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Chapter 1

Introduction to Windows 2000

About This Chapter

This book was written to prepare you to install, configure, and support Microsoft Windows 2000 Professional; therefore, this chapter helps you to understand Windows 2000 Professional and where it fits in the Windows 2000 family of products. It presents an overview of the Microsoft Windows 2000 operating system and the four products that make up this family. The Windows 2000 family of products consists of Windows 2000 Professional, Windows 2000 Server, Windows 2000 Advanced Server, and Windows 2000 Datacenter Server.

Before You Begin

You need no special preparation to complete this chapter.

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Lesson 1: Overview of the Windows 2000 Platform

The Microsoft Windows 2000 family of operating systems builds on Microsoft Windows NT technology by adding many features and enhancements. This lesson introduces you to the family of Windows 2000 products. It explains some of the key differences between these products and the environment for which each product is designed.

After this lesson, you will be able to

- Identify the key features of Windows 2000, including features that are specific to Windows 2000 Professional and to Windows 2000 Server.

Estimated lesson time: 10 minutes

Overview of Windows 2000

Windows 2000 is a multipurpose operating system with integrated support for client/server and peer-to-peer networks. It incorporates technologies that reduce the total cost of ownership (TCO) and provides for scalability from a small network to a large enterprise network. *Total cost of ownership* is the total amount of money and time associated with purchasing computer hardware and software, and deploying, configuring, and maintaining the hardware and software. TCO includes hardware and software updates, training, maintenance and administration, and technical support. One

other major factor in TCO is lost productivity. Lost productivity can occur because of many factors, including user errors, hardware problems, or software upgrades and retraining.

The Windows 2000 platform consists of the following four versions:

- **Windows 2000 Professional.** This product is a high-performance, secure-network client computer and corporate desktop operating system that includes the best features of Microsoft Windows 98, while significantly extending the manageability, reliability, security, and performance of Windows NT Workstation 4. This product is the main Microsoft desktop operating system for businesses of all sizes.
- **Windows 2000 Server.** This product is a file, print, and applications server, as well as a Web-server platform, that contains all of the features of Windows 2000 Professional plus many new server-specific functions. This product is ideal for small- to medium-sized enterprise application deployments, Web servers, workgroups, and branch offices.
- **Windows 2000 Advanced Server (formerly Windows NT Server 5 Enterprise Edition).** This product is a more powerful departmental and application server, and it also provides a rich network operating system (NOS) and Internet services. This product is beyond the scope of this training kit; features unique to Advanced Server are not covered in this kit.
- **Windows 2000 Datacenter Server.** This new product is the most powerful and functional server operating system ever offered by Microsoft. It is optimized for large data warehouses, econometric analysis, large-scale simulations in science and engineering, and server consolidation projects. This product is outside the scope of this kit; features unique to Datacenter Server are not covered in this kit.

Table 1.1 describes the features and benefits of Windows 2000.

Table 1.1 *Features and Benefits of Windows 2000*

| Feature | Benefit |
|-------------------------------|--|
| Lower total cost of ownership | Reduces the cost of running and administering a network by providing automatic installation and upgrading of applications, and by simplifying the setup and configuration of client computers. |
| | Reduces the amount of calls to support by providing the familiar Microsoft Windows interface for users and administrators, including wizards, interactive help, and more. |
| | Reduces the need for administrators to travel to desktop computers to upgrade the operating system. |
| Security | Authenticates users before they gain access to resources or data on a computer or the network. |
| | Provides local and network security and auditing for |

files, folders, printers, and other resources.

Directory services
(available only in
Windows 2000 Server,
Windows 2000
Advanced Server, and
Windows Windows 2000
Datacenter)

Store information about network resources, such as user accounts, applications, print resources, and security information.

Provide the services that permit users to gain access to resources throughout the entire Windows 2000 network and to locate users, computers, and other resources. Also enables administrators to manage and secure these resources.

Store and manage services based on Active Directory technology. Active Directory directory services is the Windows 2000 directory service. The directory is the database that stores information about network resources, such as computers and printers, and the directory services make this information available to users and applications. Active Directory directory services also provide administrators with the capability to control access to resources.

Performance and
scalability

Supports symmetric multiprocessing (SMP) on computers that are configured with multiple microprocessors. Also supports multitasking for system processes and programs.

Windows 2000 Professional supports up to two microprocessors.

Networking and
communication services

Provide built-in support for the most popular network protocols, including TCP/IP and network client utilities.

Provide connectivity with Novell NetWare, UNIX, and AppleTalk.

Provide Dial-Up Networking, which lets mobile users connect to a computer running Windows 2000.

Windows 2000 Professional supports one inbound dial-up networking session. (The Windows 2000 Server products support 256 simultaneous inbound dial-up sessions.)

Internet integration

Integrates users' desktops with the Internet, thereby removing the distinction between the local computer and the Internet. Users can securely browse the network, intranet, and Internet for resources, as well as send and receive e-mail messages.

Windows 2000 Professional provides a personal Web server, which enables users to host a personal Web site.

| | |
|---------------------------------|---|
| Integrated administration tools | Provide the means to create customized tools to manage local and remote computers with a single standard interface. |
| | Provide the means to incorporate third-party administrative tools into the standard interface. |
| Hardware support | Supports <i>universal serial bus (USB)</i> , an external bus standard that eliminates many constraints of earlier computer peripherals. |
| | Supports Plug and Play hardware, which Windows 2000 automatically detects, installs, and configures. |

Lesson Summary

In this lesson, you learned that Windows 2000 consists of a family of four separate products: Windows 2000 Professional, Windows 2000 Server, Windows 2000 Advanced Server, and Windows 2000 Datacenter Server.

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Lesson 2: Windows 2000 Professional

Windows 2000 Professional is easier to use and manage and provides greater compatibility, file management capabilities, and security than earlier versions of Windows. This lesson discusses how Windows 2000 Professional improves the capabilities of earlier versions of Windows in these areas: ease of use, simplified management, increased hardware support, enhanced file management, and enhanced security features.

After this lesson, you will be able to

- Identify features and enhancements in Windows 2000 Professional.

Estimated lesson time: 15 minutes

Ease of Use

Windows 2000 Professional includes changes to the look and functionality of the desktop, windows, and the Start menu, making it easier to use than previous versions of Windows. Besides these user interface enhancements, Windows 2000 Professional also contains features that improve support for mobile users and make printing easier and more flexible.

User Interface Enhancements

The enhancements and features that improve the Windows 2000 Professional user interface include the following:

- **Customized Start menu.** Personalized Menus can be activated to keep track of

the programs you use and to update the Programs menu so that it presents only the programs that you use most often. Applications that you use less frequently are hidden from normal view, making the Start menu easier to use. For more information on customized Start menus, see [Chapter 2](#), "Installing Windows 2000 Professional."

- **Log On and Shut Down dialog boxes.** The Log On and Shut Down dialog boxes are easier to use with fewer, better organized choices. For more information on the Log On and Shut Down dialog boxes, see [Chapter 2](#), "Installing Windows 2000 Professional."
- **Task Scheduler.** The enhanced Task Scheduler allows users to schedule scripts and programs to run at specific times. For more information on Task Scheduler, see [Chapter 3](#), "Using Microsoft Management Console and Task Scheduler."

Support for Mobile Users

Windows 2000 Professional supports the latest laptop technologies based on Advanced Power Management (APM) and Advanced Configuration and Power Interface (ACPI), which turns off power to the display and hard disks after a period of inactivity, and allows you to change or remove devices without turning off the computer. ACPI also lengthens battery life with power management and suspend or resume capabilities. For more information on APM and ACPI, see [Chapter 24](#), "Configuring Windows 2000 for Mobile Computers."

Features in Windows 2000 Professional that provide support for mobile users include the following:

- **Network Connection Wizard.** Consolidates all of the processes for creating network connections. Users can now set up the following networking features from one wizard: dial-up connections to a private network or to the Internet, virtual private network (VPN) connections through the Internet to a private network, incoming calls, and direct connections to another computer. For more information on the Network Connection wizard, see [Chapter 21](#), "Configuring Remote Access."
- **Virtual private network support.** Provides secure access to corporate networks from off-site locations by using a local Internet service provider (ISP) rather than using a long distance, dial-up connection. For more information on the VPN support, see [Chapter 21](#), "Configuring Remote Access."
- **Offline Folders.** Allows you to copy documents that are stored on the network to your local computer, making it easier to access data when you aren't connected to the network. For more information on the Offline Folders, see [Chapter 24](#), "Configuring Windows 2000 for Mobile Computers."
- **Synchronization Manager.** Compares items on the network to items that you opened or updated while working offline. Synchronization occurs when you log on, and any changes made offline to files and folders, Web pages, and e-mail messages are saved to the network. For more information on Synchronization Manager, see [Chapter 24](#), "Configuring Windows 2000 for Mobile Computers."

Printing Support

Printing in Windows 2000 Professional has been improved to assist you in providing a more flexible network of printers. Windows 2000 Professional includes the following printing features and enhancements:

- **Internet Printing Protocol (IPP).** Allows users to send documents to any printer on a Microsoft Windows 2000 network that is connected to the Internet. Internet printing enables users to do the following:
 - Print to a Uniform Resource Locator (URL) over an intranet or the Internet.
 - View printer and job-related information in Hypertext Markup Language (HTML) format from any browser.
 - Download and install printer drivers over the Internet.
- **Add Printer wizard.** Simplifies the process of connecting to local and network printers from within a program. You no longer need to open the Printers system folder or specify driver models, printer languages, or ports when you add printers. For more information on the Add Printer wizard, see [Chapter 12](#), "Setting Up and Configuring Network Printers."
- **Image Color Management (ICM) 2.** Allows you to send high-quality color documents to a printer or another computer with greater speed and reliability than ever before. ICM 2 is an operating system API that helps ensure that the colors you see on your monitor match those on your scanner and printer.

Simplified Management

The configuration management capabilities in Windows 2000 create a more consistent environment for the end user and help ensure that users have any data, applications, and operating system settings that they need.

Windows 2000 includes the following configuration management enhancements:

- **Add/Remove Programs wizard.** Simplifies the process of installing and removing programs. Users can install applications by pointing directly to a location on the corporate network or Internet. The user interface provides additional feedback and sort options to view installed or available applications by size, frequency of use, and time of last use.
- **Windows Installer service.** Manages application installation, modification, repairs, and removal. It provides a standard format for managing the components of a software package, and an API for managing applications and tools.

Troubleshooting Tools

Windows 2000 Professional includes diagnostic and troubleshooting tools that make it easier to support the operating system. Troubleshooting tools in Windows 2000 Professional include the following:

- **Compatibility tool.** Detects and warns the user about whether certain installed applications or components will cause an upgrade to fail, or whether the

components won't work after an upgrade is complete. The compatibility tool can be run by using the /checkupgradeonly switch with the command to start Setup. This generates the Report System Compatibility screen that lists any items found that are incompatible with Windows 2000. For more information on the compatibility tool, see [Chapter 2](#), "Installing Windows 2000 Professional."

- **Troubleshooters.** Included in Windows 2000 online Help as troubleshooting wizards that can be used to solve many common computer problems.

Increased Hardware Support

Microsoft Windows 2000 Professional now supports more than 7,000 hardware devices, such as infrared devices, scanners, digital cameras, and advanced multimedia devices that Windows NT Workstation 4 did not support. Enhancements to hardware support in Windows 2000 Professional include the following:

- **Add/Remove Hardware wizard.** Allows you to add, remove, troubleshoot, and upgrade computer peripherals. When a device isn't working properly, you can use the wizard to stop operation and safely remove the device.
- **Win32 Driver Model (WDM).** Provides a common model for device drivers across Windows 98 and Windows 2000. Drivers that are written to the WDM will work in both Windows 98 and Windows 2000.
- **Plug and Play support.** Enhances previous Plug and Play functionality and allows the following:
 - Automatic and dynamic reconfiguration of installed hardware
 - Loading of appropriate drivers
 - Registration for device notification events
 - Changeable and removable devices
- **Power options.** Prevent unnecessary power drains on your system by directing power to devices as they need it. The options available to you depend on your hardware. These options include the following:
 - **Standby.** Turns off your monitor and hard disks, and your computer uses less power.
 - **Hibernation.** Turns off your monitor and hard disk, saves everything in memory on disk, and turns off your computer. When you restart your computer, your desktop is restored exactly as you left it.

NOTE

Microsoft Windows 2000 also supports DirectX 7, which provides low-level application APIs that give access to high-performance media acceleration on Microsoft Windows-based computers.

Symmetric Multiprocessing

Windows 2000 is a multiprocessing operating system capable of running on computers containing more than one processor. Windows 2000 Professional provides symmetric multiprocessing (SMP) system capabilities and supports two processors. It assumes that all of the processors are equal and that they all have access to the same physical memory. Therefore, Windows 2000 can run any thread on any available processor regardless of which process—user or executive—owns the thread.

The design of Windows 2000 also supports processor affinity, whereby a process or thread can specify that it is to run on a particular set of processors. As with earlier versions of Windows NT, Windows 2000 includes APIs that a process can use for processor affinity. These APIs must be defined in the application to make use of processor affinity.

Windows 2000 uses the same rules for scheduling on a multiprocessor system as it does on a single-processor system. Therefore, at any given time, the threads that are ready and have the highest priorities are actually running.

Asymmetric Multiprocessing

Asymmetric multiprocessing (ASMP) systems also exist, in which processors are different. They might address different physical memory spaces, or they might have other discrepancies. These operating systems run only certain processes on certain processors. For example, the kernel might always execute on a particular processor. Windows 2000 doesn't support ASMP.

Enhanced File Management

Windows 2000 Professional provides significant enhancements to file management capabilities. Features that enhance file management in Windows 2000 Professional include the following:

- **NTFS file system.** Supports file encryption and enables you to add disk space to an NTFS volume without having to restart the computer. It also supports distributed link tracking, and per-user disk quotas to monitor and limit disk space use. For more information on the NTFS file system, see [Chapter 2](#), "Installing Windows 2000 Professional."
- **FAT32 file system.** Supports FAT32 file system for compatibility with Windows 95 Operating System Release (OSR) 2 systems and later. FAT32 is an enhanced version of the FAT file system for use on disk volumes larger than 2 GB. For more information on the FAT32 file system, see [Chapter 2](#), "Installing Windows 2000 Professional."
- **Disk Defragmenter utility.** Rearranges files, programs, and unused space on your computer's hard disk so that programs run faster and files open more quickly. For more information on Disk Defragmenter, see [Chapter 18](#), "Managing Data Storage."
- **Backup utility.** Helps to protect data from accidental loss because of hardware or storage media failure. The Backup utility in Windows 2000 allows you to schedule backups to occur automatically. For more information on the Backup utility, see [Chapter 19](#), "Backing Up and Restoring Data." You can back up data to a wide variety of storage media, such as the following:

- Tape drives
 - External hard disks
 - Zip disks
 - Recordable CD-ROMs
 - Logical drives
- **Volume mount points.** Allow you to connect, or mount, a local drive at any empty folder on a local NTFS-formatted volume.

Enhanced Security Features

Windows 2000 Professional is the most secure Windows desktop operating system for either a stand-alone computer or any type of public or private network. Security features and enhancements in Windows 2000 Professional include the following:

- Kerberos 5. Supports single logon, allowing faster authentication and faster network response. Kerberos 5 is the primary security protocol for domains in Windows 2000.
- Encrypting File System (EFS). Strengthens security by encrypting files on your hard disk so that no one can access them without using the correct password.
- Internet Protocol Security (IPSec). Encrypts Transmission Control Protocol/Internet Protocol (TCP/IP) traffic to secure communications within an intranet and provides the highest levels of security for VPN traffic across the Internet.
- Smart card support. Enables portability of credentials and other private information between computers at work, home, or on the road. This eliminates the need to transmit sensitive information, such as authentication tickets and private keys, over networks.

Lesson Summary

Windows 2000 Professional improves the capabilities of previous versions of Windows in five main areas: ease of use, simplified management, increased hardware support, enhanced file management, and enhanced security features.

Some of the ease-of-use improvements include enhancements to the user interface, such as a customized Start menu that presents only the programs that you use most often, and improved Log On and Shut Down dialog boxes. Windows 2000 Professional includes support for the latest laptop technologies based on APM and ACPI, and provides a Network Connection wizard and VPN support. It provides Offline Folders that allow you to copy documents stored on the network to your local computer for access when you are offline; and it provides Synchronization Manager—which compares items on the network to items that you opened or updated while working offline—and synchronizes them.

Printing in Windows 2000 Professional has also been improved. IPP allows users to

print to a URL over an intranet or the Internet, view printer and job- related information in HTML format from any browser, and download and install printer drivers over the Internet. The Windows 2000 Add Printer wizard simplifies the process of connecting to local and network printers from within a program, and Image Color Management 2 allows you to send high-quality color documents to a printer or another computer with greater speed and reliability than ever before.

Windows 2000 also simplifies the process of setting up a computer. The Windows 2000 System Preparation tool allows you to create an image of a computer's hard disk so that you can use a third-party tool to duplicate the hard disk on similarly configured computers. The Setup Manager wizard guides you through the process of creating answer files for unattended installation scripts.

Microsoft Windows 2000 Professional now supports more than 7,000 hardware devices, such as infrared devices, scanners, digital cameras, and advanced multimedia devices. Other enhancements to hardware support include the following: an Add/Remove Hardware wizard that allows you to add, remove, troubleshoot, and upgrade computer peripherals; a Win32 Driver Model that allows device drivers written to the WDM to work in both Windows 98 and Windows 2000; enhanced Plug and Play support; power options that prevent unnecessary power drains on your system by directing power to devices as they need it; and support for DirectX 7. Windows 2000 Professional also supports symmetric multiprocessing, which means it is capable of running on computers containing more than one processor.

Windows 2000 Professional enhancements to file management capabilities include a disk defragmenter utility and an NTFS file system that supports file encryption, distributed link tracking, and per-user disk quotas to monitor and limit disk space use. A Backup utility allows you to back up data to a wide variety of storage media: tape drives, external hard disks, zip disks, recordable CD-ROMs, and logical drives.

Windows 2000 Professional is the most secure Windows desktop operating system for either a stand-alone computer or any type of public or private network. Security features and enhancements in Windows 2000 Professional include support for Kerberos 5; Encrypting File System, which strengthens security by encrypting files on your hard disk; and IPSec, which encrypts TCP/IP traffic and provides the highest levels of security for VPN traffic across the Internet.

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Lesson 3: Windows 2000 Workgroups and Domains

Windows 2000 supports secure network environments in which users are able to share common resources, regardless of network size. The two types of networks that Windows 2000 supports are workgroups and domains.

After this lesson, you will be able to

- Identify the key characteristics of workgroups and domains.

Estimated lesson time: 10 minutes

Windows 2000 Workgroups

A Windows 2000 *workgroup* is a logical grouping of networked computers that share resources, such as files and printers. A workgroup is referred to as a *peer-to-peer network* because all computers in the workgroup can share resources as equals, or as peers, without a dedicated server. Each computer in the workgroup, running either Windows 2000 Professional or Windows 2000 Server, maintains a local security database, as shown in Figure 1.1. A *local security database* is a list of user accounts and resource security information for the computer the database is on. Therefore, the administration of user accounts and resource security in a workgroup is decentralized.

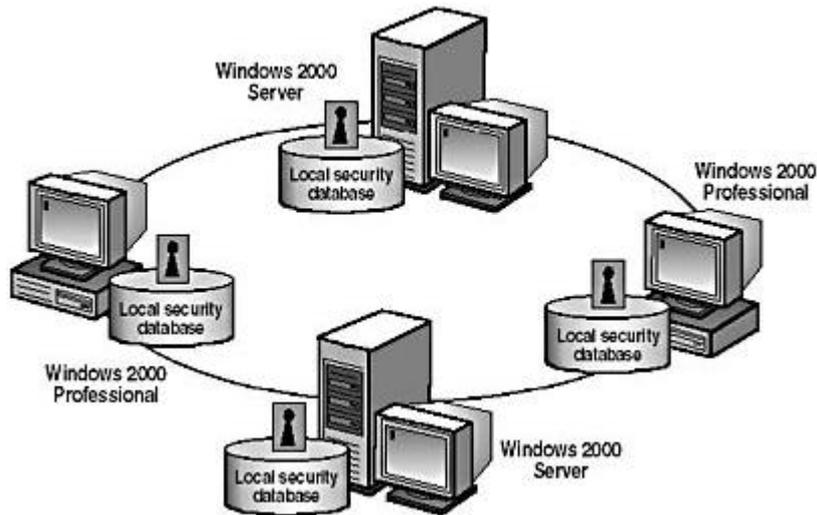


Figure 1.1 An example of a Windows 2000 workgroup

Because workgroups have decentralized administration and security

- A user must have a user account on *each* computer to which he or she wants to gain access.
- You must make any changes to user accounts, such as changing a user's password or adding a new user account, on *each* computer in the workgroup. If you forget to add a new user account to one of the computers in your workgroup, the new user won't be able to log on to that computer and will be unable to access resources on it.

A Windows 2000 workgroup provides the following advantages:

- It doesn't require a computer running Windows 2000 Server to hold centralized security information.
- It's simple to design and implement. A workgroup doesn't require the extensive planning and administration that a domain requires.
- It's convenient for a limited number of computers in close proximity. A workgroup becomes impractical in environments with more than 10 computers.

NOTE

In a workgroup, a computer running Windows 2000 Server is called a

stand-alone server.

Windows 2000 Domains

A Windows 2000 *domain* is a logical grouping of network computers that share a central directory database. (See Figure 1.2.) A *directory database* contains user accounts and security information for the domain. This directory database is known as the Directory and is the database portion of Active Directory directory services, which is the Windows 2000 directory service.

In a domain, the Directory resides on computers that are configured as domain controllers. A *domain controller* is a server that manages all security-related aspects of user/domain interactions. Security and administration are centralized.

NOTE

You can designate only a computer running Windows 2000 Server, Windows 2000 Advanced Server, or Windows 2000 Datacenter as a domain controller. If all computers on the network are running Windows 2000 Professional, the only type of network available is a workgroup.

A domain doesn't refer to a single location or specific type of network configuration. The computers in a domain can share physical proximity on a small local area network (LAN) or can be located in different corners of the world, communicating over any number of physical connections, including dial-up lines, integrated Services Digital Network (ISDN) lines, fiber lines, Ethernet lines, token ring connections, frame relay connections, satellite connections, and leased lines.

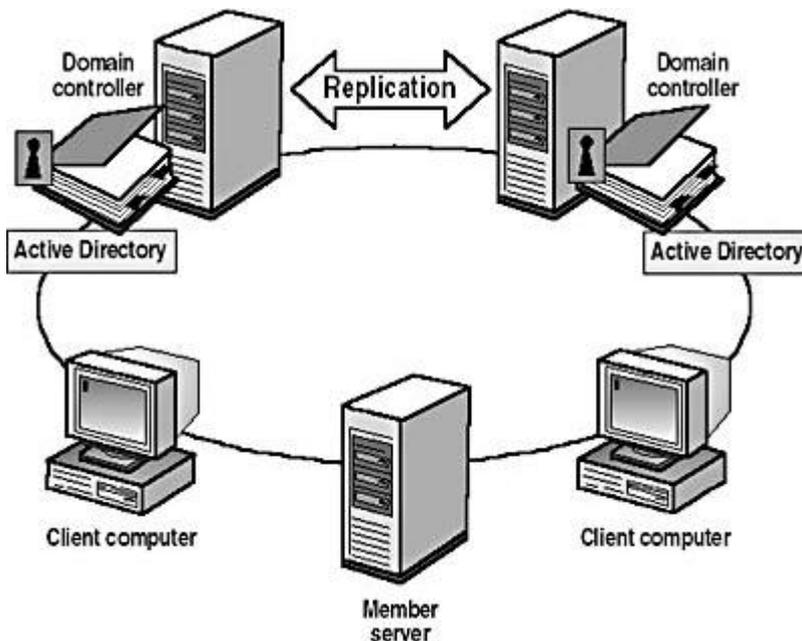


Figure 1.2 A Windows 2000 domain

The benefits of a domain are as follows:

- Provides centralized administration because all user information is stored centrally.

- Provides a single logon process for users to gain access to network resources, such as file, print, and application resources for which they have permissions. In other words, a user can log on to one computer and use resources on another computer in the network as long as he or she has appropriate privileges to the resource.
- Provides scalability so that you can create large networks.

A typical Windows 2000 domain has the following types of computers:

- **Domain controllers running Windows 2000 Server.** Each domain controller stores and maintains a copy of the Directory. In a domain, you create a user account once, which Windows 2000 records in the Directory. When a user logs on to a computer in the domain, a domain controller checks the Directory for the user name, password, and logon restrictions to authenticate the user. When a domain has multiple domain controllers, they periodically replicate their Directory information.
- **Member servers running Windows 2000 Server.** A member server is a server that isn't configured as a domain controller. A member server doesn't store Directory information and can't authenticate users. Member servers provide shared resources such as shared folders or printers.
- **Client computers running Windows 2000 Professional.** Client computers run a user's desktop environment and allow the user to gain access to resources in the domain.

Lesson Summary

In this lesson, you learned about Windows 2000 workgroups and domains. A Windows 2000 workgroup is a logical grouping of networked computers that share resources, such as files and printers. Workgroups are referred to as peer-to-peer networks because all computers in the workgroup can share resources as equals (peers), without a dedicated server. Security and administration aren't centralized in a workgroup because each computer maintains a list of user accounts and resource security information for that computer.

A Windows 2000 domain is a logical grouping of network computers that share a central directory database that contains user accounts and security information for the domain. This directory database is known as the Directory and is the database portion of Active Directory directory services, which is the Windows 2000 directory service. In a domain, security and administration are centralized because the Directory resides on domain controllers, which manage all security-related aspects of user/domain interactions. To create a domain, at least one computer must be running a Windows 2000 server product and must have Active Directory directory services installed on it.

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Lesson 4: Logging On to Windows 2000

This lesson explains the Log On To Windows dialog box that you use to log on to Windows 2000. It also explains how Windows 2000 authenticates a user during the

logon process to verify the identity of the user. This mandatory process ensures that only valid users can gain access to resources and data on a computer or the network.

After this lesson, you will be able to

- Identify the features of the Log On To Windows dialog box.
- Identify how Windows 2000 authenticates a user when the user logs on to a domain or logs on locally.

Estimated lesson time: 10 minutes

Logging On Locally to the Computer

To log on to a computer running Windows 2000, a user provides a user name and password. Windows 2000 authenticates the user during the logon process to verify the identity of the user. Only valid users can gain access to resources and data on a computer or the network. Windows 2000 authenticates users who either log on locally to the computer at which they are seated or log on to a domain.

A user can log on locally to either of the following:

- A computer that is a member of a workgroup.
- A computer that is a member of a domain but is not a domain controller. The user selects the computer name in the Log On To box in the Enter Password dialog box.

NOTE

Domain controllers don't maintain a local security database. Therefore, local user accounts aren't available on domain controllers, and a user can't log on locally to a domain controller.

When a user starts a computer running Windows 2000 Professional, the user is prompted to enter a user name and a password in the Log On To Windows dialog box, as shown in Figure 1.3.

Notice that the Log On To Windows dialog box contains an Options button. This button is a toggle that displays or hides additional logon options. Table 1.2 describes the available options in the Log On To Windows dialog box.



Figure 1.3 *The Log On To Windows dialog box*

Table 1.2 *Log On To Windows Dialog Box Options*

| Option | Description |
|---------------------------------|--|
| User Name | A unique user logon name that is assigned by an administrator. To log on to a domain with the user name, the user account must reside in the Directory. |
| Password | The password that is assigned to the user account. Users must enter a password to prove their identity. Passwords are case sensitive. The password appears in the Password box as asterisks (*) to protect it from onlookers. To prevent unauthorized access to resources and data, users must keep passwords secret. |
| Log On Using Dial-up Connection | A check box that appears when you click the Options button. It permits a user to connect to a domain server by using dial-up networking. Dial-up networking allows a user to log on and perform work from a remote location. |
| Shutdown | A button that appears when you click the Options button. It closes all files, saves all operating system data, and prepares the computer so that a user can safely turn it off. |
| Options | A button that toggles on and off the Log On To drop-down list, the Log On Using Dial-up Connection check box option, and the Shutdown button. See Figure 1.4. |



Figure 1.4 The Log On To Windows dialog box showing the Log On To drop-down list

Windows 2000 Authentication Process

To gain access to a computer running Windows 2000 or to any resource on that computer, a user must provide a user name and password.

How Windows 2000 authenticates a user varies, based on whether the user is logging on to a domain or logging on locally to a computer. (See Figure 1.5.)

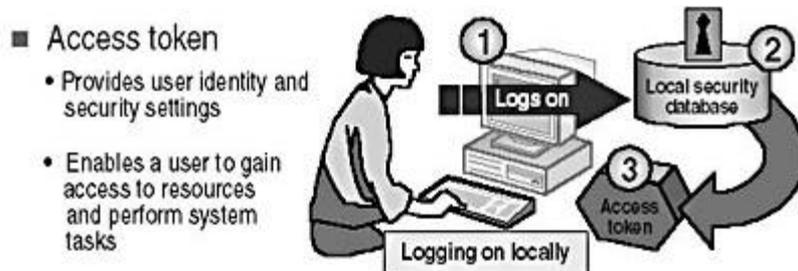


Figure 1.5 Windows 2000 authentication process at Logon

When logging on locally, the steps in the authentication process are as follows:

1. The user logs on by providing logon information, such as *user name* and *password*, and Windows 2000 forwards this information to the security subsystem of that local computer.
2. Windows 2000 compares the logon information with the user information that is in the local security database.

The security subsystem of the local computer contains the local security database that Windows 2000 uses to validate the logon information.

3. If the information matches and the user account is valid, Windows 2000 creates an access token for the user.

An *access token* is the user's identification for that local computer, and it contains the user's security settings. These security settings allow the user to gain access to the appropriate resources and to perform specific system tasks.

NOTE

In addition to the logon process, any time a user makes a connection to a computer, that computer authenticates the user and returns an access token. This authentication process is invisible to the user.

Lesson Summary

In this lesson, you learned that when a user starts a computer running Windows 2000 Professional, the Log On To Windows dialog box appears, and the user must enter a valid user name and password to log on. You also learned about the various options available in the Log On To Windows dialog box.

When a user logs on, he or she can log on to the local computer; or, if the computer is a member of a domain, the user can log on to the domain. The authentication process for logging on locally and logging on to a domain is similar. However, when a user logs on locally, the local computer performs the authentication; and when a user logs on to a domain, a domain controller must perform the authentication. If the user is logging on locally, the security subsystem of the local computer contains the local security database that Windows 2000 uses to validate the logon information. If the user is logging on to a domain, a domain controller contains a copy of the Directory that Windows 2000 uses to validate the logon information.

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Lesson 5: The Windows Security Dialog Box

This lesson explains the options and functionality of the Windows Security dialog box.

After this lesson, you will be able to

- Identify the features of the Windows Security dialog box.

Estimated lesson time: 5 minutes

Using the Security Dialog Box

Windows 2000 gives you access to the Windows Security dialog box, which provides information such as the user account currently logged on and the domain or computer to which the user is logged on. This information is important for users with multiple user accounts, such as a user who has a regular user account as well as a user account with administrative privileges.

You access the Windows Security dialog box by pressing Ctrl+Alt+Delete. Figure 1.6 shows the Windows Security dialog box, and Table 1.3 describes the Windows Security dialog box options.



Figure 1.6 *Windows Security dialog box*

Table 1.3 *The Windows Security Dialog Box Options*

| Option | Description |
|-----------------|---|
| Lock Computer | <p>Allows you to secure the computer without logging off. All programs remain running. You should lock your computer when you leave for a short period of time.</p> <p>The user who locks the computer can unlock it by typing a valid password in the Password box.</p> <p>An administrator can also unlock a locked computer, logging off the current user.</p> |
| Log Off | Allows you to log off as the current user and close all running programs, but leaves Windows 2000 running. |
| Shut Down | Allows you to close all files, save all operating system data, and prepare the computer so that you can safely turn it off. |
| Change Password | <p>Allows you to change your user account password. You must know the old password to create a new one. This is the only way you can change your own password.</p> <p>Administrators can also change your password.</p> |
| Task Manager | <p>Provides a list of the current programs that are running, a summary of overall CPU and memory use, and a quick view of how each program, program component, or system process is using the CPU and memory resources.</p> <p>You can also use Task Manager to switch between programs and to stop a program that isn't responding.</p> |
| Cancel | Closes the Windows Security dialog box. |

Lesson Summary

In this lesson, you learned that you access the Windows Security dialog box by pressing Ctrl+Alt+Delete, and that this dialog box provides information such as the user account currently logged on and the domain or computer to which the user is logged on. You also learned that you can use the Windows Security dialog box to lock your computer, to change your password, to log off your computer while leaving Windows 2000 running, to shut down your computer, and to access Task Manager.

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Review



The following questions will help you determine whether you have learned enough to move on to the [next chapter](#). If you have difficulty answering these questions, please go back and review the material in this chapter before beginning the next chapter. The answers for these questions are in [Appendix A](#), "Questions and Answers."

1. What is the major difference between a workgroup and a domain?
2. What are Active Directory directory services, and what do they provide?
3. What information must a user provide when he or she logs on to a computer?
4. What happens when a user logs on locally to a computer?
5. How do you use the Windows Security dialog box?

[Answers](#)