in [Step 11 on page 18](#)), then click **Add**.
- 3 If prompted, enter the administrator password you set while configuring your iSCSI Storage Appliance, but *don't* enter a user name.

The iSCSI Storage Appliance appears in the Enterprise View, under the Management Service.



Set the Data Port IP Addresses

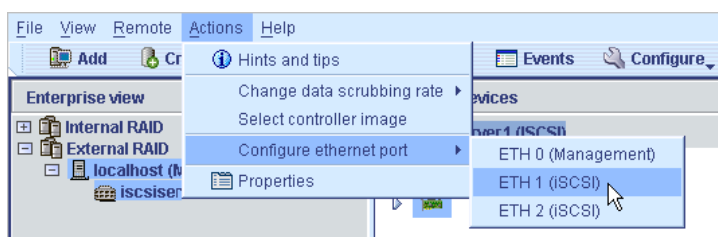
This section explains how to use Adaptec Storage Manager to set the IP address of each Ethernet data port on your iSCSI Storage Appliance. (You set the management port IP address while configuring your iSCSI Storage Appliance—see [page 17](#).)

Note: Each Ethernet port on your iSCSI Storage Appliance must be on a separate subnet.

- 1 In the Enterprise View of the Adaptec Storage Manager main window, select your iSCSI Storage Appliance.
- 2 In the Physical Devices View, select the controller.

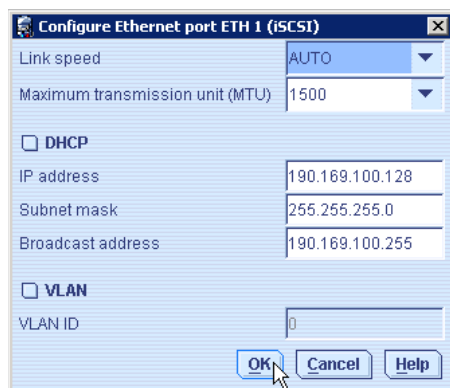


- 3 In the Actions menu, select **Configure ethernet port**, then select the data port you want.



The Configure Ethernet Port window opens for the port you selected.

- 4 Ensure that DHCP is deselected, type a static IP address for the port you selected, then click OK to set the IP address.



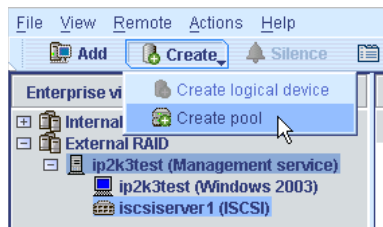
Note: Don't use dynamically assigned IP addresses for the data ports on the iSCSI Storage Appliance. If the IP addresses change, the data connections could be lost.

- 5 Repeat Steps 2 to 4 for each data port on your iSCSI Storage Appliance.

Step 6: Create Storage Pools

This section describes how to create storage pools on your iSCSI Storage Appliance using express configuration. (For custom configuration instructions, refer to the *iSCSI Storage Appliance User's Guide* on the Installation CD.)

- 1 In the Enterprise View, select the iSCSI Storage Appliance.
- 2 On the toolbar, click **Create**, then select **Create Pool**.



- 3 When the wizard opens, select **Express configuration...**, then click **Next**.
- 4 Review the configuration information.

Note: Adaptec recommends that you *not* combine SAS and SATA disk drives within the same pool. Adaptec Storage Manager generates a warning if you try to create a pool using a combination of SAS and SATA disk drives.

- 5 Click **Apply**, then click **Yes**.

Adaptec Storage Manager creates the pool, which is saved on the iSCSI Storage Appliance.

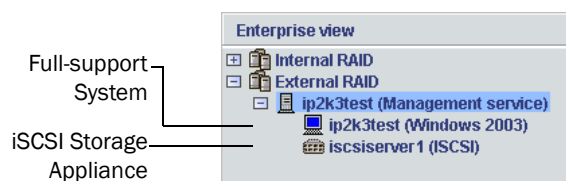
Step 7: Provision Storage to Your Full-support Systems

Note: If you have no full-support systems on your IP SAN, skip to [Step 8: Provision Storage to Basic-support Systems on page 27](#).

Log in to Your Full-support Systems

- 1 In the Enterprise View of the Adaptec Storage Manager main window, right-click the Management Service, then select **Add provisioning agent**.
- 2 In the Add Provisioning Agent dialog box, enter the host name or IP address of the full-support system, then click **Add**.

The full-support system appears in the Enterprise View, under the Management Service.



- 3 Repeat the steps in this section for each full-support system on your IP SAN.

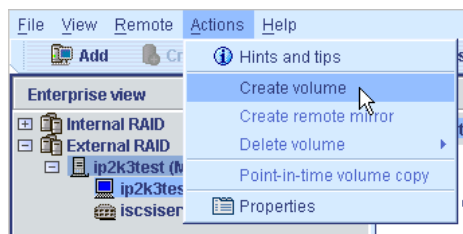
Provision Storage to Full-support Systems

This section explains how to create a volume on a full-support system using automatic storage provisioning.

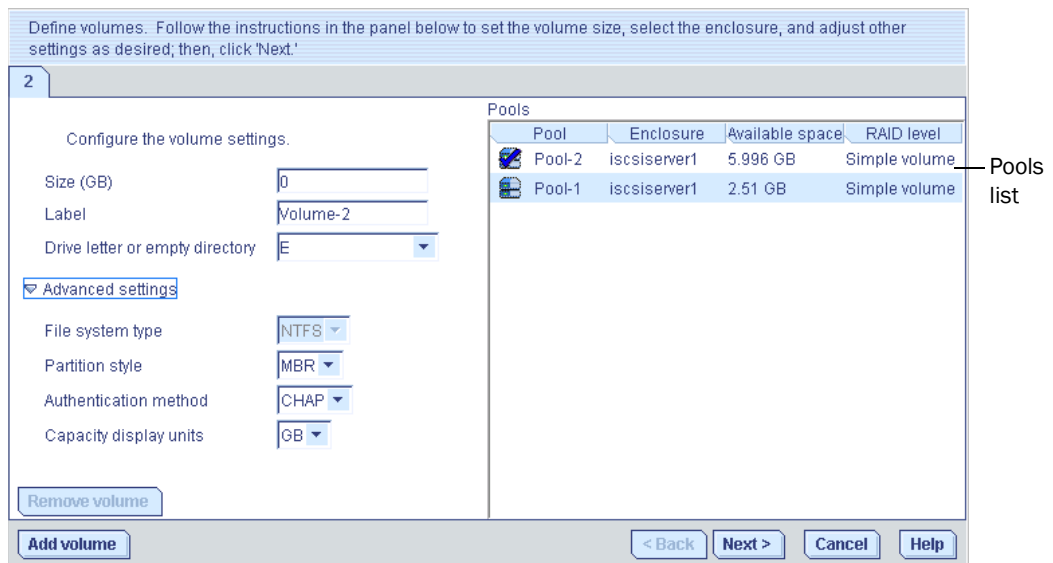
⚠ Caution: Currently, Adaptec recommends that you not provision storage while your iSCSI Storage Appliance is in the process of creating or rebuilding a pool during a period of heavy I/O activity. Provisioning jobs may fail or appear to fail under these conditions because I/O performance is given highest priority. Delay storage provisioning until pool creation is complete or I/O activity has decreased.

To create a volume:

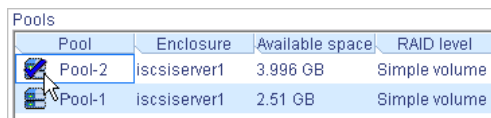
- 1 In the Enterprise View, select the full-support system you want.
- 2 In the Actions menu, select **Create volume**.



A wizard opens to help you create the volume.



- 3 In the left panel, enter a size and a name (or *label*) for the volume, and select a drive letter.
- 4 In the right panel, select the pool in which to create the volume.



The Available Space column shows which pools have sufficient space for the new volume.

- 5 Click **Next**, then review the volume settings.
- 6 Click **Apply**.

To monitor the volume creation job, open the Job Manager.

When the volume has been created, it appears as a regular disk drive on the full-support system and can be used to store data.

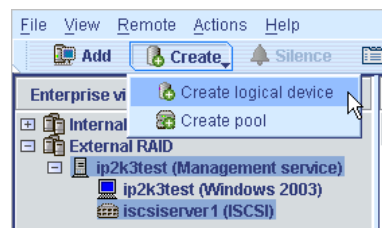
Step 8: Provision Storage to Basic-support Systems

This section explains how to create a logical drive with default settings and manually provision it to a basic-support system.

- 1 In the Enterprise View, select the iSCSI Storage Appliance.
- 2 In the Logical Devices View, select any pool.



- 3 In the tool bar, click **Create**, then select **Create logical device**.

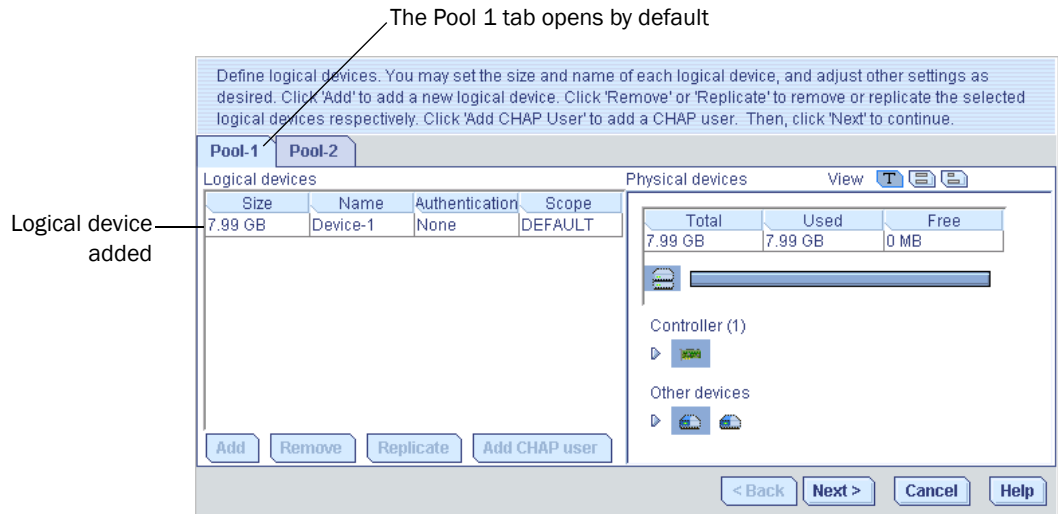


The wizard opens to help you create the logical device (shown in the next figure).

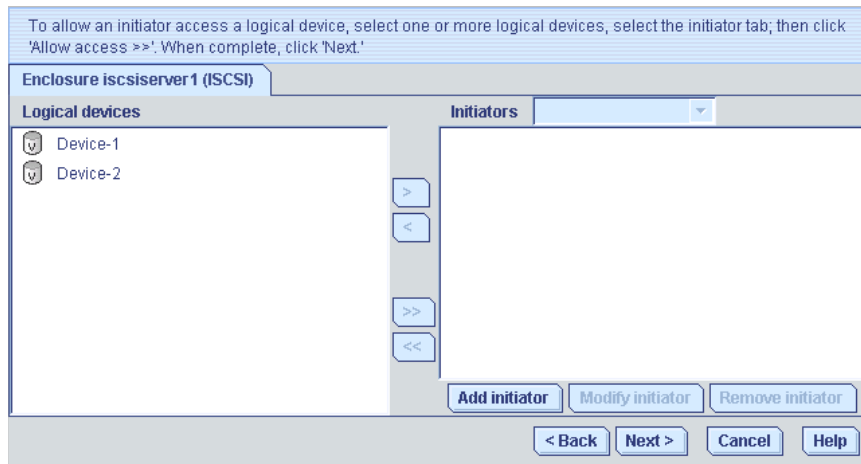
- 4 Select the pool you want by clicking its tab in the upper left-hand side of the window (shown in the next figure).

- 5 Click Add.

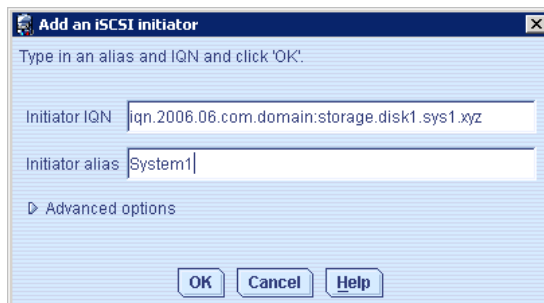
A logical device with default settings appears in the Logical Devices panel.



- 6 Click Next.
- 7 Create an Access Control List (ACL):
 - a Click Add Initiator.



The Add iSCSI Initiator window opens.



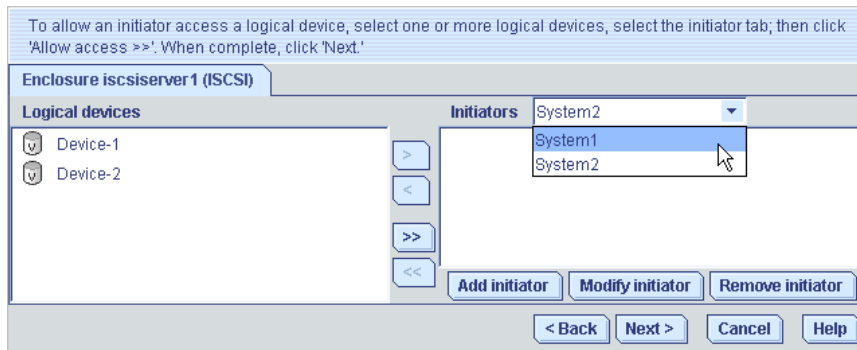
- b Enter the IQN (iSCSI Qualified Name) assigned to the iSCSI initiator installed on your basic-support system (see example in previous figure).
- c Enter a name (or *alias*) for the initiator. The name must begin with a alphabetic character, and can contain only letters and numbers.
- d (*Optional—Advanced users only*) Click **Advanced settings** to enable or disable Protocol Data Unit and iSCSI ping settings.

Note: Refer to your iSCSI initiator's documentation for more information about the advanced settings.

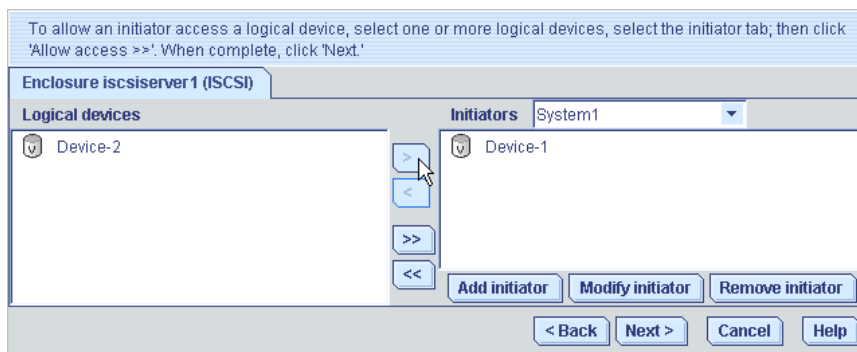
- e Click OK.

Note: The iSCSI initiator appears in the Initiators drop-down menu (shown in the figure in Step g).

- f Repeat Steps a to e to add more initiators, if required.
- g From the Initiators drop-down menu, select the initiator you want.



- h From the list of logical devices, select the logical device(s) that you want the selected initiator to access, then click the right arrow (>).

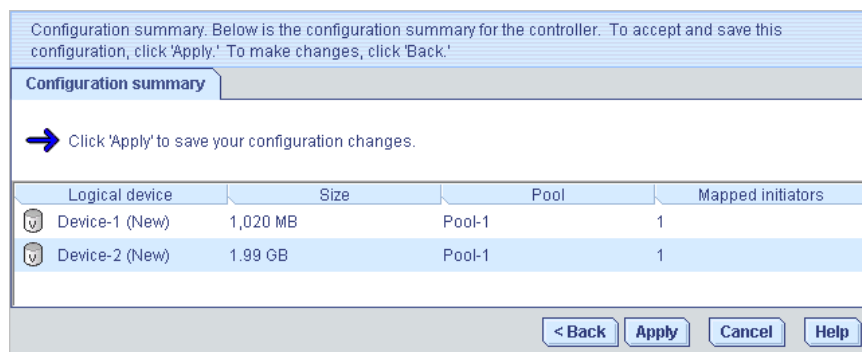


Note: If you want the selected initiator to access *all* the logical devices, click the double right arrows (>>).

- i Repeat Steps g and h for each iSCSI initiator.

Note: Each logical device can support up to 32 iSCSI initiators. For more information about ACLs, refer to the *Adaptec Storage Manager User's Guide*.

- Click **Next**, then review the configuration summary.



- Click **Apply**, then click **Yes**.

The logical drive is created and becomes the iSCSI target that is accessed by the iSCSI initiator installed on your basic-support system.

Log In to the iSCSI Target

After the iSCSI target is created, you must log into it from your basic-support system.

Because this process varies by iSCSI initiator and operating system, refer to the documentation provided with your iSCSI initiator and basic-support system for complete instructions. The basic steps are:

- On a basic-support system, run the iSCSI initiator's management tool.
- Point the initiator to the IP address of the data port(s) on your iSCSI Storage Appliance (set in [Step 11 on page 18](#)).
- Discover the logical drive (or *target*) that you want to access from the basic-support system.
- Log in to the target.
- Partition and format the logical drive on your basic-support system, just as you would any newly installed disk drive.

Step 9: Register Your iSCSI Storage Appliance

Before you can add enhanced features to your iSCSI Storage Appliance or receive technical support, you must register your iSCSI Storage Appliance.

Finding the Target Serial Number

Your iSCSI Storage Appliance has a unique Target Serial Number that is used to identify it. You need this Target Serial Number to register your iSCSI Storage Appliance, receive technical support, and redeem feature keys (software license keys).

To find the Target Serial Number, in the Enterprise View of Adaptec Storage Manager, right-click the iSCSI Storage Appliance, then select **Properties**. The Target Serial Number is listed on the **Device** tab.

Registering the Appliance

- Create an account at www.MyAdaptec.com, or log in to an existing account.
- Follow the on-screen instructions to register your iSCSI Storage Appliance.

Troubleshooting

If you experience problems installing or using Adaptec Storage Manager, follow these suggestions:

- Ensure that all full-support systems are powered on and that you are logged in to them.
- Ensure that you have correctly set the IP addresses of the data ports on your iSCSI Storage Appliance.
- Ensure that each Ethernet port on your iSCSI Storage Appliance is on a separate subnet.
- Ensure that you have opened all the required ports in your firewall (see [page 22](#)).
- Ensure that you have logged into the Management Service (see [page 22](#)) and iSCSI Storage Appliance.
- Check all cable connections.
- Try uninstalling and reinstalling Adaptec Storage Manager.

For more problem-solving information, refer to the *iSCSI Storage Appliance User's Guide* on the Installation CD.

Adding Enhanced Features

By default, your iSCSI Storage Appliance supports up to 16 disk drives. You can increase the number of disk drives and enclosures supported by purchasing an Expansion Feature Enablement Key.

To purchase a Feature Enablement Key, or for the most up-to-date information about other available enhanced features, contact your Adaptec Reseller.

Note: You must register your iSCSI Storage Appliance before you can purchase a Feature Enablement Key. Be sure that you have the Target Serial Number for your iSCSI Storage Appliance available. See [Step 9: Register Your iSCSI Storage Appliance on page 30](#).

To unlock enhanced features with a Feature Enablement Key, refer to the *iSCSI Storage Appliance User's Guide* on the Installation CD.

More Information

For more information about Adaptec Storage Manager, visit www.adaptec.com.

To find detailed information about Adaptec Storage Manager and the Command Line Interface, refer to these documents:

- **Readme**—Text file located on the Installation CD. This file provides late-breaking technical information about Adaptec Storage Manager.
- *iSCSI Storage Appliance User's Guide*—PDF file located on the Installation CD. It provides complete information on how to install and use your iSCSI Storage Appliance, Adaptec Storage Manager, and the Command Line Interface.
- *Adaptec Storage Manager User's Guide for Internal RAID Storage*—PDF file located on the Installation CD. It provides complete information on how to use Adaptec Storage Manager to create and manage direct-attached storage.
- **Online Help**—Adaptec Storage Manager includes embedded online Help that describes how to use Adaptec Storage Manager to create and manage storage.

iSCSI Initiator Support by Operating System

| Operating System with Latest Service Pack | Supported iSCSI Initiators | | | | |
|---|---|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------------|
| | Microsoft iSCSI Initiator 2.02 or later | Q-Logic QLA4050C Host Bus Adapter | Q-Logic QLA4052C Host Bus Adapter | Bundled Microsoft iSCSI Initiator | Bundled Cisco iSCSI Initiator |
| 32-bit Operating Systems | | | | | |
| Windows Server 2003 Enterprise Edition | | | | | |
| Windows Server 2003 Enterprise Edition R2 | | | | | |
| Windows Server 2003 Standard Edition | | | | | |
| Windows Server 2003 Standard Edition R2 | ✓ | ✓ | ✓ | | |
| Windows Server 2003 Web Edition | | | | | |
| Windows Small Business Server 2003 | | | | | |
| Windows Small Business Server 2003 R2 | | | | | |
| Windows 2000 (All Versions) | ✓ | ✓ | ✓ | | |
| Windows XP (All Versions) | ✓ | | | | |
| Windows Vista (All Versions) | | | | ✓ | |
| Red Hat Enterprise Linux 4 | | ✓ | ✓ | | ✓ |
| SUSE Linux Enterprise Server 9 | | ✓ | ✓ | | ✓ |
| SUSE Linux Enterprise Server 10 | | ✓ | ✓ | | ✓ |
| 64-bit Operating Systems | | | | | |
| Windows Server 2003 Enterprise Edition | | | | | |
| Windows Server 2003 Enterprise Edition R2 | | | | | |
| Windows Server 2003 Standard Edition | | | | | |
| Windows Server 2003 Standard Edition R2 | ✓ | ✓ | ✓ | | |
| Windows XP (All Versions) | ✓ | | | | |
| Windows Vista (All Versions) | | | | ✓ | |
| Red Hat Enterprise Linux 4 | | ✓ | ✓ | | ✓ |
| SUSE Linux Enterprise Server 9 | | ✓ | ✓ | | ✓ |
| SUSE Linux Enterprise Server 10 | | ✓ | ✓ | | ✓ |



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