NEW FEATURES FOR HOME USERS IN MICROSOFT® WINDOWS® XP

This white paper reviews the key new features for home users in the upcoming Microsoft Windows XP desktop operating system slated for release in fall 2001. Based on an enhanced version of the Windows 2000 code base, Windows XP is available in consumer and business editions: Windows XP Home Edition and Windows XP Professional. The features discussed here are available in both editions, but the Professional Edition, designed for business environments, includes additional productivity, security, networking, and management features important in business environments.

For home users, Windows XP brings the significantly increased stability and security inherent in the Windows 2000/Windows NT® operating systems. It also provides better support for portable computers. Key new Windows XP features include:

- An improved desktop and user interface
- Additional base operating system features
- Expanded home networking functions
- New PC help and support features

New Desktop and User Interface

The most visible change is the new, less-cluttered desktop, referred to as the “Clean Desktop.” In addition, the new taskbar grouping and Notification Area (formerly called the Systray) cleanup features contribute to a less-cluttered, easier-to-view desktop. An optional font technology, ClearFont, improves the quality of displayed text on LCDs. In addition, Fast User Switching allows multiple users to easily share the same PC.

Clean Desktop

The new Windows XP desktop displays a minimal set of icons, including the Recycle Bin and Internet Explorer. Other icons, including My Computer, My Documents, Control Panel, and the Dell-specific icons on Dell systems, appear in a new Start menu (shown in Figure 1).

The user can configure the PC to display the traditional (referred to as “classic”) Windows desktop. This can be configured by selecting the Windows Classic theme in the display properties. (The Start menu and Control Panel can also be changed to the classic view of previous Windows operating systems.)

Taskbar Grouping

The Windows taskbar is a row of buttons that typically displays across the bottom of the screen. The taskbar includes the Start menu button and a button for each open application. (The taskbar also includes the Quick- Launch buttons and the Notification Area.) Windows XP groups multiple instances of the same application on the taskbar. For example, if there are six instances of Internet Explorer open, each displaying a button on the taskbar, Windows XP will group the buttons next to one another.
another on the taskbar. If space becomes an issue on the taskbar, Windows XP will consolidate all the Internet Explorer buttons into a single button. When selected, that button will expand to a menu of the six Internet Explorer active sessions, as shown in Figure 2.

### Notification Area Cleanup

Over time, software icons tend to proliferate in the Notification Area, the area in the bottom right corner of the Windows desktop. Windows XP detects when icons in the Notification Area are not being accessed and “hides” them. A caret, or chevron, button indicates that there are “hidden” icons that can be viewed by selecting the button. The user can also configure the Notification Area manually. For example, the user may choose to hide the antivirus program icon, because it is rarely accessed, but display the audio volume icon, because it is used frequently. This feature is automatically enabled when the operating system is installed, but the user may disable it in the taskbar properties.

### ClearType

Windows XP incorporates ClearType, a font technology designed to make screen fonts more legible on the LCD panels used in notebook computers and handheld devices. ClearType was originally designed for e-book applications to make on-screen reading more comparable to reading on paper. ClearType screen fonts look less pixelated¹ and more like a printed font found in a book. Designed for LCD panels in notebook or handheld computers where the improvement is more dramatic, this feature can also improve font display on CRT monitors. (For users who prefer the CRT display without ClearType fonts, the feature can be disabled in the Display Properties.)

### Fast User Switching

Because Windows XP is based on Windows 2000 and its predecessor, Windows NT, it is a multiuser operating system. This characteristic enables Fast User Switching, a new feature designed for home and home office users who share a PC. Windows XP can maintain multiple user accounts on the same PC. Fast User Switching allows each user to log in quickly and easily without resetting the PC or disturbing other users’ work. Figure 3 shows the Fast User Switching main screen. In this scenario, a family shares a single home computer. Sharon logs in to do homework. She opens Internet Explorer and Microsoft Word to research and write a paper. Soon, she joins the family for dinner without logging off the PC. After dinner, Jim uses the computer to enter bills into Quicken and to browse the Internet. Instead of interrupting Sharon’s applications, Jim selects Start, Log Off, Switch User to display the user login screen. All of Sharon’s user space (or “context space”) is saved. Her programs remain active in memory and the files remain open. Jim then logs in under his user account, completes his work, logs out, and returns to the login screen. When Sharon returns later, she simply logs back in to find her user space undisturbed.

Some applications may not tolerate Fast User Switching. This includes older Windows games and some current multimedia games, DVD operations, and some Internet Service Provider (ISP) connections. Fast User Switching is not available when the computer is connected to a domain environment.²

---

¹ When an image or font is “pixelated,” the square pixels that make up the image or font on a computer screen are discernible to the viewer. See [http://www.techweb.com/encyclopedia](http://www.techweb.com/encyclopedia) for a brief discussion of this topic.

² Windows XP Professional is required to connect to a network domain.
New Base Operating System Features

Base operating system features are incorporated at the heart of the operating system, which is the kernel level in most cases. The features are tightly integrated into the shell and user interface and tie into many different areas of the operating system.

Native CD-R/RW Support

Windows XP includes a native CD-R/RW burn engine developed in conjunction with Adaptec. The new burn engine provides basic CD-R and CD-RW support for burning 74-minute data CDs (in orange book data format) and audio CDs (red-book audio format).

What are “Orange-Book” and “Red-Book” CDs?

Documentation for various standard CD formats is published in books commonly known by their color.
- Red Book: Audio CDs (CD-DA)
- Yellow Book: CD-ROM
- Orange Book: Recordable (such as CD-R)
- Green Book: CD-I
- White Book: Video CD
- Blue Book: CD Extra


Data CD

A user burns a data CD using Windows Explorer. The user simply draggs and drops the files and folders to be recorded on the CD to the drive letter of the CD-R or CD-RW drive. The user can then select the CD drive to view the files to be recorded. After selecting the CD drive, a new context-sensitive option menu appears in the left pane that allows the user to burn a CD. If the operating system detects a CD-R disc in a CD-RW drive, the option menu will not present an erase option. If the user attempts to eject the CD before recording the files, Explorer displays a dialog indicating that there is data staged to be burned. The user has the option of writing the CD at that time.

Audio CD

Audio CDs can be created using Windows Media Player 8 (see sidebar). Like the data CD process, the user begins by using Windows Explorer to drag and drop MP3 or WMA audio files to the CD drive letter. Windows Explorer then launches the Windows Media Player to burn the digital audio CD.

Windows Media Player 8

Microsoft significantly upgraded the Windows Media Player with version 7, released with Windows Millennium Edition (Me). This version featured a new graphical interface, better audio and video playback capability, and support for the latest audio, video, and image file formats.

The follow-on to version 7, Windows Media Player 8, is included in Windows XP. Media Player 8 adds DVD playback support for compatible hardware DVD decoders, integrated audio CD burn capability, enhancements to the WMA digital audio format, and an updated look and feel.

Figure 3. Fast User Switching
The Windows XP CD burn engine is accessed via a new application programming interface (API) called the Image Mastering API (IMAPI). The IMAPI specification is available to third-party software developers interested in providing extended CD capabilities under Windows XP.

Microsoft also improves support for current and future CD-R and CD-RW drives. Currently, software applications used to burn CDs must be updated every few months so that the applications can recognize new drives introduced in the market. Beginning with Windows XP, Microsoft will require that new CD-R and CD-RW drives comply with the Multi-Media Command Set-2+ (MMC2+) to receive Windows Hardware Quality Lab (WHQL) certification. MMC supports a “GET CONFIG” command that allows applications to interactively query a newly installed drive for configuration information.

Native DVD-RAM Support

Windows XP includes native support for DVD-RAM drives and discs formatted with the FAT32 file format. Similar to storing data on a floppy diskette or ZIP disk, the user inserts the DVD-RAM disc into the DVD-RAM drive. Once the medium is formatted with FAT32, the user can store, erase, and access files on the DVD-RAM disc.

Windows XP does not support recording UDF-formatted information on a DVD-RAM disc. UDF is the file system used in the DVD-Video specification.

Windows Messenger

Currently, MSN Messenger is a popular real-time, text-based instant messaging tool. Instant messaging allows a user to create a private chat room with another user. Typically, the instant messaging system notifies a user when a contact is online so that they can exchange real-time e-mail. Windows XP introduces an enhanced version, Windows Messenger, which adds voice and video instant messaging capabilities. This new unified text, voice, and video communication tool provides seamless and integrated instant messaging.

Credential Manager

The proliferation of usernames and passwords required to access secure network resources is often a management problem for users. With Windows XP, Microsoft introduces a service that automatically manages access to network resources such as file and printer shares and domain shares. The user enters various usernames and passwords into the Credential Manager and identifies which credentials are required to access specific resources. Windows XP can then handle user authentication to these resources automatically with no intervention required. The Credential Manager can also manage the X.509 digital certificates commonly used for secure online transactions. The Credential Manager is located in User Accounts in the Control Panel.

Home and Small Office Networking

Microsoft continues to enhance support for home networking in its operating systems. In Windows XP, Microsoft has improved the online documentation and usability of the Home Networking wizard. New features in the operating system include support for the Point-to-Point Protocol over Ethernet (PPPoE) and a built-in firewall.

Network Connection Wizard

A networking wizard first appeared in Windows Me. To make setting up a home or small office network even easier, Microsoft developed an enhanced Network Connection wizard for Windows XP. This version provides more complete online documentation and support for setting up a home or small network. Figure 4 shows the networking checklist included in the wizard.

The wizard automatically enables the personal firewall discussed later in this section (see “Internet Connection Firewall”).

Native Support for Point-to-Point Protocol Over Ethernet

PPPoE is becoming more prevalent as broadband Internet connections such as Digital Subscriber Line (DSL) and cable modems proliferate. It is used to create a point-to-point connection over a permanent Ethernet network connection. Native support for PPPoE simpli-
fies installing DSL or cable modem connections on
Windows XP computer systems.

**Internet Connection Firewall**

Today's “always on” cable modem and DSL Internet access connections offer unprecedented bandwidth to the home, but also leave the connected PC or home network vulnerable to hacker attacks. The nature of these attacks varies, but the goal is to gain access to individual computers attached to the Internet. With this access, a hacker can browse the hard drive and add or delete files, discover passwords and credit card numbers, and set the system up to launch attacks on other systems or websites. As a result, firewall protection from these attacks is increasingly required on PCs. Recognizing this need, Microsoft provides an integrated firewall in Windows XP to provide immediate protection from outside access attempts.

The Internet Connection Firewall can be applied to each Internet connection on the computer. The firewall is configured using the Properties dialog associated with each Internet connection in the Control Panel. The firewall can be enabled or disabled. When enabled, it provides basic protection suitable for most users. There are additional configuration options for more advanced users. These advanced options include the ability to open or close specific Transmission Control Protocol (TCP) or User Datagram Protocol (UDP) ports, or to enable “port redirection.” Port redirection allows access requests to a specific port on the firewall (such as port 80, the web server port) to be automatically redirected to another computer on the local network. This capability allows a web server on a home network to be protected by an “edge” firewall. The firewall also provides basic logging capabilities.

The firewall is automatically enabled when the Network Connection wizard is run. When the firewall is enabled for a network connection, its icon will appear with a red background in the Network Connections portion of the Control Panel.

**PC Help and Support**

Windows XP includes key features launched in Windows Me such as System Restore, which protects the system from corruption by allowing the user to restore an earlier stable image of the operating system. In addi-
tion, Windows XP introduces a variety of new features designed to facilitate remote support, improve backup capabilities, enable management of multiple dynamic link library (DLL) versions, transfer files from one PC to another, and to save time when accessing removable media.

**Remote Desktop and Remote Assistance**

Both Remote Desktop and Remote Assistance use the Windows Terminal Services technology.

Similar to products such as pcAnywhere, Remote Desktop is a client-server application that allows a client PC running Windows XP to connect to a host PC remotely. (The host PC must be running Windows XP Professional with Remote Desktop Connection enabled.) Once the client PC has logged into the host PC and a remote session is established, the user has remote control of the host PC. Keyboard and mouse commands entered on the client PC are transferred to the host PC and the resulting display is returned to the client PC. In this way, a user can view files, run desktop applications, or troubleshoot problems on a remote PC. For example, Remote Desktop can be used to access files stored on a home office PC from a remote location.

Redirection options can be configured for security purposes. The display can be disabled on the host PC, and all printer and sound output can be redirected from the host to the remote PC.

A related feature, Remote Assistance, uses the same technology. This feature allows a user who needs help with a PC problem to send an invitation to a friend or family member requesting their help. This invitation grants the recipient temporary access to the PC. The invitation can be sent by e-mail (either in the body of the e-mail or as a file attachment) or by Windows Messenger. The invitation contains instructions for connecting to the PC over an Internet connection. An optional password may be required.

**File System Snapshots**

When a user performs a backup of the PC hard drive under previous Microsoft Windows operating systems, files that are open (by applications or the operating system) cannot be backed up. Thus, a full backup was not always possible. In Windows XP, this is remedied by allowing a File System Snapshot. The backup application can take a snapshot of the file system, including every file regardless of it being open or not, and then back up that snapshot.

**Driver Versioning (Fusion)**

Fusion technology addresses the problems associated with Windows applications that, when installed, replace current versions of Windows files, particularly drivers (or DLL files), with older versions. This situation can cause problems with newer applications, which rely on the replaced files. Fusion technology allows Windows XP to manage multiple versions of files and to invoke the correct version required by an application.

When an application starts, Fusion provides the version of the libraries that the application expects. Fusion manages this process by using “manifests,” each of which is provided by an application during installation. At installation, an application declares the files and file versions it is installing in a manifest, which Fusion uses to provide the correct file versions when the application is run.

Users can also manually revert to a previous device driver using a new driver rollback feature. To restore the previous driver, access the **Driver** tab for the device in the **Device Manager**, and select **Roll Back Driver**.

Fusion technology increases the stability of the operating system by helping to avoid application-based problems due to library management.

**Files and Settings Transfer Wizard**

This feature is used to migrate personal files and settings from one computer to another (for instance, when upgrading to a new computer). Personal files include the documents, images, spreadsheets, presentations, and e-mail messages on a user’s computer. User settings include application configurations, preferences, window sizes, toolbar settings, Internet Explorer bookmarks, and so forth on a computer.

---

4. When Windows XP Professional is installed on a PC, Remote Desktop Connection is disabled by default. An administrator of a Windows XP Professional PC must enable the feature and specify which users are allowed to connect to the PC remotely.
Launch the Files and Settings Transfer wizard on the destination computer from the **Start** menu. The wizard provides step-by-step instructions for completing the transfer. Files can be transferred from the source to the destination PC over a home network; over a serial cable connection; or via a removable medium such as a floppy disk, ZIP disk, or writable CD.

**Autoplay for Hardware**

This feature is similar to the autoplay capability provided with many audio CDs, which automatically launch a music player when the CD is inserted into the drive. In Windows XP, Autoplay has been extended to allow the user to configure autoplay for any removable storage medium. For example, an autoplay wizard might launch when a ZIP disk is inserted, allowing the user to specify that Windows Explorer be launched automatically whenever a ZIP disk is detected.

**Conclusion**

Windows XP will be available factory-installed on most Dell™ desktop and portable computers, beginning in fall 2001. These systems will be extensively tested to ensure hardware and software compatibility with the new operating system. When appropriate, Dell will install enhanced drivers for optimal performance. In addition, each computer will include the Dell Solution Center, a portal to a rich array of services, including the Help and Support Center (shown in Figure 5) with system information and documentation, online support, and other resources. The Dell Solution Center also includes digital entertainment solutions, Internet access options, and other Dell-specific applications.


---

*Figure 5. Dell Customized Help and Support Center*

Information in this document is subject to change without notice.
© 2001 Dell Computer Corporation. All rights reserved.

Trademarks used in this text: Dell and the DELL logo are trademarks of Dell Computer Corporation; Microsoft, Windows, and Windows NT are registered trademarks of Microsoft Corporation. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Dell Computer Corporation disclaims any proprietary interest in trademarks and trade names other than its own.