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## LIST OF ACRONYMS

ACL	Access Control List
ACPI	Advanced Configuration And Power Interface
AD	Active Directory
APM	Advanced Power Management
APIPA	Automatic Private Internet Protocol Addressing
CA	Certificate Authority
CAL	Client Access License
DHCP	Dynamic Host Control Protocol
DNS	Domain Name System
EAP	E tensible Authentication Protocol
EFS	Encrypting File System
FEK	File Encryption Key
GPO	Group Policy Object
GPT	Group Police Template
HCL	Hardware Compatibility List
IAS	Internet Authentication Services
ICF	Internet Connection Firewall
ICS	Internet Connection Sharing
IPSec	Internet Protocol Security
L2TP	Layer Two Tunnelling Protocol
LDAP	Lightweight Directory Access Protocol
LPD	Line Printer Daemon
MMC	Microsoft Management Console
NAT	Network Address Translation
NFS	Network File System
NTFS	NT File System
ODBC	Open Database Connectivity
OSI	Open Systems Interconnection (Model)
OU	Organizational Unit
PCMCIA	Personal Computer Memory Card Interface Adapter
PnP	Plug and Play
PPP	Point To Point Protocol

PPTP	Point To Point Tunnelling Protocol
PXE	Preboot Execution Environment
RAS	Remote Access Service
RIPrep	Remote Installation Preparation
RIS	Remote Installation Services
RRAS	Routing And Remote Access Service
SAM	Security Accounts Manager
SMP	Symmetric Multiprocessing
SMS	Systems Management Server
Sysprep	System Preparation
TFTP	Trivial File Transfer Protocol
UDF	UniZue Database File
UNC	Universal Naming Convention
VPN	Virtual Private Network
WDM	Windows32 Driver Model

# Installing, Configuring, and Administering Microsoft Windows XP Professional

**Exam Code: 070-270**

## Certifications:

<b>Microsoft Certified Professional (MCP)</b>	
<b>Microsoft Certified Systems Administrator (MCSA)</b>	<b>Core</b>
<b>Microsoft Certified Systems Engineer (MCSE)</b>	<b>Core</b>

## Prerequisites:

A+ certification or equivalent knowledge  
Net+ certification or equivalent knowledge

## About This Study Guide

This Study Guide provides all the information required to pass the Microsoft 70-270 exam 'Installing, Configuring, and Administering Microsoft Windows XP Professional. It however, does not represent a complete reference work but is organized around the specific skills that are tested in the exam. Thus, the information contained Study Guide is specific to the 70-270 exam and not to Windows XP Professional. It includes the information required to answer questions related to Windows 2000 Professional, Windows 2000 Server, Windows NT 4.0, and UNIX that may be asked during the exam. Topics covered in this Study Guide includes installing Windows XP Professional; implementing and conducting administration of resources; implementing, managing, and troubleshooting hardware devices and drivers; monitoring and optimizing system performance and reliability; configuring and troubleshooting the desktop environment; implementing, managing, and troubleshooting network protocols and services; and implementing, monitoring, and troubleshooting security.

## Intended Audience

This Study Guide is targeted specifically at people who wish to take the Microsoft MCSE exam 70-270, Installing, Configuring, and Administering Microsoft Windows XP Professional. This information in this Study Guide is specific to the exam and is not a complete reference work.

## How To Use This Study Guide

To benefit from this Study Guide we recommend that you:

- Study each chapter carefully until you fully understand the information. This will require regular and disciplined work

**Note:** Remember to pay special attention to these note boxes as they contain important additional information that is specific to the exam.

- Perform all labs that are included in this Study Guide to gain practical experience, referring back to the text so that you understand the information better. Remember, it is easier to understand how tasks are performed by practicing those tasks rather than trying to memorize each step.
- Be sure that you have studied and understand the entire Study Guide before you take the exam.

Good luck!

# 1. Installing and Deploying Windows XP Professional

You can install Windows XP Professional directly from the CD-Rom or from a network share. The Windows XP Professional installation process consists of four stages:

**Stage 1: Hard Drive Preparation.** In te t mode Setup checks the hard drive for consistency and errors. It allows you to format and create the Windows XP Professional partition if you need to and copies setup files to the hard drive. Setup then reboots the computer.

**Stage 2: Setup Wizard.** The graphical user interface Setup Wizard gathers information from you; such as regional settings, your name and organization, the Windows XP Professional CD-key, and computer name. Creates the local Administrator user account and reZuests a password for it.

**Stage 3: Installing Network Components.** After the Setup Wizard has gathered the necessary information from you in Stage 2, it begins the network components installation. It detects your network adapter card; allows you to choose which network components, such as the network client, file and printer sharing and protocols, to install; allows you to join a workgroup or domain; and installs the components you have chosen.

**Stage 4: Completing the installation.** The Setup Wizard completes the installation by installing the start-menu items and applying and saving the configuration settings you chose in the previous stages. It then deletes the temporary setup files and reboots the computer.

## Typical Network Settings

When you install Microsoft Windows XP Professional, you can either install the .Typical Network Settings..or .Customized Network Settings...The Typical Network Settings installs:

- Client for Microsoft Networks
- File and Printer Sharing
- TCP/IP
- DHCP

## 1.1 System ReZuirements

Before installing Windows XP Professional, you must ensure that the computer meets the minimum system reZuirements as indicated in Table1.1.

TABLE 1.1: *Windows XP Professional System Requirements*

Hardware	Minimum reZuirement
Processor	Intel Pentium 2 233 MHz (300 MHz recommended)
Memory	64 MB Ram (128 MB Ram recommended)
Hard disk space	2 GB with an additional 1.5 GB free space (2 GB free space recommended)
Networking	Network adapter card
Display	Video display adapter card and VGA monitor
I/O devices	Keyboard and mouse or other pointing device

**Note:** Windows XP Professional offers support for a ma imum of 2 processors and a ma imum of 4 GB Ram

## 1.2 Installing Windows XP Professional from the CD-Rom

When installing Windows XP Professional from the CD-Rom you can either boot directly from the CD-Rom or, if your computer system does not support booting from the CD-Rom, you can create boot disks.

### 1.2.1 Booting from the CD-Rom.

In your system BIOS set the CD-Rom drive as the **First Bootable Device**. This is usually set in the **BIOS Feature Setup**. While you are in the BIOS Setup you should also check that **Boot Sector Virus Protection** is disabled. The Boot Sector Virus protection prevents any attempt is made to write to the hard drive's boot sector or partition table. When BIOS detects an attempt to write to the boot sector it stops the computer and display an error message. The Windows XP Professional Setup program must write to the boot sector, therefore the **Boot Sector Virus Protection** must be disabled.

Once you have configured the BIOS, place the Windows XP Professional Installation disk in the CD-Rom drive and reboot the computer. During the boot process you will be prompted to **press any key to boot from CD-Rom**. Once you have pressed a key the Installation of Windows XP Professional will begin.

### 1.2.2. Booting from boot disks.

If your computer system does not support booting from the CD-Rom, you will have to create boot disks on a computer that has an operating system installed on it already. Unlike the Windows 2000 Installation CD, the Windows XP Professional Installation CD does not contain a *makeboot.e e* utility. The Windows XP Professional *makeboot* utility must be downloaded from the Microsoft website at <http://www.microsoft.com/downloads/release.asp?releaseid=33291>. This file can be used to create the Windows XP Professional boot disks and reZuired 6 high density floppy disks. These disks can then be used to boot the computer and will load the necessary drivers reZuired to access the CD-Rom drive.

**Note:** Boot disks operate in a **16-bit DOS mode** environment. You therefore cannot use *winnt32.e e* to install Windows XP Professional as *winnt32.e e* is **32-bit** application. You must use *winnt.e e*, which is the 16-bit eZuivalent of *winnt32.e e*, instead.

## 1.3 Installing Windows XP Professional over the network.

To install Windows XP Professional over the network you must copy the **i386** folder from the Windows XP Professional Installation CD to a shared folder on the network. You must prepare the client computer by creating a 1.5 GB FAT32 partition (2 GB recommended) that Windows XP Professional will copy the installation files to.

**Note:** This partition must be formatted with the FAT32 file system and not the NTFS file system as network boot disks, which operate in a MS-DOS mode environment, cannot access a NTFS formatted partition.

You must also ensure that the computer has a can connect to the network share when it has booted. To be able to boot to the network share the computer must have a **PXE compliant** network adapter. If the computer cannot be booted over the network you will have to create a network boot disk for the computer. A boot disk can be created by using the *rbfg.e e* utility. If you must use a boot disk to boot the computer, you will have to run *winnt.e e* to install Windows XP Professional. Boot disks operate in a **16-bit DOS mode**

environment. You therefore cannot use *winnt32.e e* to install Windows XP Professional as *winnt32.e e* is 32-bit application.

#### 1.4 Performing an unattended installation.

Microsoft allows for the automated installation of Windows XP Professional through unattended installations. There are three mechanisms through which an unattended installation can be performed. These are through:

- unattended answer files;
- disk imaging using the System Preparation Tool; and
- remote Installation Services

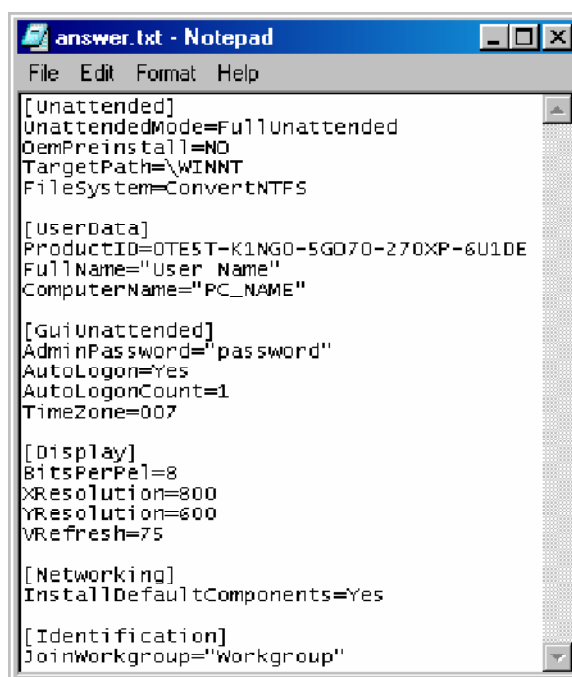
##### 1.4.1 Using an unattended answer file.

The first mechanism you can use to perform an unattended installation of Windows XP Professional is to use an **answer file** (See Figure 1.1). An answer file is an automated script that supply's the Windows XP Professional Setup program with all the information it would reZuire during the installation.

You can use **Setup Manager** to create and modify an answer file. Setup Manager is located in the *deploy.cab* file in the *support/tools* folder on the Windows XP Professional Installation CD and can be e tracted to your computer by double-clicking on the *deploy.cab* file. This will display the files contained in the *deploy.cab* file. Right-click on the files and select **E tract** on the menu that pops up.

You can use Setup Manager to create an answer file for an unattended installation, a sysprep install, and for a Remote Installation Services. You can also choose the level of automation. This can be:

- **Provide Defaults:** The answer file provides defaults that the user can see and allows the user to accept or change these settings during the installation.
- **Fully Automated:** No input is reZuired from the user and the user cannot alter any of the settings.
- **Hide Pages:** All pages that the answer file provides answers for are hidden from the user.
- **Read Only:** The user can view any of the answers on the pages that are not hidden but cannot change them.
- **GUI Attended:** The first stage of the installation is automated but the user must supply the information reZuired by the Setup Wizard during the graphical user interface stage (stages 2 and 3) of the installation.



```

[Unattended]
UnattendedMode=FullUnattended
OemPreinstall=NO
TargetPath=\WINNT
FileSystem=ConvertNTFS

[UserData]
ProductID=0TE5T-K1NG0-5G070-270XP-6U1DE
FullName="User Name"
ComputerName="PC_NAME"

[GuiUnattended]
AdminPassword="password"
AutoLogon=Yes
AutoLogonCount=1
TimeZone=007

[Display]
BitsPerPel=8
XResolution=800
YResolution=600
VRefresh=75

[Networking]
InstallDefaultComponents=Yes

[Identification]
JoinWorkgroup="Workgroup"

```

Figure 1.1: An e ample of an answer file.

**Note:** When creating a **Fully Automated** answer file, you must include all the information the Setup Wizard requires during the Installation this includes Product key, which must be specified in the **ProductID** variable in the **UserData** portion of the answer file. (See *Figure 1.1*) If the ProductID is missing the installation is stopped during the graphical user interface stage and the following error message is displayed:

```
Unattended Setup is unable to continue because a Setup parameter
specified by your system administrator or computer manufacturer is
missing or invalid.
```

The Answer File can be used in conjunction with a **UniZueness Database File (UDF)**. The latter provides multiple replacement settings for the settings configured in an **Answer File** and can be used to automate the installation of Windows XP Professional on **multiple client computers**.

The syntax for using the Answer file and the UDF file is:

- Answer File      **winnt** [/s:sourcepath] [/t:drive] [/u:answer\_file]  
                      **winnt32** [s:/sourcepath] [/t:drive] [/u:answer\_file]
- UDF File         **winnt** [/s:sourcepath] [/t:drive] [/u:answer\_file] [/udf.id:[UDF\_file]]  
                      **winnt32** [/s:sourcepath] [/t:drive] [/u:answer\_file] [/udf.id:[UDF\_file]]

For an explanation of these switches see Table 1.5 and Table 1.6.

#### 1.4.2 Using the System Preparation tool (disk imaging).

With disk imaging it is possible to install and configure Windows XP Professional and all the applications and application update packs on a test computer and then create an exact image of the hard drive that can then be used to install Windows XP Professional and the applications on other client computers. These computers that will become recipients of the disk image installation are also referred to as target computers.

During an installation that uses disk imaging, the source files on Windows XP Professional Installation CD are not used, except for the initial installation on the test computer. In other words, you would not be using `winnt.exe` or `winnt32.exe` to install the disk image on the target computers and thus will not run the Windows XP Professional Setup program. Therefore, you will not be detecting the hardware devices and installing the appropriate drivers on the target computers. As a result, all the target computers must have the same hardware configuration as the test computer. You will also have to change the computer name of all the target computers as each computer on the network must have a unique name.

Microsoft has created a **System Preparation tool (Sysprep.exe)** which solves some of the problems associated with disk imaging. You would use the Sysprep, after installing and configuring Windows XP Professional, the applications and application update packages on a test computer, to prepare the computer of disk imaging. You would then run the disk imaging program after Sysprep has completed. Sysprep adds a mini-Setup Wizard to the disk image that will request the user-specific information such as productID, user name, network configuration, etc, on the first reboot of the target computer. This information can either be supplied by the user or by an answer file.

When using answer file with the sysprep tool, a Sysprep folder must be created on the `%systemdrive%` of the test computer or a *Sysprep.inf* file must be created and saved to a floppy disk that must be inserted at the

beginning of the mini-Setup Wizard. The Sysprep folder that is created on the target computer when the disk image is copied is automatically deleted when the mini-Setup Wizard is completed.

Sysprep can also be used to force the target computer to perform Plug and Play detection and to install the correct device drivers on the first reboot of the target computer; however, the target computer and the test computer must have identical hard disk controllers and compatible **Hardware Abstraction Layers**. The 'pnp switch is used to force the target computer to detect its hardware configuration on its first reboot. A full list of Sysprep switches are listed in Table 1.2.

TABLE 1.2: *System Preparation Tool Switches*

Switch	Description
/reboot	Restarts the test computer rather than allowing it to shut down after sysprep.exe is completed.
/Zuiet	Mini-Setup runs without user input. Requires an answer file.
/pnp	Forces Plug and Play detection on the target computer.
/nosidgen	Does not regenerate the SIDs on the target computers.

### 1.4.3 Using Remote Installation Services (RIS)

Remote Installation is the process of connecting to **Remote Installation Services (RIS)** server from a target computer and then performing an automated installation of Windows XP Professional on the target computer. This is the most effective method of deploying Windows XP Professional. Remote Installation allows administrators to install Windows XP Professional on client (target) computers throughout a network from a central location. It however requires that your network has a Windows 2000 server infrastructure in place and that the client computers support remote booting. A list of network services that the RIS server requires is listed in Table 1.3.

TABLE 1.3: *Network services required by RIS*

Network Service	Reasons for RIS Requirement
DNS Service	Required for locating the Active Directory directory service and client computer accounts
DHCP Service	Required for supplying IP addresses to client computers
Active Directory	Required for locating existing client computers and the existing RIS servers

#### 1.4.3.1 Setting up the RIS server

To set up a RIS server, you must install RIS on a NTFS version 5 partition that is at least 2GB size and that does not contain the operating system, i.e. the boot partition, and is not the system partition, i.e. the startup partition, by running the RIS Setup Wizard. And you must specify a Remote Installation Folder that cannot be on a Distributed File System (Dfs) shared folder or on an Encrypting File System (EFS) volume.

The RIS creates and uses CD-based images and disk images. The process of creating the disk image is similar to the process required when using the sysprep tool; first install and configure Windows XP Professional on a test computer, install and configure your applications, apply application update packs and then use the **Riprep utility** to create a **Riprep image**. Unlike the Sysprep tool, however, RIS creates its own disk images and does not require third party software. The Riprep utility automatically removes the test

computer's SID from the image and creates an answer file based on the configuration of the operating system on the test computer.

### 1.4.3.2 Client Requirements for Remote Installation

To deploy the image on the client computers, the client computers must be able to connect to the RIS server by booting from the network adapter card. To do this the client computer requires a **PXE-compliant network adapter**, which has a special chip that supports network booting. If the computer does not have a PXE-compliant network adapter card, you must use the *rbfg.e e* file to make network a boot disk for the computer. The network boot disk can then be used to simulate the PXE boot process.

In addition, the user account that will be used to perform the installation must be assigned the right to 'Logon as a batch job' and must be assigned permissions to create computer accounts in the domain that they will be joining.

## 1.4.4 Deploying Software applications

### 1.4.4.1 Overview

In Windows 2000 and Windows XP Professional you can use a **Group Policy Object (GPO)** in conjunction with **Windows Installer** to automate and manage software installations, updates and removal from a centralized location. Group Policy can be used to assign the software application to a group of users that are organized into a unit (an Organizational Unit) and allow you to manage the various phases of software deployment.

There are four phases of software deployment:

- **Preparation:** preparing the files that allows you to use Group Policy to deploy the application software. This involves copying the Windows Installer package files to a software distribution point. The Windows Installer application files can be obtained from the application's vendor or can be created through the use of third-party utilities.
- **Deployment:** the administrator creates a Group Policy Object (GPO) that installs the software on the target computers and links the GPO to the appropriate Organizational Unit. During this phase the software is installed.
- **Maintenance:** the software is upgraded with a new version or redeployed with a patch or a service pack.
- **Removal:** to remove software that is no longer required, you must remove the Windows installer package from the GPO that was used to deploy the software. The software is then automatically removed when a user log on or when the computer restarts.

#### GROUP POLICY

Group Policy and Organizational Units are related to the Administration and management of a Windows 2000 network. They are covered in detail in the TestKing Study Guide 70-217: Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure e am and in the TestKing Study Guide 70-218: Managing a Microsoft Windows 2000 Network Environment. For the 70-270 e am you are not required to understand the intricacies of these tools. Therefore it will not be discussed in detail here.

### 1.4.4.2 Windows Installer

Windows Installer consists of Windows Installer **service**, which is a client-side service, and Windows Installer **package**. Windows Installer package uses the *.msi* file extension and contains all the information that Windows Installer services requires to install the software. The software developer provides the Windows Installer package with the application. If a Windows Installer package does not come with an application, you can create a Windows Installer package or repackage the application, using a third-party

utility. Alternatively you could create an application file (.zap) that uses the application's existing setup program. A .zap file is not a native Windows Installer package.

Advantages of using Native Windows Installer packages:

- **Automatic File Repair** when a critical application file becomes corrupt. The application automatically returns to the installation source to retrieve a new copy of the file.
- **Clean Removal** without leaving orphaned files and without deleting shared files used by another application.
- **Transformable.** You can customize a Windows Installer package to meet the requirements set by your company by using authoring and repackaging tools. Transformed Windows Installer packages are identified by the .mst file extension.
- **Patches.** Patches and upgrades can be applied to the installed applications. These patches use the .msp file extension.

**Note:** A .zap file is not a native Windows Installer package and does not offer the same benefits as Windows Installer packages. It therefore does not support **automatic repairing** and cannot be transformed.

### 1.5 Upgrading to Windows XP Professional

You can upgrade Windows 98, Windows Millennium Edition, Windows NT Workstation 4.0 **Service Pack 6**, and Windows 2000 Professional directly to Windows XP Professional. However, Windows 3.1 and Windows 95 must first be upgraded to at least Windows 98 and can then be upgraded to Windows XP Professional. Windows for Workgroups 3.1, Windows NT Workstation 3.5, Windows NT Workstation 3.5.1 and Windows NT Workstation 4.0 must first be upgrade to at least Windows NT Workstation 4.0 Service Pack 6 and can then be upgraded to Windows XP Professional. Windows NT Server 4.0 and the various versions of Windows 2000 Server cannot be upgraded to Windows XP Professional. Windows NT Server 4.0 and the various versions of Windows 2000 Server are **server-based** Operating Systems while Windows XP Professional is a client-based Operating System.

#### Upgrading to Windows 2000 Professional and then to Windows XP Professional

Windows for Workgroups 3.1 and Windows NT Workstation 3.5 cannot be upgraded directly to Windows 2000 Professional either. Windows for Workgroups 3.1 and Windows NT Workstation 3.5 must first be upgraded to Windows NT Workstation 3.5.1 or Windows NT Workstation 4.0 and can then be upgraded to Windows 2000 Professional before being upgraded to Windows XP Professional.

TABLE 1.4: Windows XP Professional Upgrade Paths

Operating System	Upgrade Path
Windows 3.1	First upgrade to Windows 98 and then to Windows XP Professional
Windows for Workgroups 3.1	First upgrade to Windows NT Workstation 4.0 SP6 and then to Windows XP Professional
Windows 95	First upgrade to Windows 98 and then to Windows XP Professional
Windows 98	Upgrade directly to Windows XP Professional
Windows NT Workstation 3.5	First upgrade to Windows NT Workstation 4.0 SP6 and

	then to Windows XP Professional
Windows NT Workstation 3.5.1	First upgrade to Windows NT Workstation 4.0 SP6 and then to Windows XP Professional
Windows NT Workstation 4.0	First apply Service Pack 6 and then upgrade to Windows XP Professional
Windows 2000 Professional	Upgrade directly to Windows XP Professional

You can use Windows XP Professional to generate an **upgrade compatibility report** that can be used to check whether the devices and drivers on the existing operating system are compatible with Windows XP. You can generate this compatibility report by running the *winnt32 /checkupgradeonly* command or the *Chkupgrd.exe* utility, which runs the Windows XP Readiness Analyzer but must be downloaded from Microsoft website. The */checkupgradeonly* switch of the *winnt32* command runs the first part of the Windows XP Professional Setup program and checks only for compatible hardware and software. For a full list of *winnt32* see Table 1.5 and for a full list of *winnt* switches see Table 1.6.

TABLE 1.5: WINNT32 switches

Switch	Description
<i>/checkupgradeonly</i>	Checks the computer for upgrade compatibility with Windows XP
<i>/copydir:folder_name</i>	Creates a folder in the <i>systemroot</i> folder (which contains the Windows XP Professional system files).
<i>/copysource:folder_name</i>	Creates a folder in the <i>systemroot</i> folder. Files created with <i>/copysource</i> are automatically deleted after the installation is completed.
<i>/cmd: command_line</i>	Specifies a command to be run before the final phase of Setup.
<i>/cmdcons</i>	Adds a Recovery Console option to the operating system selection screen.
<i>/debug[level]</i> <i>[:file_name]</i>	Creates a debug log at the specified level.
<i>/m:folder_name</i>	Specifies that Setup must copy replacement files from another location and to look for files in that location first.
<i>/makelocalsource</i>	Specifies that Setup must copy all installation files to the hard drive.
<i>/noreboot</i>	Prevents Setup from rebooting the computer following the file copy phase. This enables a command to be entered by the user prior to completing setup.
<i>/s:source_path</i>	Specifies the source location of Windows XP Professional installation files.
<i>/syspart:drive_letter</i>	Copies Setup startup files to a hard disk and marks the drive as active. You can then install the drive on another computer. When you start that computer, Setup starts at the next phase. This requires use of the <i>/tempdrive</i> switch.
<i>/tempdrive:drive_letter</i>	Specifies a drive to contain temporary setup files and installs Windows XP Professional on that drive.
<i>/unattend</i>	Performs an unattended installation using an answer file that

[number][:*answer\_file*] provides your custom specifications to the Setup program.  
 /udf:id[,*udf\_file*] Indicates an identifier (ID) that Setup uses to specify how a UniZueness Database File (UDF) modifies an answer file.

**Note:** *winnt32.e e* is **32-bit** application. It cannot be used in a MS-DOS-based environment such as MS-DOS mode. Boot disks operate in a **16-bit MS-DOS mode** environment. You therefore cannot use *winnt32.e e* to install Windows XP Professional from a boot disk. You must use *winnt.e e*, which is the 16-bit eZuivalent of *winnt32.e e*, instead.

TABLE 1.6: WINNT switches

Switch	Description
/a	Enables accessibility options
/e[: <i>command</i> ]	Specifies a command to be e ecuted at the end of Setup's GUI mode.
/r[: <i>folder</i> ]	Specifies an optional folder to be installed on the hade drive that is retained after Setup is completed.
/r [: <i>folder</i> ]	Specifies an optional folder to be installed on the hade drive. Setup deletes the folder after installation
/s[: <i>sourcepath</i> ]	Specifies the source location of Windows XP Professional files.
/t[: <i>tempdrive</i> ]	Specifies a drive to contain temporary setup files.
/u[: <i>answer file</i> ]	Performs an unattended installation using an answer file that provides your custom specifications to the Setup program. This reZuires the /s switch.
/udf:id[, <i>UDF_file</i> ]	Indicates an identifier (ID) that Setup uses to specify how a UniZueness Database File (UDF) modifies an answer file.

## 1.6 Deploying Service Packs

Windows XP Professional supports the integration of service-packs called **slipstreaming**, so service packs can be integrated with the Windows XP Professional installation files. This allows you to keep an image of the operating system. When Windows XP Professional is installed from this image, the appropriate files from the service pack are also installed. To apply a new service pack, run the *update.e e* file from the service pack with the */slip* switch. This will replace the e isting Windows XP Professional files with the appropriate files from the service pack.

You can also apply a service pack to computers that are already running Windows XP Professional by running the *update.e e* file. This replaces the e isting Windows XP Professional files with the appropriate files from the service pack.

## 1.7 Installing Windows XP Professional on a dual boot configuration

A dual boot configuration allows you to install two or more operating systems on your computer and to choose between them each time you start your computer. This allows you to run applications that are not compliant with Windows XP Professional on an e isting operating system, while using Windows XP Professional for all other applications.