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Moving to Windows XP

Now that Windows XP is available, what can you do with this new operating system from Microsoft? In this edition of Focus, we examine the new features of Windows XP, and also look at some of the major changes from older Windows versions, including ease-of-use enhancements and customization tips. We'll also look at what's involved with the new product activation feature, and give you advice on how to deal with it effectively.

Recommendations for upgrading

Windows XP is the unified operating system OS that represents a tremendous evolution for Microsoft: it joins the stability and reliability of the NT/2000 line with the consumer-oriented popularity of Windows 95/98 into a single code base. Now that Windows XP is here, corporations looking to upgrade, install, and migrate need to understand what is new, what is improved, and what is compelling about this new operating system.

Microsoft is recommending at least a 300MHz Pentium II processor to run Windows XP, along with 128MB of RAM, a 2GB hard disk, and a graphics subsystem with at least 8MB of memory. Obviously, the more system RAM, the better Windows XP will run—and for Windows XP Professional installations running multiple programs, corporations should install at least 256MB of RAM on their machines. The good news is that the resource requirement for Windows XP hasn't increased much from the original specifications for Windows 2000 Professional.

One thing that has changed is support for device drivers. Earlier 16-bit device drivers for Windows 3.x, Windows 95, Windows 98, and Windows Me were based on the virtual device driver (VxD) model. This is not supported in Windows XP Professional. If your existing population of PCs make use of VxDs, then you are better off purchasing new machines to run Windows XP. How do you know? See the TIP box below:

> **TIP:** How can you tell if you are running any 16-bit programs?
> Right-click the program's executable file and then choose Properties. If you see a Version tab, it's a 32-bit program. If you don't, then it is a 16-bit program.

Microsoft also recommends that if you are going to perform an in-place upgrade, you should remove any antivirus programs and other file-dependent utilities before doing the upgrade, particularly when upgrading from NT to Windows XP. This is because Windows XP uses a slightly different version of the NT file system (NTFS) than NT, so the NT-based versions of these tools will not work.

The following features and applications cannot be upgraded properly to Windows XP Professional, and should be removed before upgrading:

- Applications that depend on file-system filters—for example, antivirus software, disk tools, and disk quota software.

- Custom power-management solutions and tools that don't support the Advanced Configuration and Power Interface (ACPI) or Advanced Power Management (APM) features.

- Custom Plug-and-Play solutions.

- Fault-tolerant options, such as disk-mirroring products.

- Software that manages uninterruptible power supplies.

● Which version is right for you?

Windows XP comes in three different versions: Home, Professional, and 64-bit. The latter is available on a limited number of high-end workstations and servers from Hewlett-Packard and IBM, among others; and runs with the new 64-bit Itanium processors from Intel. The 64-bit version supports up to 16GB of RAM and can handle files larger than 2GB, appropriate for large computer-aided graphics and database server applications. It is appropriate for technical workstation users who require improved floating-point and calculation performance—for examples those working with CAD and engineering applications.

All three versions are really desktop OSes—not server-specific OSes like Windows 2000 Server and Advanced Server. If you are running any NT 4.0 Server applications, you probably don't want to upgrade to Windows XP yet. Microsoft will have new server-oriented versions sometime next year. But for your desktops, choosing the

right version of Windows XP depends on whether you want some of the additional features found in the Windows XP Professional package. Windows XP Professional (along with the 64-bit version) is a superset of the Home version, and includes the following additional features:

- **Internet Information Serves (IIS) and other Web-related services.** Like Windows 2000 Professional, Windows XP Professional includes several Web services, such as a File Transfer Protocol (FTP) service and Simple Mail Transport Protocol (SMTP) service, among others. While a company shouldn't run its entire Web site on the Windows XP Professional version of IIS, it is useful for ad hoc collaboration and assembling quick workgroup Web servers.

- **Remote deskop sharing.** Microsoft's answer to programs like pcAnywhere and Carbon Copy, any Windows machine (running either XP or an earlier version) can control another Windows XP Professional PC across the Internet or over a modem connection (see a more detailed explanation on page 4).

- **Off-line file-browsing.** Continuing a feature that was introduced in Windows 2000 Professional, users can disconnect from a network file server and still have access to their shared files. Saving files off-line is useful for those with notebooks that want to take their files on business trips. There are various options for synchronizing files automatically when disconnected and reconnected to the network, as shown in the screen shot.

- **Automatic file encryption.** Windows XP Professional can automatically encrypt each file on your hard disk, including any of the files saved with the off-line file browsing feature. This

function works without any operator intervention, other than checking the encrypt box by right-clicking and choosing Properties | Advanced. Windows XP automatically selects the encryption and decryption key pairs, and does everything for you. Selecting this option will protect your files from being accessed by other users logging in on the same machine, along with anyone else who has network access to your shared folders. This is a very useful feature, especially for corporations where PCs are shared among several workers.

WINDOWS XP OFF-LINE BROWSING OPTIONS. NOTE THE CHOICE TO ENCRYPT OFF-LINE FILES—THIS IS A FEATURE FOUND ONLY IN THE PROFESSIONAL VERSION.

- **Support for dual-processor machines.** Windows XP Professional will support these powerful desktops, while Windows XP Home will work on only uni-processor PCs. Both versions will support multiple monitors attached to a single PC, however.

- **Better installation and management functions.** Windows XP Professional supports a wide array of remote installation and configuration policy-management options, making it easier for corporations to install across a network and in large quantities. The Professional version is useful in businesses with managed-computing environments, and includes a series of tools to enable this. The Professional version also supports an encrypted file system and offers more control over individual file-sharing access rights than the Home version. The Home version doesn't support Group Policies and other access controls that have been implemented as part of Active Directory services.

So which version of Windows XP is right for your business? While Windows XP Professional features may be important for some users, it may be appropriate for some companies to run Windows XP Home Edition, despite its name and non-corporate image. Windows XP Home still offers many of the stability and reliability features that are part of the new operating system overall, and if your current user population running on Windows 95/98 is experiencing frequent crashes and daily reboots, it might be time to replace their desktops with newer machines running Windows XP.

If you are running Windows NT Workstation 4.0 or Windows 2000 Professional, you can perform in-place upgrades on these machines to Windows XP Professional, while keeping your existing programs, settings, and disk configurations intact. You'll need at least 1GB of spare disk space for these in-place upgrades. If you are running any version of Windows 98 or Windows Me, you have a choice of either version of XP to do the in-place upgrade, provided again that you have enough free disk space. Keep in mind that once you install the Windows XP Professional operating system, you can't migrate to Windows XP Home. Also, if you are currently running Windows 2000 Professional, you can't migrate to Windows XP Home without formatting your entire disk and starting from scratch.

What strategy should corporate IT departments pursue for the move to Windows XP? If your existing user population is running Windows 95 or 98 and you want to deploy XP, you'll probably have to purchase new PCs, unless your existing machines have sufficient memory, plenty of disk space, and fast enough processors to handle the upgrade. If you are running NT Workstation, it makes sense to move to Windows XP Professional and to try to do an in-place upgrade. If you are currently running Windows 2000 Professional and you are having stability problems, can't run particular applications or have issues with overall Wiindows desktop security, you should upgrade now to XP Professional.

🔴 The network connection

There are several new networking features in Windows XP, including a personal firewall, wireless support, and setup options. Let's examine each one to see what has changed, and how these features will help you implement your network.

One of the first things you'll notice is the Network Setup Wizard. This replaces the previously separate Home Networking and Internet Connection Wizards found in Windows 2000 and Me. Windows XP uses Universal Plug and Play (UPnP) technology to look for an upstream gateway or router, and network location awareness to select the correct network connections for sharing and internal networking. (See the following section for a tour through some of Network Setup Wizard's screens and features.)

A big change with Windows XP is the addition of the Internet Connection Firewall (ICF) feature. While no software-based firewall can match the abilities of various hardware products, it is probably worth a closer look. ICF is enabled automatically if the networking wizard detects an Internet connection.

One issue for corporate support departments is that this personal firewall might do too good of a job and break certain network applications. To turn it off, go to Control Panel | Network Connections | LAN Connections, and right-click on Properties. Then go to Advanced | Internet Connection Firewall and uncheck the box to enable protection. Or, if you know what particular ports or applications you'll need to free up, you can leave the firewall enabled, click on the Settings button, and configure the firewall to allow these specific tasks.

Another great feature about Windows XP is its ability to detect the appropriate network adapter and install drivers automatically, so you don't have to search for a separate software disk from the adapter vendor. This is especially handy when installing wireless IEEE 802.11b network adapters. Windows XP will automatically search for the fastest network connection available and use that as the primary network interface. This means that if a user has a notebook with both a standard Ethernet and a wireless network connection, Windows XP will

automatically choose the appropriate connection for each session. Windows XP will also bridge between two or more network connections, so you don't have to configure different TCP/IP subnet addresses for each connection.

Another change is a new properties sheet, called Support, that is part of the Local Area Connections Status Control Panel. On this sheet (see screen shot below), you'll see information about your TCP/IP network, subnet mask, DNS servers' IP addresses, and more. This is a great resource for network administrators who are trying to trouble-shoot their network difficulties because it pulls together a great deal of infor-mation that was spread around various places in earlier versions of Windows, or was only available through command-line utilities.
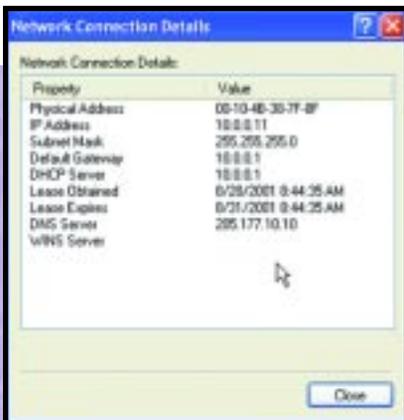

LAN CONNECTION STATUS DISPLAYS ALL NETWORKING INFORMATION IN ONE PLACE.

● Network Setup Wizard tour

The screens that are displayed in the Network Setup Wizard show some of the new features in Windows XP. The first screen will present you with three choices (see upper right screen shot). Most corporate network installations will pick the last option, Other. The second screen details other Internet connection methods, and again most corporate network installations will pick the first option, connecting through a hub. Once you are finished, the wizard presents you with the results and sets up your configuration.
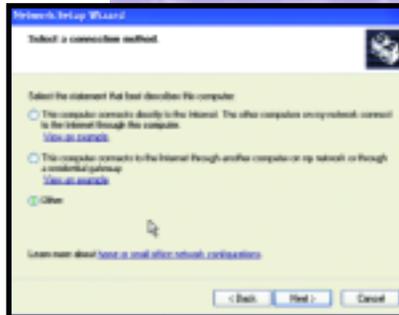
THREE INITIAL CHOICES FOR NETWORK SETUP.
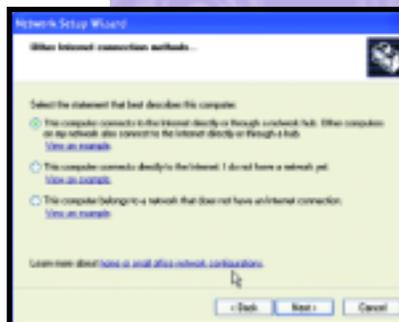
OTHER INTERNET CONNECTION METHODS.
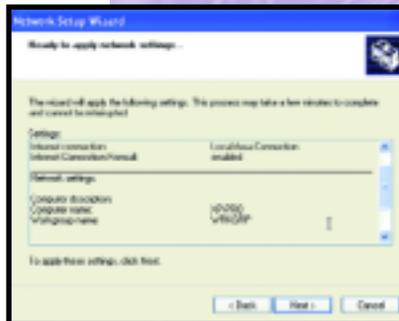
READY TO APPLY SETTINGS AND FINISH THE WIZARD.

● Remote Desktop Sharing and Remote Assistance

Windows XP includes two new remote-access programs that provide somewhat complementary features, called Remote Desktop Sharing and

Remote Assistance. The two XP versions differ somewhat in how these programs are implemented.

The Windows XP Professional version includes the ability to act as a host that can be controlled from other Windows machines, whether they are running either version of Windows XP or other, older versions of Windows. This provides some of the same remote-control features that have long been found with products such as pcAnywhere, Carbon Copy, and others.

Windows XP Home can't act as a host, but does include the Remote Desktop Sharing software. If you want to make use of this software on older versions of Windows, you'll need either of the XP software CDs. Before any corporation gets involved in using this software, you should first be aware of several issues.

First, the remote-control feature is not enabled with the default installation— a benefit for network security. To use the remote-control feature, you'll have to turn it on by going to the System Desktop Panel and choosing the Remote tab, and then clicking on the check box next to Remote Control that says, "Allow users to connect remotely to this computer." You'll also need to install the Remote Desktop Connection client software on the remote PC if that PC is running an earlier version of Windows. To do this, you'll need to use the XP installation CD—choose Perform Additional Tasks, and then Setup Remote Desktop Connection.

Second, the remote-control feature uses your standard Windows user access controls and security, and actually logs into the host machine. However, unlike third-party remote-control products, the remote-control session completely takes over the host, and anyone sitting at the host machine will just see a mostly blank screen indicating that a remote program is running. This differs from third-party products that allow people sitting at the host machine to view what the remote user is doing.

Third, if a user is working on the host when a remote user wants to connect, the host user will be logged off. This has its benefits, especially when a support person needs to troubleshoot problems with the host PC. The remote user can immediately see what the host user was doing on his or her desktop, as long as the remote user connects with the same user name and password as the host user. Of course, if the problem has to do with network connection, then no remote-control product will work at all.

Finally, the built-in ICF needs to be disabled in order for the remote desktop control to function correctly.

Both XP versions also include a function called Remote Assistance. This is in some ways better than the Remote Desktop Sharing feature in that with Remote Assistance you can control a remote machine and both parties can view the screen activity at the same time. In this case, Windows XP Home users can act as a host. However, if you are running older versions of Windows, this software is not available.

You can initiate assistance sessions via Windows Messenger or via an e-mail invitation, but the latter method can be a security risk if not used properly. For the e-mail invitations, you'll need to include a password (which is not sent via e-mail but is typically communicated via a phone call to maintain security) and you'll also want to limit the amount of time (in hours) that an invitation to control your desktop is extended.

Remote Assistance has three basic steps: First, a person requests assistance either by sending an e-mail with a specially encoded "ticket" as an attachment or by sending an instant message via Windows Messenger. The expert who answers this request then needs to click on either the file attachment in the e-mail or the request in the Messenger pop-up box, and then agree to the request. Finally, the originator agrees to start a Remote Assistance session.

The expert can also initiate an offer to help the remote user. Once connected, users can send text messages and files as well as remotely control the host desktop.

If the expert and the originator of the request aren't on the same local-area network (LAN), Remote Assistance might have some trouble working. If one of the computers is behind a firewall that has blocked port 3389 or is using Network Address Translation or both, then a network administrator must open this port for outbound traffic on the firewall.
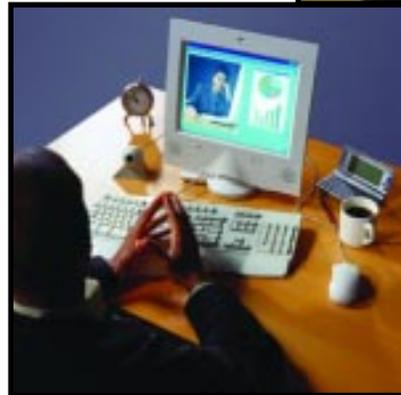
To ensure greater security, you can restrict Remote Assistance via Group Policies and specify various levels of permissions such as only allowing Remote Assistance from within the corporate firewall and between computers on the same corporate LAN.

XP activation issues

New to Windows XP is a feature called product activation that will present a challenge to corporate IT administrators. Microsoft, worried about global software piracy, has created this routine to make it more difficult for thieves to steal the software. Unfortunately, it will also make it more difficult to deploy Windows XP on your corporate networks.

Activation is different from registration and relies on various pieces of infor-

mation encoded in the original software installation CD and on the PC itself. Each software CD contains a unique product ID code, which is a different number from the product key code that is printed on the back of the CD jewel box. This ID is used to keep track of which PC the software is installed on, and is combined with a second ID code that is generated based on the actual PC hardware components.

When a user installs Windows XP, both of these IDs are recorded by the operating system and the activation system takes over. A user has 30 days to finish the process before the machine will no longer boot. There are two ways to complete the process: either use the Internet if the computer is connected to a network with Internet access, or place a phone call to Microsoft and receive a 42-digit confirmation number that is entered into the computer manually. The Internet method returns a digitally signed certificate that is automatically incorporated into the computer to finish the process within a few seconds.

Microsoft has made it clear that no real identifying information about the computer is transmitted in the activation process. The hardware ID code uses pieces of the CPU serial number and a portion of the network adapter's Media Access Control (MAC) address, but in no way does this ID code send these values intact to Microsoft. Instead, the code creates another unique number based on parts

of these numbers. The company's planning documents state, "Due to the nature of the algorithms used, Microsoft cannot determine anything at all about the original processor serial number. We developed the algorithm in order to maintain the user's privacy."

Windows XP can be installed on a computer in three different ways: pre-loaded by a PC manufacturer at the factory; at retail, independent of a computer; or via a volume license agreement with Microsoft. Activation differs for each of these methods.

According to Microsoft, activation will not be required for versions of Windows XP installed via volume licensing agreements. There will be no hardware checking, limitations, or restrictions via imaging tools under these circumstances, and Microsoft will supply product with special volume license keys that will bypass any activation routines. This is good news, and may be a motivation for those of you who aren't currently covered to consider one of Microsoft's volume license arrangements.

The problem is that once a PC is activated, that copy of Windows XP cannot be installed on another computer. The activation process checks to make sure that the product key hasn't been used by someone else. This means that if you aren't covered by a volume purchase agreement, you'll have to keep track of which CD was installed on which PC throughout your corporation. The situation could become difficult as computers are moved around departments and the original software CDs are lost or misplaced.

The situation is somewhat murkier if you purchase a PC with Windows XP preloaded. Microsoft provides its computer manufacturer customers with the ability to pre-activate Windows XP at the factory, and the company estimates that the vast majority of Windows XP machines will be delivered via this pre-activation method.

Actually, there are two different types of pre-activations. Some manufacturers may protect the installation of Windows XP by locking the OS to specific BIOS information in the computer. This expands upon a program that Microsoft has had in place for earlier versions of Windows. At boot time, Windows XP compares the PC's BIOS information to what it is expecting, and if there is a match, the machine continues to boot and no further intervention is required by the end user. If there isn't a match, the user has to activate the machine within the standard 30-day period.

The activation system checks every time a PC is booted to ensure that the hardware remains the same. Microsoft states that activations on the same PC using the same product key are unlimited; however, it may be difficult to determine what is the "same" when a PC is upgraded with a new sound or graphics card, or another peripheral.

Remember that the design goal of activation is to reduce piracy—and when someone copies an entire hard disk image from one PC to another, that's considered piracy. Microsoft has
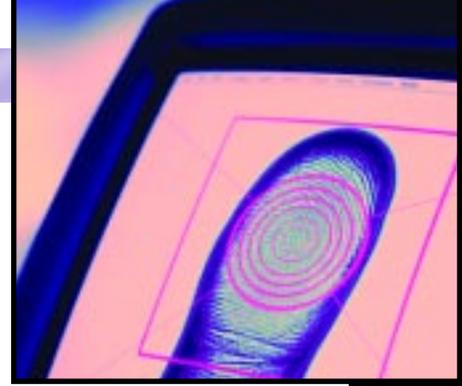
specified that several components of the PC would have to change, including the network adapter and at least four other components (disk drives, CPU, RAM, and other adapters), before this new configuration would have to be reactivated.

Changes to the desktop

Perhaps the most noticeable difference between Windows XP and prior versions of Windows is in the venerable Windows Start menu, which has gone through a major facelift. Finally added to the menu is the ability to turn off the machine directly. The Start menu also features a new two-column layout with many new menu choices, as well as a simplified organization scheme that is more task-oriented, rather than simply containing shortcuts to your various installed programs. Windows XP also now notifies you when you have installed a new program, and highlights that entry in the programs listing, which makes it easier to find.

Also changed is the color scheme and layouts of the various screen elements such as task bar, title bars, and controls. All will take some getting used to and some training, especially for Windows 95/98 users.

There are many other improvements, including:

- **Windows XP now detects when you have pressed the Caps Lock key while you are typing in a password**, and brings up a small warning dialog box. This is a useful feature, particularly for those who use case-sensitive passwords.

- **NetMeeting and MSN Messenger have been combined into a single product called Windows Messenger.** This is also the key to the .NET suite of services, and users will need to set up a Hotmail account to take advantage of Messenger's voice, video, and text-chatting functions. Windows XP will ask you, after it has been installed, if you want to convert an existing Hotmail or MSN user ID over to its .NET Passport-oriented service, and will tie this user ID to your Windows login ID. The defaults are to launch Messenger automatically and notify you if you have any unread e-mail. This notification, along with the automatic launch of Messenger, can be disabled.

- **A new shortcut to the System Control Panel.** You can get there quickly by pressing the Windows and Break keys simultaneously. Control Panel menu choices have been reorganized into functional areas, although users can revert back to the classic Windows 2000 view of these items if they wish.

- **Better management of image, sound, and video files.** Windows XP's Explorer icons have changed so you can get a better preview of your image and videos: you can browse your folders and see thumbnails of pictures before ever opening the files. While Windows 2000 and Me had this ability, it has been improved significantly in Windows XP. For example, the thumbnail view is displayed in file-opening dialog boxes.

- **New Media bar as part of Internet Explorer.** Part of better multimedia management tools is the ability to play music and videos from within Internet Explorer, so you don't have to open another application to see and hear this content. The metadata properties of individual media (such as song titles and artist and album names) can be edited with just a right-click of your mouse.

- **Improvements to Help system.** Windows XP features a new Help and Support Center, which includes access to the Remote Assistance software. Other improvements include integration with various online support tools and Windows Update, tours of new features, and searchable indexes of Help screens.

Using the Files and Settings Transfer Wizard

This new feature will allow you to migrate documents and settings from your old computer to your new one easily, via floppy disks or a network connection. For example, the wizard will migrate settings and files from Internet Explorer, Outlook Express, Outlook, Dial-Up Networking, Favorites, and more. If you have run out of disk space to perform an in-place migration, or if you want to transfer settings from one computer to another, then this is one way to do it.

The transfer wizard probably isn't the best solution for deploying multiple desktops across an enterprise. A better method would be to use either Microsoft's Remote Installation Services or one of the third-party disk imaging and duplication services, such as Altiris's Migration Toolkit or Symantec's enterprise Ghost products.

Reference section

How to use Remote Desktop Assistance:
www.microsoft.com/windowsxp/pro/techinfo/deployment/remoteguide

How to use Remote Desktop:
www.microsoft.com/windowsxp/pro/using/howto/gomobile/remotedesktop

Production activation issues, along with information about volume purchase agreements:
www.microsoft.com/piracy/basics/xp_activation.asp

Index to numerous Windows XP Professional technical articles:
www.microsoft.com/windowsxp/pro/techinfo/articleindex.asp

Paul Thurrott's review of Windows XP:
www.winsupersite.com/reviews/windowsxp_rc1.asp

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Moving Forward with Windows XP

- **How to migrate from older Windows systems**
- **Resources required and new networking features**
- **Using new remote-control features**

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