WINDOWS 2000 PROFESSIONAL 70-210 STUDY GUIDE

1. INSTALLATION METHODS FOR WINDOWS 2000 PROFESSIONAL

- **BEFORE YOU START ANY INSTALLATION**

  Be sure to follow the back up, hardware compatibility and driver instructions in the Upgrade section of this study guide.

- **INSTALLATION FROM A CD ROM:**

  There are two different methods of performing a clean install of Windows 2000. You can perform a clean installation on either a hard drive with no Operating System already installed, or a clean installation on a hard drive that currently has another Operating System installed. Please keep in mind that if you choose to do a clean installation overtop of another Operating System you will need to reinstall all of your applications, and reconfigure your system to the way you like it.

- **PERFORMING A CLEAN INSTALLATION ON A HARD DRIVE WITH NO CURRENT OS**

  You will need a way to boot your computer since it has no operating system installed. If you have a newer computer that will boot automatically to the CD-ROM drive, you can start the system with the Windows 2000 Professional CD, and the Setup Wizard should start automatically when you turn your computer on.

  If you are unable to boot from the CD-ROM drive, you will need to use the Windows 2000 Setup boot floppy disks. If you insert the first boot disk into your floppy drive and turn on the computer the Setup Wizard will start. If you do not have the Setup boot floppy disks, you will need to create them.

  You will need 4 floppy disks, and a working computer in order to create the Setup Boot floppies. First put a blank floppy into your floppy drive, and then insert the Windows 2000 Professional CD into the CD-ROM drive. If the computer you have chosen to create the floppies on is using Windows 95,98, or NT, click start and go to the RUN selection. In the text field type:

d:\bootdisk\makeboot.bat a: From this point follow the onscreen instructions, and label the Setup disks as "Setup 1" and so on as the program instructs you.

- **PERFORMING A CLEAN INSTALL FROM AN EXISTING OPERATING SYSTEM**

  Insert the Windows 2000 professional CD-ROM disc into your CD-ROM drive. If you have the auto play feature enabled, the Windows 2000 Setup Wizard will automatically start.

  If the Setup Wizard does not start automatically and the operating system currently installed is either Windows 95,98 or NT4, click on the START menu, and go to the RUN option. If the current operating system is NT 3.51 or Windws 3.2 then click on the file menu and RUN from the Program Manager.

  If the current operating system is Windows 95, 98, 3.51, or NT4, type d:\i386\winnt32.exe into the text field box. (If d: is not your CD-ROM drive, substitute the actual letter you use for your CD-ROM drive). If the operating system you are using is Windows 3.1, then type d:\i386\winnt.exe at the DOS prompt. Then press ENTER to start the Setup Wizard.

- **EITHER CLEAN INSTALL METHOD WILL NOW REQUIRE YOU TO TAKE THE FOLLOWING STEPS:**

  The first screen you will see after the screen where you choose that you want to perform a clean install will be the Microsoft License Agreement. You answer "YES" to this agreement or the installation will stop here.

  You will then be asked what file system you would prefer to use. I have included a complete rundown of the different file systems further on in this study guide.

  Then You will come to the Special Options page. This page give you the opportunity to choose your language and accessibility options.

  Next will be the Regional settings page, which lets you pick your Country, and language preferences.

  The next page you see will be the Personalize Software Page. On this page, type in your name and if necessary your company in the empty spaces.

The next page is the Computer Name and Administrative Password Page. You will need to create a unique name for your computer - if you are not planning to connect this computer to a network, this stage is not as important as it would be if you were. You will also need to insert a password for the Administrator account which is created during Installation. Be sure to write this password down, and keep it in a safe place, because if you are anything like me, you will forget it in a week's time.

The next page will allow you to create your date, time, and time zone settings. As in previous versions of Windows, you can set this up so that Windows will automatically take care of daylight savings time changes.

The next page is the Network Settings Page. Whether or not you are connecting to a network you should check with your administrator about whether you should choose the Custom or Typical Installation.

On the next page you will be asked whether your computer will be joining a Workgroup or a Domain. If you are not connecting to a network you should select Workgroup. If you are going to be on a network you should consult with your Network Administrator regarding which Domain information. If necessary, you can always add this information later.

Once you have completed the Setup Wizard and your computer restarts, you should have Windows 2000 Professional up and running!!!

(PLEASE NOTE THAT I HAVE INCLUDED THE PROCEDURES FOR UPGRADING TO WINDOWS 2000 PROFESSIONAL IN THEIR OWN SECTION FURTHER DOWN IN THIS STUDY GUIDE)

- **HOW TO PERFORM AN UNATTENDED INSTALL WITH WINDOWS 2000 PROFESSIONAL**

Windows 2000 Professional has a fully scriptable installation which you can use through the Setup Manager Wizard. If you do not already have the Windows 2000 Setup Manager installed, you will need to install the Windows 2000 Resource Kit.

When performing an unattended install, answer files are used to answer questions during the Setup process. Windows 2000 professional will walk you through the process of creating an answer file, so that you do not actually have to write any script yourself. Answer files can be used to upgrade or create a new system.

In order to create the answer file you need to start the Setup Manager from the Windows 2000 Resourse Kit. You will need to choose "create a new

answer file". (Other options appear here such as "edit an existing answer file" or "create a duplicate answer file of the PC that is currently running the Setup Manager" however, for the purposes of this Study Guide I am going to deal with the Create New Answer File option).

Next you will need to select the level of user interaction. You have a choice of : default, fully automated, hide pages, read only, and GUI attended.

On the next page ou will need to enter default information for your Name and Organization. If you choose to leave these spaces empty, no name or organization will be passed to the PC by the answer file during the installation.

The next page will ask you to specify the computers name. Or you can tell the Windows 2000 Setup Manager to automatically generate computer names based on the Organization name. (This is a really neat function of Windows 2000)

In the next step you will assign computers to Workgroups or Domains. In this step you can also set the user name and password for the machine.

The next step allows you to choose the folder that you want to install Windows 2000 into.

In order to perform your unattended installation of Windows 2000, you will need to type the following command: winnt[32] /unattend:<answer file> /s<install source> [/syspart:<target drive>].

Explanation: <answer file> is the file containing the answers to the installation questions. <install source> is the location of the Windows installation files, and /syspart will copy all of the boot and temporary files to a target drive and mark that drive as active. You would want to use this switch if the target drive is being duplicated and put into another computer as the active drive.

If creating an answer file is difficult for you, you can find a sample answer file called UNATTEND.TXT in the \i386 folder on the Windows 2000 CD-ROM

- **DISK IMAGING AUTOMATIC INSTALLATION**

This tool is also in the Windows 2000 Resource Kit and allows you to use the same disk image across multiple Windows 2000 computers. It even works if the hardware is not completely uniform. The reason that disk image deployment can work across a network is that the Windows 2000

Setup Program automatically runs the process of detecting and installing hardware after the Operating System files have been copied to the other machine.

The draw back to this method is that the only way to ensure it will work is to perform vigorous testing before hand. There can be many pitfalls regarding hardware and it is very important to test it out first - or you could wind up with some very interesting problems.

- **USING REMOTE INSTALLATION SERVER**

Microsoft has enabled Windows 2000's Active Directory feature to make possible a new method of automatic installation. Remote Operating System installation can use the new Pre-boot eXecution Environment (PXE) remote boot technology and server-based technologies to install several copies of Windows 20000 Professional on Workstations throughout an Enterprise. (This is a wonderful advantage of Windows 2000).

Remote Installation Server (RIS) installation of Windows 2000 is really only suited to organizations that already have an Active Directory Infrastructure. The target machines should be new and support PXE.

- **USING ELECTRONIC SOFTWARE DISTRIBUTION FOR AUTOMATIC INSTALLATION**

This is the ultimate installation for Windows 2000 professional. It requires that you have Systems Management Server installed (SMS). This provides a detailed software and hardware inventory and monitoring, and has the added feature of remote troubleshooting tools.

2. **UPGRADING FORM PREVIOUS VERSIONS OF WINDOWS TO WINDOWS 2000 PROFESSIONALS**

- **BEFORE YOU UPGRADE BE SURE TO BACK UP**

The first thing you will want to do is back up all of your existing data. With an upgrade you would expect to find all of your applications waiting for you at the end of your upgrade, but I personally would not count on this - stranger things have happened. So many "bad things" can happen during an installation, and there is always the possibility of files being lost. It is often best to do a complete back up.

- **MAKE SURE YOU HAVE THE MINIMUM HARDWARE REQUIREMENTS**

COMPONENT	MICROSOFT REQUIREMENTS
Processor	133 MHz Pentium or higher
RAM	32 MB minimum 64 MB recommended
Hard Drive	2 GB with 650 MB free
Video	VGA or better

- **FIND THE DRIVERS YOU ARE GOING TO NEED**

  I personally have a terrible habit of performing installations, only to find that I didn't check to see what drivers I was going to need before hand. Then I must face the task of opening the machine and checking out every card so I will know which drivers I will need, which is a royal pain when all you want to do is play around with the new Operating System.

  Windows 2000 comes with an extensive list of drivers for most common hardware devices. To see if your hardware is compatible check out the Hardware Compatibility List (HCL), in the \Support folder of your Windows 2000 Professional CD-ROM. If your hardware device is not in the list you will need to locate the disks or CD-ROM's that came with the piece of hardware or contact the manufacturer to see if Windows 2000 drivers are available.

  If you are fortunate enough that all of your devices are plug and play, you probably won't need to get drivers, but again - don't count on this. As we all know plug and play, can all too easily turn into plug and pray.

  If you are still not sure what drivers you need, don't panic. During the installation process when the Setup Wizard scans your hardware for problem devices, it will report any problems to you.

  You should also look at the Read First Notes, the Setup text file, the Advanced Setup Text file, and the Release Notes. These files contain information about incompatibilities, as well as things you should not do during installation. The information in these files will be more current than any printed information that came with your Windows 2000 CD-ROM.

Important Note: The Windows 2000 Setup Wizard is designed for ease of use, and should prevent you from really fouling things up, but you should still make sure you have an emergency boot disk from your current operating system. You will be glad you did if a problem does arise.

- **UPGRADING FROM NT4 USING THE CD-ROM**

If you have the auto play feature enabled, the Setup Wizard should begin automatically when you put the Windows 2000 Professional CD-ROM into the CD-ROM. You will see a message on the screen saying that "the CD-ROM contains a newer version of Windows than the one currently installed on your system. Would you you like to upgrade to Windows 2000?" Of course you are going to answer "Yes"

If it does not you should go to the start menu and go to Run. In the text box type: **d:\i386\winnt32.exe** .

The next screen will ask if you want to Upgrade or perform a complete install. This time select the Upgrade option.

The next screen contains the Microsoft License Agreement. You must accept this agreement in order to continue with the upgrade.

If your current drive is partitioned as a FAT partition you will be asked if you want to upgrade to NTFS. If you already have an NTFS partition you will not see this step and will automatically be upgraded to NTFS further on in the installation.

The next step is the System Compatibility Check. The Setup Wizard will scan your system looking for any devices that might be incompatible with Windows 2000. If you see a yellow triangle it is a caution symbol. It means that Windows 2000 does not have a driver for the indicated device. You now can do one of three things: you can tell the wizard that you have a disk for the device in question with the right driver, you can proceed with the installation although the device won't work until you find the right driver, or you can cancel the installation until you find the right driver. If you see a red circle in the compatibility check you must stop right there. The Setup Wizard has found a problem that will stop the installation from continuing. If you click on the Details button you may find a potential remedy for the problem. If you try to continue on after seeing the red circle the Setup Wizard will automatically terminate.

Once all this is taken care of you can sit back and wait as the messages flash as files are copied from the CD-ROM to your computer. During this your computer will restart several times. You might want to find

something else to do - because this is like watching water boil. During the upgrade, the Setup Wizard will use your existing user information, so you won't have to bother filling in as many fields as with a full install.

Eventually, Windows 2000 Professional will start, and you should see most of your previous Desktop items, Start Menu items, and preferences still in tact. You can even use your existing user name and password to log on.

- **UPGRADING FROM WINDOWS 95 AND 98**

  This upgrade is very similar to the Windows NT upgrade, and the Setup Wizard will still do alot of the work for you. The only problem is that do to the different architecture of Windows 95/98 the installation process will not be quite as automated.

  There is a greater chance that there will be driver problems, especially if you are upgrading from Windows 95. Drivers written especially for Windows 98 should work because they are based on Windows Driver Model (WDM), which Windows 2000 is also based on. Windows 95 is based on an older model called the Virtual Driver Model (VxD).

  Once you have all of your drivers ready, you should make sure that your Windows 95/98 applications will work under Windows 2000. A good way to test this is to get access to a Windows 2000 computer and install some of your programs and check to see if they will run.

  Because of the differences between the Windows 95/98 and the Windows 2000 registry's youy will need to supply more information to the Setup Wizard than you would if you were upgrading from Windows NT.

- **UPGRADING OVER A NETWORK**

  Instead of installing from a CD-ROM disk, you can upgrade your computer over the network. The Network Administrator will tell you which shared network folder contains the Windows 2000 setup files. After you start your computer you should connect to that folder. If you are using Windows 95/98 or NT you should go to the command prompt and type the path to winnt32.exe. If you are using any other Operating System, you should type the path to winnt.exe. In both cases you will be asked if you would like to be upgrade to Windows 2000 Professional. Select YES and follow the installation instructions.

- **CONNECTING TO A NETWORK DURING INSTALLATION**

  If you want to connect to a network during the installation you will also need to provide some information about the network. During an upgrade, if you already belong to a domain, your existing computer account will be used. If you didn't have an account, you will need to provide that information to the Wizard. You should find this information out before you begin the setup process. If you can't get the information, you should join a workgroup instead of a domain.

  You can change all of your network settings later or set up new network connections. If you are not sure what answer you should provide, then it is best to accept the default options and continue.

3. **CREATING AN EMERGENCY REPAIR DISK (ERD)**

   The first thing you need is a formatted floppy disk.

   Then you need to click start/programs/accessories/system tools/backup.

   From the menu, click tools/create an emergency repair disk.

   You will now be prompted to put your floppy disk into your floppy drive and click okay.

   Once the process is complete you will see a dialogue box telling you that the Emergency Repair disk has been successfully created.

   At this point, you need to label the disk and put it in a safe location. If you change your computers configurations you will need to create a new Emergency Repair Disk, because the old one will only be able to take you back as far as your systems old configuration, and once you change your configurations, that old configuration will no longer be valid.

4. **INSTALLING THE WINDOWS 2000 RESOURCE KIT**

   The Windows 2000 Resource Kit contains many helpful tools to help you configure and manage Windows 2000. This program does not install with the default installation of Windows 2000 Professional, so you will need to install it separately after Windows 2000 is already up and running.

Start the computer and put your Windows 2000 CD-ROM into the CD-ROM drive and wait for it to start.

When the screen starts choose Browse this CD, and find the \support\reskit folder. Click on Setup.exe and follow the installation instructions.

If the CD-ROM doesn't automatically start, then click start/run. You should type: D:\support\reskit\setup.exe.

File Systems

FAT

The FAT (file allocation table) file system used in Windows 2000, is also the only file system used in MS-DOS, Windows 3.1, Windows 3.11, and Windows 95 prior to OSR/2. If you want your Windows 2000 Professional computer to be able to dual boot with any of these other operating systems it is imperative that you make sure the first partition, on the first hard disk of your computer uses this file system.

FAT offers no file and folder security in Windows 2000, and therefore any users who log on will have full control of the files and folders from your computer. You can set share security to avoid people getting into these files over the network.

FAT supports long file names up to 255 characters in length. These filenames can begin with any character except "\ / : " * ? < >" and are not case sensitive.

The maximum size of a FAT volume on Windows NT or Windows 2000 is 4GB. On all other operating systems, it is 2GB. The FAT file system does not support file compression.

FAT32

FAT32 is used by Windows98, and Windows 95 OSR/2, as well as Windows 2000 professional. If you want to dual boot Windows 2000 Professional with either of these operating systems, the first volume can use either the FAT or the FAT32 file system.

FAT32 does not provide file and folder security, and therefore any users who log on will have full control of the files and folders from your computer. You can set share security to avoid people getting into these files over the network.

FAT32 supports long file names up to 255 characters in length. The same rules apply to long file names in FAT32, which apply to FAT.

The maximum file size of a FAT32 volume on Windows 2000 is 32GB. For Windows 95 OSR/2 and Windows 98 it is 2 TB or terabytes. The FAT32 file system does not support file compression.

NTFS

The only two operating systems that support NTFS are Windows NT and Windows 2000. In order to dual boot Windows NT with Windows 2000 you must have Windows NT 4.0 with Service Pack 4 or later installed because Windows 2000 NTFS is a newer version of NTFS and supports several features not supported by Windows NT NTFS.

NTFS provides file and folder security for both local and remote users on a network. NTFS is the only file system that will let you assign individual file and folder permissions.

NTFS support Encrypting File System (EFS). This lets you store files on an NTFS partition in an encrypted format so that even if someone were to remove your hard drive, they still wouldn't be able to get into your files.

NTFS permits long file names up to 255 characters, and the same rules apply for long file names that apply to FAT and FAT32.

NTFS is not case sensitive unless you are using a POSIX application. A POSIX application cannot translate the file name.

The maximum size of an NTFS volume is 16 exabytes, however there is a functional limit of 2 terabytes because of hardware limitations. NTFS supports per file compression, so you can choose which files you want to compress and which ones you don't. You can expect to gain a 40-50% increase in hard disk space by using disk compression.

NTFS is recoverable and reliable, and it does not fragment easily. Windows 2000 ships with a defragmenting tool that can been run on FAT, FAT32, and NTFS.

Using NTFS allows a recycle bin to be kept for each user, and enables you to mount a volume on a folder in a different volume.

Converting From One File System to Another

You can change an existing FAT or FAT32 volume into a NTFS volume by using the convert.exe command. When you use this command all of your existing volume will be retained. This however is a one way procedure. You cannot convert from NFTS to FAT or FAT32 unless you back up, reformat, and restore the data.

To use the convert.exe command go to your command prompt (start menu/programs/command prompt), and type in:

convert volume /fs:ntfs [/v]

An explanation of this command is that the volume is the drive letter followed by a colon to convert to NTFS. /fs:ntfs shows which file system you want to convert to NTFS. /v tells the computer that you want it to run in verbose mode because this will provide you with the most information.

Encrypting File System Recovery Agents

I mentioned earlier when I was discussing file systems that the Encrypting File System (EFS) lets you store files on an NTFS volume in an encrypted format so that even if someone where to do something as drastic as removing your hard drive, they would not be able to decipher the information in the files. You can implement EFS in Windows 2000 by assigning the encrypt attribute to files and folders. Usually that attribute is set by a user who wants no one else to be able to access the files. If, by chance, that user is unavailable, or no longer works with the company and you need access to the files, you need an EFS recovery agent. By default, the Administrators account is a recovery agent that has been assigned a certificate that permits them to unencrypt information and recover all of the encrypted files.

Alot of companies with sensitive data do not wish to grant any person, not even an administrator, the permissions to open encrypted accounts. Those company's designate a user (most likely an administrator) as a recovery agent, but then remove that user's EFS Recovery Agent Certificate, so that the recovery agent can't just open and view the encrypted files.

In order to carry this out, follow the following steps:

1. The user who will be the EFS recovery agent requests and receives an EFS recovery agent certificate from the CA.
2. That user exports the EFS recovery agent certificate to a file on a floppy disk

3. The administrator uses the floppy with the certificate to make the user an EFS recovery agent. The administrator then stores the disk in a safe and secure location.
4. This last step is where the user removes his or her EFS recovery agent certificate.

At another time if a recovery agent is needed to restore encrypted data, the administrator or dedicated user gets the floppy disk that has been in storage with the EFS recovery agent certificate. Then you import the certificate to the computer that you will be using to recover the data, and restore the files. At this point all you need to do is to delete the EFS Recovery agent from the computer, and put the floppy back in its safe and secure storage place.

Shared Folders

Shared folder permissions, which can include the shard folder, its files, and subfolders, only apply to computers and users over a network, and do not apply if someone logs onto your computer. These permissions are the only permissions you can use if you are using FAT or FAT32.

Chart for Windows 2000 permissions

Permission	Description
Full Control	This permission allows you to perform everything you would be allowed to do with change permission, and lets you change NTFS permissions, and take ownership of files and folders that are on NTFS volumes.
Change	This permission lets you perform the same tasks you would be allowed to perform with read permission, and it lets you create files and subfolders within the share, edit and save changes, and delete files and subfolders inside the share.
Read	This permission lets you view a shares table of contents, to change the current folder to a subfolder of the share, to read the files, and to run the files.

It is actually more efficient to add groups to the permissions list for a particular share than to add the users individually.

It is very important to remember that the default permission for the Everyone Group is full control for a newly created file, so do not forget to assign your permissions. You can assign share permissions by either using Windows explorer or Computer Management to shared folders on your Windows 2000 Professional computer.

Sometimes a user may have permissions to a share and be a member of several groups that have different permissions to the same share. When this happens the least restrictive permission is the users effective permission. The exception to this rule, is when one of the permissions is NO ACCESS - In this case the user will have NO ACCESS to the shares in question.

Basic and Dynamic Volumes

Basic volumes are simply hard drives or hard disks that have industry-standard partitioning and formatting. Before Windows 2000 came out, every single one of Microsoft's operating systems used Basic Volumes!

When you are installing Windows 2000 Professional, it will automatically partition the first hard disk on your computer (of course the disk that it is going to be on), as a Basic Volume. Just a note that if you have more than one hard drive, the first time you run Disk Management it will ask you to convert your additional disks to Dynamic Volumes. Because of this, if you are planning to dual boot Windows 2000 Professional with any other operating system, be sure to keep all disks as Basic Volumes because the only Windows 2000 can read Dynamic Volumes. Basic Volumes can only support four partitions.

Dynamic Volumes are volumes that are manually created in Disk Management, and that do not contain primary partitions, extended partitions or logical drives. Dynamic Volumes can support an unlimited number of volumes. Dynamic Volumes are not currently supported on laptop computers, and the option is grayed out on laptops.

Plug and Play With Windows 2000 Professional

Windows 2000 Professional fully supports plug and play. Windows NT did not have this feature. Plug and Play will automatically detect your new hardware, and load the appropriate drives and configurations. Plug and Play will also allow you to hot swap with a portable computer. (Hot swapping is when you can change cards in a laptop without powering it down).

Windows 2000 Professional FAX Services

If you have a Fax device attached to your computer (Fax machine or Fax modem), there will be a Fax applet in your control panel. This is where you will configure your Fax properties including cover pages and the Fax status monitor. You can also add a Fax printer through this applet.

To open the Fax applet, double click on it. There will be four tabs in the Fax properties dialog box (User Information, Cover Pages, Status Monitor, and Advanced Options).

You can use this applet to get at the Fax Service Management Console which is an MMC snap in, to configure Fax devices and Fax logging on the local computer. To access this console, you will want to click on the Advanced Options tab, and then click the Open Fax Service Management Console button. Another way to get there is to use the start menu (start/programs/accessories/communications/fax/fax service management).

The most common reason you would want to get to the Fax Service Management Console is to enable a Fax device and receive Faxes. Because Windows 2000 configures Fax devices to send Faxes but not to receive them, you must configure this manually.

Configuring Windows 2000 Professional For Different Languages

You can configure Windows 2000 Professional for different languages and locals. To configure these you must first double click on the Regional Settings applet in the control panel, and then select the general tab. It is important to note that installing support for a new language, only allows applications to run on the computer in the desired language, but the Windows 2000 operating system does not convert to the new location.

You can install support for multiple languages or locations if you normally work with documents created in different languages and are required to read or edit those documents. In order to do this you must first configure multiple language support on the General tab in Regional Options, and then configure multiple location support on the Input Locales tab.

TCP/IP

TCP/IP, which uses Winsock, is installed by default with Windows 2000 Professional and IP addresses can be configured manually or by DHCP.

DNS resolves computer host names to IP addresses, whereas, WINS resolves NetBIOS names to IP addresses.

Your Subnet Mask distinguishes between the Network ID and the Host ID, and your Default Gateway helps to send information.

NETWARE

NWLink is used by NT to allow NetWare computers on a network to access its resources.

To allow file and print sharing between NT and NetWare computers CSNW must be installed on the NT machine.

Frame types for the NWLink protocol have to match the computer that the NT computer is trying to connect with, or the two computers will not be able to connect.

UNIX

If you install Windows 2000 Professional on a UNIX network you will also need to install the following:

PROTOCOL OR SERVICE	WHAT IT DOES
TCP/IP	TCP/IP is necessary to provide allow the UNIX computers to connect to the Windows 2000 Professional computers on the network
SNMP Service	SNMP is your Simple Network Management Platform
Print Services for UNIX	Print Services for UNIX allows computers on the network to connect to UNIX controlled printers.

Accessibility Options in Windows 2000 Professional

The accessibility options applet in the control panel enables keyboards, sound, display, and mouse configurations to accommodate physically challenged people who may have difficulty using a mouse, be hearing impaired, or have difficulty using the keyboard. Accessibility options is installed by default unless you deselected it during the installation of Windows 2000. If it is not installed on your computer, you can add it by using the Add/Remove programs applet.

In order to configure your accessibility options you need to double click on the accessibility options applet. The following is a chart of the kinds of things you can configure in the accessibility options:

ITEM TO CONFIGURE	WHAT YOU CAN CONFIGURE FOR THIS ITEM
Keyboard	Sticky Keys Filter Keys Toggle Keys
Sound	Sound Sentry Show Sounds
Display	High Contrast Option
Mouse	Mouse Keys
General	Configure Windows 2000 to turn off accessibility features after the computer has been idle for a period of time. Serial Key Devices Choose whether to apply all selected settings to the computers default desktop that is displayed during logon, or to new users that log onto this computer, or you can do both

As an interesting note, while you are making changes in many dialogue boxes in Windows 2000, including this one, you can click either OK or Apply to commit your changes. Clicking OK will commit your changes and close the dialogue box, and clicking Apply will commit your changes and leave the dialogue box open. It is not necessary to click Apply before clicking OK.

Driver Signing

In System Properties in the control panel, if you select the drivers signing button, the driver signing dialogue box will appear. This is where you can configure how Windows 2000 Professional handles the installation of system files that are not digitally signed. A digital signature is a tag put on a file by the person who created it. The tag consists of information that has been digitally coded so that it indentifies the file's creator and enables Windows 2000 to verify that this file has not been changed or altered in any way since it was created. A good example of this is that all of the files on the Windows 2000 Professional CD-ROM have been digitally signed by Microsoft. There are three file signature verification options in the Driver Signing dialogue box:

OPTION	WHAT THE OPTION DOES
Ignore	Windows 2000 will install all files whether or not they have been digitally signed. This is the least secure option.
Warn	Windows 2000 will display a dialogue box before an unsigned file is installed, and you will have the choice, as to whether or not to install each item. This is the default setting, and seems to provide the appropriate amount of security for most environments.
Block	Windows 2000 will prevent the installation of all unsigned files. This is the most secure and protective of all three options. This would be the best option is you were in an area that was tightly controlled and your requirements were high reliability and high data security.

If you need to detect any unsigned files on your computer, use the sigverif.exe and sfc.exe commands. Simply type sigverif.exe into the run dialogue box and click okay. Sigverif.exe will provide you with a list of all unsigned files. If you use sfc.exe, it will replace any unsigned file it finds with the original signed Microsoft version of this file, which it copies from the systemroot\system32\Dllcache folder. In order to use sfc.exe you must use the command prompt (start/programs/command prompt). At the command prompt, type sfc followed by the appropriate switches, and press ENTER. Depending on

the switches you are using, it can take anywhere from several minutes to over an hour for this utility to run.

Security Templates

Security templates are text-based .inf files that contain predefined security settings that you can apply to one or more computers. You can also use a security template compare a computers existing security configuration against a standard security configuration. You will find that these are the most useful on large networks. It is so much easier for the Administrator to create a single security configuration that can be applied to many computers than it is to go to every computer and manually create the security configuration. You can create, edit and manage your security templates by using the Security Templates snap-in to the MMC. In order to perform the tasks of creating implementing or saving security templates, you must be a member of the Administrators group.

There are several security templates included with Windows 2000 professional, and they are stored in systemroot\security\templates by default. Here is a table of some of the most commonly used templates.

TEMPLATE NAME	TEMPLATE FILE NAME AND EXTENSIONS
Default Workstation	basicwk.inf
Default Server	basicsv.inf
Default Domain Controller	basicds.inf
Compatible Workstation or Server	compatws.inf
Secure Workstation or Server	securews.inf
Highly Secure Workstation or Server	hisecws.inf
Secure Domain Controller	securedc.inf
Highly Secure Domain Controller	hisecdc.inf

You should create an MMC console that contains the Security Templates snap-in, before you can create security template. There are two ways that you can create a security template. You can either edit and save one of the predefined templates, or you can create your own security template from scratch. Most people prefer to edit an existing security template.

After you create the security template, you need to implement it. There are two ways to implement a security template. You can either apply the template directly to the local computer, or you can import the security template into a Group Policy object (GPO) in Active Directory where it can easily be applied to all computers used by the GPO.

If you are going to add the security template to the local computer, you can use the Security Policy tool to do this. Remember that when you apply a security template to the local computer that you need to keep in mind how the settings in Group Policy are applied. Also, if the computer you are applying this security template to is a member of a domain, it can be affected by other security settings that have been configured at the domain level or set in various GPOs in Active Directory.

If you would like to apply a security template to a group of computers, you should import that security template into a GPO that affects those computers.

PRINT DEVICES

Windows 2000 Professional supports Line Printer (LPT), COM, USB, and IEEE 1394 ports, as well as network attached devices. Remember that Windows 2000 Professional can only support print services for Windows and Unix clients (In order to provide support for Apple and Novell clients you must be running Windows 2000 Server).

If you are having problems with printer compatibility, you can use the fixprnsv.exe command line utility to resolve the problem.

If you want to include a blank page between print jobs in order to separate them, you can use a seperator page. A template for the separator page can be created and saved in the %systemroot%\system32\ directory with a .sep extension.

Printer pooling allows you to have several identical printers installed as one logical printer.

You can set the printer priority by creating multiple logical printers for one physical printer, and assigning different priorities for each. Remember that 1 is the lowest priority and is the default setting, and 99 is the highest priority.

Windows 2000 Professional will automatically download the drivers for clients for clients who are running Windows 2000, NT4, NT 3.51, Windows 98 or Windows 95.

Windows 2000 Professional offers a new feature, which is Internet Printing. This new feature gives you the opportunity of entering the URL of where your printer

is located. In order to use this new feature you must meet one of the two following conditions.

1. Your computer must be a Windows 2000 Server, running Internet Information Server
2. Your computer must be a Windows 2000 Professional computer running Personal Web Server

It doesn't matter which condition you meet, in order to use Internet Printing, but you must meet one of these conditions. You can view all shared printers at http://servername/printers.

Enabling the availability option allows the Administrator to specify the hours the printer available. This is especially important if very large print jobs are slowing down production during business hours.

You can change the directory containing the print spooler in the advanced server properties for the printer. If you should need to fix a stalled printer, you need to stop and restart spooler services in the services applet in Administrative Tools in the control panel.

If the printer jams when a document is printing, you can select restart in the printers menu to reprint the document. If you select resume, you can continue printing from where you left off.

RAS AND VPN

RAS (Remote Access Service) allows remote users to dial in via modem or ISN.

The protocols that are used in RAS are:

PROTOCOLS USED IN RAS
EAP
MD5-CHAP
RADIUS
MS-CHAP - versions 1 and 2
SPAP
CHAP
PAP

You can combine 2 or more modems or ISDN adapters into one logical link to increase bandwidth by using multilink for RAS.

If you need security, or you want to save money, you can use the call-back feature. If you are a Roving User, and want more flexible call-back procedures, so you can call back from wherever you are, use the "allow caller to set the callback number.

With VPN (Virtual Private Networks), you can establish virtual WAN links over the Internet. The encryption protocols used for Virtual Private Networks are PPTP and L2TP.

FAULT TOLERANCE IN WINDOWS 2000 PROFESSIONAL

Fault tolerance is not supported by Windows 2000 Professional. It is however, supported in Windows 2000 Server.

RECOVERY CONSOLE

The recovery console is a valuable tool when you have trouble booting. It is not installed by default, and you have to install it by running winnt32.exe/cmdcons from the i386 directory of the CD-ROM.

At this point, you will see an option to enter the Windows 2000 recovery console at bootup. It can also be run by booting from your setup disks or CD-ROM and choosing REPAIR.

The recovery console can only be used by Administrators and will allow you to do the following things:

Use, copy, rename, or replace operating system files and folders
enable or disable services from starting when you boot your computer
repair the file system boot sector or master boot record (MBR)
create and format drives

Keep in mind that you cannot throw files on a floppy, you can only copy them to the hard drive.

THE WINDOWS 2000 REGISTRY

REGISTRY KEY	WHAT THIS REGISTRY KEY DOES
HKEY_CLASSES_ROOT	contains software configuration data, file associations, and object linking and embedding data
HKEY_CURRENT_CONFIG	contains data concerning the active hardware profile taken from the software and system hives
HKEY_CURRENT_USER	contains data about the current user that has been taken from HKEY_USERS and some additional information taken from Windows Authentication
HKEY_LOCAL_MACHINE	contains all of the local computers hardware, software, driver, and startup information. This remains constant regardless of the user.
HKEY_USERS	contains information for user identities and environments including custom settings and the sort.

There are two registry editors for Windows 2000 Professional: Regedt32 and Regedit. Regedt32 has a read-only mode, security menu, where Regedit does not. Regedit however can use strings and values and Regedt32 cannot.

USER MANAGEMENT

You should manage users with account policies. A good rule of thumb is to require users to change their passwords on a regular basis, to require them to use longer passwords, and to enforce a limit on logon attempts and lock out any user who can not log on successfully in the number of allowed attempts.

If you want even more security on Windows 2000 Professional, you can require users to use control+alt+delete to log on. You must configure this manually with Windows 2000, even though it was a default setting for Windows NT.

With User Profiles, when a user logs onto a computer, they will receive their personal desktop settings, and all of their network connections. If a user has a mandatory profile (has an extension of .man) they cannot change settings.

If you performed a clean install of Windows 2000 Professional, your user profiles will be stored in the %systemroot%\documentsandsettings\%username% folder. If you upgraded to Widows 2000 Professional from NT4, your user profiles can be found in the %systemroot%\profiles\%username% folder.

BUILT IN LOCAL GROUPS

GROUP	WHAT THIS GROUP CAN DO
Administrators	Administrators can perform all administrative tasks on a local computer
Back-up Operators	Back-up Operators can back-up and restore data
Guests	Guests can have temporary access to resources that the Administrator has assigned permissions for
Power Users	Power Users can share resources, install software, and create and modify local user accounts on the computer
Replicators	Replicators can replicate files
Users	Users can perform tasks that the Administrator has assigned them permissions to perform. In Windows 2000 Professional all new accounts are added to this group

SYSTEM GROUPS

GROUP	WHAT THIS GROUP CAN DO
Everyone	The everyone group consists of all users who access the computer
Authenticated Users	The Authenticated Users group consists of all users with a valid user account. This group is used to avoid anonymous access to accounts
Creator/Owner	The Creator/Owner group is for users who have created or took ownership of a resource.
Network	The Network group consists of users with a current connection from another computer on the network to a shared resource on the computer
Interactive	The Interactive group consists of users logged onto the computer. Members of this group can gain access tot he resources on the computer they are sitting in front of
Anonymous Logon	This group consists of any users that Windows 2000 Professional did not validate.
Dialup	This group consists of users who currently have dial up connections

BACK-UPS WITH WINDOWS 2000 PROFESSIONAL

To perform a back-up or restore information, you must be a member of the Administrators group or the Back-up Operators group.

You can perform a back-up by going to the control panel and opening the system applet, and clicking back-up. You can also perform a back up by running the NT Back-up Utility.

Here is a chart of the different types of back-ups, and exactly what they do:

TYPE OF BACK-UP	WHAT THIS TYPE OF BACK UP DOES
Daily Back-up	Daily Back-up will back up all files and folders that have changed during the day. The archive attributes will be ignored and will not be cleaned
Differential Back-up	Differential Back-up will back-up all files and folders that have their archive attribute set. The archive attributes are not cleaned
Incremental Back-up	Incremental Back-up will back-up all files and folders that have their archive attribute set and archive markers will be cleared
Normal Back-up	Normal Back-up will back up all files and folders, and the archive attribute will be cleared

HARDWARE INFORMATION ABOUT WINDOWS 2000

Hardware can be added with the add/remove hardware wizard. The system information snap-in will allow you to view configuration information about your system, and will even allow you create a console on another computer.

If you want to see your conflicts and sharing information, your DMA's, IRQ's, Forced Hardware, I/O addresses, or memory information, you can do so by clicking on "Hardware resource" under system information.

You can user the Device Manager to manage your currently installed hardware.

TROUBLESHOOTING HARDWARE

1. You can user Device Manager to troubleshoot a device by clicking the troubleshoot tab on the general tab.
2. If you have recently installed a device or made a change in the registry, you should try using the Last Known Good Configuration Utility.
3. If you have recently installed a new monitor or video card and it seems to be causing a problem, try booting in VGA mode
4. Sometimes badly written drivers or IRQ conflicts can cause problems. If this is the case, you will need to use a DUMPHK.EXE

to exam the contents of MEMORY.DMP. In order for this to work, you will need a paging file on your system partition that is at least 1MB larger than the amount of RAM you have installed

SAFE MODE IN WINDOWS 2000 PROFESSIONAL

You can enter safe mode by pressing F8 during the operating system selection. Safe mode only loads basic files and drivers, VGA, your keyboard, your mouse, your mass storage device, and your default system services. Safe mode does not support networking, and therefore while you are in safe mode you will not be able to connect to the network.

BOOTING OPTIONS IN WINDOWS 2000

BOOT OPTION	WHAT THIS BOOT OPTION DOES
Enable Boot Logging	When you enable boot logging it logs the loading of drivers and services to ntbtlog.txt in the windr file
VGA Mode	When you select VGA mode your computer will boot with a VGA driver
Last Known Good Configuration	The last know good configuration option uses information from the registry about a previous boot. This option will allow you to recover from bad driver installs, and registry changes
Recovery Console	This option will only appear if it is installed
Boot Normally	Believe it or not, if you use this option, it will cause a very strange reaction - your computer will.....boot normally!!!

A WORD ABOUT LAPTOPS

Windows 2000 Professional supports PCMCIA adapters, USB ports IEEE 1394 and infrared devices, and they can be managed through Device Manager. Windows 2000 Professional also fully supports Hot Swapping for laptops with Plug and Play BIOS's.

Windows 2000 Professional also provides support for Advanced Power Management and Advanced Configuration as well as Hibernating and Suspend modes which will help to extend the life of your battery.

If you equip your laptop with Smart Cards and an Encrypting file system it will greatly decrease the chance of sensitive data being accessible if you loose your computer or it gets stolen.

You can use hardware profiles for laptop access through your control panel. Go to your control panel, open the system applet, select the hardware tab, and then select hardware profiles in order to do this.

You can create multiple profiles and choose whether you want your laptop to be docked or undocked.

By: Tracey J. Rosenblath