

Paul McFedries

**Second  
Edition**

**Covers  
PowerPacks  
1, 2, and 3!**

# Microsoft Windows Home Server

**UNLEASHED**

**SAMS**



## Microsoft® Windows® Home Server Unleashed, Second Edition

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# Introduction

When you think of the word *server*, you probably first imagine either a massive mainframe hulking behind locked doors in the bowels of some large corporation, or a powerful and very expensive desktop-like device full of esoteric hardware that helps it—and perhaps a few others like it—run the network of a medium-sized company. The common thread here is that we’ve always thought of servers as *business* machines. With the exception of a few hardcore geeks and technical writers (not that the two designations are mutually exclusive), having a server in your home seemed, well, *excessive*. What home needs the power of a server? What home can afford the expense of such a high-end device?

But then a funny thing happened: times changed. All those one-computer households suddenly became two-, three-, and even four-computer households. Broadband became nearly ubiquitous, and of course every family member wanted a piece of the new pipe. We began digitizing our media en masse; we wanted to share that media with other members of the family and with other devices scattered around the house, and we discovered wireless computing and became addicted to working and playing anywhere we wanted. The result has been an explosion of home networks over the past few years.

However, it didn’t take long for amateur network administrators to learn something that their professional counterparts have known for many years: the larger the network, the more you need some device in the middle of it all to coordinate activities and offer a central repository for data. And our home networks have started to become quite large, with multiple computers, multiple devices such as wireless

access points and network attached storage drives, and increasingly massive files, from multiple-megabyte digital audio files to multi-gigabyte digital video files. Suddenly we, too, needed a powerful machine in the middle of it all to keep things humming.

It helped significantly that extremely powerful computers had become extremely inexpensive, but one big problem remained: A server computer needs a server operating system. Unfortunately, the only choices here simply weren't reasonable or practical choices for the home: the powerful but expensive Windows Server 2003 or Windows Server 2003 Small Business Edition, or the various flavors of Linux, all of which are far too complex and arcane for the average home network.

However, the last piece of the puzzle fell into place when Microsoft announced Windows Home Server to the world in January 2007. Now we all had access to a server operating system that was designed specifically for home networks; we had access to a server OS that was easy to configure, simple to use, inexpensive, and could run on a variety of hardware; we had a server OS that not only did the usual server tasks—store data and manage users—but that also went much further with automatic backups for every computer, streaming media, and easy-to-configure access to any desktop from the network or from the Internet.

Welcome, then, to *Microsoft Windows Home Server Unleashed*, Second Edition. My goal in this book is to take you beyond the basic Windows Home Server Console interface and into the tremendously powerful behind-the-scenes features that enable you to get the most out of your investment without requiring an advanced networking degree.

This book also covers the new and changed features in Power Packs 1, 2, and 3, including the following:

- ▶ Windows 7 libraries support
- ▶ Windows Search 4.0
- ▶ Recorded TV archiving
- ▶ Windows Media Center Console Quick View
- ▶ Windows Media Center Connector
- ▶ Server Backup
- ▶ Drag-and-drop remote file uploading
- ▶ Options for downloading remote files
- ▶ Wake up to back up
- ▶ Remote Access Configuration Wizard
- ▶ User-based remote access options

## Who Should Read This Book?

For a book like this, it doesn't make much sense to have a "typical reader" in mind when writing. First, there's just no such thing as a typical reader, so you'd be writing for an audience of none. Second, home networks are as varied and unique as the families who use them. There are simple two-computer homes; there are large one-computer-per-person households; there are families who qualify as media powerhouses who create, share, and play audio and video incessantly; there's the home-office crowd who use their network for work as well as play; and finally there's the Alpha Geek family with one person who's juiced not so much about Windows Home Server itself, but about getting his hands on the powerful Windows Server 2003 engine that comes with it.

In this book, I've tried to keep all these different families and situations in mind, and there's lots of content here for everyone. As a general rule, this book is for anyone who wants more from Windows Home Server. If you want to learn more about how Windows Home Server works, if you want to get more out of the unique features in Windows Home Server, and if you want to know how to use the powerful but hidden server features that are also part of the Windows Home Server package, this book is most definitely for you.

## How This Book Is Organized

To help give you a sense of the overall structure of the book, the next few sections offer a brief summary of the five main parts of the book.

### Part I: Unleashing Windows Home Server Configuration

The five chapters in Part I show you how to get everything configured and connected so that you can start to take full advantage of what Windows Home Server has to offer. You learn how to set up Windows Home Server for networking and how to troubleshoot basic network woes (Chapter 1). You learn how to set up and manage user accounts (Chapter 2), and I show you how to add various computer types—Windows 7, Vista, and XP, as well as Mac and Linux—and various devices—including Windows Mobile and Xbox 360—to the Windows Home Server network (Chapter 3). You learn how to configure various Windows Home Server settings, including the computer name, the password, and various startup options (Chapter 4), and I delve deep into the new Windows Home Server storage system to show you how the system works, how to add, repair, and remove storage, and more (Chapter 5).

### Part II: Unleashing Windows Home Server Networking

Part II is the biggest section of the book, with eight chapters focused on various aspects of networking with Windows Home Server. You learn how to share files and folders (Chapter 6); connect to other computers, both over the network and over the Internet (Chapter 7); stream and share digital image, audio, and video (Chapter 8); use Windows Home Server's

computer backup and restore features (Chapter 9); monitor your network (Chapter 10); and implement network security (Chapter 11). I close this section with two chapters that take you well beyond Windows Home Server's core capabilities: Chapter 12 shows you how to use the built-in web server to create powerful and flexible websites, and Chapter 13 shows you how to download, install, configure, and use Windows SharePoint Services to run collaborative sites for your family.

### **Part III: Unleashing Windows Home Server Performance and Maintenance**

Part III takes you into some of the features of Windows Home Server that are less glamorous but are still crucially important: performance tuning (Chapter 14), system maintenance (Chapter 15), interface customization (Chapter 16), and problem troubleshooting (Chapter 17).

### **Part IV: Unleashing Windows Home Server Advanced Tools**

The four chapters in Part IV take your Windows Home Server knowledge to a higher level with in-depth looks at some advanced tools and features. You learn how to use the Windows Home Server Registry (Chapter 18); how to use the command-line tools (Chapter 19); how to use power tools such as the Control Panel, the Group Policy Editor, and the Computer Management snap-ins (Chapter 20); and how to create Windows Home Server scripts, including scripts that control the incredibly powerful Windows Management Instrumentation (WMI) interface (Chapter 21).

### **Part V: Appendixes**

To round out your Windows Home Server education, Part V presents a few appendixes that contain extra goodies. You'll find a glossary of Windows Home Server terms (Appendix A), a complete list of Windows Home Server shortcut keys (Appendix B), and a list of online resources for Windows Home Server (Appendix C).

## **Conventions Used in This Book**

To make your life easier, this book includes various features and conventions that help you get the most out of this book and out of Windows Home Server:

Steps	Throughout the book, I've broken many Windows Home Server tasks into easy-to-follow step-by-step procedures.
Things you type	Whenever I suggest that you type something, what you type appears in a <b>bold monospace</b> font.
Filenames, folder names, and code	These things appear in a monospace font.
Commands	Commands and their syntax use the monospace font as well. Command placeholders (which stand for what you actually type) appear in an <i>italic monospace</i> font.
Pull-down menu commands	I use the following style for all application menu commands: <i>Menu, Command</i> , where <i>Menu</i> is the name of the menu that you pull down and <i>Command</i> is the name of the command you select. Here's an example: File, Open. This means that you pull down the File menu and select the Open command.
Code continuation character	When a line of code is too long to fit on only one line of this book, it is broken at a convenient place and continued to the next line. The continuation of the line is preceded by a code continuation character (➡). You should type a line of code that has this character as one long line without breaking it.

This book also uses the following boxes to draw your attention to important (or merely interesting) information:

**NOTE**

The Note box presents asides that give you more information about the current topic. These tidbits provide extra insights that offer a better understanding of the task.

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**TIP**

The Tip box tells you about Windows Home Server methods that are easier, faster, or more efficient than the standard methods.

---

**CAUTION**

The all-important Caution box tells you about potential accidents waiting to happen. There are always ways to mess up things when you're working with computers. These boxes help you avoid those traps and pitfalls.

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## CHAPTER 4

# Configuring Windows Home Server

Windows Home Server isn't meant to be constantly tweaked in the same way that you might always find yourself fiddling with settings in Windows 7, Windows Vista, or even Windows Server 2003. After you get through the setup (which nearly qualifies as a *forehead install*—that is, an installation so simple that theoretically you could run through each step by just hitting the spacebar with your forehead) and the simple and straightforward *Oobe* (out-of-box experience—that is, what you must do to get a computer running after you take it out of the box), there isn't much you're supposed to do with the machine. You set up your users and permissions, perhaps add a few extra shared folders, and your Windows Home Server is good to go.

Of course, this only applies to the nongeek users that Microsoft is truly targeting with Windows Home Server. For the rest of us, adjusting the settings of *any* operating system (OS) is a must because there has never been an OS made that satisfies and is set up for everyone. We tweak; therefore, we are.

In a sense, this book is all about tweaking Windows Home Server to get the most out of it. However, this chapter in particular takes you through some essential configuration tasks. You can accomplish most of these tasks via the Windows Home Server Console (meaning that you can adjust the server's settings from any client machine), but some of the techniques in this chapter run outside the Console (and so require either a direct login or a Remote Desktop connection to the server). Be sure to also see Chapter 16, "Customizing the Windows Home Server Interface," for some tweaks on the look-and-feel front.

## IN THIS CHAPTER

- ▶ Changing the Name of the Home Server
- ▶ Running the Windows Home Server Console
- ▶ Changing the Date and Time on Windows Home Server
- ▶ Selecting the Windows Home Server Region
- ▶ Configuring Windows Update
- ▶ Changing the Windows Home Server Password
- ▶ Restarting or Shutting Down Windows Home Server
- ▶ Configuring an Uninterruptible Power Supply
- ▶ Configuring the Windows Home Server Startup

## Changing the Name of the Home Server

The default computer name in a Windows Home Server install is SERVER, but you may decide to change the name after Windows Home Server is up and running. For example, you might simply be bored with the prosaic name SERVER, or you might be adding a second Windows Home Server machine to your network and you want them to have names such as SERVER1 and SERVER2.

Whatever the reason, here are the steps you need to follow to change the server's name:

1. Log on to the Windows Home Server computer, or establish a Remote Desktop connection to the server.

► **SEE** For the details on connecting to Windows Home Server via Remote Desktop, **see** "Making a Remote Desktop Connection to the Server," **P. 31**.

2. Click Start, right-click My Computer, and then click Properties. The System Properties dialog box appears.
3. Display the Computer Name tab.

### TIP

You can open the System Properties dialog box with the Computer Name tab displayed directly. Select Start, Run (or press Windows Logo+R), type **control sysdm.cpl,,1** in the Run dialog box, and then click OK.

4. Click Change. The Computer Name Changes dialog box appears.
5. Use the Computer Name text box to type the new name for the server.
6. Click OK. Windows Home Server tells you that you must restart the computer to put the change into effect.
7. Click OK to return to the System Properties dialog box.
8. Click OK. Windows Home Server prompts you to restart your computer.
9. Click Yes. Windows Home Server restarts. If you connected via Remote Desktop, the connection ends.

## Running the Windows Home Server Console

Most of the Windows Home Server configuration chores are most easily accomplished via the Windows Home Server Console application. To ensure that you can always access this program easily, here's a list of the various methods you can use to launch it:

- On the Windows Home Server machine, select Start, Windows Home Server Console.

- ▶ On the Windows Home Server machine or a client, double-click the Windows Home Server Console desktop icon.
- ▶ On a client machine, select Start, All Programs, Windows Home Server Console.
- ▶ On the client machine, right-click the Windows Home Server icon in the notification area and then click Windows Home Server Console.
- ▶ On the server, select Start, Run (or press Windows Logo+R) to open the Run dialog box, type `%ProgramFiles%\Windows Home Server\HomeServerConsole.exe`, and then click OK.
- ▶ On a client, select Start, Run (or press Windows Logo+R) to open the Run dialog box, type `%ProgramFiles%\Windows Home Server\WHSConsoleClient.exe`, and then click OK.

If you're running Windows Home Server Console on a client, you see the logon screen shown in Figure 4.1. Type the Windows Home Server password (that is, the password for Windows Home Server's Administrator account) in the text box and then press Enter or click the arrow. The Windows Home Server Console appears, as shown in Figure 4.2.

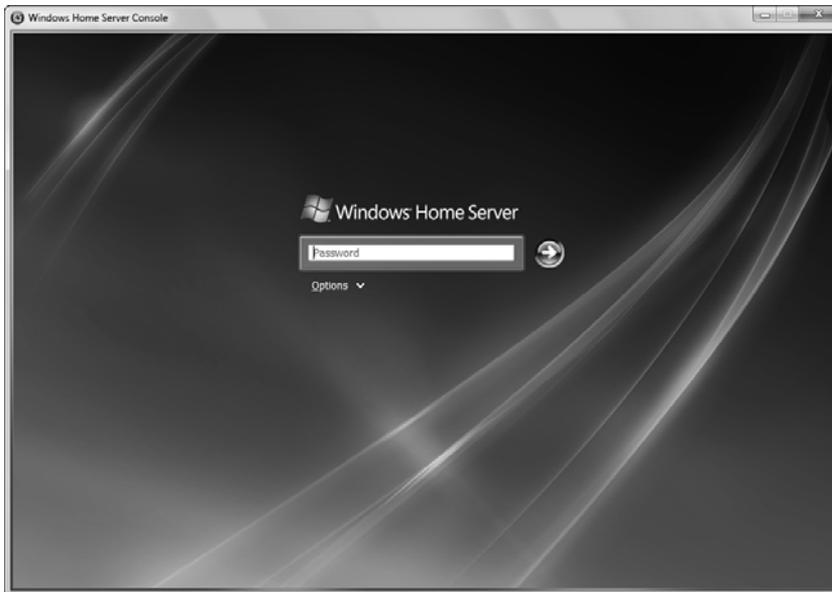


FIGURE 4.1 When you run the client version of Windows Home Server Console, you must first log on to the server.

#### TIP

If you want to avoid entering the Windows Home Server password each time, display the logon screen and then select Options, Remember the Windows Home Server Password.

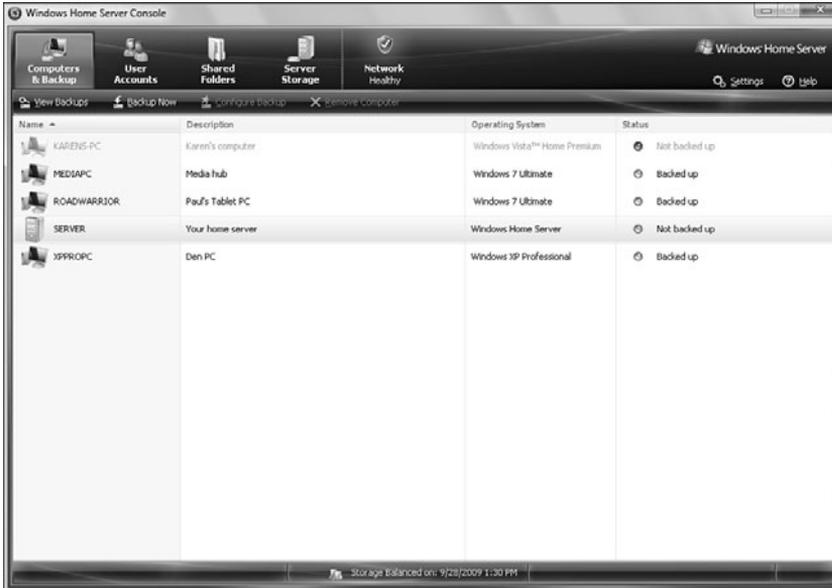


FIGURE 4.2 Use the Windows Home Server Console program to configure most common server settings.

## NOTE

If you can't recall the Windows Home Server password, select Options, Password Hint to see some text that gives you a hint about the password.

## Changing the Date and Time on Windows Home Server

Windows Home Server runs the client backups each night starting around midnight. This is usually ideal because it's late enough that you or anyone in your family won't be working on a client machine, but early enough that the server has sufficient time to complete all the client backups (which it performs one client at a time). So it's important that the time is set up correctly on Windows Home Server.

The server's internal date is important, too, because Windows Home Server uses the date to organize backups. If you need to restore a file or folder, you need the date to be accurate so you can tell which version of the file or folder to restore.

### Setting the Current Date and Time

If the Windows Home Server date or time is off, follow these steps to make a correction:

1. Launch the Windows Home Server Console.
2. Click Settings to open the Windows Home Server Settings dialog box.

3. In the General tab's Date & Time section, click Change to display the Date and Time Properties dialog box, shown in Figure 4.3.

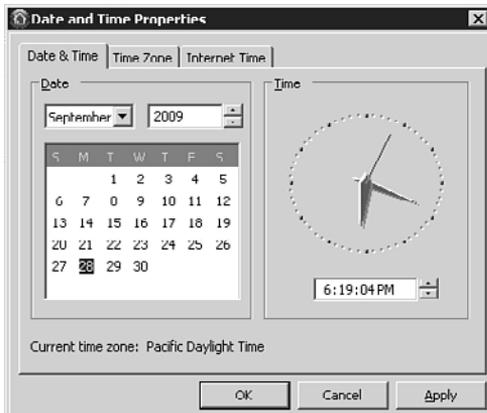


FIGURE 4.3 Use the Date and Time Properties dialog box to set the server's internal date and time.

## TIP

If you're logged in to the server, a faster way to display the Date and Time Properties dialog box is to double-click the time in the taskbar's notification area. Alternatively, select Start, Control Panel, Date and Time.

4. In the Date & Time tab, use the controls in the Date group to specify the current month, year, and day.
5. Use the spin box in the Time group to specify the current hour, minute, second, and AM or PM. These four items are separate "sections" within the text box. Either edit each section directly, or click within a section and use the up and down arrows to increase or decrease the section value.
6. To change the time zone, display the Time Zone tab, and then use the list to select your time zone.
7. If you want Windows Home Server to adjust the time during daylight saving time changeovers, leave the Automatically Adjust Clock for Daylight Saving Changes check box activated. (Note that you only see this check box if your time zone uses daylight saving time.)
8. Click OK to put the new settings into effect.

**TIP**

If you're working with a client machine and you just want to know the current time on the server, use the `NET TIME` command. Start a command prompt session on the client machine (select Start, All Programs, Accessories, Command Prompt), type the following, and press Enter:

```
net time \\server
```

Replace *server* with the name of your Windows Home Server.

---

## Synchronizing the Date and Time with a Time Server

If you want to ensure that Windows Home Server always has the accurate time, you can configure the system to synchronize with an Internet-based time server. Here are the steps to follow:

1. Launch the Windows Home Server Console.
2. Click Settings to open the Windows Home Server Settings dialog box.
3. In the General tab's Date & Time section, click Change to display the Date and Time Properties dialog box.
4. In the Internet Time tab, make sure the Automatically Synchronize with an Internet Time Server check box is activated.
5. Use the Server list to choose a time server.
6. Click Update Now to synchronize the time manually. (Windows Home Server schedules the next synchronization for a week later.)
7. Click OK to put the new settings into effect.

Unfortunately, the time synchronization in Windows Home Server (and, indeed, in all versions of Windows that support this feature) isn't very reliable. On my Windows machines, I usually have to configure a different time server by hand either using a command prompt session or by modifying the list of servers in the Internet Time tab. I most often use one of the time servers operated by the U.S. Navy:

```
tick.usno.navy.mil
```

```
tock.usno.navy.mil
```

**NOTE**

You can find a long list of time servers at <http://ntp.isc.org/bin/view/Servers/WebHome>.

---

### Specifying the Time Server at the Command Prompt

To configure a time server via the command prompt, follow these steps:

1. In Windows Home Server, select Start, All Programs, Accessories, Command Prompt.
2. Enter the following command to specify the time server you want to use. (Replace *TimeServer* with the domain name of the time server.)

```
net time /setsntp:TimeServer
```

3. Stop the Windows Time service by entering the following command:

```
net stop w32time
```

4. Restart the Windows Time service by entering the following command:

```
net start w32time
```

When you restart the Time service, it automatically synchronizes with the time server you specified.

### Adding Time Servers to the Internet Time Tab

Rather than working with the command prompt, you can customize the list of servers that appears in the Internet Time tab. Follow these steps:

1. Select Start, Run (or press Windows Logo+R) to open the Run dialog box, type **regedit**, and click OK to open the Registry Editor.
2. Display the following key:

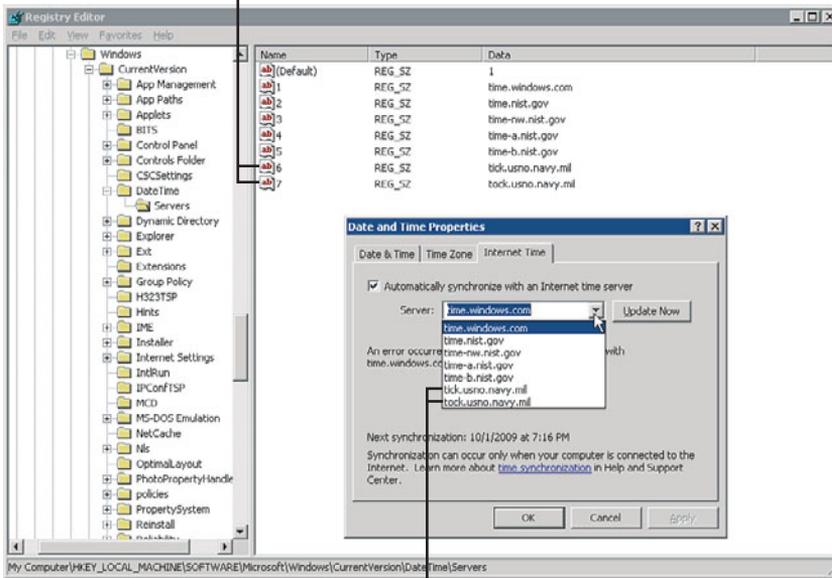
```
HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\DateTime\Servers
```

► **SEE** To learn how to get around in the Registry, **see** “Navigating the Registry,” **P. 525.**

3. Select Edit, New, String Value.
4. Type the number that represents the next highest value among the settings in the Servers key, and then press Enter. For example, the default Servers key contains the settings 1 through 5, so for your first server, you’d type **6** (and press Enter).
5. Press Enter or double-click the new setting to open the Edit String dialog box.
6. Type the domain name (or IP address) of the time server, and then click OK.
7. Repeat steps 3–6 to add other time servers.
8. If you want one of your custom time servers to be the default server for synchronization, double-click the (Default) setting and change its value to the number that corresponds to the server you want to use as the default.
9. Exit the Registry Editor.

The next time you open the Date and Time Properties dialog box and display the Internet Time tab, you see your custom time servers in the Server list, as shown in Figure 4.4.

Time servers added to the Servers key...



...appear in the Server list.

FIGURE 4.4 When you add time server settings to the Registry's Servers key, the servers appear in the Internet Time tab's Server list.

### Customizing the Synchronization Interval

By default, Windows Home Server synchronizes with the default time server once a week. If you'd prefer that Windows Home Server synchronize more often—for example, once a day—you can follow these steps to customize the synchronization interval:

1. Select Start, Run (or press Windows Logo+R) to open the Run dialog box, type **regedit**, and click OK to open the Registry Editor.
2. Display the following key:  
`HKLM\SYSTEM\CurrentControlSet\Services\W32Time\TimeProviders\NtpClient`
3. Double-click the SpecialPollInterval setting to open the Edit DWORD Value setting.
4. Click the Decimal option.
5. In the Value Data text box, type the number of seconds you want to use as the synchronization interval. For example, to synchronize every 24 hours, type **86400**.
6. Click OK.
7. Exit the Registry Editor.

To put the new setting into effect, you have two choices:

- ▶ In the Date and Time Properties dialog box, display the Internet Time tab and then click Update Now.
- ▶ Stop and then restart the Windows Time service. One way to do this is to use the `net stop w32time` and `net start w32time` commands I mentioned earlier. Alternatively, select Start, Control Panel, Administrative Tools, Services to open the Services snap-in. Click the Windows Time service, click the Stop link (see Figure 4.5), and then click the Start link.

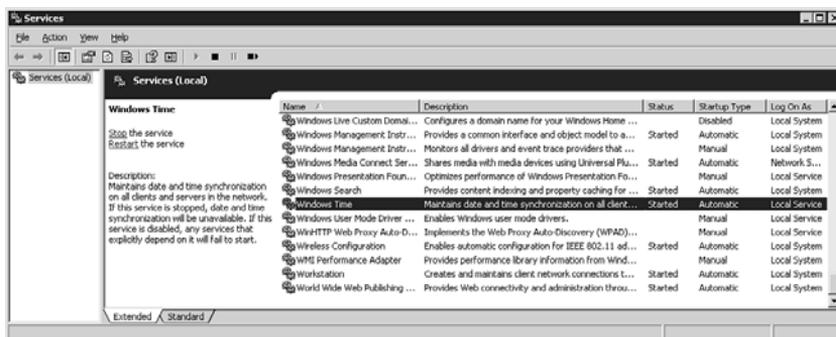


FIGURE 4.5 You can use the Services snap-in to stop and start the Windows Time service.

- ▶ **SEE** For more information on the Services snap-in, see “Controlling Services with the Services Snap-In,” P. 636.

## Selecting the Windows Home Server Region

In Windows Home Server, you can specify the region you’re in. This determines how Windows Home Server formats data such as numbers, currency values, dates, and times. For example, depending on the region, Windows Home Server would display August 7, 2010 in the short date format as 8/7/2010 or as 7/8/2010.

### Changing the Region in the Windows Home Server Console

Here are the steps to follow to use the Windows Home Server Console to change the current region setting:

1. Launch the Windows Home Server Console.
2. Click Settings to open the Windows Home Server Settings dialog box.
3. In the General tab, use the Region list to select the region and the language within that region.
4. Click OK to put the new setting into effect.

## Customizing the Region Formats

The Windows Home Server Console only enables you to switch from one region setting to another. However, you might need to customize a particular region's formats. For example, you may select a region where the short date format is d/m/yyyy but you'd rather use m/d/yyyy. Windows Home Server enables you to customize the format not only of dates, but also of times, numbers, and currency values. Follow these steps:

1. Log in to the Windows Home Server machine and select Start, Control Panel, Regional and Language Options. Windows Home Server displays the Regional and Language Options dialog box.
2. In the Regional Options tab, use the list in the Standards and Formats group to select a region and language, if you want something other than the displayed value.
3. Click Customize. Windows Home Server displays the Customize Regional Options dialog box, shown in Figure 4.6.

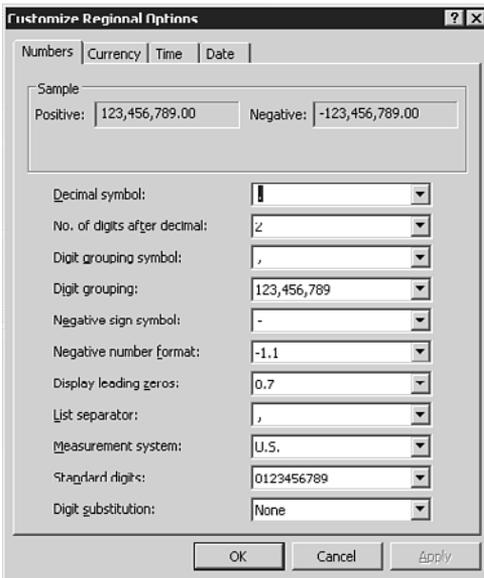


FIGURE 4.6 Use the Customize Regional Options dialog box to set up custom formats for numbers, currency values, dates, and times.

4. Use the lists in the Numbers tab to customize how Windows Home Server displays numeric values.
5. Use the lists in the Currency tab to customize how Windows Home Server displays monetary values.
6. Use the lists in the Time tab to customize how Windows Home Server displays time values.

7. Use the lists in the Date tab to customize how Windows Home Server displays date values.
8. Click OK to return to the Regional and Language Options dialog box.
9. Click OK to put the new settings into effect.

## Configuring Windows Update

Windows Update is a feature that keeps Windows Home Server up-to-date by offering power packs, operating system fixes, security patches, enhancements, and new features for download. You can check for new updates at any time by selecting Start, All Programs, Windows Update to load the Microsoft Windows Update website into the browser.

Rather than you remembering to check for updates and then trying to figure out which ones to download and install, Windows Home Server offers the Automatic Updates feature. This takes the guesswork out of updating the server by automatically checking to see whether updates are available, downloading those that are, and then installing them, all without intervention on your part. The next few sections show you how to configure Windows Update and Automatic Updates and how to check for updates from within Windows Home Server.

### Configuring Windows Update via the Windows Home Server Console

When you first started Windows Home Server, the OOB program asked you to choose a Windows Update setting. If you want to change that setting, you can do it using the Windows Home Server Console, as described in the following steps:

1. Launch the Windows Home Server Console.
2. Click Settings to open the Windows Home Server Settings dialog box.
3. In the General tab, click one of the following options:
  - ▶ **On**—Click this option to enable the Automatic Updates feature.
  - ▶ **Off**—Click this option to prevent Windows Home Server from checking for new updates.
4. Click OK to put the new setting into effect.

#### CAUTION

I strongly recommend that you *not* choose to turn Windows Update off. All recent versions of Windows have been plagued with security vulnerabilities, and Windows Home Server (or, more accurately in this case, Windows Server 2003, which underlies Windows Home Server) isn't an exception. You need to keep your server updated to avoid having your system—and, almost certainly, your entire home network—compromised or damaged by malicious hackers.

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## Configuring Windows Update via the Automatic Updates Control Panel

The Windows Home Server Console only gives you two choices for the Automatic Updates feature: on or off. If this all-or-nothing choice seems too restrictive, you can give yourself more choices by accessing the server and using the Control Panel's Automatic Updates icon. Here are the steps to follow:

1. Log in to the server and select Start, Control Panel, Automatic Updates. Windows Home Server displays the Automatic Updates dialog box, shown in Figure 4.7.

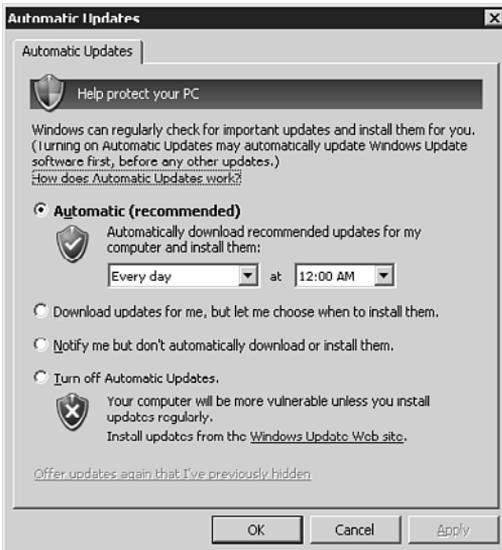


FIGURE 4.7 Use the Automatic Updates dialog box to configure Windows Home Server's automatic updating.

### NOTE

The Automatic Updates options are also available in the System Properties dialog box. A quick way to get there is to select Start, Run to open the Run dialog box, type **control sysdm.cpl, , 4**, and then click OK.

2. Activate one of the following options to determine how Windows Home Server performs the updating:
  - ▶ **Automatic**—This option tells Windows Home Server to download and install updates automatically. Windows Home Server checks for new updates on the date (such as Every Day or Every Sunday) and time you specify. For example, you might prefer to choose a time when you won't be using your computer.

**CAUTION**

Some updates require your server to be rebooted to put them into effect. In such cases, if you activate the Automatic option, Windows Home Server automatically reboots your system. This might lead to problems if you have a particular program that you need to be running at all times. You can work around this problem by setting up an automatic logon and by setting up the program to run automatically at startup. (Refer to “Launching Applications and Scripts at Startup,” later in this chapter.)

► **SEE** To learn how to set up an automatic logon, see “Automating Client Logons,” P. 47.

- **Download Updates for Me, but Let Me Choose When to Install Them**—If you activate this option, Windows Home Server checks for new updates and then automatically downloads any updates that are available. Windows Home Server then displays an icon in the notification area to let you know that the updates are ready to install. Click the icon to see the list of updates. If you see an update that you don’t want to install, deactivate its check box. Click Install to install the selected updates.
- **Notify Me but Don’t Automatically Download or Install Them**—If you activate this option, Windows Home Server checks for new updates and then, if any are available, displays an icon in the notification area to let you know that the updates are ready to download. Click the icon to see the list of updates. If you see an update that you don’t want to download, deactivate its check box. Click Start Download to initiate the download. When the download is complete, Windows Home Server displays an icon in the notification area to let you know that the updates are ready to install. Click the icon and then click Install to install the updates.
- **Turn Off Automatic Updates**—Activate this option to prevent Windows Home Server from checking for new updates.

3. Click OK to put the new setting into effect.

## Updating Windows Home Server

If you elected not to use automatic updating, you need to watch out for available updates and install the ones you want by hand. How do you watch for updates? The easiest method is to watch the Network status icon in the Windows Home Server Console. When updates are ready for download, that icon reads Critical. On a client machine, you can also monitor the Windows Home Server Tray icon in the notification area, which turns red when the network status is critical.

You then have two choices in Windows Home Server Console, as follows:

- ▶ Click the Network status icon to open the Home Network Health dialog box, shown in Figure 4.8. If you see an item that says Windows Home Server Updates Are Ready, click Install Updates.

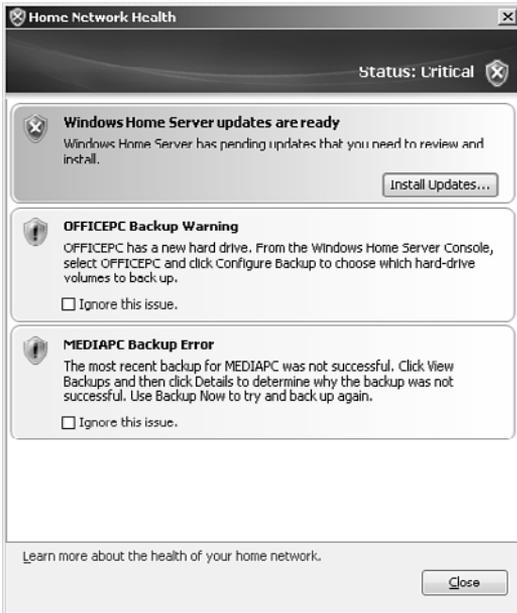


FIGURE 4.8 If updates are available, you can install them via the Home Network Health dialog box.

- ▶ Click Settings to open the Windows Home Server Settings dialog box, and then, in the General tab, click Update Now.

Windows Home Server then downloads and installs the updates.

## Changing the Windows Home Server Password

The Windows Home Server password—that is, the password associated with the Administrator account—must be strong, which means it must be at least seven characters, and those characters must come from three out of the following four sets: lowercase letters, uppercase letters, numbers, and symbols. This means that Windows Home Server

passwords are quite secure. However, you may still feel that you could make the password even more secure by making it longer or by including characters from all four sets. Similarly, you might want to enhance security by changing the password regularly, as security experts urge us to do. Either way, here are the steps to follow to change the password using the Windows Home Server Console:

1. Launch the Windows Home Server Console.
2. Click Settings to open the Windows Home Server Settings dialog box.
3. Display the Passwords tab.
4. Click Change Password to display the Windows Home Server Password Change dialog box.
5. Type the new password in the Password and Confirm Password text boxes.
6. Edit the password hint, as necessary.
7. Click OK to put the new password into effect. Windows Home Server tells you that the password has been changed.
8. Click OK to return to the Windows Home Server Settings dialog box.
9. Click OK.

#### TIP

If you just want to change the password hint, follow the steps in this section, but enter the current password in the Password and Confirm Password text boxes. Then enter the new hint in the Password Hint text box. Alternatively, you can edit the hint via the Registry Editor. Log on to the server and select Start, Run to open the Run dialog box, type **regedit**, and click OK. In the Registry Editor, open the following key: HKLM\Software\Microsoft\Windows Home Server\install. Double-click the PasswordHint setting, type the new hint, and then click OK.

## Restarting or Shutting Down Windows Home Server

The Windows Home Server is meant to run as an always-on appliance that should rarely need to be restarted or shut down. However, if you find that Windows Home Server is performing sluggishly or is acting flaky, the standard Windows troubleshooting advice—reboot the machine!—might be in order. Similarly, if you need to add an internal circuit board or hard drive, or if you'll be going on vacation for an extended time, you need to shut down the server.

If you're logged on to the Windows Home Server, you can use the normal Windows technique of selecting Start, Shut Down to display the Shut Down Windows dialog box, choosing Restart or Shut Down in the list, and then clicking OK.

If you're on a client, you can restart or shut down the server remotely using the Windows Home Server Console. Here are the steps to follow:

1. Launch the Windows Home Server Console.
2. Click Settings to open the Windows Home Server Settings dialog box.
3. Click Shut Down.
4. Click either Restart or Shut Down.

## TIP

On the client machine, you probably want to know when Windows Home Server restarts. One way to do this is to select Start, All Programs, Command Prompt to open a command prompt session. Enter the following command (replace the IP address shown with the IP address of the server):

```
ping 192.168.1.254 -t.
```

This tells Windows to repeatedly ping the server's IP address. While the server is restarting, Windows will display the following result for each ping:

```
Request timed out.
```

When the server is back up and running, you'll know because the ping result will change to something like the following:

```
Reply from 192.168.1.254: bytes=32 time=1ms TTL=128
```

Press Ctrl+C to stop the pinging.

---

## Configuring an Uninterruptible Power Supply

Windows Home Server is a crucial component in your home network, so you want to protect it (and its precious contents) as much as possible. For example, as with any computer, you never want to shut off the server without going through the proper interface channels (that is, by first selecting Start, Shut Down on the server, or by using the Windows Home Server Console's Shut Down button, as explained in the previous section).

Unfortunately, power failures happen, so despite your best efforts, the Windows Home Server may get shut off abruptly. To avoid this fate, it's a good idea to run the server off an uninterruptible power supply (UPS), which provides battery-based backup power should the AC suddenly disappear. Depending on the battery capacity of the UPS and the number of devices attached to it, this gives you a few minutes or more to shut down the server properly.

The better UPS devices come with monitoring software that enables you to view the current status of the UPS, warn you when a power failure has occurred, and let you know how much time you have to shut down the devices attached to the UPS. For this

software to work properly, you need to run a monitoring cable (use the cable that came with the UPS or is available from the manufacturer) from the UPS to a USB or serial port on the computer.

If you don't have a UPS monitoring program, or if the program that came with your UPS isn't compatible with Windows Home Server, you may still be able to monitor the UPS and receive power failure alerts. Windows Home Server's Power Options come with a UPS feature that enables you to connect and monitor a UPS connected to your computer. Here are the steps to follow to configure the UPS monitor:

1. Log in to the server and select Start, Control Panel, Power Options to open the Power Options Properties dialog box.
2. Display the UPS tab.
3. In the Details group, click Select to open the UPS Selection dialog box.
4. In the Select Manufacturer list, choose either American Power Conversion or Generic.
5. If you chose American Power Conversion in step 4, use the Select Model list (see Figure 4.9) to choose the UPS model you're using.

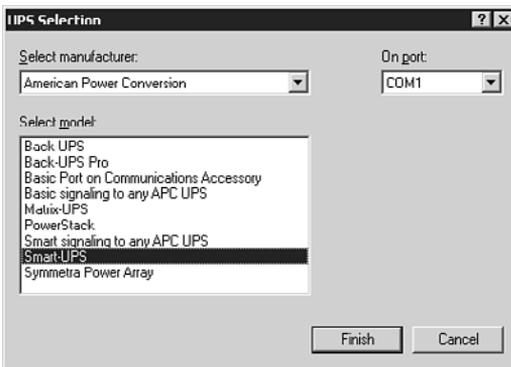


FIGURE 4.9 Use the UPS Selection dialog box to tell Windows Home Server what type of uninterruptible power supply is connected to the server.

6. Use the On Port list to select the server port that you're using to connect to the UPS.
7. Click Finish.
8. Click OK.

Windows Home Server establishes a link to the UPS over the port and then displays the current status of the UPS (such as the estimated UPS runtime should the power fail) in the UPS tab (see Figure 4.10).

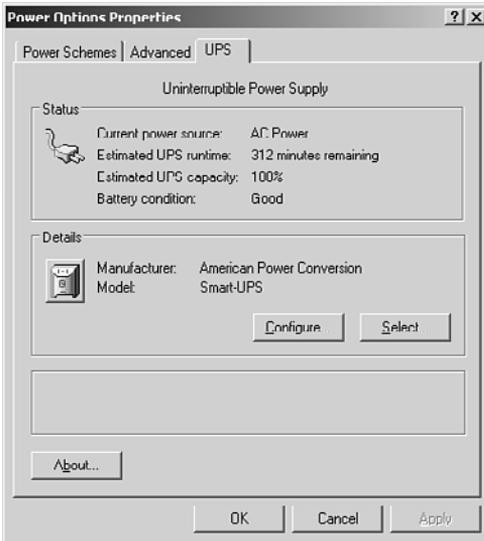


FIGURE 4.10 With a connection established between Windows Home Server and the uninterruptible power supply, the UPS tab shows the current status of the device.

## NOTE

If the UPS tab tells you that the Uninterruptible Power Supply service is not started, select Start, Control Panel, Administrative Tools, Services. In the list of services, click Uninterruptible Power Supply and then click the Start link. To ensure this service starts automatically in the future, double-click the service, use the Startup Type list to select Automatic, and then click OK.

If you want to customize the UPS, click the Configure button to display the UPS Configuration dialog box, shown in Figure 4.11.

You have the following options:

- ▶ **Enable All Notifications**—Leave this check box activated to have Windows Home Server alert you when the power fails. You can use the two spin boxes to set when the alerts appear: the number of seconds after the power failure for the first alert, and the number of seconds between subsequent alerts.
- ▶ **Minutes on Battery Before Critical Alarm**—Activate this check box to have Windows Home Server display a critical alarm after the UPS has been on battery power for the number of minutes you specify. (If you leave this check box deactivated, Windows Home Server displays the critical alarm when it detects that the UPS battery power is almost used up.)
- ▶ **When the Alarm Occurs, Run This Program**—Activate this check box and then click Configure to set up a program to run after the critical alarm occurs.

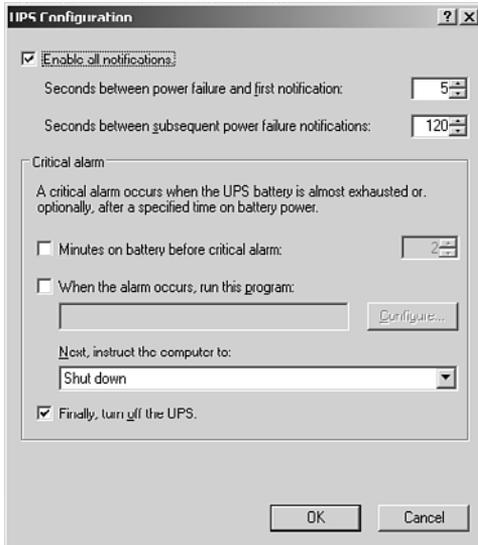


FIGURE 4.11 Use the UPS Configuration dialog box to customize how Windows Home Server interacts with the UPS.

- ▶ **Next, Instruct the Computer To**—Use this list to specify what you want the server to do after the critical alarm occurs (and after the program you specified in the previous item runs). In Windows Home Server, the only choice here is Shut Down.
- ▶ **Finally, Turn Off the UPS**—Leave this check box activated to also have the UPS turned off if a critical alarm occurs.

## Configuring the Windows Home Server Startup

One day, not long after I installed a prerelease version of Windows Home Server, I also installed a screen capture program so that I could capture some screen shots for this book. Unfortunately, the Windows Home Server beta and that screen capture program did *not* get along. The machine crashed, and I mean *hard*: It wouldn't boot into Windows Home Server, nor would it boot to the Windows Home Server DVD or to *any* bootable medium I added to the machine. The server was simply dead in the water.

Fortunately, I know a few startup tricks, and I was able to use one of those tricks to get the machine back on its feet. (Hint: I ran a startup command called Last Known Good Configuration, which I'll tell you about shortly.) I hope you never have any serious (or even minor) startup problems with your Windows Home Server machine. However, just in case you do, there are a few startup tips and techniques you should know about.

The next few sections take you through the most important of these startup tricks, and they involve two components used in the Windows Home Server startup:

- ▶ **BOOT.INI**—This is a text file that contains some Windows Home Server startup options. You can edit this file to modify the way Windows Home Server starts up.

- ▶ **Advanced Options menu**—This is a menu of startup commands that you can invoke to load Windows Home Server with different configurations.

## Editing BOOT.INI Directly

BOOT.INI is a hidden text file that resides in the root folder of your system's bootable partition. (On Windows Home Server systems, this is always drive C.) Before you work with this file, you need to tell Windows Home Server to display hidden files:

1. Log on to the server and then select Start, Windows Explorer.
2. Select Tools, Folder Options to display the Folder Options dialog box.

### TIP

You can also display the Folder Options dialog box by selecting Start, Control Panel, Folder Options.

3. Display the View tab.
4. Click to deactivate the Hide Protected Operating System files check box. Windows Home Server asks you to confirm the change.
5. Click Yes.
6. Make sure the Show Hidden Files and Folders option is activated (as it is by default in Windows Home Server).
7. Click OK.

You can now run Windows Explorer and display the C:\ folder. Double-click the BOOT.INI icon to open the file. (Alternatively, select Start, Run, type `c:\boot.ini`, and click OK.)

Windows Home Server loads the file into Notepad, and you see text similar to the following:

```
[boot loader]
timeout=30
default=multi(0)disk(0)rdisk(0)partition(1)\WINDOWS
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Windows Server 2003 For Small
➤Business Server" /noexecute=optout /fastdetect
```

There are two sections in BOOT.INI: [boot loader] and [operating systems]. The [boot loader] section always has two values:

- ▶ `timeout`—This value determines the number of seconds after which NTLDR boots the operating system that's highlighted in the menu by default.
- ▶ `default`—This value determines which item listed in the [operating systems] section is loaded by default at startup.

The [operating systems] section lists the operating systems to which the system can boot. (In Windows Home Server setups, there is always just one operating system listed.) The Windows Home Server line has a strange configuration, to say the least. The part up to the equal sign (=) is called an Advanced RISC Computer (ARC) pathname, and its purpose is to let a startup program called NT Loader know how to find the Windows Home Server kernel.

Let's run through the various parts so you understand what you're seeing:

## NOTE

%SystemRoot% refers to the folder into which Windows Home Server was installed, which is C:\Windows.

<code>multi(<i>n</i>)</code>	This is a reference to the drive controller that's used to access the Windows Home Server installation. The value <i>n</i> is 0 for the first controller, 1 for the second, and so on. On systems that use a SCSI controller, you might see <code>scsi(<i>n</i>)</code> instead of <code>multi(<i>n</i>)</code> . (The exception is on systems that have the SCSI BIOS disabled.)
<code>disk(<i>n</i>)</code>	This is a reference to the SCSI ID of the device on which Windows Home Server is installed. For <code>multi</code> devices, the value of <i>n</i> is always 0.
<code>rdisk(<i>n</i>)</code>	This is a reference to the hard disk on which Windows Home Server is installed. This disk is attached to the controller specified by <code>multi(<i>n</i>)</code> . The value of <i>n</i> is 0 for the first hard disk, 1 for the second hard disk, and so on.
<code>partition(<i>n</i>)</code>	This is a reference to the partition on which Windows Home Server is installed. This partition is part of the disk specified by <code>rdisk(<i>n</i>)</code> .
WINDOWS	This is the name of the folder into which Windows Home Server was installed.

You also see a couple of switches—`/noexecute` and `/fastdetect`—that set a couple of startup parameters. The ARC pathname syntax supports more than 30 different switches that enable you to control various aspects of the Windows Home Server startup. Here's a summary of the switches that are most useful:

- /basevideo** Boots Windows Home Server using the standard VGA mode: 640×480 with 256 colors. This is useful for troubleshooting video display driver problems. Use this switch if Windows Home Server fails to start using any of the safe mode options, if you recently installed a new video card device driver and the screen is garbled or the driver is balking at a resolution or color depth setting that's too high, or if you can't load the Windows Home Server GUI. After Windows Home Server has loaded, you can reinstall or roll back the driver, or you can adjust the display settings to values that the driver can handle.
- /bootlog** Boots Windows Home Server and logs the boot process to a text file named NTBTLOG.TXT that resides in the %SystemRoot% folder. Move to the end of the file, and you might see a message telling you which device driver failed. You probably need to rein-stall or roll back the driver. Use this switch if the Windows Home Server startup hangs, if you need a detailed record of the startup process, or if you suspect (after using one of the other Startup menu options) that a driver is causing Windows Home Server startup to fail.
- /debug** Enables remote debugging of the Windows Home Server kernel. This sends debugging information to a remote computer via one of your computer's serial ports. If you use this switch, you can specify the serial port by also using the `\debugport=port` switch, where *port* is one of com1, com2, com3, com4, or 1394. If you use a COM port, you can specify the transmission speed of the debugging information by also using the `\baudrate= speed` switch, where *speed* is one of the following: 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200. If you use an IEEE 1394 (FireWire) connection, you can also add the `/channel=number` switch, where *number* is a channel value between 1 and 62.
- /fastdetect** Tells Windows Home Server not to enumerate the system's serial and parallel ports during startup. These ports aren't needed during the boot process, so this reduces the system startup time.
- /maxmem=MB** Specifies the maximum amount of memory, in megabytes, that Windows Home Server can use. Use this value when you suspect a faulty memory chip might be causing problems.
- /noexecute=level** Sets the *Data Execution Prevention (DEP)* policy level. DEP prevents malicious code from executing in protected memory locations. There are four levels, as follows:
- OptIn**—Windows system programs are protected by DEP, as well as any applications that have been programmed to take advantage of (opt into) DEP protection.
  - OptOut**—Provides DEP protection for the entire system, except for programs that have been specified not to use (opt out of) DEP.
  - AlwaysOn**—Provides DEP protection for the entire system.
  - AlwaysOff**—Provides no DEP protection for the system.

**NOTE**

If you think that DEP isn't something to worry about, I have a tale of woe (and embarrassment) to relate. Remember that nasty screen capture program that crashed my Windows Home Server machine? After installing it, Windows Home Server displayed a message telling me that the program was a potential DEP hazard and that it had disabled the program. It also gave me an option to opt the program out of DEP protection and, somewhat densely, I did just that. The major crash that followed taught me a valuable lesson on just how important it is to respect an OS when it tells you that a program is a potential DEP problem.

---

<code>/noguiboot</code>	Tells Windows Home Server not to load the VGA display driver that is normally used to display the progress bar during startup. Use this switch if Windows Home Server hangs while switching video modes for the progress bar, or if the display of the progress bar is garbled.
<code>/numproc=<i>n</i></code>	In a multiprocessor (or multicore) system, specifies the maximum number of processors that Windows Home Server can use. Use this switch if you suspect that using multiple processors is causing a program to hang.
<code>/pciunlock</code>	Tells Windows Home Server not to dynamically assign hardware resources for PCI devices during startup. The resources assigned by the BIOS during the POST are locked in place. Use this switch if installing a PCI device causes the system to hang during startup.
<code>/safeboot:minimal</code>	Boots Windows Home Server in <i>safe mode</i> , which uses only a minimal set of device drivers. Use this switch if Windows Home Server won't start, if a device or program is causing Windows Home Server to crash, or if you can't uninstall a program while Windows Home Server is running normally.
<code>/safeboot:minimal(alternateshell)</code>	Boots Windows Home Server in safe mode but also bypasses the (alternateshell)Windows Home Server GUI and boots to the command prompt instead. Use this switch if the programs you need to repair a problem can be run from the command prompt or if you can't load the Windows Home Server GUI.

**NOTE**

The shell loaded by the `/safeboot:minimal(alternateshell)` switch is determined by the value in the following Registry key:

```
HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\AlternateShell
```

The default value is `CMD.EXE` (the command prompt).

---

- `/safeboot:network` Boots Windows Home Server in safe mode but also includes networking drivers. Use this switch if the drivers or programs you need to repair a problem exist on a shared network resource, if you need access to email or other network-based communications for technical support, or if your computer is running a shared Windows Home Server installation.
- `/safeboot:dsrepair` This option applies only to domain controllers, so you won't use it with Windows Home Server. It boots the OS in safe mode and restores a backup of the Active Directory service.
- `/sos` Displays the path and location of each device driver (using the ARC path-name syntax) as it is loaded, as well as the operating system version and build number and the number of processors.

## Using the System Configuration Editor to Modify BOOT.INI

Rather than edit the `BOOT.INI` file directly, you can modify the file indirectly by using the System Configuration Editor. To start this program, log on to the server, select Start, Run, type `mconfig` in the Run dialog box, and then click OK. When the System Configuration Window appears, select the `BOOT.INI` tab, shown in Figure 4.12.

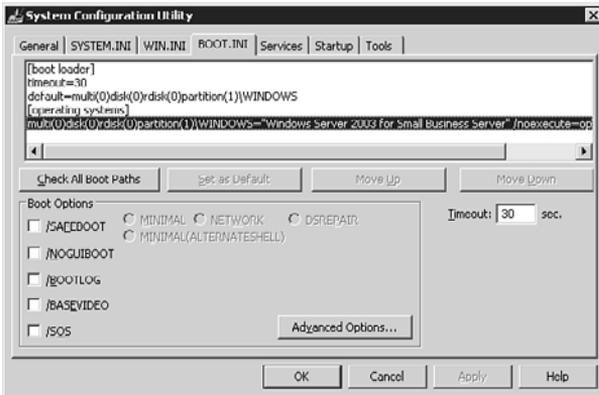


FIGURE 4.12 In the System Configuration Utility, use the `BOOT.INI` tab to modify the `BOOT.INI` startup file.

The large box near the top of the tab displays the current `BOOT.INI` text. You can't edit this text directly, however. All you can do is use the check boxes in the Boot Options. You can add other switches (such as `/maxmem` and `/debug`) by clicking the Advanced Options button, which takes you to the `BOOT.INI` Advanced Options dialog box shown in Figure 4.13.



FIGURE 4.13 In the BOOT.INI tab, click Advanced Options to display the dialog box shown here.

## TIP

If you modify `BOOT.INI` using the System Configuration Utility, Windows Home Server maintains a copy of the original `BOOT.INI`. If you want to revert to that copy, display the General tab in the System Configuration Utility and activate the Use Original `BOOT.INI` option. If you need to use the edited version of `BOOT.INI` again, activate the Use Modified `BOOT.INI` option instead.

## Configuring Startup with the Advanced Options Menu

After you start your computer, wait until the Power On Self Test (POST) is complete (this is usually signaled by a beep), and then press F8 to display the Advanced Options menu. (If your computer is set up to “fast boot,” it might not be obvious when the POST ends. In that case, just turn on your computer and press F8 repeatedly until you see the Advanced Options menu.) Here’s the menu you see:

Windows Advanced Options Menu

Please select an option:

Safe Mode

Safe Mode with Networking

Safe Mode with Command Prompt

Enable Boot Logging

Enable VGA Mode

Last Known Good Configuration (your most recent settings that worked)

Directory Services Restore Mode (Windows domain controllers only)

Debugging Mode

Disable automatic restart on system failure

Start Windows Normally

Reboot

Use the up and down arrow keys to move the highlight to your choice.

The Start Windows Normally option loads Windows Home Server in the usual fashion. You can use the other options to control the rest of the startup procedure:

- ▶ **SEE** To learn how to use the Advanced Options menu to troubleshoot startup woes, **see** “Troubleshooting Startup,” **P. 513**.
- ▶ **Safe Mode**—If you’re having trouble with Windows Home Server—for example, if a corrupt or incorrect video driver is mangling your display, or if Windows Home Server won’t start—you can use the Safe Mode option to run a stripped-down version of Windows Home Server that includes only the minimal set of device drivers that Home Server requires to load. You could reinstall or roll back the offending device driver and then load Home Server normally. When Windows Home Server finally loads, the desktop reminds you that you’re in Safe mode by displaying Safe Mode in each corner. Choosing the Safe Mode option is the same as using the following `BOOT.INI` switches:

```
/safeboot:minimal /bootlog /noguiboot /sos
```

## NOTE

If you’re curious to know which drivers are loaded during a Safe mode boot, see the subkeys in the following Registry key:

```
HKLM\SYSTEM\CurrentControlSet\Control\SafeBoot\Minimal\
```

- ▶ **Safe Mode with Networking**—This option is identical to plain Safe mode, except that Windows Home Server’s networking drivers are also loaded at startup. This enables you to log on to your network, which is handy if you need to access the network to load a device driver, run a troubleshooting utility, or send a tech support request. Choosing this option is the same as using the following `BOOT.INI` switches:

```
/safeboot:network /bootlog /noguiboot /sos
```

- ▶ **Safe Mode with Command Prompt**—This option is the same as plain Safe mode, except that it doesn’t load the Windows Home Server GUI. Instead, it runs `CMD.EXE` to load a command prompt session. Choosing this option is the same as using the following `BOOT.INI` switches:

```
/safeboot:minimal(alternateshell) /bootlog /noguiboot /sos
```

- ▶ **Enable Boot Logging**—This option is the same as the Boot Normally option, except that Windows Home Server logs the boot process in a text file named NTBTLOG.TXT that resides in the system root. Choosing this option is the same as using the following BOOT.INI switch:

```
/bootlog
```

- ▶ **Enable VGA Mode**—This option loads Windows Home Server with the video display set to 640×480 and 256 colors. Choosing this option is the same as using the following BOOT.INI switch:

```
/basevideo
```

- ▶ **Last Known Good Configuration**—This option boots Windows Home Server using the last hardware configuration that produced a successful boot. This is the option I used to get my Windows Home Server machine back on its feet after it was cut off at the knees by the screen capture program.
- ▶ **Directory Services Restore Mode**—This option is the same as using the following BOOT.INI switch:

```
/safeboot:dsrepair
```

- ▶ **Debugging Mode**—This option is the same as using the following BOOT.INI switch:

```
/debug
```

- ▶ **Disable Automatic Restart on System Failure**—This option prevents Windows Home Server from restarting automatically when the system crashes. Choose this option if you want to prevent your system from restarting so that you can troubleshoot the problem.
- ▶ **Boot Normally**—This options loads Windows Home Server normally.
- ▶ **Reboot**—This option reboots the computer.

## TIP

For those advanced options that have equivalent BOOT.INI switches, you can use those switches to place individual advanced options choices on the OS Choices menu. You do this by adding an item to BOOT.INI's [operating systems] section that starts Windows Home Server with the appropriate switches. For example, to add an option to the OS Choices menu to start Windows Home Server in Safe mode, you'd add the following to BOOT.INI's [operating systems] section:

```
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Safe Mode" /safeboot:minimal  
/bootlog /noguiboot /sos
```

## Launching Applications and Scripts at Startup

Two key features of Windows Home Server are that it's always on and that it's always available to computers and devices on the network. Many people take advantage of these features to run programs and scripts on the server. For example, one common Windows Home Server application is a home automation system. Another is a program that sends random images to a digital photo frame.

Because you want these and similar programs to be always running, you can save yourself the hassle of launching these programs manually by getting Windows Home Server to do it for you automatically at startup. Similarly, you can also get Windows Home Server to automatically launch scripts or batch files at startup. As the next few sections show, you can set up a program or script for automatic startup launch using the Startup folder, the Registry, the Group Policy snap-in, and the Scheduled Tasks folder.

### Launching Items Using the Startup Folder

The Startup folder is a regular file folder, but it has a special place in Windows Home Server. You can get a program or script to run automatically at startup by adding a shortcut for that item to the Startup folder. (Adding shortcuts to the Startup folder is part of the Start menu customizations that I discuss in more detail in Chapter 16, "Customizing the Windows Home Server Interface.")

Note that the Startup folder appears twice in the Windows Home Server interface:

- ▶ **SEE** To learn how to modify the Windows Home Server Start menu, **see** "Making the Start Menu More Efficient," **P. 460**.
- ▶ Via the Start menu. (Click Start, All Programs, Startup.)
- ▶ Via Windows Explorer as a subfolder in %SystemDrive%\Documents and Settings. Actually, there are three different subfolders you can work with, as follows:
  - ▶ \user\Start Menu\Programs\Startup—Here, *user* is the name of a user defined on the system, which in Windows Home Server will almost always be Administrator. A shortcut placed in this folder runs automatically when this user logs on to the system.
  - ▶ \All Users\Start Menu\Programs\Startup—A shortcut placed in this folder runs automatically when any user logs on to the system.
  - ▶ \Default User\Start Menu\Programs\Startup—A shortcut placed in this folder (which is normally hidden) is automatically copied to a user's Startup folder when you create a new user account.

Note that only users who have Administrator-level rights can access all three of these subfolders. Users with lesser privileges can work only with their own Startup folder. They can see the All Users version of the Startup folder, but Windows Home Server prevents them from adding files to it.

**TIP**

You can prevent the Startup items from running by holding down the Shift key while Windows Home Server loads. (Hold down Shift after logging on.)

---

**Launching Items Using the Registry**

The Startup folder method has two drawbacks: Users can easily delete shortcuts from their own Startup folders, and users can bypass Startup items by holding down the Shift key while Windows Home Server loads. These aren't likely to be major problems on Windows Home Server because you'll probably only ever log on with the Administrator account. However, should the need arise, you can work around both problems by using the Registry Editor to define your startup items.

Assuming that you're logged in as the user you want to work with, the Registry offers two keys:

- ▶ `HKCU\Software\Microsoft\Windows\CurrentVersion\Run`—The values in this key run automatically each time the user logs on.
- ▶ `HKCU\Software\Microsoft\Windows\CurrentVersion\RunOnce`—The values in this key run only the next time the user logs on; then they are deleted from the key. (This key might not be present in your Registry. In that case, you need to add this key yourself.)

If you want an item to run at startup no matter who logs on, use the following keys:

- ▶ `HKLM\Software\Microsoft\Windows\CurrentVersion\Run`—The values in this key run automatically each time any user logs on.
- ▶ `HKLM\Software\Microsoft\Windows\CurrentVersion\RunOnce`—The values in this key run only the next time any user logs on; then they are deleted from the key. Don't confuse this key with the `RunOnceEx` key. `RunOnceEx` is an extended version of `RunOnce` that developers use to create more robust startup items that include features such as error handling and improved performance.

To create a startup item, add a string value to the appropriate key, give it whatever name you like, and then set its value to the full pathname of the executable file or script file that you want to launch at startup.

**CAUTION**

Placing the same startup item in both the HKCU and the HKLM hives results in that item being started twice: once during the initial boot and again at logon.

---

**TIP**

If the program is in the `%SystemRoot%` folder, you can get away with entering only the name of the executable file. Also, if the program you want to run at startup is capable of running in the background, you can load it in this mode by appending `/background` after the pathname.

---

### Launching Items Using Group Policies

If you prefer not to edit the Registry directly, or if you want to place a GUI between you and the Registry, Windows Home Server's Group Policy snap-in can help. Note, however, that Group Policy doesn't work directly with the Run keys in the HKLM and HKCU hives. Instead, these are considered to be *legacy keys*, meaning they're mostly used by older programs. The new keys (new as of Windows 2000, that is) are the following:

```
HKLM\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer\Run
HKCU\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer\Run
```

These keys do not appear in Windows Home Server by default. You see them only after you specify startup programs in the Group Policy editor, as discussed in the next section. Alternatively, you can add these keys yourself using the Registry Editor.

#### NOTE

The startup items run in the following order:

```
HKLM\Software\Microsoft\Windows\CurrentVersion\RunOnce
HKLM\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer\Run
HKLM\Software\Microsoft\Windows\CurrentVersion\Run
HKCU\Software\Microsoft\Windows\CurrentVersion\Run
HKCU\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer\Run
HKCU\Software\Microsoft\Windows\CurrentVersion\RunOnce
Startup folder (all users)
Startup folder (current user).
```

### Adding Programs to the Run Keys

As mentioned, you can either add values to these keys via the Registry Editor, or you can use the Group Policy snap-in. To open the Group Policy window in Windows Home Server, select Start, Run, type **gpedit.msc**, and then click OK. In the Group Policy window, you have two choices:

- ▶ To work with startup programs for all users, select Computer Configuration, Administrative Templates, System, Logon. The items here affect the Registry keys in the HKLM (all users) Registry hive.
- ▶ To work with startup programs for the current user, select User Configuration, Administrative Templates, System, Logon. The items here affect the Registry keys in the HKCU (current user) hive.

Either way, you see at least the following three items:

- ▶ **Run These Programs at User Logon**—Use this item to add or remove startup programs using the \Policies\Explorer\Run keys in the Registry. To add a program,

double-click the item, select the Enabled option, and then click Show. In the Show Contents dialog box, click Add, enter the full pathname of the program or script you want to run at startup, and then click OK.

- ▶ **Do Not Process the Run Once List**—Use this item to toggle whether Windows Home Server processes the RunOnce Registry keys (which I discussed in the previous section). Double-click this item and then activate the Enabled option to put this policy into effect; that is, programs listed in the RunOnce key are not launched at startup.
- ▶ **Do Not Process the Legacy Run List**—Use this item to toggle whether Windows Home Server processes the legacy Run keys. Double-click this item and then activate the Enabled option to put this policy into effect; that is, programs listed in the legacy Run key are not launched at startup.

### Specifying Startup and Logon Scripts

You also can use the Group Policy snap-in to specify script files to run at startup. You can specify script files at two places, as follows:

- ▶ **Computer Configuration, Windows Settings, Scripts (Startup/Shutdown)**—Use the Startup item to specify one or more script files to run each time the computer starts (and before the user logs on). Note that if you specify two or more scripts, Windows Home Server runs them synchronously. That is, Windows Home Server runs the first script, waits for it to finish, runs the second script, waits for it to finish, and so on.
- ▶ **User Configuration, Windows Settings, Scripts (Logon/Logoff)**—Use the Logon item to specify one or more script files to run each time any user logs on. Logon scripts are run asynchronously.

Finally, note that Windows Home Server has policies dictating how these scripts run. For example, you can see the startup script policies by selecting Computer Configuration, Administrative Templates, System, Scripts. Three items affect startup scripts:

- ▶ **Run Logon Scripts Synchronously**—If you enable this item, Windows Home Server runs the logon scripts one at a time.
- ▶ **Run Startup Scripts Asynchronously**—If you enable this item, Windows Home Server runs the startup scripts at the same time.
- ▶ **Run Startup Scripts Visible**—If you enable this item, Windows Home Server makes the startup script commands visible to the user in a command window.

For logon scripts, a similar set of policies appears in the User Configuration, Administrative Templates, System, Scripts section.

**CAUTION**

Logon scripts are supposed to execute before the Windows Home Server interface is displayed to the user. However, Windows Home Server's new Fast Logon Optimization can interfere with that by displaying the interface before all the scripts are done. The Fast Logon Optimization feature runs both the computer logon scripts and the user logon scripts asynchronously, which greatly speeds up the logon time since no script has to wait for another to finish.

To prevent this, select Computer Configuration, Administrative Templates, System, Logon and enable the Always Wait for the Network at Computer Startup and Logon setting.

---

**Using the Scheduled Tasks Folder**

Yet another way to set up a program or script to run at startup is to use the Scheduled Tasks folder. (Select Start, All Programs, Accessories, System Tools, Scheduled Tasks, or use Windows Explorer to display the %SystemRoot%\Tasks folder.) When you create a new task, two of the startup options you'll see are the following:

- ▶ **When My Computer Starts**—Choose this option to run the program when your computer boots, no matter which user logs in. Note that only someone logged in under the Administrator account can use this option. The tasks run otherwise, but they don't display.
- ▶ **When I Log On**—Choose this option to run the program only when you log on to Windows Home Server. This is the option to use for accounts other than Administrator.

**From Here**

- ▶ To learn how to set up an automatic logon, see "Automating Client Logons," P. 47.
- ▶ For details on running the Connector software, see "Installing Windows Home Server Connector on the Client Computers," P. 63.
- ▶ For tweaks that customize Windows Home Server's look and feel, see Chapter 16, "Customizing the Windows Home Server Interface."
- ▶ To learn how to use the Advanced Options menu to troubleshoot startup woes, see "Troubleshooting Startup," P. 513.
- ▶ For details on the Registry and using the Registry Editor, see Chapter 18, "Working with the Windows Home Server Registry."
- ▶ For more information on the Services snap-in, see "Controlling Services with the Services Snap-In," P. 636.
- ▶ To learn more about WMI scripting, see "Programming the Windows Management Instrumentation Service," P. 688.

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