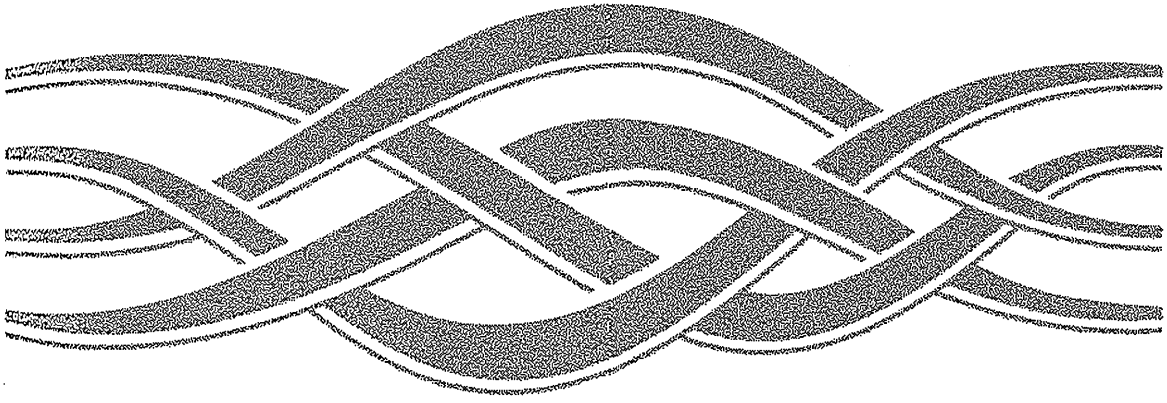
Microsoft®

Start Here

Basics and Installation



Microsoft®
Windows NT®
Server

Microsoft Support

In the event you cannot install Microsoft® Windows NT® Server, please refer to the support offerings below. Microsoft's support offerings range from no-cost and low-cost online information services (available 24 hours a day, 7 days a week) to annual support plans. Please check the Technical Support section in online Help for detailed information.

Microsoft support services are subject to Microsoft's then-current prices, terms, and conditions, which are subject to change without notice.

Information Services

AnswerPoint Information Services provides you with easy access to the latest technical and support information for Microsoft products. You can access a variety of low and no cost Information Services 24 hours a day, 365 days a year.

Internet services (World Wide Web and FTP sites): Access the Microsoft Frequently Asked Questions, Software Library, Knowledge Base, customer-to-customer newsgroups, and other technical information on our Internet sites.

- The World Wide Web site is located at http://www.microsoft.com
- The FTP site is located at ftp.microsoft.com

The Microsoft Network (MSN) and other online services: Access the Microsoft Frequently Asked Questions, Software Library, Knowledge Base, customer-to-customer Bulletin Board Services, and other technical information on MSN and other online services. To access Microsoft services on MSN, choose Go To Other Location from the Edit menu and type MSSUPPORT.

Microsoft TechNet: CD-ROM based Microsoft TechNet is the front-line resource for fast complete answers to technical questions on Microsoft desktop and systems products. For more information or o subscribe to Microsoft TechNet, call (800) 344-2121.

Microsoft Developer Network Library (MSDN): CD-ROM based MSDN is the comprehensive source of programming information and toolkits for those who write applications for the Microsoft Windows, Windows 95, and Windows NT operating systems, or use Microsoft products for development purposes. For more information or to subscribe, call (800) 759-5474.

Microsoft Download Service (MSDL): Direct modem access to a variety of technical information is available on MSDL by dialing (206) 936-6735. Connect information: 1200, 2400, 9600, or 14400 baud, no parity, 8 data bits, and 1 stop bit.

Microsoft FastTips: This automated service provides quick answers to your common technical questions via an automated toll-free telephone number, fax, or mail. To access FastTips or to receive a map and catalog, call the following FastTips numbers:

Desktop applications:	**(800) 936-4100**	**Development products:**	**(800) 936-4300**
Personal Systems products:	**(800) 936-4200**	**Business Systems:**	**(800) 936-4400**

Priority Support

Microsoft AnswerPoint offers priority telephone access to Microsoft support engineers 24 hours a day, 7 days a week, excluding holidays.

- In the United States, call (900) 555-2100; $195 per incident. Charges appear on your telephone bill.
- In the United States, call (800) 936-5900, at $195 (U.S.) per incident, billed to your VISA, MasterCard, or American Express card.
- In Canada, call (800) 668-7975 for more information.

For more information on Priority support offerings, including annual contracts, call Microsoft AnswerPoint Sales at (800) 936-3500.

Text Telephone

Microsoft text telephone (TT/TDD) services are available for the deaf or hard-of-hearing. In the United States, using a TT/TDD modem, dial (206) 635-4948. In Canada, using a TT/TDD modem, dial (905) 568-9641.

Microsoft Service Advantage℠

Microsoft Service Advantage provides large organizations with the services and support they need to successfully plan, build, and manage mission-critical systems based on Microsoft products. Microsoft Service Advantage combines direct services from Microsoft with those from established enterprise service partners, providing a total solution that delivers real business advantage.

Direct Services

Microsoft offers the following direct services for global enterprise organizations: Enterprise Program Manager, Premier, Premier Global, Custom Consulting, Technology Consulting Blueprints, and the Microsoft Solutions Framework. All can be purchased with a single Microsoft Master Service Agreement.

An Enterprise Program Manager is an on-site, senior-level consultant who combines high-level architectural expertise with a long-term commitment and in-depth knowledge of your organization, tailoring specific guidance to the way your organization uses technology.

Premier support services help you achieve smooth, stable systems deployments with maximum uptime. Premier includes a designated support team who gets to know your technical environment and works with you to provide proactive services to help avoid problems before they occur. You also get reactive support—24-hours-a-day, 7-days-a-week direct access to senior support engineers—to minimize unplanned downtime.

Premier Global extends Premier support for multinational organizations. Premier Global to helps you with worldwide systems deployment by coordinating both proactive and reactive Premier support services across country boundaries.

Custom Consulting, delivered by Microsoft Consulting Services, helps you plan, build, and manage distributed computing environments, with a strong emphasis on knowledge transfer—empowering you to become proficient with Microsoft technology. Highly skilled in client-server architecture and design, Microsoft consultants frequently serve in a project-management capacity, helping to ensure a quality implementation by working closely with both you and your third-party partners.

Technology Consulting Blueprints are predefined consulting projects around specific technology topics, such as Windows 95 and Office 95 migration planning, Microsoft Exchange planning, and Internet/Intranet application planning. These represent Microsoft Consulting Services' best practices in areas critical to large organizations. As a result, the general requirements, deliverables, approach, and expectations are well defined in advance, with the implementation specifics tailored to each organization.

Microsoft Solutions Framework (MSF), developed from years of product development and customer experience, is a process guide for planning, building, and managing technology projects. MSF delivers a suite of concepts and reference models that help you identify effective team structures, a dynamic development and life cycle model, and flexible application architecture. It is available in facilitated training from Microsoft Solution Provider ATECs and Microsoft, and includes a CD-ROM knowledge base.

For more information on Microsoft Service Advantage, please contact your Microsoft Sales Representative or your local Microsoft Sales Office.

Product Support Worldwide

The following list contains Microsoft subsidiary offices and the countries they serve. If there is no Microsoft office in your country, please contact the establishment from which you purchased your Microsoft product. This list provides only basic technical support phone and fax numbers; other services such as BBS and sales numbers may be available. For additional subsidiary information, check the Product Support Services Worldwide section in online Help.

When you call, you should be at your computer and have the appropriate product documentation at hand. Please follow the guidelines listed above under "Priority Support".

Area	Telephone Numbers	Fax Numbers	Area	Telephone Numbers	Fax Numbers
Argentina	(54) (1) 819-1900	(54) (1) 819-1921	Liechtenstein	See Switzerland (German-speaking)	
Australia	(61) (02) 870-2131	(61) (02) 805-0519	Luxembourg	(Dutch speaking): (32) 2-5133274 (English speaking): (32) 2-5023432 (French speaking): (32) 2-5132268	
Austria	0660-6593	0222-68 16 2710	Mexico	(52) (5) 325-0912 -Client (52)(5) 237-4800 -Server	
Belgium	(Dutch speaking): 02-5133274 (English speaking): 02-5023432 (French speaking): 02-5132268		Netherlands	(Dutch speaking): 023-5677877 (English speaking): 023-5677853	
Bolivia	See Argentina		New Zealand	64 (9) 357-5575	64 (9) 307-0516 and 64 (9) 357-5577
Brazil	(55) (11) 871-0090	(55) (11) 262-8638	Northern Ireland	See United Kingdom	
Caribbean	(214) 714-9100	(809) 273-3636	Norway	(47) (22) 02 25 50	(47) (22) 02 25 70
Chile	56-2-330-6000	56-2-330-6190	Papua New Guinea	See Australia	
Colombia	(571) 618 2255	(571) 618 2269	Paraguay	See Argentina	
Czech Republic	(+42) (2) 2451 0554	(+42) (2) 2423 4343	Poland	(+48) (2) 6216793 or (+48) (71) 441357	(+48) (2) 6615434
Denmark	(45) (44) 89 01 11	(45) (44) 89 01 44	Portugal	351 1 4409280/1/2/3	(351) 1 4411655
Dubai	(971) 4 513 888	(971) 4 527 444	Republic of China	(886) (2) 508-9501	(886) (2) 504-3121
Ecuador	(593) (2) 463-094		Republic of Ireland	See United Kingdom	
England	See United Kingdom		Russia	(+7) (502) 224 50 46	(+7) (502) 224 50 45
Finland	(0358) (90) 525 502 500	(46) (0)8 752 29 00	Scotland	See United Kingdom	
France	(33) (1) 69-86-10-20	(33) (1) 69-28-00-28	Singapore	(65) 337-6088	(65) 337-6788
French Polynesia	See France		Slovenia	(+386) (61) 1232354	
Germany	089/3176-1199	089-3176-1000	Slovak Republic	(+42) (7) 312083	(+42) (2) 2423 4343
Greece	(30) (1) 6806-775 through (30) 1 6806-779	(30) (1) 6806 780	South Africa	0 802 11 11 0 (2) 11 445 010	(27) 11 445 0045 or (27) 11 445 0046
Hong Kong	(852) 804-4222	2535-9293	Spain	91 807 99 60	(34) (1) 803-8310
Hungary	(36) (1) 267-4636	(+36) (1) 268-1558	Sweden	(46) (8) 752 09 29	(46) (0)8 752 29 00
India	(01) (91) 646 0694	(01) (91) 646-0813	Switzerland	(German speaking): 01/831-1581 (French speaking): 022-738 96 88	01-831 08 69
Ireland	See United Kingdom		Turkey	(90) 212 2585998	(90) 212 2585954
Israel	972-3-613-0833	972-3-613-0834	United Kingdom	(01734) 271007	(01734) 270080
Italy	(39) (2) 7039-8351	(39) (2) 7039-2020	Uruguay	See Argentina	
Japan	(81) (424) 41-8700	(81) (3) 5454-8100 (1#-0# for guidance)	Venezuela	(582)-2654337	(582)2650863
Korea	(822) 566-0027	(82) (2) 531-4600	Wales	See United Kingdom	

Start Here

Basics and Installation
Microsoft® Windows NT® Server
Version 4.0

Microsoft Corporation

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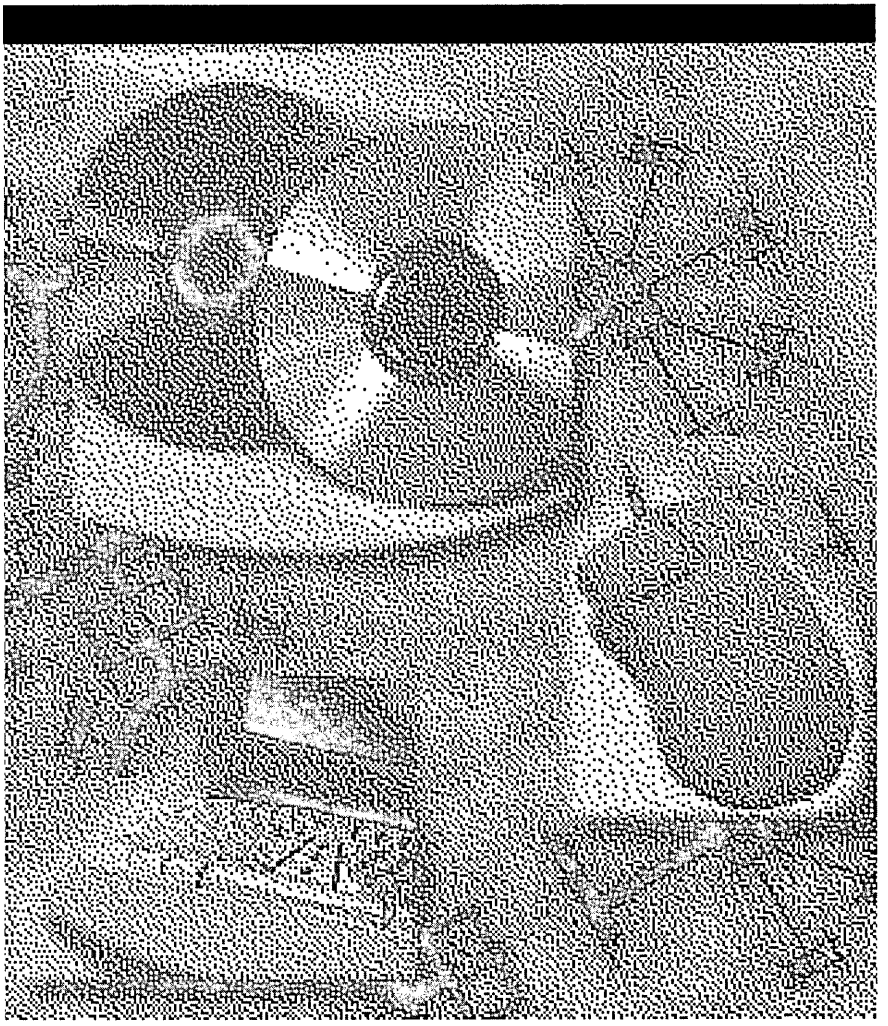
About This Book

The *Start Here* manual is for new and experienced users of Microsoft Windows NT. In Part I, you'll learn the basic features of Windows NT 4.0, including the new Windows 95 interface. Designed to get you up-to-speed quickly and easily, Part I provides the step-by-step procedures you'll need to get started. Part II lists the system requirements for running this new version, and then guides you through installing this new operating system.

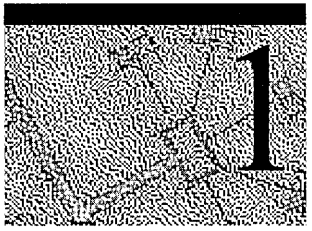
PART 1

Introduction



CHAPTER 1

Welcome



Welcome to Microsoft® Windows NT® Server 4.0, the network foundation for the future. Designed to meet the most demanding requirements of today's business computing world, Windows NT Server is also the easiest network operating system to set up, manage, and use.

This robust, multipurpose network operating system offers dependable file and print services, while providing the architecture to run powerful client/server applications. With built-in support for communications and Internet services, Windows NT Server is the only network operating system that includes Internet and intranet capabilities. The new features built into Windows NT Server offer you better communications by providing more choices for accessing information—especially through a wide range of built-in Internet tools. New features also provide you with easier, lower cost networking and improved performance.

Introducing Windows NT Server 4.0

These are the major ways in which Windows NT Server 4.0 is designed to meet the demanding computing needs of today's business world.

Integration with Current and Future Technology

Interoperability Windows NT Server interoperates with a broad range of server operating systems including: NetWare, UNIX, Banyan, Microsoft LAN Manager, Pathworks, SNA, and Macintosh. The migration tools that are included make it easy for you to upgrade from NetWare and LAN Manager. Windows NT Server also includes standard support for the widest range of client operating systems, including MS-DOS®, Windows®, Windows NT Workstation, UNIX, OS/2, and Macintosh.

Protocols Windows NT Server includes support for more protocols than any other network operating system.

File sharing Windows NT Server is the only network operating system that supports file sharing via NCP, X-Open SMB, and HTTP. Windows NT Server supports POSIX application interfaces, conforming to the open systems guidelines of the U.S. government.

Simple Setup and Management

Easy setup All of the hardware drivers you need are included on the compact disc. You can even use wizards to custom configure your system so you don't have to answer difficult technical questions.

Integrated security Windows NT Server is the only network operating system that has been certified by the U.S. government. All information, whether accessed via NetWare, Windows NT Server, Macintosh, or Web-based protocols, is subject to this security. Because of its integration with Windows NT Server, the Internet Information Server provides the same level of security.

Easy integration Long filenames, dial-in networking, and network protocols are supported. Administrators can also control desktop configurations and give a common look and feel across workstations.

Easy and secure directory services The directory services go beyond simple file and print access to provide secure, easily managed, single-logon access to server applications, as well as management of NetWare binderies.

Built-in Services

Integrated Web server The Internet Information Server is a full-featured Web server that is tightly integrated with Windows NT Server, taking advantage of such services as Performance Monitor and Event Viewer. Windows NT Server also includes the Internet Information Server API (ISAPI), which enables developers to unlock the power of server applications, such as the ones included in Microsoft BackOffice™.

Easy navigation Users can navigate traditional file shares, as well as Web documents, using the Windows NT Explorer.

Faster access to information Advanced information retrieval speeds the process of finding documents within a large base of heterogeneous information.

Complete communication services Windows NT Server is unsurpassed as a communications server, offering built-in features that can link virtually any client, regardless of the operating system, to any information source, such as NetWare or Web servers, across any communications link.

A Platform for the Future

Fast, reliable, and secure Windows NT Server provides a fast, reliable, and secure platform for Internet and intranet applications, and applications for healthcare, banking, accounting, manufacturing, and retail industries.

Distributed applications for the Internet In addition to using component object model (COM) to integrate applications on a single computer, you can now use distributed component object model (DCOM) to integrate robust Web browser applications. DCOM provides the infrastructure for client/server applications that can share components across the Internet or intranet.

Low cost dial-up connectivity More efficient use of dial-up connections through carrier networks, such as the Internet, is possible because Remote Access Server includes a new technology, Point to Point Tunneling Protocol (PPTP).

Telephony integration Telephony application programming interface (API) support is included so that you can take advantage of PBXs for unified messaging, call center applications, and even integrated PBX communications server navigation.

Finding Information About Windows NT Server

This manual, *Windows NT Server Start Here,* provides the information you need to get started quickly. The *Windows NT Hardware Compatibility List* (HCL) contains a list of computers and peripherals that are compatible with Windows NT Server 4.0. For more information about Windows NT Server, see the following documentation.

Additional Printed Documentation

To obtain the following additional printed manuals, fill out and return the fulfillment card in the back of this manual.

Concepts and Planning Guide Contains information about implementing and optimizing Windows NT Server

Networking Supplement Contains information about networking tools, protocols, and services for Windows NT Server

Online Documentation

Online Help Files

The online Help files included with Windows NT Server are your primary source for getting assistance. To access these files, click the **Start** button, then click **Help**. You can browse through the Help **Contents** tab to get an overview of the online information, or choose the **Index** or **Find** tab to get specific assistance on a topic.

Books Online

Online versions of the *Concepts and Planning Guide* and the *Networking Supplement* are available through a tool called Books Online.

Before you can view the online books, you need to copy the Books Online files from the \Support\books folder on the Windows NT Server compact disc to the \Help folder in the Windows NT Server folder on your hard disk or network. For more detailed instructions about copying the Books Online files, see the Readme.doc file in the \Support\books folder of the compact disc.

The Books Online program can be accessed by clicking the **Start** button, pointing to **Programs**, and then clicking **Books Online**. The first time you run the Books Online program, you set the location of the online books. Thereafter, the online books open automatically from that location.

Additional Files on Your Compact Disc

The Windows NT Server compact disc provides some files that provide you with the most current information about the product. See the directory for your computer's platform: i386, MIPS, ALPHA, or PPC.

Setup.txt Contains information that should be read before installing Windows NT Server.

Readme.doc Contains general information about Windows NT Server, including hardware- and software-specific information and descriptions of product features that were added or changed after the documentation was created.

Printer.doc Contains printer-specific information.

Network.doc Contains network-specific information.

Other Sources of Information

The Microsoft Windows NT Server World Wide Web Site

For information on upgrades and other news, see the Microsoft Windows NT Server World Wide Web Site.

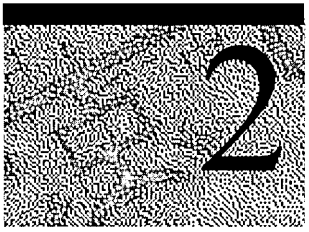
```
http://www.microsoft.com/NTServer
```

Windows NT Server Resource Kit

If you want to become an expert user of Microsoft Windows NT Server, see the *Windows NT Server Resource Kit Version 4.0*. It also contains specific information for administrators who are responsible for installing, managing, and integrating Windows NT Server in a network or multiuser environment.

CHAPTER 2

Learning the Basics



This chapter introduces you to the new look and feel of Windows NT 4.0 and provides you with the basic procedures you need to know to begin your work.

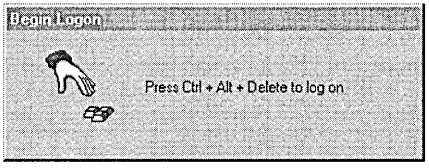
Starting and Quitting Windows NT

This section shows you how to log on, start, and quit Windows NT.

Logging on is the process of identifying yourself to the computer by giving your name and password. This process identifies you as an authorized user and helps maintain security.

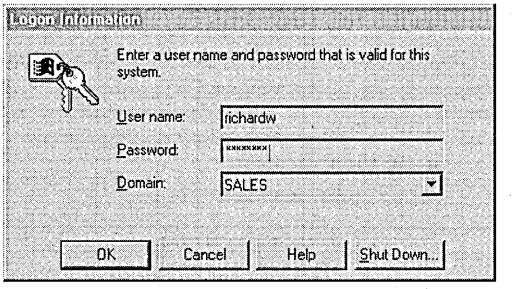
To log on to Windows NT

1. When you start your computer and see the **Begin Logon** dialog box, press CTRL+ALT+DEL to log on.



You will now see the **Logon Information** dialog box.

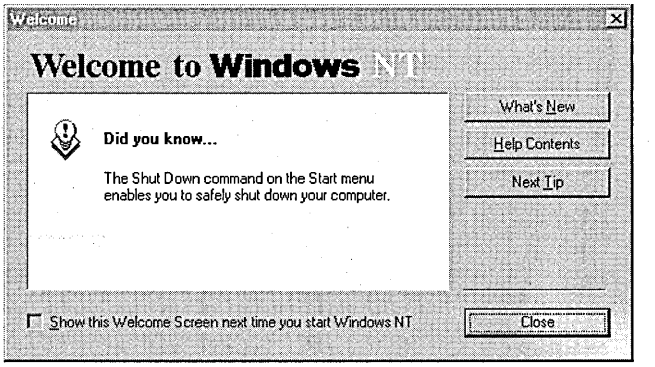
2. Type your user name and password in the **Logon Information** dialog box.



Your user name was set when your system administrator established your user account or when you installed Windows NT.

Your password is a security measure to restrict access to your computer by unauthorized users. A password can contain up to 14 characters and can include uppercase and lowercase letters. If you do not want to log on with a password, your system administrator can disable the service.

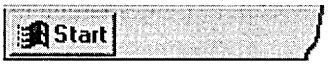
3. On the Welcome to Windows NT screen, choose one of the following four options:
   - **What's New?** to get answers to common questions asked by users who have used Windows NT before.
   - **Help Contents** to search for Help by typing a subject, title, or specific word or phrase.
   - **Next Tip** to view another tip on the Welcome screen.
   - **Close** button to close the Welcome screen and begin working with Windows NT.



To start using Windows NT

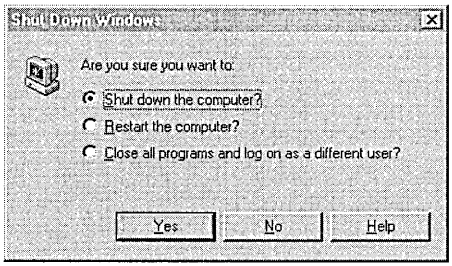
- Click the **Start** button to display the **Start** menu.

  From this menu, you can start your programs, files, and documents. You also use the **Start** menu to quit Windows NT.



To quit Windows NT and shut down your computer

1. Click the **Start** button and then click **Shut Down**.
2. Click **Shut down the computer**.



If you forget to save changes to documents, Windows NT prompts you to save changes.

A screen message lets you know when you can safely turn off your computer.

Caution Before you turn off or restart your computer, always shut down Windows NT. That way you can be sure your work is saved to your hard disk.

Getting Online Help

All of the information that you need to learn and use for Windows NT is now online. You should refer to online Help as your primary source of information to help you use Windows NT.

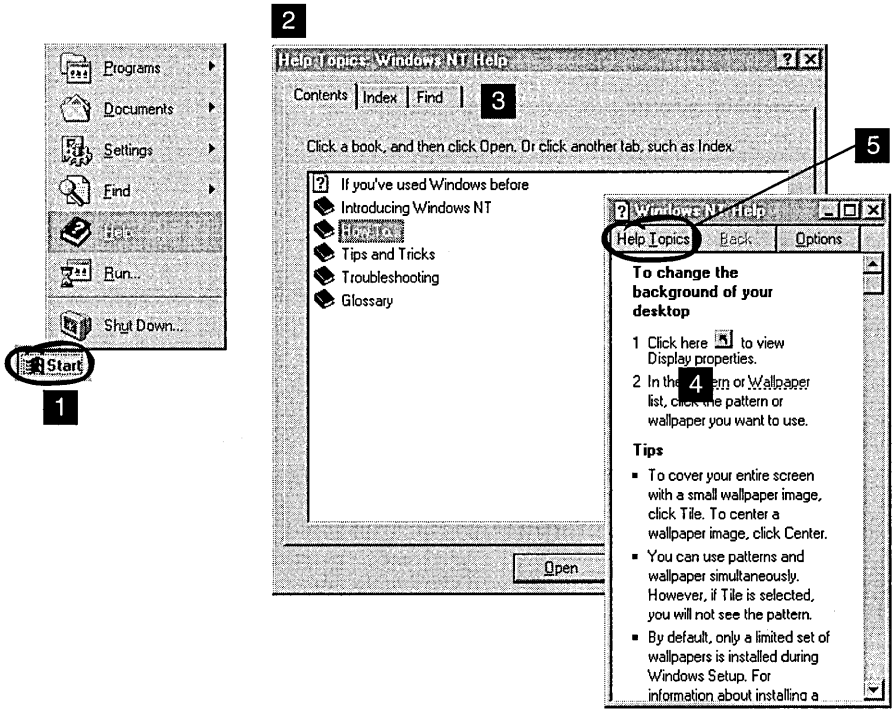
Windows NT provides you with two kinds of Help

- Help about specific procedures
- Help about what you see on your screen

When you open Help by using the **Start** menu or the **Help** menu in **My Computer** or the other icons, you will get Help for Windows NT in general. If you use the **Help** menu in a program such as Wordpad, Paint, or Microsoft Word, the Help you see is specifically for that program.

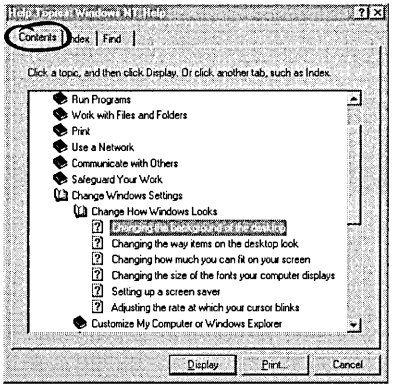
To get Help about procedures

1. Click the **Start** button, and then click **Help**.
2. The list of Help topics appears.
3. You can use the **Contents** tab in Help to find topics grouped by subject, or use the **Index** tab or **Find** tab to search for information by typing in a subject, title, or specific word or phrase.
4. Some Help topics contain green underlined text. You can click the green text to see a definition of the term.
5. To return to the list of topics after reading about a specific topic, click **Help Topics**.



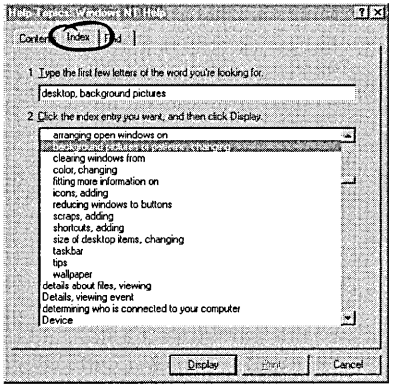
To find Help using the Contents tab

Click the **Contents** tab to find topics grouped by subject.



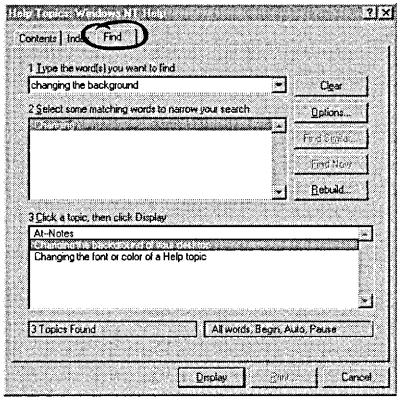
To find Help using the Index tab

Click the **Index** tab to find specific topics listed alphabetically. To scroll through the Help index, type the first few letters of the word you want to search for. If you don't find the entry you want, type a synonym for the word you want.

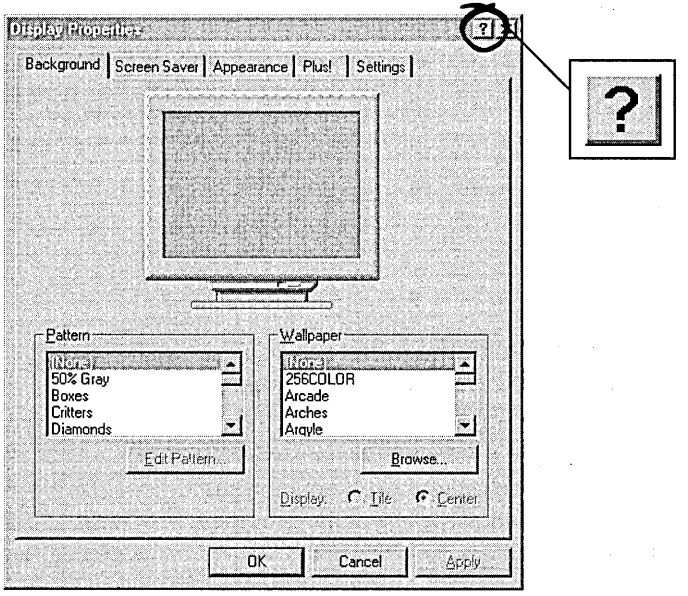


To find Help using the Find tab

Click the **Find** tab to find all the topics that contain a specific word or phrase.



The **What's This?** button, in the upper-right corner of your screen, is an easy way to get information about an item in a dialog box.



To get Help using the What's This? button

1. Click the **What's This?** button.
   The appearance of the pointer changes.
2. Click the item in the dialog box that you want information about. An explanatory message appears.
3. To make the message disappear, click anywhere on the screen.

Using the New Streamlined Desktop

The new Windows NT screen design makes it easier and faster for you to get your work done. This section introduces the new screen design and tells you what happened to the icons from earlier versions of Windows NT.

What's New on Your Windows NT Screen?

Depending on how your computer is set up, different icons will appear on your desktop when you start Windows NT. Four icons that are new to Windows NT are: My Computer, Network Neighborhood, Recycle Bin, and the **Start** button.

My Computer

My computer displays icons representing various resources available to your computer. These include floppy disk drives, CD-ROM drives, hard disk drives, and also any network resources you are connected to such as printers and network drives. Double-click these icons to see the contents.

Network Neighborhood

If your computer is set up to use a network directory service, you can double-click the Network Neighborhood icon to see computers in your workgroup.

Internet Explorer

Double-click the Internet Explorer icon to browse web pages on your local network and/or on the Internet.

Recycle Bin

The Recycle Bin is a temporary storage place for deleted files. You can use it to retrieve files deleted in error. These deleted files are not actually removed from your hard disk until you empty the Recycle Bin.

To delete a file, just drag it to the Recycle Bin.

To empty the Recycle Bin, double-click the icon, click **File**, and then click **Empty Recycle Bin**. To free up disk space, you must empty the Recycle Bin periodically.

Important If you delete a file at the command prompt or from a disk, it does not go into the Recycle Bin. It is permanently deleted from your computer.

My Briefcase

If you access files using two different computers, such as a laptop and a main computer, then you can use My Briefcase to keep your files updated and synchronized.

Inbox

If your computer is setup to use Windows messaging, you can double-click the Inbox icon to send and receive messages.

Start Button

The **Start** button and taskbar are located at the bottom of your screen when you start Windows NT for the first time. By default, they are always visible when Windows NT is running. You use the **Start** button to start programs, open documents, change system settings, find items on your computer, get Help, and more.

To see the **Start** menu, which contains everything you need to begin using Windows NT, click the **Start** button. The following list briefly describes each command on the **Start** menu.

This command	Does this
Programs	Displays a list of programs or program folders you can start.
Documents	Displays a list of documents that you've opened recently.
Settings	Displays a list of system components for which you can change settings.
Find	Enables you to find a folder, file, shared computer, or mail message.
Help	Starts Help. You can then use the Help **Contents**, **Index**, or **Find** tab to find out how to do a task in Windows NT.
Run	Starts a program or opens a folder when you type the name or path.
Shut Down	Shuts down or restarts your computer, or logs you on as a different user.

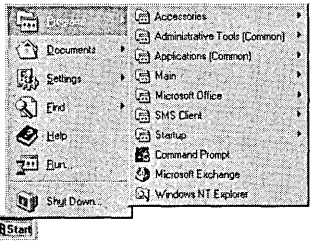
Depending on your computer and the options you have chosen, you might have additional items on your **Start** menu.

What Happened to Your Old Windows NT Icons?

Many elements that are familiar to Windows NT users have been replaced by new icons in this version of Windows NT. Items that have changed include Program Manager, File Manager, MS-DOS Prompt, Control Panel, Print Manager, the **Run** command, task switching, and the **Close** button.

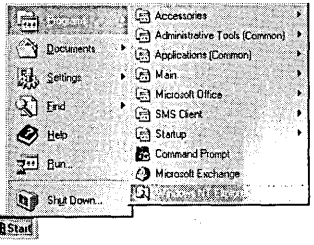
Program Manager

You can find your old program groups by clicking the **Start** button and then pointing to **Programs**. Your groups appear as folders on the **Programs** menu.



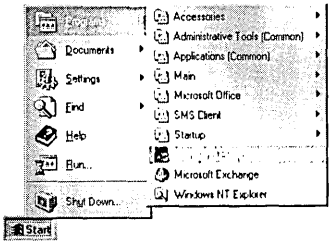
File Manager

To manage your files, click the **Start** button, point to **Programs**, and then click **Windows NT Explorer**. Your directories appear as folders.



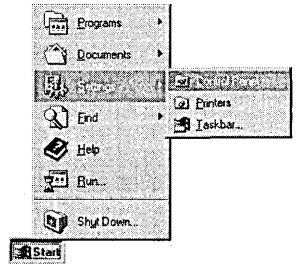
MS-DOS Prompt

To open an MS-DOS window, click the **Start** button, point to **Programs**, and then click **Command Prompt**.



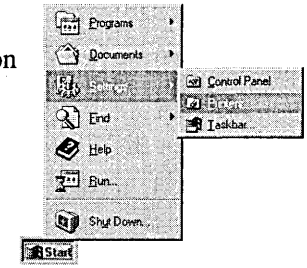
Control Panel

To open **Control Panel**, click the **Start** button, point to **Settings**, and then click **Control Panel**.



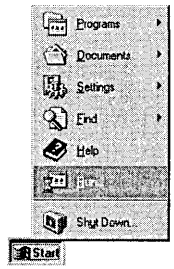
Print Manager

To set up a printer or look at information about documents you're printing, click the **Start** button, point to **Settings**, and then click **Printers**.



Run Command

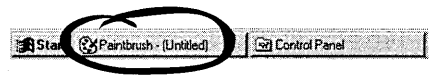
To use the **Run** command, click the **Start** button, and then click **Run**. You can either type the name and path of the program that you want to start or you can just specify the name of the program. You can execute MS-DOS®–based and Windows–based programs, open folders, and connect to network resources by using **Run**.



ALT+TAB

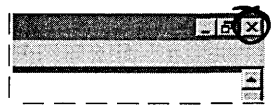
Task Switching

You can use the taskbar to switch between open windows. Just click the button on the taskbar that represents the window you want to switch to. You can also press ALT+TAB to switch between tasks, just as you did in earlier versions of Windows NT.



Close Button

To close a window, click the **Close** button in the upper-right corner of the window, next to the **Minimize** and **Maximize** buttons.

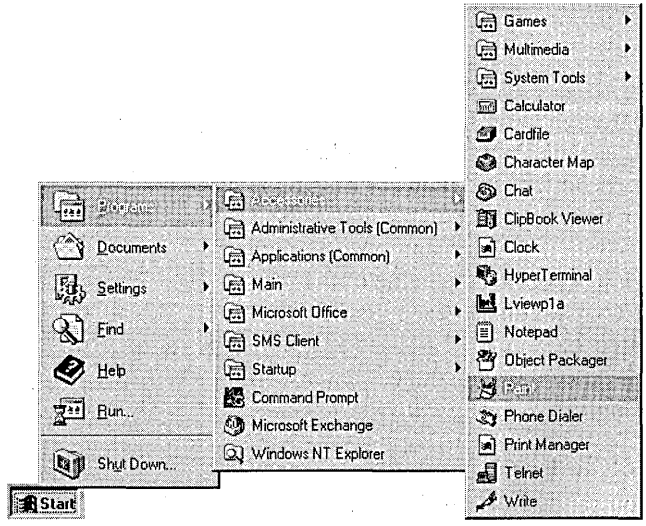


Opening, Closing, and Switching Between Programs

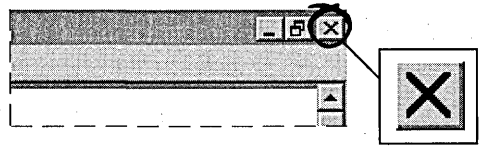
There are two ways you can open a program in Windows NT. You can select the program from your **Programs** menu. Or, if you know the name and path of the program you want to start, you can use the **Run** command to start it.

To open and close a program from the Programs menu

1. To start a program, click the **Start** button, and then point to **Programs**. Any program groups that you have from previous versions of Windows NT have been converted into folders by Windows NT.
2. Point to the folder containing the program that you would like to open, and then click the program name.



3. To quit the program, click the **Close** button in the upper-right corner of the window.

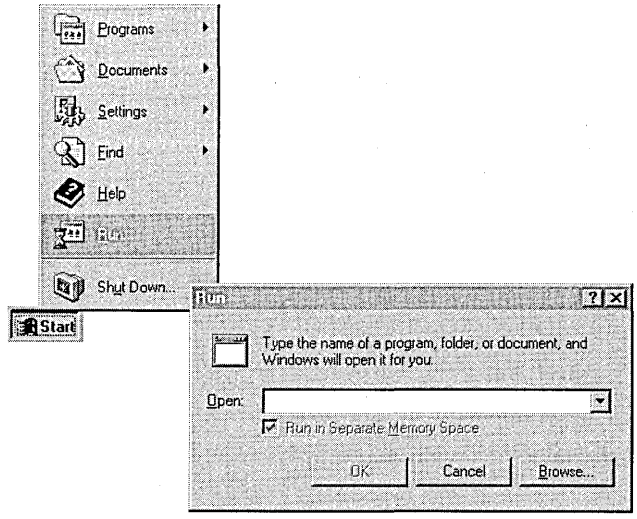


To open and close a program using the Run command

1. To start a program, click the **Start** button, and then click **Run**.

2. Type the name of the program, folder, or document you want to open. You can also click **Browse** to look for the item.

   When you use the **Run** command, you can often specify just the name of the program instead of the full path.



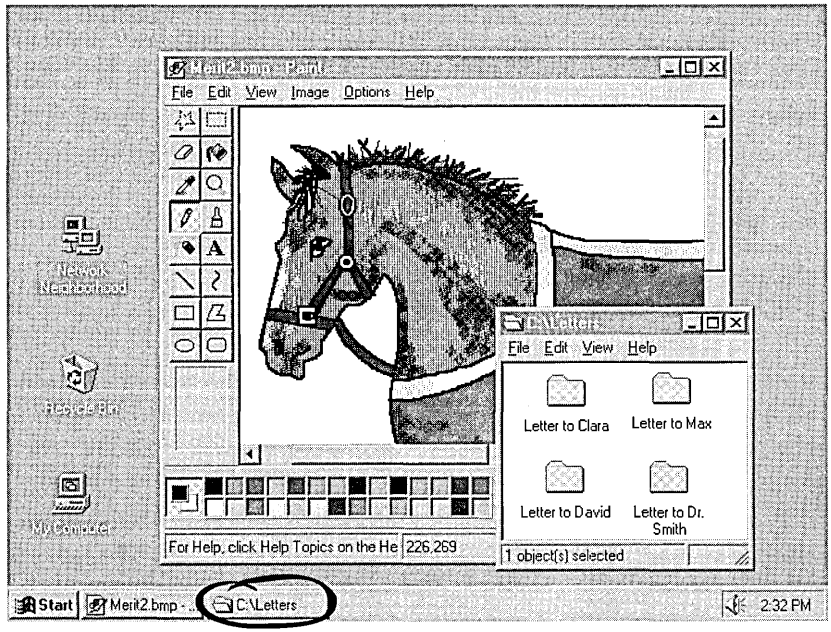
3. To see items that you typed previously, click the arrow in the **Open** box.
4. To quit a program, click the **Close** button in the upper-right corner of the window.

You can run many programs at the same time, and switch easily between them by using the taskbar. The taskbar contains a button for each open folder or program on your computer. You must already have the programs open in order to view them on the taskbar.

To switch between programs

- Click the taskbar button representing the open program or folder that you want to switch to.

The program's window then appears in front of the other windows on your screen.



Viewing the Contents of Your Computer

There are two ways you can view programs, documents, and data files that you have on your computer. You can use the **My Computer** icon that is displayed on your desktop, or you can use **Windows NT Explorer** under **Programs** on the **Start** menu.

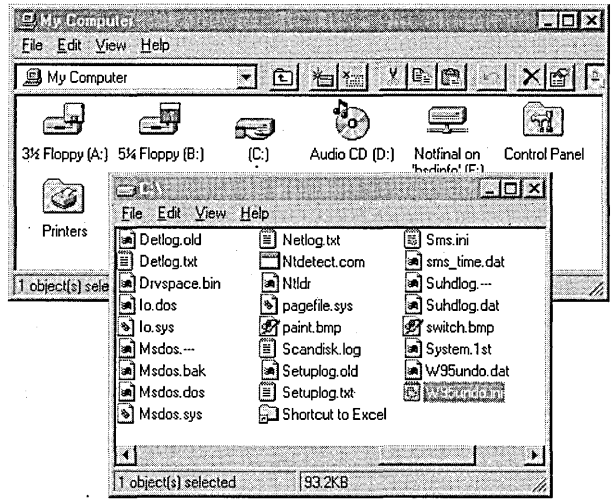
To view your computer's contents using the My Computer icon

1. From your desktop, double-click **My Computer.** A window appears displaying additional icons.
2. Double-click these icons to view the contents of your computer.

   The following table shows many of the icons likely to appear on your screen, and explains their uses.

Double-click this icon		To do this
	3 1\2 Floppy A:	View the contents of a disk in your computer's 3.5-inch drive, if there is one.
	5 1\4 Floppy B:	View the contents of a disk in your computer's 5.25-inch drive, if there is one.
	Disk Drive C:	View the contents of your computer's hard disk.
	Audio CD D:	View the contents of a compact disc in your computer's CD-ROM drive, if there is one.
	Network Drive E:	View the contents of a network drive, if your computer is connected to one.
	Control Panel	Change the settings for your computer.
	Printers	Set up printers and view information about your printers and the documents you print.

When you double-click a disk-drive icon in **My Computer**, you see the following window.



3. Double-click any of these icons to start a program, see the contents of a folder, or view information in a file.

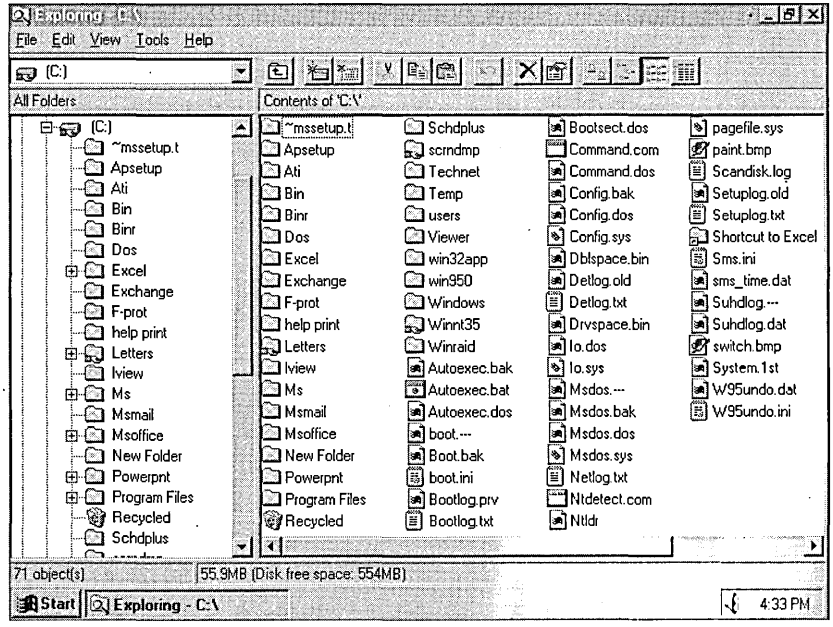
This icon	Represents
	A folder, which can contain files and other folders. Your directories appear as folders.
	A shared folder. You set up shared folders so that other people on a network can use the folder's contents.
	A file, the basic unit of storage in Windows NT. The documents you use and create are files, and so are the programs you use. Different files are represented by different icons. If the file type does not have a specific icon associated with it, then this standard icon will be used to represent your document.
	A document that was created with WordPad, the text editor that is included with Windows NT.

To view your computer's contents using Windows NT Explorer

1. Click the **Start** button, point to **Programs**, and then click **Windows NT Explorer**.

   A double-paned window appears. The left side of the window lists all the names and icons of the disk drives on your computer, as well as files and folders. The right side of the window displays the contents of any item you click on the left, along with its icon.

2. Double-click the icon of a document or program that you want to open. The contents appear in the right window.



Using Your Mouse to Work Efficiently

This section shows you how you can use your mouse to quickly accomplish common actions and speed up your work. Notice that your mouse has two buttons, a left button and a right button. You select an item by clicking it—to click, quickly press and release the left mouse button (called left-click) or the right mouse button (called right-click).

Here are some actions that you perform using your mouse:

Move Items You can move an item by pointing to it, pressing and holding down the left or right mouse button, and then dragging the item to another location.

Create Shortcuts You can open a file or folder directly from your desktop or from the Start menu by creating a *shortcut* icon that represents a link to a document, folder, disk drive, computer or printer.

Get Help You can get help on any item on your screen by clicking the What's This? button and then clicking the item you would like more information on.

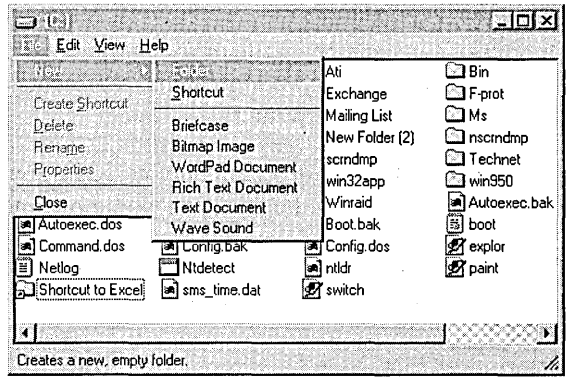
Complete Common Tasks You can right-click any item on your screen and a task menu will appear, listing common tasks that can be performed on that item. Click a task to activate it.

Organizing Files and Folders

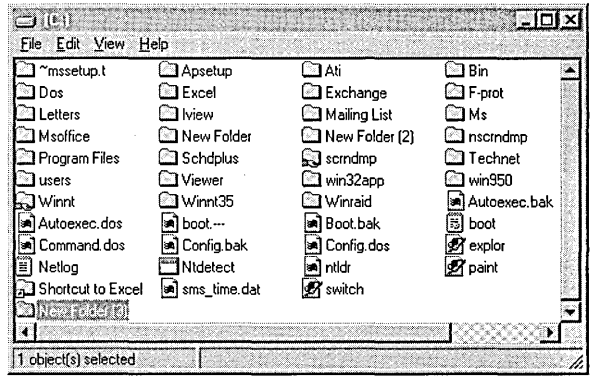
This section shows you some basic procedures for organizing files and folders on your computer so that they are easier to work with. The following procedures use **My Computer**, but you can also use **Windows NT Explorer** to do these tasks.

To create a new folder

1. Double-click **My Computer**, and then double-click the drive or folder in which you want to place the new folder.
2. On the **File** menu, point to **New**, and then click **Folder**.

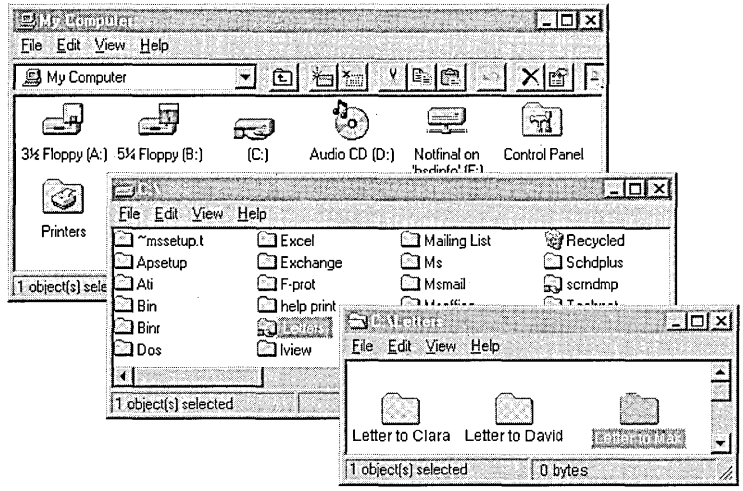


3. Type the name of the new folder, and then press ENTER.

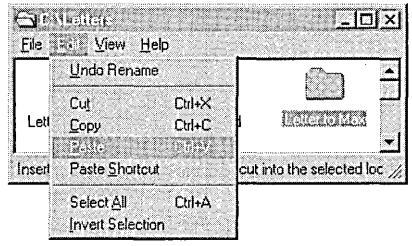


To move or copy a file or folder

1. Double-click **My Computer**. Find the file or folder you want to move or copy, and then click it.



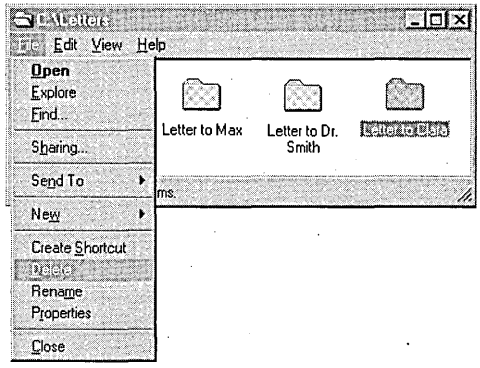
2. Click **Edit**. To move the file, click **Cut**. To make a copy of the file, click **Copy**.



3. Open the folder where you want to place the file, click **Edit**, and then click **Paste**.

To delete a file or folder

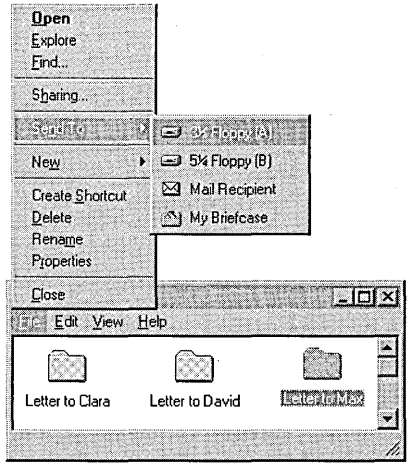
1. Double-click **My Computer**. Find the file or folder you want to delete, and then click it.



2. On the **File** menu, click **Delete**.

To copy a file to a floppy disk

1. Double-click **My Computer**. Find the file or folder you want to copy, and then click it.
2. On the **File** menu, point to **Send To**, and then click the drive where you want to copy the file or folder.

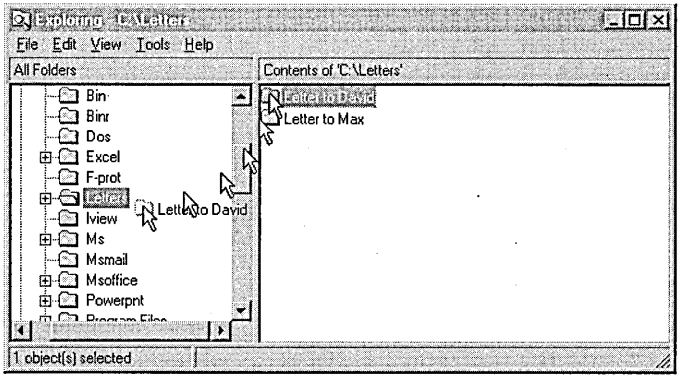


Using Drag and Drop to Move Information

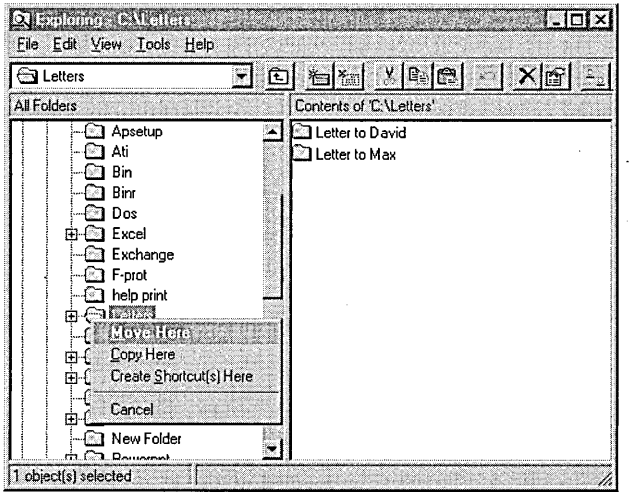
Sometimes the quickest way to move and copy information is to drag it from one place to another by using your mouse. You can move or copy files and folders to another folder or disk drive.

To move or copy by dragging

1. In **Explorer**, open the folder that contains the file or folder you want to move or copy.
2. Press down the right mouse button and keep the button pressed down as you drag the icon to the folder where you want to move or copy it. Then release the mouse button.



3. Click **Move Here** or **Copy Here**.

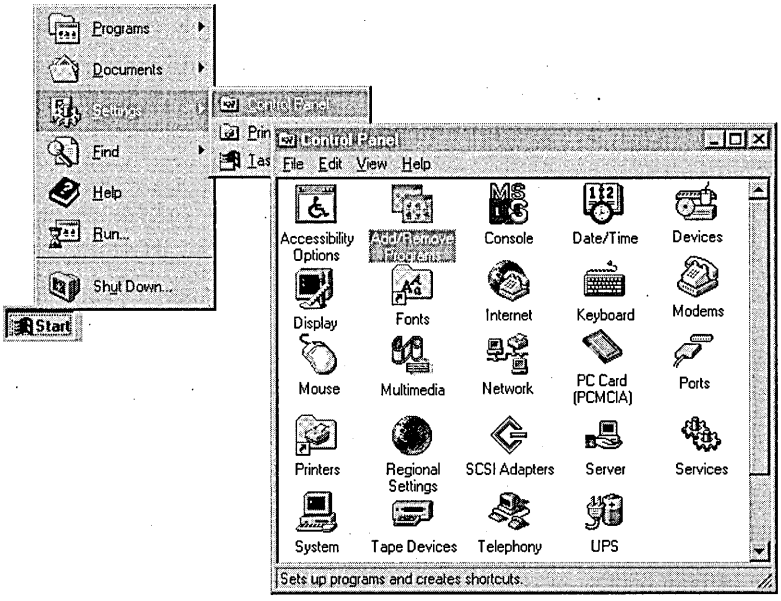


Installing Software Programs

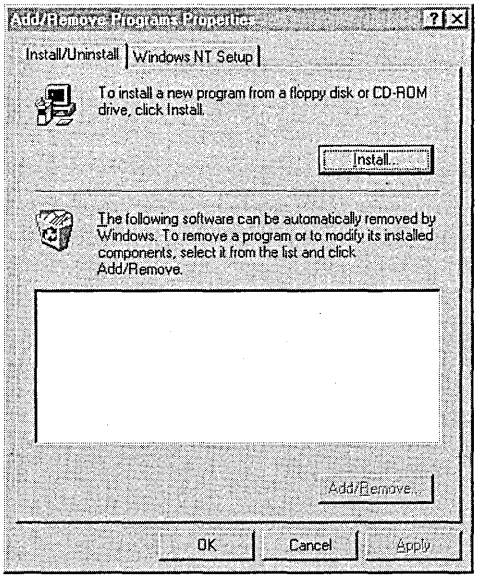
It's easy to install software onto your computer using Windows NT. You can add and remove programs with the **Add/Remove Programs** utility in **Control Panel**.

To install programs

1. Click the **Start** button, point to **Settings**, and then click **Control Panel**.



2. Double-click **Add/Remove Programs**.
3. The **Add/Remove programs Properties** dialog box appears. Follow the instructions on your screen.



Customizing Your Computing Environment

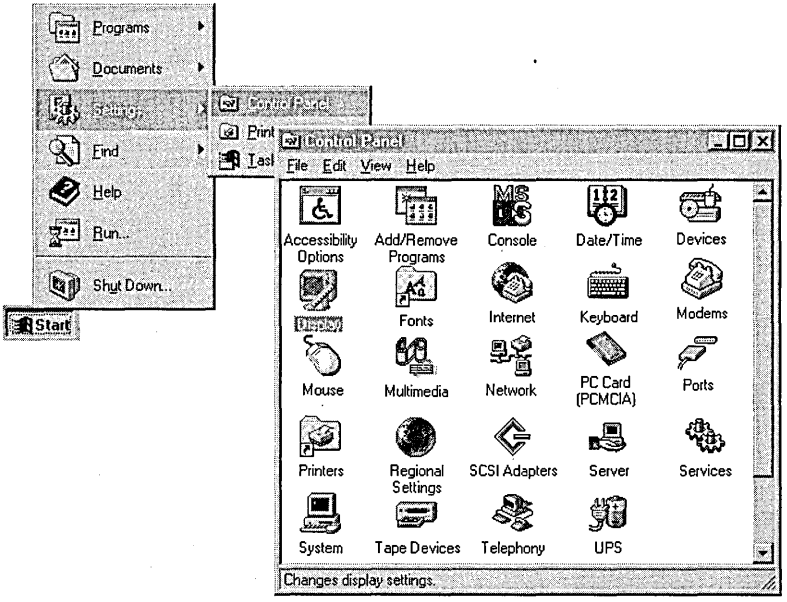
There are many ways in which you can customize Windows NT to suit your needs. For example, you can change the way your computer screen physically looks by changing screen colors and backgrounds. You can also change the way your keyboard and mouse work. And you can create *shortcuts* to frequently-used files and programs, which will then open automatically when you start your computer or click the shortcut icon.

Personalizing Your Desktop

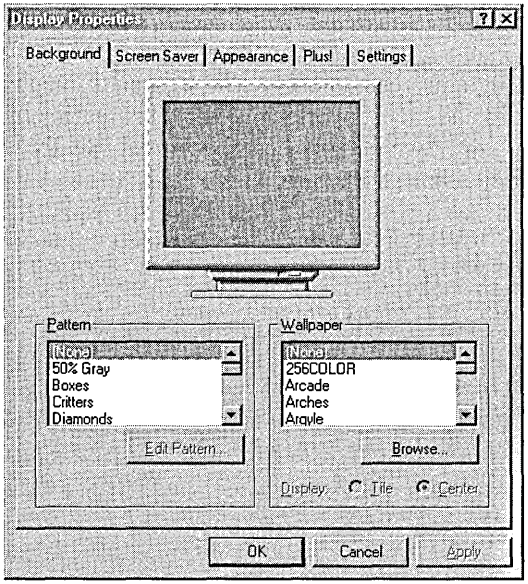
You can personalize your desktop by changing screen colors and backgrounds. These changes are made using **Control Panel**.

To change the way your screen looks

1. Click the **Start** button, point to **Settings**, and then click **Control Panel**.

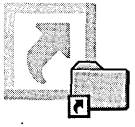


2. Double-click the **Display** icon.
3. To see more settings, click the tabs at the top of the **Display Properties** dialog box.



Opening Frequently-Used Programs and Documents Quickly

If there are programs and documents that you use frequently, you can create a shortcut to open the program or document quickly. Once created, the shortcut appears as an icon. The shortcut icon has a small arrow in its lower-left corner.



A shortcut lets you open a file or folder from a more convenient location. For example, directly from your desktop or from the **Start** menu, or automatically at Startup. You can open any object—including folders, disk drives, other computers, or printers—using a shortcut.

A shortcut does not change a file's location. It can point to a file or resource on your computer or on a network server. A shortcut can even represent a paragraph in a document. You can have multiple shortcuts to the same object and you can copy and delete shortcuts. Note that when you delete a shortcut it does not affect the original object.

Opening a Document Directly from Your Desktop

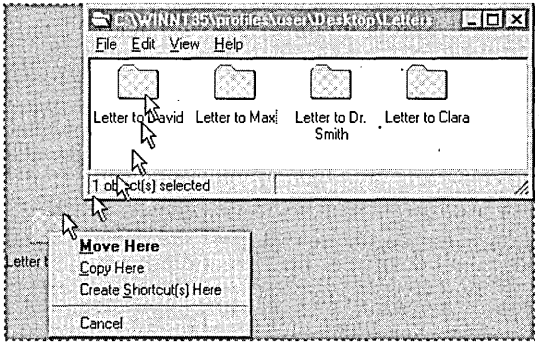
You can open a file or folder directly from your desktop. For example, if you write a letter to David every day, you can place a shortcut icon to that file on the Windows NT desktop. You can then open the document directly from your desktop by double-clicking the "Letter to David" icon.

To open a document directly from your desktop

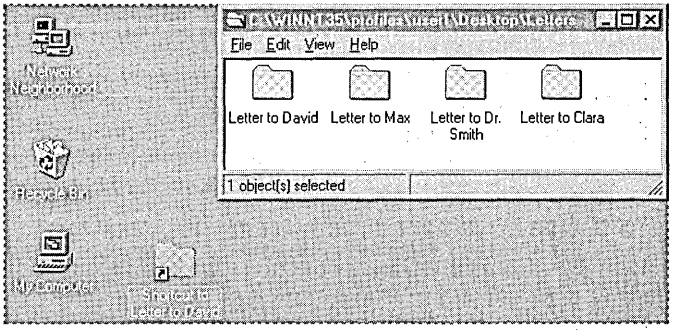
1. In **My Computer**, locate the item you want to copy onto your desktop.

2. Use the right mouse button to drag the item to the desktop. You can see that you are moving the icon because there is an arrow pointing to it as it moves. Release the mouse button when the item is directly on the desktop.

3. A menu appears when you release the mouse button. Left-click **Create Shortcut(s) Here.**



4. The shortcut icon appears on your desktop. You can now open the Letter To David file directly from your desktop.



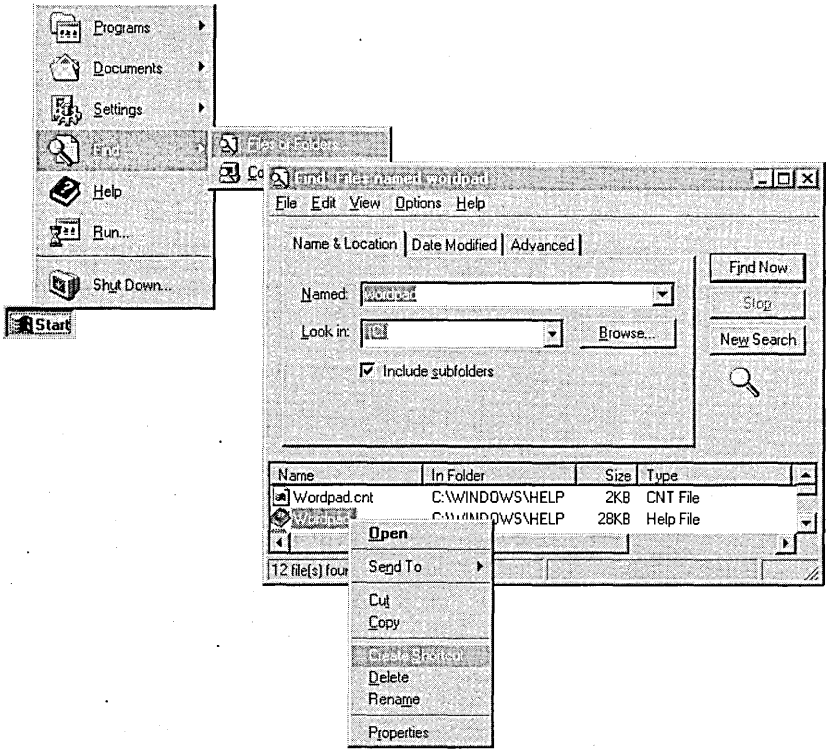
Opening a Program Automatically

It is convenient to have the programs that you use most often open automatically when you start Windows NT. To do this, create a shortcut to the program in your Startup folder.

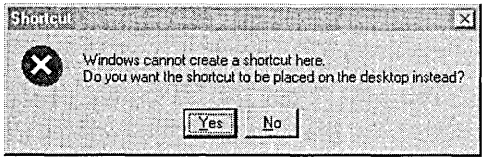
To open a program automatically when you start Windows NT

1. From the **Start** menu the **Find** command, and click **Files or Folders.**
2. Type the name of the file, program, or folder you want to create a shortcut to, and then right-click it.

3. Click **Create Shortcut**.

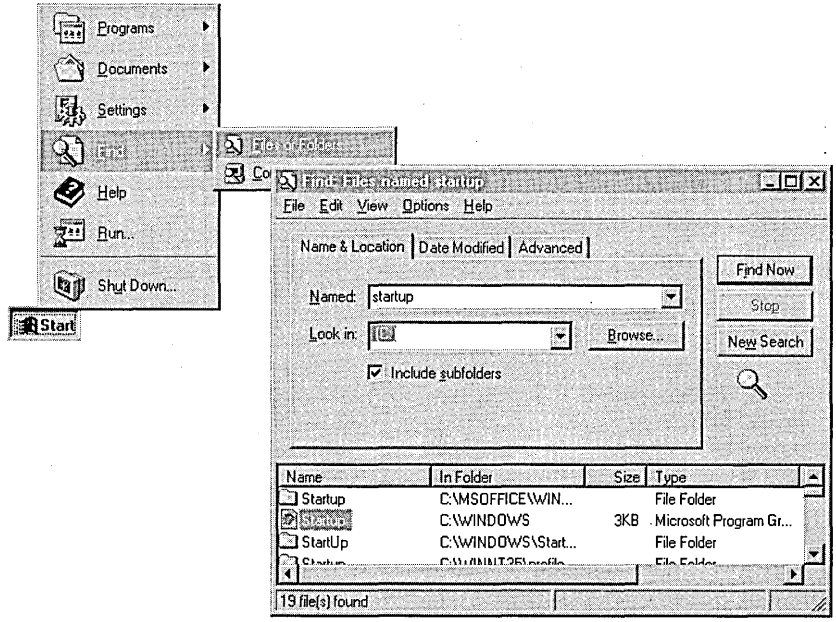


4. A message appears asking if you would like to create a shortcut on the desktop. Click **Yes**.

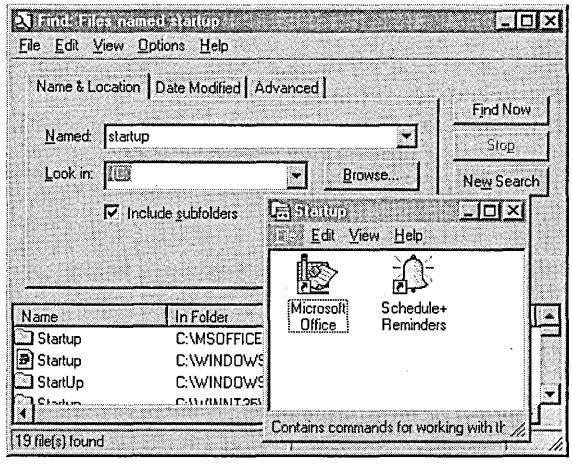


The shortcut appears on your desktop.

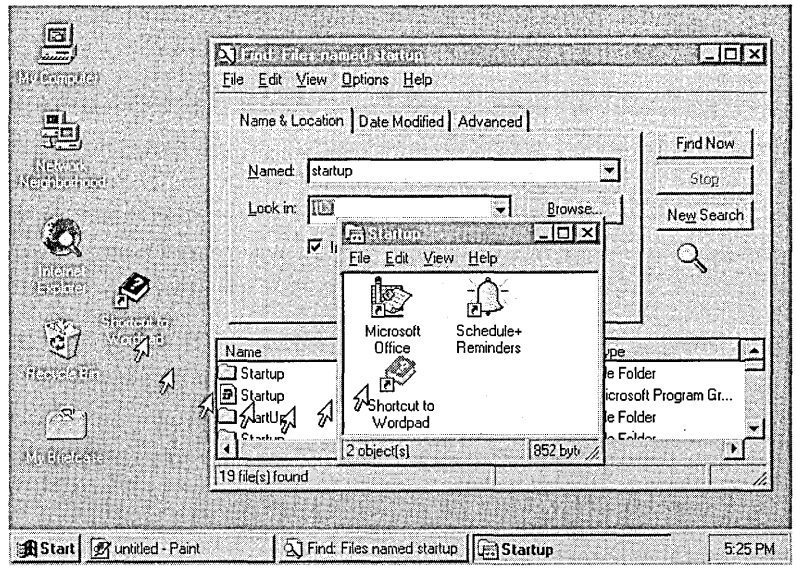
5. Using the **Find** command, locate the Startup folder on your computer.



6. Double-click Startup to view the Startup window.



7. Drag the shortcut from the desktop into the Startup window and release the mouse. Your program will now begin automatically at Startup.



Opening a Document Directly from the Start Menu

You can create a shortcut that will enable you to open a document directly from the **Start** menu. Your shortcut icon will appear at the top of the menu.

To open a document directly from the Start menu

- In **My Computer** or **Explorer**, right-click the document you want, and drag it onto the **Start** button. The icon will appear at the top of the **Start** menu, and you can open it by clicking it.

Changing the Way Windows NT Works and Looks

To change the way Windows NT works and looks, use the icons in **Control Panel.** These icons represent options, including network and sound capabilities, for configuring your computer. The icons in **Control Panel** will vary, depending on the devices you installed on your computer.

To view Control Panel

- Click the **Start** button, point to **Settings**, and then click **Control Panel**.

The following table shows many of the icons likely to appear on your screen, and explains their uses:

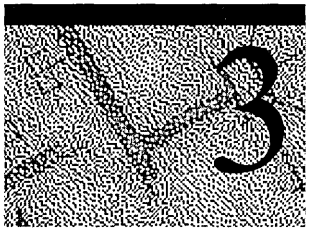
Choose		To
	Accessibility Options	Change your computer screen, mouse, keyboard features, and sound to make Windows NT more accessible for people with disabilities.
	Add/Remove Programs	Install and remove software automatically, and add or remove installed components in Windows NT.
	Console	Change the appearance of your MS-DOS screen by changing screen colors, screen size and position, fonts, cursor size, and more.
	Date/Time	Change the system date, time, and time zone.
	Devices	Start, stop, and configure the startup type for device drivers.
	Display	Change the appearance of your screen by changing screen colors, fonts, the appearance and size of windows, background design, icons, and other visuals.
	Fonts	Add or remove screen, vector, TrueType, and Type 1 fonts. Some printer fonts are installed automatically when you install a printer. Other printer fonts must be installed using a font installation program provided by the font manufacturer.
	Keyboard	Adjust the keyboard delay and repeat rate, and add keyboard symbols that are exclusive to other languages.
	Modems	Add modems using the Add Modem wizard, a step-by-step modem setup program.
	Mouse	Customize elements such as speed and button functions for your pointing device.
	Multimedia	Adjust audio, video, CD (music), and MIDI, and add or remove multimedia devices.
	Network	Configure network adapter cards, network services and protocols, and join a workgroup or a domain.
	PC Card (PCMCIA)	Display resources used by any PC cards, if you have these devices.

(continued)

Choose		To
	Ports	Set parameters for, and add and remove serial communications ports.
	Printers	Add and remove printers and remove, control, and create share access to printers using the Add Printer wizard, a step-by-step printer setup program.
	Regional Settings	Change sort dates, time, currency, and numbers to reflect regional standards.
	SCSI Adapters	Display adapters and devices connected to your computer.
	Server	Display user and share information.
	Services	Start, stop, pause, or continue the services available on the computer, and configure startup options.
	Sounds	Assign sounds to system and application events, and turn on or off the warning beep and system sounds.
	System	Specify the default operating system for startup, change user environment variables, and define paging file size.
	Tape Devices	Display, add, and remove tape devices.
	Telephony	Display, add, and remove telephony drivers. Change telephony properties. Adjust telephony conditions depending on whether your computer is docked or undocked.
	UPS	Create settings for Uninterrupted Power Supply.

CHAPTER 3

Learning the More Advanced Features



This section covers those tasks that you may want to use to keep your computer performing optimally.

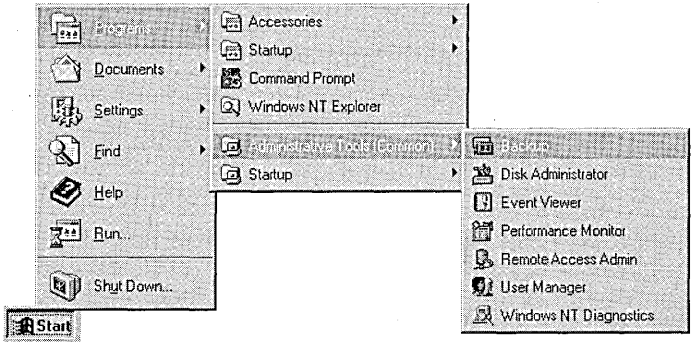
Backing Up Your Data Files

You can protect the data on your computer from accidental loss or hardware failures by using the Backup tool. Backup enables you to easily copy programs, disks, and data onto a tape drive for preservation. Backup also makes it easy for you to archive data for legal or historical purposes and to safely remove older, unused files from your hard disk.

Note Before you can back up your files, you must first install a tape drive, using the **Tape Devices** option in **Control Panel**.

To open Backup

1. Click the Start button, point to Programs, and then Administrative Tools.
2. Click Backup.



From this window you can select files to back up, check the status of your backup, and set various options.

Using Administrative Tools

Windows NT comes with several tools that help you administer your computer. To use these tools, click the **Start** button, point to **Programs**, and then point to the **Administrative Tools (Common)** menu. To use any of the administrative tools, you must be logged on with administrative privileges.

The following table shows the **Administrative Tools (Common)** for Windows NT Server.

Tool		Function
	Administrative Wizards	The administrative wizards help you complete specific tasks easily. You can use these wizards to add new user accounts, set security on files or folders, share folders, create new and modify existing user groups, and check to see if installed software is licensed.
	Backup	Backup is a tool used to back up information to your local tape drive. Backing up your computer protects your data from accidental loss.
	Disk Administrator	Disk Administrator is a tool for managing disk resources. Use Disk Administrator to make changes to your hard disk or to partition an additional hard disk.
	Event Viewer	In Windows NT, an event is any significant occurrence in the system or in a program that requires you to be notified. Event Viewer notifies you and/or puts the event in a log.
	License Manager	License Manager manages and tracks licenses for products on network servers in an organization. It provides a centralized view of Per Seat and Per Server licenses and manages the purchasing or deleting of licenses.
	Migration Tool for NetWare	The Windows NT Migration Tool for NetWare enables you to migrate NetWare servers to computers running Windows NT Server. The Migration Tool transfers user and group accounts, volumes, folders, and files.
	Network Client Administrator	Use the Network Client Administrator to install or update network client workstations.
	Performance Monitor	Performance Monitor is a tool for monitoring the performance of your computer or other computers on a network.

(continued)

Tool		Function
	Remote Access Admin	Use the Remote Access Admin to control the Remote Access server, view users, set user account permissions, and monitor Remote Access traffic.
	Server Manager	Server Manager displays a list of workstations and servers in your domain.
	System Policy Editor	System Policy Editor enables you to control the user-definable settings in Windows NT and Windows 95 user profiles, as well as system configuration settings. You can use the System Policy Editor to change desktop settings and restrict what users can do from their desktops.
	User Manager for Domains	User Manager for Domains enables you to establish, delete, or disable domain user accounts. You can also set security policies and add user accounts to groups.
	Windows NT Diagnostics	Windows NT Diagnostics displays information about your computer's resources.

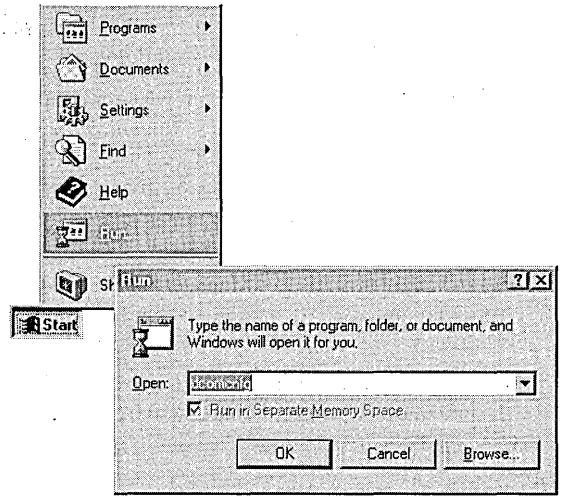
Configuring DCOM Applications

Distributed component object model (DCOM) is a mechanism that enables you to run distributed applications across multiple computers in your network. A distributed application consists of multiple processes that cooperate to accomplish a task. These processes may run on one or more computers. The DCOM Configuration tool can be used to configure 32-bit COM and DCOM applications.

You can use DCOM to start an application on another computer or to transfer processing tasks to another computer with more appropriate resources. You can also use DCOM to transparently connect and distribute applications that support the ActiveX™ platform.

To configure an application to use DCOM

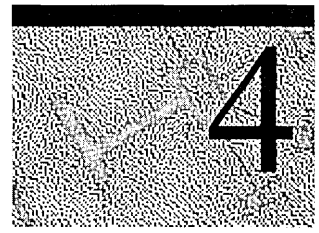
1. Click the **Start** button, and then click **Run**.
2. Type **dcomcnfg.**



From this screen, you can select the DCOM application you want to configure, set who has permission to start and access the application, and specify such properties as the location where the application will run.

CHAPTER 4

Learning Networking Basics



After you connect your computer to a network, you can share files, printers, and electronic mail with other computers. This chapter helps you to set up a network, and introduces some common network uses.

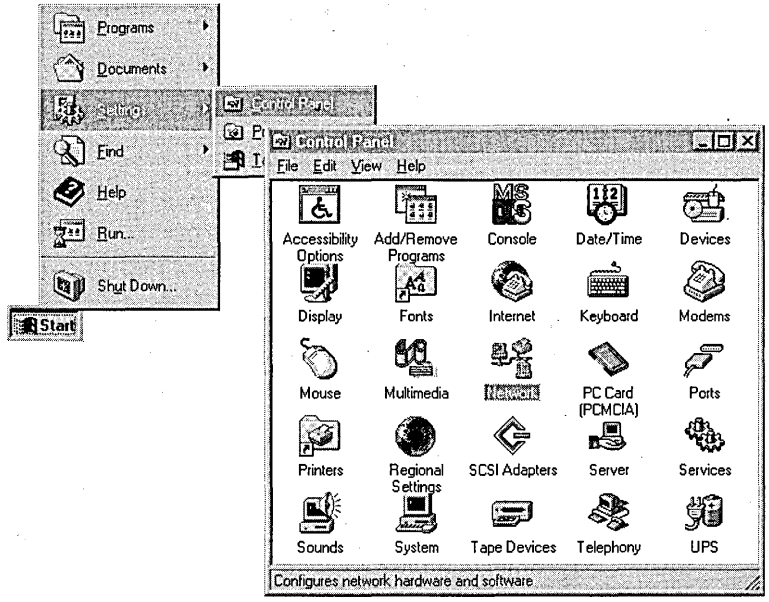
Setting Up Your Computer to Use a Network

Most computers are set up to use a network during installation. If you did not set up your computer to use a network during installation, you can set it up now using the **Network** tool in **Control Panel**.

Note Be sure your network hardware components (network adapter, network card, cables, and other devices) are correctly installed before setting up network software.

To set up your computer to use a network

1. Click the **Start** button point to **Settings**, and then click **Control Panel**.



2. Double-click **Network**.
3. The Setup wizard will appear on your screen. Follow the instructions on this wizard to set up your computer to use a network.

Changing Your Network Software or Hardware

There may be times when you may need to change or add new network software or hardware, including services, protocols, binding, and network adapter cards. You use the **Network** tool in **Control Panel** to make these changes.

To change your network software or hardware

1. Click the **Start** button, point to **Settings**, and then click **Control Panel**.
2. Double-click the **Network** icon.

   The **Network** dialog box contains a series of tabs that you click to make changes:

   - **Identification** displays the computer name and domain that were assigned to your computer during Setup.
   - **Services** lists the Network Services that you are currently using.
   - **Protocols** lists the Protocols that you are using.
   - **Adapters** lists the network adapter cards that are in your computer.
   - The **Bindings** tab, an advanced feature of Windows NT, allows you to enable and disable bindings, and to rearrange the order for existing bindings.
3. To add a new component:

   Select the appropriate tab, and click **Add.**
4. To update or upgrade an existing component's driver:

   Select the appropriate tab, and click **Update.** You will be prompted to insert a disk with the new driver on it.

Connecting to Computers on Your Network

To see files and directories on computers on your network or domain, double-click the **Network Neighborhood** icon on your desktop.

The first icon on the list is **Entire Network**.

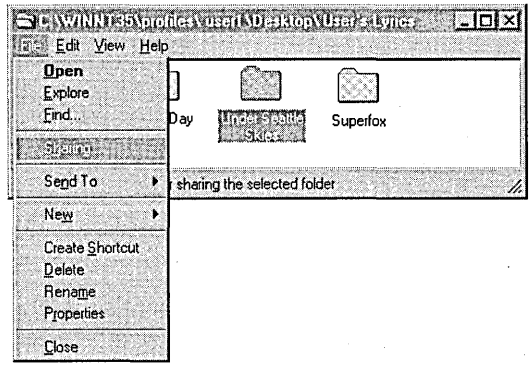
Double-click this icon to see all of the Network providers or other domains and networks that are on your entire network. The entire network is determined by your system administrator.

Sharing Your Files and Folders with Other Network Users

You can share files and folders with other people on the network.

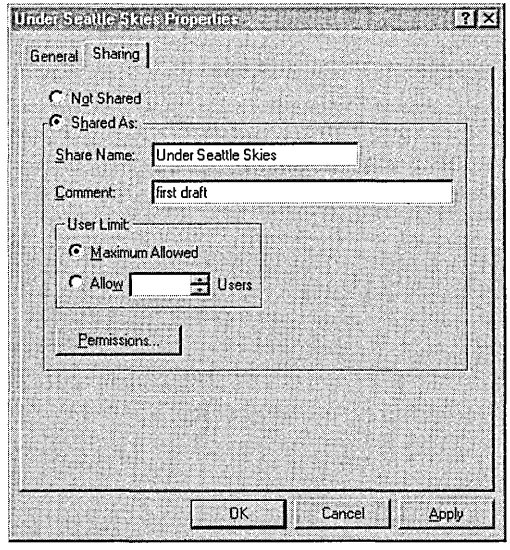
To share a file or folder

1. Locate the folder you want to share, and then click it.
2. On the **File** menu, click **Sharing**. If **Sharing** is not on the menu, you need to install the Windows NT networking software.



3. In the Sharing tab of Properties dialog box, click the options you want, and type a Share Name and comments.
4. To limit access to the shared folder, click the Permissions button.

   Other people are now able to view the contents of your shared folder.

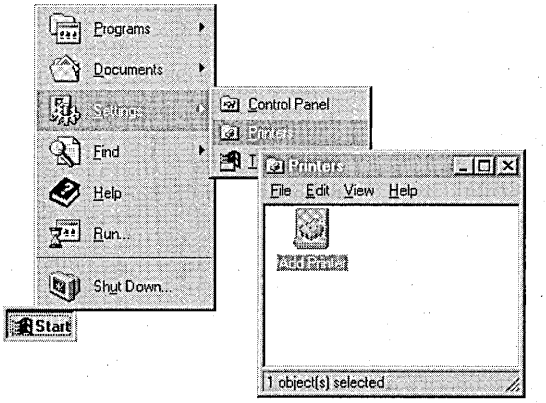


Connecting to Printers on Your Network

To connect to a printer on your network or setup a printer attached to a computer, use the Add Printer wizard, a step-by-step printer setup program. You can designate the printer that you would like to connect to by entering the printer's path, or you can browse for a printer in **Network Neighborhood** and then double-click its icon to set it up.

To set up a printer on your network

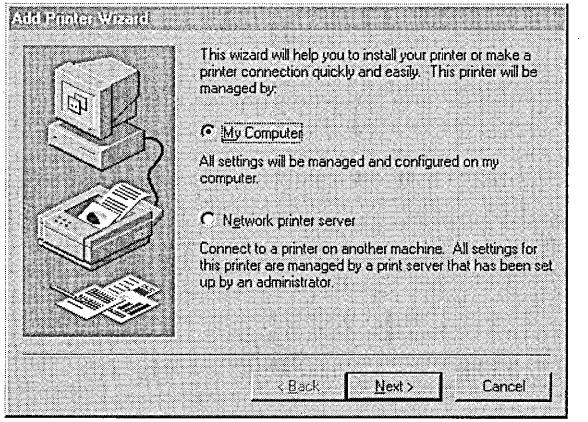
1. Click the **Start** button, point to **Settings**, and then click **Printers**.



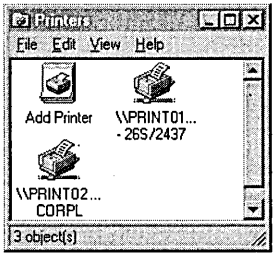
2. Double-click **Add Printer**.

   The Add Printer Wizard appears.

3. Follow the instructions on your screen.



When you finish this procedure, the icon for your printer appears in the Printers folder. Your printer is ready for you to use.

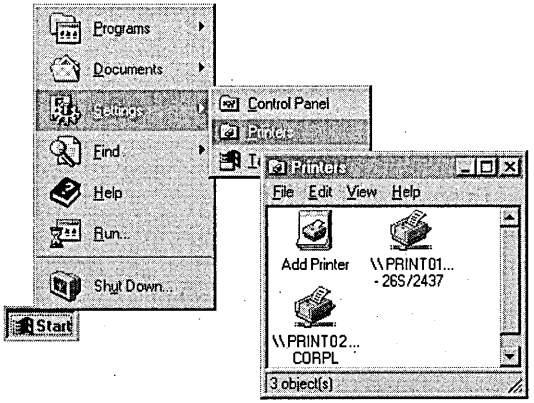


Sharing Your Printer

You can share any printers connected to your computer with other people on your network.

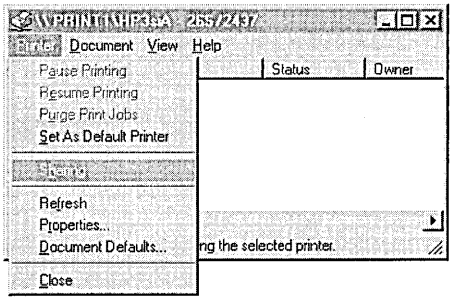
To share your printer

1. Click the **Start** button, point to **Settings**, and then click **Printers**.

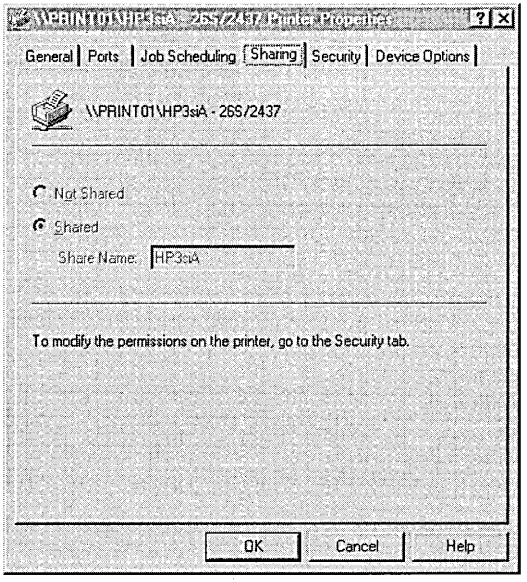


2. In the **Printers** window, click the printer you want to share.

3. On the **File** menu, click **Sharing**.



4. In the **Printer Properties** dialog box, click the options you want.

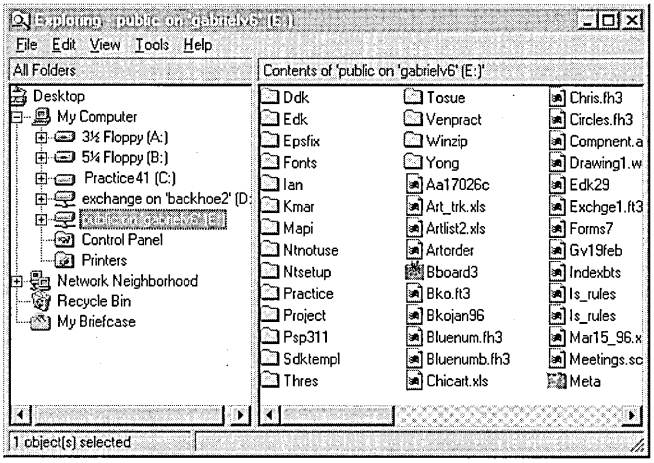


Viewing Network Drives with Windows NT Explorer

You can use **Explorer** to see what is on the network drives that you are connected to. **Explorer** gives you a view of the network's contents in a hierarchy, or tree. You can view the contents of any network drives you are connected to, as well as any drives and folders on your computer.

To see what's on your network

1. Click the **Start** button, point to **Programs**, and then click **Windows NT Explorer**. The network drives appear in the left window.



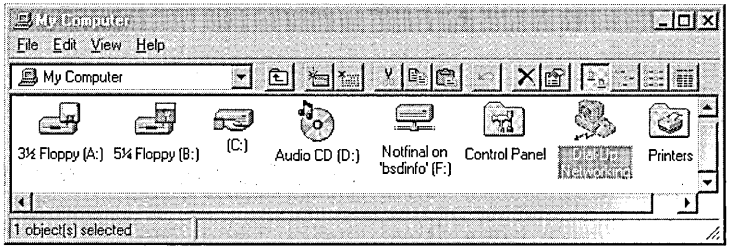
2. Click a drive, and view the contents in the right window.

Using Dial-Up Networking

With Dial-Up Networking, you can use a modem to access shared resources such as files or printers on another network.

To use Dial-Up Networking

1. Double-click **My Computer**, and then click the **Dial-Up Networking** icon.



2. Follow the instructions on the screen.

Connecting to the Internet

Using the Internet, you can gain access to, provide, and exchange an almost limitless array of information.

Before you can connect to the Internet, verify that you have access to the Internet. If you are already on a network, check with your network administrator to see if you already have access to an Internet gateway. Otherwise, you need to choose an Internet Service Provider. An Internet Service Provider is a company that enables remote user access to the Internet.

Windows NT lets you connect to an Internet Service Provider or other online service over a phone line or Integrated Services Digital Network (ISDN) line.

There are two ways you can connect to the Internet:

- using Point to Point Protocol (PPP)
- using Serial Line Internet Protocol (SLIP)

The most popular method is PPP.

Before you connect to the Internet, you need the following items:

- A modem
- Dial-Up Networking installed on your computer, and a user account with Remote Access Service (RAS) permissions if you are part of a corporate domain
- The TCP/IP protocol installed and enabled for the RAS Internet phone book entry
- An account with a PPP provider

To connect to the Internet

1. In the **Dial-Up Networking** dialog box, click **New**.
2. In the **Basic** tab, type a name for your entry—for example, **Internet**. Type the phone number to your Internet Provider and select a modem to use.
3. In the **Server** tab, select the TCP/IP protocol.
4. Click **OK,** and then click **Dial**.

Browsing the Network with Microsoft Internet Explorer

You can use Microsoft Internet Explorer to easily navigate and access information on the World Wide Web or your company's intranet. Just as Microsoft Excel® is a tool for spreadsheets and calculations, Internet Explorer is a tool for using the Web. When you installed Windows NT, you had the option of installing Microsoft Internet Explorer directly onto your desktop.

To use Microsoft Internet Explorer

- Double-click the **Internet Explorer** icon.

Using the Internet Information Server

The Microsoft Internet Information Server is a network file and application server that transmits information in Hypertext Markup Language (HTML) pages through the Hypertext Transport Protocol (HTTP). With the World Wide Web (WWW) service, you can offer an endless variety of services. For example, you can:

- Publish a "home page" on the Internet for your business, featuring a newsletter, sales information, or employment opportunities.
- Publish a catalog and take orders from customers.
- Publish interactive programs.
- Provide your remote sales force easy access to your sales database.
- Use an order-tracking database.
- Publish an employee handbook.

You can configure and administer Internet Information Server through the Internet Service Manager tool.

To access Internet Service Manager

- Click the **Start** button, point to **Programs**, then **Microsoft Internet Server**, and then **Internet Service Manager**.

The documentation for Internet Information Server is installed automatically and is in HTML format.

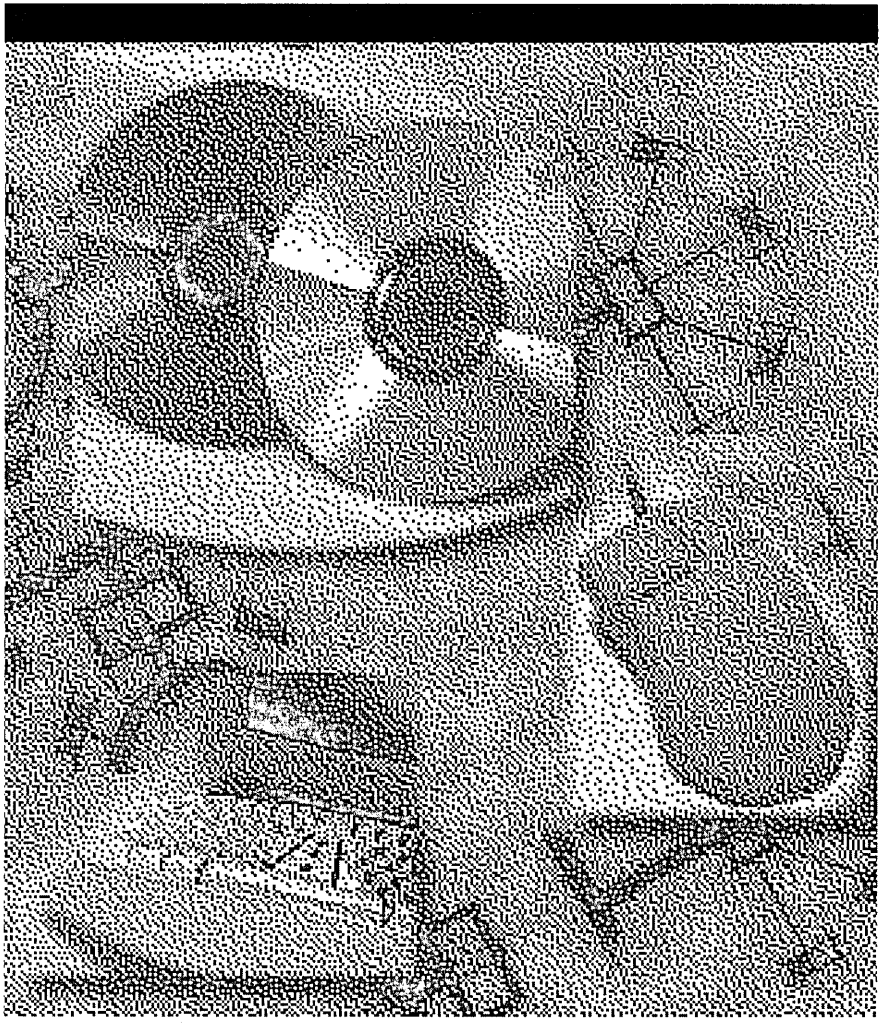
To find the product documentation

- Click the **Start** button, point to **Programs**, then **Microsoft Internet Server**, and then **Product Documentation**.

The documentation has been optimized for viewing through Internet Explorer, which you can install from the Windows NT compact disc.

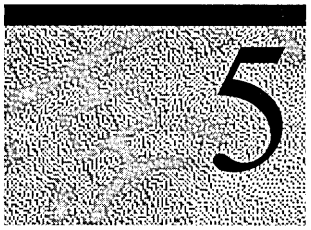
PART 2

Installation



CHAPTER 5

Beginning Installation



This section describes Windows NT Setup, the program used to install Windows NT on your computer. Installing a new operating system can involve many choices, and Setup is designed to guide you through these choices as smoothly as possible.

Installing Windows NT consists of three main steps:

1 Preparing to Run Setup

Check all hardware against the *Windows NT Hardware Compatibility List* as well as the System Requirements table. In addition, make sure you have all necessary materials at hand for your installation. Use the worksheet included in this book to organize the information and resources you need.

2 Running Setup

Start Setup according to the instructions for your computer. Then follow all instructions on your screen, typing in the necessary information as Setup asks you to do so. During this phase, Setup restarts your computer as needed in order to copy and process the Setup files.

3 Finishing Setup and Starting Windows NT

After you have given Setup all the information it needs, it fully installs your operating system and then restarts your computer. Windows NT Workstation is now ready to use.

What You Should Know Before Running Setup

Use the following checklist to organize your information before running Setup.

- ❑ Have you read the Windows NT Server readme files?

  If possible, read the file Setup.txt on your compact disc for late-breaking information pertaining to hardware and configuration. After you finish installing, read the file Readme.doc for any new information not included in this book.

- ❑ If possible, have you backed up all of the files currently on your computer to either a network share or a tape storage device?

- ❑ Have you checked all of your hardware (network adapter cards, video drivers, sound cards, CD-ROM drives, etc.) against the *Windows NT Hardware Compatibility List*? A copy of this list is included in your package.

  Up-to-date versions are available on:

  - the World Wide Web at
    http://www.microsoft.com/ntserver/hcl/hclintro.htm
  - Microsoft's FTP server at
    ftp://microsoft.com/bussys/winnt/winnt_docs/hcl

  Important Microsoft only supports hardware that appears on the *Windows NT Hardware Compatibility List* for use with Windows NT. If any piece of your hardware does not appear on this list, your installation might not be successful.

- ❑ Do you have all the device driver disks and configuration settings for your third-party hardware?

- ❑ Do you have ready a formatted disk for the Emergency Repair Disk (ERD)?

  Make sure to use a 3.5-inch 1.44 megabyte (MB) disk for the ERD. Label it "Emergency Repair Disk" and set it aside until Setup asks you to insert it.

  Note Although the ERD is optional for running Windows NT, Microsoft strongly recommends that you create one during installation and update it every time you make changes to your configuration, such as restructuring partitions, adding new disk controllers and other software, or installing new applications.

- ❑ Do you have your Windows NT Server compact disc?

  –or–

- ❑ Do you have network access to the Windows NT Server files?

Please record the following information here:

Product ID:

(20 digit number that appears on the inside back cover of this book)

or CD Key:

(10 digit number that appears on the CD case)

Previous operating system (if any):

Windows 95 cannot be upgraded to Windows NT 4.0. If your computer is running Windows 95, you must install Windows NT 4.0 in a separate directory, and your computer will dual-boot. For more information, see "Choosing a Directory for the Windows NT Server Files" later in this chapter.

If you will be using this computer on a network:

Computer name:

Workgroup/domain name:

IP address:

(if your network does not have a DHCP server)

System Requirements

The following table describes the system requirements for Windows NT Server.

Category	Requirement
Hardware	32-bit x86-based microprocessor (such as Intel 80486/25 or higher), Intel Pentium, or supported RISC-based microprocessor such as the MIPS R4x00™, Digital Alpha Systems, or PowerPC™.
	VGA, or higher resolution, monitor
	One or more hard disks, with 124 MB minimum free disk space on the partition that will contain the Windows NT Server system files (158 MB minimum for RISC-based computers)
	For x86-based computers, a high density 3.5-inch disk drive plus a CD-ROM drive (for computers with only a 5.25-inch drive, you can only install Windows NT Server over the network)
	For any computer not installing over a network, a CD-ROM drive
Memory	12-MB RAM minimum for x86-based systems; 16 MB recommended
	16-MB RAM minimum for RISC-based systems
Optional components	Mouse or other pointing device
	One or more network adapter cards, if you want to use Windows NT Server with a network

Windows NT Server supports computers with up to four microprocessors. Support for additional microprocessors is available from your computer manufacturer.

Starting Setup

The procedure for starting Setup varies slightly according to:

- your computer platform (Intel x86-based or RISC-based)
- how you gain access to the Setup files (from the boot media or over a network)

The procedures described here pertain to both Intel x86-based and RISC-based computers. If your computer is RISC-based, notice the special instructions in some of the steps.

Note If you are installing Windows NT on a portable computer with a Personal Computer Memory Card International Association (PCMCIA) port and you want Setup to configure a device connected to that port, you must insert the device and start or restart your computer before running Setup. Make sure that any device you use is approved on the *Windows NT Hardware Compatibility List*. For ways of finding this list, see "What You Should Know Before Running Setup" earlier in this chapter.

The Setup disks included with your package (labeled "Setup Boot Disk," "Setup Disk 2," and "Setup Disk 3") are required if you are installing Windows NT for the first time on an Intel x86-based computer. If you are installing over a network and do not have your package at hand, the Setup disks are created during Setup when you use the **winnt** or **winnt32** command. Also, the Setup disks let you start Windows NT at a later time when it might not be able to start on its own due to a system error. You can use the Setup disks together with the Emergency Repair Disk, as described in Help, to recover your system when it is unable to start.

If your computer's BIOS supports the El Torito Bootable CD-ROM (no-emulation mode) format, you can skip over using the Setup disks during a new installation of Windows NT 4.0 and start Setup directly from the Windows NT Server compact disc.

If you are installing on a RISC-based computer, this is the appropriate method for starting Setup as well. Check the documentation for your computer to learn whether this option is available to you.

▷ **To install Windows NT Server on your computer using the Setup disks and/or the Windows NT Server compact disc**

1. With your computer turned off, insert the disk labeled "Windows NT Setup Boot Disk" into drive A of your computer.

   Or, if your computer's BIOS supports the El Torito Bootable CD-ROM (no-emulation mode) format, insert the Windows NT Server 4.0 compact disc with your computer turned off.

2. Turn on your computer.

   If you are installing on an Intel x86-based computer, Setup will start automatically.

If you are installing on a RISC-based computer, follow these additional steps:

3. At the ARC screen, choose **Run A Program** from the menu.
4. At the prompt, type **cd:***system***setupldr** and press ENTER, where *system* is the directory name matching your system type: MIPS, PPC (for PowerPC computers), or ALPHA.

   For some RISC-based computers, you might need to supply a full device name instead of typing **cd:**. See your computer documentation for more information.

Once Setup is started, follow the instructions on the screen. Refer to the appropriate sections in this book when you need assistance.

▶ To install Windows NT Server 4.0 using a network connection to the Setup files on a remote server

1. Using your existing operating system or a MS-DOS disk, establish your connection to the share containing the Setup files.
2. If your computer is currently running a previous version of Windows NT, type **winnt32** at the command prompt. For all other installations, type **winnt**.

Setup begins with a brief welcoming screen asking you the process by which you want to proceed with installation. If you are installing Windows NT Server 4.0 on your machine for the first time, press ENTER to begin the Setup process.

On this and the other opening Setup screens, Help is available by pressing F1. These Help screens contain useful background information and suggestions to follow while running Setup.

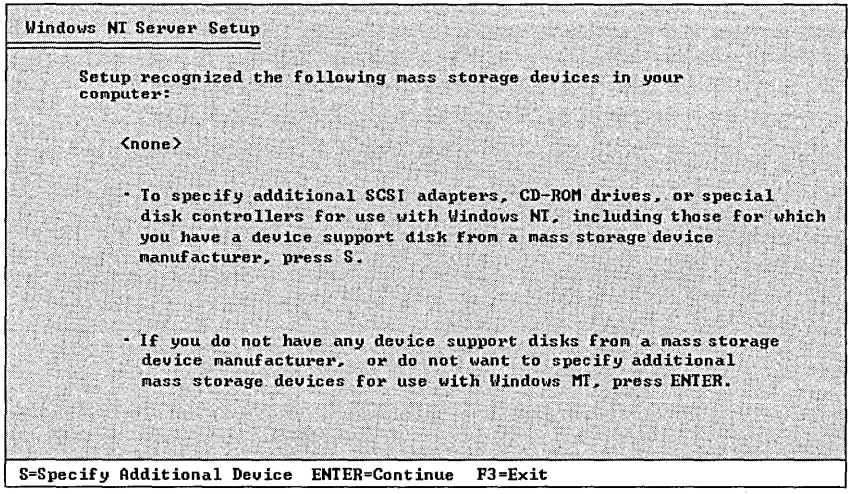
If you are continuing an earlier failed attempt to install Windows NT, certain repair options are available by pressing R. For guidance in using these screens, refer to the available Help by pressing F1.

You can cancel Setup entirely at any point on these screens by pressing F3.

Configuring a Mass Storage Device

Next, Setup scans your computer to detect the mass storage devices, such as CD-ROM drives and SCSI adapters. Hard disks are not included in this scan.

Note Setup automatically detects all integrated device electronics (IDE) and enhanced small device interface (ESDI) drives. These drives are not displayed on this screen.



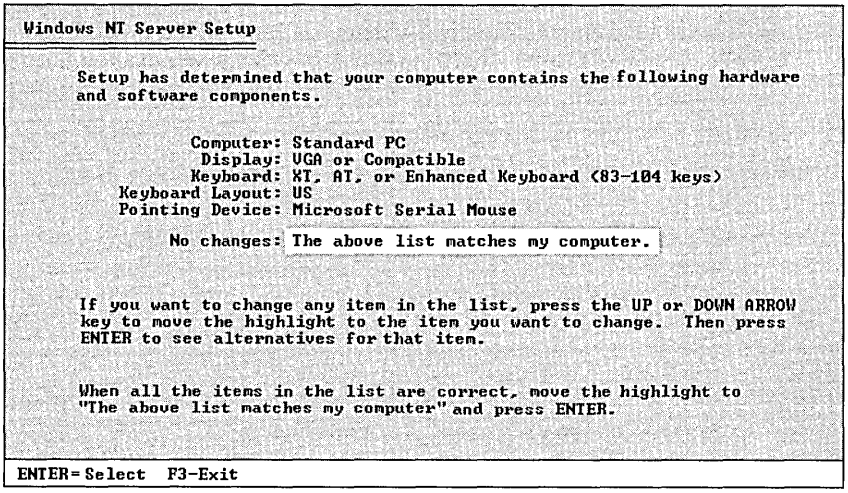
Setup lists all the mass storage devices it finds. You can accept this list, or you can choose to add to it if you have a disk with device drivers from the manufacturer of your device. You can also wait and install additional mass storage devices after Setup is complete.

If any of your mass storage devices were not detected, press S to install them at this time.

Tip To install additional mass storage devices after Setup is complete, click the **Start** button, point to **Settings**, and then click **Control Panel**. Double-click the **SCSI Adapters** icon. For information, see Help.

Verifying Your Hardware

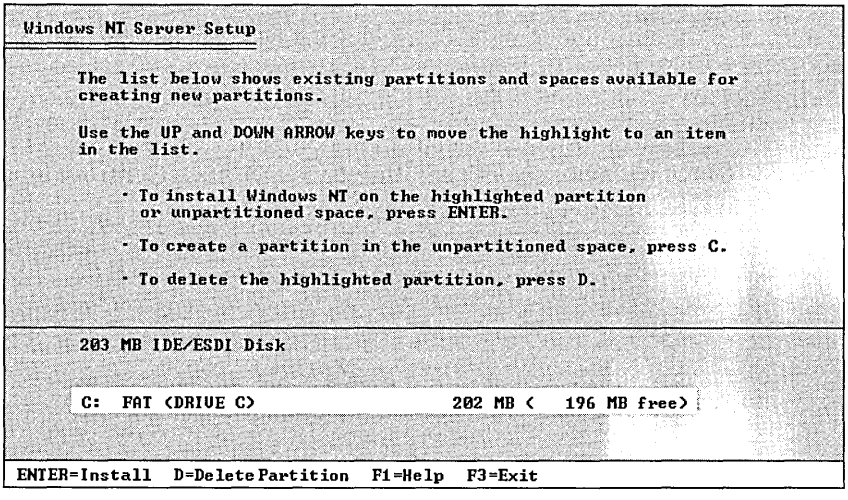
Next, Setup displays the list of hardware and software components it finds on your computer.



Use the UP ARROW and DOWN ARROW keys to move to a setting on the list that needs to be changed. Then, press ENTER to see alternatives for that item.

Configuring the Disk Partitions

Disk space on your hard drive(s) is divided into usable areas called partitions. Before it can install Windows NT, Setup must know the appropriate disk partition for installing the system files.



A disk partition can be any size from 1 MB to the entire hard disk. But the partition where you store Windows NT files must be on a permanent hard disk and must have enough unused disk space to hold all the files. Refer to the section "System Requirements" earlier in this chapter to double-check that your computer has adequate disk space for installing the Windows NT files.

The system partition is the partition that has the hardware-specific files needed to load Windows NT. On an x86-based computer, Windows NT looks for certain files in the root directory of drive C (Disk 0) when you start your computer. This partition must be formatted with either the NT File System (NTFS) or the File Allocation (FAT) file system in order for Windows NT to start. It must be formatted with the FAT file system if you want to run both Windows NT and MS-DOS or if you are dual-booting with Windows 95. For more information, see the next section, "Choosing a File System for the Windows NT Partition."

Tip A RISC-based computer can have several system partitions that are configurable by the manufacturer's configuration program, and each system partition must be formatted for the FAT file system. If you want to use NTFS, you need to create at least one FAT system partition of at least 2 MB plus a second partition large enough to contain all the files you want to protect with NTFS. For information about setting up more than one system partition on a RISC-based computer, see your hardware documentation.

If you are installing Windows NT on a mirrored partition, you must disable mirroring before running Setup and then reestablish mirroring after installation is complete.

Caution If your hard disk contains stripe sets, volume sets, or mirrors, these elements appear on the Setup screen as "Windows NT Fault Tolerance." Be careful not to delete any of these elements. Also, do not delete partitions that contain data you want to keep.

Use the following guidelines when making decisions about your hard disk partitions.

If you will use only the Windows NT Server operating system:

- On a new x86-based computer, make a single partition and format it with NTFS, as described in the following section, "Choosing a File System for the Windows NT Partition."
- On an existing system containing files you want to keep, maintain all existing partitions. You can install the Windows NT Server files on any partition with sufficient free space: 124 MB for x86-based machines, or 158 MB for RISC-based computers.

If you plan to use another operating system, such as MS-DOS or Windows 95, in addition to Windows NT:

- To run both MS-DOS and Windows NT on the same computer, you must first install MS-DOS. Installing it later might overwrite the boot sector on the hard disk, making it impossible to start Windows NT without using the Emergency Repair Disk.
- Make sure the system partition (for example, drive C) is formatted as FAT. For example, if you already have MS-DOS installed and want to keep it, preserve the system partition and keep the file system as FAT, as described in the following section, "Choosing a File System for the Windows NT Partition." You can install the Windows NT files on any uncompressed partition with sufficient free space, as listed in the section "System Requirements" earlier in this chapter.

Important You cannot install Windows NT on a compressed drive created with any utility other than NTFS compression.

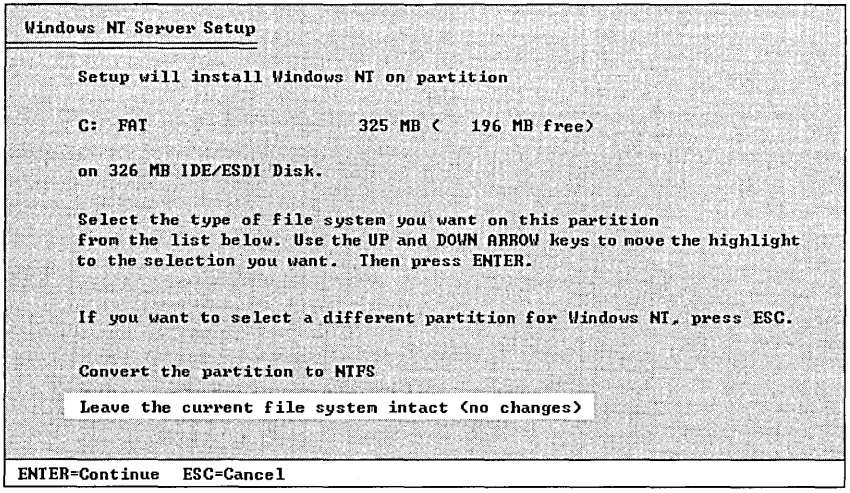
- To use NTFS and have access to another operating system, you must have at least two disk partitions. Format drive C with a file system that Windows NT and your other operating system can use, such as FAT. Format the other partition for NTFS. You can place the Windows NT files on any uncompressed (or NTFS-compressed) partition with sufficient free space.

If you are installing Windows NT on a computer currently configured to start either OS/2 or MS-DOS using the **boot** command, Windows NT Setup sets up your system so that you can run Windows NT or whichever of the two operating systems (MS-DOS or OS/2) you last started before running Windows NT Setup.

If you have OS/2 Boot Manager installed on your computer and want to continue to use it after Windows NT Server installation is complete, you need to re-enable it. After Setup is complete, click the **Start** button and point to **Programs** and then **Administrative Tools**. Click **Disk Administrator**. Select the OS/2 Boot Manager partition, and then select **Mark Active** from the **Partition** menu.

Choosing a File System for the Windows NT Partition

Once you have selected a partition for installing Windows NT, you must instruct Setup which file system, NTFS or FAT, to use with the partition. Make sure you know all the considerations when choosing one file system over another.



Use the following information when choosing to format or convert the partition where the Windows NT files will be installed:

- For an unformatted partition, you can choose to format it with either the NTFS or FAT file system. Choose the FAT option if you want to access files on that partition when running Windows NT, MS-DOS, Windows 95, or OS/2 on this computer. Choose the NTFS option if you want to take advantage of the features in NTFS.
- For an existing partition, the default option keeps the current file system intact, preserving all existing files on that partition.

You might choose to convert an existing partition to NTFS so as to make use of Windows NT security. This option preserves existing files, but only Windows NT has access to files on that partition.

Or, you might instead choose to reformat an existing partition to either the NTFS or FAT file system, which erases all existing files on that partition. If you choose to reformat the partition as NTFS, only Windows NT will have access to files created on that partition.

Note After running Setup, you can convert file systems from FAT to NTFS. If you want to convert an NTFS partition to FAT, you must first back up all the files, reformat the partition (which erases all files), and then restore the files from the backup version. You must also back up data before repartitioning a hard disk. For more information on this process, see the *Microsoft Windows NT Server Resource Kit Version 4.0.*

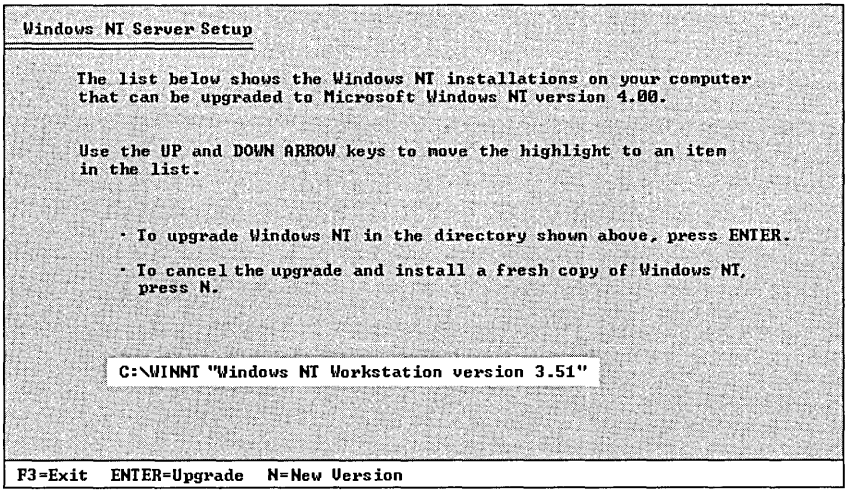
The following table summarizes the main criteria for choosing a file system for a Windows NT partition.

Windows NT File Systems

	NTFS Considerations	FAT Considerations
Security	Supports complete Windows NT security, so you can specify who is allowed various kinds of access to a file or directory.	Files are not protected by the security features of Windows NT.
Activity log	Keeps a log of activities to restore the disk in the event of power failure or other problems.	FAT file systems do not keep a log.
File sizes	Maximum file size is 4 GB to 64 GB, depending on the size of your clusters.	Maximum file size is 4 GB.
File compression	Supports flexible per-file compression.	File compression is not supported.
Operating system compatibility	Recognized only by Windows NT. When the computer is running another operating system (such as MS-DOS or OS/2), that operating system cannot access files on an NTFS partition on the same computer.	Allows access to files when your computer is running another operating system, such as MS-DOS or OS/2.
MS-DOS data sharing	Cannot share data with MS-DOS on the same partition.	Enables you to share data with MS-DOS on the same partition.

Choosing a Directory for the Windows NT Server Files

After Setup accepts your partition and file system choices, it displays the name of the directory where it will install the Windows NT files. You can accept the directory that Setup suggests or type the name of the directory you prefer. For most installations, the proposed directory is appropriate.



Setup displays a special screen if it detects one or more of the following operating systems on your computer:

- Windows NT (versions 3.1, 3.5, or 3.51)
- Windows 95
- Windows 3.*x*

In such a case, your decision to install in the directory Setup has chosen or to specify a new directory should be based on the following considerations:

- Do you want Setup to migrate the registry settings from your existing operating system?
- Do you want the ability to choose among your operating systems every time you start your computer?

Note If your computer is running Windows 95, it is not possible to install the Windows NT 4.0 files in the same directory. You must specify a new directory. Your Windows 95 settings will not be migrated, and you will need to reinstall your applications under Windows NT.

Use the following chart to decide which directory option is best for your installation.

Previous Operating System and Installation Directory	Migrates settings?	Supports multiple-boot?
Windows NT		
Same directory	Yes	No
New directory	No	Yes
Windows 95		
Same directory	N/A	N/A
New directory	No	Yes
Windows 3.*x*		
Same directory	Yes	Yes
New directory	No	Yes

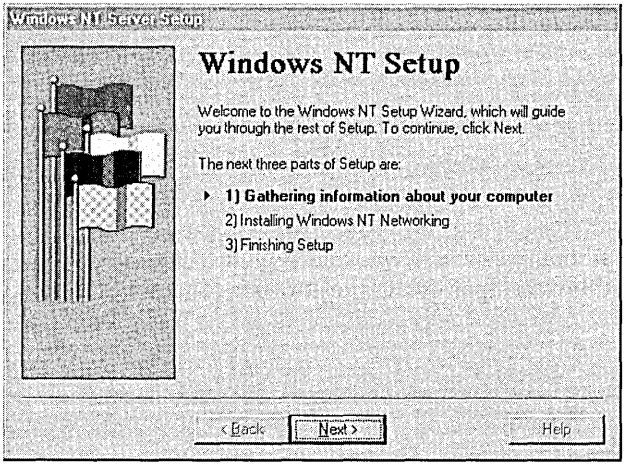
CHAPTER 6

Gathering Information About Your Computer

When all options have been decided on the first several Setup screens, Setup copies all of the appropriate files to your computer and then tells you it is ready to restart.

```
Windows NT Server Setup

    This portion of setup has completed successfully.

    If there is a floppy disk in drive A:, remove it.

    Press ENTER to restart your computer.
    When you computer restarts, Setup will continue.

ENTER=Restart Computer
```

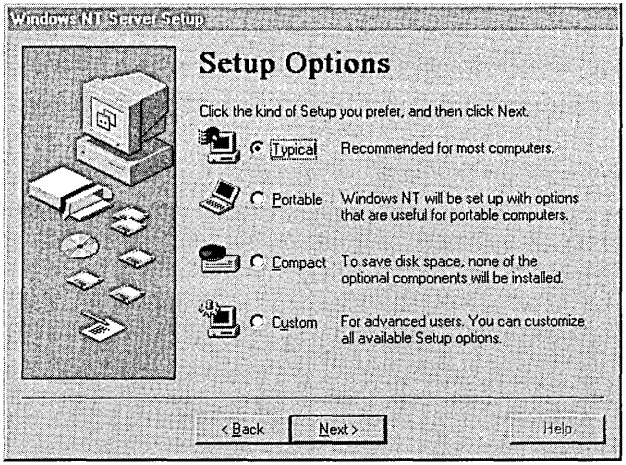
Once this restart takes place, you will be in the next portion of Setup, called the Windows NT Setup wizard. Screens in this portion look different from the ones you have seen thus far, but they perform a similar purpose: to customize your installation of Windows NT.



During the Setup wizard, you have the ability to skip among screens using the **Back** and **Next** buttons. This allows you to change information entered on previous screens in case you discover that the information you entered was not appropriate.

Choosing a Setup Type

Setup offers four types of installation: Typical, Portable, Compact, and Custom.



- *Typical Setup* is the easiest way to install Windows NT Server and is recommended for most standard installations. Typical Setup asks you the minimum number of questions and installs all optional Windows NT Server components, such as Windows Messaging and HyperTerminal. Wherever possible, Typical Setup automatically configures the settings for your hardware and other components.

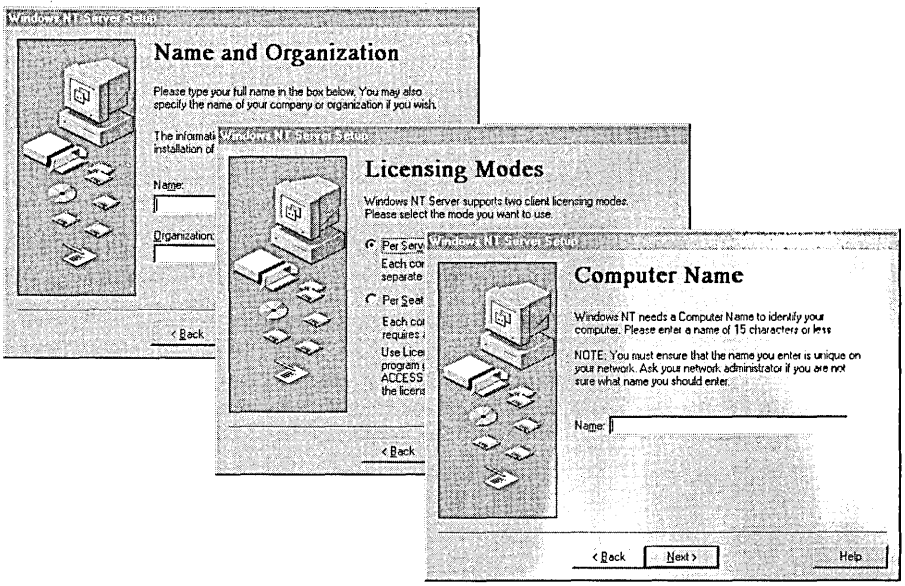
- *Portable Setup* installs options that are useful for portable computers.
- *Compact Setup* is designed for computers where disk space is at a premium. No optional components are installed.
- *Custom Setup* is designed for experienced users who want or need more control over how Windows NT Server is installed on their computers.

Note Windows NT Setup lets you choose a basic video display mode for running Setup. At the end of Setup, you have the opportunity to configure and test the actual video display mode to be used with Windows NT. For information, see "Setting the Time and Configuring the Video Display" in Chapter 8, "Finishing Installation."

To change the keyboard or mouse configuration after Setup is complete, point to **Settings** on the **Start** menu and click **Control Panel**. For more information, see Help.

Entering Your Personal Information

The next few screens of the Setup Wizard ask for information that will uniquely identify your computer.



Supply the following information:

- A user name and company name that Windows NT will use to identify you for various operations. You must type a response in order for Setup to continue.
- The licensing mode you want to use for this server. Choose "Per Seat" if you have multiple servers and the total number of Client Access Licenses across all servers is equal to or greater than the number of computers on your network. For all other environments, choose "Per Server."

  If you are unsure which mode to use, choose "Per Server" since you are legally permitted to change once from Per Server to Per Seat at no cost. For more information about licensing modes, see Help, or see the *Concepts and Planning* book.
- A Product Identification number or CD Key, which a Microsoft technical support representative can use to identify your system. This dialog box might not appear if you are installing Windows NT Server from the network, depending on the requirements at your site.

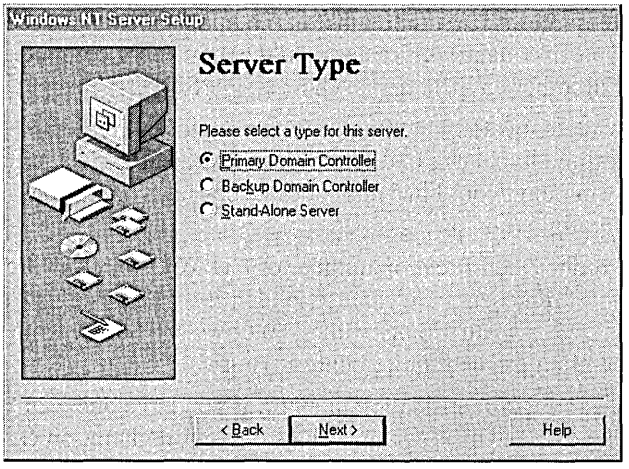
  The Product Identification number, if you have one, can be found on the inside back cover of this book as well as on your registration card. The CD Key, if you have one, is printed on your CD case.

  You must type a response in order for Setup to continue. After Setup is complete, you can see this Product ID number by pointing to **Settings** on the **Start** menu, clicking **Control Panel**, and then double-clicking the **System** icon.
- A name that will identify your computer on the network. This name must be 15 characters or fewer and must not be the same as any other computer name, domain name, or workgroup name on the network. You can invent a computer name, or ask your network administrator if a specific name has been assigned to your computer. If you need to change the computer name after Setup is complete, double-click the **Network** icon in **Control Panel**.

For Custom Setup, a dialog box asks you to select optional tasks to be performed, including installing optional components such as accessories and games, or setting up locally connected printers.

Choosing the Server Type

Setup allows three choices for the type of server it will install: primary domain controller, backup domain controller, or stand-alone server.



A *primary domain controller* (PDC) is a server that tracks changes made to accounts of all computers on a domain. It is the only computer to receive these changes directly, and therefore it serves as the account administrator for your domain. A domain has only one PDC.

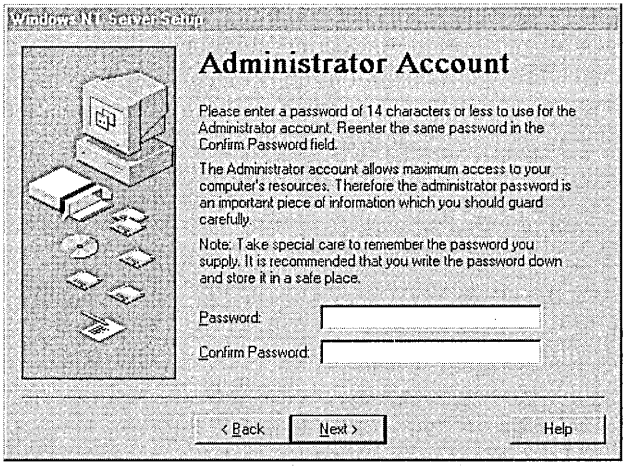
A *backup domain controller* (BDC) is a server that maintains a copy of the PDC directory database. This copy is synchronized periodically and automatically with the PDC. BDCs also authenticate user logon operations and can be promoted to function as PDCs as needed. Multiple BDCs can exist on a domain.

A *stand-alone server* is a server that serves as neither a PDC or BDC.

For more information on domain planning, see Help, or see the *Concepts and Planning* book.

Setting the Administrator Account Password

Setup creates a default account, called the Administrator account, which grants administrative privileges for managing the overall configuration of your computer, such as managing security policies and working with user accounts. The Administrator account is intended for use by the person who manages this computer. On this screen in the Setup Wizard, you can specify a password for the Administrator account, or leave the screen blank to indicate no password for the account.



If you choose not to join a domain, this account is the one you will use initially to manage your computer after Setup is complete. See "Joining a Workgroup or Domain" in Chapter 7, "Connecting to the Network."

This account is built in to your computer once Setup is complete, and is a member of the built-in **Administrators** group in **User Manager**. It cannot be removed from that group. For information on using **User Manager**, see Help, or see the *Concepts and Planning* book.

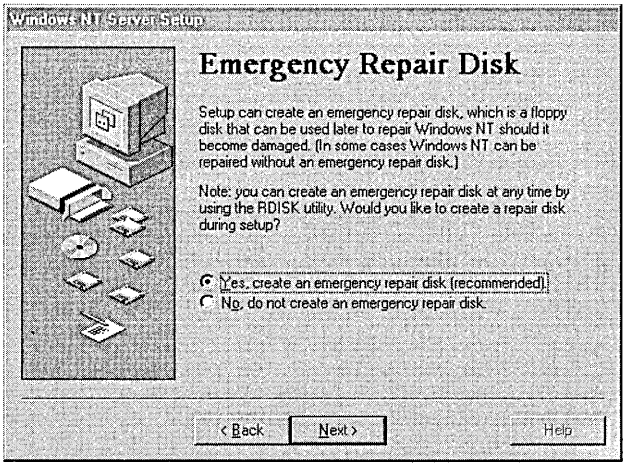
To set a password for the Administrator account, type a password of 14 characters or less in the first box, then retype the same password in the second box to confirm your choice. Take special care to remember the password you supply.

Note Some Intel Pentium-based computers have a faulty module for performing floating-point division. These computers will sometimes give inaccurate results when dividing certain very specific values. If Setup detects that you are installing Windows NT on such a computer, the next screen you see gives you the option of working around this fault.

This workaround turns off your computer's floating-point module and lets Windows NT perform these floating-point operations instead. Choosing this option will slow these operations considerably. However, if you plan to use programs which make extensive use of floating-point math, this option may be desirable.

Creating the Emergency Repair Disk

The Setup Wizard next gives you the option of creating an Emergency Repair Disk. This disk can be used to save the current system settings and restore your computer if files become damaged.



Microsoft strongly recommends that you create the Emergency Repair Disk during Setup and update it or create a new disk every time you make a significant change to your hardware or software setup, such as changing your partition structure, changing device drivers or other hardware, or installing new applications. Repair information is saved on your hard disk even if you do not create an Emergency Repair Disk. However, in many cases, system errors will not allow you to have access to this information at the time you need it.

Note Using the Emergency Repair Disk to recover from a system error requires having your three Setup disks at hand, unless your computer's BIOS supports the El Torito Bootable CD-ROM (no-emulation mode) format (see your computer's documentation). If you do not have the Setup disks that came with your package and you chose to override creating them when starting Setup, you will need to create them after installation is complete in order to use the Emergency Repair Disk. For more information, see Help.

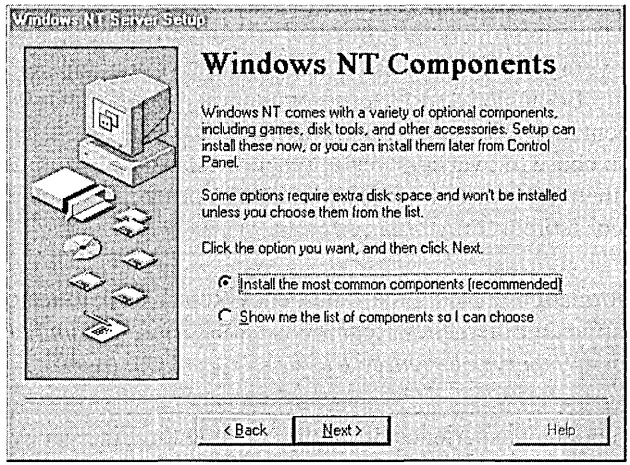
For information on using the Emergency Repair Disk to restore damaged files and on creating an Emergency Repair Disk after Setup is complete, see the *Microsoft Windows NT Server Resource Kit.*

Note You may experience difficulty creating the Emergency Repair Disk if drive A of your computer is a 2.88 MB drive and your disk is formatted to 2.88 MB. If you experience problems, supply a disk formatted for 1.44 MB.

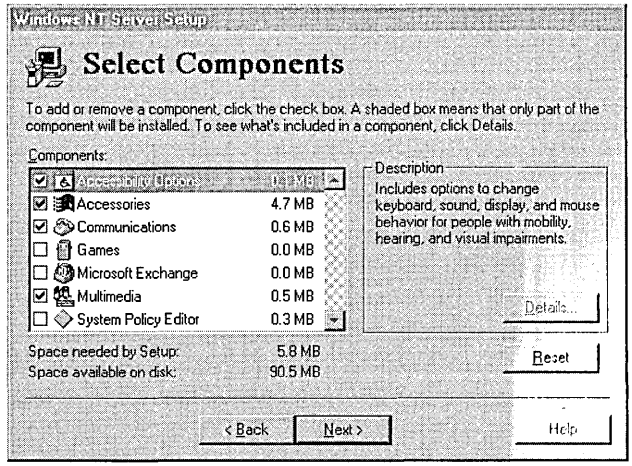
To create an Emergency Repair Disk, choose the **Yes** option on this screen. You will be prompted to insert the disk at a later point during Setup.

Selecting Optional Components

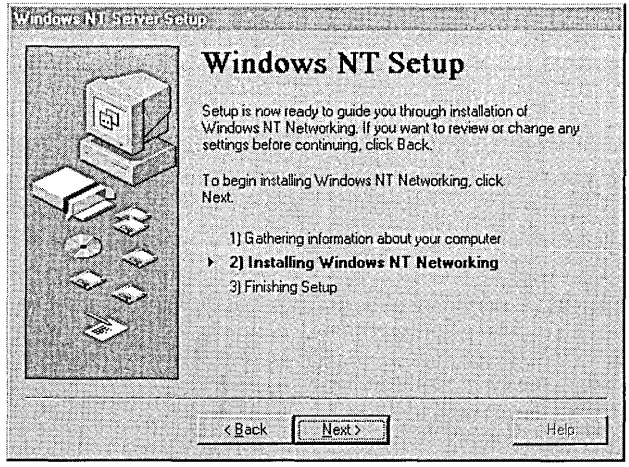
Windows NT includes a variety of components which you have the option of installing during Setup. These components include Windows Messaging, multimedia, games, and other accessories. You can choose to let Setup install the most common components, or specify that you will choose which components you want.



If you choose to select your own components, Setup displays a list from which to make your selections. Click the check box next to each item to select or clear your choice. To learn more about a feature before selecting it, click the text or icon next to the check box and read the description in the box on the right side of the screen.



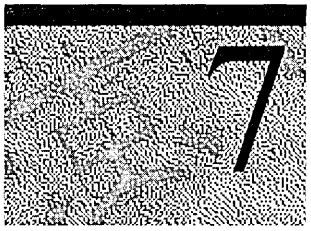
When you have finished with this screen, Setup reports that it is ready to install networking on your computer. If you need to review or change any of the information you previously entered, you must click **Back** to go to the appropriate screen(s) and you can only do so now.



Click **Next** when you are ready to continue.

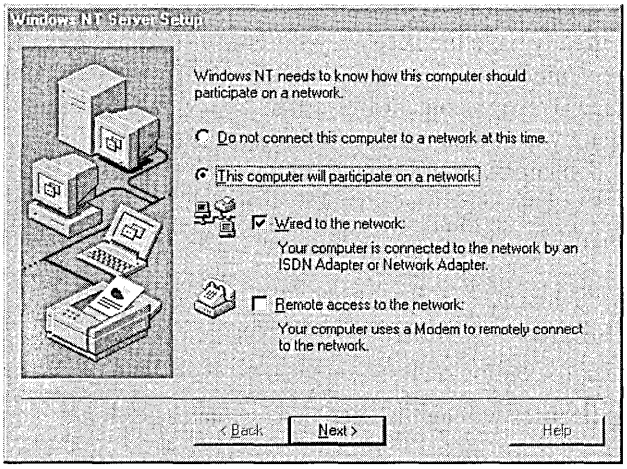
CHAPTER 7

Connecting to the Network



This section relates information about configuring your computer to use the networking features of Windows NT. If you are not installing these features, Setup automatically skips the screens shown in this chapter and jumps to the end of installation. See the next chapter, "Finishing Installation," for more information.

Your first network Setup choice is to indicate the type or types of network, if any, in which your computer will participate.

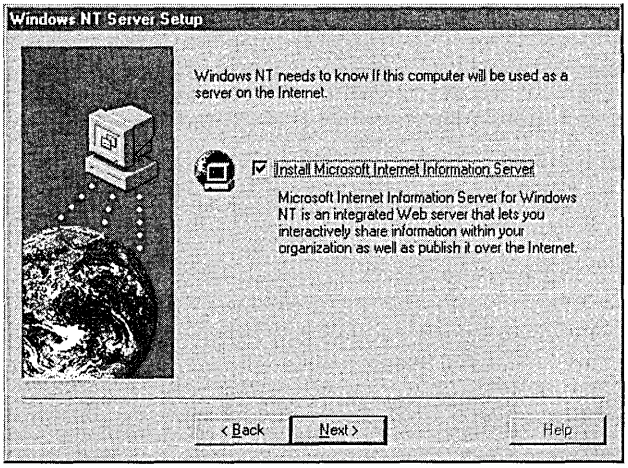


Check the **Remote access to the network** option if you will use a modem to connect to the network.

For all other network connection types, check the **Wired to the network** option. You can check both options if both scenarios apply to your computer. If you do not want access to a network, select the **Do not connect this computer to a network at this time** option. You can install or modify your network connections after Setup is complete by double-clicking **Network** in **Control Panel**.

Installing the Internet Information Server

Next, Setup asks if your computer will be used as a server on the Internet.



The tool for identifying your computer as an Internet server is called the Microsoft Internet Information Server (IIS).

If you already have the necessary Internet or intranet connection, you can accept all of the default settings during Setup and then add your Hypertext Markup Language (HTML) content files to the \Wwwroot directory. Your files will be immediately available to users. The default Setup configurations are suitable for many publishing scenarios without any further modifications.

For more information about configuring and using the Internet Information Server, see the IIS online product documentation after Setup is complete.

▶ To install Internet Information Server

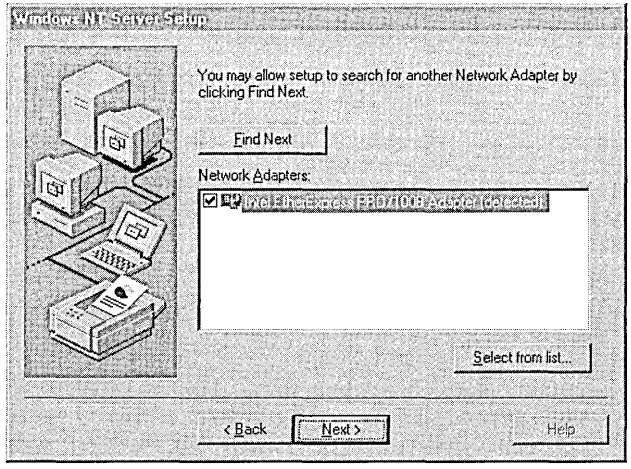
- Check the option on this screen.

  The IIS files will be installed during a later portion of Setup.

Note You can install Internet Information Server at any time after Setup by running Inetstp.exe directly from the \Inetsrv directory in the directory matching the name for your platform (for example, I386) on your Windows NT compact disc.

Detecting and Selecting Network Adapters

If your computer is wired directly to a network, the next step is to identify the network adapter(s) in your computer.



Setup uses an automated method of detecting adapters, but if you plan to use a type other than what is detected, you must do both of the following:

1. Check the *Windows NT Hardware Compatibility List* to verify whether your adapter will work successfully with Windows NT. For ways of finding this list, see "What You Should Know Before Running Setup" in Chapter 5, "Beginning Installation."
2. Have the adapter manufacturer's disk handy for loading the appropriate driver files.

When you click **Start Search**, Setup checks for network adapter cards in your computer and displays the first network adapter it finds. Click **Find Next** to search for additional adapters.

Setup cannot recognize some types of network adapters, and as a result one or more of your adapters might not be detected and added to the list. If Setup cannot identify your adapter, or if you have the disk from the manufacturer of an additional adapter you wish to install, click **Select from list...** and click the name of the adapter you want to install.

If you do not know the name and model of your adapter, use one of the following methods to find it out:

- Ask your network administrator
- Check your network adapter documentation
- Run a hardware query tool

You can install additional adapters after running Setup by double-clicking the **Network** icon in **Control Panel**.

Configuring Network Adapters

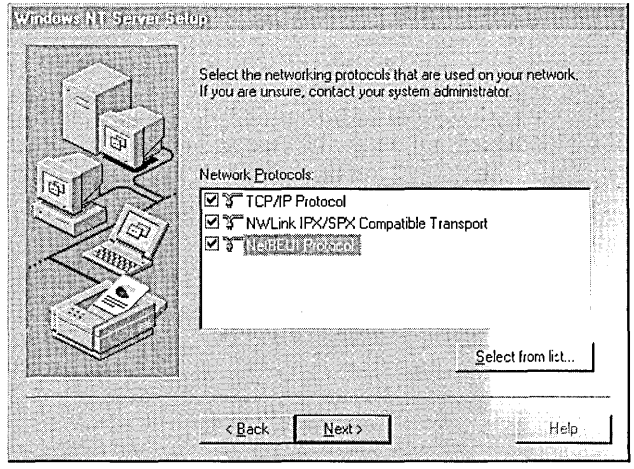
Depending on the manufacturer of your network adapter, Setup might display an **Adapter Card Setup** dialog box, letting you select the correct IRQ number, I/O base port address, memory buffer address, and other settings. For many adapters, these settings are configured automatically. In these cases, we recommend that you accept the manufacturer's proposed settings.

Note Make sure to double-check all adapter settings before continuing with Setup. If your network adapter is set improperly, Windows NT won't be able to run network services.

If you are an experienced user and know that you need to change adapter settings, see the documentation for your network adapter or ask your network administrator for the correct values.

Selecting Network Protocols

Next, Setup asks you to select one or more network protocols to install.



Protocols are the software that enable the exchange of information among computers. Common network protocols include the following:

- TCP/IP. This suite of networking protocols provides communication across interconnected networks. Choose this option if your computer is on an interconnected network with diverse hardware and operating systems, or if you want to communicate with non-Microsoft systems such as UNIX. TCP/IP is required for Internet communications.
- NWLink IPX/SPX Compatible Transport. For many sites, this is the standard network protocol. It supports routing, and it can support NetWare client-server applications, where NetWare-aware, Sockets-based applications communicate with IPX/SPX Sockets-based applications. Choose this option if your computer is connected to or communicates with a NetWare network.
- NetBEUI. This protocol is usually used in small, department-size, local area networks of 1 to 200 clients. It can use Token Ring source routing as its only method of routing. Choose this option if your network uses NetBEUI as a transport protocol.

  NetBEUI is selected automatically if you install Remote Access Service and do not configure a network adapter card.

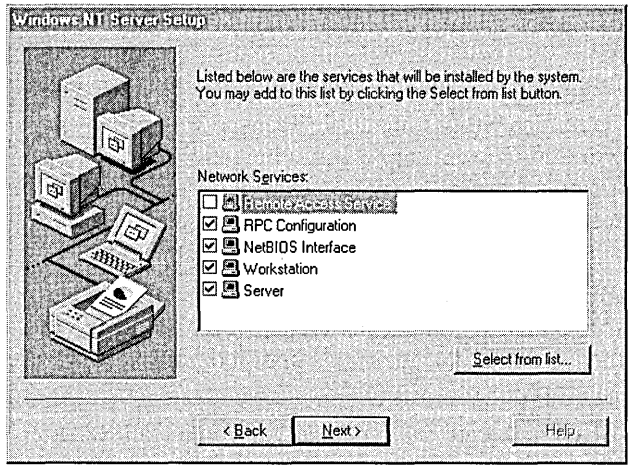
Caution You must select NetBEUI if your computer communicates with other computers on an existing Microsoft network that uses NetBEUI for Windows NT 3.1 or later, Windows for Workgroups 3.11, or LAN Manager 2.*x*.

If you do not install NetBEUI and your network requires it, your computer will not be able to communicate with other computers on your network.

If you are unsure about which network protocol to choose, accept the default or ask your network administrator. After Setup is complete, you can add or remove any transports for your system by double-clicking the **Network** icon in **Control Panel**.

Selecting Network Services

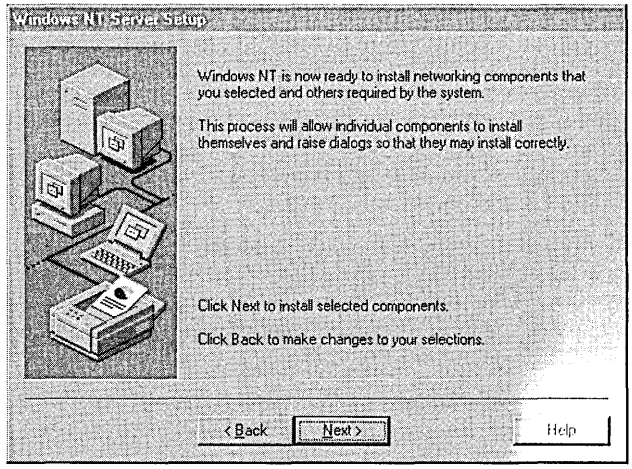
The **Network Services** dialog box appears after you configure the first network adapter so that you can install additional supporting software.



If you choose to install additional network components, you might be asked to insert additional disks supplied by the component manufacturer.

Confirming Your Network Component Settings

Setup is now ready to copy the necessary files for installing your network options and start the network. If you want to make any changes to your network choices, click the **Back** button to do so now.



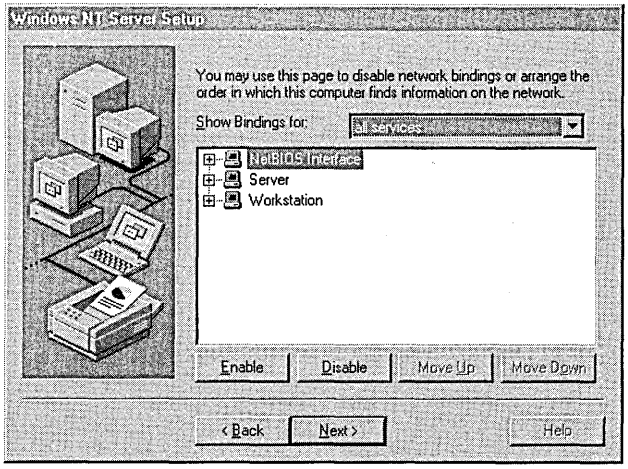
Click the **Next** button to begin installing the networking components.

While Setup is copying the needed files to your computer, dialog boxes might appear for the various adapters, protocols, and services you have chosen to install. Accept the default values in each dialog box or type the settings required for your computer.

If you are installing Internet Information Server, be sure to register the IP address provided by your Internet service provider (ISP) unless the ISP uses DHCP to assign the address to you automatically.

Adjusting the Network Bindings

Next, Setup lets you adjust your network bindings.



Network bindings are the series of paths that enable communication among the network services, protocols, and adapters in your computer. In some cases, you can adjust the bindings on your computer to increase the performance of certain network services among multiple network adapters.

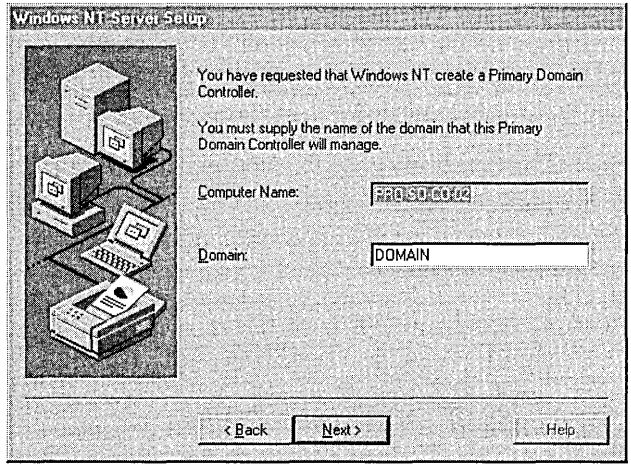
Warning Do not attempt to change the binding settings unless you are an experienced network administrator familiar with the requirements of your network software.

To adjust the bindings for a network service, double-click the service name and click the adapter or protocol to which it is connected. Then, click the **Enable** and **Disable** buttons to allow or disallow communications along the selected path.

By default, Setup displays all bindings as they are associated with the network services. To change the view on this screen, click the drop-down menu arrow and choose **All protocols** or **All adapters**.

Joining a Workgroup or Domain

Next, Setup displays the **Domain Settings** dialog box.



In Windows NT, a *workgroup* is a collection of computers that appears, for convenience, under the same workgroup name when you browse network resources. Belonging to a common workgroup is a way for coworkers to quickly find each other's computers on the network. When you browse the network, the names of all the computers in your workgroup appear first in the browsing directory.

Any computer can join any single workgroup. You can join an existing workgroup or create a new one simply by typing a workgroup name. Windows NT Setup will accept almost any workgroup name you choose, including the default WORKGROUP. The only workgroup name you cannot use is the name you gave to your computer, as described in "Entering Your Personal Information" in Chapter 6, "Gathering Information About Your Computer."

A *domain* is a collection of computers defined by the administrator of a Windows NT Server network. A domain provides the same convenience for network browsing and also provides access to the centralized user accounts and group accounts maintained by the domain administrator.

Unlike a workgroup, a domain must already exist for you to join it. Joining a domain usually requires that the domain administrator add an account for your computer to the domain. If the administrator has given you the correct privileges, however, you can create your computer account during installation. Check with your administrator to see how your account will be created.

If you do not know the domain name for your computer and you want to finish running Setup without this information, you can select the **Workgroup** option and then type any workgroup name. After running Setup, you can join a domain or change the workgroup name by double-clicking the **Network** icon in **Control Panel**.

Note If you have recently removed an older version of Windows NT Server and are reinstalling on a computer that previously belonged to a domain, you must ask your network administrator to delete your machine account and create a new one. Otherwise, you will not be able to log on to the domain after the reinstallation.

You cannot change the machine account when you are upgrading your original Windows NT Server installation.

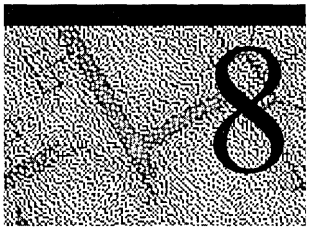
The **Domain Settings** dialog box can be used in two ways, depending on your network configuration:

- If the network started successfully, you can specify whether this computer is a member of a workgroup or a member of a Windows NT Server domain.
- If the network did not start, you are given a chance to reconfigure the network and attempt to start it again. If the network still does not start, you can accept or change the default Workgroup entry in this dialog box, and then click **OK** to continue Setup. This sets up a temporary workgroup to which your computer can belong.

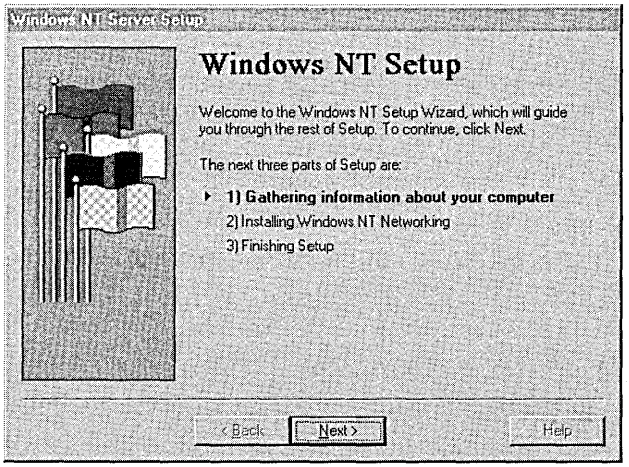
At this point in Setup, dialog boxes might appear for the various adapters, protocols, and services you have chosen to install. Accept the default values in each dialog box or type the settings required for your computer.

CHAPTER 8

Finishing Installation



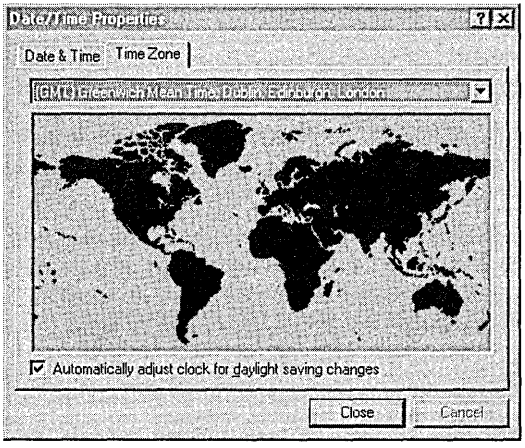
Setup is now ready to finish your installation.



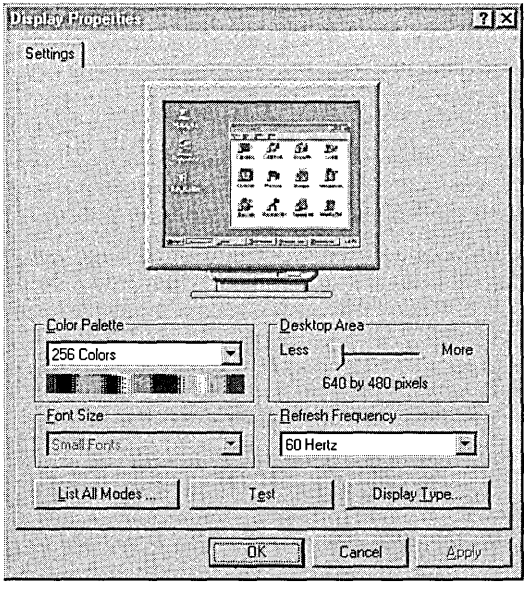
Before Setup can reboot and start your new operating system, however, it needs you to review and approve a few settings for the new operating system.

Setting the Time and Configuring the Video Display

The first screen shows the **Date and Time** utility. Adjust these settings for your local time and time zone.



Next, the **Display** utility appears so that you can configure your video display. Be sure to test your display before clicking **OK**.



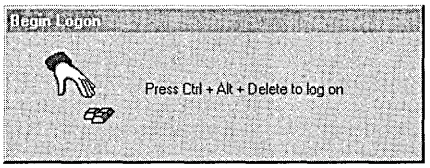
The display settings can be changed after Setup is complete by using the **Display** icon in **Control Panel**. For information, see Help after Windows NT has been successfully installed.

Starting Windows NT Server

After you complete the last screen of the Setup Wizard, Setup is ready to complete the final installation tasks.

▷ To complete Setup and start Windows NT Server

1. When the Setup Wizard is finished and a message asks you to restart your computer, remove any disks from the floppy disk drives and choose the **Reboot** button.
2. A boot loader menu appears. If you have a dual or multiple boot, the Windows NT installation you just completed is highlighted at the top of the list. Press ENTER.
3. When the Begin Logon message appears, press CTRL+ALT+DEL to log on.



4. In the **Logon Information** dialog box, type and confirm your password, and then click **OK**. If your computer is already a member of a domain, you must choose a domain in the **From...** box in order to log on.

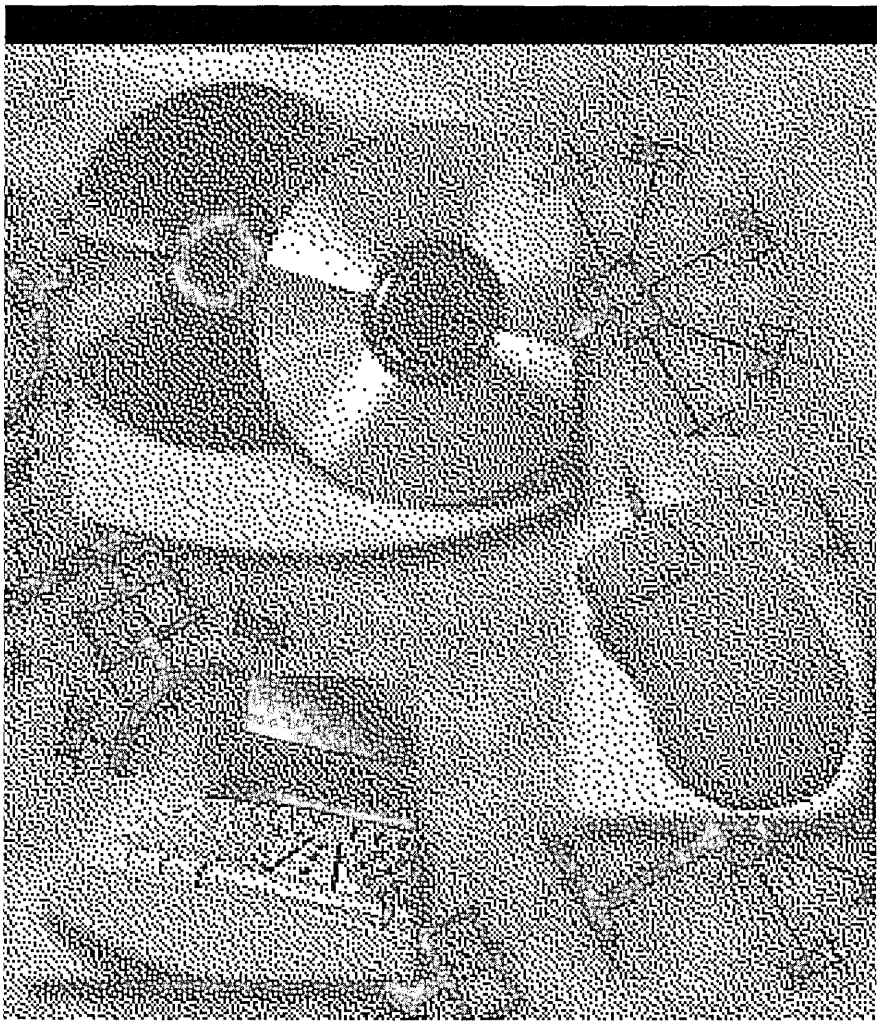
Caution For an x86-based computer, the following files are copied to the root directory on drive C: BOOT.INI, BOOTSECT.DOS (if another operating system is on your computer), NTLDR, and NTDETECT.COM. Also, if you have a SCSI disk that is not visible from MS-DOS (that is, not seen by the BIOS), the NTBOOTDD.SYS file is copied. These files should never be deleted because your system will not start without them.

For a RISC-based computer, HAL.DLL and OSLOADER.EXE are copied to the \OS\WINNT directory on your system partition. These files should never be deleted.

Note that these files are all read-only, hidden system files. If any of these files is missing on your system, you can use the Emergency Repair Disk to restore them.

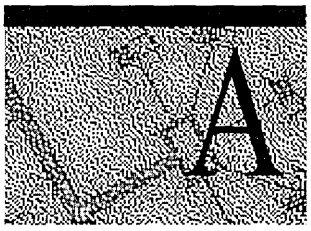
PART 3

Appendixes



APPENDIX A

Windows NT Setup Troubleshooting



This Troubleshooting Guide describes how to overcome problems installing Windows NT 4.0.

Using the Hardware Compatibility List

The *Windows NT Hardware Compatibility List* (HCL) is a compilation of systems and hardware which have been extensively tested with Windows NT for stability and compatibility. It is the guide used by Microsoft Product Support Services for determining whether or not a given system is supported for use with Windows NT. If you experience problems during your installation of Windows NT, your first step in troubleshooting should be to verify all of your computer's hardware components against this list.

Up-to-date versions of the HCL are available on:

- the World Wide Web at http://www.microsoft.com/ntserver/hcl/hclintro.htm
- Microsoft's FTP server at ftp://microsoft.com/bussys/winnt/winnt_docs/hcl

Hardware Configuration

Prior to installing Windows NT, you should record configuration information, including memory addresses and interrupt request (IRQ) settings on all adapters in your computer. Windows NT, as opposed to MS-DOS, does not install properly if adapters share IRQ settings. During Setup, when Windows NT detects your adapter card, it is often unable to detect the correct memory address or IRQ settings. Use the following table to determine the information you will need:

Adapter	Required information
Video	Adapter or chipset type
Network	IRQ, I/O address, DMA (if used) connector type (BNC, twisted pair, etc.)
SCSI Controller	Adapter model or chipset, IRQ, and bus type
Mouse	Mouse type, port (COM1, COM2, bus, or PS/2)
I/O Port	IRQ, I/0 address, DMA (if used) for each I/O port
Sound Card	IRQ, I/O address, DMA
External Modem	Port connections (COM1, COM2, etc.)
Internal Modem	Port connections or IRQ and I/0 address (for non-standard configurations)

Note Windows NT currently does not support the following controller and BIOS enhancements:

- 32-bit Basic Input/Output System (BIOS) switch
- Enhanced Drive Access
- Multiple Block Addressing or Rapid Integrated Device Electronics (IDE)
- Write Back Cache on disk controllers
- Power Management features

Frequently Asked Questions about Windows NT 4.0 Setup

This section lists the most common questions raised while running Setup. If you have encountered a problem, check here to see if your issue is explained.

Setup fails with the error message, "Setup did not find any mass storage devices on your computer."

-or-

After I remove the third Setup disk and my computer restarts, a screen appears with the message, "STOP: 0x0000007b Inaccessible Boot Device" and Setup stops there.

-or-

After I remove the third Setup disk and my computer restarts, a screen appears with the location "0x4,0,0,0" and Setup stops there.

What can I do?

Make sure all hard disks are getting power and are properly connected to your computer. Then check the following:

1. Scan each drive for viruses. If the Master Boot Record is infected, Windows NT may not see the hard drive properly. Use a commercial scan program in addition to MS Virus scan. Even if the drive is formatted as NT File System (NTFS), the Master Boot Record can become infected.
2. If the hard drive uses a small computer system interface (SCSI), check the following:
   - Is there a valid boot sector on the drive?
   - Are all SCSI devices properly terminated?

     If you are using a passive terminator, upgrade to an active terminator.
   - Is the BIOS on the boot (initiating) SCSI adapter enabled?
   - Are the BIOSs on all non-initiating SCSI adapters disabled?

     When the BIOS on a non-initiating SCSI adapter is enabled, it can fail at startup and/or interfere with hardware interrupt 13 calls to the initiating hard drive controller, resulting in the inability to start your computer as well as random hangs during installation.
   - Is the SCSI ID for your boot drive set at zero?
   - Have all your cables been checked for problems?
   - Does your SCSI configuration comply with the appropriate standards?

     For the appropriate SCSI configuration standards, see your hardware manufacturer. Check the HCL for notes regarding SCSI adapters and any limitations with specific adapters.

3. If the hard drive uses an enhanced integrated device electronics interface (EIDE), check the following:
   - Verify that the system drive is the first drive on the first integrated device electronics (IDE) controller on the motherboard.
   - In the system BIOS, verify that file I/O and/or disk access are set to standard. Most computers ship with access set to either 32-bit or enhanced access.
4. If the drive uses an IDE or an enhanced small device interface (ESDI), check the following:
   - Verify that the controller is functional in a different computer, if possible.
   - If the drive is larger than 1024 cylinders, make certain you are using a supported disk configuration utility.
   - Verify that the drive is jumpered correctly for master, slave, or single drive.

During the restart into the Setup wizard, the error message "NTOSKRNL.EXE is missing or corrupt" appears.

If you are installing to a drive other than C: and the primary drive is FAT, edit your BOOT.INI file and change the partition information by doing the following:

1. At an MS-DOS or OS/2 command prompt, type: **ATTRIB -S -R C:\BOOT.INI**
   This will remove the Read Only and System File attributes from the BOOT.INI file.
2. Edit the BOOT.INI file and change the Windows NT line to read as follows:

   ```
   multi(0)disk(x)rdisk(0)partition(y)\winnt="Windows NT on ?:"
   ```

   where *x* is the drive number, *y* is the partition number, and *?* is the drive letter where Windows NT resides. This will change the partition number for Windows NT.

During the restart from the character-based mode of Setup into the Setup wizard, an error message reading "HAL.DLL is missing or corrupt" appears.

-or-

When I install Windows NT on a multi-processor computer, the following error message appears: "HAL: Bad APIC version. HAL: This HAL.DLL requires an MPS version 1.1 system. Replace HAL.DLL with the correct HAL for this system. The system is halting."

What's wrong?

The incorrect hardware abstraction layer (HAL) is being loaded. To solve this problem, use the following steps:

1. Restart Setup.
2. As soon as the message "Windows NT is examining your hardware configuration appears," press F5. This displays a screen with various computer types listed.
3. Choose your computer type from the list. For example, if you are using an Intel Pentium-based computer with a single processor, choose "Standard PC."

   If your computer type does not appear on the list, select "Other" and insert the disk containing your computer manufacturer-supplied HAL.
4. Type ENTER to continue with Setup.

The mass storage device I used with Windows NT 3.51 is not available on Windows NT 4.0.

What can I do?

If the driver was on the Windows NT installation disk previously, check the files Readme.doc and Setup.txt on your Windows NT 4.0 compact disc to see if the driver is now located in the retired drivers directory. Full installation instructions are located in that directory.

If you received the driver directly from a third-party vendor, contact the vendor to request drivers for Windows NT 4.0.

When I use my SoundBlaster card, I can't play music CDs if I have the CD port configured with the mass storage driver.

What's wrong?

On more recent SoundBlaster cards, the multiport capabilities may not be recognized. Call Creative Labs for information about updated drivers.

My driver for audio/video/mass storage/netcard is not included in Windows NT 4.0.

What should I do?

Contact your device manufacturer for the updated drivers.

The partition where I am installing Windows NT is currently part of a mirrored set with another partition.

What should I do before I run Setup?

If you are installing Windows NT on a mirrored partition, you must disable mirroring before running Setup and then reestablish mirroring after installation is complete.

What is Windows NT doing during the first part of Setup?

During the first part of Setup (referred to as character-based Setup), Windows NT examines your system architecture for foundation-level information and drivers. This information includes:

- CPU type (x86, MIPS, ALPHA, or PPC)
- Motherboard type (PCI, VESA, MCA, EISA, or ISA)
- Hard Drive Controllers
- File Systems
- Free Space on Hard Drives
- Memory

Windows NT looks for any devices that must be initialized at system startup in order for your computer to run. Windows NT also constructs a "mini" version of Windows NT, which is used to reboot your computer into the Setup wizard (the graphical user interface mode portion of Setup). In order for the Setup wizard to run smoothly, the information you give during the character-based mode of Setup must be accurate and complete.

While running Setup, my computer stops and displays a long message beginning with the word "STOP."

What happened?

Text mode STOP Messages are used to identify and debug hardware and software problems that occur while loading or running Windows NT. When a mission-critical operating system fails, it is preferable to generate an obvious error message, such as the STOP screen, rather than to simply fail in an "invisible" manner and possibly corrupt data. A STOP screen consists of a STOP message, the text translation, the addresses of the violating call, and the drivers loaded at the time of the STOP screen. STOP screens give you and a Product Support Services engineer the necessary information to locate and identify problem areas.

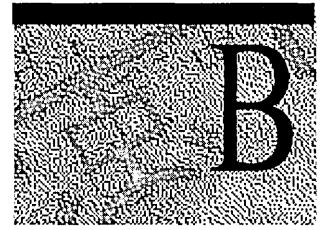
My computer supports booting directly from the CD-ROM drive. When I try to boot from the Windows NT 4.0 compact disc, however, nothing happens.

What's wrong?

In order to boot directly from the Windows NT 4.0 compact disc, your computer's BIOS must support the El Torito Bootable CD-ROM (no-emulation mode) format. Check with your computer manufacturer if you are unsure whether your BIOS has this feature.

APPENDIX B

Accessibility for People with Disabilities



Microsoft is committed to making its products and services easier for everyone to use. This section provides information about the following products and services, which make Microsoft Windows NT Server more accessible for people with disabilities:

- Microsoft support services for people who are deaf or hard-of-hearing
- Features in Windows NT that make using Windows NT easier for people with motion or hearing disabilities
- Setting up Windows NT for individuals who require third-party accessibility utilities
- Keyboard layouts designed for people who type with one hand or a wand
- Getting information about other products and services for people with disabilities

Support Services for Individuals Who are Deaf or Hard-of-Hearing

Through a text telephone (TT/TDD) service, Microsoft provides users who are deaf or hard-of-hearing with complete access to Microsoft's product and customer support services.

You can call the following numbers Monday through Friday, excluding holidays. You can contact the Microsoft Sales and Information Center on a text telephone by dialing (800) 892-5234 between 6:30 A.M. and 5:30 P.M. Pacific time. For technical assistance in the United States, you can contact the Microsoft Support Network on a text telephone at (206) 635-4948 between 6:00 A.M. and 6:00 P.M. Pacific time. In Canada, dial (905) 568-9641 between 8:00 A.M. and 8:00 P.M. Eastern time. Microsoft's product support services are subject to Microsoft's prices, terms, and conditions in place at the time the service is used.

Windows NT Accessibility Features

Windows NT includes several accessibility features that provide users who are movement or hearing disabled with better access to computers that run Windows NT. These features enable you to change your display, mouse, and keyboard features, as well as use sound to help you use Windows most effectively.

For example, if you have trouble using a mouse, you can use the MouseKeys feature, which enables you to use the numeric keypad to move the mouse pointer.

To find these features, double-click the Accessibility Options icon in Control Panel. For a more detailed list of procedures, look up "accessibility" in the Help Index.

Accessibility Options Shortcut Keys

To use Accessibility Options shortcut keys, the shortcut keys must be enabled. For more information, look up "accessibility" in the Help Index.

To	Press
Toggle StickyKeys on and off	SHIFT 5 times
Toggle FilterKeys on and off	RIGHT SHIFT for 8 seconds
Toggle ToggleKeys on and off	NUMLOCK for 5 seconds
Toggle MouseKeys on and off	LEFT ALT + LEFT SHIFT + NUMLOCK
Contrast on and off	LEFT ALT + LEFT SHIFT + PRINT SCREEN

Setting up Windows NT for Individuals Who Require Third-party Accessibility Utilities

It is not possible to run the Windows NT installation program in standard mode concurrently with third-party accessibility utilities such as screen readers or screen magnifiers. Users who require accessibility utilities such as these can use the installation program's Unattended Setup mode from a command line. The Unattended Setup mode installs Windows NT without requiring any user interaction. It can also be used to install an accessibility utility automatically at the same time. For complete instructions, see the file ACCSETUP.TXT on your installation disk.

Customizing Windows NT

There are many ways you can adjust the appearance and performance of Windows NT, your mouse, and your keyboard to suit varying vision and motor abilities without requiring any additional software or hardware. Application note WW1279 describes the specific methods.

If you have a modem, you can download application notes from the following network services:

- CompuServe®
- GEnie™
- Microsoft OnLine
- Microsoft Download Service (MSDL), which you can call at (206) 936-6735 any time except between 1:00 A.M. and 2:30 A.M. Pacific time. Use the following communications settings:

For this setting	Specify
Baud rate	1200, 2400, or 9600
Parity	None
Data bits	8
Stop bits	1

- Various user-group bulletin boards (such as the bulletin-board services on the Association of PC User Groups network)

Keyboard Layouts for Single-Handed Users

Microsoft distributes Dvorak keyboard layouts that make the most frequently typed characters on a keyboard more accessible to people who have difficulty using the standard "QWERTY" layout. There are three Dvorak layouts: one for two-handed users, one for people who type with their left hand only, and one for people who type with their right hand only. The left-handed or right-handed keyboard layouts can also be used by people who type with a single finger or a wand. You do not need to purchase any special equipment to use these features.

Microsoft Windows NT already supports the two-handed Dvorak layout, which can be useful for coping with or avoiding types of repetitive-motion injuries associated with typing. For a detailed list of procedures, look up "Dvorak" in the Help Index.

Documentation in Alternative Formats

People who have difficulty reading or handling printed documentation can obtain most Microsoft publications from Recording for the Blind, Inc. Recording for the Blind distributes these documents to registered, eligible members of their distribution service, either on audio cassettes or on floppy disks. More than 80,000 titles are available, including Microsoft product documentation and books from Microsoft Press. You can contact Recording for the Blind at the following address or phone numbers:

Recording for the Blind, Inc.
20 Roszel Road
Princeton, NJ 08540

Telephone: (609) 452-0606
Fax: (609) 987-8116

More Information for People with Disabilities

For more information about Microsoft products and services for people with disabilities, contact:

Microsoft Sales Information Center
One Microsoft Way
Redmond, WA 98052-6399

Voice telephone: (800) 426-9400
Text telephone: (800) 892-5234
Fax: (206) 635-6100

The Trace R&D Center at the University of Wisconsin–Madison produces a book and a compact disc that describe products that help people with disabilities use computers. The book, titled *Trace Resource Book*, provides descriptions and photographs of about 2,000 products. The compact disc, titled *CO-NET CD*, provides a database of more than 18,000 products and other information for people with disabilities. It is issued twice a year. To obtain these directories, contact:

Trace R&D Center
S-151 Waisman Center
1500 Highland Avenue
Madison, WI 53705-2280

Voice telephone (608) 263-2309
Text telephone: (608) 263-5408
Fax (608) 262-8848

For general information and recommendations about how computers can help specific individuals, consult a trained evaluator who can best match the individual's needs with the available solutions. An assistive technology program in your area will provide referrals to programs and services that are available to you. To locate the assistive technology program nearest you, you can contact:

National Information System (NIS)
Center for Developmental Disabilities
Benson Bldg.
University of South Carolina
Columbia, SC 29208

Voice/text telephone: (803) 777-4435
Fax: (803) 777-6058

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