

Mini-Lab Manual

E

Table E-1 lists all the lab exercises in this book, including the number and title of each lab, and the chapter in which the lab is presented.

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Hands-on Lab Exercises

Following are all the lab exercises that appear in this book. We've pulled them together for you in this Mini-Lab Manual to help prepare you for the certification exams. These lab exercises are extremely important to your exam preparation. Don't even think about skipping them! There's no substitute for using Windows NT to master the skills that the Windows NT 4.0 Microsoft Certified Professional exams will test you on.

Refer to the "Hardware and software you'll need" section in this Appendix if you're not sure you have the necessary equipment to do the labs.



Warning! Some of the lab exercises in this book have the potential to erase or corrupt data on existing hard disk drives. Make sure you back up all important data and programs *before* you attempt to perform any of the lab exercises. Or, better yet—do the labs on a computer that does not contain any vital data or programs.



The answers to all of the labs that contain questions can be found in Appendix D.

Hardware and software you'll need

You will need access to various hardware and software to be able to do the hands-on lab exercises in this book.

If you have the minimum hardware listed below, you will be able to complete *most* of the hands-on lab exercises in this book, and certainly all of the critical exercises. To perform all of the labs, however, you will need the optional additional hardware, as well.

Minimum hardware requirements

- Intel-based computer with 486/33 processor, 16MB RAM, and 500MB-1GB available hard disk space
- CD-ROM drive
- Mouse
- VGA monitor and graphics card



I strongly recommend you only use hardware found on the Microsoft Windows NT Hardware Compatibility List (HCL), which is shipped with the NT Product, or can be accessed via Microsoft's World Wide Web site at <http://www.microsoft.com/ntworkstation> or <http://www.microsoft.com/ntserver>.

Optional additional hardware

- Additional computer (with the same minimum specifications as the first one)
- Network adapter and cabling (if you have the additional computer listed above)
- Printer
- Tape drive
- Modem and Internet connection (so you can access the various online resources)

Software required

- Microsoft Windows NT Workstation 4.0
- Microsoft Windows NT Server 4.0

Lab 2.1 **Installing Windows NT Workstation**Workstation
Server
Enterprise

The objective of this hands-on exercise is for you to experience the process of installing Microsoft Windows NT Workstation and to develop the skills used to perform this task.

For you to complete some of the remaining labs in this book, you will need at least a 10MB partition on your hard disk that will be formatted in a later lab with NTFS. (If you don't partition your hard disk in this manner, you will not be able to do the labs on NTFS security and auditing.) You may create an extended MS-DOS partition for this use. This task should be done *before* MS-DOS is installed, and before you proceed with the rest of this lab. I recommend you partition your hard drive into two partitions. The first partition should contain *all but* 10MB of the disk's capacity. The extended (second) partition should consist of the remaining 10MB of disk space.

I assume, in all of the labs in this book, that drive C: is the large partition, and that drive D: is the 10MB partition. Your actual drive letters may vary from this configuration. If your drives are lettered differently, substitute your drive letters for the ones I use.

To perform this lab, first install MS-DOS on your computer's hard drive, and load the drivers for your CD-ROM drive. Make sure the Windows NT Workstation compact disc is in your CD-ROM drive. You need one blank, 3.5-inch high-density floppy disk for this lab exercise.

Follow the steps below carefully to perform the installation.

PRECOPY PHASE

1. Change the default drive to your CD-ROM drive by typing in the CD-ROM drive letter followed by a colon (for example, **D:**). Then press Enter.
2. Type `cd I386`, and then press Enter.
3. Type `winnt /b`, and then press Enter. (This command instructs Setup to perform the `Winnt.exe` installation without creating the Setup Boot Disk set.)
4. When Windows NT Setup asks you to enter the path where NT files are located, press Enter.
5. Setup copies files to your hard disk. (This process takes a few minutes. How about a stretch break or a fresh cup of coffee?)

6. When the Windows NT Workstation Setup screen appears, press Enter to restart your computer and continue Windows NT Setup.

PHASE 0

1. After a couple of minutes, the Windows NT Workstation Setup screen appears, welcoming you to Setup. Press Enter to set up Windows NT now.
2. Setup displays a screen indicating any mass storage devices, such as SCSI adapters, CD-ROM drives, and so on. Some older IDE controllers are not displayed here, but they will still function and be recognized by NT. Specify additional devices by making changes on this screen if necessary. When you have completed all changes, press Enter to continue.
3. The Windows NT Licensing Agreement screen appears. Read the licensing agreement, pressing PgDn to view additional screens. When you reach the bottom of the agreement, press F8 to continue setup.
4. Setup displays a screen indicating your computer's hardware and software components. Make any necessary changes. When you are finished, highlight "The above list matches my computer" and press Enter.
5. If you have a previous version of Microsoft Windows installed on your computer, Setup displays a screen indicating that it has found a previous version. If this screen appears, press N to install Windows NT Workstation in a different directory.
6. Setup displays a screen listing your computer's hard disk partitions. Highlight the partition on which you want to install Windows NT, and then press Enter. (Make sure the partition you choose has at least 117MB free.)
7. Setup asks you to select the type of file system you want on this partition. Highlight "Leave the current file system intact <no changes>" and press Enter.
8. Setup displays a location where it will install the NT Workstation files. In the highlighted area, edit the text so that it reads: `\WINNTWKS`. (Don't type the period at the end.) Press Enter.
9. Setup offers to examine your computer's hard disk for corruption. Press Enter to allow this. (This takes a few minutes.)
10. Setup displays a screen indicating that this portion of Setup is complete. If you have a floppy disk inserted in drive A:, remove it now. Then press Enter to restart your computer and to continue with setup.

PHASE 1

1. After your computer reboots, the Windows NT Workstation Setup dialog box appears. Click Next to continue.

2. A Setup Options screen appears. Select Custom. Click Next to continue.
3. Type in your name, press Tab, and then type in the name of your organization. Click Next to continue.
4. Type in the ten-digit CD key number from the back of your Windows NT Workstation compact disc case (press Tab after you type the first three digits). Click Next to continue.
5. When Setup prompts you to type in a computer name, type **NTW40**. Click Next to continue.
6. Type **password** when Setup prompts you to enter an administrator password. Press Tab. Confirm the password by retyping it. Click Next to continue.
7. Setup asks you if you want to create an Emergency Repair Disk. Accept the Yes default. Click Next to continue.
8. Setup displays a screen indicating you are to Select Components. Add any components that you want to install, but do *not* deselect any components that are selected by default. (I recommend you install Freecell and all of the games . . . I'm an addict!) Click Next to continue.

PHASE 2

1. Setup displays a screen indicating that Phase 2, Installing Windows NT Networking, is about to begin. Click Next to continue.
2. Select "This computer will participate on a network." Then click to check the box next to "Wired to the network." (It's okay to select these options even if you don't have a network adapter in your computer.) Click Next to continue.
3. Setup displays the Network Adapters box. If you have a network adapter, click Start Search. Your network adapter should appear in the Network Adapters window. If your network adapter did not appear, or if you do not have a network adapter in your computer, click Select from list. If your network adapter is shown in the list, highlight it and click OK. If your network adapter is not on the list, and you have a driver disk from its manufacturer, highlight any network adapter and click Have Disk. Setup then prompts you to insert this disk. Do so and click OK. Highlight your network adapter from the list and click OK. If you do not have a network adapter, highlight MS Loopback Adapter and click OK. You should now have either the MS Loopback Adapter or your network adapter displayed in the Network Adapters box. Click Next to continue.
4. Setup displays the Network Protocols list box. Accept the default selection of TCP/IP Protocol. Click Next to continue.

5. Setup displays the Network Services list box. Accept all of the defaults selected in this list box. Click Next to continue.
6. Click Next to continue and to have Setup install the selected components.
7. Setup prompts you to enter your network adapter card settings. (This screen may not appear for some network adapters.) Verify that the settings shown match the ones that you used when you installed and configured your network adapter. Make changes only as needed. Click Continue.
8. A TCP/IP Setup warning screen appears. If you are on a network that has a DHCP server, click Yes. Otherwise, click No.
9. The Microsoft TCP/IP Properties dialog box eventually appears if you clicked No in the previous step. *If you are on a network that uses TCP/IP, or if you are connected to the Internet, obtain an IP address, subnet mask, and default gateway from your network administrator.* Otherwise, type an IP address of: **192.168.59.5** and a subnet mask of: **255.255.255.0**.

caution



Do *not* use this IP address if you are on a network that uses TCP/IP, or if you are connected to the Internet.

10. Leave the Default Gateway blank. Click OK to continue.
11. Setup displays a screen showing network binding information. Click Next to continue.
12. Click Next to start the network.
13. Setup displays a screen asking you to choose whether your computer will participate in a workgroup or domain configuration. Accept the default selection of Workgroup, and the default workgroup name WORKGROUP. Click Next to continue.

PHASE 3

1. Click Finish to continue the setup process.
2. In the drop-down list box under the Time Zone tab, highlight and click your time zone. As an option, you may also click the Date & Time tab and set the correct date and time. Click Close to continue when you are finished.
3. Setup displays a screen indicating that it has found your video display adapter. Click OK in the Detected Display dialog box to continue.
4. Adjust the display settings to suit your preferences. Click Test. The Testing Mode dialog box appears. Click OK to test. When the Testing Mode dialog box reappears, click Yes if you saw the test bitmap. When the Display Settings dialog box appears, click OK to continue. Click OK in the Display Properties dialog box to complete the installation. (This takes a few minutes.)

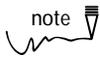
- When prompted, label and insert a blank 3.5-inch floppy disk into drive A:. Setup formats this disk and makes it into your Emergency Repair Disk. Click OK to continue. (This takes a couple of minutes.)
- Setup displays a window indicating that Windows NT 4.0 is successfully installed. Remove your newly created Emergency Repair Disk from drive A: (and save it for future use). Also remove the compact disc from your CD-ROM drive. Then click Restart Computer to reboot and start Windows NT Workstation. The setup is complete.

Lab 2.2 *Installing Windows NT Server and configuring dual boot with Windows NT Workstation*



Workstation
Server
Enterprise

The purpose of this lab exercise is for you to experience the process of installing Microsoft Windows NT Server and to develop the skills used to perform this task. During the installation process, you will configure your computer to dual boot between Windows NT Server and Windows NT Workstation.



note

Before you can successfully perform this lab, you must complete Lab 2.1. You need one blank, 3.5-inch high-density floppy disk for this lab exercise.

Follow the steps below carefully to perform the installation:

Boot your computer to Windows NT Workstation, and log on as Administrator (remember: the administrator password is *password*). Make sure the Windows NT Server compact disc is in your CD-ROM drive.

PRECOPY PHASE

- Close the Welcome to Windows NT dialog box.
- Select Start > Programs > Command Prompt.
- At the command prompt, change the default drive to your CD-ROM drive by typing in the CD-ROM drive letter followed by a colon (for example, **D:**). Then press Enter.
- Type **cd I386**, then press Enter.
- Type **winnt32 /b**, then press Enter. (This command performs the installation without creating the Setup Boot Disk set.)
- The Windows NT 4.0 Upgrade/Installation dialog box appears. Click Continue to accept the default path for the location of your Windows NT files.
- The Installation program copies files to your hard disk. (This process takes a few minutes.)

8. When Setup displays the Windows NT 4.0 Server Installation/Upgrade dialog box, click Restart Computer and continue the installation.

PHASE 0

1. After a minute or two, when the Windows NT Server Setup screen appears, press Enter to set up Windows NT now.
2. Setup displays a screen showing any mass storage devices, such as SCSI adapters, CD-ROM drives, and so on. Some older IDE controllers are not displayed here, but will still function and be recognized by NT. Specify additional devices by making changes on this screen if you need to. When you have completed all necessary changes, press Enter to continue.
3. The Windows NT Licensing Agreement screen appears. Read the licensing agreement, pressing PgDn to view additional screens. When you reach the bottom of the agreement, press F8 to continue setup.
4. Windows NT Server Setup displays a screen indicating it has found Windows NT Workstation. Press N to cancel upgrade and install a fresh copy of Windows NT.
5. Windows NT Server Setup displays a screen listing your computer's hardware and software components. Make any changes necessary. When you are finished, highlight "The above list matches my computer," and press Enter.
6. If you have a previous version of Microsoft Windows installed on your computer, Setup displays a screen stating that it detected a previous version. If this screen appears, press N to install Windows NT Server in a different directory.
7. Windows NT Server Setup displays a screen showing your computer's hard disk partitions. Highlight the partition on which you want to install Windows NT Server, then press Enter. (Make sure the partition you choose has at least 124MB free.)
8. Windows NT Server Setup asks you to select the type of file system you want on this partition. Highlight "Leave the current file system intact <no changes>," and press Enter.
9. Windows NT Server Setup displays the location where it will install the NT Server files. In the highlighted area, edit the text so that it reads: **\\WINNTRV**. (Don't type the period at the end.) Then press Enter.
10. Windows NT Server Setup offers to examine your hard disk for corruption. Press Enter to allow this. (This takes a few minutes.)

11. Windows NT Server Setup displays a screen that indicates this portion of Setup is complete. If you have a floppy disk inserted in drive A:, remove it now. Then press Enter to restart your computer and to continue with setup.

PHASE 1

1. After your computer reboots and the Windows NT Server Setup dialog box finally appears, click Next to continue.
2. Type in your name, press Tab, then type in the name of your organization. Click Next to continue.
3. Type in the ten-digit CD key number from the back of your Windows NT Server compact disc case (press Tab after you enter the first three digits). Click Next to continue.
4. Select a Licensing mode for the server. Select "Per Server for:" and enter the number of client licenses you purchased. Click Next to continue.
5. When prompted to type in a name for your computer, type **PDCLAB**. Click Next to continue.
6. Select Primary domain controller in the Server Type window. Click Next to continue.
7. Type **password** when prompted to enter an administrator password. Press Tab. Confirm the password by retyping it. Click Next to continue.
8. Windows NT Server Setup asks if you want to create an Emergency Repair Disk. Accept the Yes default. Click Next to continue.
9. Windows NT Server Setup displays a screen prompting you to Select Components. Add any components that you want to install, but do *not* deselect any components that are selected by default. Click Next to continue.

PHASE 2

1. Windows NT Server Setup displays a window indicating that Phase 2, Installing Windows NT Networking, is about to begin. Click Next to continue.
2. Accept the default check in the box next to "Wired to the network." (It's okay to select this option even if you don't have a network adapter in your computer.) Click Next to continue.
3. Accept the default check in the box next to "Install Microsoft Internet Information Server." Click Next to continue.

4. Windows NT Server Setup displays the Network Adapters box. If you have a network adapter, click Start Search. Your network adapter should then appear in the Network Adapters box. If your network adapter did not appear, or if you do not have one in your computer, click Select From List. If your network adapter is shown in the list, highlight it and click OK. If your network adapter is not on the list, and you have a driver disk from its manufacturer, highlight any network adapter and click Have Disk. Setup then prompts you to insert this disk. Insert the disk and click OK. Highlight your network adapter from the list and click OK. If you do not have a network adapter, highlight MS Loopback Adapter and click OK. You should now have either the MS Loopback Adapter or your network adapter displayed in the Network Adapters box. Click Next to continue.
5. Windows NT Server Setup displays the Network Protocols list box. Deselect NWLink IPX/SPX Compatible Transport. Ensure that the TCP/IP Protocol is the only protocol selected (it will have a gray check in the check box). Click Next to continue.
6. Windows NT Server Setup displays the Network Services list box. Accept all of the defaults selected in this window. Click Next to continue.
7. Click Next to have Setup install the selected components.
8. Setup prompts you to enter your network adapter card settings. (This screen may not appear for some network adapters.) Verify that the settings shown match the ones you used when you installed and configured your network adapter. Make changes only as needed. Click Continue.
9. A TCP/IP Setup warning screen appears. If you are on a network that has a DHCP server, click Yes. Otherwise, click No.
10. The Microsoft TCP/IP Properties dialog box appears if you clicked No in the previous step. *If you are on a network that uses TCP/IP, or if you are connected to the Internet, obtain an IP address, subnet mask, and default gateway from your network administrator.* Otherwise, type an IP address of: **192.168.59.5** and a subnet mask of: **255.255.255.0**.



Do not use this IP address if you are on a network that uses TCP/IP, or if you are connected to the Internet.

11. Leave the Default Gateway blank. Click OK to continue.
12. Windows NT Server Setup displays a screen showing network binding information. Click Next to continue.
13. Click Next to start the network.
14. Windows NT Server Setup prompts you enter a domain name. Type **LAB** as your domain name. Click Next to continue.

PHASE 3

1. Click Finish to continue the setup process.
2. Accept the defaults selected in the Microsoft Internet Information Server 2.0 Setup dialog box. Click OK to continue.
3. Click Yes to create the directory.
4. Accept the default directories in the Publishing Directories dialog box by clicking OK.
5. Click Yes to create the directories.
6. Click OK in the Microsoft Internet Information Server 2.0 Setup dialog box. (You won't be configuring the Gopher functionality in this course.)
7. Click SQL Server in the Install Drivers dialog box to highlight it. Click OK to continue.
8. In the drop-down list box under the Time Zone tab, click your time zone to highlight it. Optionally, click the Date & Time tab and set the correct date and time. When you are finished, click Close to continue.
9. Setup displays a screen indicating that it has found your video display adapter. Click OK in the Detected Display dialog box to continue.
10. Adjust the display settings to suit your preferences. Click Test. The Testing Mode dialog box appears. Click OK to test. When the Testing Mode dialog box reappears, click Yes if you saw the test bitmap. When the Display Settings dialog box appears, click OK to continue. Click OK in the Display Properties dialog box to complete the installation. (This takes a few minutes.)
11. When prompted, label and insert a blank 3.5-inch floppy disk into drive A:. Setup formats and makes this disk into your Emergency Repair Disk. Click OK to continue. (This takes a couple of minutes.)
12. Windows NT Setup displays a window indicating that Windows NT 4.0 is successfully installed. Remove your newly created Emergency Repair Disk from drive A: (and save it for future use). Also remove the compact disc from your CD-ROM drive. Then click Restart Computer to reboot and start Windows NT Server. The setup is complete.

At the completion of Labs 2.1 and 2.2, both Windows NT Workstation and Windows NT Server are installed on your computer, and your computer is configured to dual boot between the two operating systems.

Lab 3.3 **Managing Partitions**

Workstation
Server
Enterprise

The objective of this hands-on lab exercise is for you to gain experience using Disk Administrator to manage partitions.

Follow the steps carefully to successfully partition and format the remaining 10MB of your computer's hard drive with an NTFS partition.



If you didn't leave enough space on your hard disk to perform this, I recommend that you reinstall NT Workstation and NT Server to accommodate this lab. If this is not possible, you should create an NTFS partition somewhere on one of your hard disks so that you can perform the file security labs later in this book.

caution



Don't delete or reformat any partition that contains data that you don't want to lose. As always, make sure you back up all important data and programs *before* you do the lab exercise.

1. Boot your computer to either Windows NT Server or Windows NT Workstation. Log on as Administrator. (Remember the password? It's *password*.)
2. Close the Welcome to NT dialog box if it appears. (Hint: If you never want to see this dialog box again, the second time it appears, you are given a check box to select if you don't want this box to appear each time you run NT.)
3. Select Start > Programs > Administrative Tools (Common) > Disk Administrator.
4. Disk Administrator displays a dialog box indicating that this is the first time Disk Administrator has been run. Click OK to update the system configuration.
5. If this is the first time Disk Administrator has been run, a Confirm dialog box appears, indicating that no signature is found on Disk 0. Click Yes to write a signature on Disk 0.
6. Click the box that indicates a drive with a 10MB partition (to highlight it), and select Partition > Delete. (Caution! If this partition is displayed as Free Space, don't do this step. Instead, skip to Step 11.)
7. Click Yes in the Confirm dialog box to delete the partition.
8. Select Partition > Commit Changes Now.
9. Click Yes in the Confirm dialog box to save the changes to your disk.
10. Click OK to return to the Disk Administrator main dialog box.

11. Click the box that indicates the drive with 10MB of free space (to highlight it), and then select Partition > Create.
12. A Confirm dialog box appears. Click Yes to continue to create the partition.
13. Click OK in the Create Primary Partition dialog box to create a new partition.
14. Select Partition > Commit Changes Now.
15. Click Yes in the Confirm dialog box to save the changes to your disk.
16. Click OK to return to the Disk Administrator main dialog box.
17. Click the box that indicates the drive with a 10MB partition (labeled Unknown) to highlight it.
18. Select Tools > Format.
19. Choose NTFS in the File System drop-down list box, accept all the other defaults, and then click Start.
20. A warning dialog box appears. Click OK to format the drive.
21. A dialog box appears indicating that the format is complete. Click OK.
22. Click Close to return to the Disk Administrator main dialog box.
23. Select Partition > Exit to exit Disk Administrator.

Congratulations! You have now formatted the 10MB partition on your computer with NTFS.

Lab 3.4 *Updating the Emergency Repair Disk*



Server
Enterprise

The purpose of this hands-on lab exercise is to provide you with the skills required to update your Emergency Repair Disk, and to give you experience performing this task.

In order to do this lab, you need the Emergency Repair Disks you created in Labs 2.1 and 2.2 during the original installations of your Windows NT operating systems.



The Emergency Repair Disks for Windows NT Workstation and Windows NT Server are different. If you have both operating systems on the same computer, you need to update both disks.

Do this lab twice, once from each operating system.

1. Boot to Windows NT (either Workstation or Server).
2. Select Start > Run.

3. When the Run dialog box appears, type **RDISK** in the drop-down dialog box.
4. Click OK to run `Rdisk.exe`.
5. When the Repair Disk Utility dialog box appears, click Update Repair Info.
6. Click Yes to update your repair information.
7. `Rdisk.exe` saves your current configuration. This takes a couple of minutes. Click Yes to create the Emergency Repair Disk.
8. When prompted, place the Emergency Repair Disk you created in Lab 2.1 (if you are running Windows NT Workstation) or Lab 2.2 (if you are running Windows NT Server) in drive A:. Click OK to create the Emergency Repair Disk. (This process erases your original Emergency Repair Disk and creates a new Emergency Repair Disk with your current system configurations.) It takes a couple of minutes for the Repair Disk Utility to complete this process.
9. Click Exit to exit the Repair Disk Utility. Your Emergency Repair Disk is now updated. Remove it from drive A:. (Remember to do this lab again with your other NT operating system.)

Lab 4.5 *Configuring directory replication*



Server
Enterprise

The purpose of this lab is to provide you with hands-on experience and the skills needed to configure and use the Directory Replicator service.

There are seven parts to this lab:

Part 1: Creating a logon script

Part 2: Creating a directory replication user account

Part 3: Configuring the startup type of the Directory Replicator service

Part 4: Configuring replication

Part 5: Stopping and restarting the Directory Replicator service

Part 6: Viewing the replication of the logon script

Part 7: Testing your logon script

Follow these steps carefully:

Part 1: Creating a logon script

1. Boot your computer to Windows NT Server.
2. Select Start > Programs > Accessories > Notepad.

3. In the Untitled-Notepad dialog box, type the following:

```
@echo This is the logon script I created in Lab 4.5.
```

```
@echo
```

```
@echo
```

```
@pause
```

(Note: Make sure to type the text *exactly* as it is presented above.)

4. Select File > Save As. Edit the File name text box to read as follows:

```
c:\winntsr\system32\repl\export\scripts\logonscript.bat
```

5. Click Save.
6. Exit Notepad.

Part 2: Creating a directory replication user account

1. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
2. Select User > New User in the User Manager dialog box.
3. In the New User dialog box, type in the username **Repluser**. Type in a password of **password** (remember that passwords are case sensitive in Windows NT). Confirm the password by retyping it in the Confirm Password box. Deselect the check box next to User Must Change Password at Next Logon. Select the check box next to Password Never Expires. Click the Groups command button at the lower left-hand corner of the dialog box.
4. The Group Memberships dialog box appears. In the "Not member of" text box, highlight Backup Operators and click the Add command button. In the "Not member of" text box, highlight Replicator and click the Add command button. There should be three groups listed in the Member of text box: Backup Operators, Domain Users, and Replicator. Click OK.
5. The New User dialog box reappears. Click Add. Then click Close.
6. The User Manager dialog box reappears. Exit User Manager.

Part 3: Configuring the startup type of the Directory Replicator service

1. Select Start > Settings > Control Panel.
2. Double-click Services.
3. The Services dialog box appears. Highlight Directory Replicator. Click Startup.

4. The Service dialog box appears. In the Startup Type section, select the Automatic radio button. In the Log On As section, select the This Account radio button. Click the ... command button at the end of the This Account text box.
5. The Add User dialog box appears. In the Names list box, highlight Repluser, and click Add. Click OK.
6. The Service dialog box reappears. Highlight the asterisks in the Password text box and type in **password**. In the Confirm Password text box, highlight the asterisks and type **password**. Click OK.
7. A Services dialog box appears indicating that the account LAB\Repluser has been granted the Log On As A Service right. Click OK.
8. The Services dialog box reappears. Click Close. The Control Panel dialog box reappears.

Part 4: Configuring replication

1. In Control Panel, double-click Server.
2. In the Server dialog box, click Replication.
3. The Directory Replication dialog box appears. Click the Export Directories radio button. Click the Add command button at the bottom of the Export Directories section.
4. The Select Domain dialog box appears. In the Select Domain list box, click LAB. LAB should now appear in the Domain text box. Click OK.
5. The Directory Replication dialog box reappears. LAB should appear in the To List box. Click the Import Directories radio button. Click the Add command button at the bottom of the Import Directories section.
6. The Select Domain dialog box appears. In the Select Domain list box, double-click LAB. Click PDCLAB. \\PDCLAB should now appear in the Domain text box. Click OK.
7. The Directory Replication dialog box reappears. PDCLAB should appear in the From List box. Click OK to save the directory replication configuration and automatically start the Directory Replicator service.
8. In the Server dialog box, click OK. The Control Panel dialog box reappears.

Part 5: Stopping and restarting the Directory Replicator service

1. In Control Panel, double-click Services.

2. The Services dialog box appears. In the Service list box, highlight Directory Replicator. Click Stop. A warning message appears, asking if you want to stop the Directory Replicator service. Click Yes.
3. A Service Control dialog box appears, indicating that NT is attempting to stop the Directory Replicator service.
4. The Services dialog box reappears. Note that the Status column no longer shows "Started" for the Directory Replicator service. Click Start.
5. A Service Control dialog box appears, indicating that NT is attempting to start the Directory Replicator service.
6. The Services dialog box reappears. Note that the Status column now shows "Started" for the Directory Replicator service. Click Close.
7. The Control Panel dialog box reappears. Exit Control Panel.

Part 6: Viewing the replication of the logon script

1. Select Start > Programs > Windows NT Explorer.
2. Maximize the Exploring dialog box. In the All Folders column on the left, click the + sign next to the Winntsrv folder. Then click the + sign next to the system32 folder. Click the + sign next to the Rep1 folder. Click the + sign next to the Export folder. Click the Scripts folder. Notice that the logonscript.bat file you created in the first part of this lab appears in the Contents window. (Remember that you saved this file in the c:\winntsrv\system32\rep1\export\scripts folder in the first part of this lab.)
3. Click the + sign next to the Import folder (in the All Folders column on the left). Click the Scripts folder beneath the Import folder. Notice that the logonscript.bat file has been replicated from the Export\Scripts folder to the Import\Scripts folder. The Directory Replicator service is now fully functional. Exit Windows NT Explorer.

Part 7: Testing your logon script

1. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
2. In the User Manager dialog box, select User > Properties.
3. The User Properties dialog box appears. Click the Profile command button.
4. The User Environment Profile dialog box appears. In the Logon Script Name text box, type **logonscript.bat**. (Don't type the period at the end.) Click OK.
5. The User Properties dialog box reappears. Click OK.

6. Close User Manager.
7. Select Start > Shut Down. The Shut Down Windows dialog box appears. Click the "Close all programs and log on as a different user" radio button. Then click Yes.
8. In the Begin Logon dialog box, press Ctrl + Alt + Delete to log on.
9. The Logon Information dialog box appears. Type in your password in the Password text box. Click OK.
10. A command prompt window should appear. The logon script you created in part one of this lab has run and appears like the following:


```
This is the logon script I created in Lab 4.5.
ECHO is on.
ECHO is on.
Press any key to continue . . .
```
11. Press spacebar to complete this lab.



tip

This logon script will appear every time you log on from this point. If you'd like to remove it, start User Manager for Domains, then double-click the Administrator user. Click Profile. Highlight `logonscript.bat` in the User Environment Profile dialog box, and press Delete. Click OK. In the User Properties dialog box, click OK. Exit User Manager for Domains.

Lab 4.6 *Exploring Control Panel*

Workstation
Server

The purpose of this hands-on lab exercise is to provide you with the skills required to use Control Panel applications.

This lab is divided into three parts. You'll use the following Control Panel applications in the following three parts:

Part 1: Add/Remove Programs

Part 2: Using System

Part 3: Becoming familiar with Display,

Keyboard, Modems, Mouse,

Ports, SCSI Adapters,

Tape Devices, and UPS

Begin this lab by booting your computer to Windows NT Server.

Part 1: Using Add/Remove Programs

In this part, you use Add/Remove Programs to install an optional Windows NT component.

TO INSTALL MAIL, FOLLOW THESE STEPS:

1. Select Start > Settings > Control Panel.
2. Double-click Add/Remove Programs.
3. In the Add/Remove Programs Properties dialog box, click the Windows NT Setup tab. Scroll to the bottom of the Components list box. Click in the check box next to Windows Messaging. Click the Details command button. Ensure that the Internet Mail, Microsoft Mail, and Windows Messaging check boxes are all selected. Click OK.
4. In the Windows NT Setup tab in the Add/Remove Programs Properties dialog box, click OK.
5. NT copies files to your hard disk. If prompted, supply the path to your Windows NT installation source files (usually on your Windows NT compact disc). This process takes a few minutes.
6. The Control Panel dialog box reappears. Windows Messaging (Mail) is now installed. Exit Control Panel.
7. Optional: If you want, you can install games on your computer by using the same steps, except click on the check box next to Games (instead of Windows Messaging) in the Windows NT Setup tab. (Try Pinball if you have a sound card—it's really fun!)

Part 2: Using System

In this part, you use System to create an additional paging file and create a hardware profile.

TO CREATE AN ADDITIONAL PAGING FILE, FOLLOW THESE STEPS:

1. Select Start > Settings > Control Panel.
2. Double-click System.
3. Click the Performance tab in the System Properties dialog box. In the Virtual Memory section, click Change.

4. The Virtual Memory dialog box appears. Click D: in the Drive list box. In the Paging File Size for Selected Drive section, type **5** in the Initial Size (MB) text box, and type **5** in the Maximum Size (MB) text box. Click Set. Notice that Drive D: now shows a Paging File Size of 5-5 in the list box at the top of the screen. Click OK.
5. On the Performance tab click Close.
6. Click Yes to restart your computer so the new settings can take effect.

TO CREATE A HARDWARE PROFILE, FOLLOW THESE STEPS:

Hardware profiles were originally designed to handle the unique needs of laptop computers. In this lab, you create two hardware profiles: docked (connected to the network) and undocked (not connected to the network) to simulate the use of a laptop computer at work and at home.

1. Select Start >> Settings >> Control Panel.
2. Double-click System.
3. Click the Hardware Profiles tab. Highlight Original Configuration (Current) in the Available Hardware Profiles list box. Click the Rename command button.
4. In the Rename Profile dialog box, edit the To: text box to read as follows: **Docked**. (Don't type the period at the end.) Click OK.
5. The Hardware Profiles tab reappears. Highlight Docked (Current) in the Available Hardware Profiles list box. Click Copy.
6. In the Copy Profile dialog box, edit the To: text box to read as follows: **UnDocked**. (Don't type the period at the end.) Click OK.
7. The Hardware Profiles tab reappears. Notice that two profiles now appear in the Available Hardware Profiles list box: Docked (Current) and UnDocked. Highlight UnDocked and click the Properties command button.
8. In the UnDocked Properties dialog box, click the Network tab. Click the check box next to Network-disabled hardware profile. Click OK.
9. The Hardware Profiles tab reappears. Click OK. Exit Control Panel.
10. Select Start >> Shut Down. Click the "Restart the computer" radio button in the Shut Down Windows dialog box. Click Yes.
11. After you select Windows NT Server 4.0 from the boot loader menu, press the spacebar when "Press spacebar now to invoke the Hardware Profile/Last Known Good menu" appears.

12. A Hardware Profile/Configuration Recovery Menu is displayed. You can select a Docked or UnDocked hardware profile at this point. (Select Docked if you are connected to a network; select UnDocked if you are not connected to a network.) Press Enter to continue booting Windows NT Server.

Part 3: Becoming familiar with Display, Keyboard, Modems, Mouse, Ports, SCSI Adapters, Tape Devices, and UPS

In this part, you explore several Control Panel applications. (You may even use a few of these applications to install devices that you have but which may not yet be installed.)

DISPLAY

1. Select Start > Settings > Control Panel.
2. Double-click Display.
3. In the Display Properties dialog box, click the Screen Saver tab.
4. In the Screen Saver drop-down list box, select 3D Pipes (OpenGL). Click the Settings command button.
5. In the 3D Pipes Setup dialog box, click the Textured radio button in the Surface Style section. Click the Choose Texture command button.
6. In the Choose Texture File dialog box, double-click 1anmamt.bmp.
7. The 3D Pipes Setup dialog box reappears. Click OK.
8. The Screen Saver tab reappears. Click Apply. (Your screen saver now consists of 3D Pipes that say "Windows NT Server" on them.)
9. Click the Settings tab. In the Desktop Area section, click and hold the slide bar and move it to the right until the display reads "800 by 600 pixels."
Note: if your computer does not support a display setting larger than "640 by 480 pixels," you can click the slide bar, but it won't move. Continue on to Step 10.
10. Click the Test command button. Click OK in the Testing Mode dialog box.
11. A test screen appears for about five seconds. When the Testing Mode dialog box appears, click Yes if you saw the test bitmap.
12. The Settings tab reappears. Click OK to apply your new display settings.



note If you do not like the appearance of an 800 by 600 display, or your computer can't accommodate this setting, you can change your display settings to any resolution you desire. Follow Steps 9 through 12 above to change your display settings.

KEYBOARD

1. Select Start >> Settings >> Control Panel.
2. Double-click Keyboard.
3. In the Keyboard Properties dialog box, click the Input Locales tab. Click the Properties command button. Click the drop-down arrow in the Keyboard layout drop-down list box to view the optional keyboard layouts. Notice that US, several Dvorak options, and US-International are listed. Click US, then click OK.
4. In the Input Locales tab in the Keyboard Properties dialog box, click Cancel.

MODEMS

(You don't have to have a modem to complete this section. If you have already installed a modem in your computer by using the Modems application in Control Panel, skip this section.)

1. Select Start >> Settings >> Control Panel.
2. Double-click Modems.
3. The Install New Modem dialog box appears. Select the check box next to Don't detect my modem; I will select it from a list. Click the Next command button.
4. The Install Modem dialog box appears. Select your modem's manufacturer from the Manufacturers list box. If your manufacturer is not listed, or if you don't have a modem, highlight (Standard Modem Types). Select your modem speed or model in the Models list box, or select Dial-Up Networking Serial Cable between 2 PCs if you don't have a modem. Then click Next.
5. The Install New Modem dialog box appears. Click the Selected ports radio button.
6. Highlight the COM port your modem is connected to, or any available COM port (that your mouse or another device isn't connected to) if you don't have a modem. Click Next. Windows NT installs your modem.
7. A dialog box may appear at this point requesting the area code you are in and other information. If this box appears, enter the requested information and continue. If a dialog box does not appear, skip to Step 8.
8. Click the Finish command button.
9. In the Modems Properties dialog box, click the Dialing Properties command button.
10. In the Dialing Properties dialog box, configure the dialing properties for your location. Then click OK.
11. In the Modems Properties dialog box, click Close.

MOUSE

1. Select Start >> Settings >> Control Panel.
2. Double-click Mouse.
3. In the Mouse Properties dialog box, click each tab and view the configuration options available. Customize your mouse to suit your personal preferences. Click OK to return to Control Panel.

PORTS

1. Select Start >> Settings >> Control Panel.
2. Double-click Ports.
3. In the Ports dialog box, highlight a COM port, and click Settings.
4. In the Settings dialog box, notice the settings that you can configure for your COM port. Customize your COM port settings as desired. Click Advanced.
5. In the Advanced Settings dialog box, notice the settings that you can configure. Click OK.
6. In the Settings dialog box, click OK.
7. In the Ports dialog box, click Close.

SCSI ADAPTERS

1. Select Start >> Settings >> Control Panel.
2. Double-click SCSI Adapters.
3. View the configuration options available on both the Devices tab and the Drivers tab by clicking on each of the tabs. (If you have a SCSI adapter but have not yet installed drivers for it, you may want to do so now. You can do this by clicking the Add command button on the Drivers tab and then selecting the appropriate manufacturer and SCSI adapter from the lists displayed. Click OK.) Click OK.

TAPE DEVICES

1. Select Start >> Settings >> Control Panel.
2. Double-click Tape Devices.
3. View the configuration options available on both the Devices tab and the Drivers tab by clicking each of the tabs. (If you have a tape drive but have not yet installed drivers for it, you may want to do so now. You can do this by clicking the Add command button on the Drivers tab and then selecting the appropriate manufacturer and tape device from the lists displayed. Click OK.) Click OK.

UPS

1. Select Start > Settings > Control Panel.
2. Double-click UPS.
3. In the UPS dialog box, view the configuration options available. Click Help.
4. Read through the UPS help topics. Exit Windows NT Help.
5. If you do not have a UPS, skip to Step 6 now. If you have a UPS but have not yet configured it, you may want to do so now. Configure the settings in the UPS dialog box to match your UPS. Click OK. Stop here if you have a UPS (don't do Step 6).
6. Click Cancel in the UPS dialog box. Exit Control Panel.

Lab 5.7 *Creating an answer file by using Setup Manager*



Workstation
Server

The purpose of this lab is to familiarize you with the use of Setup Manager to create `Unattend.txt` files.

There are two parts to this lab:

Part 1: Creating an `Unattend.txt` file using Setup Manager

Part 2: Viewing the contents of the `Unattend.txt` file

Begin this lab by booting your computer to Windows NT Server.

Insert your Windows NT Server (or Windows NT Workstation) compact disc in your CD-ROM drive.

Follow the steps below carefully.

Part 1: Creating an `Unattend.txt` file using Setup Manager

1. Select Start > Programs > Windows NT Explorer.
2. In the All Folders list box (on the left side of your screen) in Windows NT Explorer, scroll down to My Computer, and then click the + sign next to your CD-ROM drive.
3. Click the + sign next to Support, and then click the + sign next to Deptools.
4. Click the i386 folder (not the + sign next to it).
5. In the Contents of 'i386' box (on the right side of your screen), double-click `Setupmgr.exe`.
6. The Windows NT Setup Manager dialog box appears. Click General Setup.
7. The General Setup Options dialog box appears. Type in your user name (use **your name**). Press Tab. Type in the name of your organization (use any name . . . how about **MCSE Candidates Company?**). Press Tab. Type

- in your computer name (use **NTW2** for this lab). Press Tab. For the product ID number, type in **123-4567890**. (Don't type in the period at the end.) Click the General tab.
8. Notice the configuration options available in the General tab. Do not select any check boxes. Click the Computer Role tab.
 9. In the Select the role of the computer drop-down list box, select Workstation in domain. In the "Enter the domain name" text box, type **LAB**. Leave the "Enter the computer account" text box blank. Click the Install Directory tab.
 10. Notice the configuration options available in the Install Directory tab. Do not change any of the options. Click the Display Settings tab.
 11. Notice the configuration options available in the Display Settings tab. In the Settings section, change the Horizontal Resolution to 800, and change the Vertical Resolution to 600. Click the Time Zone tab.
 12. In the drop-down list box in the Time Zone tab, select your time zone. Click the License Mode tab.
 13. A warning message appears, stating that if you want to configure the License Mode, the computer role must be a server. Click OK.
 14. The General Setup Options dialog box appears. Click OK.
 15. The Windows NT Setup Manager dialog box reappears. Click Networking Setup.
 16. The Networking Options dialog box appears. On the General tab, select the radio button next to "Automatically detect and install first adapter." Click the Protocols tab.
 17. On the Protocols tab, click the Add command button.
 18. The Adding Protocols dialog box appears. In the drop-down list box, select TCP/IP. Click OK.
 19. The Networking Options dialog box reappears. Click the Parameters command button.
 20. The TCP/IP Protocol Parameters dialog box appears. Click the check box next to Do Not Use DHCP. Type an IP Address of **192.168.59.11**. (Don't type the period at the end.) Type a Subnet of **255.255.255.0**. (Don't type the period at the end.) Type a Gateway of **192.168.59.1**. (Don't type the period at the end.) Click OK to continue.
 21. The Protocols tab reappears. Click the Services tab.
 22. The Services tab appears. Click the Add command button.
 23. The Adding Services dialog box appears. In the drop-down list box, select Remote Access Service (RAS). Click OK.

24. The Services tab reappears. Click the Parameters command button.
25. The Remote Access Service Parameters dialog box appears. Click the Ports tab.
26. On the Ports tab, click the Add command button. (Notice that PortSection1 has moved from the top list box to the bottom list box.)
27. Click the Parameters command button.
28. The Port Parameters dialog box appears.
29. Notice the configuration options available. Do not change any of the options. Click OK.
30. The Ports tab reappears. Click OK.
31. The Services tab reappears. Click the Modem tab.
32. In the COM drop-down list box on the Modem tab, select 1. In the Modem Description list box, type **STANDARD 28800 bps Modem**. (Don't type the period at the end.) In the Manufacturer text box, type **(Standard Modem Types)**. (Don't type the period at the end.) In the Provider text box, type **Unimodem Service Provider**. (Don't type the period at the end.) Click the Add command button. Click OK.
33. The Windows NT Setup Manager dialog box reappears. Click Advanced Setup.
34. The Advanced Options dialog box appears. On the General tab, check the check boxes next to Skip Welcome wizard page and Skip Administrator Password wizard page.
35. Click the File System tab.
36. Notice the configuration options available on the File System tab. Click the Mass Storage tab.
37. Notice the configuration options available on the Mass Storage tab.
 **You only need to specify mass storage devices whose drivers do not ship with Windows NT. All other mass storage devices are automatically detected by Windows NT. If you are using an SCSI adapter whose drivers do not ship with NT, click on the Add command button and follow the onscreen directions to add and configure the driver.**
38. Click the Display tab.
39. Notice the configuration options available on the Display tab. As with mass storage devices, you only need to modify this tab if your display adapter's drivers do not ship with Windows NT. (See the note above.) Click OK.
40. The Windows NT Setup Manager dialog box reappears. Select File ➤ Save As.

41. In the File Name text box, type **C:\Unattend.txt**. (Don't type the period at the end.) Click the Save command button.
42. The Windows NT Setup Manager dialog box reappears. Click Exit.
43. The Windows NT Explorer dialog box reappears. The Unattend.txt file is now created. Continue to Part 2, where you'll view the contents of this file.

Part 2: Viewing the contents of the Unattend.txt file

1. In the Windows NT Explorer dialog box, in the All Folders box (on the left side of the screen), click drive C: (not the + sign next to drive C:). In the Contents Of '(C:)' box (on the right side of the screen), scroll down to the bottom. Double-click Unattend.txt.
2. The Unattend.txt file is displayed in Notepad. Examine the contents of this file. (You can print the contents of this file if you desire.) Notice the formatting of the various sections.
3. When you are finished, select File > Exit.
4. Exit Windows NT Explorer.

Lab 6.8 *Creating and sharing a local printer*



Workstation
Server
Enterprise

The purpose of this lab is to familiarize you with the Windows NT `Printers` folder and its user interface, and to provide you with the skills necessary to create and share a local printer.

To begin this lab, boot your computer to Windows NT Server.

There are two parts to this lab:

Part 1: Creating a local printer

Part 2: Sharing a local printer

Part 1: Creating a local printer

1. Select Start > Programs > Windows NT Explorer.
2. Highlight (single-click) the `Printers` folder in the All Folders list box. (You might have to scroll down to find this folder.)
3. Double-click the Add Printer icon in the Contents of 'Printers' list box.
4. The Add Printer Wizard appears. Ensure that the radio button next to My Computer is selected. Click Next.

5. Select the check box next to LPT1: in the Available ports list box. Click Next.
6. If you have a print device, select your print device's manufacturer from the Manufacturers list box, and then select your print device's model from the Printers list box. Then click Next. (If you don't have a print device, accept the defaults in the Add Printer Wizard dialog box and click Next.)
7. Type in a name for the new printer in the text box, or accept the default name that Windows NT presents. (If your computer has any additional printers installed, you are presented with another option to configure: Select the radio button next to Yes if you want this to be your default printer. Otherwise, select the radio button next to No.) Click Next.
8. Ensure that the radio button next to Not shared is selected in the Add Printer Wizard dialog box. Click Next.
9. In the Add Printer Wizard dialog box, select the radio button next to Yes to print a test page. Click Finish.
10. Windows NT copies files. (Respond to any prompts requesting the location of your Windows NT source files.)
11. A dialog box appears indicating that the printer test page is completed. Click Yes.
12. The printer is now created. The Windows NT Explorer dialog box reappears. (If you do not have a print device connected to LPT1, an error message eventually appears, indicating that there was an error printing the test page and that the print device is not ready. Click Cancel.) Continue on to Part 2 to share the printer.

Part 2: Sharing a local printer

1. In the Windows NT Explorer dialog box, with the Contents of 'Printers' list box displayed on the right, right-click the printer you just created. Select Sharing from the menu that appears.
2. A dialog box with your printer's properties appears. Select the radio button next to Shared. Edit the text box next to Share Name to read: My Shared Printer. (Don't type the period at the end.) Don't select any alternate drivers at this time. Click OK.
3. A warning message appears (because the share name you typed is longer than eight characters and has spaces in it) indicating that the share name you entered may not be accessible from MS-DOS workstations. Click Yes.

4. The Windows NT Explorer dialog box reappears. In the Contents of 'Printers' list box, right-click on your printer. Select Properties from the menu that appears.
5. In your printer's Properties dialog box, click the Security tab.
6. Click Permissions.
7. In the Printer Permissions dialog box, notice the default permissions for a newly created printer. Click OK.
8. The Printer Permissions dialog box reappears. Click OK. Exit Windows NT Explorer.

Lab 6.9 ***Installing and configuring Microsoft TCP/IP Printing***



Workstation
Server
Enterprise

The purpose of this lab is to give you hands-on experience in installing and configuring Microsoft TCP/IP Printing.

Begin this lab by booting your computer to Windows NT Server.

There are two parts to this lab:

Part 1: Installing Microsoft TCP/IP Printing

Part 2: Configuring Microsoft TCP/IP Printing

Part 1: Installing Microsoft TCP/IP Printing

1. Select Start > Programs > Windows NT Explorer.
2. Click Control Panel in the All Folders list box on the left. In the Contents of 'Control Panel' list box on the right, double-click Network.
3. The Network dialog box appears. Click the Services tab.
4. On the Services tab, click the Add command button.
5. The Select Network Service dialog box appears. Click Microsoft TCP/IP Printing in the Network Service list box. Click OK.
6. A Windows NT Setup dialog box appears, requesting the location of Windows NT source files. Type in the path to your Windows NT source files on your Windows NT compact disc (for example, d:\i386) and place your Windows NT compact disc in your CD-ROM drive. Click Continue.
7. Windows NT copies the files to your hard drive. The Services tab reappears. Click Close.
8. Several dialog boxes appear while Windows NT configures the new network service. When the Network Settings Change warning dialog box appears, click Yes to restart your computer.

Part 2: Configuring Microsoft TCP/IP Printing

1. Select Start > Programs > Windows NT Explorer.
2. Click Control Panel in the All Folders list box on the left. In the Contents of 'Control Panel' list box on the right, double-click Services.
3. Select TCP/IP Print Server from the Service list box. Click the Startup command button.
4. In the Startup Type section of the Service dialog box, select the radio button next to Automatic. Click OK.
5. The Services dialog box reappears. Click the Start command button.
6. A Service Control dialog box appears, indicating that Windows NT is attempting to start the service. The Services dialog box reappears. Notice in the Status column that the TCP/IP Print Server service is started. Click Close.
7. The Windows NT Explorer dialog box reappears. Exit Windows NT Explorer. Microsoft TCP/IP Printing is now installed and configured.

Lab 7.10 *Creating and managing user and group accounts*



Workstation
Server
Enterprise

The purpose of this lab is to give you hands-on experience creating user accounts, assigning home directories, managing user account properties, creating group accounts, and assigning user accounts to groups. You will also create user account templates to help simplify the creation of user accounts.

This lab consists of four parts:

Part 1: Creating the Users folder

Part 2: Creating group accounts

Part 3: Creating user account templates

Part 4: Creating and managing user accounts

In this lab, you'll create users and groups for the local office of a sales organization. Within this organization, there are several employees. The following table shows the organization's employees and their job titles.

SALES ORGANIZATION EMPLOYEES

EMPLOYEE	JOB TITLE
Pam Rhodes	District Manager
John Spencer	Sales Manager
Robert Jones	Accounting Manager
Colleen Green	Sales Representative

<i>EMPLOYEE</i>	<i>JOB TITLE</i>
Bill Tracy	Sales Representative
Mike Calhoun	Sales Representative
Nancy Yates	Accounting Staff
Mike Cook	Accounting Staff

The users will select their own passwords when they first access their user accounts. Each user will have a home folder on the primary domain controller (named PDCLAB).

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. (Remember: the password is *password*.)

Follow the steps below carefully:

Part 1: Creating the Users folder

In this section, you create and share a `Users` folder in Windows NT Explorer. The `Users` folder will eventually contain a home directory for each user account.

1. Select Start >> Programs >> Windows NT Explorer.
2. In the All Folders list box, highlight the drive on which your NTFS partition is located. (This is probably drive D:.) Select File >> New >> Folder.
3. A folder named New Folder is created and appears in the "Contents of D:." Edit the folder's name so that it is called **Users**. Press Enter.
4. Highlight the `Users` folder in the Windows NT Explorer dialog box. Select File >> Sharing.
5. In the Users Properties dialog box, select the radio button next to Shared As. Accept the default Share Name of Users. Click OK.
6. Exit Windows NT Explorer. Continue to Part 2.

Part 2: Creating group accounts

In this section, you create three new global groups: Managers, Sales, and Accounting.

1. Select Start >> Programs >> Administrative Tools (Common) >> User Manager for Domains.
2. Highlight any of the groups listed in the Groups list box. (The reason for this is that the first user in the Username list box is highlighted by default, and if this user is not unhighlighted, the user will automatically become a member of the new global group you create.) Select User >> New Global Group.

3. The New Global Group dialog box appears. In the Group Name text box, type in **Managers**. In the Description text box, type in **Managers of the Sales Organization**. Click OK.
4. The User Manager dialog box reappears. Select User ➤ New Global Group.
5. The New Global Group dialog box appears. In the Group Name text box, type in **Sales**. In the Description text box, type in **Sales Representatives**. Click OK.
6. The User Manager dialog box reappears. Select User ➤ New Global Group.
7. The New Global Group dialog box appears. In the Group Name text box, type in **Accounting**. In the Description text box, type in **Accounting Staff**. Click OK.
8. The User Manager dialog box reappears. You have now created three new global groups: Managers, Sales, and Accounting. Continue to Part 3.

Part 3: Creating user account templates

In this section, you create two user account templates one that will be used to create user accounts for sales representatives, and another that will be used to create user accounts for accounting staff.

1. In the User Manager dialog box, select User ➤ New User.
2. The New User dialog box appears. Type the bolded information below in the appropriate text boxes:
 - User Name: **Sales_User**
 - Full Name: (leave this box blank)
 - Description: **Sales Representative**
 - Password: **newuser**
 - Confirm Password: **newuser**Select the check box next to User Must Change Password at Next Logon. Select the check box next to Account Disabled. Click the Groups command button.
3. The Group Memberships dialog box appears. In the "Not member of" list box, highlight Sales. Click the Add command button. (Notice that the Sales group, along with Domain Users, is now listed in the "Member of" list box.) Click OK.
4. The New User dialog box reappears. Click the Dialin command button.
5. The Dialin Information dialog box appears. Select the check box next to Grant dialin permission to user. Accept the default of No Call Back in the Call Back section. Click OK.

6. The New User dialog box reappears. Click the Profile command button.
7. The User Environment Profile dialog box appears. In the Home Directory section, select the radio button next to Connect. Accept the Z: in the drop-down list box. In the To text box, type: **\\PDCLAB\USERS\
%USERNAME%**. Click OK.
8. The New User dialog box reappears. Click the Add command button.
9. The New User dialog box reappears. Type the following bolded information in the appropriate text boxes:
 - User Name: **Acct_User**
 - Full Name: (leave this box blank)
 - Description: **Accounting Staff**
 - Password: **newuser**
 - Confirm Password: **newuser**Select the check box next to User Must Change Password at Next Logon. Select the check box next to Account Disabled. Click the Groups command button.
10. The Group Memberships dialog box appears. In the "Not member of" list box, highlight Accounting. Click the Add command button. (Notice that the Accounting group, along with Domain Users, is now listed in the "Member of" list box.) Click OK.
11. The New User dialog box reappears. Click the Hours command button.
12. The Logon Hours dialog box appears. Using your mouse, highlight the entire graph. Click the Disallow command button. Using your mouse, highlight the area on the graph that represents 6:00 a.m. to 9:00 p.m., Monday through Friday. Click the Allow command button. Click OK.
13. The New User dialog box reappears. Click the Profile command button.
14. The User Environment Profile dialog box appears. In the Home Directory section, select the radio button next to Connect. Accept the Z: in the drop-down list box. In the To text box, type: **\\PDCLAB\USERS\
%USERNAME%**. Click OK.
15. The New User dialog box reappears. Click the Add command button. Click the Close command button. Notice that your two new user account templates, Sales_User and Acct_User, now appear in the Username list box within the User Manager dialog box. Continue to Part 4.

Part 4: Creating and managing user accounts

In this section, you create user accounts from scratch and also use the user account templates to create user accounts. You assign some of the new user accounts to groups.

1. In the User Manager dialog box, select User ➤ New User.
2. The New User dialog box appears. Type the following bolded information in the appropriate text boxes:
 - User Name: PamR
 - Full Name: Pam Rhodes
 - Description: District Manager
 - Password: newuser
 - Confirm Password: newuserSelect the check box next to User Must Change Password at Next Logon. Click the Groups command button.
3. The Group Memberships dialog box appears. In the "Not member of" list box, highlight Accounting. Then press and hold Ctrl while you scroll down and click Managers and Sales. Click the Add command button. (The Accounting, Managers, and Sales groups, along with Domain Users, should now be listed in the "Member of" list box.) Click OK.
4. The New User dialog box reappears. Click the Add command button.
5. The New User dialog box reappears. Type the following bolded information in the appropriate text boxes:
 - User Name: JohnS
 - Full Name: John Spencer
 - Description: Sales Manager
 - Password: newuser
 - Confirm Password: newuserSelect the check box next to User Must Change Password At Next Logon. Click the Groups command button.
6. The Group Memberships dialog box appears. In the "Not member of" list box, highlight Managers. Then press and hold Ctrl while you click Sales. Click the Add command button. (The Managers and Sales groups, along with Domain Users, should now be listed in the "Member of" list box.) Click OK.
7. The New User dialog box reappears. Click the Add command button.

8. The New User dialog box reappears. Type the following bolded information in the appropriate text boxes:
 - User Name: RobertJ
 - Full Name: Robert Jones
 - Description: Accounting Manager
 - Password: newuser
 - Confirm Password: newuserSelect the check box next to User Must Change Password at Next Logon. Click the Groups command button.
9. The Group Memberships dialog box appears. In the "Not member of" list box, highlight Accounting. Then press and hold Ctrl while you scroll down and click Managers. Click the Add command button. (The Accounting and Managers groups, along with Domain Users, should now be listed in the "Member of" list box.) Click OK.
10. The New User dialog box reappears. Click the Add command button. Click the Close command button.
11. The User Manager dialog box reappears. Notice that the three users you just created are in the Username list box. Highlight JohnS, and then press and hold Ctrl while you click PamR and RobertJ. Select User ➤ Properties.
12. The User Properties dialog box appears. Notice the three users you selected are listed in the Users list box. Click the Dialin command button.
13. The Dialin Information dialog box appears. Select the check box next to Grant dialin permission to user. Accept the default of No Call Back in the Call Back section. Click OK.
14. The User Properties dialog box reappears. Click the Profile command button.
15. The User Environment Profile dialog box appears. In the Home Directory section, select the radio button next to Connect. Accept the Z: in the drop-down list box. In the To text box, type: **\\PDCLAB\USERS\%USERNAME%**. Click OK.
16. The User Properties dialog box reappears. Click OK. You have now granted dialin permission and assigned home folders to JohnS, PamR, and RobertJ.
17. The User Manager dialog box reappears. Highlight Sales_User. Select User ➤ Copy.

18. The Copy of Sales_User dialog box appears. Type the following bolded information in the appropriate text boxes:

- User Name: ColleenG
- Full Name: Colleen Green
- Description: (already filled in)
- Password: newuser
- Confirm Password: newuser

Select the check box next to User Must Change Password at Next Logon. Click Groups. Notice that the Sales group, as well as Domain Users, is listed in the "Member of" list box. Click OK.

19. In the Copy of Sales_User dialog box, click the Dialin command button. In the Dialin Information dialog box, notice that the check box next to "Grant dialin permission to user" is selected. Click OK.

20. In the Copy of Sales_User dialog box, click the Add command button.

21. The Copy of Sales_User dialog box reappears. Type the following bolded information in the appropriate text boxes:

- User Name: BillT
- Full Name: Bill Tracy
- Description: (already filled in)
- Password: newuser
- Confirm Password: newuser

Select the check box next to User Must Change Password at Next Logon. Click the Add command button.

22. The Copy of Sales_User dialog box reappears. Type the bolded information below in the appropriate text boxes:

- User Name: MikeC
- Full Name: Mike Calhoun
- Description: (already filled in)
- Password: newuser
- Confirm Password: newuser

Select the check box next to User Must Change Password at Next Logon. Click the Add command button. Click the Close command button.

23. The User Manager dialog box reappears. Notice that your new users now appear in the Username list box. Highlight the Acct_User. Select User >> Copy.

24. The Copy of Acct_User dialog box appears. Type the following bolded information in the appropriate text boxes:
- User Name: NancyY
 - Full Name: Nancy Yates
 - Description: (already filled in)
 - Password: newuser
 - Confirm Password: newuser
- Select the check box next to User Must Change Password at Next Logon. Click the Groups command button. Notice that the Accounting group, in addition to Domain Users, appears in the "Member of" list box. Click OK.
25. In the Copy of Acct_User dialog box, click the Hours command button. In the Logon Hours dialog box, notice that this user will be able to log on between 6:00 a.m. and 9:00 p.m., Monday through Friday. Click OK.
26. In the Copy of Acct_User dialog box, click the Add command button.
27. The Copy of Acct_User dialog box reappears. Type the following bolded information in the appropriate text boxes:
- User Name: MikeCo
 - Full Name: Mike Cook
 - Description: (already filled in)
 - Password: newuser
 - Confirm Password: newuser
- Select the check box next to User Must Change Password at Next Logon. Click the Add command button. Then click the Close command button.
28. The User Manager dialog box reappears. Notice that the new users you created appear in the Username list box. Exit User Manager.

Lab 8.11 *Implementing auditing*



Server
Enterprise

The purpose of this lab is to provide you with hands-on experience in using the Windows NT auditing feature.

This lab consists of three parts:

Part 1: Implementing auditing

Part 2: Creating audited events

Part 3: Viewing the security log in Event Viewer

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

Perform the following steps carefully.

Part 1: Implementing auditing

In this part you implement auditing on a Windows NT Server computer.

1. Select Start>>Programs>>Administrative Tools (Common)>>User Manager for Domains.
2. In the User Manager dialog box, select Policies>>Audit.
3. In the Audit Policy dialog box, select the radio button next to Audit These Events, and then select the Success and Failure check boxes for *all* audit events *except* Process Tracking. Click OK.
4. Auditing is now implemented. Exit User Manager for Domains. Proceed to Part 2.

Part 2: Creating audited events

In this part you cause a user to create audited events.

1. Select Start>>Shut Down.
2. In the Shut Down Windows dialog box, select the radio button next to Restart the computer. Click the Yes command button. The computer shuts down and restarts.
3. Reboot the computer to Windows NT Server. Press Ctrl+Alt+Delete to log on. When the Logon Information dialog box appears, type in a user name of **PamR** (replacing Administrator) and a password of **wrongo**. Click OK.
4. An error message appears, stating the system could not log you on. Click OK.
5. The Logon Information dialog box reappears. Type in a password of **newuser**. Click OK.
6. A message appears, indicating you are required to change your password at first logon. (You may recall you set this configuration when you created this user in Lab 7.10.) Click OK.
7. Type in a new password of **password**. Confirm the new password by retyping it. Click OK.
8. A dialog box appears, indicating your password has been changed. Click OK.
9. Another dialog box appears, indicating the local policy of this system does not enable you to log on interactively. Click OK.
10. The Logon Information dialog box reappears. Type in a user name of **Administrator**, and a password of **password**. Click OK. You have now created several audited events. Continue to Part 3.

Part 3: Viewing the security log in Event Viewer

In this part you view the security log in Event Viewer to see the audited events you created in Part 2.

1. Select Start>>Programs>>Administrative Tools (Common)>>Event Viewer.
2. Select Log>>Security.
3. Scroll down the list and double-click the first event marked with a lock (not a key) in the left margin. (A lock marks a failure audit event. A key marks a success audit event.)
4. The Event Detail dialog box appears. Notice the event is a logon failure for PamR, because she was not allowed to log on interactively (locally). Click the Close command button.
5. Scroll down and double-click the next event marked with a lock in the left margin.
6. The Event Detail dialog box reappears. This is also a failure audit event. Notice an unexpected error occurred during PamR's attempted logon. Click the Close command button.
7. Scroll down and double-click the next event marked with a lock in the left margin.
8. The Event Detail dialog box appears. This is a logon failure event for PamR, because an incorrect password (wrrong0) was entered. Click the Close command button.
9. Double-click various other events, as desired, and view their event details.
10. Exit Event Viewer.

Lab 8.12 *Managing account policy and user rights*



Server
Enterprise

The purpose of this lab is to provide you with hands-on experience in setting account policy and user rights in Windows NT.

This lab consists of three parts:

Part 1: Setting account policy

Part 2: Creating users and configuring user rights

Part 3: Auditing revisited—clearing the security log in Event Viewer

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

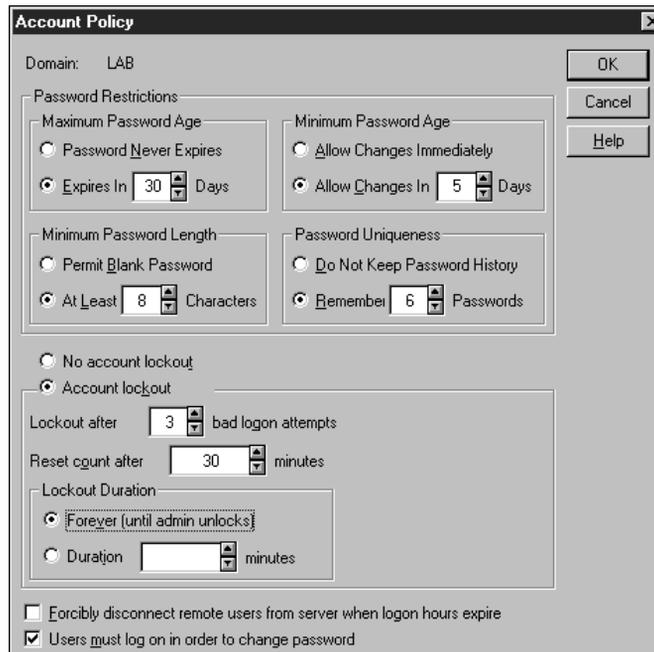
Follow the steps below carefully.

Part 1: Setting account policy

In this section, you set account policy that affects all users in the domain.

1. Select Start ► Programs ► Administrative Tools (Common) ► User Manager for Domains.
2. In the User Manager dialog box, select Policies ► Account.
3. The Account Policy dialog box appears. Configure the following:
 - Configure the Maximum Password Age Expires in **30** Days.
 - Configure the Minimum Password Age to Allow Changes in **5** Days.
 - Configure the Minimum Password Length to be At Least **8** Characters.
 - Configure Password Uniqueness to Remember (the last) **6** Passwords.
 - Select the radio button next to Account lockout.
 - Set Lockout after **3** bad logon attempts.
 - Set Reset count after **30** minutes.
 - Configure Lockout Duration to Forever (until admin unlocks).
 - Select the check box next to Users must log on in order to change password.

The following figure shows the Account Policy dialog box as correctly configured at the close of this step. You can check the configurations you have made against this figure. Click OK.



Account Policy dialog box as correctly configured in Lab 8.12

4. In the User Manager dialog box, select Policies ➤ User Rights.
5. The User Rights Policy dialog box appears. In the Right drop-down list box, select Log on locally. Click the Add command button.
6. The Add Users and Groups dialog box appears. In the Names list box, double-click the Everyone group. (Everyone appears in the Add Names list box.) Click OK. (Granting the Log on locally right to the Everyone group enables all users to log on interactively at the Windows NT Server.)
7. In the Users Rights Policy dialog box, click OK.
8. Exit User Manager.
9. Select Start ➤ Shut Down. In the Shut Down Windows dialog box, select the radio button next to Close all programs and log on as a different user. Click the Yes command button.
10. Press Ctrl+Alt+Delete to log on.
11. In the Logon Information dialog box, type in a user name of **JohnS** and a password of **newuser**. Click OK.
12. A dialog box appears, indicating you are required to change your password at first logon. (You may recall you set this configuration when you created this user in Lab 7.10.) Click OK.
13. The Change Password dialog box appears. Type in a new password of **password**. Confirm the new password by retyping it. Click OK.
14. A warning message appears, indicating you do not have permission to change your password. (This is because in the Account Policy dialog box you selected the check box next to Users must log on in order to change password **and**, when you created this user, you selected the option for User Must Change Password at Next Logon. *These two options do not work together.*) Click OK.
15. The Change Password dialog box appears. Click the Cancel command button.
16. The Logon Information dialog box appears. Type in a user name of **PamR** and a password of **wrongo**. Click OK. (Note: In this part of the lab, you will attempt to log PamR on several times with an incorrect password to experience the account lockout feature.)
17. A warning message appears, indicating the system could not log you on. Click OK.
18. Repeat Steps 16 and 17 until a warning message appears, indicating NT is unable to log you on because your account has been locked out. You must contact your network administrator to unlock your account. Click OK. (Next, you will log on as administrator and unlock PamR's user account.)

19. In the Logon Information dialog box, type in a user name of **Administrator** and a password of **password**. Click OK.
20. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
21. In the User Manager dialog box, double-click the user account PamR in the Username list box.
22. The User Properties dialog box appears. Notice the check box next to Account Locked Out is checked. Deselect this check box. Click OK.
23. Double-click PamR again in the Username list box.
24. The User Properties dialog box appears. Notice the check box next to Account Locked Out is cleared and grayed out. (The Administrator can't lock out a user account — only the system can.) Click the Cancel command button.
25. In the User Manager dialog box, select Policies > Account.
26. In the Account Policy dialog box, deselect the check box next to Users must log on in order to change password. (This will enable users to change their passwords during logon.) Click OK.
27. Continue to Part 2.

Part 2: Creating users and configuring user rights

In this section, you create two special-use user accounts and configure user rights for these new user accounts.

1. In the User Manager dialog box, select User > New User.
2. The New User dialog box appears. Type the following bolded information in the appropriate text boxes:
User name: **Admin2**
Full name: **Administrator's Helper**
Description: **User account with limited admin privileges**
Password: **password**
Confirm password: **password**
Deselect the check box next to User Must Change Password at Next Logon. Select the check box next to Password Never Expires. Click the Add command button.
3. The New User dialog box reappears. Type the following bolded information in the appropriate text boxes:
User name: **Backuponly**
Full name: **Backup Operator's Helper**

Description: **Only able to back up files, not restore**

Password: **password**

Confirm password: **password**

Deselect the check box next to User Must Change Password at Next Logon. Select the check box next to Password Never Expires. Click the Add command button. Click the Close command button.

4. In the User Manager dialog box, select Policies ➤ User Rights.
5. The User Rights Policy dialog box appears. In the Right drop-down list box, select Log on locally. Click the Add command button.
6. The Add Users and Groups dialog box appears. Click the Show Users command button. Double-click Backup only. Click OK.
7. In the Right drop-down list box, select Back up files and directories. Click the Add command button.
8. The Add Users and Groups dialog box appears. Click the Show Users command button. Scroll down and double-click Backuponly. Click OK. (The Backuponly user is now able to log on to the Windows NT Server and is able to back up the server's files.)
9. The User Rights Policy dialog box reappears. Using the sequence you used in the previous Steps 7 and 8, grant the following rights to the Admin2 user:
 - Add workstations to domain
 - Back up files and directories
 - Change the system time
 - Log on locally
 - Manage auditing and security log
 - Restore files and directories
 - Shut down the system
 - Take ownership of files or other objects

Note: You must go through all the steps for each user right you want to assign. No shortcuts exist here.

Click OK in the User Rights Policy dialog box when you finish.

10. Exit User Manager for Domains. Continue to Part 3.

Part 3: Auditing revisited—clearing the security log in Event Viewer

In this section, you explore the capabilities of the “Manage auditing and security log” user right, and clear the security log in Event Viewer.

1. Press Ctrl + Alt + Delete. Click the Logoff command button. Click OK to close all programs and log off.

2. Press Ctrl + Alt + Delete. In The Logon Information dialog box, type in a user name of **Admin2** and a password of **password**. Click OK. (If a Welcome to Windows NT screen is displayed, click the Close command button.)
3. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
4. In the User Manager dialog box, select Policies. Notice all the options in the Policies menu are grayed out. These options are only available to members of the Administrators group—The “Manage auditing and security log” user right does *not* give you the rights needed to set account policy, to configure user rights, or to enable auditing. Exit User Manager for Domains.
5. Select Start > Programs > Administrative Tools (Common) > Event Viewer.
6. In the Event Viewer dialog box, select Log > Security.
7. Select Log > Clear All Events.
8. Click Yes in the Clear Event Log dialog box.
9. In the Save As dialog box, type **old security log** in the File name text box. Click the Save command button.
10. Click the Yes command button to clear the security log. (The “Manage auditing and security log” user right authorizes a user to view and change the security log in Event Viewer, and enables a user to configure auditing of files, directories, and printers [in Windows NT Explorer, or in a printer’s Properties dialog box, and so forth]. But this user right does *not* enable a user to access the Audit Policy dialog box in User Manager or User Manager for Domains.)
11. Exit Event Viewer.

Lab 9.13 *Implementing user profiles*



Workstation
Server
Enterprise

The purpose of this lab is to give you hands-on experience in creating and copying user profiles, and experience in configuring roaming and mandatory user profiles.

This lab consists of five parts:

- Part 1: Creating and sharing a profile’s folder
- Part 2: Configuring a user profile
- Part 3: Copying a user profile
- Part 4: Configuring server-based profiles
- Part 5: Testing profiles

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

Follow the steps below carefully.

Part 1: Creating and sharing a profile's folder

In this section, you create a shared folder on the PDC that contains users' profiles.

1. Select Start > Programs > Windows NT Explorer.
2. In the All Folders section of the Exploring dialog box, highlight the NTFS volume on your computer — this is most likely drive D:. Select File > New > Folder.
3. In the Contents of the NTFS Volume section, type the new folder name: **Profiles**.
4. Right-click the newly created Profiles folder. Select Sharing from the menu that appears.
5. In the Profiles Properties dialog box, select the radio button next to Shared As. Accept the default Share Name of Profiles. Click OK.
6. Notice that a hand appears under the Profiles folder in the Exploring dialog box, indicating that it is a shared folder. Exit Windows NT Explorer. Continue to Part 2.

Part 2: Configuring a user profile

In this section, you configure a profile that will be used by all sales representatives.

1. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
2. In the User Manager dialog box, double-click Sales_User in the Username list box. (You will use this user account to create the profile that you will copy to the user account of each sales representative.)
3. In the User Properties dialog box, clear the check boxes next to User Must Change Password at Next Logon and Account Disabled. Select the check box next to Password Never Expires. Click OK.
4. Exit User Manager for Domains.
5. Select Start > Shut Down.
6. In the Shut Down Windows dialog box, select the radio button next to Close all programs and log on as a different user. Click the Yes command button.
7. Press Ctrl + Alt + Delete to log on.
8. In the Logon Information dialog box, type in a user name of **Sales_User** and a password of **newuser**. Click OK.

9. If the Welcome to Windows NT dialog box appears, click the Close command button.
10. Right-click the desktop. Select Properties from the menu that appears.
11. In the Display Properties dialog box, click the Appearance tab.
12. In the Scheme drop-down list box, select the Red, White, and Blue (VGA) scheme. Click the Background tab.
13. In the Pattern drop-down list box, select the Scottie pattern. Click OK.
14. Right-click the desktop. Select New >> Shortcut from the menus that appear.
15. In the Create Shortcut dialog box, type **calc.exe** in the Command line text box. Click the Next command button.
16. In the Select a name for the shortcut text box, type **Calculator**. Click the Finish command button.
17. Right-click the desktop. Select New >> Shortcut from the menus that appear.
18. In the Create Shortcut dialog box, type **notepad.exe** in the Command line text box. Click the Next command button.
19. In the Select a name for the shortcut text box, type **Notepad**. Click the Finish command button.
20. Right-click the desktop. Select Arrange Icons >> Auto Arrange from the menus that appear. Notice that the new shortcuts are neatly arranged on your desktop.
21. Select Start >> Shut Down.
22. In the Shut Down Windows dialog box, select the radio button next to Close all programs and log on as a different user. Click the Yes command button.
23. Press Ctrl + Alt + Delete to log on.
24. In the Logon Information dialog box, type in a user name of **Administrator** and a password of **password**. Click OK. Continue to Part 3.

Part 3: Copying a user profile

In this section, you copy the user profile you created in Part 2 to a profile folder for each sales representative. You also configure one of the sales representative's user profiles as a mandatory user profile.

1. Select Start >> Settings >> Control Panel.
2. In the Control Panel dialog box, double-click the System icon.

3. In the System Properties dialog box, click the User Profiles tab.
4. Scroll down the Profiles stored on this computer list box. Select the LAB\Sales_User profile. Click the Copy To command button.
5. In the Copy profile to text box, type `\\pdclab\profiles\BillT`. (Don't type the period at the end.) Click the Change command button.
6. In the Choose User dialog box, click the Show Users command button. Scroll down the Names list box and select BillT. Click the Add command button. Click OK.
7. In the Copy To dialog box, click OK.
8. The System Properties dialog box reappears, with LAB\Sales_User highlighted. Click the Copy To command button.
9. In the Copy profile to text box, type `\\pdclab\profiles\MikeC`. (Don't type the period at the end.) Click the Change command button.
10. In the Choose User dialog box, click the Show Users command button. Scroll down the Names list box and select MikeC. Click the Add command button. Click OK.
11. In the Copy To dialog box, click OK.
12. The System Properties dialog box reappears, with LAB\Sales_User highlighted. Click the Copy To command button.
13. In the Copy profile to text box, type `\\pdclab\profiles\ColleenG`. (Don't type the period at the end.) Click the Change command button.
14. In the Choose User dialog box, click the Show Users command button. Scroll down the Names list box and select ColleenG. Click the Add command button. Click OK.
15. In the Copy To dialog box, click OK.
16. In the System Properties dialog box, click OK.
17. Exit Control Panel.
18. Select Start > Programs > Windows NT Explorer.
19. In the All Folders section of the Exploring dialog box, click the + sign next to the NTFS volume (probably drive D:). Click the + sign next to the Profiles folder. Highlight the BillT folder. In the Contents of BillT section of the dialog box, highlight the Ntuser.dat file. Select File > Rename. Rename the Ntuser.dat file as **Ntuser.man**. Press Enter. (Renaming BillT's Ntuser.dat file as Ntuser.man causes BillT's profile to be a mandatory user profile.)
20. Exit Windows NT Explorer. Continue to Part 4.

Part 4: Configuring server-based profiles

In this section, you configure the user accounts of the sales representatives to use the server-based profiles you created for them in Parts 2 and 3. Additionally, you configure the user accounts of the accounting staff to use roaming user profiles.

1. Select Start ► Programs ► Administrative Tools (Common) ► User Manager for Domains.
2. In the User Manager dialog box, highlight BillT, and then press and hold Ctrl while you click ColleenG and MikeC in the Username list box. Select User ► Properties.
3. In the User Properties dialog box, click the Profile command button.
4. In the User Environment Profile dialog box, type `\\pdclab\profiles\%USERNAME%` in the User Profile Path text box. Click OK. (This step assigns a copied profile to each selected user account.)
5. In the User Properties dialog box, click OK.
6. In the User Manager dialog box, double-click Sales_User in the Username list box.
7. In the User Properties dialog box, select the check box next to Account Disabled. (Remember that in Part 2, you deselected this check box so that you could use the account to create a profile. Now you want to disable the account again so that no one can use it to log on.) Click OK.
8. In the User Manager dialog box, highlight MikeCo, and then press and hold Ctrl while you click NancyY. Select User ► Properties.
9. In the User Properties dialog box, click the Profile command button.
10. In the User Environment Profile dialog box, type `\\pdclab\profiles\%USERNAME%` in the User Profile Path text box. Click OK. (This step assigns a roaming user profile to MikeCo and NancyY.)
11. In the User Properties dialog box, click the Hours command button.
12. In the Logon Hours dialog box, highlight the entire chart, so that all hours are selected. Click the Allow command button. (You are changing the hours now in case you're doing this lab during nonbusiness hours. This change enables you to log on as MikeCo or NancyY anytime.) Click OK.
13. In the User Properties dialog box, click OK.
14. In the User Manager dialog box, select Policies ► User Rights.
15. In the User Rights Policy dialog box, select Shut down the system from the Right drop-down list box. Click the Add command button.
16. In the Names list box (in the Add Users and Groups dialog box), double-click the Everyone group. Click OK.

17. In the User Rights Policy dialog box, click OK.
18. Exit User Manager for Domains. Continue to Part 5.

Part 5: Testing profiles

In this section, you try out the sales representatives' profiles, including the mandatory user profile. Additionally, you try out the roaming user profiles for one of the accounting staff.

1. Select Start > Shut Down.
2. In the Shut Down Windows dialog box, select the radio button next to Close all programs and log on as a different User. Click the Yes command button.
3. Press Ctrl + Alt + Delete to log on.
4. In the Logon Information dialog box, type in a user name of **ColleenG** and a password of **newuser**. Click OK.
5. A message appears indicating that you are required to change your password at first logon. Click OK.
6. In the Change Password dialog box, type in a new password of **password**, and confirm the new password by retyping it. Click OK.
7. A message is displayed, indicating that your password has been changed. Click OK.
8. If a Welcome to Windows NT screen appears, deselect the check box next to Show this Welcome Screen next time you start Windows NT, and then click the Close command button.
9. Notice that the background pattern (Scottie dogs) and color scheme (Red, white, and blue) that you configured for the Sales_User profile and copied to ColleenG's profile appear on the desktop. Right-click the desktop. Select Properties from the menu that appears.
10. In the Display Properties dialog box, select (None) from the Pattern drop-down list box. Select a Wallpaper of lanmannt. Click the Appearance tab.
11. In the Scheme drop-down list box, select Rose. Click OK.
12. Select Start > Shut Down.
13. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different User." Click the Yes command button.
14. Press Ctrl + Alt + Delete to log on.
15. In the Logon Information dialog box, type in a user name of **ColleenG** and a password of **password**. Click OK.

16. Notice that the changes you made to ColleenG's desktop (the rose scheme and the lanmann wallpaper) appear on the desktop. These settings have been successfully saved to ColleenG's user profile, because her profile is not a mandatory user profile.
17. Select Start ➤ Shut Down.
18. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different User." Click the Yes command button.
19. Press Ctrl + Alt + Delete to log on.
20. In the Logon Information dialog box, type in a user name of **BillIT** and a password of **newuser**. Click OK.
21. A message appears indicating that you are required to change your password at first logon. Click OK.
22. In the Change Password dialog box, type in a new password of **password**, and confirm the new password by retyping it. Click OK.
23. A message is displayed, indicating that your password has been changed. Click OK.
24. If a Welcome to Windows NT screen appears, deselect the check box next to Show this Welcome Screen next time you start Windows NT. Click the Close command button.
25. Notice that the background pattern (Scottie dogs) and color scheme (Red, white, and blue) that you configured for the Sales_User profile and copied to BillIT's profile appear on the desktop. Right-click the desktop. Select Properties from the menu that appears.
26. In the Display Properties dialog box, select Critters from the Pattern drop-down list box. Click the Appearance tab.
27. In the Scheme drop-down list box, select Pumpkin (large). Click OK.
28. Select Start ➤ Shut Down.
29. In the Shut Down Windows dialog box, select the radio button next to Close all programs and log on as a different user. Click the Yes command button.
30. Press Ctrl + Alt + Delete to log on.
31. In the Logon Information dialog box, type in a user name of **BillIT** and a password of **password**. Click OK.
32. If a Welcome to Windows NT screen appears, deselect the check box next to "Show this Welcome Screen next time you start Windows NT." Click the Close command button.

33. Notice that the desktop changes that you made for BillT's desktop in Steps 26 and 27 were *not* saved to BillT's profile. (This is because in an earlier part of this lab, you configured BillT to have a mandatory user profile.) Select Start > Shut Down.
34. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different user." Click the Yes command button.
35. Press Ctrl + Alt + Delete to log on.
36. In the Logon Information dialog box, type in a user name of **NancyY** and a password of **newuser**. Click OK.
37. A Logon Message is displayed, indicating that you are required to change your password at first logon. Click OK.
38. In the Change Password dialog box, type in a new password of **password**, and confirm the new password by retyping it. Click OK.
39. A message indicating that your password has been changed appears. Click OK.
40. If a Welcome to Windows NT screen appears, click the Close command button.
41. Right-click the desktop. Select New > Shortcut from the menus that appear.
42. In the Create Shortcut dialog box, type **calc.exe** in the Command line text box. Click the Next command button.
43. In the Select a name for the shortcut text box, type **Calculator**. Click the Finish command button.
44. Right-click the desktop. Select Arrange Icons > Auto Arrange.
45. Select Start > Shut Down.
46. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different user." Click the Yes command button.
47. Press Ctrl + Alt + Delete to log on.
48. In the Logon Information dialog box, type in a user name of **Administrator** and a password of **password**. Click OK.
49. Select Start > Programs > Windows NT Explorer.
50. In the All Folders section of the Exploring dialog box, click the + sign next to the NTFS volume (probably drive D:). Click the Profiles folder. Notice that a profile folder has been created for NancyY. (It is displayed in the Contents Of Profiles section.) Also notice that there is not a folder for MikeCo, because he has not logged on since you assigned him a roaming profile. Exit Windows NT Explorer.

Lab 9.14 **Configuring a system policy**Server
Enterprise

The purpose of this lab is to give you hands-on experience in creating and configuring a Windows 95 system policy; and experience in creating, configuring, and testing a Windows NT system policy.

This lab consists of three parts:

Part 1: Creating a system policy and configuring load balancing for all Windows 95 computers

Part 2: Creating a system policy for all Windows NT computers

Part 3: Testing the Windows NT system policy

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

Follow these steps carefully.

Part 1: Creating a system policy and configuring load balancing for all Windows 95 computers

1. Select Start > Programs > Administrative Tools (Common) > System Policy Editor.
2. In the System Policy Editor dialog box, select Options > Policy Template.
3. In the Policy Template Options dialog box, click the Add command button.
4. In the Open Template File dialog box, type `\winntsrv\inf\windows.adm` in the File Name text box. Click the Open command button.
5. The Policy Template Options dialog box reappears. Highlight the `C:\WINNTSRV\INF\Winnt.adm` file. Click the Remove command button. Click OK.
6. In the System Policy Editor dialog box, select File > New Policy.
7. Double-click Default Computer.
8. On the Policies tab, click the + sign next to Network. Then click the + sign next to System policies update. Select the check box next to Remote update. In the Settings For Remote Update section, select Automatic (use default path) in the Update Mode drop-down list box. Scroll to the bottom of the section, and select the check box next to Load balancing.
9. On the Policies tab, click the + sign next to Windows 95 Network. Then click the + sign next to Microsoft Client for Windows networks. Select the check box next to Log on to Windows NT. In the Settings for Log on to Windows NT section, select the check boxes next to Display domain logon confirmation and Disable caching of domain password. Type **LAB** in the Domain name text box.

10. On the Policies tab, click the + sign next to Windows 95 System. Then click the + sign next to Profiles. Select the check box next to Enable user profiles. Click OK.
11. In the System Policy Editor dialog box, double-click Default User.
12. On the Policies tab, click the + sign next to Shell. Then click the + sign next to Restrictions. Then select the check boxes next to "Remove Run command from Start menu" and "Don't save settings at exit."
13. On the Policies tab, click the + sign next to System. Then click the + sign next to Restrictions. Next, select the check box next to Disable Registry editing tools. Click OK.
14. In the System Policy Editor dialog box, select File> Save As. In the File name text box, type `\\pdclab\repl$\scripts\config`. (Don't type the period at the end.) Click the Save command button.
15. In the System Policy Editor dialog box, select File> Close. Continue to Part 2.

Part 2: Creating a system policy for all Windows NT computers

1. In the System Policy Editor dialog box, select Options> Policy Template.
2. In the Policy Template Options dialog box, click the Add command button.
3. In the Open Template File dialog box, double-click the `Winnt.adm` file.
4. In the Policy Template Options dialog box, highlight `C:\WINNTRV\INF\windows.adm`. Click the Remove command button. Click OK.
5. In the System Policy Editor dialog box, select File> New Policy.
6. Double-click Default Computer.
7. On the Policies tab, click the + sign next to Windows NT System. Click the + sign next to Logon. Then select the check box next to Logon banner.
8. On the Policies tab, click the + sign next to Windows NT User Profiles. Then select the check box next to "Delete cached copies of roaming profiles."
9. On the Policies tab, click the + sign next to Windows NT Network. Then click the + sign next to Sharing. Then select the check box next to "Create hidden drive shares (Server)." Then select the same check box again, so it turns white (not gray), *without* a check in it. Click OK.
10. In the System Policy Editor dialog box, double-click Default User.
11. On the Policies tab, click the + sign next to Windows NT System. Then select the check box next to Parse Autoexec.bat. Click OK.
12. In the System Policy Editor dialog box, select File> Save As.

13. In the Save As dialog box, type `\\pdclab\repl$\scripts\ntconfig` in the File name text box. Click the Save command button.
14. Exit System Policy Editor.
15. Select Start > Programs > Windows NT Explorer.
16. In the All Folders section of the Exploring dialog box, click the + sign next to the Winntsrv folder. Then click the + sign next to the System 32 folder. Next, click the + sign next to the Repl folder, and then click the + sign next to the Export folder. Highlight the Scripts folder. Notice in the Contents of Scripts section that both the policy files you created (`config.POL` and `ntconfig.POL`) are listed. Click the + sign next to the Import folder. Highlight the Scripts folder under Import. Wait until the `ntconfig.POL` file appears (is replicated) to the Contents of Scripts section.
17. Exit Windows NT Explorer. Continue to Part 3.

Part 3: Testing the Windows NT system policy

1. Select Start > Shut Down.
2. In the Shut Down Windows dialog box, select the radio button next to Close all programs and log on as a different user. Click the Yes command button.
3. Press Ctrl + Alt + Delete to log on.
4. In the Logon Information dialog box, type in a user name of **Administrator** and a password of **password**. Click OK. (Logging on has implemented the Default Computer and Default User policies. These policies will take effect the next time you log on.)
5. Select Start > Shut Down.
6. In the Shut Down Windows dialog box, select the radio button next to Close all programs and log on as a different user. Click the Yes command button.
7. Press Ctrl + Alt + Delete to log on.
8. Notice that a logon banner (Important Notice) is displayed. (Remember: you configured a logon banner in Part 2 of this lab.) Click OK.
9. In the Logon Information dialog box, type in a user name of **Administrator** and a password of **password**. Click OK. This step completes Lab 9.14.

Lab 10.15 **Implementing a trust relationship**

note

This lab is optional, but *only* because it requires an additional Intel-based computer with a 486/33 processor, 16MB of RAM, and 500MB–1GB available hard disk space. You will also need a VGA monitor and graphics card and mouse. A CD-ROM drive for the second computer would be nice, but it's not absolutely necessary if you don't mind taking the CD-ROM drive out of your first computer and installing it in the second for the NT installation portion of this lab. This lab also requires that you use two network adapters and the appropriate cabling to connect the two computers.

I can't suggest strongly enough that you go through whatever pain is necessary to beg, borrow, rent, or purchase a second computer to use in this lab—a 486 can be obtained fairly inexpensively, and the benefit you'll receive from experiencing trusts and groups in a multiple domain environment will pay off big when you take the Enterprise exam.



Enterprise

The objective of this lab is to give you hands-on experience with implementing and testing one-way and two-way trust relationships between two domains.

This lab consists of the following five parts:

- Part 1: Installing Windows NT Server 4.0 on a second computer
- Part 2: Configuring a one-way trust
- Part 3: Testing a one-way trust
- Part 4: Configuring a two-way trust
- Part 5: Testing a two-way trust

Part 1: Installing Windows NT Server 4.0 on a second computer

First install MS-DOS on the second computer's hard drive, and load the drivers for the CD-ROM drive. Make sure that the Windows NT Server compact disc is in the CD-ROM drive.

You will need one blank, 3.5-inch high-density floppy disk for this lab exercise.

Follow the steps below carefully to perform the installation of Windows NT Server 4.0.

Precopy phase

1. Change the default drive to your CD-ROM drive by typing in the CD-ROM drive letter followed by a colon (for example, **D:**), then press Enter.
2. Type **cd i386**, then press Enter.
3. Type **winnt /b**, then press Enter. (This command instructs Setup to perform the `Winnt.exe` installation without creating the Setup Boot Disk set.)
4. When Windows NT Setup asks you to enter the path where NT files are located, press Enter.
5. Setup copies files to your hard disk. (This process takes a few minutes. How about a stretch break or a fresh cup of coffee?)
6. When the Windows NT Server Setup screen appears, press Enter to restart your computer and continue Windows NT Setup.

Phase 0

1. After a minute or two, when the Windows NT Server Setup screen appears, press Enter to set up Windows NT now.
2. Setup displays a screen showing any mass storage devices, such as SCSI adapters, CD-ROM drives, and so on. Some older IDE controllers will not be displayed here, but they will still function and be recognized by NT. Specify additional devices by making changes on this screen if you need to. When you have completed all necessary changes, press Enter to continue.
3. The Windows NT Licensing Agreement screen appears. Read the licensing agreement, pressing PgDn to view additional screens of the agreement. When you reach the bottom of the agreement, press F8 to continue setup.
4. Windows NT Server Setup displays a screen listing your computer's hardware and software components. Make any changes necessary. When you are finished, highlight "The above list matches my computer," and press Enter.
5. If you have a previous version of Microsoft Windows installed on your computer, Setup displays a screen stating that it detected a previous version. If this screen appears, press **N** to install Windows NT Server in a different directory.
6. Windows NT Server Setup displays a screen showing your computer's hard disk partitions. Highlight the partition on which you want to install Windows NT Server, then press Enter. (Make sure the partition you choose has at least 124MB free.)

7. Windows NT Server Setup asks you to select the type of file system you want on this partition. Highlight "Leave the current file system intact <no changes>," and press Enter.
8. Windows NT Server Setup displays the location where it will install the NT Server files. In the highlighted area, edit the text so that it reads: **\\WINNTSRV.** (Don't type in the period at the end.) Then press Enter.
9. Windows NT Server Setup offers to examine your hard disk for corruption. Press Enter to enable this. (This takes a few minutes.)
10. Windows NT Server Setup displays a screen that indicates this portion of Setup is complete. If you have a floppy disk inserted in drive A:, remove it now. Then press Enter to restart your computer and to continue with setup.

Phase 1

1. After your computer reboots and the Windows NT Server Setup dialog box finally appears, click Next to continue.
2. Type in your name, press Tab, then type in the name of your organization. Click Next to continue.
3. Type in the 10-digit CD key number from the back of your Windows NT Server compact disc case (press Tab after you enter the first three digits). Click Next to continue.
4. Select a Licensing Mode for the server. Select Per Server for: and enter the number of client licenses you purchased. Click Next to continue.
5. When prompted to type in a name for your computer, type **PDCMAINOFFICE.** Click Next to continue.
6. Select Primary Domain Controller in the Server Type window. Click Next to continue.
7. Type **password** when prompted to enter an administrator password. Press Tab. Confirm the password by retyping it. Click Next to continue.
8. Windows NT Server Setup asks you if you want to create an Emergency Repair Disk. Accept the Yes default. Click Next to continue.
9. Windows NT Server Setup displays a screen prompting you to Select Components. Add any components that you want to install, but do *not* deselect any components that are selected by default. Click Next to continue.

Phase 2

1. Windows NT Server Setup displays a window indicating that Phase 2, Installing Windows NT Networking, is about to begin. Click Next to continue.
2. Accept the default check in the box next to "Wired to the network." Click Next to continue.
3. Accept the default check in the box next to "Install Microsoft Internet Information Server." Click Next to continue.
4. Windows NT Server Setup displays the Network Adapters box. Click Start Search. Your network adapter should then appear in the Network Adapters box.

If your network adapter did not appear, click Select from list. If your network adapter is shown in the list, highlight it and click OK.

If your network adapter is not on the list, and you have a driver disk from its manufacturer, highlight any network adapter and click Have Disk. Setup then prompts you to insert this disk. Insert the disk and click OK. Highlight your network adapter from the list and click OK.

You should now have your network adapter displayed in the Network Adapters box. Click Next to continue.
5. Windows NT Server Setup displays the Network Protocols list box. Deselect NWLink IPX/SPX Compatible Transport. Ensure that the TCP/IP Protocol is the only protocol selected (it will have a gray check in the check box). Click Next to continue.
6. Windows NT Server Setup displays the Network Services list box. Accept all of the defaults selected in this window. Click Next to continue.
7. Click Next to continue and to have Setup install the selected components.
8. Setup prompts you to enter your network adapter card settings. (This screen may not appear for some network adapters.) Verify that the settings shown match the ones that you used when you installed and configured your network adapter. Make changes only as needed. Click Continue to continue.
9. A TCP/IP Setup warning screen appears. If you are on a network that has a DHCP server, click Yes. Otherwise, click No.
10. The Microsoft TCP/IP Properties dialog box appears if you clicked No in the previous step. *If you are on a network that uses TCP/IP, or if you are connected to the Internet, obtain an IP address, subnet mask, and default gateway from your network administrator.* Otherwise, type an IP address of: **192.168.59.6** and a subnet mask of: **255.255.255.0**.

caution  Do *not* use this IP address if you are on a network that uses TCP/IP, or if you are connected to the Internet.

11. Leave the Default Gateway blank. Click OK to continue.
12. Windows NT Server Setup displays a screen showing network binding information. Click Next to continue.
13. Click Next to start the network.
14. Windows NT Server Setup prompts you enter a domain name. Type **MAINOFFICE** as your domain name. Click Next to continue.

Phase 3

1. Click Finish to continue the setup process.
2. Accept the defaults selected in the Microsoft Internet Information Server 2.0 Setup dialog box. Click OK to continue.
3. Click Yes to create the directory.
4. Accept the default directories in the Publishing Directories dialog box by clicking on OK.
5. Click Yes to create the directories.
6. Click OK in the Microsoft Internet Information Server 2.0 Setup dialog box.
7. Click SQL Server in the Install Drivers dialog box to highlight it. Click OK to continue.
8. In the drop-down list box under the Time Zone tab, click your time zone to highlight it. Optionally, you may also click the Date & Time tab and set the correct date and time. When you are finished, click Close to continue.
9. Setup displays a screen indicating that it has found your video display adapter. Click OK in the Detected Display dialog box to continue.
10. Adjust the display settings to suit your preferences. Click Test. The Testing Mode dialog box appears. Click OK to test. When the Testing Mode dialog box reappears, click Yes if you saw the test bitmap. When the Display Settings dialog box appears, click OK to continue. Click OK in the Display Properties dialog box to complete the installation. (This takes a few minutes.)
11. When prompted, label and insert a blank 3.5-inch floppy disk into drive A:. Setup formats and makes this disk into your Emergency Repair Disk. Click OK to continue. (This takes a couple of minutes.)
12. Windows NT Setup displays a window indicating that Windows NT 4.0 is successfully installed. Remove your newly created Emergency Repair Disk from drive A: (and save it for future use). Also remove the compact disc from your CD-ROM drive. Then click Restart Computer to reboot and start Windows NT Server. The setup is complete. Continue on to Part 2.

Part 2: Configuring a one-way trust

In this section, you create users in the MAINOFFICE domain, and configure the LAB domain to trust the MAINOFFICE domain.

Boot both of your computers to Windows NT Server. Log on as Administrator to each one.

Perform the following steps on the computer you named PDCMAINOFFICE (the second computer):

1. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
2. Select User > New User.
3. In the New User dialog box, type the following bolded information in the appropriate text boxes:
 - User name: **CarmenM**
 - Full name: **Carmen Martinez**
 - Description: **Corporate Sales Manager**
 - Password: **password**
 - Confirm password: **password**Clear the check box next to User Must Change Password at Next Logon. Select the check box next to Password Never Expires. Click the Add command button.
4. In the New User dialog box, type the following bolded information in the appropriate text boxes:
 - User name: **HansS**
 - Full name: **Hans Schmidt**
 - Description: **Corporate Accounting Manager**
 - Password: **password**
 - Confirm password: **password**Clear the check box next to User Must Change Password at Next Logon. Select the check box next to Password Never Expires. Click the Add command button. Click the Close command button.
5. In the User Manager dialog box, select Policies > Trust Relationships.
6. In the Trust Relationships dialog box, click the Add command button next to the Trusting Domains list box (this is the text box at the *bottom* of the dialog box).
7. In the Add Trusting Domain dialog box, type the following bolded information in the appropriate text boxes:

Trusting domain: LAB

Initial password: password

Confirm password: password

Click OK.

8. In the Trust Relationships dialog box, PDCLAB appears in the Trusting Domains list box. Click the Close command button.
9. Exit User Manager for Domains.

Perform the following steps on the computer named PDCLAB (the first computer):

1. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
2. In the User Manager for Domains dialog box, select Policies > Trust Relationships.
3. In the Trust Relationships dialog box, click the Add command button next to the Trusted Domains list box (this is the list box toward the top of the dialog box).
4. In the Add Trusted Domain dialog box, type the following bolded information:
 - Domain: **MAINOFFICE**
 - Password: **password**Click OK.
5. A message appears, indicating that a trust relationship with MAINOFFICE has been successfully established. Click OK.
6. In the Trust Relationships dialog box, notice that MAINOFFICE appears in the Trusted Domains list box. Click the Close command button.
7. Exit User Manager for Domains. Continue on to Part 3.

Part 3: Testing a one-way trust

In this section, you verify that the LAB domain trusts the MAINOFFICE domain by assigning a user from the MAINOFFICE domain permissions to a printer in the LAB domain, and by logging on to the PDC in the LAB domain by using a user account from the MAINOFFICE domain. In addition, you attempt to log on to the PDC in the MAINOFFICE domain by using a user account from the LAB domain, but fail, verifying that the MAINOFFICE domain does *not* trust the LAB domain.

Perform these steps on the computer named PDCLAB (the first computer):

1. Select Start ► Settings ► Printers.
2. In the Printers dialog box, highlight the printer you created in Lab 6.8. Select File ► Properties.
3. In the printer's Properties dialog box, click the Security tab.
4. On the Security tab, click the Permissions command button.
5. In the Printer Permissions dialog box, click the Add command button.
6. In the Add Users and Groups dialog box, click the down arrow in the List Names From drop-down list box. Select MAINOFFICE from the list that appears. Click the Show Users command button. Scroll down the list in the Names list box and highlight CarmenM. Click the Add command button. Click OK.
7. In the Printer Permissions dialog box, notice that MAINOFFICE\CarmenM now appears in the Name list box. She has permissions to print to the printer. (You have just verified that the LAB domain trusts the MAINOFFICE domain by successfully assigning CarmenM, a user in the MAINOFFICE domain, permissions to a printer in the LAB domain.) Click OK.
8. In the printer's Properties dialog box, click OK.
9. Close the Printers dialog box.
10. Select Start ► Shut Down.
11. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different user." Click the Yes command button.
12. Press Ctrl + Alt + Delete to log on.
13. Click OK in the Important Notice dialog box.
14. In the Logon Information dialog box, type the user name, **HansS**, and the password, **password**. Select MAINOFFICE in the Domain drop-down list box. Click OK.
15. If the Welcome to Windows NT screen appears, click the Close command button.
16. Because HansS, a user in the MAINOFFICE domain, is successful in logging on at the PDC in the LAB domain, you have verified that the LAB domain trusts the MAINOFFICE domain.
17. Select Start ► Shut Down.
18. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different user." Click the Yes command button.

Perform the following steps on the computer named PDCMAINOFFICE (the second computer):

1. Select Start ➤ Shut Down.
2. In the Shut Down Windows dialog box, select the radio button next to Close all programs and log on as a different user. Click the Yes command button.
3. Press Ctrl + Alt + Delete to log on.
4. In the Logon Information dialog box, click the down arrow in the Domain drop-down list box. Notice that only the MAINOFFICE domain is listed. (This is because the MAINOFFICE domain does *not* trust the LAB domain.) Click the Cancel command button. You have verified that the MAINOFFICE domain does *not* trust the LAB domain. Continue on to Part 4.

Part 4: Configuring a two-way trust

In this section, you configure the MAINOFFICE domain to trust the LAB domain. (This completes the creation of a two-way trust between the LAB and MAINOFFICE domains.)

Perform these steps on the computer named PDCLAB (the first computer):

1. Press Ctr + Alt + Delete to log on.
2. Click OK in the Important Notice dialog box.
3. In the Logon Information dialog box, type in a user name of **Administrator**, a password of **password**, and select the LAB domain from the Domain list box. Click OK.
4. Select Start ➤ Programs ➤ Administrative Tools (Common) ➤ User Manager for Domains.
5. In the User Manager dialog box, select Policies ➤ Trust Relationships.
6. In the Trust Relationships dialog box, click the Add command button next to the Trusting Domains list box (the list box toward the bottom of the dialog box).
7. In the Add Trusting Domain dialog box, type the following bolded information in the appropriate text boxes:
 - Trusting domain: **MAINOFFICE**
 - Initial password: **password**
 - Confirm password: **password**Click OK.
8. In the Trust Relationships dialog box, notice that MAINOFFICE appears in the Trusting Domains list box. Click the Close command button.
9. Exit User Manager for Domains.

Perform the following steps on the computer named PDCMAINOFFICE (the second computer):

1. Press Ctrl + Alt + Delete to log on.
2. In the Logon Information dialog box, type in a user name of **Administrator**, a password of **password**, and select the MAINOFFICE domain. Click OK.
3. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
4. In the User Manager dialog box, select Policies > Trust Relationships.
5. In the Trust Relationships dialog box, click the Add command button next to the Trusted Domains list box (this list box is located near the top of the dialog box).
6. In the Add Trusted Domain dialog box, type in a domain of **LAB** and a password of **password**. Click OK.
7. After a few moments, a dialog box appears, indicating that a trust relationship with the LAB domain has been successfully established. Click OK.
8. In the Trust Relationships dialog box, notice that the LAB domain appears in the Trusted Domains list box. The MAINOFFICE domain is now configured to trust the LAB domain. Click the Close command button.
9. In the User Manager dialog box, select Policies > User Rights.
10. In the User Rights Policy dialog box, select Log on locally from the Right drop-down list box. Click the Add command button.
11. In the Add Users and Groups dialog box, double-click the Everyone group in the Names list box. Click OK. (This step enables all users from both the LAB and MAINOFFICE domains to log on locally to this computer.)
12. In the User Rights Policy dialog box, click OK.
13. Exit User Manager for Domains. Continue on to Part 5.

Part 5: Testing a two-way trust

In this section, you verify that the MAINOFFICE domain trusts the LAB domain by logging on to the PDC in the MAINOFFICE domain by using a user account from the LAB domain. (You already verified that the LAB domain trusts the MAINOFFICE domain.)

Perform the following steps on the computer named PDCMAINOFFICE (the second computer):

1. Select Start ➤ Shut Down.
2. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different user." Click the Yes command button.
3. Press Ctrl + Alt + Delete to log on.
4. In the Logon Information dialog box, type in a user name of **MikeCo**, a password of **newuser**, and select the LAB domain. Click OK.
5. A Logon Message appears, indicating that you are required to change your password at first logon. Click OK.
6. In the Change Password dialog box, type in a new password of **password** and confirm the new password. Click OK.
7. A Change Password dialog box appears, indicating that your password has been changed. Click OK.
8. If a Welcome to Windows NT dialog box appears, click the Close command button.

Because you were able to log on successfully to the PDC in the MAINOFFICE domain by using a user account from the LAB domain (MikeCo), you verified that the MAINOFFICE domain trusts the LAB domain.

Lab 10.16 *Planning a Directory Services architecture*



Enterprise

The objective of this lab is to give you hands-on experience in planning a Directory Services architecture and trust relationships in given situations.

In each of the following exercises, your job is to:

1. Plan the appropriate Directory Services architecture for the given scenario (single domain model, single master domain model, multiple master domain model, or complete trust domain model).
2. Plan the appropriate trust relationships for the scenario.

Exercise 1 An international marketing firm called Worldwide Promotions, Inc., based in New York City, is planning to roll out Windows NT 4.0 in all of its offices worldwide.

The following table lists Worldwide Promotions' offices, and the number of users at each office.

WORLDWIDE PROMOTIONS, INC.	
<i>OFFICE LOCATION</i>	<i>NUMBER OF USERS</i>
New York City	500
Paris	150
London	100
Seattle	100
Mexico City	50
Total Users	900

A Windows NT network will be installed at each location, and all offices will be connected to the New York City office via a high-speed, digital leased line. The company plans to standardize by using Windows NT Server on all of its servers, and by using Windows NT Workstation on all client computers.

The company's MIS (Management Information Systems) department is located in the New York City office, and wants to manage all of the user accounts in all five locations. On-site network managers at each of the other four offices will manage the security for local network resources at their own respective offices.

Worldwide Promotions maintains a critical database in the New York City office that all users from all locations need to be able to access.

1. Which Directory Services architecture would you choose for this situation?
2. What trust relationships would you use in this situation, if any?

(You might want to draw out your Directory Services architecture design and trust relationships on a piece of scratch paper.)

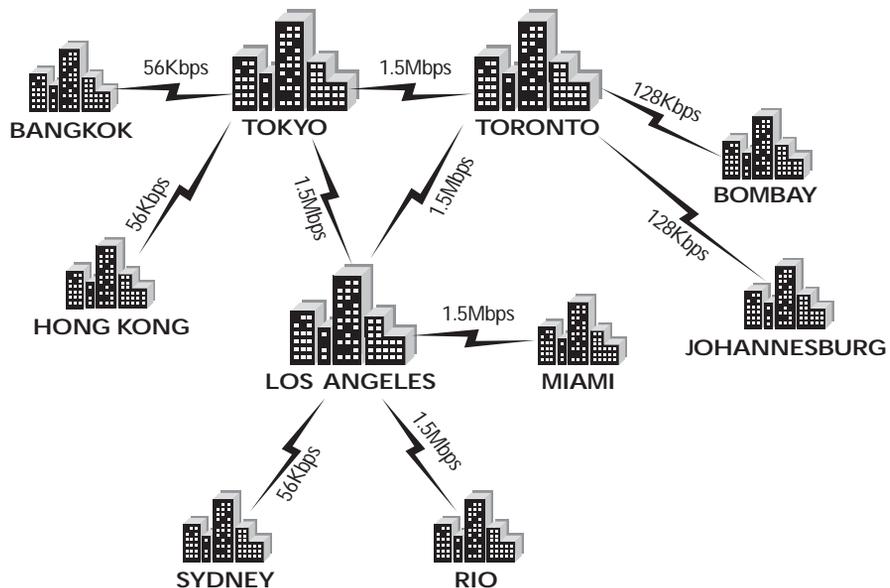
Exercise 2 An international import company called Import International, Ltd., based in Toronto, Canada, is planning to roll out Windows NT 4.0 in all of its offices worldwide.

The following table lists Import International, Ltd.'s offices, and the number of users at each office.

IMPORT INTERNATIONAL, LTD.

<i>OFFICE LOCATION</i>	<i>NUMBER OF USERS</i>
Toronto	9,000
Los Angeles	8,000
Tokyo	7,000
Rio de Janeiro	6,000
Miami	6,000
Bombay	3,000
Johannesburg	3,000
Sydney	2,000
Hong Kong	1,000
Bangkok	1,000
Total Users	46,000

High-speed, digital leased lines connect the locations, as shown in the following figure.



Leased lines connecting Import International, Ltd.'s ten offices

A Windows NT network will be installed at each location. Import International plans to standardize by using Windows NT Server on all of its servers, and by using Windows NT Workstation on all client computers.

The company's Data Processing and Computer Services department is located in the Toronto office and wants to manage all of the user accounts for all ten locations. On-site network managers at each of the other nine offices will manage the security for local network resources at their own respective offices.

Personnel travel frequently and log on to computers in various offices when traveling. Users must be able to log on using a single user account from a computer in any Import International office.

Import International maintains three critical databases: one in Toronto, one in Los Angeles, and one in Tokyo. All users from all locations need to be able to access all three of these databases.

1. Which Directory Services architecture would you choose for this situation?
2. What trust relationships would you use in this situation, if any?

(You might want to draw out your Directory Services architecture design and trust relationships on a piece of scratch paper.)

Lab 11.17 ***Optimizing WAN link performance by the appropriate placement of BDCs***

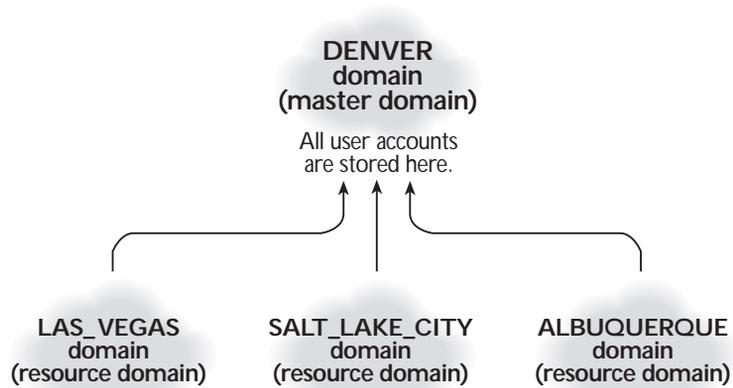


Enterprise

The purpose of this lab is to provide you with hands-on experience in planning the optimization of WAN link performance by determining the appropriate number and placement of BDCs throughout a master domain model.

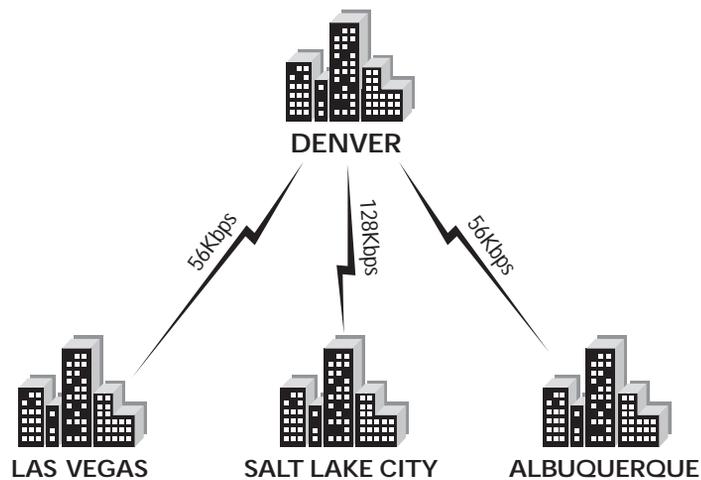
Your goal, in optimizing WAN link performance, is to optimize for efficient local user logon and authentication.

Scenario: You are planning to implement a master domain model for your company's multilocation Windows NT network. You have chosen to implement the master domain model that is shown in the following figure. Notice that the LAS_VEGAS, SALT_LAKE_CITY, and ALBUQUERQUE domains trust the DENVER domain. Also note that the DENVER domain contains all of the user accounts.



Your company's domain model

Your company's three remote locations (Las Vegas, Salt Lake City, and Albuquerque) are connected to the Denver office by various speed WAN links, as shown in the following figure.



WAN connections between your company's four locations.

Your company has a different number of users at each of its four locations. The following table shows the number of users at each location.

NUMBER OF USERS, BY LOCATION	
LOCATION	# OF USERS
Denver	4,500
Las Vegas	2,700
Salt Lake City	3,800
Albuquerque	1,200

Your company's minimum hardware standard for BDCs is a 486/66 CPU with 32MB of RAM. The BDCs will be used *only* for user logon and authentication purposes.

The PDC will be located in the Denver office.

How many BDCs for the DENVER domain are required in each location to optimize your company's network for efficient local user logon and authentication? (Record your answers below).

Location	# of BDCs
Denver	_____
Las Vegas	_____
Salt Lake City	_____
Albuquerque	_____

Lab 12.18 *Sharing and securing resources*



Workstation
Server
Enterprise

The purpose of this lab is to provide you with hands-on experience in planning a strategy for sharing and securing resources, and in performing the tasks of sharing and securing resources in Windows NT.

This lab consists of three parts:

Part 1: Planning a strategy for sharing and securing resources

Part 2: Sharing and securing folders

Part 3: Establishing NTFS permissions

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

Follow the steps below carefully.

Part 1: Planning a strategy for sharing and securing resources

In this section, you plan a strategy for sharing and securing folders on a Windows NT Server computer given a particular scenario.

Scenario: SalesPros, Inc. is a sales organization. (It's the same company you created users and groups for in Lab 7.10). The following table shows some of SalesPros, Inc.'s employees, their user names, job titles, and respective group membership(s):

SALESPROS, INC.'S USER AND GROUP ACCOUNTS			
<i>EMPLOYEE</i>	<i>USER NAME</i>	<i>JOB TITLE</i>	<i>GROUP MEMBERSHIP(S)</i>
Pam Rhodes	PamR	District Manager	Managers, Sales, Accounting, Domain Users
John Spencer	JohnS	Sales Manager	Managers, Sales, Domain Users
Robert Jones	RobertJ	Accounting Manager	Managers, Accounting, Domain Users
Colleen Green	ColleenG	Sales Rep	Sales, Domain Users
Bill Tracy	BillT	Sales Rep	Sales, Domain Users
Mike Calhoun	MikeC	Sales Rep	Sales, Domain Users
Nancy Yates	NancyY	Accounting Staff	Accounting, Domain Users
Mike Cook	MikeCo	Accounting Staff	Accounting, Domain Users

The resources to be shared are located on two partitions on a Windows NT Server computer. The C: drive is a FAT partition that contains applications, and the D: drive is an NTFS partition that contains data folders. The following resources exist:

C: Drive - FAT Partition D: Drive - NTFS Partition

C:\Apps\Word	D:\Data\Managers
C:\Apps\Excel	D:\Data\Accounting
C:\Apps\Access	D:\Data\Sales
	D:\Data\AllUsers

Use the following criteria for determining your strategy to share and secure resources:

1. All employees need to be able to access all three applications: Word, Excel, and Access. However, employees should *not* be able to save data files to the application folders or to change or delete files in the application folders.
2. Employees should be able to access (create, read, write, and delete files) only the data folders that correspond to the groups to which they belong. For example, only members of the Accounting group should be able to access the D:\Data\Accounting folder. Furthermore, members of the Accounting group should *not* be able to access data folders that correspond to groups of which they are *not* members.
3. All employees need to be able to access (create, read, write and delete files) the D:\Data\AllUsers folder.
4. Members of the Administrators group require Full Control to all shared resources on the NTFS partition.

Plan a strategy for sharing and securing folders by assigning a share name to each resource (folder), and then choosing the appropriate share and/or NTFS permissions for each resource listed.

Use the following worksheet for your answers:

Resource: (Include path)	Share Name:	Share Permissions Applied:		NTFS Permissions Applied:	
		User/Group	Permission	User/Group	Permission
(Example) D:\Data\Sales	SalesData	Domain Users (Remove Everyone group)	Full Control	Sales Adminis- trators	Change Full Control
C:\Apps\Word					
C:\Apps\Excel					
C:\Apps\Access					
D:\Data\Managers					
D:\Data\Accounting					
D:\Data\AllUsers					

Continue to Part 2.

Part 2: Sharing and securing folders

In this section, you create several folders to share, then apply appropriate share permissions to each of the folders.

1. Select Start > Programs > Windows NT Explorer.
2. In the Exploring dialog box, highlight the C: drive (or the drive that contains your FAT partition—this is the drive that you installed Windows NT Server and Windows NT Workstation on). Select File > New > Folder.
3. The new folder appears in the Name list box. Type in a new folder name of **Apps**. Press Enter. Double-click the Apps folder.
4. Select File > New > Folder.

5. The new folder appears in the Name list box. Type in a new folder name of **Word**. Press Enter.
6. Select File > New > Folder.
7. The new folder appears in the Name list box. Type in a new folder name of **Excel**. Press Enter.
8. Select File > New > Folder.
9. The new folder appears in the Name list box. Type in a new folder name of **Access**. Press Enter.
10. Highlight the Word folder in the Name list box. Select File > Properties.
11. In the Word Properties dialog box, click the Sharing tab. Select the radio button next to Shared As. In the Share Name text box, accept the default name of Word. Click the Permissions command button.
12. The Access Through Share Permissions dialog box appears. Click the Add command button.
13. The Add Users and Groups dialog box appears. Double-click the Domain Users group. In the Type of Access drop-down list box, select Change. Click OK.
14. In the Access Through Share Permissions dialog box, highlight the Everyone group. Click the Remove command button. Click OK.
15. In the Word Properties dialog box, click OK.
16. In the Exploring dialog box, highlight the Excel folder in the Name list box. Select File > Properties.
17. In the Excel Properties dialog box, click the Sharing tab. Select the radio button next to Shared As. In the Share Name text box, accept the default name of Excel. Click the Permissions command button.
18. The Access Through Share Permissions dialog box appears. Click the Add command button.
19. The Add Users and Groups dialog box appears. Double-click the Domain Users group. In the Type of Access drop-down list box, select Change. Click OK.
20. In the Access Through Share Permissions dialog box, highlight the Everyone group. Click the Remove command button. Click OK.
21. In the Excel Properties dialog box, click OK.
22. In the Exploring dialog box, highlight the Access folder in the Name list box. Select File > Properties.
23. In the Access Properties dialog box, click the Sharing tab. Select the radio button next to Shared As. In the Share Name text box, accept the default name of Access. Click the Permissions command button.
24. The Access Through Share Permissions dialog box appears. Click the Add command button.

25. The Add Users and Groups dialog box appears. Double-click the Domain Users group. In the Type of Access drop-down list box, select Change. Click OK.
26. In the Access Through Share Permissions dialog box, highlight the Everyone group. Click the Remove command button. Click OK.
27. In the Access Properties dialog box, click OK.
28. The Exploring dialog box reappears. Notice that all three folders (Word, Excel, and Access) appear in the Name list box, and that all three appear with a hand under the folder, indicating that they are shared folders.
29. Highlight the D: drive (or the drive that contains your NTFS partition). Select File > New > Folder.
30. The new folder appears in the Name list box. Type in a new folder name of **Data**. Press Enter. Double-click the Data folder.
31. Select File > New > Folder.
32. The new folder appears in the Name list box. Type in a new folder name of **Managers**. Press Enter.
33. Select File > New > Folder.
34. The new folder appears in the Name list box. Type in a new folder name of **Accounting**. Press Enter.
35. Select File > New > Folder.
36. The new folder appears in the Name list box. Type in a new folder name of **Sales**. Press Enter.
37. Select File > New > Folder.
38. The new folder appears in the Name list box. Type in a new folder name of **AllUsers**. Press Enter.
39. In the Exploring dialog box, highlight the Managers folder in the Name list box. Select File > Properties.
40. In the Managers Properties dialog box, click the Sharing tab. Select the radio button next to Shared As. In the Share Name text box, type in **ManagersData**. Click the Permissions command button.
41. The Access Through Share Permissions dialog box appears. Notice that the Everyone group is listed and has the Full Control share permission. (Since this folder is located on an NTFS partition, you will use NTFS permissions to secure this folder, and accept the default share permission.) Click OK.
42. In the Managers Properties dialog box, Click OK.
43. A warning message appears, indicating that the new share name may not be accessible from some MS-DOS workstations. (This is because the name you assigned is longer than eight characters). Click the Yes command button.

44. In the Exploring dialog box, highlight the Accounting folder in the Name list box. Select File > Properties.
45. In the Accounting Properties dialog box, click the Sharing tab. Select the radio button next to Shared As. In the Share Name text box, type in **AccountingData**. Click OK.
46. In the Sharing warning dialog box, click the Yes command button.
47. In the Exploring dialog box, highlight the Sales folder in the Name list box. Select File > Properties.
48. In the Sales Properties dialog box, click the Sharing tab. Select the radio button next to Shared As. In the Share Name text box, type in **SalesData**. Click OK.
49. In the Sharing warning dialog box, click the Yes command button.
50. In the Exploring dialog box, highlight the AllUsers folder in the Name list box. Select File > Properties.
51. In the AllUsers Properties dialog box, click the Sharing tab. Select the radio button next to Shared As. In the Share Name text box, type in **AllUsersData**. Click OK.
52. In the Sharing warning dialog box, click the Yes command button.
53. The Exploring dialog box reappears. Notice that all four folders (Managers, Accounting, Sales, and AllUsers) appear in the Name list box, and that all four appear with a hand under the folder, indicating that they are shared folders.

In the next section, you assign NTFS permissions to these folders. Continue on to Part 3.

Part 3: Establishing NTFS permissions

In this section, you assign the appropriate NTFS permissions to the Managers, Accounting, Sales, and AllUsers folders that you created and shared in Part 2.

1. In the Exploring dialog box, highlight the Managers folder in the Name list box. Select File > Properties.
2. In the Managers Properties dialog box, click the Security tab. Click the Permissions command button.
3. In the Directory Permissions dialog box, click the Add command button.
4. In the Add Users and Groups dialog box, double-click the Managers group. In the Type of Access drop-down list box, select Change. Click OK.
5. Click the Add command button.

6. In the Add Users and Groups dialog box, double-click Administrators. In the Type of Access drop-down list box, select Full Control. Click OK.
7. In the Directory Permissions dialog box, highlight the Everyone group. Click the Remove command button. Click OK.
8. In the Managers Properties dialog box, click OK.
9. In the Exploring dialog box, highlight the Accounting folder in the Name list box. Select File >> Properties.
10. In the Accounting Properties dialog box, click the Security tab. Click the Permissions command button.
11. In the Directory Permissions dialog box, click the Add command button.
12. In the Add Users and Groups dialog box, double-click the Accounting group. In the Type of Access drop-down list box, select Change. Click OK.
13. Click the Add command button.
14. In the Add Users and Groups dialog box, double-click Administrators. In the Type of Access drop-down list box, select Full Control. Click OK.
15. In the Directory Permissions dialog box, highlight the Everyone group. Click the Remove command button. Click OK.
16. In the Accounting Properties dialog box, click OK.
17. In the Exploring dialog box, highlight the Sales folder in the Name list box. Select File >> Properties.
18. In the Sales Properties dialog box, click the Security tab. Click the Permissions command button.
19. In the Directory Permissions dialog box, click the Add command button.
20. In the Add Users and Groups dialog box, double-click the Sales group. In the Type of Access drop-down list box, select Change. Click OK.
21. Click the Add command button.
22. In the Add Users and Groups dialog box, double-click Administrators. In the Type of Access drop-down list box, select Full Control. Click OK.
23. In the Directory Permissions dialog box, highlight the Everyone group. Click the Remove command button. Click OK.
24. In the Sales Properties dialog box, click OK.
25. In the Exploring dialog box, highlight the AllUsers folder in the Name list box. Select File >> Properties.
26. In the AllUsers Properties dialog box, click the Security tab. Click the Permissions command button.
27. In the Directory Permissions dialog box, click the Add command button.

28. In the Add Users and Groups dialog box, double-click the Domain Users group. In the Type of Access drop-down list box, select Change. Click OK.
29. Click the Add command button.
30. In the Add Users and Groups dialog box, double-click Administrators. In the Type Of Access drop-down list box, select Full Control. Click OK.
31. In the Directory Permissions dialog box, highlight the Everyone group. Click the Remove command button. Click OK.
32. In the All Users Properties dialog box, click OK. This completes the assigning of NTFS permissions. Exit Windows NT Explorer.

Lab 12.19 *Establishing file and folder auditing*



The purpose of this lab is to provide you with hands-on experience in establishing file and folder auditing.

This lab consists of two parts:

Part 1: Establishing file and folder auditing

Part 2: Testing file and folder auditing

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

Follow these steps carefully.

Part 1: Establishing file and folder auditing

In this section, you establish file and folder auditing on the Managers, Accounting, Sales, and AllUsers subfolders in the D:\Data folder that you created and shared in Lab 12.18.

In Lab 8.11, you implemented success and failure auditing for File and Object Access by using User Manager for Domains. That was the first step in auditing files and folders. This lab completes the process of establishing auditing on files and folders.

1. Select Start >> Programs >> Windows NT Explorer.
2. In the All Folders section of the Exploring dialog box, click the plus sign next to the drive that contains your NTFS partition (usually this is the D: drive). Highlight the Data folder. In the Name list box in the Contents of 'Data' section, highlight the Accounting folder. Select File >> Properties.
3. In the Accounting Properties dialog box, click the Security tab. Click the Auditing command button.

4. In the Directory Auditing dialog box, click the Add command button. Double-click the Domain Users group. Click OK.
5. In the Directory Auditing dialog box, select the Success and Failure check boxes next to Read, Write, and Execute. Click OK.
6. In the Accounting Properties dialog box, click OK.
7. In the Name list box in the Contents of 'Data' section, highlight the AllUsers folder. Select File > Properties.
8. In the AllUsers Properties dialog box, click the Security tab. Click the Auditing command button.
9. In the Directory Auditing dialog box, click the Add command button. Double-click the Domain Users group. Click OK.
10. In the Directory Auditing dialog box, select the Success and Failure check boxes next to Delete. Click OK.
11. In the AllUsers Properties dialog box, click OK.
12. In the Name list box in the Contents of 'Data' section, highlight the Managers folder. Select File > Properties.
13. In the Managers Properties dialog box, click the Security tab. Click the Auditing command button.
14. In the Directory Auditing dialog box, click the Add command button. Double-click the Domain Users group. Click OK.
15. In the Directory Auditing dialog box, select the Success and Failure check boxes next to Read, Write, Execute, Delete, Change Permissions, and Take Ownership. Click OK.
16. In the Managers Properties dialog box, click OK.
17. In the Name list box in the Contents of 'Data' section, highlight the Sales folder. Select File > Properties.
18. In the Sales Properties dialog box, click the Security tab. Click the Auditing command button.
19. In the Directory Auditing dialog box, click the Add command button. Double-click the Domain Users group. Click OK.
20. In the Directory Auditing dialog box, select the Success and Failure check boxes next to Read, Write, and Execute. Click OK.
21. In the Sales Properties dialog box, click OK. Exit Windows NT Explorer. Continue on to Part 2.

Part 2: Testing file and folder auditing

In this section, you clear the security log in Event Viewer, then log on as NancyY and attempt to access each of the data folders you created and shared in Lab 12.18. Then you use Event Viewer to view the results of the auditing that you established in Part 1.

1. Select Start > Programs > Administrative Tools (Common) > Event Viewer.
2. In the Event Viewer dialog box, select Log > Security. Select Log > Clear All Events. (You are clearing the security log to make room for new auditing events.)
3. In the Clear Event Log dialog box, click the No command button, so as to not save the log to a file.
4. In the Clear Event Log dialog box, click the Yes command button to clear the security log.
5. Exit Event Viewer.
6. Select Start > Shut Down.
7. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different user." Click the Yes command button.
8. Press Ctrl + Alt + Delete to log on.
9. Click OK in the Important Notice dialog box.
10. Type in a user name of **NancyY**, and a password of **password**. Click OK.
11. A warning message may appear, indicating that your password will expire in xx days. Click the No command button.
12. If a Welcome to Windows NT dialog box appears, clear the check box next to "Show this Welcome Screen next time you start Windows NT." Click the Close command button.
13. Select Start > Programs > Windows NT Explorer.
14. In the Exploring dialog box, click the plus sign next to the drive that contains your NTFS partition (usually this is the D: drive). Click the plus sign next to the Data folder on this drive. Highlight the Accounting folder. Notice that there are no files in this folder.
15. Highlight the AllUsers folder. Notice that there are no files in this folder.
16. Highlight the Managers folder. A dialog box appears, indicating that access has been denied. (This is because NancyY is not a member of the Managers group and does not have the appropriate permission to access this folder.) Click the Cancel command button.
17. Highlight the Sales folder. A dialog box appears, indicating that access has been denied. (This is because NancyY is not a member of the Sales

group and does not have the appropriate permission to access this folder.) Click the Cancel command button. Exit Windows NT Explorer.

18. Select Start > Shut Down.
19. In the Shut Down Windows dialog box, select the radio button next to "Close all programs and log on as a different user." Click the Yes command button.
20. Press Ctrl + Alt + Delete to log on.
21. Click OK in the Important Notice dialog box.
22. Type in a user name of **Administrator**, and a password of **password**. Click OK.
23. Select Start > Programs > Administrative Tools (Common) > Event Viewer.
24. In the Event Viewer dialog box, select Log > Security. Scroll down the log and double-click the first event that lists NancyY in the User column *and* Logon/Logoff in the Category column.
25. The Event Detail dialog box appears. Notice that this is a Success audit of the Logon/Logoff event. Click the Close command button.
26. Scroll down and double-click the event that has a lock (rather than a key) in the left-hand margin, lists NancyY in the User column, *and* Object Access in the Category column. (This should be approximately eleven events down from the one you just viewed.)
27. The Event Detail dialog box appears. Notice that this is a Failure audit event of the Object Access type. (This audit event occurred when NancyY attempted to access the D:\Data\Sales folder and was denied access.) Click the Next command button to view the next audit event.
28. Continue clicking on the Next command button to view several more audit events. When you are finished viewing audit events, click the Close command button.
29. Exit Event Viewer.

Lab 12.20 ***Troubleshooting resource access and permission problems***



Workstation
Server
Enterprise

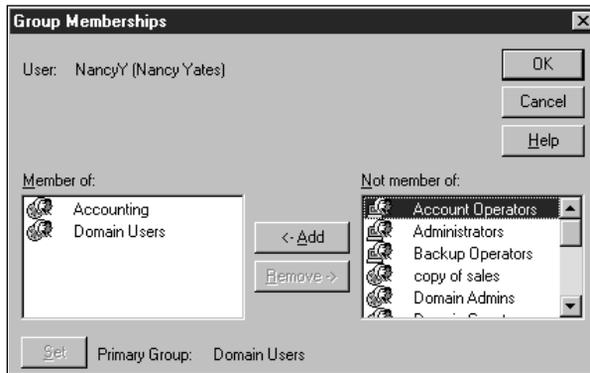
The purpose of this lab is to provide you with hands-on experience in troubleshooting some common resource access and permission problems.

For each problem presented, consider the troubleshooting information provided and determine:

1. The cause of the problem, and
2. What steps you would take to resolve the problem.

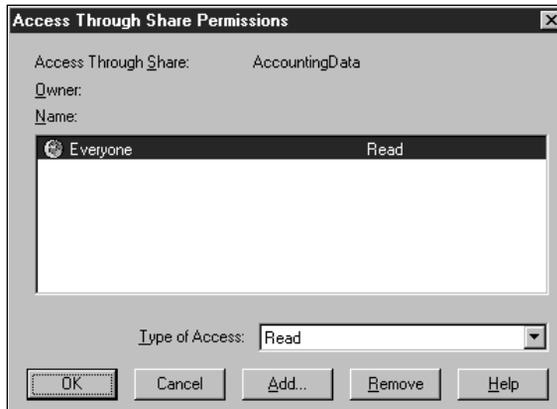
Problem 1 A user, NancyY, reports that she can't save files to the AccountingData share located on an NTFS volume on a Windows NT computer. You begin the troubleshooting process by using User Manager for Domains and Windows NT Explorer to obtain NancyY's group memberships, and the share and NTFS permissions assigned to the AccountingData share.

The following figure shows the Group Memberships dialog box, which lists NancyY's group memberships.



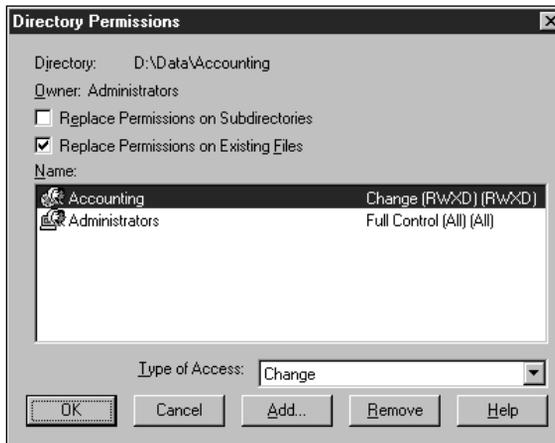
Group memberships for NancyY

The following figure shows the Access Through Share Permissions dialog box, which lists the share permissions assigned to the AccountingData share.



Share permissions for AccountingData share

The following figure shows the Directory Permissions dialog box. This dialog box lists the NTFS permissions assigned to the D:\Data\Accounting folder, which is shared as AccountingData.



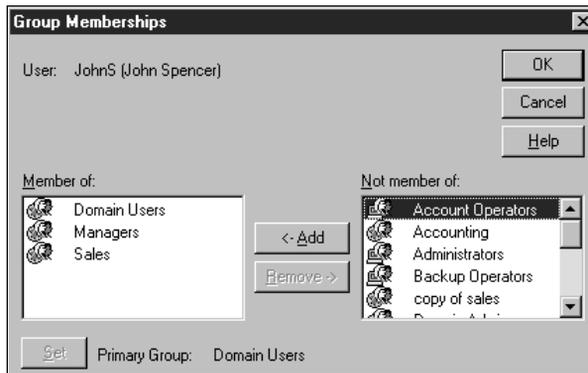
NTFS permissions
for AccountingData share

What is the cause of the problem?

What would you do to resolve the problem?

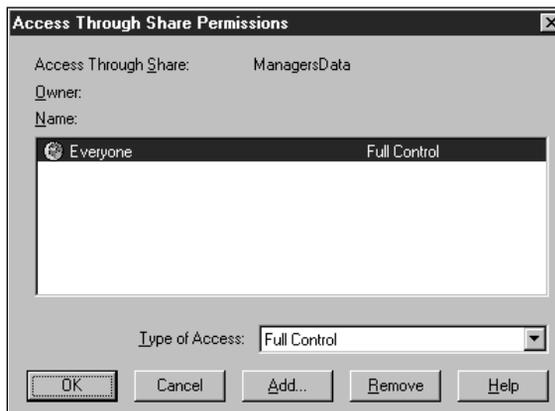
Problem 2 A user, JohnS, reports he can't access the ManagersData share located on an NTFS volume on a Windows NT computer. You begin the troubleshooting process by using User Manager for Domains and Windows NT Explorer to obtain JohnS's group memberships, and the share and NTFS permissions assigned to the ManagersData share.

The following figure shows the Group Memberships dialog box, which lists JohnS's group memberships.



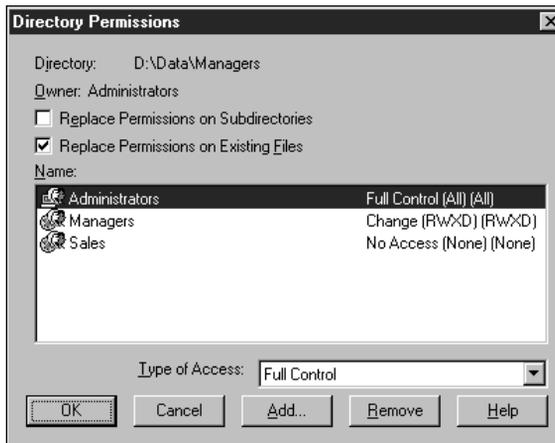
Group memberships for JohnS

The following figure shows the Access Through Share Permissions dialog box, which lists the share permissions assigned to the ManagersData share.



Share permissions for ManagersData share

The following figure shows the Directory Permissions dialog box. This dialog box lists the NTFS permissions assigned to the D:\Data\Managers folder, which is shared as ManagersData.



NTFS permissions for ManagersData share

What is the cause of the problem?

What would you do to resolve the problem?

Lab 13.21 *Configuring the Computer Browser service*



Workstation
Server
Enterprise

The purpose of this lab is to give you hands-on experience in configuring the Windows NT Computer Browser service. You will edit the Registry to configure your Windows NT Computer to force an election when it is booted, in an attempt to become the master browser for its subnet.

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

FOLLOW THESE STEPS CAREFULLY:

1. Select Start ► Run.
2. In the Run dialog box, type **Regedt32** in the Open drop-down list box. Click OK.
3. In the Registry Editor dialog box, select Window ► HKEY_LOCAL_MACHINE on Local Machine.
4. Maximize the HKEY_LOCAL_MACHINE on Local Machine window.
5. Double-click the SYSTEM folder. Under the SYSTEM folder, double-click the CurrentControlSet folder. Double-click the Services folder. Scroll down and double-click the Browser folder. Click the Parameters folder.
6. In the right-hand window, double-click the IsDomainMaster value.

7. Edit the String Editor dialog box to read **TRUE**. Click OK. (This step configures the computer to force an election on startup, and to attempt to become the master browser for its subnet.)
8. Notice in the right-hand window that the `IsDomainMaster` value is changed to `TRUE`.
9. The `MaintainServerList` value should be `Yes`. (If it isn't, double-click `MaintainServerList` and change the value to **Yes** in the String Editor dialog box.)
10. Exit Registry Editor. These changes will become effective the next time you boot the computer.

Lab 13.22 *Accessing network resources*



This lab is optional, because it requires an additional networked computer. Additionally, Lab 10.15 must be completed prior to performing this lab. (See Lab 10.15 for specific computer hardware requirements.)



Workstation
Enterprise

The purpose of this lab is to give you hands-on experience in accessing shared network resources. You will create and then access shared folders by using Windows NT Explorer, and also connect to shared folders from the command line.

This lab consists of three parts:

Part 1: Configuring shares on the second computer (PDCMAINOFFICE)

Part 2: Connecting to shared folders by using Windows NT Explorer

Part 3: Connecting to a shared folder from the command line

Follow the steps in each part carefully.

Part 1: Configuring shares on the second computer (PDCMAINOFFICE)

Perform these steps on your second computer (PDCMAINOFFICE) after you have booted the computer to Windows NT Server and logged on as Administrator.

1. Select Start > Programs > Windows NT Explorer.
2. In the Exploring dialog box, highlight the Program Files folder. Select File > Properties.
3. In the Program Files Properties dialog box, click the Sharing tab.
4. On the Sharing tab, select the radio button next to Shared As. Edit the Share Name text box so that it appears as **Programs**. Click OK.
5. Highlight the C: drive under My Computer. Select File > New > Folder.

6. Rename the new folder as **Projects**. Press Enter.
7. Select File > Properties.
8. In the Projects Properties dialog box, click the Sharing tab.
9. On the Sharing tab, select the radio button next to Shared As. Accept the default share name of Projects. Click OK.
10. Highlight the C: drive under My Computer. Select File > New > Folder.
11. Rename the new folder as **Public**. Press Enter.
12. Select File > Properties.
13. In the Public Properties dialog box, click the Sharing tab.
14. On the Sharing tab, select the radio button next to Shared As. Accept the default share name of Public. Click OK.
15. Exit Windows NT Explorer. Continue on to Part 2.

Part 2: Connecting to shared folders by using Windows NT Explorer

Perform these steps on your main computer (NTW40) after booting it to Windows NT **Workstation** and logging on as Administrator.

1. Select Start > Programs > Windows NT Explorer.
2. In the Exploring dialog box, right-click Network Neighborhood. Select Map Network Drive from the menu that appears.
3. In the Map Network Drive dialog box, double-click MAINOFFICE in the Shared Directories list box. Double-click PDCMAINOFFICE. Double-click the Programs folder.
4. Notice that Programs on 'Pdcmainoffice' appears with a drive letter under My Computer in the All Folders section of the Exploring dialog box. You have successfully connected a network drive to the Programs share on PDCMAINOFFICE (the second computer.)
5. Select Tools > Map Network Drive.
6. In the Map Network Drive dialog box, type **\\pdcmainoffice\public** in the Path drop-down list box. Click OK.
7. Notice that Public on 'Pdcmainoffice' appears with a drive letter under My Computer in the All Folders section of the Exploring dialog box. You have successfully connected a network drive to the Public share on PDCMAINOFFICE (the second computer.)
8. Exit Windows NT Explorer. Continue on to Part 3.

Part 3: Connecting to a shared folder from the command line

Perform these steps on your main computer (NTW40) that is running Windows NT Workstation.

1. Select Start > Programs > Command Prompt.
2. At the C:\> command prompt, type **net use p:\\pdcmainoffice\projects**
3. Press Enter. Windows NT should indicate that the command completed successfully. This means that you have successfully connected to the Projects share on PDCMAINOFFICE (the second computer).
4. At the C:\> command prompt, type **exit** and press Enter.

Lab 14.23 ***Installing Windows NT Server tools and using NT Server tools to administer a remote server***



Server
Enterprise

The purpose of this lab is to give you hands-on experience in installing Windows NT Server tools, and experience in using NT Server tools to administer a remote server. You install Windows NT Server tools on a Windows NT Workstation computer, and then (optionally) use Windows NT Server tools to administer your second Windows NT Server computer remotely.

This lab consists of two parts:

Part 1: Installing Windows NT Server tools on a Windows NT Workstation computer

Part 2: (Optional) Administering a remote Windows NT Server computer

Part 1: Installing Windows NT Server tools on a Windows NT Workstation computer

Perform these steps on your first or primary computer.

1. Boot your computer to Windows NT Workstation. Log on as Administrator. Place your Windows NT Server 4.0 compact disc in your CD-ROM drive.
2. Select Start > Programs > Windows NT Explorer.
3. In the Exploring dialog box, click the + sign next to your CD-ROM drive. Under your CD-ROM drive, click the + sign next to the Clients folder. Click the + sign next to the Srvtools folder. Highlight the Winnt folder.
4. In the "Contents of Winnt" section in the right-hand window, double-click Setup.bat.
5. A window appears, indicating that the Client-Based Network Administration Tools are being installed. When you are prompted to press any key to continue, do so.

6. The Exploring dialog box reappears. The Windows NT Server tools are now installed. Continue to Step 7 to create icons for the various server tools.
7. In the Exploring dialog box, click the + sign next to the drive on your computer on which you originally installed Windows NT Workstation (if it is not already expanded). Normally, this is the C: drive. Click the + sign next to the Winntwks folder. Click the + sign next to the Profiles folder. Click the + sign next to the All Users folder. Click the + sign next to the Start Menu folder. Click the + sign next to the Programs folder. Highlight the Administrative Tools (Common) folder.
8. Select File > New > Shortcut.
9. In the Create Shortcut dialog box, type **c:\winntwks\system32\usrmgr.exe** in the Command line text box. (If you installed Windows NT Workstation on a different drive than C:, substitute the correct drive letter in this path.) Click the Next command button.
10. In the Select a Title for the Program dialog box, type **User Manager for Domains** in the Select a name for the shortcut text box. Click the Finish command button.
11. The Exploring dialog box reappears. Select File > New > Shortcut.
12. In the Create Shortcut dialog box, type **c:\winntwks\system32\svrvmgr.exe** in the Command line text box. (If you installed Windows NT Workstation on a different drive than C:, substitute the correct drive letter in this path.) Click the Next command button.
13. In the Select A Title For The Program dialog box, type **Server Manager** in the Select a name for the shortcut text box. Click the Finish command button.
14. The Exploring dialog box reappears. Select File > New > Shortcut.
15. In the Create Shortcut dialog box, type **c:\winntwks\system32\poledit.exe** in the Command line text box. (If you installed Windows NT Workstation on a different drive than C:, substitute the correct drive letter in this path.) Click the Next command button.
16. In the Select a Title for the Program dialog box, type **System Policy Editor** in the Select a name for the shortcut text box. Click the Finish command button.
17. The Exploring dialog box reappears. Notice the three shortcuts you have just created are listed in the Contents of Administrative Tools (Common). Exit Windows NT Explorer. The icons you have just created will now appear in the Start > Programs > Administrative Tools (Common) menu.

Continue to Part 2.

Part 2: (Optional) Administering a remote Windows NT Server computer

Part 2 of this lab is optional, because it requires an additional networked computer. Additionally, Lab 10.15 and Lab 13.22 must be completed before performing this lab. See Lab 10.15 for specific computer hardware requirements.

Begin Part 2 by booting your second computer to Windows NT Server. It is not necessary that you log on.

In the first eight steps of Part 2, you use User Manager for Domains (an NT Server tool that you just installed on your Windows NT Workstation computer) to view users remotely and to add a new user to the MAINOFFICE domain on your second computer.

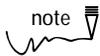
(Perform these steps from your first or primary computer, booted to Windows NT Workstation. Log on as Administrator.)

1. Select Start > Programs > Administrative Tools (Common) > User Manager for Domains.
2. The User Manager dialog box appears. Select User > Select Domain.
3. In the Select Domain dialog box, type **MAINOFFICE** in the Domain text box. (This is the domain name of your second computer.) Click OK.
4. The User Manager dialog box reappears, this time listing users from the MAINOFFICE domain. Notice that the two users you created in Lab 10.15, CarmenM and HansS, appear in the User Name list box. Select User > New User.
5. Type in your first name and last initial in the User Name text box. (Don't leave a space between the two.) Type in your full name in the Full Name text box. Type in a password of **password**, and confirm the password by retyping it. Clear the check box next to User Must Change Password at Next Logon. Select the check box next to Password Never Expires. Click the Groups command button.
6. In the Group Memberships dialog box, highlight Administrators in the Not member of list box. Click the Add command button. Click OK.
7. In the New User dialog box, click the Add command button. Click the Close command button.
8. The User Manager dialog box reappears. Notice that your name now appears in the list of users in the MAINOFFICE domain. Exit User Manager for Domains.

In the remaining steps in Part 2, you use Server Manager to share the CD-ROM drive on your second computer remotely from your Windows NT Workstation computer.

9. Select Start > Programs > Administrative Tools (Common) > Server Manager.
10. In the Server Manager dialog box, select Computer > Select Domain.
11. In the Select Domain dialog box, type **MAINOFFICE** in the Domain text box. Click OK.
12. The Server Manager dialog box reappears, this time displaying PDCMAINOFFICE, your second computer, in the Computer list box. Select Computer > Shared Directories.
13. In the Shared Directories dialog box, click the New Share command button. In the New Share dialog box, type **CDROM** in the Share Name text box, and type the drive letter of the CD-ROM drive on your second computer in the Path text box, for example, **D:**. Click OK.
14. (Note: If you don't have a CD-ROM drive on your second computer, select any other drive letter to share.)
15. The Shared Directories dialog box reappears. Note that CDROM appears in the Shared Directories on \\PDCMAINOFFICE list box, with a hand under it, indicating that it is shared. Click the Close command button.
16. Exit Server Manager.

Lab 15.24 *Performing a backup*



This lab is optional because it requires a tape drive.



Server
Enterprise

The purpose of this lab is to give you hands-on experience using Windows NT Backup to back up files and folders on a Windows NT computer. You will also view the detailed log created during the backup by using Windows NT Explorer and Notepad.

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. If you haven't already done so, install a driver for your tape drive by using the Tape Devices application in Control Panel. Place a tape in the tape drive.

FOLLOW THE STEPS BELOW CAREFULLY:

1. Start > Programs > Administrative Tools (Common) > Backup.
2. The Backup dialog box appears. Select Window > Drives.
3. Maximize the Drives dialog box. Double-click the C: drive (or the drive that you have installed Windows NT Server on). Select the check box next to the `Winntsrv` folder. (If you wanted to back up the entire C: drive instead of selected folders only, when the Drives dialog box first appears, select the check box next to the C: drive instead of double-clicking it.)
Click the Backup command button.

4. The Backup Information dialog box appears. Select the check boxes next to the following: Verify After Backup, Hardware Compression (if the box is not grayed out), and Backup Local Registry.

In the Operation section, ensure that the radio button next to Replace is selected.

In the Description text box, type **Winntsrv folder *current_date* normal backup**.

In the Backup Type drop-down list box, select Normal.

In the Log Information section, select the radio button next to Full Detail.

Click OK.

5. The Backup Status dialog box appears. If the tape has been used before, a Replace Information dialog box appears. Click the Yes command button to have Windows NT Backup replace the data on the tape with the backup you are preparing to perform.
6. Windows NT Backup performs the backup. (This process takes several minutes.)
7. The Verify Status dialog box appears. Windows NT Backup verifies that all files and folders were backed up correctly. (This process also takes several minutes.) After the verify is completed, click OK.
8. The Backup –(Drives) dialog box appears. Select Window > Tapes.
9. The Backup –(Tapes) dialog box appears. Double-click the + sign next to the C: in the right-hand window (or the letter of the drive on which you installed Windows NT Server).
10. Double-click the Winntsrv folder in the left-hand window.
11. Windows NT Backup displays the contents of the Winntsrv folder from the tape backup that you just created. Notice that, for restore purposes, you can select individual files and subfolders by selecting the check boxes next to the files and subfolders that you want to restore.
Exit Windows NT Backup.
12. To view the log for the backup you just created, select Start > Programs > Windows NT Explorer.
13. In the Exploring dialog box, click the + sign next to the C: drive (or the drive on which you installed Windows NT Server). Highlight the Winntsrv folder. In the 'Contents of Winntsrv', double-click Backup.log.
14. View the backup log that is displayed in Notepad. Exit Notepad.
15. Exit Windows NT Explorer.

Lab 16.25 **Implementing WINS and Microsoft DNS Server**

Enterprise

The purpose of this lab exercise is to give you hands-on experience in installing WINS and DNS Server, and configuring DNS Server to interact with WINS.

This lab consists of two parts:

Part 1: Installing WINS and Microsoft DNS Server

Part 2: Configuring Microsoft DNS Server to interact with WINS

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. Place your Windows NT Server compact disc in your CD-ROM drive.

Complete the following steps carefully.

Part 1: Installing WINS and Microsoft DNS Server

In this section, you install Windows Internet Name Service (WINS) and Microsoft Domain Name Service (DNS) Server on a Windows NT Server computer.

1. Select Start > Settings > Control Panel.
2. In the Control Panel dialog box, double-click Network.
3. In the Network dialog box, click the Services tab.
4. On the Services tab, click the Add command button.
5. In the Select Network Service dialog box, highlight Microsoft DNS Server. Click OK.
6. A Windows NT Setup dialog box appears. Ensure the correct source file location is displayed in the text box at the bottom of the dialog box. (This is probably the i386 folder on your Windows NT Server compact disc.) Edit this text box if necessary. Click the Continue command button.
7. Windows NT copies and installs Microsoft DNS Server. The Network dialog box reappears. Click the Add command button.
8. The Select Network Service dialog box appears. Scroll down and highlight Windows Internet Name Service. Click OK.
9. A Windows NT Setup dialog box appears. Ensure the correct source file location is displayed in the text box at the bottom of the dialog box. Click the Continue command button.
10. Windows NT copies and installs WINS. The Network dialog box reappears. Click the Close command button.
11. Windows NT performs various bindings operations. A Network Settings Change warning dialog box appears, asking if you want to restart your computer now for the new settings to take effect. Click the Yes command button.
12. Boot your computer to Windows NT Server and log on as Administrator. Continue on to Part 2.

Part 2: Configuring Microsoft DNS Server to interact with WINS

In this section, you configure Microsoft DNS Server to use WINS to resolve host names to IP addresses.

1. From the desktop, select Start > Programs > Administrative Tools (Common) > DNS Manager.
2. In the Domain Name Service Manager dialog box, select DNS > New Server.
3. The Add DNS Server dialog box appears. Type **192.168.59.5** in the DNS Server text box. Click OK.
4. Your server appears (indicated by its IP address) in the Server List on the left side of the Domain Name Service Manager dialog box. Right-click your server's IP address. Select Refresh from the menu that appears. Right-click again on your server's IP address. Select New Zone from the menu that appears.
5. The "Creating new zone for 192.168.59.5" dialog box appears. Select the radio button next to Primary. Click the Next command button.
6. Type **lab.com** in the Zone Name text box. Type **lab.com.dns** in the Zone File text box. Click the Next command button.
7. Click the Finish command button in the "Creating new zone for 192.168.59.5" dialog box. The lab.com zone appears in the Domain Name Service Manager dialog box under the Server List for your Windows NT Server computer. Right-click lab.com, and then select Properties from the menu that appears.
8. The "Zone Properties-lab.com" dialog box appears. Click the WINS Lookup tab.
9. On the WINS Lookup tab, select the check box next to Use WINS Resolution. In the uppermost WINS Servers text box, type **192.168.59.5** and click the Add command button. Click OK.
10. Your DNS Server is now configured to use WINS for host name resolution. Exit DNS Manager.

Lab 16.26 *Configuring Internet Information Server and installing and configuring Peer Web Services*



Workstation
Enterprise

The purpose of this lab exercise is to give you hands-on experience in configuring Microsoft Internet Information Server and in installing and configuring Peer Web Services.

This lab consists of two parts:

Part 1: Configuring Microsoft Internet Information Server

Part 2: Installing and configuring Peer Web Services

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

Complete the following steps carefully.

Part 1: Configuring Microsoft Internet Information Server

In this section, you configure Microsoft Internet Information Server on your Windows NT Server computer.

1. Select Start > Programs > Microsoft Internet Server (Common) > Internet Information Server Setup.
2. The Microsoft Internet Information Server 2.0 Setup dialog box appears. Click OK.
3. In the next Microsoft Internet Information Server 2.0 Setup dialog box that appears, click the Add/Remove command button.
4. Ensure the correct source file location is displayed in the text box. (This is probably the C:\WINNTRV\system32\inet_srv folder on your Windows NT Server computer.) It should be unnecessary to edit this text box. Click OK.
5. In the Microsoft Internet Information Server 2.0 Setup dialog box, *deselect* the check box next to Gopher Service. (This will deinstall the Gopher Service, which is not used in most NT installations.) Click OK.
6. The Microsoft Internet Information Server 2.0 Setup dialog box appears. Click the Yes command button to stop the Gopher Publishing Service.
7. In the Microsoft Internet Information Server 2.0 Setup dialog box, click OK.
8. Select Start > Programs > Microsoft Internet Server (Common) > Internet Service Manager.
9. In the Microsoft Internet Service Manager dialog box, double-click the first computer listed in the Computer list box.
10. The "WWW Service Properties for pdclab" dialog box appears. Notice the configuration options available on the Service tab. Click the Directories tab.
11. On the Directories tab, notice the configuration options available. Click the Logging tab.
12. On the Logging tab, notice the configuration options available. Click the Advanced tab.
13. Notice the configuration options available. Click OK.
14. In the Microsoft Internet Service Manager dialog box, highlight the first computer listed in the Computer list box. Select Properties > Stop Service.
15. Notice the state of the WWW service has changed to Stopped. Select Properties > Start Service.

16. Notice the state of the WWW service has changed to Running. Exit Microsoft Internet Service Manager.
17. Double-click Internet Explorer on your desktop.
18. The Microsoft Internet Explorer Home Page dialog box appears. Edit the Open text box so it reads **pdclab** and press Enter.
19. The Microsoft Internet Information Server home page is displayed. You have successfully configured and accessed the Microsoft Internet Information Server. Exit Internet Explorer.
20. Shut down your computer, reboot to Windows NT Workstation, and log on as Administrator. Place the Windows NT Workstation compact disc in your CD-ROM drive. Continue to Part 2.

Part 2: Installing and configuring Peer Web Services

In this section, you install and configure Peer Web Services on your Windows NT Workstation computer.

1. Select Start > Settings > Control Panel.
2. In the Control Panel dialog box, double-click Network.
3. In the Network dialog box, click the Services tab.
4. On the Service tab, click the Add command button.
5. In the Select Network Service dialog box, highlight Microsoft Peer Web Services. Click OK.
6. The Internet Information Server Installation—Files Needed dialog box appears. Ensure the correct source file location is displayed in the text box. (This is normally the i386 folder on your Windows NT Workstation compact disc.) Edit this text box if necessary. Click OK.
7. The Microsoft Peer Web Services Setup dialog box appears. Click OK.
8. In the Microsoft Peer Web Services Setup dialog box, *deselect* the check box next to Gopher Service. *Select* the check box next to Internet Service Manager (HTML). Click OK.
9. When a dialog box appears prompting you to do so, click the Yes command button to create the installation directory.
10. The Publishing Directories dialog box appears. Click OK to accept the default publishing directories.
11. Windows NT copies and installs Peer Web Services. This process takes a few minutes.

12. If a Microsoft Peer Web Services Setup dialog box appears, indicating you must close Control Panel before you can install the ODBC drivers, click OK to close Control Panel.
The Install Drivers dialog box appears. Highlight SQL Server, and then click OK.
13. A dialog box appears, indicating Microsoft Peer Web Services has been installed and set up. Click OK.
14. The Network dialog box reappears. Click the Close command button.
15. Exit Control Panel if it is still open.
16. Double-click Internet Explorer.
17. The Microsoft Internet Explorer Home Page appears. Edit the Address text box so it reads: **ntw40** and press Enter.
18. The Microsoft Peer Web Services home page is displayed. Scroll down to the Administrative Tools heading, and click the blue text that reads *click here* in the description under that heading.
19. Internet Service Manager for Peer Web Services appears. This an HTML version of Internet Service Manager. Exit Internet Explorer.

Lab 16.27 ***Installing and configuring an Internet (TCP/IP) router***



Server
Enterprise

The purpose of this lab exercise is to give you hands-on experience in installing and configuring an Internet (TCP/IP) router on a Windows NT Server computer.

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. Place your Windows NT Server compact disc in your CD-ROM drive.

Complete the following steps carefully.

1. Select Start > Settings > Control Panel.
2. In the Control Panel dialog box, double-click Network.
3. In the Network dialog box, click the Adapters tab.
4. On the Adapters tab, click the Add command button.
5. In the Select Network Adapter dialog box, highlight MS Loopback Adapter. Click OK. (You already installed a network adapter when you initially installed Windows NT Server. This step installs a second network adapter that will allow your computer to function as a TCP/IP router.)
6. The MS Loopback Adapter Card Setup dialog box appears. Click OK.
7. The Windows NT Setup dialog box appears. Ensure the correct source file location is displayed in the text box. (This is probably the i386 folder on your Windows NT Server compact disc.) Edit this text box if necessary. Click the Continue command button.

8. The Network dialog box reappears. Click the Services tab.
9. On the Services tab, click the Add command button.
10. In the Select Network Service dialog box, highlight RIP for Internet Protocol. Click OK.
11. The Windows NT Setup dialog box appears. Ensure the correct source file location is displayed in the text box. Click the Continue command button.
12. The Network dialog box reappears. Click the Close command button.
13. Windows NT performs various bindings operations, and then displays the Microsoft TCP/IP Properties dialog box. In the Adapter drop-down list box, select the MS Loopback adapter you installed in Steps 5–7 in this lab. (This is the second adapter in the list.) In the IP Address text box, type **192.168.60.1** and press Tab. In the Subnet Mask text box, type **255.255.255.0** and then click the Routing tab.
14. On the Routing tab, notice the check box next to Enable IP Forwarding is checked. Windows NT automatically selects this check box when RIP for Internet Protocol is installed. Click OK.
15. A Network Settings Change dialog box appears. Click the Yes command button to restart your computer so the new settings can take effect.

caution



If your computer is connected to a network that uses TCP/IP, you should remove RIP for Internet Protocol after the computer reboots. If you don't do this, it can cause routing problems on your network. (To remove RIP for Internet Protocol, use the Services tab in the Network application in Control Panel.) You will have to reboot your computer again after you remove RIP for Internet Protocol.

Lab 16.28 *Identifying and resolving TCP/IP connectivity problems*



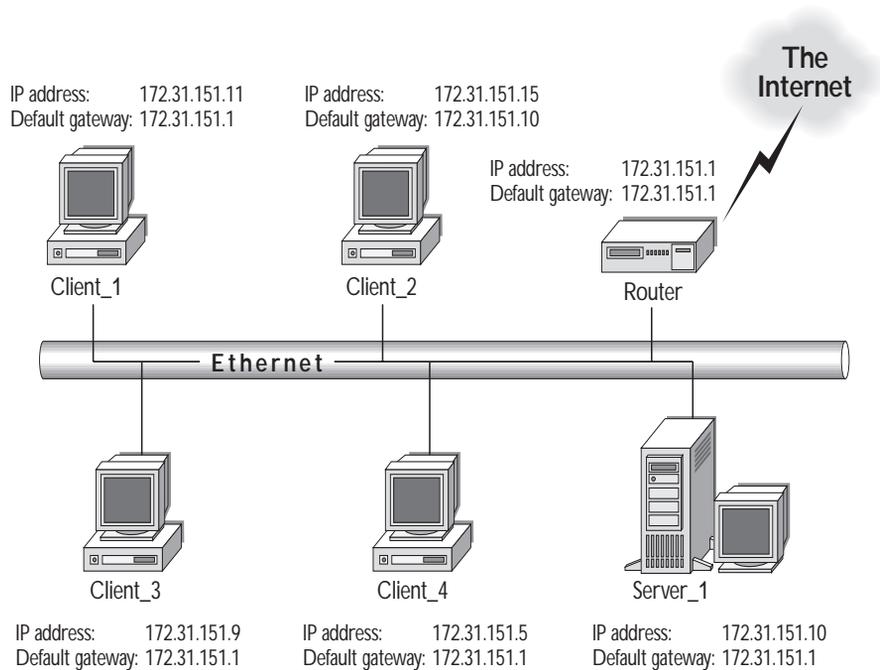
Server
Enterprise

The purpose of this lab exercise is to give you hands-on experience in identifying and resolving common TCP/IP connectivity problems.

In each of the following situations:

1. Identify the TCP/IP connectivity problem (for example, an invalid or duplicate IP address).
2. Describe what you would do to resolve the problem.

Situation 1 Several components on a network subnet are configured as shown in the following figure.

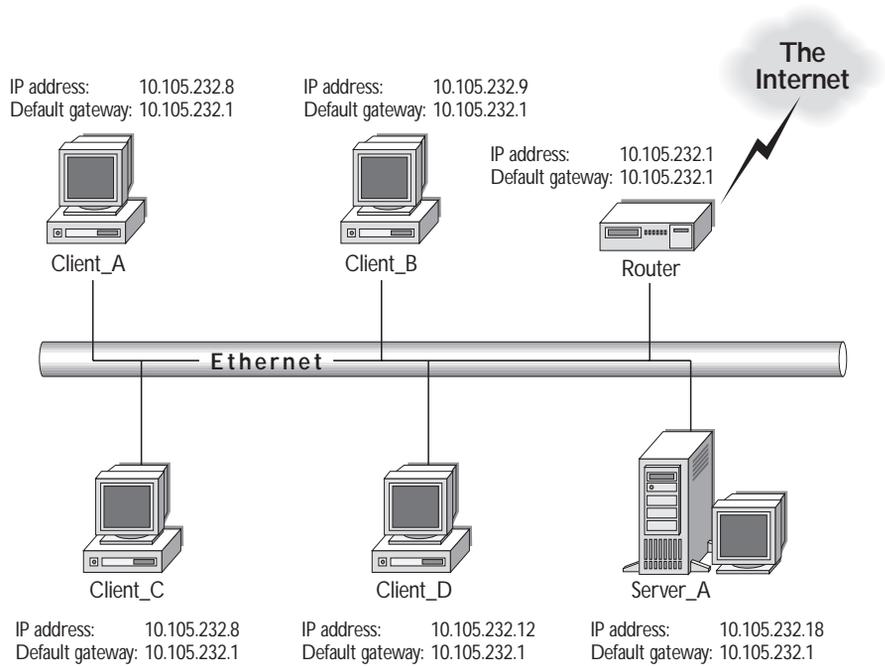


Network subnet configuration for Situation 1

What is the TCP/IP connectivity problem in this situation?

What would you do to resolve the problem?

Situation 2 Several components on a network subnet are configured as shown in the following figure.



Network subnet configuration for Situation 2

What is the TCP/IP connectivity problem in this situation?
 What would you do to resolve the problem?

Lab 17.29 ***Installing and configuring NWLink and Client Service for NetWare***



Workstation

The purpose of this lab exercise is to give you hands-on experience in installing and configuring NWLink IPX/SPX Compatible Transport, and also in installing and configuring Client Service for NetWare on a Windows NT Workstation computer.

This lab consists of two parts:

Part 1: Installing NWLink and Client Service for NetWare

Part 2: Configuring Client Service for NetWare and NWLink

Begin this lab by booting your computer to Windows NT Workstation. Log on as Administrator. Place your Windows NT Workstation compact disc in your computer's CD-ROM drive.

Follow these steps carefully.

Part 1: Installing NWLink and Client Service for NetWare

In this section, you install NWLink IPX/SPX Compatible Transport and Client Service for NetWare on a Windows NT Workstation computer.

1. Select Start > Settings > Control Panel.
2. In the Control Panel dialog box, double-click Network.
3. In the Network dialog box, click the Protocols tab.
4. On the Protocols tab, click the Add command button.
5. In the Select Network Protocol dialog box, highlight NWLink IPX/SPX Compatible Transport in the Network Protocol list box. Click OK.
6. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Workstation source files (usually the i386 folder on your Windows NT Workstation compact disc) is listed in the text box. Edit the text box as necessary. Click the Continue command button.
7. Windows NT installs NWLink IPX/SPX Compatible Transport. The Network dialog box reappears. Click the Services tab.
8. On the Services tab, click the Add command button.
9. In the Select Network Service dialog box, highlight Client Service for NetWare. Click OK.
10. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Workstation source files (usually the i386 folder on your Windows NT Workstation compact disc) is listed in the text box. Click the Continue command button.
11. Windows NT installs Client Service for NetWare. The Network dialog box reappears. Click the Close command button.
12. Windows NT performs various bindings operations.
13. A Network Settings Change dialog box appears, indicating that you must shut down and restart the computer in order for the new settings to take effect. Click the Yes command button to restart the computer. Continue to Part 2.

Part 2: Configuring Client Service for NetWare and NWLink

In this section, you configure Client Service for NetWare and NWLink IPX/SPX Compatible Transport on a Windows NT Workstation computer.

1. When the computer restarts, reboot to Windows NT Workstation. Log on as Administrator.
2. When the Select NetWare Logon dialog box appears, click OK.

3. Select Start > Settings > Control Panel.
4. In the Control Panel dialog box, double-click the CSNW icon.
5. The Client Service for NetWare dialog box appears.
 - If your computer is connected to a network that has a NetWare server, configure the Select Preferred Server option, or Default Tree and Context option, as appropriate. (Obtain the appropriate configuration settings from your network administrator.) Configure the Print Options and Login Script Options as desired or as instructed by your network administrator.
 - If your computer is *not* connected to a network that has a NetWare server, ensure that the radio button next to Preferred Server is selected, and accept the default Select Preferred Server option of <None>.
 Click OK.
6. The Control Panel dialog box reappears. Double-click Network.
7. In the Network dialog box, click the Protocols tab.
8. On the Protocols tab, double-click NWLink IPX/SPX Compatible Transport.
9. An NWLink IPX/SPX Properties dialog box appears. In the Frame Type drop-down list box, select Ethernet 802.2. In the Network Number text box, type **12345678** (if you are connected to a network that uses IPX, obtain an appropriate network number from your network administrator). Click OK.
10. The Network dialog box reappears. Click the Close command button.
11. A Network Settings Change dialog box appears, indicating that you must shut down and restart the computer in order for the new settings to take effect. Click the Yes command button to restart the computer.

Lab 17.30 *Installing and configuring NWLink and Gateway Service for NetWare*



The purpose of this lab exercise is to give you hands-on experience in installing and configuring NWLink IPX/SPX Compatible Transport, and also in installing and configuring Gateway Service for NetWare on a Windows NT Server computer.

This lab consists of two parts:

Part 1: Installing NWLink and Gateway Service for NetWare

Part 2: Configuring Gateway Service for NetWare

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. Place your Windows NT Server compact disc in your computer's CD-ROM drive.

Follow the steps below carefully.

Part 1: Installing NWLink and Gateway Service for NetWare

In this section, you install NWLink IPX/SPX Compatible Transport and Gateway Service for NetWare on a Windows NT Server computer. Additionally, you configure NWLink IPX/SPX Compatible Transport.

1. Select Start > Settings > Control Panel.
2. In the Control Panel dialog box, double-click Network.
3. In the Network dialog box, click the Protocols tab.
4. On the Protocols tab, click the Add command button.
5. In the Select Network Protocol dialog box, highlight NWLink IPX/SPX Compatible Transport in the Network Protocol list box. Click OK.
6. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Server source files (usually the i386 folder on your Windows NT Server compact disc) is listed in the text box. Edit the text box as necessary. Click the Continue command button.
7. Windows NT installs NWLink IPX/SPX Compatible Transport. The Network dialog box reappears. Click the Services tab.
8. On the Services tab, click the Add command button.
9. In the Select Network Service dialog box, highlight Gateway (and Client) Services for NetWare. Click OK.
10. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Server source files (usually the i386 folder on your Windows NT Server compact disc) is listed in the text box. Click the Continue command button.
11. Windows NT installs Gateway Service for NetWare. The Network dialog box reappears. Click the Close command button.
12. Windows NT performs various bindings operations.
13. An NWLink IPX/SPX warning dialog box appears, indicating that you need to configure your computer's internal network number. Click the Yes command button.
14. The NWLink IPX/SPX Properties dialog box appears. Change the Internal Network Number to **87654321**. Select the radio button next to Manual Frame Type Detection, and click the Add command button.
15. In the Manual Frame Detection dialog box, select Ethernet 802.2 from the Frame Type drop-down list box. Type in a Network Number of **12345678**. (If you are connected to a network that uses IPX, obtain an appropriate network number from your network administrator.) Click the Add command button.
16. In the NWLink IPX/SPX Properties dialog box, click OK.

17. A Network Settings Change dialog box appears, indicating that you must shut down and restart the computer in order for the new settings to take effect. Click the Yes command button to restart the computer. Continue to Part 2.

Part 2: Configuring Gateway Service for NetWare

In this section, you configure Gateway Service for NetWare on a Windows NT Server computer.

1. When the computer restarts, reboot to Windows NT Server. Log on as Administrator.
2. When the Select NetWare Logon dialog box appears, click OK.
3. Select Start > Settings > Control Panel.
4. In the Control Panel dialog box, double-click the GSNW icon.
5. The Gateway Service for NetWare dialog box appears.
 - If your computer is connected to a network that has a NetWare server, configure the Select Preferred Server option, or Default Tree and Context option, as appropriate. (Obtain the appropriate configuration settings from your network administrator.) Configure the Print Options and Login Script Options as desired or as instructed by your network administrator.
 - If your computer is *not* connected to a network that has a NetWare server, ensure that the radio button next to Preferred Server is selected, and accept the default Select Preferred Server option of <None>.

Click the Gateway command button.
6. The Configure Gateway dialog box appears. Notice the various options in this dialog box. Click OK.
7. The Gateway Service for NetWare dialog box reappears. Click OK.
8. The Control Panel dialog box reappears. Exit Control Panel.

Lab 17.31 *Installing and configuring RIP for NWLink IPX/SPX Compatible Transport*



Enterprise

The purpose of this lab exercise is to give you hands-on experience in installing and configuring RIP for NWLink IPX/SPX Compatible Transport.

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. Place your Windows NT Server compact disc in your computer's CD-ROM drive.

Follow the steps below carefully.

1. Select Start > Settings > Control Panel.
2. In the Control Panel dialog box, double-click Network.
3. In the Network dialog box, click the Services tab.
4. On the Services tab, click the Add command button.
5. In the Select Network Service dialog box, highlight RIP for NWLink IPX/SPX Compatible Transport. Click OK.
6. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Server source files (usually the i386 folder on your Windows NT Server compact disc) is listed in the text box. Edit this text box if necessary. Click the Continue command button.
7. The RIP for NWLink IPX Configuration dialog box appears, asking if you want to enable NetBIOS Broadcast Propagation. Click the Yes command button.
8. The Network dialog box reappears. Click the Protocols tab.
9. On the Protocols tab, double-click NWLink IPX/SPX Compatible Transport.
10. The NWLink IPX/SPX Properties dialog box appears. Click the Routing tab.
11. On the Routing tab, notice that the check box next to Enable RIP Routing is selected. Windows NT automatically enables RIP routing when it installs RIP for NWLink IPX/SPX Compatible Transport. Click OK.
12. The Network dialog box reappears. Click the Close command button.
13. Windows NT performs various bindings operations.
14. A Network Settings Change dialog box appears, indicating that you must shut down and restart the computer in order for the new settings to take effect. Click the Yes command button to restart the computer.



If your computer is connected to a network that uses IPX, you should remove RIP for NWLink IPX/SPX Compatible Transport after the computer restarts unless you want your computer to function as a RIP router. If you don't remove RIP for NWLink IPX/SPX Compatible Transport, it will create additional broadcast traffic on your network. (To remove RIP for NWLink IPX/SPX Compatible Transport, use the Services tab in the Network application in Control Panel.) You will have to reboot your computer again after you remove RIP for NWLink IPX/SPX Compatible Transport.

Lab 19.32 ***Installing and configuring RAS and Dial-Up Networking***

Workstation
Server
Enterprise

The purpose of this lab is to give you hands-on experience in installing and configuring RAS on a Windows NT Server computer, and in installing RAS and configuring Dial-Up Networking on a Windows NT Workstation computer.

This lab consists of two parts:

Part 1: Installing and configuring RAS (on a Windows NT Server computer)

Part 2: Installing RAS and configuring Dial-Up Networking (on a Windows NT Workstation computer)

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. Place your Windows NT Server compact disc in your CD-ROM drive.

Follow the steps below carefully.

Part 1: Installing and configuring RAS (on a Windows NT Server computer)

In this section, you install and configure RAS on your Windows NT Server computer.

1. Select Start > Settings > Control Panel.
2. In the Control Panel dialog box, double-click Network.
3. In the Network dialog box, click the Services tab.
4. On the Services tab, click the Add command button.
5. In the Select Network Service dialog box, highlight Remote Access Service. Click OK.
6. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Server source files (usually the i386 folder on your Windows NT Server compact disc) is listed in the text box. Edit this text box if necessary. Click the Continue command button.
7. Windows NT copies source files. The Add RAS Device dialog box appears. Select the modem that you installed in Lab 4.6 from the RAS Capable Devices drop-down list box. Click OK.
8. The Remote Access Setup dialog box appears. Click the Configure command button.
9. The Configure Port Usage dialog box appears. Select the radio button next to "Dial out and Receive calls." Click OK.
10. The Remote Access Setup dialog box reappears. Click the Network command button.
11. The Network Configuration dialog box appears. Select the check box next to Enable Multilink at the bottom of the dialog box. Click the Configure command button next to the TCP/IP option in the Server Settings section.

12. The RAS Server TCP/IP Configuration dialog box appears. Click the radio button next to "Use static address pool." In the Begin text box, enter an IP address of **192.168.58.1**, and in the End text box, enter an IP address of **192.168.58.255**. Click OK.
13. The Network Configuration dialog box reappears. Click the Configure command button next to the IPX option in the Server Settings section.
14. The RAS Server IPX Configuration dialog box appears. Notice that IPX clients are configured, by default, to access the entire network. Click OK.
15. The Network Configuration dialog box reappears. Click OK.
16. The Remote Access Setup dialog box reappears. Click the Continue command button.
17. Windows NT installs and configures RAS. If the RIP for NWLink IPX Configuration dialog box appears, asking if you want to enable NetBIOS Broadcast Propagation, click the Yes command button.
18. A Setup Message dialog box appears, indicating that RAS has been successfully installed. Click OK.
19. The Network dialog box reappears. Click the Close command button.
20. Windows NT performs various bindings operations.
21. A Network Settings Change dialog box appears, indicating that you must shut down and restart the computer in order for the new settings to take effect. Click the Yes command button to restart the computer.
22. Reboot your computer to Windows NT Server. Log on as Administrator. If the Control Panel dialog box appears, close it.
23. Select Start ► Programs ► Administrative Tools (Common) ► Remote Access Admin.
24. The Remote Access Admin dialog box appears. Notice that RAS is running on your server. Select Users ► Permissions.
25. The Remote Access Permissions dialog box appears. Click the Grant All command button to assign the dialin permission to all user accounts.
26. The Remote Access Admin warning dialog box appears, asking you to confirm that you want to grant the dialin permission to all users. Click the Yes command button.
27. The Remote Access Permissions dialog box reappears. Click OK.
28. The Remote Access Admin dialog box reappears. Close Remote Access Admin. Continue on to Part 2.

Part 2: Installing RAS and configuring Dial-Up Networking (on a Windows NT Workstation computer)

In this section, you install RAS and configure Dial-Up Networking on your Windows NT Workstation computer.

Begin this section by booting your computer to Windows NT Workstation. Log on as Administrator. Place your Windows NT Workstation compact disc in your CD-ROM drive.

1. Select Start >> Settings >> Control Panel.
2. In the Control Panel dialog box, double-click Network.
3. In the Network dialog box, click the Services tab.
4. On the Services tab, click the Add command button.
5. In the Select Network Service dialog box, highlight Remote Access Service. Click OK.
6. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Workstation source files (usually the i386 folder on your Windows NT Workstation compact disc) is listed in the text box. Edit this text box if necessary. Click the Continue command button.
7. Windows NT copies source files. If you have already installed a modem using Windows NT Workstation, skip to Step 13.

If you haven't installed a modem, the Remote Access Setup dialog box appears, indicating that there are no RAS capable devices to add. Click the Yes command button to invoke the modem installer.
8. The Install New Modem dialog box appears. Select the check box next to "Don't detect my modem; I will select it from a list." Click the Next command button.
9. The Install New Modem dialog box appears. Ensure that (Standard Modem Types) is highlighted in the Manufacturers list box, and that Dial-Up Networking Serial Cable between 2 PCs is selected in the Models list box. Click the Next command button.
10. The next Install New Modem dialog box appears. Ensure that the radio button next to "Selected ports" is selected. Highlight a serial port from the list box (such as COM1 or COM2). Click the Next command button.
11. The Location Information dialog box appears. Type in your area code in the "What area (or city) code are you in now" text box. Click the Next command button.
12. Click the Finish command button in the Install New Modem dialog box.
13. The Add RAS Device dialog box appears. Select a modem from the RAS Capable Devices drop-down list box. Click OK.

14. The Remote Access Setup dialog box appears. Click the Configure command button.
15. The Configure Port Usage dialog box appears. Select the radio button next to "Dial out and Receive calls." Click OK.
16. The Remote Access Setup dialog box reappears. Click the Continue command button.
17. The RAS Server TCP/IP Configuration dialog box appears. Click the radio button next to "Use static address pool." In the Begin text box, enter an IP address of **192.168.58.1**, and in the End text box, enter an IP address of **192.168.58.255**. Click OK.
18. The RAS Server IPX Configuration dialog box appears. Click OK.
19. Windows NT installs and configures RAS. If the RIP for NWLink IPX Configuration dialog box appears, asking if you want to enable NetBIOS Broadcast Propagation, click the Yes command button.
20. A Setup Message dialog box appears, indicating that RAS has been successfully installed. Click OK.
21. The Network dialog box reappears. Click the Close command button.
22. Windows NT performs various bindings operations.
23. A Network Settings Change dialog box appears, indicating that you must shut down and restart the computer in order for the new settings to take effect. Click the Yes command button to restart the computer.
24. Reboot the computer to Windows NT Workstation. Log on as Administrator.
25. If the Control Panel dialog box appears, close it.
26. Select Start > Programs > Accessories > Dial-Up Networking.
27. A Dial-Up Networking dialog box appears, indicating that the phonebook is empty. Click OK.
28. The New Phonebook Entry Wizard appears. Accept the default of MyDialUpServer in the "Name the new phonebook entry" text box. Click the Next command button.
29. The Server dialog box appears. Select the check boxes next to "I am calling the Internet" and "Send my plain text password if that's the only way to connect." Click the Next command button.
30. The Phone Number dialog box appears. Type **555-5425** in the "Phone number" text box. Click the Next command button.
31. Click the Finish command button in the New Phonebook Entry Wizard dialog box.
32. The Dial-Up Networking dialog box reappears. Exit Dial-Up Networking.

Lab 20.33 *Installing and configuring Services for Macintosh*

Enterprise

The purpose of this lab exercise is to give you hands-on experience in installing and configuring Services for Macintosh on a Windows NT Server computer.

This lab consists of two parts:

Part 1: Installing and configuring Services for Macintosh

Part 2: Configuring a Macintosh-accessible volume

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. Place your Windows NT Server compact disc in your computer's CD-ROM drive.

Follow the steps below carefully.

Part 1: Installing and configuring Services for Macintosh

In this section, you install and configure Services for Macintosh on a Windows NT Server computer.

1. Select Start >> Settings >> Control Panel.
2. In the Control Panel dialog box, double-click the Network application.
3. In the Network dialog box, click the Services tab.
4. On the Services tab, click the Add command button.
5. In the Select Network Service dialog box, highlight Services for Macintosh. Click OK.
6. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Server source files (usually the I386 folder on your Windows NT Server compact disc) is listed in the text box. Edit this text box if necessary. Click the Continue command button.
7. Windows NT copies source files and installs Services for Macintosh.
8. The Network dialog box reappears. Click the Close command button.
9. Windows NT performs various bindings operations.
10. The Microsoft AppleTalk Protocol Properties dialog box appears. Click OK to continue.
11. A Network Settings Change dialog box appears, indicating that you must shut down and restart the computer for the new settings to take effect. Click the Yes command button to restart the computer.
12. Reboot your computer to Windows NT Server. Log on as Administrator. If the Control Panel dialog box appears, close it.

Continue to Part 2.

Part 2: Configuring a Macintosh-accessible volume

In this section, you configure a Macintosh-accessible volume on an NTFS partition on a Windows NT Server computer.

1. Select Start > Programs > Windows NT Explorer.
2. The Exploring dialog box appears. Highlight your D: drive (or the drive where your NTFS volume is located) in the All Folders list box. Select File > New > Folder.
3. In the Contents of D: list box, rename the New Folder **Macfiles** and press Enter.
4. Exit Windows NT Explorer.
5. Select Start > Programs > Administrative Tools (Common) > Server Manager.
6. The Server Manager dialog box appears. Highlight your server in the list box and select MacFile > Volumes.
7. The Macintosh-Accessible Volumes dialog box appears. Click the Create Volume command button.
8. The Create Macintosh-Accessible Volume dialog box appears. Type the following bolded information in the appropriate text boxes:

Volume Name—**MACFILES**

Path—**D:\MACFILES** (Or if your NTFS volume is located on another drive, use the drive letter for your NTFS volume.)

Password—Leave this text box blank.

Confirm Password—Also leave this text box blank.

Click OK.

9. The Macintosh-Accessible Volumes dialog box reappears. Notice that **MACFILES** appears in the Volumes list box as a shared Macintosh volume. Click the Close command button.
10. The Server Manager dialog box reappears. Exit Server Manager.

Lab 21.34 *Starting applications at various priorities*



Workstation

The purpose of this lab exercise is to give you hands-on experience in configuring foreground application responsiveness and in starting applications at various priorities on a Windows NT Workstation computer.

This lab consists of two parts:

Part 1: Using the System application to configure foreground application responsiveness

Part 2: Using the Start command and Task Manager to start applications at various priorities

Begin this lab by booting your computer to Windows NT Workstation. Log on as Administrator. Place your Windows NT Workstation compact disc in your computer's CD-ROM drive.

Follow the steps below carefully.

Part 1: Using the System application to configure foreground application responsiveness

In this section, you use the System application in Control Panel to change foreground application responsiveness on a Windows NT Workstation computer. Additionally, you install games on your computer (if you haven't already done so).

1. Select Start > Settings > Control Panel.
2. The Control Panel dialog box appears. Double-click the System icon.
3. The System Properties dialog box appears. Click the Performance tab.
4. The Performance tab appears. Notice the Application Performance section on this tab. Move the Boost slide bar to the middle, halfway between None and Maximum. (This configures a performance boost of one point for the foreground application.) Move the Boost slide bar back to Maximum. (This configures a performance boost of 2 points for the foreground application.) Click OK.
5. The Control Panel dialog box reappears. If you have already installed games (including Pinball) on your Windows NT Workstation computer, close Control Panel, skip the remaining steps in this section, and continue on to Part 2. If you haven't yet installed games on your Windows NT Workstation computer, double-click the Add/Remove Programs icon, and continue on to step 6.
6. The Add/Remove Programs Properties dialog box appears. Click the Windows NT Setup tab.
7. The Windows NT Setup tab appears. Select the check box next to Games in the Components list box. Click OK.
8. The Add/Remove Programs Properties—Copying Files dialog box appears. If the Files Needed dialog box appears, ensure that the correct path to the source files (usually the 1386 folder on your Windows NT Workstation compact disc) is presented in the "Copy files from" text box. Edit this text box as necessary. Click OK.
9. Windows NT Workstation copies files.

10. The Control Panel dialog box reappears. Close Control Panel.
Continue on to Part 2.

Part 2: Using the Start command and Task Manager to start applications at various priorities

In this section, you use the *Start* command and Windows NT Task Manager to start applications at various priorities on a Windows NT Workstation computer.

1. Select Start > Programs > Command Prompt.
2. The Command Prompt dialog box appears. At the command prompt, type **cd \winntwks\system32** and press Enter.
3. At the `C:\WINNTWKS\system32>` command prompt, type **start /low usrmgr.exe** and press Enter.
4. User Manager starts. Press Ctrl + Alt + Delete.
5. The Windows NT Security dialog box appears. Click the Task Manager command button.
6. The Windows NT Task Manager dialog box appears. Click the Processes tab.
7. The Processes tab appears. Select View > Select Columns.
8. The Select Columns dialog box appears. Deselect the check boxes next to PID (Process Identifier) and CPU Usage. Select the check box next to Base Priority. Click OK.
9. The Processes tab in the Windows NT Task Manager dialog box reappears. Find USRMGR.EXE in the list box. Notice that USRMGR.EXE has a Base Priority of Low. Click the Applications tab.
10. The Applications tab appears. Highlight User Manager and click the End Task command button at the bottom of the dialog box. (This action stops User Manager). Minimize (*don't* close) Windows NT Task Manager.
11. At the `C:\WINNTWKS\system32>` command prompt, type **start /realtime usrmgr.exe** and press Enter.
12. User Manager starts. Maximize Task Manager, and click the Processes tab.
13. The Processes tab appears. Notice that USRMGR.EXE now has a base priority of Realtime. Highlight USRMGR.EXE and click the End Process command button.
14. A Task Manager Warning dialog box appears. Click the Yes command button. (This action stops User Manager.)
15. Minimize (*don't* close) Windows NT Task Manager.
16. At the `C:\WINNTWKS\system32>` command prompt, type **start /realtime perfmon.exe** and press Enter.

17. Performance Monitor starts. Maximize Task Manager.
18. The Processes tab appears. Notice that `perfmon.exe` has a base priority of High. (The `/realtime` switch does *not* always work with all applications. Performance Monitor always starts with a base priority of High, no matter which priority is assigned with the `Start` command.)
Right-click `perfmon.exe`. Select `Set Priority > Realtime` from the menu that appears.
19. A Task Manager Warning dialog box appears. Click the Yes command button.
20. In the Windows NT Task Manager dialog box, notice that `perfmon.exe` now has a Base Priority of Realtime. (This is how you can change the priority of applications that don't respond correctly to the priority setting specified by the `Start` command.)
Highlight `perfmon.exe` and click the End Process command button.
21. A Task Manager Warning dialog box appears. Click the Yes command button.
22. Minimize (*don't* close) Windows NT Task Manager.
23. At the `C:\WINNT\WKS\system32>` command prompt, type **`cd "\program files\windows nt\pinball"`** and press Enter.
24. At the `C:\Program Files\Windows NT\PINBALL>` command prompt, type **`start /realtime pinball`** and press Enter.
25. The Pinball game starts. Notice that your computer is locked up and won't respond to keyboard or mouse input. As you can see, not all programs should be run at real-time priority. In this case, when Pinball is set at real-time priority, it utilizes all available system resources, so that even the operating system is unable to function properly. Press the Restart button on your computer, or power off your computer.

Lab 22.35 *Using Performance Monitor*



Workstation
Server
Enterprise

The purpose of this hands-on lab exercise is to provide you with experience in using Performance Monitor on a Windows NT computer.

This lab consists of four parts:

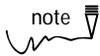
Part 1: Adding objects and counters by installing Network Monitor Agent and SNMP Service, and enabling the PhysicalDisk and LogicalDisk objects and their counters using `Diskperf.exe`

Part 2: Using Performance Monitor Chart view and Alert view

Part 3: Creating a Performance Monitor log file

Part 4: Importing a Performance Monitor log file into Report view and Chart view

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. Place your Windows NT Server compact disc in your computer's CD-ROM drive.



If you are preparing *only* for the NT Workstation exam, you might want to perform this lab on your Windows NT Workstation computer (instead of your Windows NT Server computer). The steps are the same regardless of whether you use Windows NT Server or Windows NT Workstation.

Follow these steps carefully.

Part 1: Adding objects and counters by installing Network Monitor Agent and SNMP Service, and enabling the PhysicalDisk and LogicalDisk objects and their counters by using Diskperf.exe

In this section, you check for the existence of Performance Monitor objects. Then you install Network Monitor Agent and SNMP Service on your Windows NT Server computer. Finally, you use `Diskperf.exe` to enable the PhysicalDisk and LogicalDisk objects and their counters on your Windows NT Server computer.

1. Select Start > Programs > Administrative Tools (Common) > Performance Monitor.
2. The Performance Monitor dialog box appears. Select View > Chart.
3. Click the + command button located in the toolbar at the top of the dialog box.
4. The Add to Chart dialog box appears. Click the down arrow in the Object drop-down list box. Look for each of the following objects: ICMP, IP, Network Segment, TCP, and UDP. Notice that *none* of these objects appear in the Object drop-down list box. Click the Cancel command button.
5. The Performance Monitor dialog box reappears. Exit Performance Monitor.
6. Select Start > Settings > Control Panel.
7. The Control Panel dialog box appears. Double-click the Network icon.
8. The Network dialog box appears. Click the Services tab.
9. The Services tab appears. Click the Add command button.
10. The Select Network Service dialog box appears. Highlight Network Monitor Agent. Click OK.

11. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Server source files (usually the i386 folder on your Windows NT Server compact disc) is listed in the text box. Edit this text box if necessary. Click the Continue command button.
12. Windows NT copies source files and installs Network Monitor Agent.
13. The Network dialog box reappears. Click the Add command button.
14. The Select Network Service dialog box appears. Highlight SNMP Service. Click OK.
15. A Windows NT Setup dialog box appears. Ensure that the correct path to your Windows NT Server source files (usually the i386 folder on your Windows NT Server compact disc) is listed in the text box. Edit this text box if necessary. Click the Continue command button.
16. Windows NT copies source files and installs the SNMP Service.
17. The Microsoft SNMP Properties dialog box appears. Click OK.
18. The Network dialog box reappears. Click the Close command button.
19. Windows NT performs various bindings operations.
20. A Network Settings Change dialog box appears. Click the No command button.
21. The Control Panel dialog box reappears. Exit Control Panel.
22. Select Start ► Programs ► Command Prompt.
23. The Command Prompt dialog box appears. At the command prompt, type **diskperf -y** and press Enter.
Notice that Windows NT indicates that disk performance counters on your computer are now set to start at boot, and will become effective after the computer is restarted.
24. At the command prompt, type **exit** and press Enter.
25. The Windows NT desktop reappears. Select Start ► Shut Down.
26. In the Shut Down Windows dialog box, select the radio button next to "Restart the computer." Click the Yes command button.
27. Reboot the computer to Windows NT Server. Log on as Administrator.
Continue to Part 2.

Part 2: Using Performance Monitor Chart view and Alert view

In this section, you install games (if you haven't already done so) on your Windows NT Server computer, and use Performance Monitor Chart view and Alert view to chart server performance and to create an alert.

1. If you have already installed games (including Solitaire and Pinball) on your Windows NT Server computer, skip to Step 8.
If you have *not* already installed games on your Windows NT Server computer, select Start ► Settings ► Control Panel, and continue to Step 2.
2. The Control Panel dialog box appears. Double-click the Add/Remove Programs icon.
3. The Add/Remove Programs dialog box appears. Click the Windows NT Setup tab.
4. The Windows NT Setup tab appears. Select the check box next to Games. (Or if you have one or two games installed but Solitaire or Pinball is *not* yet installed, deselect and then reselect this check box.) Click OK.
5. The Add/Remove Programs Properties—Copying Files dialog box appears.
If the Files Needed dialog box appears, ensure that the correct path to your Windows NT Server source files (usually the i386 folder on your Windows NT Server compact disc) is listed in the “Copy files from” text box. Edit the text box as necessary. Click OK.
6. Windows NT installs games.
7. The Control Panel dialog box reappears. Exit Control Panel.
8. Select Start ► Programs ► Administrative Tools (Common) ► Performance Monitor.
9. The Performance Monitor dialog box appears. Select View ► Chart.
10. Click the + command button located in the toolbar at the top of the dialog box.
11. The Add to Chart dialog box appears. Click the down arrow in the Object drop-down list box. Look for each of the following objects: ICMP, IP, Network Segment, TCP, and UDP. Notice that after installing Network Monitor Agent and the SNMP Service (which you did in Part 1), all of these objects now appear in the Object drop-down list box.
Click Memory in the Object drop-down list box. Select Pages/sec from the Counter list box. Click the Add command button.
12. Click the down arrow in the Object drop-down list box. Click Processor in the Object drop-down list box. Select % Processor Time from the Counter list box. Click the Add command button.
13. Click the down arrow in the Object drop-down list box. Click PhysicalDisk in the Object drop-down list box. Select % Disk Time from the Counter list box. Click the Add command button.

14. Click the down arrow in the Object drop-down list box. Click Server in the Object drop-down list box. Select Bytes Total/sec from the Counter list box. Click the Add command button. Click the Done command button.
You have just configured the four most commonly used Performance Monitor counters that monitor server performance.
15. The Performance Monitor dialog box reappears. In the list box at the bottom of the dialog box, highlight % Processor Time in the Counter column. Note the color assigned to the % Processor Time counter.
16. Move your mouse rapidly in a sweeping circular pattern on your mouse pad for several (at least five) seconds. Notice the increase in % Processor time usage, as depicted on the graph, from just moving your mouse.
17. Minimize (*don't* close) Performance Monitor.
18. Select Start > Programs > Accessories > Games > Solitaire.
19. Play Solitaire for a minute or two.
(If you've never played Solitaire before, select Help > Contents to find out how to play.)
When you finish playing, exit Solitaire, and quickly select Performance Monitor from the taskbar.
20. The Performance Monitor dialog box appears. Notice the counters and their levels during your Solitaire game, as depicted on the Performance Monitor chart.
21. Highlight Pages/sec (in the Counter column). Press Delete.
Highlight % Disk Time (in the Counter column). Press delete.
Highlight Bytes Total/sec (in the Counter column). Press Delete.
Highlight % Processor Time (in the Counter column). Press Delete.
22. Select Edit > Add To Chart.
23. The Add to Chart dialog box appears. Click the down arrow in the Object drop-down list box. Click LogicalDisk in the Object drop-down list box. Select % Free Space from the Counter list box. Highlight 0 > C: in the Instance list box. Click the Add command button. Click the Done command button.
24. The Performance Monitor dialog box reappears. Write the number that appears in the Last box here: _____
25. Add 5 to the number that you entered in Step 24, and write the resulting number here: _____
26. Highlight % Free Space (in the Counter column), and press Delete.
27. Select View > Alert.

28. The Alert View appears. Select Edit ➤ Add To Alert.
29. The Add to Alert dialog box appears. Click the down arrow in the Object drop-down list box. Click LogicalDisk in the Object drop-down list box. Select % Free Space from the Counter list box. Select 0 ➤ C: in the Instance list box. Select the radio button next to Under in the Alert If section. Type the number you entered in Step 25 in the text box in the Alert If section. Click the Add command button. Click the Done command button.
30. The Performance Monitor dialog box reappears. Every five seconds, an alert should appear in the Alert Log list box, indicating that the % Free Space on your C: drive has fallen below the level that you entered in the previous step.
Press Delete to stop logging this alert.
Continue to Part 3.

Part 3: Creating a Performance Monitor log file

In this section, you create a Performance Monitor log file. (You will view the data in this Performance Monitor log file in Part 4.)

1. In the Performance Monitor dialog box, select View ➤ Log.
2. Select Edit ➤ Add To Log.
3. The Add To Log dialog box appears. Highlight Memory in the Objects list box. Click the Add command button.
4. Highlight PhysicalDisk in the Objects list box. Click the Add command button.
5. Highlight Processor in the Objects list box. Click the Add command button.
6. Highlight Server in the Objects list box. Click the Add command button. Click the Done command button.
7. The Performance Monitor dialog box reappears. Select Options ➤ Log.
8. The Log Options dialog box appears. In the File Name text box, type **practice.log**. Select **1** from the Interval (Seconds) drop-down list box. Click the Start Log command button.
9. Minimize (*don't* close) Performance Monitor.
10. Select Start ➤ Programs ➤ Accessories ➤ Games ➤ Pinball.
11. Play one game of Pinball.
(Hold down the space bar for a couple of seconds and then release it to launch the ball. The z key on the keyboard controls the left flipper. The ? key on the keyboard controls the right flipper.)

When you finish playing, exit Pinball, and quickly select Performance Monitor from the taskbar.

12. The Performance Monitor dialog box reappears. Select Options >> Log.
13. The Log Options dialog box appears. Click the Stop Log command button.
Continue to Part 4.

Part 4: Importing a Performance Monitor log file into Report view and Chart view

In this section, you import the Performance Monitor log file you created in Part 3 into Performance Monitor Report view and Chart view.

1. In the Performance Monitor dialog box, select View >> Report.
2. Select Options >> Data From.
3. The Data From dialog box appears. Select the radio button next to Log File. Type **practice.log** in the text box. Click OK.
4. Select Edit >> Add To Report in the Performance Monitor dialog box.
5. The Add to Report dialog box appears. Click the down arrow in the Object drop-down list box. Notice that only four objects appear in this list, because you only chose to log four objects when you created the log file. Click Memory. Select Pages/sec in the Counter list box. Click the Add command button.
6. Click the down arrow in the Object drop-down list box. Click PhysicalDisk. Select % Disk Time in the Counter list box. Click the Add command button.
7. Click the down arrow in the Object drop-down list box. Click Processor. Select % Processor Time in the Counter list box. Click the Add command button.
8. Click the down arrow in the Object drop-down list box. Click Server. Select Bytes Total/sec in the Counter list box. Click the Add command button. Click the Done command button.
9. The Performance Monitor dialog box reappears.
The report displayed shows the last value measured for each of the four counters you selected, from the time you initially created the log file until after you finished your Pinball game and clicked on the Stop Log command button in Performance Monitor.
Now let's look at the same four counters (for the same time period) in a Chart view (instead of a Report view).
10. Select View >> Chart.
11. Select Options >> Data From.

12. The Data From dialog box appears. Select the radio button next to Log File. Ensure that **practice.log** appears in the text box. Click OK.
13. Select Edit ► Add To Chart in the Performance Monitor dialog box.
14. The Add to Chart dialog box appears. Click the down arrow in the Object drop-down list box. Click Memory. Select Pages/sec in the Counter list box. Click the Add command button.
15. Click the down arrow in the Object drop-down list box. Click PhysicalDisk. Select % Disk Time in the Counter list box. Click the Add command button.
16. Click the down arrow in the Object drop-down list box. Click Processor. Select % Processor Time in the Counter list box. Click the Add command button.
17. Click the down arrow in the Object drop-down list box. Click Server. Select Bytes Total/sec in the Counter list box. Click the Add command button. Click the Done command button.
18. The Performance Monitor dialog box reappears.

The chart displayed shows the values for each of the four counters you selected, from the time you initially created the log file until after you finished your Pinball game and clicked on the Stop Log command button in Performance Monitor.
19. Exit Performance Monitor.

Lab 23.36 *Installing and using Network Monitor*



Enterprise



The purpose of this hands-on lab exercise is to provide you with the experience of installing and using Network Monitor on a Windows NT Server computer.

This lab is optional because it requires that a network adapter be installed in your Windows NT Server computer. Also, if you have a second computer that is network-connected to your first computer, you can use this computer in Part 2 of this lab.

This lab consists of two parts:

Part 1: Installing Network Monitor

Part 2: Using Network Monitor

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator. Place your Windows NT Server compact disc in your computer's CD-ROM drive.

Complete the following steps carefully.

Part 1: Installing Network Monitor

In this section, you install Network Monitor on your Windows NT Server computer. Then you edit the Registry to force the network adapter in your computer to operate in promiscuous mode.

1. Select Start » Settings » Control Panel.
 2. In the Control Panel dialog box, double-click the Network icon.
 3. In the Network dialog box, click the Services tab.
 4. On the Services tab, highlight Network Monitor Agent in the Network Services list box. Click the Remove command button.
 5. A warning dialog box appears. Click the Yes command button to continue. Windows NT removes Network Monitor Agent.
 6. On the Services tab, click the Add command button.
 7. In the Select Network Service dialog box, highlight Network Monitor Tools and Agent. Click OK.
 8. A Windows NT Setup dialog box appears. Ensure the correct path to your Windows NT Server source files (usually the i386 folder on your Windows NT Server compact disc) is listed in the text box. Edit this text box if necessary. Click the Continue command button.
 9. Windows NT copies source files and installs Network Monitor Tools and Agent.
 10. The Network dialog box reappears. Click the Close command button.
 11. Windows NT performs various bindings operations.
 12. A Network Settings Change dialog box appears. Click the No command button.
 13. Close Control Panel.
 14. Select Start » Run.
 15. The Run dialog box appears. Type **regedt32** in the Open drop-down list box. Click OK.
 16. The Registry Editor dialog box appears. Select Windows » HKEY_LOCAL_MACHINE on Local Machine.
 17. Double-click the + sign next to SYSTEM. Double-click the + sign next to CurrentControlSet. Double-click the + sign next to Services. Double-click the + sign next to bh. Highlight the Linkage folder.
 18. Find the Bind value (located in the right-hand part of the dialog box). In the space provided, write the entry for the Bind value that directly *follows* the *first* \Device\ portion of the entry. (For example, Elnk31.)
-
19. Highlight the Parameters folder.

20. Select Edit ➤ Add Key.
21. The Add Key dialog box appears. Type **ForcePmode** in the Key Name text box. Leave the Class text box blank. Click OK.
22. The Registry Editor dialog box reappears. Click the ForcePmode folder.
23. Select Edit ➤ Add Value.
24. The Add Value dialog box appears. In the Value Name text box, type the value you wrote in Step 18. For example, elnk31. In the Data Type drop-down list box, select REG_DWORD. Click OK.
25. The DWORD Editor dialog box appears. In the Data text box, type **1**. (Don't type the period at the end.) Click OK.
26. The Registry Editor dialog box reappears. Close the Registry Editor.
27. Select Start ➤ Shut Down.
28. In the Shut Down Windows dialog box, click the radio button next to "Restart the computer." Click the Yes command button.
29. Reboot your computer to Windows NT Server. Log on as Administrator. Continue to Part 2.

Part 2: Using Network Monitor

In this section, you use Network Monitor on your Windows NT Server computer to capture and view packets.



If you have a second computer and it is network-connected to your first computer, boot both computers before you do this part of the lab. (Boot the first [primary] computer to Windows NT Server, and boot the second computer to Windows NT Workstation.)

If you don't have a second computer, you can still do this part of the lab, but you won't be able to capture as much data.

1. Select Start ➤ Programs ➤ Administrative Tools (Common) ➤ Network Monitor.
2. The Network Monitor dialog box appears. Maximize this dialog box. Also maximize the Capture Window (Station Stats) within the Network Monitor dialog box.
3. Select Capture ➤ Filter.
4. A Capture Filter dialog box appears. Click OK.
5. The Capture Filter dialog box appears. Highlight the entry *under* AND (Address Pairs). Click the Line command button in the Delete section of this dialog box. (This allows Network Monitor to capture all packets transmitted on the local network segment.) Click OK.

6. The Network Monitor dialog box reappears. Select Capture ➤ Start to start capturing packets.
7. Wait approximately 1-2 minutes to allow Network Monitor time to capture data. While this process is taking place, notice the % Network Utilization, Frames Per Second, and Bytes Per Second bar graphs in the Network Monitor dialog box.
8. Select Capture ➤ Stop to stop capturing packets.
9. Select Capture ➤ Find All Names.
10. A Find All Names dialog box appears. Click OK.
11. To determine which computer is sending the most packets on the network segment, right-click Frames Sent (the Frames Sent column header) in the bottom section of the Network Monitor dialog box. Select Sort Column from the menu that appears. The computer on the network segment that sent the most packets during the capture period should appear at the top of the list in this section of the dialog box.
12. Right-click each of the other column headers (Frames Rcvd, Bytes Sent, Bytes Rcvd, Directed Frames Sent, Multicasts Sent, and Broadcasts Sent) and sort each column, one at a time. Notice the results of each sort.
13. Select Capture ➤ Display Captured Data.
14. The Capture (Summary) dialog box appears. Select Display ➤ Filter.
15. The Display Filter dialog box appears. Double click Protocol == Any.
16. The Expression dialog box appears. Notice you can filter the display of captured packets by address, by protocol, or by protocol property. Click OK.
17. The Display Filter dialog box reappears. Click OK.
18. The Capture (Summary) dialog box reappears. Double-click any packet displayed in this dialog box to view its details. Do this several times.
19. When you are finished viewing packet details, exit Network Monitor.
20. A Save File dialog box appears. Click the No command button.
21. A Save Address Database dialog box appears. Click the No command button.

Lab 25.37 *Finding and resolving bottlenecks*



Workstation
Server
Enterprise

The purpose of this lab exercise is to give you experience in analyzing Performance Monitor statistics in order to identify the bottleneck in a system, and also to give you experience in making recommendations to resolve a bottleneck.

Each problem below presents a situation and a set of statistics. In the space provided, supply the requested response to the problem.

Problem 1 Users of your network report slow response times when accessing files from a Windows NT Server computer. The server has a 486/66MHz processor with 20MB of RAM and a 2GB IDE hard disk. You run Performance Monitor on that server and obtain the statistics shown in the following table:

Object	Counter	Statistic
Processor	% Processor Time	55%
Memory	Pages/sec	125
PhysicalDisk	% Disk Time	85%
Network Segment	% Network utilization	15%

There is enough money left in your annual equipment budget to allow you to do any *one* of the following:

- Upgrade the processor to a Pentium 166MHz processor
- Upgrade memory to 64MB of RAM
- Upgrade to a faster hard disk and a faster hard disk controller
- Install a second network adapter in the server and segment the network

Which upgrade would you perform, and why?

Problem 2 Users of your network report slow response times when accessing files from a Windows NT Server computer. The server has a Pentium 100MHz processor with 64MB of RAM and a 4GB SCSI hard disk. You run Performance Monitor on that server and obtain the following statistics:

Object	Counter	Statistic
Processor	% Processor Time	15%
Memory	Pages/sec	4
PhysicalDisk	% Disk Time	90%
Network Segment	% Network utilization	15%

There is enough money left in your annual equipment budget to enable you to do any *one* of the following:

- Upgrade to a multiprocessor system with 2 Pentium PRO 200MHz processors
- Upgrade memory to 128MB of RAM
- Upgrade to a hardware-based RAID 5 (disk striping with parity) disk subsystem
- Install a second network adapter in the server to segment the network

Which upgrade would you perform, and why?

Lab 25.38 *Optimizing Windows NT performance*



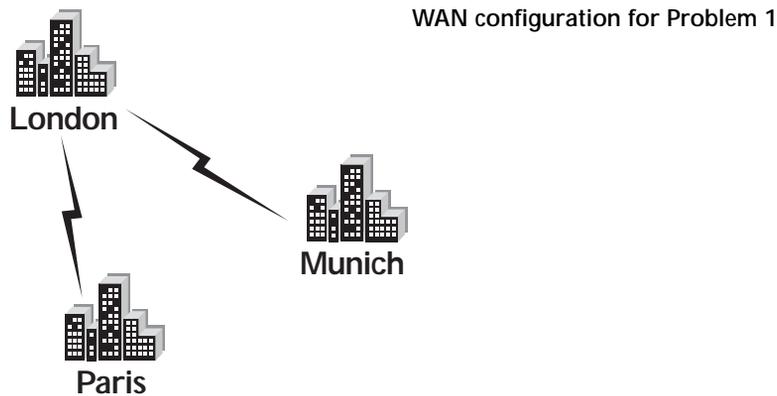
Enterprise

The purpose of this lab exercise is to give you experience in analyzing a Windows NT Server network, and to make recommendations to optimize server and/or network performance for a given situation.

Assume that you are an outside consultant, hired to optimize server/network performance for a company. Each problem below presents a situation and what your customer wants to accomplish. In the space provided, supply the requested response to each problem.

Problem 1 Your client has three networks, each located in a different city. The three networks are connected by WAN links, as shown in the following figure.

The company uses a master domain model for its Windows NT network. The master domain is located in London, and resource domains are located in Paris and Munich.



Servers are currently installed as follows:

- London:** PDC for LONDON domain
 7 BDCs for LONDON domain
 1 BDC for PARIS domain
 1 BDC for MUNICH domain
 4 WINS servers
- Paris:** PDC for PARIS domain
 3 BDCs for PARIS domain
- Munich:** PDC for MUNICH domain
 2 BDCs for MUNICH domain

The company wants you to make recommendations for minimizing the amount of logon authentication and NetBIOS name resolution traffic sent across their WAN links. What recommendations would you make to accomplish these two tasks?

Problem 2 Your client wants you to optimize the Server service on a Windows NT Server computer. The computer functions as the PDC for a large network. The PDC is used primarily to manage the Directory Services database, and also functions as a DHCP server for clients on its local network segment.

How would you optimize the Server service on this Windows NT Server computer?

Lab 27.39 *Troubleshooting Windows NT*



Workstation
Enterprise

The purpose of this lab exercise is to give you experience in using advanced Windows NT troubleshooting techniques.

This lab consists of four parts:

Part 1: Using Windows NT Diagnostics

Part 2: Using the Registry editors

Part 3: Configuring a memory dump

Part 4: Starting and configuring Dr. Watson for Windows NT

Begin this lab by booting your computer to Windows NT Server. Log on as Administrator.

Follow these instructions carefully.

Part 1: Using Windows NT Diagnostics

In this section, you use Windows NT Diagnostics to examine your Windows NT Server system configuration and to view service dependencies and group dependencies.

1. Select Start > Programs > Administrative Tools (Common) > Windows NT Diagnostics.
2. The Windows NT Diagnostics dialog box appears. Click the System tab.
3. The System tab appears. Notice the BIOS and CPU information displayed on this tab. Click the Display tab.
4. The Display tab appears. Notice the display adapter and driver settings. Click the Drives tab.
5. The Drives tab appears. Click the + sign next to Local hard drives. Highlight drive D: (or the letter of your NTFS drive, if not D:). Click the Properties command button.
6. The Properties dialog box appears. Notice the statistics on the number of bytes free, used, and total that are presented. Click OK. Click the Memory tab.

7. The Memory tab appears. Notice the memory and pagefile statistics displayed. Click the Network tab.
8. The Network tab appears. Notice the various network information that is displayed. Click the Statistics command button. Notice the statistics that are displayed. These statistics are not updated automatically—you must click the Refresh command button to update these statistics. Click the Resources tab.
9. The Resources tab appears. Notice that you can obtain Interrupt (IRQ), I/O Port, DMA, and memory information on this tab. Click the Devices command button. Double-click Floppy in the Device list box.
10. The Floppy Properties dialog box appears. Notice the resource settings displayed. Click OK. Click the Services tab.
11. The Services tab appears. Click the Devices command button.
12. In the Device list box, scroll down and double-click Parallel.
13. The Parallel Properties dialog box appears. Click the Dependencies tab.
14. The Dependencies tab appears. Notice the Service Dependencies and Group Dependencies listed. In the space provided, write down the following, as shown on your monitor:
Service Dependencies: _____
Group Dependencies: _____
Click OK.
15. The Services tab reappears. Click the Services command button.
16. Double-click the Server service.
17. The Server Properties dialog box appears. Click the Dependencies tab.
18. The Dependencies tab appears.
In the space provided, write down the following, as shown on your monitor:
Service Dependencies: _____
Group Dependencies: _____
Click OK.
19. The Services tab reappears. Click OK. Proceed to Part 2.

Part 2: Using the Registry editors

In this section, you use the `Regedit.exe` and `Regedt32.exe` Registry editors to search the Registry, and to view service dependencies and group dependencies.

1. Select Start >> Run.

2. The Run dialog box appears. In the Open drop-down list box, type **regedit** and click OK. (This starts the Windows 95 Registry Editor.)
3. The Registry Editor dialog box appears. Select Edit > Find.
4. The Find dialog box appears. In the Find what text box, type **WINS Client**. Ensure that the check boxes next to Keys, Values, and Data are checked. Click the Find Next command button.
5. Registry Editor searches the Registry. (This may take a few minutes.) The Registry Editor dialog box reappears. Notice that the Title value is highlighted on the right-hand side of the screen. Also notice that the Registry location of the highlighted value is displayed across the bottom of the dialog box.
6. Select Edit > Find Next.
7. Registry Editor searches the Registry. The Registry Editor dialog box reappears. Notice that a different value, DeviceDesc, is highlighted. Again, notice that the Registry location of this value is displayed across the bottom of the dialog box.
8. Exit Registry Editor.
9. Select Start > Run.
10. The Run dialog box appears. In the Open drop-down list box, type **regedt32** and click OK. (This starts the Windows NT Registry Editor.)
11. The Registry Editor dialog box appears. Select Window > HKEY_LOCAL_MACHINE on Local Machine.
12. Maximize the Registry Editor dialog box and the HKEY_LOCAL_MACHINE on Local Machine window.
13. Double-click the SYSTEM folder.
14. Double-click the CurrentControlSet folder.
15. Double-click the Services folder.
16. Scroll down and highlight the Parallel folder. Notice the DependOnGroup and DependOnService entries on the right-hand side of the dialog box.

In the space provided, write down the entries that follow these values: (You can ignore the REG_MULTI_SZ: portion of the entries—this just identifies the type of data that will be placed in the Registry; in this case, multiple string values.)

DependOnGroup: _____

DependOnService: _____

Notice that the DependOnGroup and DependOnService values are the same as the Group Dependencies and Service Dependencies that you found using Windows NT Diagnostics in Step 14 in Part 1 of this lab.

17. On the left side of the Registry Editor dialog box, scroll up and highlight the LanmanServer folder. Notice the DependOnGroup and DependOnService entries on the right-hand side of the dialog box.

In the space provided, write down the entries that follow these values: (You can ignore the REG_MULTI_SZ: portion of the entries.)

DependOnGroup: _____

DependOnService: _____

Notice that the DependOnGroup and DependOnService values are the same as the Group Dependencies and Service Dependencies that you found using Windows NT Diagnostics in Step 18 in Part 1 of this lab.

Also notice the DisplayName value on the right-hand side of the dialog box. The LanmanServer service is the same as the Server service.

18. Exit Registry Editor. Proceed to Part 3.

Part 3: Configuring a memory dump

In this section, you use the System application in Control Panel to ensure that Windows NT Server is correctly configured to automatically dump memory when a STOP error occurs.

Then you use the System application to configure Windows NT Workstation to automatically dump memory when a STOP error occurs.

1. Select Start > Settings > Control Panel.
2. The Control Panel dialog box appears. Double-click the System icon.
3. The System Properties dialog box appears. Click the Startup/Shutdown tab.
4. The Startup/Shutdown tab appears. In the Recovery section of the dialog box, ensure that all check boxes are selected. Also ensure that the text box reads as follows: %SystemRoot%\MEMORY.DMP. Click OK.
5. Exit Control Panel.
6. Select Start > Shut Down.
7. In the Shut Down Windows dialog box, click the radio button next to "Restart the computer." Click the Yes command button.
8. Reboot your computer to Windows NT Workstation. Log on as Administrator.
9. Select Start > Settings > Control Panel.

10. The Control Panel dialog box appears. Double-click the System icon.
11. The System Properties dialog box appears. Click the Startup/Shutdown tab.
12. The Startup/Shutdown tab appears. In the Recovery section of the dialog box, select all of the check boxes. Also ensure that the text box reads as follows: %SystemRoot%\MEMORY.DMP. Click OK.
13. A System Control Panel Applet dialog box appears, indicating that the Alerter service is not running. Click OK.
14. A System Settings Change dialog box appears. Click the No command button (don't reboot your computer at this time).
15. The Control Panel dialog box reappears. Double-click the Services icon.
16. The Services dialog box appears. Highlight the Alerter service. Click the Startup command button.
17. The Service dialog box appears. In the Startup Type section, select the radio button next to Automatic. Click OK.
18. In the Services dialog box, click the Close command button.
19. Exit Control Panel. Proceed to Part 4.

Part 4: Starting and configuring Dr. Watson for Windows NT

In this section, you manually start Dr. Watson for Windows NT, and verify that Dr. Watson is configured to automatically dump application memory when an application fails.

1. Select Start ➤ Run.
2. The Run dialog box appears. In the Open drop-down list box, type **drwtsn32** and click OK.
3. The Dr. Watson for Windows NT dialog box appears. Notice that, by default, Dr. Watson is configured to create a log file and to dump application memory to a file named `user.dmp` when an application fails. Ensure that the Crash Dump text box reads as follows:
`%windir%\user.dmp`
Ensure that the check boxes next to: Dump All Thread Contexts, Append To Existing Log File, Visual Notification, and Create Crash Dump File are selected.
Click OK. Windows NT closes Dr. Watson for Windows NT automatically.