

CHAPTER 5

Adding Devices to the Windows Home Server Network

A network consisting of just a single Windows Home Server box isn't much of a "network" at all, it goes without saying. To make things interesting, you need to add one or more devices to the network. By "devices," I mean other computers, first and foremost. As you'll see, Windows Vista and XP machines can participate in the full extent of the Windows Home Server experience by accessing the Windows Home Server shares, streaming media, and getting backed up nightly. However, that doesn't mean these are the only computers you can insert into your network. Older Windows boxes, Macs, and Linux machines can also get in on the action by accessing the Windows Home Server shared folders. In some cases, with the right software installed, you can connect remotely to the network from these machines.

By "devices," I also mean noncomputer equipment, including Xbox consoles, Zune media players, and other media devices such as network media players and digital picture frames. This chapter gives you the details on connecting these other devices to your Windows Home Server network.

Installing Windows Home Server Connector on the Client Computers

Your key to the riches of Windows Home Server from a client computer's point of view is a program called Windows Home Server Connector, which does the following:

IN THIS CHAPTER

- ▶ Installing Windows Home Server Connector on the Client Computers
- ▶ Rediscovering the Windows Home Server
- ▶ Adding a Windows 98 Client to the Network
- ▶ Using a Mac on Your Windows Home Server Network
- ▶ Using a Linux Client on Your Windows Home Server Network
- ▶ Connecting Other Devices to the Windows Home Server Network

- ▶ Locates the Windows Home Server on the network
- ▶ Registers your computer with Windows Home Server
- ▶ Configures Windows Home Server to automatically back up your computer every night
- ▶ Installs the Backup Now component that enables you to back up your computer manually at any time
- ▶ Installs the client version of the Restore Wizard, which enables you to restore backed up files and folders
- ▶ Adds a desktop shortcut for the Windows Home Server shared folders
- ▶ Installs the Home Server Tray application, a notification area icon that tells you the current network status and gives you access to Windows Home Server features
- ▶ Installs the client version of the Windows Home Server Console

Supported Operating Systems

The good news is that it's the Connector program that lets your client machine get in on the complete Windows Home Server experience. The bad news is that the Connector software only works on clients running newer versions of Windows:

- ▶ Windows Vista Home Basic
- ▶ Windows Vista Home Premium
- ▶ Windows Vista Business
- ▶ Windows Vista Enterprise
- ▶ Windows Vista Ultimate
- ▶ Windows Vista Home N (European Union only)
- ▶ Windows Vista Business N (European Union only)
- ▶ Windows XP Home with Service Pack 2
- ▶ Windows XP Professional with Service Pack 2
- ▶ Windows XP Media Center Edition 2005 with Service Pack 2 and Rollup 2
- ▶ Windows XP Media Center Edition 2005 with Service Pack 2
- ▶ Windows XP Media Center Edition 2004 with Service Pack 2
- ▶ Windows XP Tablet Edition with Service Pack 2

Note that Microsoft has posted no other system requirements for Windows Home Server Connector. In other words, if your system is capable of running any of the preceding operating systems and can make a wired or wireless connection to your network, you can install and run Windows Home Server Connector.

Preparing to Install Windows Home Server Connector

Before installing Windows Home Server connector, you should make sure that your client is ready for the installation and for joining the Windows Home Server network. Here's a checklist:

- ▶ Set up a wired or wireless connection to your network.
- ▶ Make sure the client's computer name is unique on the network.
- ▶ Make sure the client's workgroup name is the same as the workgroup name used by Windows Home Server.
- ▶ Make sure you can see the Windows Home Server on your network. (In Windows Vista, select Start, Network; in Windows XP, select Start, My Network Places, and then either click the View Workgroup Computers link or select Entire Network, Microsoft Windows Network, and then click your workgroup.)
- ▶ On the client, set up the user account you want to use with Windows Home Server (if you don't want to use an existing account).
- ▶ On Windows Home Server, set up a user account with the same username and password as the client user account.

Running the Windows Home Server Connector Setup Program on Windows Vista

With your Windows Vista client PC ready, here are the steps to follow to install the Windows Home Server Connector:

1. Insert the Windows Home Server Connector CD.
2. If you see the AutoPlay window, click the Run `setup.exe` link. Otherwise, use Windows Explorer to open the CD and double-click `SETUP.EXE`.
3. Enter your User Account Control credentials to authorize the installation.
4. In the initial Windows Home Server Connector dialog box, click Next.
5. Accept the license agreement and click Next. The Windows Home Server Connector installation begins. When the install is complete, you're prompted for the Windows Home Server password, as shown in Figure 5.1.
6. Type the Windows Home Server password. If you're not sure of the correct password, click Password Hint to display the hint text that was entered during the Windows Home Server install.
7. Click Next. Windows Home Server Connector joins your computer to the network and configures Windows Home Server to back up your computer nightly.
8. Click Next to complete the Windows Home Server Connector installation.



FIGURE 5.1 When the Windows Home Server Connector software is installed, you need to log on to Windows Home Server.

9. Click Finish. Windows Home Server Connector adds a shortcut to the server shares on your desktop. Note that this shortcut appears on the desktop for all users of the computer.
10. The Home Server Tray application icon appears in the notification area. If your client user account password doesn't match your server user account password, the icon displays a message letting you know. Synchronize the passwords as described in Chapter 4, "Setting Up and Working with User Accounts."

► **SEE** For the details on getting your client and server user account passwords in synch, **see** "Synchronizing the Client and Windows Home Server Passwords," **p. 84**.

Running the Windows Home Server Connector Setup Program on Windows XP

Installing Windows Home Server Connector on Windows XP is similar to installing it on Vista, but the two are different enough that the XP process deserves a separate set of steps. Follow these steps to install the Windows Home Server Connector on a Windows XP client:

1. Log on to Windows XP with an Administrator-level account. Administrator rights are required to install the Connector software. If you don't want to use this Administrator-level account with Windows Home Server, that's okay. After Windows Home Server Connector is installed, you can log off and then log back on using the account you want to use with Windows Home Server.

NOTE

If you're logged on to Windows XP with a Standard user account when you insert the Windows Home Server Connector CD, you see the Install Program As Other User dialog box. Normally, you use this dialog box to run an installation program under a different user account by selecting an Administrator-level account and password. That won't work with Windows Home Server Connector, however, because it requires that the Administrator-level user be logged on.

You might think that you can log on to XP with a Standard user account and then use the Run As command to run Setup under the elevated privileges of an Administrator-level account. (The usual way to do this is to right-click the file you want to run and then click Run As in the shortcut menu.) That won't work, however, because Windows Home Server Connector's install program doesn't support the Run As command or any kind of privilege elevation.

2. Insert the Windows Home Server Connector CD.
3. The Setup program should start automatically. If not, use Windows Explorer to open the CD and double-click `SETUP.EXE`.
4. Depending on the configuration of your XP machine, Windows Home Server Connector may install Microsoft .NET Framework 2.0. If so, follow the onscreen instructions to install the framework.
5. In the initial Windows Home Server Connector dialog box, click Next.
6. Accept the license agreement and click Next. The Windows Home Server Connector installation begins. When the install is complete, you're prompted for the Windows Home Server password.
7. Type the Windows Home Server password. If you're not sure of the correct password, click Password Hint to display the hint text that was entered during the Windows Home Server install.
8. Click Next. Windows Home Server Connector joins your computer to the network and configures Windows Home Server to back up your computer nightly.
9. Click Next to complete the Windows Home Server Connector installation.
10. Click Finish. Windows Home Server Connector adds a shortcut to the server shares on your desktop. Note that this shortcut appears on the desktop for all users of the computer.
11. The Home Server Tray application icon appears in the notification area. If your client user account password doesn't match your server user account password, the icon displays a message letting you know. Synchronize the passwords as described in Chapter 4.

► **SEE** For the details on getting your client and server user account passwords in synch, **see** "Synchronizing the Client and Windows Home Server Passwords," **p. 84**.

12. If the Administrator-level account you're using for the installation doesn't have a corresponding account in Windows Home Server, you see a dialog box similar to the one shown in Figure 5.2. Click Close.



FIGURE 5.2 You see this dialog box if the current client user account doesn't have a corresponding user account on Windows Home Server.

13. If you are using the current Administrator-level user account only for installing Windows Home Server Connector, log off the account and then log back on using the account you want to use with Windows Home Server.

Rediscovering the Windows Home Server

If you change certain aspects of Windows Home Server—for example, if you change or modify the computer name or give the server a different IP address—your client computer will almost certainly lose its connection to Windows Home Server, and it probably won't be able to find the server again. The next time you log on to the client, the Windows Home Server Tray icon will be grayed out, and hovering your mouse over the icon will display a `Not connected to server` message, as shown in Figure 5.3.



FIGURE 5.3 Changing the server name or IP address can cause a client computer to lose its connection to the server.

If that happens, one solution is to uninstall and then reinstall the Windows Home Server Connector software. However, an easier solution is to run the Discovery program that installs with Windows Home Server Connector. This is the program that the Windows Home Server Connector uses to find the server in the first place when you initially install the Connector software. However, you're free to reuse it any time to rediscover the server. Here are the steps to follow:

1. On the client computer, use Windows Explorer to open the following folder:

%ProgramFiles%\Windows Home Server

NOTE

%ProgramFiles% is an environment variable that holds the location of the Program Files folder, which is usually C:\Program Files.

2. Double-click Discovery.exe.

TIP

You can combine steps 1 and 2 by opening the Run dialog box (press Windows Logo+R or select Start, Run in XP), typing the following command, and then clicking OK:

%ProgramFiles%\Windows Home Server\Discovery.exe

3. If the client is running Windows Vista, enter your User Account Control credentials. The Windows Home Server Connector then attempts to locate the server, as shown in Figure 5.4. If the Discovery program locates Windows Home Server, it prompts you for the server password.

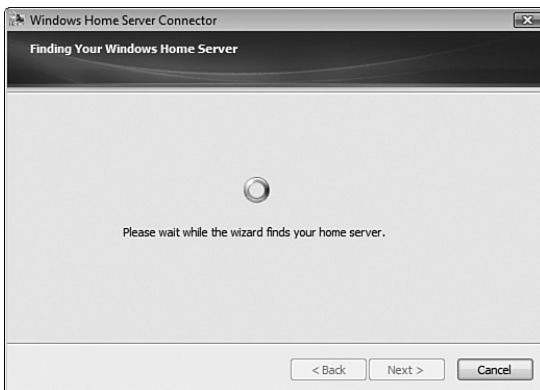


FIGURE 5.4 Run Discovery.exe on the client to attempt to locate the Windows Home Server.

4. Type the password and then click Next. Windows Home Server Connector rejoins your computer to the network.
5. Click Next to complete the discovery portion of Windows Home Server Connector.
6. Click Finish.

Adding a Windows 98 Client to the Network

Many households still have Windows 98 (particularly Windows 98 Second Edition; one of Microsoft's most solid operating systems) machines kicking around as "hand-me-downs" for the kids. Unfortunately, the Windows Home Server Connector software won't run on Windows 98 (or, indeed, on anything other than Vista and XP, as described earlier). However, Windows 98 users can still get their own shares on Windows Home Server and access the built-in Windows Home Server shared folders.

Setting Up a New User

If your Windows 98 machine is set up to use the Administrator account or your own user name, you probably want to create a new user for Windows Home Server access. Here are the steps to follow to set up a new user:

1. On the Windows 98 machine, select Start, Settings, Control Panel to open the Control Panel window.
2. Double-click the Users icon.
3. If you already have multiple users on the computer, the User Settings dialog box appears. In this case, click New User to launch the Add User Wizard. (If you don't have multiple users, the wizard starts right away, so skip to step 4.)
4. Click Next.
5. In the User Name text box, type the name of the new user.
6. Click Next.
7. Type the user's password in the Password and Confirm Password text boxes.
8. Click Next. The Personalized Items Settings dialog box appears.
9. If you want to copy items from the current user profile, activate the check boxes in the Items list and leave the Create Copies of the Current Items and Their Content option activated. If you prefer to start fresh, activate the Create New Items to Save Disk Space option.
10. Click Next.
11. Click Finish. Windows 98 creates the new user and sets up the personalized items (user profile).
12. If you see the User Settings dialog box, click Close.
13. If Windows 98 tells you that you must restart Windows (this occurs when you first activate the multiusers feature), click OK.
14. In Windows Home Server, create a new account (as described in Chapter 4) with the same username and password as the new Windows 98 user. Be sure to give the Windows 98 user access to some or all of the Windows Home Server built-in shared folders (Music, Photos, and so on).

► **SEE** To learn how to add a user to Windows Home Server, **see** "Adding the User Account," **p. 81**.

Accessing the Network

With your user account set up on the Windows 98 machine and Windows Home Server, you're ready to access the network shares. In Windows 98, you do this via the old Network Neighborhood, as shown in the following steps:

TIP

Unlike more recent versions of Windows, Windows 98 doesn't have a feature that automatically detects wireless networks. Instead, you have to adjust the properties of your wireless network adapter to specify the network's service set identifier (SSID), the network type (infrastructure), the broadcast channel, and the security data (protocol and key). Specifying this data is often part of the adapter setup routine, but you may need to set it up by hand if your adapter didn't come with an install program. Select Start, Settings, Control Panel, and then double-click the Network icon. In the Network dialog box, click your wireless network adapter, and then click Properties. In the Advanced tab of the property sheet, edit the following properties: Channel, Network Type, SSID, and Security.

1. Log on to Windows 98 using the new user account, if you haven't done so already.
2. Select Start, Programs, Windows Explorer.
3. In the Folders list, open the Network Neighborhood branch. (Most Windows 98 systems came with a Network Neighborhood icon on the desktop, so a quick method is to double-click that desktop icon.)
4. Click the icon for the Windows Home Server. The server shares appear, as shown in Figure 5.5.

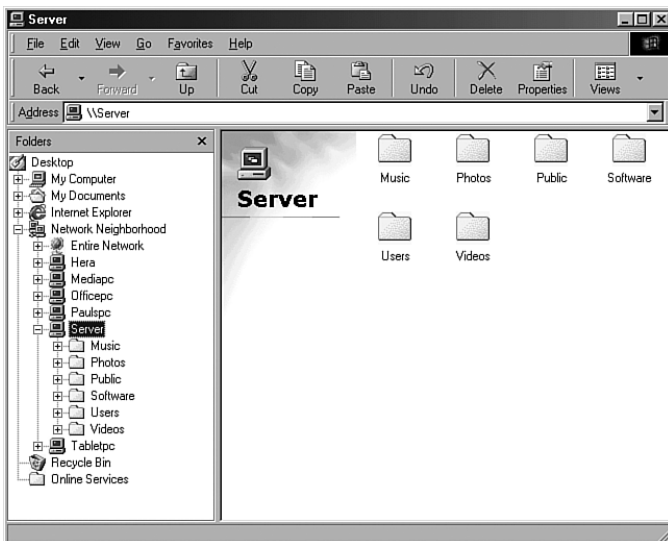


FIGURE 5.5 In Windows 98, open the Network Neighborhood to access the Windows Home Server.

Using a Mac on Your Windows Home Server Network

One of the important networking layers used by all Microsoft networks—including, of course, your Windows Home Server network—is called Server Message Block (SMB). It is via SMB that Windows PCs can share folders on the network and access folders that other Windows PCs have shared. In a very real sense, SMB *is* the network.

SMB's central role in Windows networking is good news if you have a Mac in your household. That's because all versions of OS X support SMB natively, so you can use your Mac not only to view the Windows Home Server shares, but also to open and work with files on those shares (provided, of course, that you have permission to access the share and that OS X has an application that's compatible with whatever file you want to work with). You can even switch things around and view your Mac shares from within Windows. The next few sections provide you with the details.

Making Sure That SMB Support Is Activated in OS X

OS X supports SMB out-of-the-box by default, but before going any further, it's worthwhile to take a second now and ensure that SMB support is activated on your Mac. Here are the steps to follow:

1. Click the Finder icon in the Dock.
2. Select Applications, Utilities, Directory Access.
3. In the Directory Access window's Services tab, see if the SMB/CIFS check box is activated.
4. If the check box is activated, skip to step 6. Otherwise, click the lock icon and then enter your system password to make the settings available.
5. Activate the SMB/CIFS check box.
6. Select Directory Access, Quit Directory Access.

Connecting to the Windows Home Server Network

First, connect your Mac to the Windows Home Server network. If the Mac is near your network's switch (or router, depending on your configuration), run a network cable from the device to the Mac. If you're using a wireless connection, instead, follow these steps to connect your Mac to the wireless portion of your Windows Home Server network:

1. Click the System Preferences icon in the Dock.
2. Click Network to open the Network preferences.
3. Click AirPort.
4. Click Connect to open the Internet Connect application, with the AirPort tab displayed.
5. Use the Network list to select your Windows Home Server wireless network ID.

TIP

OS X normally shows the AirPort status icon in the menu bar. If you see that icon, a faster way to initiate a wireless connection is to click the icon and then click the name of the network you want to join.

6. If your network is secure, make sure the Wireless Security list displays the correct security type.
7. Type the security key in the Password text box and then click OK to return to the Internet Connect window. As shown in Figure 5.6, the Status should show connected.

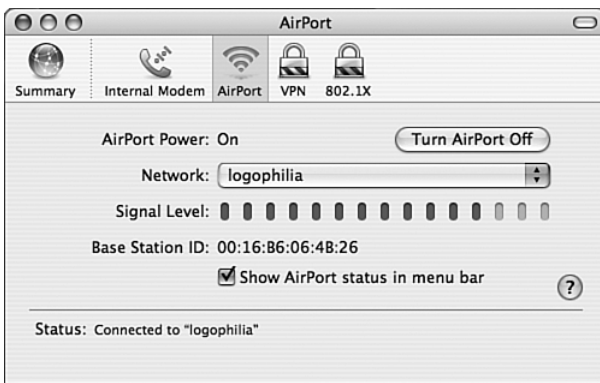


FIGURE 5.6 When you connect your Mac to the Windows Home Server network via wireless, the AirPort tab shows the connection status.

8. Select Internet Connect, Quit Internet Connect.
9. Close the Network preferences window.

Mounting a Windows Home Server Shared Folder

You're now ready to access the Windows Home Server shares. Here are the steps to follow:

1. Click the Finder icon in the Dock.
2. In the Sidebar, click Network. After a few seconds, you should see a folder icon for your workgroup, as shown in Figure 5.7.
3. Open the workgroup folder icon. OS X displays the workgroup and shows a computer icon for each network client.
4. Open the icon for your Windows Home Server computer. The SMB/CIFS File System Authentication dialog box appears, as shown in Figure 5.8.

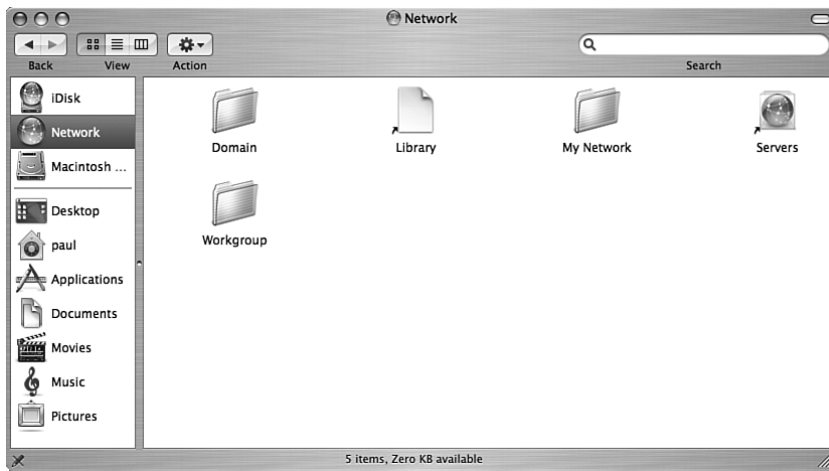


FIGURE 5.7 Click Network in Finder's Sidebar, and you'll eventually see a folder icon for your Windows Home Server workgroup.

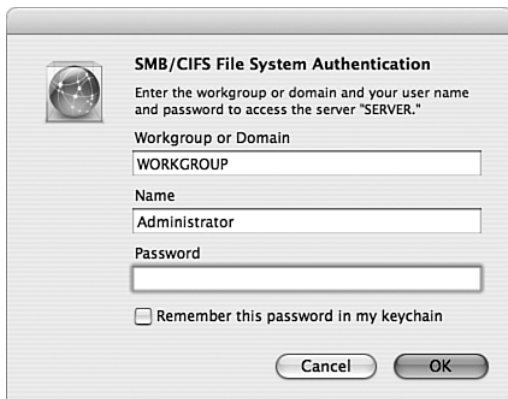


FIGURE 5.8 You need to enter your Windows Home Server Administrator password to access the shares from OS X.

5. Type **Administrator** in the Name text box.
6. Type your Administrator account password in the Password text box.
7. If you want OS X to remember your credentials, activate the Remember This Password in My Keychain check box.
8. Click OK. OS X asks you to select which shared volume you want to connect to.
9. In the list, select the Windows Home Server share (Music, Photos, and so on).
10. Click OK. OS X mounts the share and displays a new icon for it on the desktop and in the Sidebar, as shown in Figure 5.9.

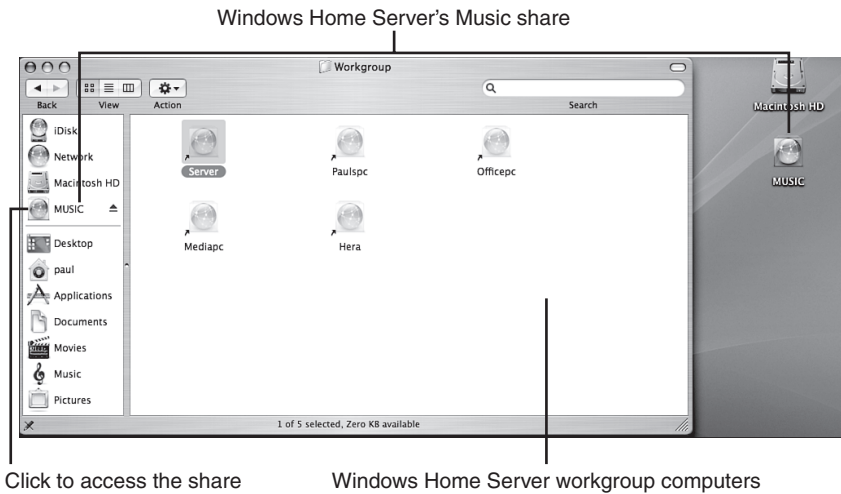


FIGURE 5.9 When you connect to a Windows Home Server share, OS X mounts it on the desktop, and an icon appears in the Sidebar.

11. Double-click the desktop icon or click Network in the Sidebar to see the contents of the share, as shown in Figure 5.10.

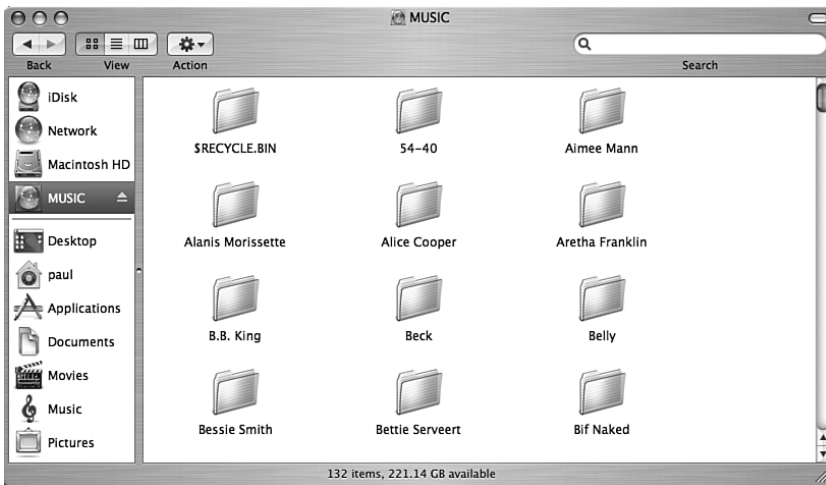


FIGURE 5.10 The contents of the shared Windows Home Server folder.

12. Work with the folder contents using the OS X tools. In the Music share, for instance, you could play compatible music files using iTunes.

Backing Up Mac Data to a Windows Home Server Shared Folder

Besides working with the files on a Windows Home Server share in an OS X application, you can use a Windows Home Server share to store OS X backups. This is handy if you don't have a second hard drive attached to your Mac, or if your backups are too big to burn to a DVD. The easiest way to do this in OS X is to use the Disk Utility to archive a folder or the entire system to an image file on a Windows Home Server share. Here's how it's done:

1. In Windows Home Server, create a share to store the OS X backup.
 ► **SEE** For the details on setting up a new share in Windows Home Server, **see** "Creating a New Shared Folder," p. 193.
2. Follow the steps in the previous section to mount the new share in OS X.
3. Click the Finder icon in the Dock.
4. Select Applications, Utilities, and then double-click Disk Utility. OS X launches the Disk Utility application.
5. If you want to back up your entire system, click Macintosh HD in the Disk Utility window.
6. Select File, New and then select either Disk Image from Folder or Disk Image from *disk* (Macintosh HD), where *disk* is the name of your Mac's hard disk.
7. If you selected Disk Image from Folder, the Select Folder to Image dialog box appears. Select the folder you want to back up and then click Image.
8. In the New Image dialog box, use the Save As text box to edit the filename, if desired.
9. Select the Windows Home Server share that you mounted in step 2.
10. Click Save. OS X creates the disk image on the Windows Home Server share. (Depending on the amount of data you're archiving, this may take several hours.)
11. When the image creation is done, select Disk Utility, Quit Disk Utility.

Using a Mac to Make a Remote Desktop Connection to Windows Home Server

You learn in Chapter 9, "Making Connections to Network Computers," how to use Windows' Remote Desktop Connection program to connect to the desktop of another computer on your network. However, it's also possible to make Remote Desktop connections to Windows computers from your Mac.

- **SEE** For the details on connecting via Remote Desktop, **see** "Connecting via Remote Desktop Connection," p. 228.

To do this, you need to install on your Mac the Remote Desktop Connection Client for Mac, which is available from Microsoft. Go to www.microsoft.com/downloads and search for *Remote Desktop Mac*.

After you have the Remote Desktop Connection Client installed on your Mac, mount it and then follow these steps:

1. Ensure that the Windows PC to which you'll be connecting is configured to accept Remote Desktop connections.
- ▶ **SEE** To learn how to get a computer set up for Remote Desktop connections, **see** "Getting the Client Computer Ready," p. 229.
2. In Finder, open the mounted Remote Desktop Connection volume, open the Remote Desktop Connection folder, and then launch the Remote Desktop Connection icon.
3. In the Computer text box, type the IP address of the host computer.
4. If you don't want to customize Remote Desktop, skip to step 7. Otherwise, click Options to expand the dialog box to the version shown in Figure 5.11.



FIGURE 5.11 Click Options to expand the dialog box so that you can customize Remote Desktop.

5. The General tab offers the following additional options:

User Name	This is the username you want to use to log in to the host computer.
Password	This is the password to use to log on to the host computer.
Domain	Leave this text box blank.
Add to Keychain	Activate this check box to have OS X remember your logon data.

Save As Click this button to save your connection settings to a Remote Desktop file for later use. This is useful if you regularly connect to other hosts.

Open Click this button to open a saved Remote Desktop file.

6. Fill in the options in the Display, Local Resources, Programs, and Performance tab, as required.

► **SEE** For a complete look at the various Remote Desktop Connection options, **see** “Making the Connection to the Remote Desktop,” p. 230.

TIP

The default number of colors that Remote Desktop Connection Client for Mac uses is 256, which can make most Windows screens look hideous. In the Display tab, use the Colors list to select Millions.

7. Click Connect. Remote Desktop Connection Client for Mac connects to the Windows PC. Figure 5.12 shows OS X with a connection to a Windows Vista computer.

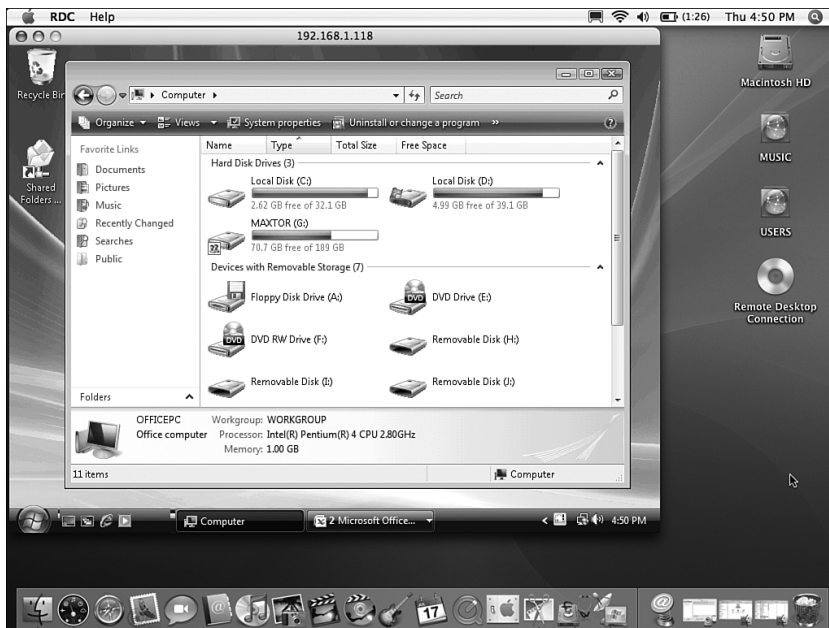


FIGURE 5.12 A Mac connected to a Windows Vista PC using the Remote Desktop Connection Client for Mac software.

When you're done, select RDC, Quit RDC, and then click OK when the program warns you that you're about to disconnect from the Windows PC.

Letting Windows Computers See Your Mac Shares

SMB not only lets your Mac see shares on the Windows Home Server network, it also can let Windows PCs see folders shared by the Mac. This feature is turned off by default in OS X, but you can follow these steps to turn it on:

1. Click the System Preferences icon in the Dock.
2. In the Internet & Network group, click Sharing to open the Sharing preferences.
3. Click the lock icon, and then enter your system password to make the settings available.
4. Make sure the Services tab is selected, and then click Windows Sharing.
5. Click Start. OS X starts the Windows Sharing Service and warns you that you must enable an account to use Windows Sharing.
6. Click Enable Accounts.
7. Click the account you want to use, enter that account's password, click OK, and then click Done. The Sharing window shows you the address that Windows PCs can use to access your Mac shares directly, as shown in Figure 5.13.

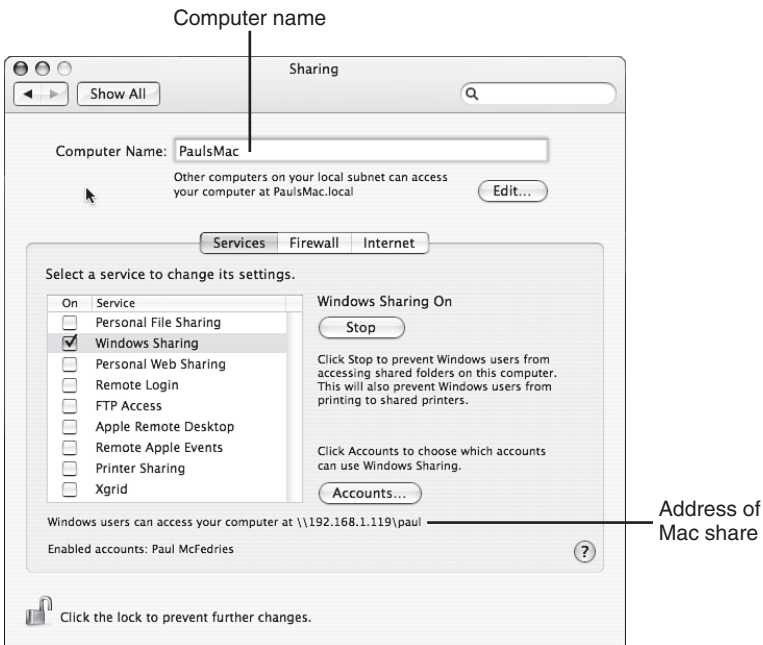


FIGURE 5.13 The Sharing window with Windows Sharing activated.

TIP

Macs often end up with long-winded computer names such as Paul McFedries' Computer. Because you need to use the computer name to log on to the share, consider editing the Computer Name field to something shorter.

8. Select System Preferences, Quit System Preferences.

One way to access the Mac shares from a Windows PC is to enter the share address directly, using either the Run dialog box or Windows Explorer's address bar. You have two choices:

```
\\IP\user  
\\Computer\user
```

Here *IP* is the IP address shown in the OS X Sharing window (see Figure 5.13), *Computer* is the Mac's computer name (also shown in the OS X Sharing window), and in both cases *user* is the username of the account enabled for Windows Sharing. For example, I can use either of the following addresses to access my Mac:

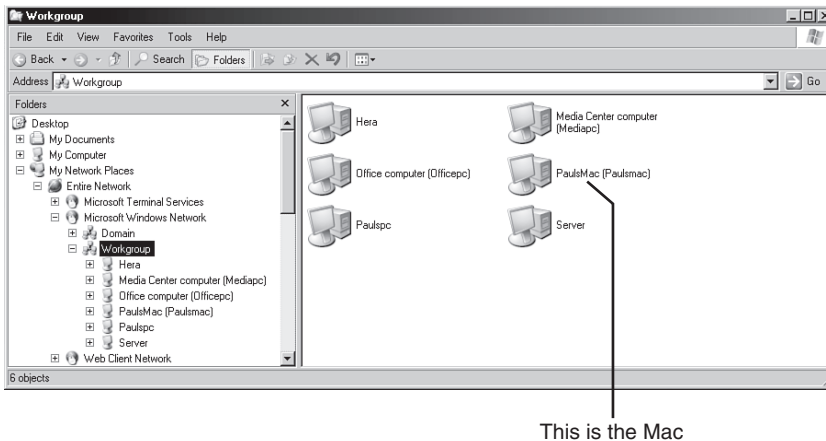
```
\\192.168.1.119\paul  
\\PaulsMac\paul
```

Alternatively, open your workgroup as shown in Figure 5.14 and look for the icon that has the same name as the Mac's computer name (shown in Figure 5.13). Double-click that icon.

NOTE

If you don't see the icon for your Mac, it could be that the Mac isn't set up to use the same workgroup as your Windows Home Server network. (Both OS X and Windows Home Server use the name Workgroup by default, but you never know.) To check this, follow the steps shown earlier to open the Directory Access utility and unlock its controls (see "Making Sure That SMB Support Is Activated in OS X"). Select SMB/CIFS, click Configure, make sure the Workgroup value is the same as your Windows Home Server workgroup name, and click OK.

Either way, you're prompted for the username and password of the Mac account that you enabled for Windows Sharing. For the username, use the form *Computer\UserName*, where *Computer* is the name of your Mac and *UserName* is the name of the Windows Sharing account. Figure 5.15 shows a Mac share opened in Windows Home Server.



This is the Mac

FIGURE 5.14 Look for the icon that has the same name as your Mac.

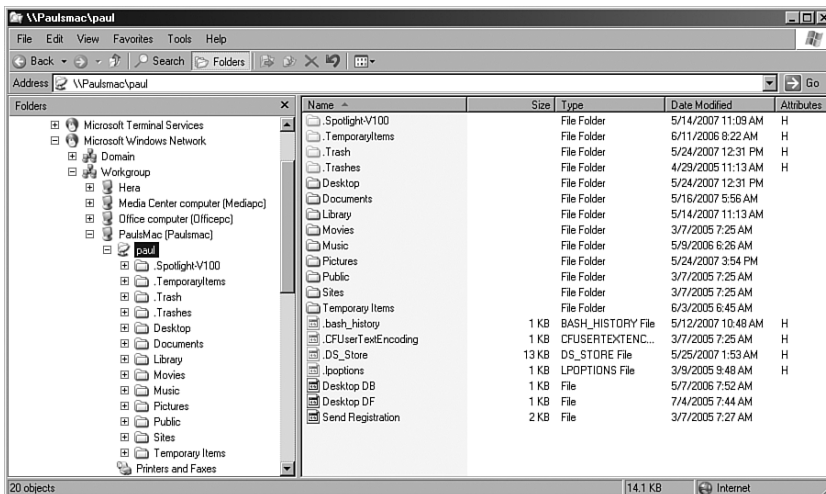


FIGURE 5.15 A shared Mac folder opened in Windows Home Server.

TIP

If you have trouble logging on to your Mac from Windows Vista, the problem is likely caused by Vista's use of NT LAN Manager version 2 (NTLMv2) authentication, which doesn't work properly when negotiated between some versions of Vista and some versions of OS X. To fix this, on the Vista PC, press Windows Logo+R (or select Start, All Programs, Accessories, Run), type **secpol.msc**, and click OK to open the Local Security Policy snap-in. Open the Security Settings, Local Policies, Security Options branch. Double-click the Network Security: LAN Manager Authentication Level policy, change the authentication level to Send LM & NTLM - Use NTLMv2 Session Security If Negotiated, and then click OK.

(continues)

If your version of Vista doesn't come with the Local Security snap-in (it's not available in Home and Home Premium), open the Registry Editor (press Windows Logo+R, type **regedit**, and click OK), and navigate to the following key:

```
HLM\SYSTEM\CurrentControlSet\Control\Lsa\
```

Change the value of the `LMCompatibilityLevel` setting to 1.

Using a Linux Client on Your Windows Home Server Network

Until recently, it was a rare household that included a Linux box as part of its computer collection. That is changing rapidly, however, thanks to easy-to-use and easy-to-install Linux distributions such as Ubuntu (and its KDE cousin, Kubuntu) and new Linux-based offerings from mainstream computer manufacturers such as Dell.

The good news is that Linux, like OS X, supports SMB natively (via Samba, a free implementation of the SMB protocols), so it's possible for Linux machines to coexist on your Windows Home Server network. In the sections that follow, I use the Ubuntu and Kubuntu distributions to access the Windows Home Server network. The procedures for your Linux distribution should be similar.

Viewing the Windows Home Server Network in Ubuntu

Ubuntu isn't set up out-of-the-box to view and work with Windows shares that use NTFS. This is a problem for Windows Home Server because all your shares are NTFS. To fix this problem, you need to install the NTFS Configuration tool in Ubuntu:

1. Select Applications, Add/Remove to open the Add/Remove Applications window.
2. In the Show list, select All Available Applications.
3. Type **ntfs** in the Search box. You should see NTFS Configuration Tool appear in the Application list.
4. Activate the check box beside NTFS Configuration Tool.
5. Click OK. Ubuntu asks you to confirm the changes.
6. Click Apply.

Here are the steps to follow to open your workgroup and view the Windows Home Server shares:

1. Select Places, Network. The File Browser program opens and displays the Network folder.
2. Double-click the Windows Network icon. You should now see the icon for your Windows Home Server workgroup.
3. Double-click the workgroup icon. You should now see icons for each computer in your workgroup, as shown in Figure 5.16.

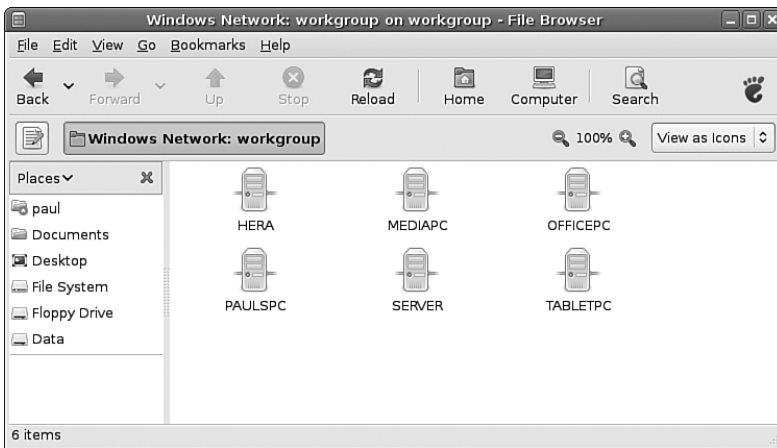


FIGURE 5.16 In Ubuntu's File Browser, open the workgroup icon to see your workgroup computers.

4. Double-click the icon for the Windows Home Server computer. File Browser prompts you for your username and password.
5. Type your username and password, clear the Domain field, and then click Connect. File Browser displays the Windows Home Server shares, as shown in Figure 5.17.

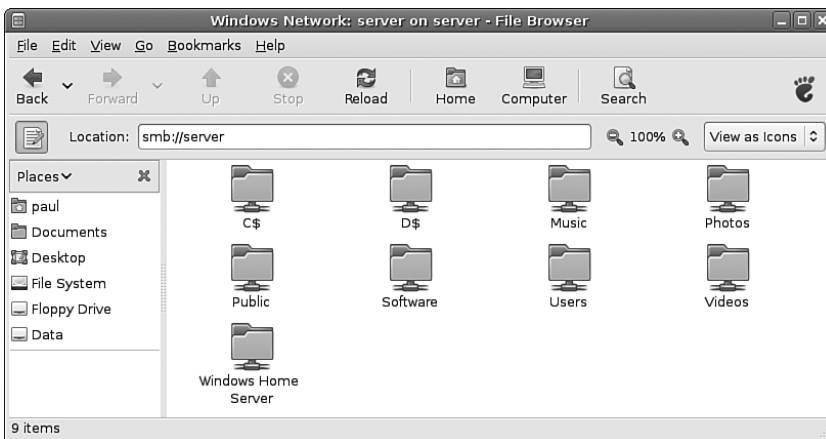


FIGURE 5.17 In Ubuntu's File Browser, open the Windows Home Server icon to see the server's shared folders.

Viewing the Windows Home Server Network in Konqueror

If you use Kubuntu (or any other Linux distribution that uses the KDE desktop), your file management software is a program called Konqueror, which you use to navigate local folders, view websites, and access network shares. Here are the steps to follow in Konqueror to open your workgroup and view the Windows Home Server shares:

1. Click K Menu and then select Internet, Konqueror.
2. In the initial Konqueror window, either click the Network Folders link or type **remote:/** in the address bar and press Enter.
3. Click the Samba Shares icon. You should now see an icon for your Windows Home Server workgroup.
4. Click the workgroup icon. You should now see icons for each computer in your workgroup.
5. Click the icon for the Windows Home Server computer. Konqueror prompts you for your username and password.
6. Type your username and password, and then click OK. Konqueror displays the Windows Home Server shares, as shown in Figure 5.18.



FIGURE 5.18 In Konqueror, open the Windows Home Server icon to see the server's shared folders.

Creating a Windows Home Server Network Folder in Konqueror

If you use Kubuntu (or any KDE desktop), you can make it easy to access Windows Home Server by creating a network folder that points to a share on the server. Here are the steps to follow:

1. Click K Menu and then select Internet, Konqueror.
2. In the initial Konqueror window, either click the Network Folders link or type **remote:/** in the address bar and press Enter.
3. Click the Add a Network Folder icon to start the Network Folder Wizard.
4. Click to activate the Microsoft Windows Network Drive option, and then click Next.
5. Type a name for the network folder (for example Windows Home Server or WHS Photos).
6. Use the Server text box to type the name of your Windows Home Server.

7. Use the Folder text box to type the name of the Windows Home Server folder you want to connect to. (If you want to see all the shares, type / in the Folder text box.)
8. Click Save & Connect. Konqueror saves the network folder and then attempts to load it into a new window. The Authorization dialog box appears.
9. Type **Administrator** in the Username text box, type the Windows Home Server Password, and then click OK. The Windows Home Server share appears.

Figure 5.19 shows the KDE desktop with two windows. The top window shows a connection to the Windows Home Server shares, and the bottom window shows the `remote:/` directory with two Windows Home Server network folders—Windows Home Server (the folder that's open above) and Windows Home Server Photos, which connects directly to the Photos share.



FIGURE 5.19 In Konqueror, you can set up network folders that connect to Windows Home Server shares.

Letting Windows Computers See Your Ubuntu Shares

The Linux support for SMB cuts both ways, meaning that not only can you see and work with Windows shares in Ubuntu, but you can also configure Ubuntu as a file server and enable Windows computers to see and work with Ubuntu shares. The next few sections show you how to set this up in Ubuntu.

Installing Samba in Ubuntu

Your first step is to install Samba by following this procedure:

1. Select System, Synaptic Package Manager.
2. Click Search, type **samba**, and click Search again.
3. In the Package list, click the check box beside **samba** and then click Mark for Installation. Synaptic Package Manager displays a list of packages that must be upgraded.
4. Click Mark.
5. Click Apply.
6. Synaptic Package Manager displays a list of the changes that will be applied.
7. Click Apply. Synaptic Package Manager downloads and installs the software.
8. Click Close.

Defining Samba Users in Ubuntu

Next, you need to define one or more users who can access Samba shares. For this to work, you need to set up the same username and account on both the Ubuntu box and the Windows PC.

Assuming you already have your Windows users configured, follow these steps to add a user in Ubuntu:

1. Select System, Administration, Users and Groups.
2. Click Add User.
3. Type the username. Again, make sure this is a username that exists on the Windows PC you'll be using to access the Ubuntu shares.
4. Type the user password and the password confirmation.
5. Fill in any other user settings as you see fit.
6. Click OK to add the user.
7. Repeat steps 3–6 to add other users.
8. Click Close.

Now you can add these users to Samba. Here are the steps to follow:

1. Select Applications, Accessories, Terminal to launch a terminal session.
2. Type the following command (where *user* is the username):

```
sudo smbpasswd -a user
```

3. Ubuntu displays the following prompt:

```
New SMB password:
```


4. Type the user account's password (you won't see characters onscreen while you type), and then press Enter. Ubuntu displays the following prompt:

Retype new SMB password:

5. Type the user account's password again and press Enter. Ubuntu adds the user.
6. Reload Samba by typing the following command and pressing Enter:

```
sudo /etc/init.d/samba reload
```

7. When you see the Password prompt, type your Ubuntu password and press Enter. Samba stops and reloads.
8. Repeat steps 2–7 to add the other users to Samba.

You need the terminal session for the next setup task, so leave the session running for now.

Changing the Samba Workgroup Name in Ubuntu

The default Samba workgroup name is MSHOME, which is unlikely to be the same as the workgroup name you use for your Windows Home Server network. For easier access to the Ubuntu shares, configure Samba to use the same workgroup name that you use for your Windows network. Here are the steps to follow:

1. If you don't already have a terminal session running from the previous section, select Applications, Accessories, Terminal.
2. Type the following command and press Enter:

```
sudo gedit /etc/samba/smb.conf
```
3. If you see the Password prompt, type your Ubuntu password and press Enter. The gedit text editor loads and opens `smb.conf`, which is the configuration file for Samba.
4. Locate the `workgroup = MSHOME` line and change MSHOME to the name of your Windows Home Server workgroup.
5. Select File, Save (or press Ctrl+S or click the Save button).
6. Select File, Quit (or press Ctrl+Q) to return to the terminal session.
7. Select File, Close Window (or press Ctrl+Shift+Q).

TIP

If you want to change the name of the Ubuntu computer, select System, Administration, Network to open the Network Settings dialog box. Display the General tab, modify the Host Name setting, and then click Close.

Sharing a Folder in Ubuntu

You're now ready to share a folder or two for Windows users to access. Use these steps:

1. Select Places, Home Folder to open File Browser and display your Ubuntu home folder.
2. Display the icon for the folder you want to share.
3. Right-click the icon and then click Share Folder.
4. If Ubuntu prompts you for your administrative password, type the password and click OK. Ubuntu displays the Share Folder dialog box.
5. In the Share Through list, select Windows Networks (SMB). Ubuntu expands the dialog box, as shown in Figure 5.20.

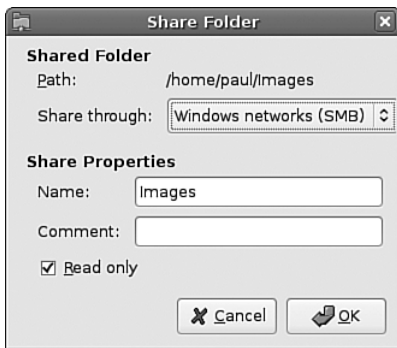
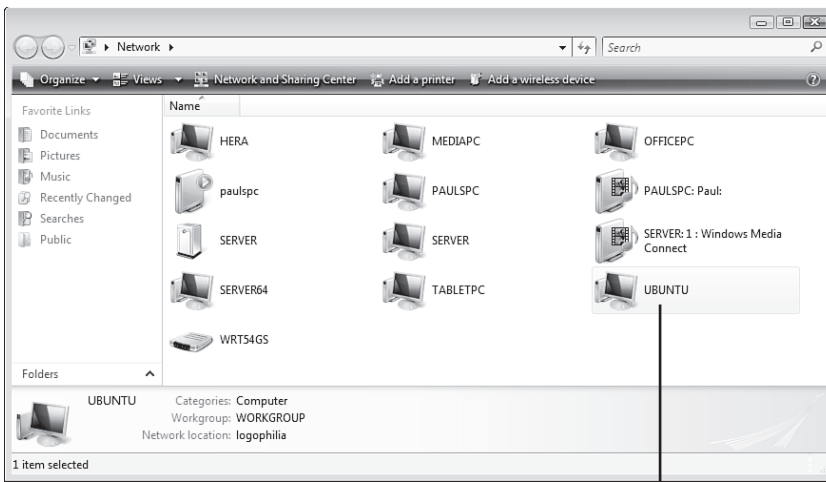


FIGURE 5.20 Use the Share Folder dialog box to set up a folder to share with your Windows Home Server network.

6. Modify the name and add a comment, if necessary.
7. If you want Windows users to be able to change the contents of the folder, deactivate the Read Only check box.
8. Click OK.

To work with the Ubuntu machine, open your workgroup as shown in Figure 5.21 and look for the icon that has the same name as the Ubuntu computer. Double-click that icon and then enter the username and password of a Samba account on the Ubuntu box. Windows displays the Ubuntu shares, as shown in Figure 5.22.



This is the Ubuntu box

FIGURE 5.21 Look for the icon that has the same name as your Ubuntu box.

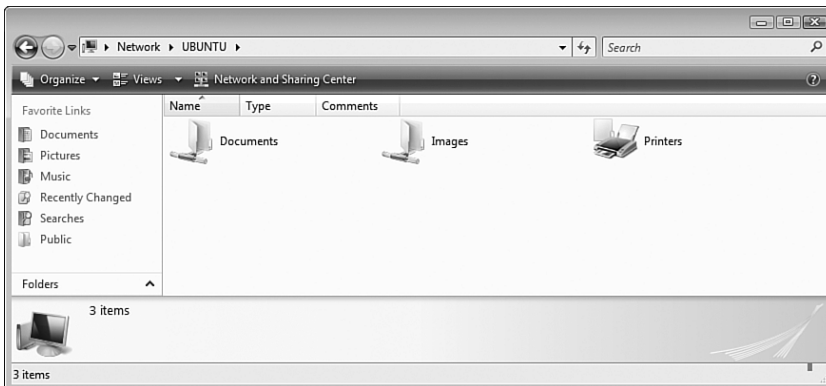


FIGURE 5.22 Open the Ubuntu box icon to see the folders it's sharing via Samba.

Letting Windows Computers See Your Kubuntu Shares

Anything Ubuntu can do, Kubuntu can do better. (I'm a big fan of the KDE desktop.) The next few sections show you how to configure Kubuntu as a Samba file server that you can access from your Windows Home Server network.

Installing Samba in Kubuntu

Your first step is to install Samba:

1. Select K Menu, System, Adept. Kubuntu opens the Adept Manager.
2. In the Search box, type **samba**.

3. In the Package list, click `samba`, and then click Request Install. Adept Manager displays `install` in the Requested column.
4. Click Apply Changes. Adept Manager downloads and installs the Samba software.
5. Click Adept, Quit (or press Ctrl+Q).

Defining Samba Users in Kubuntu

Next you need to define one or more users who can access Samba shares. Again, you need to set up the same username and account on both the Kubuntu box and the Windows PC.

Here are the steps to follow to add users in Kubuntu:

1. Select K Menu, System Settings.
2. Click Users and Groups to open the Users & Groups - System Settings window.
3. Click Administrator's Mode, type your administrative password, and click OK.
4. Click New to open the User Account dialog box.
5. Type the login name, making sure this is a username that exists on the Windows PC you'll be using to access the Kubuntu shares.
6. Display the Password and Security tab, and type the password.
7. Fill in other user settings as needed.
8. Click OK to add the user.
9. Repeat steps 4–8 to add other users.
10. Click Close.

If you like using terminal sessions, you can add users from the Konsole program (select K Menu, System, Konsole). Use the same technique that I outlined earlier for Ubuntu, with two exceptions:

- It's best to run everything from a root session. In Konsole, select Session, New Root Shell, enter your password for root access, and then press Enter.
- Because you now have root access by default, you don't need to preface each command with the root invocation (`sudo` in Ubuntu; `kdesu` in Kubuntu).

However, one of the big advantages that you get with Kubuntu is the KDE Control Center, which offers (among many other things) a graphical interface to almost every Samba option. To get there, select K Menu, Run Command (or press Alt+F2), type **kdesu kcontrol**, type your root password, and click OK.

When the KDE Control Center appears, follow these steps to add the users:

1. Select Internet & Network, Samba.
2. Display the Users tab, shown in Figure 5.23.

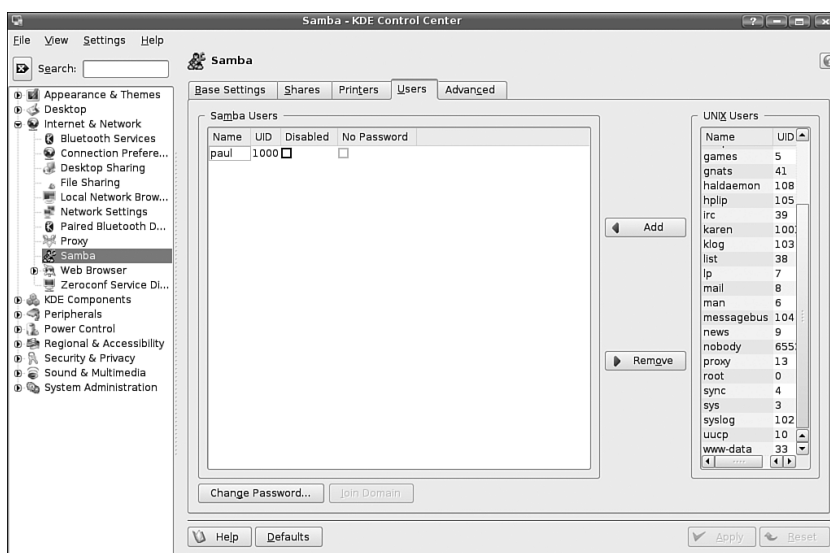


FIGURE 5.23 In Kubuntu, you can add Samba users easily using the KDE Control Center.

3. In the UNIX Users list, click the user you want to add and then click Add. Kubuntu prompts you for the user's password.
4. Type the user's Samba password in both the Password and the Verify boxes.
5. Click OK.
6. Repeat steps 3–5 to add other Samba users.

Changing the Samba Workgroup Name in Kubuntu

You saw earlier that changing the workgroup name in Ubuntu requires editing the `smb.conf` file. In Kubuntu, however, you can use the nice KDE Control Center. Here are the steps to follow:

1. Select K Menu, Run Command (or press Alt+F2), type **kdesu kcontrol**, type your root password, and click OK to open the KDE Control Center.
2. Select Internet & Network, Samba.
3. Display the Base Settings tab, shown in Figure 5.24.
4. Use the Workgroup text box to enter your Windows Home Server workgroup name.
5. While you're here, you may also want to use the NetBIOS name box to modify the name of the Kubuntu computer.
6. Click Apply.

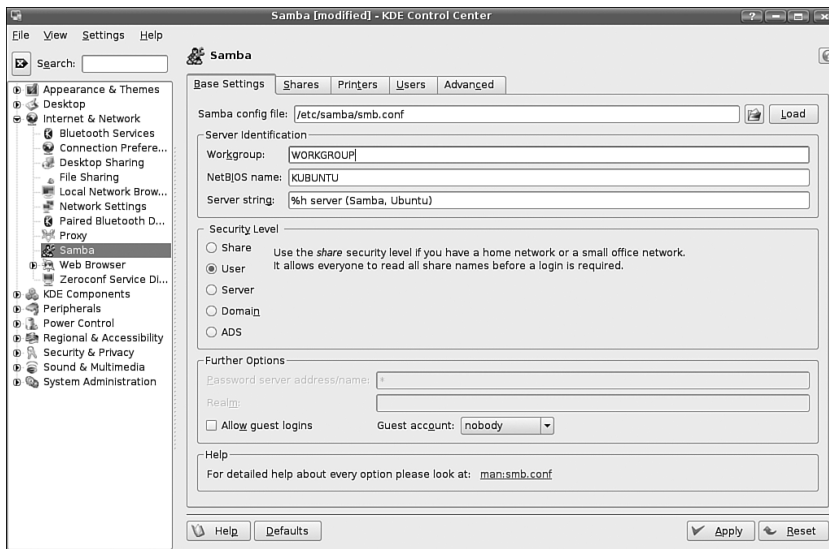


FIGURE 5.24 Use the Base Settings tab to configure the Samba workgroup name.

Sharing a Folder in Kubuntu

You're now ready to share some folders for Windows users to access. Here are the steps to follow:

1. Select K Menu, System Settings.
2. Click Sharing to open the Sharing - System Settings window.
3. Click Administrator's mode, enter your administrative password, and click OK.
4. Click Add.
5. Use the Folder box to select the folder you want to share.
6. Activate the Share with Samba check box.
7. If you want Windows users to be able to change the contents of the folder, activate the Writable check box.
8. Click OK.

To work with the Kubuntu machine, open your workgroup as shown in Figure 5.25 and look for the icon that has the same name as the Kubuntu computer. Double-click that icon and then enter the username and password of a Samba account on the Kubuntu box. Windows displays the Ubuntu shares, as shown in Figure 5.26.

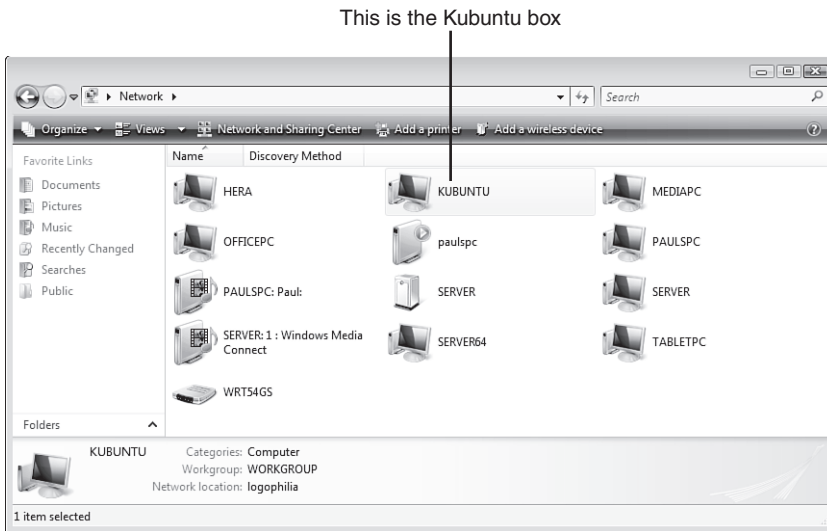


FIGURE 5.25 Look for the icon that has the same name as your Kubuntu box.

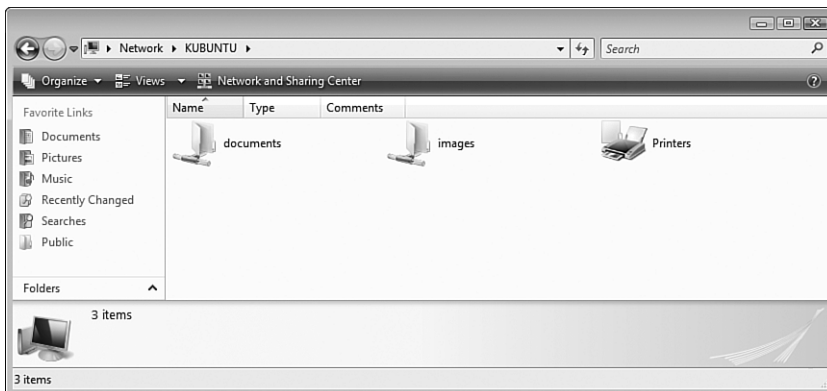


FIGURE 5.26 Open the Kubuntu box icon to see the folders it's sharing via Samba.

Connecting Other Devices to the Windows Home Server Network

Getting other devices to access your Windows Home Server network always begins with making the initial network connection:

- ▶ If the device has an RJ-45 jack, run a network cable from the jack to a port on your network's switch or router.
- ▶ If the device supports Wi-Fi, turn on the Wi-Fi option, if necessary. (Some devices have a physical switch that you must set to activate Wi-Fi.) Then use the device

interface to display a list of the available wireless networks, select your Windows Home Server network, and enter the security key.

When that's done, you can usually access the Windows Home Server shares directly using the device interface.

To give you some idea how this works on various devices, the rest of this chapter looks at connecting three different devices to a Windows Home Server network: a Windows Mobile Pocket PC or Smartphone, an Xbox 360, and a Wi-Fi digital picture frame.

Connecting a Windows Mobile Device

If you have a Windows Mobile 5.0 or 6.0 Pocket PC or Smartphone that supports Wi-Fi, you can use that wireless connection to access the Windows Home Server network. You can then access documents to work on with the mobile version of Word or Excel, download music or images for Windows Media Player, and so on.

Connecting to Your Windows Home Server Wireless Network

Your first task is to connect your Windows Mobile device to the wireless portion of your Windows Home Server network.

First make sure you have Wi-Fi enabled:

1. Tap Start, Programs, Comm Manager.
2. If you see an X over the Wi-Fi icon, tap that icon.
3. Tap Exit.

Now here are the steps to follow to connect to the Windows Home Server network:

1. Tap the Wi-Fi icon that appears at the top of the Windows Mobile screen (see Figure 5.27). Windows Mobile displays a list of available wireless networks, as shown in Figure 5.27.



FIGURE 5.27 When you activate Wi-Fi in Windows Mobile, clicking the Wi-Fi icon displays a list of available wireless networks.

2. Tap your Windows Home Server wireless network to select it.
3. Tap OK.
4. Tap Work.
5. Tap Connect. Windows Mobile prompts you to enter the network's security key.
6. Tap the key and then tap Connect.

Access the Windows Home Server Network Shares

With the wireless network connection established, you can now connect to a Windows Home Server shared folder:

1. Tap Start, Programs.
2. Tap File Explorer.
3. Tap Menu, Open Path, New Path to display the Open dialog box.
4. Type `\\server`, where *server* is the name of your Windows Home Server computer.
5. Tap OK. The Logon to Server dialog box appears.
6. Type a Windows Home Server username and password. If you want Windows Mobile to store your logon data, tap to activate the Save Password check box.
7. Tap OK. Windows Mobile displays the Windows Home Server shares, as shown in Figure 5.28.

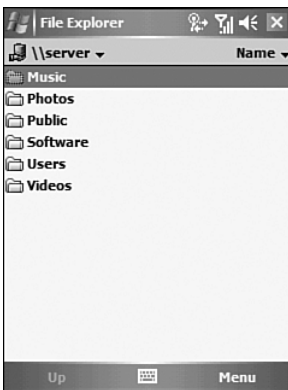


FIGURE 5.28 Windows Mobile showing the Windows Home Server shared folders.

Adding an Xbox 360 to the Network

The Xbox 360 and Windows Home Server go together well because the Xbox can access and play media streamed from the server. First you need to get the Xbox 360 connected to your network. Follow these steps:

1. Connect your Xbox 360 to the network. If you have physical access to the network, you can plug a network cable into the Xbox 360's network port. Otherwise, you need to attach a wireless networking adapter (sold separately) to the Xbox 360.
2. Turn on the Xbox 360.
3. When the Dashboard appears, display the System blade.
4. Highlight Network Settings and press Select.
5. Highlight Edit Settings and press Select.
6. In the Basic Settings tab, if the IP Settings field isn't set to Automatic, highlight the IP Settings section, press Select, highlight the Automatic setting, and then press Select.
7. If the DNS Settings field isn't set to Automatic, highlight the DNS Settings section, press Select, highlight the Automatic setting, and then press Select.
8. Highlight the section that includes the Network Name (SSID) field and press Select. The Xbox 360 displays a list of available wireless networks.
9. Highlight your network and press Select. (Tip: If you don't see your network listed, press X to rerun the network search.)
10. If your network uses WEP or WPA security, use the onscreen keyboard to enter the security key. When you're finished, select Done. The Xbox 360 updates the network settings.
11. Highlight Test Media and press Select. You should see Connected in the Wireless Network field and Confirmed in the IP Address field. (If not, highlight Edit Settings, press Select, and repeat steps 6–10.)

Connecting a Kodak Wi-Fi Digital Picture Frame

A *digital picture frame* is a standalone device that displays digital images, usually in a slideshow format and often accompanied by music. Most digital picture frames accept one or more memory card formats, and you supply the frame with images by inserting a card that contains digital photos or pictures. Other digital picture frames have a USB port for direct connections to computers.

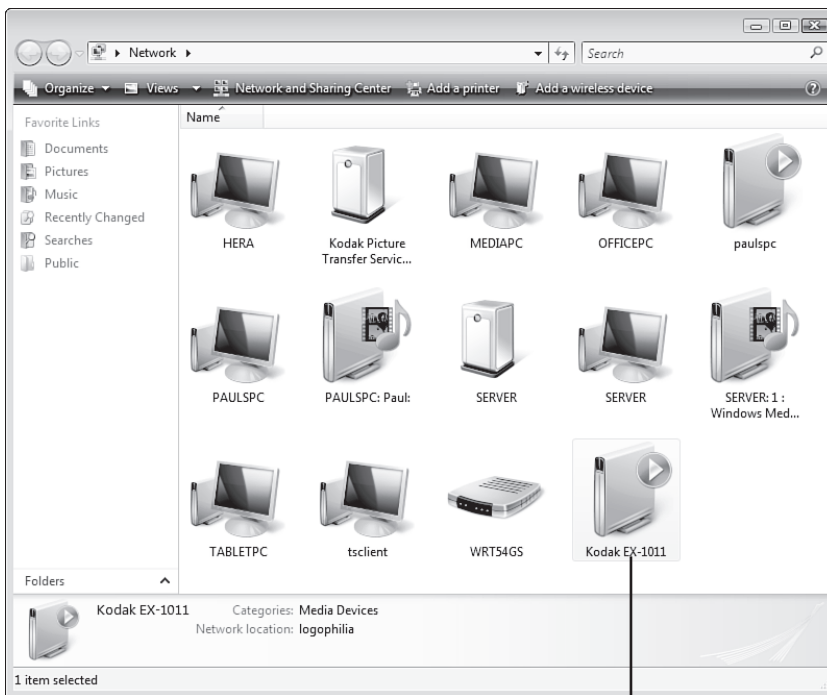
Most new digital picture frames also support Wi-Fi. If you have a wireless component to your Windows Home Server network, this means that you can connect one of these digital picture frames to your network, and the frame can then pick up images streamed from a Windows Media Connect device, such as Windows Home Server's Photos share.

An example of a digital picture frame that supports wireless connection is the Kodak Wi-Fi Digital Picture Frame. Here are the steps to follow to connect this frame to your Windows Home Server network when you start up the device for the first time:

1. Turn on the Kodak Wi-Fi Digital Picture Frame. On the frame, the Setup - Network Connection window appears and asks if you want to connect to a wireless network.

2. Select Yes and then press OK on the remote. The frame scans for and then displays a list of the available wireless networks.
3. Select your Windows Home Server network and then press OK on the remote. The frame prompts you to enter your wireless network security key.
4. Use the remote to enter the security key characters, select Done, and then press OK. The frame connects to your network and then displays a list of computers that have media sharing activated.
5. Select the Windows Home Server media sharing item, which appears as follows (where *SERVER* is the name of your Windows Home Server computer):

`SERVER: 1 : Windows Media Connect`
6. Press OK on the remote. The frame completes the network setup.
7. Press OK. The frame appears in the Network window, as shown in Figure 5.29.



Kodak Wi-Fi Digital Picture Frame

FIGURE 5.29 After you set up the Kodak Wi-Fi Digital Picture Frame, it appears with your other network devices.

If you've already connected the frame to a different network, follow these steps to change the frame to your Windows Home Server network:

1. Turn on the Kodak Wi-Fi Digital Picture Frame.
2. On the frame's remote, press the Home button.
3. Select the Settings icon and then press OK. The frame displays the Setup window.
4. Select Network and then press OK.
5. Select Scan for Wireless Networks and then press OK.
6. Follow steps 3–7, earlier in this section, to select your Windows Home Server network and make the connection.

From Here

- ▶ To learn how to add a user to Windows Home Server, **see** "Adding the User Account," **p. 81**.
- ▶ For the details on getting your client and server user account passwords in synch, **see** "Synchronizing the Client and Windows Home Server Passwords," **p. 84**.
- ▶ For the details on setting up a new share in Windows Home Server, **see** "Creating a New Shared Folder," **p. 193**.
- ▶ To learn how to get a computer set up for Remote Desktop connections, **see** "Getting the Client Computer Ready," **p. 229**.
- ▶ For the details on connecting via Remote Desktop, **see** "Connecting via Remote Desktop Connection," **p. 228**.
- ▶ For a complete look at the various Remote Desktop Connection options, **see** "Making the Connection to the Remote Desktop," **p. 230**.
- ▶ For the details on the Registry and using the Registry Editor, **see** Chapter 20, "Working with the Windows Home Server Registry," **p. 577**.