Chapter 1

Windows XP and Home Networking

IN THIS CHAPTER

◆ Understanding the history of Windows XP and why it is better than previous versions of Windows
◆ Learning the features common to all Windows XP Editions
◆ Examining the difference between Windows XP Home, Professional, Media Center, and Tablet PC Edition
◆ Learning about the new features in Windows XP Service Pack 2 (SP2)
◆ Discovering how to keep your system up-to-date with the latest security patches

WE’RE TAKING PART IN A REVOLUTION. If you look around you, you might not see it. You may not even realize that it’s happening. But it is. And if you’re reading this book, you’re part of it.

The revolution began with the release of Windows XP, a shot across the bow of desktop computing complacency. Thanks to this stable, reliable, powerful, and secure computing platform, the world is more connected. More important, our very lifestyles are being dramatically altered by the technologies that XP enables.

It’s not far-fetched. Simply by releasing a new Windows version, Microsoft can affect the lives of hundreds of millions of people. But XP isn’t just any Windows release. It’s built with a rock-solid technological foundation and designed to interact with a new generation of connected services and devices. It’s a Windows version with legs: Since its initial release in October 2001, XP has spawned several major derivatives, including versions specifically designed for pen-driven Tablet PCs, multimedia-oriented Media Center PCs, and the 64-bit computer platforms that are the wave of the future. Microsoft has also bolstered XP with numerous free and inexpensive upgrades, including Plus! packs, PowerToys, and other add-ons.

Previous Windows releases offered various improvements, but XP is the first to combine the technologies Microsoft first developed for businesses with those aimed at consumers. It could have been disastrous, a Frankenstein monsterlike mishmash of incompatibilities and problems. But fortunately, that’s not what happened.
This chapter takes a quick look at XP, the most recent Service Pack 2 (SP2) update, and then examines the home networking technologies that make this Windows version something special.

**Introducing Windows XP Service Pack 2 with Advanced Security Technologies**

Technologically, Windows XP is the successor to Windows 2000 and the latest version of what was once called the Windows NT product family. Internally, XP is actually NT version 5.1. Windows 2000 was NT 5.0, so you might think of XP as a minor upgrade. And architecturally speaking, XP is indeed a minor upgrade when compared to Windows 2000: It has the same basic core, with a friendly new interface and a number of additional features.

For home users, however, XP is much, much more than a minor upgrade. Previously, home users were stuck with a series of products—Windows 9x/Millennium Edition (Me)—that were based on Microsoft DOS (MS-DOS), the company’s first operating system (released in 1983). DOS and non-NT Windows versions such as Windows 95 and its successors suffered from a number of technological deficiencies. For people using these systems, the results were bizarre, with application and operating system crashes, and constant rebooting. XP does away with all that.

**A Little History**

Microsoft’s decision to continue the DOS code base for so long wasn’t an effort to hurt customers. Instead, the company realized that application and hardware compatibility were key customer demands, and these needs made it hard for Microsoft to make a big leap beyond DOS.

However, an enterprise operating system project that began in the late 1980s held some promise. After hiring David Cutler, the Digital Equipment Corporation (DEC) engineer who spearheaded the development of Digital’s VMS operating system, Microsoft began a new operating system project called NT (“new technology”) that would compete with the leading enterprise operating systems of the day. NT specifically overcame the limitations of the DOS platform and scaled beyond the limited Intel-compatible hardware platforms on which DOS and Windows relied.

Sadly, it bombed. Big time.

Early versions of NT—soon renamed Windows NT and modified to incorporate a user interface virtually identical to that of the DOS-based versions of Windows 3.x—didn’t exactly take the world by storm. But these NT versions featured integrated networking capabilities, security features, and cross-platform compatibility (they could run on non-Intel chips) that far outstripped mainstream Windows.

Early NT versions were also performance dogs that required far more processing and memory power than Windows. So Microsoft went back to the drawing board
and fine-tuned the product. Subsequent releases featured better performance and, in 1996, added the famous Windows 95 user interface that had captivated the computer-using public. By the release of this NT version—Windows NT 4.0—Microsoft finally had an unqualified hit on its hands. And the company began talking about an eventual convergence, whereby it’s two product lines—NT and Windows—would be combined into one. It was only a matter of time.

SPEED BUMP ON THE ROAD TO UNITY

Microsoft quickly discovered that combining two incompatible products is no easy task, however. The efforts began with the release of Windows 95, which incorporated the underlying NT’s 32-bit programming interfaces (Win32) into its 16-bit core and added unique new capabilities of its own. Accordingly, Windows 95 and subsequent Windows 9x products were hybrids of 16-bit DOS and 32-bit Windows technologies, and this was the reason for both their problems and successes: Thanks to their continued use of the 16-bit DOS core, Windows 9x operating systems were still backwardly compatible with previous hardware and software, but that same code also meant the inefficiencies and bugs from the suddenly ancient DOS code base perpetuated for two decades.

Interestingly, both Windows and NT had various unique benefits and deficiencies, and throughout the latter half of the 1990s, Microsoft ironed out these differences. Windows 2000 (really NT 5.0) incorporated several of the important ease-of-use features that users expected from Windows, including true plug-and-play hardware support, advanced power management for both desktop systems and portables, DirectX gaming capabilities, and the like. Meanwhile, the Windows 9x line was heading toward extinction: The last version of that product line, Windows Millennium Edition (Windows Me), attempted to increase reliability by removing some core 16-bit DOS features; Windows Me also included new home networking and digital media functionality. The stage was set for a new, combined Windows version based on NT, not DOS.

WELCOME TO WHISTLER

The new combined Windows version, like NT itself, got off to a rocky start. Originally, two groups at Microsoft were working on what would eventually be called Windows XP. The first was comprised largely of the people who had engineered Windows Me. They were working on a product code-named Neptune, which would appeal to consumers. A second group, made up of former Windows 2000 team members, was working on a business-oriented successor to Windows 2000 Professional, code-named Odyssey.

Just before the end of 1999, word came down from Microsoft’s senior executive staff that the teams would be combined, as would the projects, which were consolidated into a new project called Whistler, named after a favorite ski resort in British Columbia, near Microsoft’s campus. The new Whistler team would deliver a family of operating systems based on the NT/2000 kernel that would replace both Windows 9x/Me and NT/2000. Both consumer and business versions would be available.
The consolidation was more than an internal political ploy. By creating a single product family, Microsoft could ensure that consumers receive the exact same underlying technology as business customers. The business version could be a true superset of the home version, offering enterprise- and mobile-oriented improvements that wouldn’t make sense in a home environment.

Throughout 2000 and early 2001, this product was fine-tuned and heavily tested both inside and outside of Microsoft. There were obvious surface improvements—such as a colorful new user interface—and subtle (but arguably more important) architectural changes, including new self-healing and recoverability features, deep-rooted integration with digital media tasks such as photos, music, and movies, and thousands of application compatibility program fixes largely aimed at answering major user complaints about DOS/Windows 9x/Me application and game compatibility.

It would have been understandable if Microsoft had overpromised and underdelivered with Whistler, given the heady number of improvements the company planned for this release. But Microsoft did something fairly rare in its 25-year history: It hit a home run. In a rare bit of role reversal for the company, Microsoft’s claims about Windows XP were largely accurate. It was, indeed, easier to use, more secure, and more functional than previous versions of Windows. Alas, no technology is perfect. And though Windows XP has been an unqualified success, it quickly came under attack by hackers eager to exploit the most frequently used operating system.

THE ROAD TO LONGHORN
In the years since Windows XP was first released, two trends have emerged. First, Microsoft has done an exemplary job of updating the system with a bewildering array of free and low-cost functional updates, many of which are digital media–related. The company has also built on the solid XP base by creating new Windows versions that go beyond the original Home and Professional Editions; we’ll examine each of these versions in more detail at the end of the chapter.

Second, because Windows XP is now in use on over 250 million desktops worldwide, the operating system is a huge target for hackers, eager to exploit holes in the world’s most widely used operating system. Microsoft had originally planned to build crucial new security technologies into its next generation operating system, code-named Longhorn. But because Longhorn has been delayed repeatedly, in late 2003, the company decided to add many of those features into XP instead, through a product update called Service Pack 2 (SP2) with Advanced Security Technologies (or simply Service Pack 2, or SP2). In the following sections, we’ll examine the features available in Windows XP, SP2, and the new Windows versions that have emerged to bridge the gap between the current platform and the future that is Longhorn.

The Case for Windows XP
This book deals almost exclusively with the home networking and connectivity features in Windows XP, but there are more reasons why consumers would want to upgrade to this product.
SECURITY
Windows XP is the most secure product Microsoft has ever built. That’s because Windows XP is built on the NT code base and features many security improvements over previous NT versions like Windows 2000. On the flip side, Windows XP is also the most frequently attacked product Microsoft has ever built. For this reason, the SP2 update is a required upgrade for all XP users, and you’ll want to keep your system up-to-date with the latest security patches. We’ll examine SP2 and Microsoft’s software update tools in more detail as follows.

RELIABILITY
Windows 9x users understand the pain of constant reboots, planned or not. When an application crashes in such an operating system, it can often bring down the entire system, sometimes resulting in the infamous “blue screen of death.” XP is far more resilient than previous Windows versions, and it includes features that protect users, even from themselves: Install an errant device driver, for example, and XP lets you uninstall it (or “roll it back” in Microsoft parlance)—as shown in Figure 1-1. If you do something that causes system instability, you can restore Windows XP to a previous point in time. XP is the most reliable operating system you can buy for the home.

Figure 1-1: Device driver rollback can prevent driver problems from ruining an otherwise stable system.
COMPATIBILITY

Despite being based on NT/2000, XP actually works with most Windows 9x hardware and software, so you get the best of both worlds. If you find a recalcitrant application, you can usually fool the app into thinking it’s running on Windows 95 or 98 using the Program Compatibility Wizard. And Microsoft releases compatibility updates on a regular basis through the Windows Update Web site, improving the compatibility picture continually. This means that many legacy applications—including even some DOS games—will actually run in Windows XP. In Figure 1-2, a Windows 3.1 entertainment package is being installed on XP.

![Figure 1-2: Windows 3.1 games on NT? Impossible. But with XP, the compatibility shims often come through in a pinch.](image)

GAMES AND DIGITAL MEDIA

Are you a game player or digital media enthusiast? If so, Windows XP is the place to be. In addition to being compatible with the most popular games and multimedia software titles on the planet, XP is also the most stable and reliable system on which you can play these games and manage digital media content. So you can stay up all night, competing with players from around the globe in your favorite online game, and never worry about the system going down. And XP’s digital media features make working with digital music, photos, and even movies, a snap, giving consumers an obvious and simple way to work with these exciting features, as shown in Figure 1-3. I’m so excited about XP digital media that I wrote a book about it—PC Magazine Windows XP Digital Media Solutions (Wiley). You can find out more about this at the book’s Web site: www.xpdigitalmedia.com.
Figure 1–3: Windows XP includes built-in features for handling digital music, movies, and, shown here, digital photos.

PERFORMANCE
XP is a multi-threaded, preemptively multitasking, protected-memory, multiuser operating system that supports the latest computing technologies. OK, that sounds geeky and technical, but what it really means is that XP is a viable platform for the future. Because XP is a fully 32-bit operating system, it takes full advantage of modern microprocessors such as the Intel Pentium 4 and the AMD Athlon XP. And a new 64-bit XP version, creatively titled Windows XP for 64-bit Extended Systems, runs on AMD and Intel 64-bit platforms, which will be the computing platform of choice by late 2005. In Figure 1–4, you can see the Task Manager, which presents a technical view of the various processes in the system. Unlike Windows 9x, a crashed application cannot bring down the system. Also unlike Windows 9x, when you tell Task Manager to kill an errant application, it actually shuts down that application. Ah, progress.

LOOKING GOOD
XP includes cool end-user features such as a colorful new user interface (shown in Figure 1–5) that takes advantage of the latest video hardware, a Windows Media Player that features a skinnable interface and vibrant visualizations, and other fun features that may just make you smile the first time you run into them. You can configure your user account with your own photo, for example, and view slide shows of your photos. You can make your own movies and burn audio CDs for use in your car or home stereo. The list goes on and on, but the result is that XP is less about technology than it is about making a statement: Computers can be—and should be—fun.
Figure 1–4: The XP Task Manager enables you to manage processes, system and networking performance, and even users.

Figure 1–5: Windows XP features a modern, colorful user interface that takes full advantage of current 3-D video hardware.
EXTENSIBILITY
Windows XP is the platform of the future, and as such it will be upgraded over time. Even when XP first shipped in October 2001, for example, Microsoft also released a slew of free, Internet-based updates, giving users new versions of Windows Movie Maker and Windows Messenger, new compatibility updates, new device drivers, and other updates. And since that time, the company has shipped an amazing collection of free add-ons and updates, and even new XP versions designed for specific tasks. Unlike other operating systems, XP isn’t stuck in sand the moment it ships on CD, and Microsoft isn’t forcing you to pay $129 a year for new OS upgrades. Instead, XP is a dynamic, constantly evolving product. Some updates are automatic, while others can be downloaded from Windows Update, as shown in Figure 1-6, or from Microsoft’s Web site.

Figure 1–6: XP’s capability to be dynamically updated may be its best feature.

CONNECTIVITY
XP isn’t stuck on an island on its own, unaware of the outside world. Instead, it is the center, or hub, if you will, of your connected world. With XP, you can easily get online, connect with other PCs in a home network (see Figure 1-7), work with a myriad of portable devices, connect to non-PC home-based devices, and interact with others across the globe. XP’s connected features are exciting, and they’re the reason I’ve written this book. Check out the next section for a closer look at the XP features that enable you to reach out and touch someone.
Figure 1–7: XP’s home networking capabilities make it easy to connect with other PCs and share files, printers, and Internet connections.

Windows XP Connectivity Features

Like you, perhaps, I’ve always been enthusiastic about computers. I can recall spending hours and hours with PCs over the years, staying up late at night doing who-knows-what. What I can’t remember is how I passed this time in the years before the Internet. My overall computer usage probably hasn’t increased dramatically since the rise of the Internet, but in the intervening years, I can at least point to the Web and e-mail and understand that these features are both time-consuming and beneficial. I can’t imagine life without them.

XP takes advantage of connections, whether internal networking—wireless, wired, whatever—or external, through broadband (cable, DSL, satellite) or modem. It enables you to communicate with others through e-mail, text chats, audio- and video-conferencing, and other means. You can request help with your PC and enable a friend or family member to access your XP machine remotely. You can collaborate interactively, in real time, with others, and publish and back up files to the Web. And you can work with an emerging generation of connected devices, including Pocket PCs and other PDAs, set-top boxes and home gateways, portable digital media players and audio CD players, and more.

If this sounds exciting, you’re in the right place.
Easy and Secure Home Networking

In the past, users upgrading to new PCs replaced their existing machines with the new ones. Today, that’s no longer true, largely because PCs become obsolete much more slowly than they used to. So people are augmenting their current rigs with a new PC and pawning off the existing PC on another family member. When you have two or more PCs in a home, it’s possible to connect, or network, them together to share resources. For example, you probably already have a printer on one machine. Wouldn’t it be nice to use that printer from the second PC? With home networking, there’s no need for the “floppy shuffle” or installing application software on a second PC to make this happen.

Of course, you can network PCs many different ways, and XP takes advantage of them all. Traditional wired Ethernet networking involves running 10, 100, or 1000 Mbps (megabytes per second) cabling between PCs, which can be expensive and unsightly (especially if the PCs are in different rooms). But there are alternatives, including power-line networking, phone-line networking, and of course wireless networking; wireless networking is emerging as the number one home networking solution as prices drop and performance and security improve.

Historically, home networking has been painful for most users, because it involves complex and technical concepts and products. With XP, home networking has never been easier, thanks to clever wizards that can auto-detect network settings and friendlier UI pieces that remove the guesswork. It’s not perfect, but XP, out of the box, offers the simplest networking features of any operating system.

Networking is of little use if the technology allows hackers free reign over your personal data files, but XP includes all the great security features from previous NT/2000 versions, including per-user authentication, while adding new features such as a software firewall. You can create special limited user accounts for your children and ensure that they can never accidentally delete your files. And you can prevent hackers from even seeing that your PC is connected to the Internet (what they don’t know can’t hurt you).

Complete Internet Integration

The Internet isn’t just a buzzword anymore; it’s a crucial information infrastructure for consumers, students, and businesses. Although Microsoft’s decision to bundle Internet functionality into Windows was controversial just a few years ago, it’s inconceivable that any company would build an operating system today that didn’t include such functionality (and people say Microsoft doesn’t innovate). Even most desktop applications today have Internet connectivity features, and the software industry is moving to a Web services–based software subscription model that will one day supplant the shrink-wrapped software we’re all used to. And, yes, XP is ready for that change, too.

XP’s Internet integration features are more pervasive than those of any other operating system. In addition to the obvious Internet-oriented applications such as Internet Explorer, Outlook Express, and Windows Messenger, Microsoft has
implemented Internet functionality into just about every facet of XP. Here are a few examples:

- Applications such as Windows Media Player, Windows Movie Maker, and even the photo wizards integrate with the Internet, providing optional, powerful new functionality.

- The operating system can update itself with critical security patches automatically, over the Internet, ensuring that you're always up-to-date and safe. My own systems are configured to update themselves every night at 3:00 A.M., automatically. It's something I never need to think, let alone worry, about.

In short, if Internet connectivity is your forte, XP is the place to be.

**Communicating, Collaborating, and Publishing**

After you’ve established a connection with the outside world, the possibilities are endless. You can communicate with others via e-mail, Usenet newsgroups, and text, audio, and video chat. You can collaborate interactively, in real time, with friends, family, and coworkers across the Internet on documents. And you can connect to remote servers, accessing them as if they were shared resources on the local network.

These capabilities mean that you’re not alone. You can find other people who share your interests, regardless of their physical location; they could be across the street, in the next town, or in a small hamlet in South Africa, Australia, or wherever. PCs used to be solitary devices, attractive only to geeky loners, but this is most definitely no longer the case. In fact, PCs are now responsible for bringing people together in ways that were almost unfathomable just a few short years ago.

Interested in self-publishing? XP makes it easy to set up and connect to your own Web site too. So you can get the word out, using simple operating system–based tools, if that's what you’re into.

**Optimized for the Home**

Previously, Microsoft’s enterprise-savvy operating systems, such as Windows NT and Windows 2000, were inappropriate for the home, though certain technical users dealt with their compatibility limitations to take advantage of their better security, reliability, and networking features. With XP, the compromises are over, and you no longer have to choose between the lesser of two evils.

Windows XP is available in four mainstream editions today:

- **Home Edition:** This edition is obviously aimed at consumers and is the version that ships with most new XP-based PCs.

- **Professional Edition:** A true superset of Home Edition, Professional Edition offers mostly business-oriented improvements over its little brother, though
one feature, Remote Desktop (see Chapter 17), will likely be of interest to many people reading this book.

◆ **Media Center Edition**: This is a superset of Professional Edition that includes a bundled Media Center application that works with a remote control as well as the standard mouse and keyboard interfaces. Media Center Edition includes TV viewing and recording functionality called *digital video recording (DVR)*, and elegant digital media experiences for viewing photos, listening to music, accessing online content, and performing other similar tasks. For the purposes of this book, Media Center, shown in Figure 1-8, is functionally identical to Professional Edition.

![Figure 1-8: Since its initial release, XP has been converted to work in a variety of new environments. Here, you can see the multimedia-oriented XP Media Center Edition, which works with a remote control and offers TV recording features.](image)

◆ **Tablet PC Edition**: Another superset of Professional Edition, this one is optimized for use with a new breed of portable computers called *Tablet PCs* that offer pen-based input, pressure-sensitive touch screens, and unique form factors. For example, some Tablet PCs are shaped like slates and don’t come with an integrated keyboard. Other Tablet PCs look like standard notebook computers, but feature a swiveling screen that can be used in slate mode when desired. For the purposes of this book, Tablet PC Edition (see Figure 1-9) is functionally identical to Professional Edition.

Additionally, in late 2004, Microsoft issued a unique new version of Windows XP, painfully named Windows XP for 64-Bit Extended Systems, that runs on AMD-64 (Athlon-64 and Opteron) and Intel EM64T (Pentium 4 64-bit and Xeon 64-bit) systems. This version of XP is identical, from a features perspective, to Windows
XP Professional, but is a fully 64-bit operating system. This means that it can access dramatically larger amounts of memory (RAM) than its 32-bit XP siblings and features slightly better performance on similar hardware. This 64-bit XP version can also run all existing 32-bit Windows software, however, and with slight-to-profound performance benefits. If you’re running this version of Windows, any discussion of XP or XP Professional features in this chapter applies to the X64 version as well.

I discuss the differences between the various XP editions later in this chapter, but it’s worth noting here that any XP version is appropriate for home use. XP is, by and large, a consumer-oriented release, and all of the XP versions feature nearly identical home networking features.

Figure 1-9: Another new XP version, Windows XP Tablet PC Edition, works with special pen-enabled portable computers called Tablet PCs.
Intelligent Device Connections

One of the coolest things about XP is that it integrates so well with non-PC devices, such as portable digital media players like the iPod and various Portable Media Centers, residential gateways, digital assistants such as Pocket PC and Palm OS devices, various home stereo components, including SonicBlue Rio receivers and the like, and a whole host of hardware devices based on the Universal Plug and Play (UPnP) standard. At the time of this writing, UPnP devices are still just starting to appear in stores, but many existing devices connect with XP using standard computer ports, such as USB 1.x and 2.0 and FireWire (IEEE-1394); UPnP devices typically are connected via a home network.

Security Improvements in Windows XP Service Pack 2

The latest update for Windows XP, dubbed Windows XP Service Pack 2 (SP2) with Advanced Security Technologies (try saying that three times fast), or just SP2 for short, is a more impressive update than most Windows service packs, which are generally just a convenient, single-installation collection of bug fixes. In addition to a number of new features, such as the inclusion of Windows Media Player 9 Series, a new Bluetooth stack that makes working with certain wireless mobile devices easier, and a new wireless networking interface we’ll discuss extensively throughout this book, XP SP2 includes numerous security-related product updates that make XP more secure than ever. Because XP SP2 is essentially a brand-new version of Windows, and because it’s free to every existing Windows XP user (and a highly recommended upgrade), I’m going to assume that you’re running at least SP2 as you read through this book and, hopefully, can figure out how you’d like to construct your home network.

If you’re not sure whether you have SP2, open the Start menu and select Run. Type “winver” (no quotes) and press Enter. The resulting dialog should identify your system as “version 5.1” and include the text “Service Pack 2” in the build number. If you have an earlier version of Windows XP, such as Service Pack 1, you can download and install SP2 via Windows Update (described below), or grab it manually from the Microsoft Web site: www.microsoft.com/windowsxp/.

In a nutshell, the following new security features were added to Windows XP in Service Pack 2.
Security Center

Essentially a front end, or dashboard, to certain security-oriented features in your system, the Security Center (see Figure 1-10) enables you to monitor the status of your firewall (see what follows), antivirus application, and Automatic Updates (covered a bit later in the chapter). If any of these features is disabled or out-of-date (or, in the case of an antivirus application, not installed at all), Security Center will periodically pop up annoying balloon help dialog boxes to warn you of the problem (see Figure 1-11). Just a “heads up” here: Those annoying windows aren’t going away until you actually fix the problem, a nice bit of proactive security work on Microsoft’s part.

![Figure 1-10: The new Security Center feature in XP SP2 provides a handy front end to certain Windows security features.](image)

![Figure 1-11: Fix the problem, or XP will bug you again and again.](image)

The idea behind this and other related changes in SP2 is to get people thinking about security first, a laudable idea. You should see Security Center the first time you boot up into XP SP2, but you shouldn’t see it again unless there’s a problem...
(say, your antivirus package's virus definitions are out-of-date). If you'd like to launch it manually, it's available directly from the system Control Panel or by navigating to Start → All Programs → Accessories → System Tools.

Windows Firewall

Windows XP and XP SP1 included a software firewall called Internet Connection Firewall (ICF). Firewalls are like guards at the gate of a castle, except that they’re not human, and your computer isn’t a castle. Basically, a good firewall will prevent unwanted applications on the Internet from accessing your computer. This feature is called **inbound traffic protection**. Really good firewalls will go a step further and prevent selected applications and services on your PC from “phoning home” and contacting Internet-based servers; this feature is called **outbound traffic protection**.

In SP2, Microsoft has replaced ICF with Windows Firewall. Using the guidelines established previously here, Windows Firewall is a good firewall. That is, it can prevent most unwanted inbound network traffic from reaching your PC, and this is often enough to protect you against worms, Trojans, and other electronic attacks. However, Windows Firewall is not a **great** firewall in the sense that it cannot prevent all unwanted network traffic. That’s because Windows Firewall is one-way only: It only protects your system from the outside world.

You might be wondering how you or your system determines what constitutes “unwanted” network traffic. Consider a typical PC and the ways in which you might use it to access online information. When you launch Internet Explorer (IE), for example, and browse to an external Web site, that action creates outbound network traffic, because IE is polling a remote Web server, and asking it to send back the text codes that make up a Web page. The information it sends back is inbound traffic. In the case of IE, it’s likely that you want it to perform this action, because that’s what IE gets paid to do. So arguably, using IE doesn’t create “unwanted” network traffic (though certain fans of more secure browsers might argue otherwise).

To determine what is, and is not, unwanted network traffic, Windows Firewall, like most other firewalls, will pop up a dialog box each time it detects an unknown form of inbound network traffic, as shown in Figure 1-12. If you choose to unblock incoming traffic for an application that’s flagged by Windows Firewall, that application will be added to the firewall’s **exception list**. Everything that’s not on the exception list gets blocked.

Generally speaking, your only interaction with the firewall will be through these dialogs, which will occur fairly frequently when you first start using your SP2 system, but will become less frequent as you settle into normal usage and Windows Firewall gets to know which applications you trust.

We’ll look more at Windows Firewall, and the ways in which you can configure this application, in Chapter 6.
Figure 1-12: Windows Firewall will ask you whether you’d like to allow inbound network traffic for applications it doesn’t trust.

More Secure Version of Internet Explorer

Windows XP shipped with Internet Explorer 6, a product that hasn’t changed much since IE 4.0 was released in 1998. That’s because IE is the dominant Web browser, with over 95 percent of all Web surfers using a recent version of IE at the time of this writing. This situation gave Microsoft some breathing room, and it scaled back its expensive investment in a product it was essentially distributing for free. But with Microsoft asleep at the switch, hackers started using IE to launch devious electronic attacks on users. So SP2 includes the first major upgrade to IE in years, and now the company is working on future updates as well. It’s about time.

This being SP2, however, you might assume that the changes to IE are security-oriented, and you’d be correct. In SP2, IE has been improved in three major ways. First, it includes an integrated pop-up window blocker (see Figure 1-13) that finally annihilates that most annoying problem with surfing the Web: the rapid proliferation of silly ad-related windows that pop up in front of, and behind, your main browser window. Second, Microsoft added a way to manage browser plug-ins, which are typically mini-applications that add functionality to IE. For example, if you install Adobe Reader so you can view Acrobat PDF files, the application installs a plug-in in IE so that you can view those documents directly from within IE. However, malicious Web sites can sometimes install nefarious adware-related plug-ins into IE without your permission (that’s less likely under SP2, however); with the new version, you can disable those types of plug-ins. Finally, Microsoft added some low-level coding changes to IE that make it more secure and reliable, and less likely to be compromised by hackers.

You’ll look at IE 6 in detail in Chapter 12.
Unsafe Attachment Blocking

XP applications such as Internet Explorer (Web browsing), Outlook Express (e-mail and newsgroups; see Chapter 13), and Windows Messenger (instant messaging; see Chapter 14) all have at least one thing in common: They enable you to download content from the Internet and store it on your local hard drive. Believe it or not, that content is sometimes (often, actually) malicious. For example, that e-mail attachment that came from Aunt Susie might not actually be from Aunt Susie at all, and it might actually contain a virus. To prevent this type of thing, Microsoft added an attachment blocking feature to SP2 that helps isolate potentially dangerous attachments, such as executable files. Best of all, third-party developers can use this feature in their own applications as well. We’ll look at this feature in more detail in Chapter 13.

Under-the-Hood Changes

The addition of SP2 makes Windows XP more secure by adding a number of under-the-hood coding changes that prevent common system vulnerabilities from being exploited by hackers. There’s no point in detailing those changes here, but they make XP SP2 the safest Windows version yet. Actually, the 64-bit version of XP, Windows XP for 64-Bit Extended Systems (detailed briefly below), is technically the safest version yet, because that version utilizes a special hardware feature found
only in 64-bit chips from Intel and AMD that is more reliable than the software-
only–based approach used in 32-bit versions of XP SP2.

There’s a lot more to Windows XP Service Pack 2. If you’re interested in the gory
details, please visit my SuperSite for Windows (www.winsupersite.com), where
I’ve collected a number of articles about this milestone Windows release.

A Closer Look at the Different
Windows XP Editions

When Windows XP first shipped in 2001, there were two versions, or editions: Windows XP Home Edition and Windows XP Professional Edition. Today, there are
five versions, each of which can be upgraded with the crucial Service Pack 2 (SP2)
update.

As you might expect, Windows XP Home Edition is designed as a consumer-
oriented upgrade to Windows 9x/Me (indeed, Windows NT/2000 users cannot even
upgrade to Home Edition). As such, it includes an easier to use security system
when compared to XP Professional Edition, and fewer types of user accounts.
That’s because the Home Edition is aimed at home computer users, and not corpo-
rate desktops. However, the Professional Edition includes several features, some of
which make it a compelling upgrade for power-users and home networking
mavens. The next section describes the differences between XP Home Edition and
Professional.

WINDOWS XP PROFESSIONAL EDITION

Some important XP Professional–only features include the following:

◆ **Remote desktop**: XP Professional provides a one-user version of the
Terminal Services feature that debuted in Windows NT 4.0 Terminal
Server Edition. We look at Remote Desktop in Chapter 17.

◆ **Multiple processor support**: XP Pro supports up to two processors, whereas
XP Home supports only one. However, XP Home does support a feature in
newer Intel microprocessors called HyperThreading, which enables one
processor to act, and often perform, like two different processors.

◆ **Automated System Recovery (ASR)**: In XP Pro, the Backup utility has
been enhanced with a system state recovery tool called ASR. In XP
Home, ASR is missing, and you have to install Backup manually from
the Setup CD.

◆ **Web server**: XP Pro ships with Internet Information Services (IIS) 5.1,
Microsoft’s Web server software; XP Home does not. And you can’t install
Security features: XP Pro supports encryption in the file system and file-level access control, interesting if little-used security features, at least for home users.

Enterprise features: XP Pro machines can join an Active Directory (AD) domain and support other Microsoft enterprise-oriented features such as Group Policies, IntelliMirror, and Roaming Profiles. XP Pro can also be deployed more quickly using automated installations through SysPrep and the Remote Installation Services (RIS).

Advanced networking features: XP Home does not support certain esoteric networking features that are available in XP Professional, including IPSec, SNMP, Client Services for NetWare, and client-side caching.

For more information about the differences between XP Home Edition and Professional Edition, please visit my SuperSite for Windows: www.winsupersite.com. Note that it’s easy to upgrade from Home Edition to Pro: If you purchase the Upgrade version of XP Pro, you can upgrade an existing Home Edition installation without having to reinstall your applications.

Though Home Edition is fine for most people, some might want to use Pro instead. How do you choose between Home and Pro?

- Consider the price. Professional Edition is usually about twice as expensive as Home Edition, and the Upgrade version will set you back at least $100.

- Look over the list of Pro-only features and determine whether you can live without all of them. If not, go with Pro.

Most topics in this book apply to both Home and Professional Editions. When topics relate only to Professional Edition (such as Remote Desktop), they are indicated as such. Note too that all Professional features are applicable to XP Tablet PC Edition and XP Media Center Edition, discussed previously, and XP for 64-Bit Extended Systems.

WINDOWS XP TABLET PC EDITION
Windows XP Tablet PC Edition was first released in late 2002, and is designed to run on special notebook computers, called Tablet PCs. The latest version, XP Tablet PC Edition 2005, shipped in late summer 2004 and adds a number of important new
features. If you’re running a Tablet PC system and upgrade to XP SP2, you will automatically be updated to XP Tablet PC Edition 2005 as well.

For the purposes of this book, XP Tablet PC Edition is functionally equivalent to XP Pro. However, XP Tablet PC Edition does include a number of unique features related to Tablet PC devices. Please check out my SuperSite for Windows Web site (www.winsupersite.com) for more information about XP Tablet PC Edition and Tablet PCs in general.

WINDOWS XP MEDIA CENTER EDITION

Windows XP Media Center Edition was first released in late 2002, and is designed to run on special desktop computers, called Media Center PCs. In late 2003, Microsoft shipped a major update to this Windows version, called XP Media Center Edition 2004; if you’re running the initial version of the Media Center system and upgrade to XP SP2, you will be automatically updated to XP Media Center Edition 2004 as well. By the time you read this book, Microsoft will have shipped a second major update to XP Media Center, dubbed XP Media Center Edition 2005; this version includes SP2.

For the purposes of this book, XP Media Center Edition is functionally equivalent to XP Pro. However, XP Media Center Edition does include a number of unique features related to Media Center PCs. Please check out my SuperSite for Windows Web site (www.winsupersite.com) for more information about XP Media Center Edition and Media Center PCs in general.

Both Windows XP Tablet PC Edition and Windows XP Media Center Edition are only available with special new PCs (Tablet PCs and Media Center PCs, respectively). That means you can’t plunk down $129 in a retail store and buy either of these products. The rationale is simple: Both of these Windows versions take advantage of features that are unique to those hardware platforms, so it wouldn’t make sense to purchase them separately.

Security Alert: Keeping Windows Up-to-Date

In January 2002, Microsoft announced a sweeping new security initiative called Trustworthy Computing, signaling a change in the way the company develops software. Previously, Microsoft had been driven by ease of use and features, offering consumers the most bang for their buck. But this emphasis caused a vast number of security lapses in various Microsoft products, and with complaints rising, the company finally did something about it.

As the most popular operating system in the world for both desktop and server systems, Windows is under constant attack from the outside world, and vulnerabilities
are discovered almost weekly and then taken advantage of by enterprising hackers eager to embarrass the company.

Therefore, as part of its Trustworthy Computing initiative, Microsoft’s 9,000 software developers took at least a month off in early 2002—some as long as three months—in order to be trained in the latest security development techniques. Then they tackled the company’s core products, such as Windows and Office, and examined the code line by line, looking for vulnerabilities and bad coding practices.

The first major update to Windows XP, Windows XP Service Pack 1 (SP1), included all the fixes that came about as a result of the security code review. This update shipped in September 2002. A follow-up, logically dubbed Service Pack 2 (SP2), was originally due in fall 2003. But then all hell broke loose.

That summer, a number of high-profile electronic attacks, including the infamous MyDoom worm, infected Windows systems around the world. Microsoft executives, seeing the writing on the wall, decided it was time to act, and they moved to rework SP2 into a more complete security-oriented update, which would include a number of security features originally scheduled for inclusion in Longhorn, the next major Windows version, due sometime after man invents time travel.

Will SP2 be enough? Of course not. Though SP2 is an excellent improvement over the base security features included in the original XP version, hackers are resilient and ever more capable, so in the years ahead, we can expect all kinds of new types of attacks. For this reason, it’s important to keep your system up-to-date and as secure as possible.

Automatically Updating Windows XP

The first time you boot into XP, or the first time you boot into XP after upgrading to SP2, the system will advertise a feature called Automatic Updates. What this feature does is poll the Microsoft Windows Update Web site (see the next section) regularly in the background, looking for critical updates, such as security fixes and certain hardware driver updates that fix flaws that could compromise the reliability of your system.

I can’t stress this enough: Do not turn this feature off. Auto Update is your front line of defense against hackers and crackers, and best of all, it’s fully automatic. Auto Update works in the background and pauses itself automatically if it detects that you need the download bandwidth. It’s unlikely that you’ll ever notice it’s even running. And you can even configure it to optionally install critical updates at any time of the day and reboot your system if necessary.

If you declined the original offer to use this feature, you can enable or reconfigure it later. Here’s how:

1. Open the Start menu, right-click My Computer, and choose Properties. The System Properties window appears.

2. Select the Automatic Updates tab. Your window will resemble the one shown in Figure 1-14.
3. Select the setting you prefer. I recommend selecting the first option, Automatic (recommended), letting the system automatically download and install any important updates.

4. Click OK to close the dialog box.

If you enable this feature, but don’t let it automatically install the updates, Windows will occasionally prompt you to install critical updates, and these often require a reboot. However, you can also configure Automatic Updates to optionally install all critical updates automatically as well. By default, this occurs at 3:00 a.m., and that’s how all my systems are configured.

Using Windows Update

In addition to the critical updates provided by Automatic Updates, Microsoft hosts a special Windows Update Web site that provides XP users with regularly scheduled updates from a variety of categories, including security fixes/critical updates, Help file updates, compatibility fix updates, driver updates that are specific to your hardware, and more. You can visit Windows Update whenever you want; I usually check the site at least two or three times a month.

To launch Windows Update (shown in Figure 1-15), open Internet Explorer and choose Tools → Windows Update. Alternatively, you can open Help and Support and choose the Keep Your Computer Up-to-Date with Windows Update option under Pick a Task.
Figure 1-15: Windows Update is a central location for important Windows XP updates.