

CHAPTER 1

Understanding Windows Home Server

Microsoft made its name and the beginnings of its sizable fortune through an operating system—the now largely forgotten and not even slightly missed MS-DOS, which first appeared on IBM PCs way back in 1981. Since then, Microsoft has become a corporate behemoth, with its substantial fingers in a vast number of technical pies. However, it's safe to say that, with the possible exception of Microsoft Office, when people think of Microsoft, they think of operating systems in general, and Windows in particular.

So when Microsoft comes out with a new operating system, it is big news, indeed. And when that operating system is aimed at a new market (home networks) and it combines the power of a big-time server operating system (OS) (Windows Server 2003) with an interface that even your mom and dad won't find scary, then you have the makings of a *very* interesting product.

That product—Windows Home Server—is this book's subject, of course. But before we get into the details and nitty-gritty of this new OS, let's take a step back and look at the larger picture. This chapter introduces you to Windows Home Server in broad strokes: what it is, who should use it, how it differs from Windows Server 2003, what you can do with it, and what you need to be able to add Windows Home Server to your own network.

What Is Windows Home Server?

Microsoft's first server operating system was Windows NT Advanced Server, which the company shipped in July 1993. As its name implies, Advanced Server was a not-to-be-messed-with-lightly OS with a daunting learning curve.

IN THIS CHAPTER

- ▶ What Is Windows Home Server?
- ▶ Who Should Use Windows Home Server?
- ▶ How Is Windows Home Server Different from Windows Server 2003?
- ▶ What Else Can You Do with Windows Home Server?
- ▶ What Hardware Do You Need for Windows Home Server?

As such, it was only suitable for major corporate networks. It made sense for Microsoft to focus on the corporate network market not only because most big companies had had network infrastructure in place for a long time, but also because Microsoft desperately wanted to dethrone Novell, which was then the corporate network king.

However, the early 1990s also saw the first flickering of a new networking market: small peer-to-peer workgroups in small offices and, most notably, in homes. Microsoft recognized and helped drive this new market early, and it introduced Windows for Workgroups 3.1 in October 1992. Windows for Workgroups (WfW) took Windows 3.1 and added native network support, including the ability to share files and printers, set up electronic mail, and connect to remote computers.

Soon after WfW appeared, Microsoft released the Windows for Workgroups Network Starter Kit, a software/hardware networking solution for two computers. The kit included not only the WfW OS, but also all the hardware required to connect two computers:

- ▶ Two Intel EtherExpress 16 network interface cards (NICs).
- ▶ 25 feet of RG-58 coaxial cable.
- ▶ Two T-connectors. (These were used to attach the cable to the network card. One end of each connector screwed into a port on the card, and to the other two ends you screwed in either a cable connector or a terminator.)
- ▶ Two terminators. (You put these at the unconnected ends of the T-connectors to complete the network circuit.)
- ▶ An installation video.
- ▶ A screwdriver to install the network boards inside the computer. (I purchased one of these kits in 1993. All the networking components are obsolete and have long been sent to the scrap heap, but I still have the screwdriver!)

As long as you were comfortable installing circuit boards inside a computer, the Windows for Workgroups Network Starter Kit made it a snap to network two computers, and it was trivial to add more nodes to this peer-to-peer setup. Not that home networks suddenly took off. According to the research firm Parks Associates, by 1998 there were only 2.5 million networked households in the U.S.

However, thanks to the built-in network components in all versions of Windows since Windows 95, combined with the relatively easy setup of modern networking hardware—USB and PC Card network adapters and the popularity of wireless connections—the number of networked households in the U.S. had jumped to 20 million by the end of 2006. Parks Associates estimates that that number will double to 40 million by 2010.

That's a *lot* of households. It's also a lot of moms, dads, wives, husbands, grandmothers, grandfathers, daughters, and sons who've had to turn themselves into amateur network administrators. And you can bet that only a tiny portion of those people actually want to be admins or enjoy the hassle of maintaining usernames, passwords, and shares, not to mention the abstruseness of Dynamic Host Configuration Protocol (DHCP) servers and Transmission Control Protocol/Internet Protocol (TCP/IP) addresses.



Microsoft took a look not only at the burgeoning number of home networks, but also the growing frustration of the people administering those home networks, and it decided the time was ripe to take advantage of the former and provide a solution to the latter. In early 2004, Microsoft executives approved a new operating system project, codenamed *Quattro*. (The codename came from the fact that it took the project's champion, Charlie Kindel, four tries and a bit more than four years to get approval.) The *Quattro* codename eventually gave way to the product's final name—Windows Home Server. The product was announced in early 2007.

So what *is* Windows Home Server? Put simply, it's the software side of a hardware/software package that's designed to make it much easier to manage, access, and protect home networks. Windows Home Server is built on a slightly stripped-down version of Windows Server 2003 R2, which is Microsoft's flagship server OS (at least until the next version—Windows Server 2008—ships). This is a great base because Windows Server 2003 is as robust and rock-solid as any operating system Microsoft has produced. Of course, Windows Server 2003 is also as large and as complex as any Microsoft operating system, and in its full glory it's not something to be wielded by a networking novice. To that end, Windows Home Server takes that complexity and power and hides them behind a user interface—called the Windows Home Server Console—that makes it extremely easy for even novices to administer and access the network.

At the time of writing, Microsoft has said that a standalone version of Windows Home Server will be made available via download for enthusiasts and system integrators to install on their own hardware. For everyone else (that is, the vast majority of Microsoft's target market for this OS), Windows Home Server will come bundled as part of a tightly integrated, turnkey hardware/software package. Basically, you just plug the Windows Home Server machine into your network and turn it on. You don't need to attach any of the usual peripherals to the server box because these machines are designed to be *headless*. This means that the server computer runs without a monitor, mouse, or keyboard. (In fact, almost every device that integrates with Windows Home Server won't even come with a monitor port!) You configure the server and access the network via the Windows Home Server Console, and if you need to run a program or configure some other aspect of the server, you can connect to it via Remote Desktop.

Besides easy setup and solid reliability (thanks to its Windows Server 2003 underpinnings), Windows Home Server offers five key features (discussed in more detail in the next five sections):

- ▶ Automated daily client backups
- ▶ Flexible, secure, safe, and centralized storage
- ▶ Simple network management
- ▶ Media streaming
- ▶ Remote access to Windows Home Server and your home computers from the Internet

NOTE

For a network computer to use the Windows Home Server Console and get backed up by the Windows Home Server Computer Backup service, that computer must first install the Windows Home Server Connector software. It is, therefore, important to distinguish between computers that have the Connector software installed and those that don't. Rather than always using an unwieldy phrase such as "a network computer with the Windows Home Server Connector software installed," throughout this book I'll refer to such a computer as a *home computer*.

The Windows Home Server Computer Backup Service

Each home computer that you connect to Windows Home Server is added to the list of clients to be backed up. Each night, starting at midnight, the Windows Home Server Computer Backup service backs up the entire contents of each of those computers—automatically and without any configuration on your part. (Even if a computer is in sleep mode, it will wake itself up for the backup and then return to sleep mode when the backup is complete.) To be more accurate, I should say that Windows Home Server backs up the entire contents of each computer (excluding things like temporary files, the page file, the Recycle Bin, and the Internet Explorer cache) during the initial backup, and on subsequent runs it only backs up files that have changed or that don't already exist in the backup for any home computer. (For example, if you copy an MP3 file to your computer from another machine, and that file has already been backed up from the other computer, Windows Home Server won't also back up your version of the file.) Windows Home Server also prevents backups from usurping all your disk space by automatically deleting older backups. You can configure when the backups run, you can exclude a home computer's folders from the backups, and you can customize the automatic management of old backups. Windows Home Server also lets you create and delete backups by hand.

► **SEE** For the details on Windows Home Server Computer Backup service, **see** "Understanding Windows Home Server's Backup Technology," **p. xxx**. (Chapter 11)

If you overwrite a file or a file becomes corrupted, Windows Home Server enables you to restore that file from any backup. Using a standard Windows Explorer window, you can drag and drop the file from the backup to any folder on your system. And because Windows Home Server keeps a number of different daily backups, you can also restore a previous version of a file.

If you lose an entire disk drive, you can use the Home Computer Restore CD (which comes with the Windows Home Server package) to restore that drive from a Home Server backup. This works even if you've had to replace the hard drive with a new drive. Again, because Home Server maintains several daily backups, you can also restore an entire home computer to a previous time.

► **SEE** To learn how to restore computers and files, **see** "Restoring Network Backups," **p. xxx**. (Chapter 11)



Windows Home Server's Centralized Storage

Windows Home Server automatically sets up five shared folders on the server—Music, Photos, Public, Software, and Videos—as well as one shared folder for each user. These shares are the most visible and obvious part of Windows Home Server's storage technology, but there are other aspects of server storage that are just as important:

- ▶ **Flexible**—You can add new hard drives to your system, and Windows Home Server will add the extra storage seamlessly. The new drive can be an internal drive, or it can be an external USB 2.0, FireWire, or eSATA drive. Windows Home Server also makes it easy to remove drives by offering the Remove a Hard Drive Wizard, which moves the drive's files to other storage space before you physically remove the drive.
- ▶ **SEE** For the details on Windows Home Server's new storage technologies, **see** "Understanding Windows Home Server Storage," **p. 169**.
- ▶ **Simple**—Windows Home Server simplifies storage by getting rid of drive letters. (The drive letters still exist under the hood, but you don't see them in the Windows Home Server interface.) A certain amount of space (20GB) is set aside for the operating system, and all the rest of your hard drive space is combined into a single storage pool.
- ▶ **Secure**—For each Windows Home Server share, you can assign permissions that specify what each user can do with the folder. There are three types of permissions: Full, Read, and None.
- ▶ **SEE** To learn more about shared folder permissions, **see** "Setting User Permissions on Shared Folders," **p. 188**.
- ▶ **Safe**—If you have two or more hard drives on your system, Windows Home Server enables *folder duplication*, which means that the server stores copies of each shared folder on multiple drives. If one drive dies, your data remains safe because at least one copy exists on another drive.
- ▶ **Centralized**—By storing files on the Windows Home Server shares, you can access them from any home computer. Even better, by using the Windows Home Server Remote Access interface, you can access your computer's desktop from any computer on your network, or even via the Internet.

Simple Network Management

Windows Home Server greatly simplifies network management by bringing the most common network chores under the umbrella of a single tool: Windows Home Server Console. As shown in Figure 1.1, this program divides network management into five tabs:

- ▶ **Computers & Backup**—You use this tab to view the name, description, operating system, and current backup status of each home computer. For each computer, you can also configure backup options, view previous backups, restore files, and start a backup manually.

- ▶ **SEE** For information on configuring backups, **see** “Configuring Windows Home Server Backups,” **p. 291**.
- ▶ **User Accounts**—You use this tab to view the display name, logon (user) name, remote access status, and account status for each Windows Home Server user. For each user, you can also change the display name and password, enable or disable remote access, set up shared folder permissions, and disable the account. In addition, you can use the User Accounts tab to add new users and remove existing users.
- ▶ **SEE** For a complete rundown of all the Windows Home Server user account features, **see** Chapter 4, “Setting Up and Working with User Accounts,” **p. 73**.
- ▶ **Shared Folders**—You use this tab to view the name, description, used space, duplication setting, and status of each shared folder on the server. For each shared folder, you can also change the name and description, enable or disable folder duplication, set user permissions, and browse the folder. In addition, you can use the Shared Folder tab to add new shared folders and remove existing shares.
- ▶ **SEE** For an in-depth look at shared folders in Windows Home Server, **see** Chapter 8, “Sharing Folders and Files on the Home Server,” **p. 187**.
- ▶ **Server Storage**—You use this tab to view the name, capacity, location (internal versus external), and health status of each hard drive on your Windows Home Server system. You also see a pie chart that shows how the server’s total storage allocation breaks down by shared folders, computer backups, the operating system files, and the remaining free space.
- ▶ **SEE** For the details on these and other storage topics, **see** Chapter 7, “Setting Up and Using Home Server Storage,” **p. 169**
- ▶ **Network Healthy**—This is a display area that tells you the current overall health status of your network. For example, it shows `Healthy` if all your home computers are backed up and all the Vista machines have their security settings configured optimally.

Note, too, that the Windows Home Server Console has a Settings button that, when clicked, displays the Windows Home Server Settings dialog box, shown in Figure 1.2. You use this dialog box to configure general Windows Home Server settings such as the date and time, as well as settings for backups, passwords, media sharing, and remote access. The Resources section provides information about your computer and Windows Home Server.



FIGURE 1.1 You use the Windows Home Server Console application to handle all the common network management tasks using a single, simple interface.

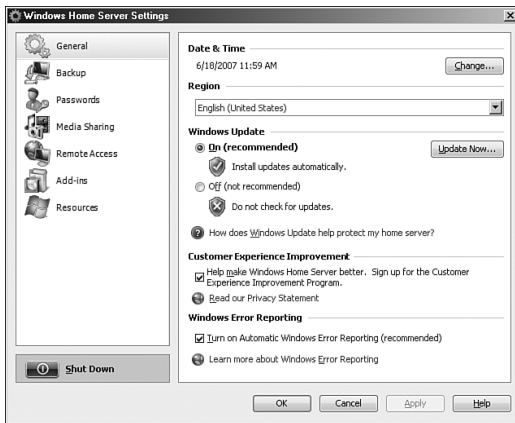


FIGURE 1.2 You use this dialog box to configure Windows Home Server.

Stream Media to Home Computers

Today's home networks are seeing a massive proliferation of digital media files: music, photos, videos, recorded TV, and so on. This is great because it gives home users an easy way to share media. However, home network users are also facing three main problems related to digital media and networking:

- ▶ Some files are unavailable if a user hasn't shared them (for example, by activating Media Player's Library Sharing feature).

- ▶ On networks with a number of computers, some files are difficult to find because there are so many places to look.
- ▶ The same files appear on multiple computers.

Windows Home Server tries to solve all three problems by enabling you to store digital media in a central location: the server and its Music, Photos, and Videos shares. Not only that, but you can stream music, photos, and videos to other home computers by enabling Media Library Sharing on the shared folders. This enables the media in those folders to be seen by other home computers and by devices such as Xbox 360s, Zunes, and media devices such as a digital media receiver or a digital photo frame.

As shown in Figure 1.3, you use the Media Sharing section of the Windows Home Server Settings dialog box to enable or disable Media Library Sharing.

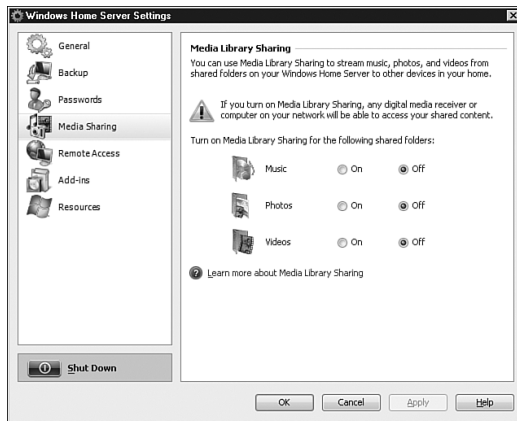


FIGURE 1.3 In the Windows Home Server Settings dialog box, use the Media Sharing section to turn on Media Library Sharing for the Music, Photos, and Videos shared folders.

- ▶ **SEE** To learn more about how Windows Home Server handles media files, **see** Chapter 10, “Streaming and Sharing Digital Media,” p. 259.

Remote Access via the Internet

Windows Home Server provides obvious benefits for home computers, but what if you’re not at home? Whether you’re at work, on the road, or at the local coffee shop, you can configure Windows Home Server to allow you to log in to your home network. Figure 1.4 shows the Windows Home Server Web Site Remote Access page that appears. This is actually an Internet Information Services website running on the Home Server. From here, you can do three things:

- ▶ **Access the Windows Home Server shared folders**—Click the Shared Folders tab to see links to each shared folder. When you click a link, the Remote Access website application displays a simple file manager that enables you to upload or download files, create new folders, and rename and delete files.

