Chapter

1

Installing Windows XP Professional

MICROSOFT EXAM OBJECTIVES COVERED IN THIS CHAPTER:

✓ **Perform and troubleshoot an attended installation of Windows XP Professional.**

✓ **Perform and troubleshoot an unattended installation of Windows XP Professional.**

- Install Windows XP Professional by using Remote Installation Services (RIS).
- Install Windows XP Professional by using the System Preparation Tool.
- Create unattended answer files by using Setup Manager to automate the installation of Windows XP Professional.

✓ **Upgrade from a previous version of Windows to Windows XP Professional.**

- Prepare a computer to meet upgrade requirements.
- Migrate existing user environments to a new installation.

✓ **Perform post-installation updates and product activation.**

✓ **Troubleshoot failed installations.**

The first step in using Windows XP Professional is to install it. You can install Windows XP through attended installations or through unattended installations. A large part of this exam focuses on using unattended installations. You also need to know how to troubleshoot installation problems. If you have an existing operating system, you need to know how to upgrade to Windows XP Professional. Once you have Windows XP Professional installed, you need to know how to perform the post-installation updates and product activation.

Perform and Troubleshoot an Attended Installation of Windows XP Professional

Windows XP Professional is easy to install. But this doesn't mean you don't need to prepare for the installation process. Before you begin the installation, you should know what is required for a successful installation and have all of the pieces of information you'll need to supply during the installation process. In preparing for the installation, you should make sure you have the following information:

- The hardware requirements for Windows XP Professional
- How to use the Hardware Compatibility List (HCL) to determine whether your hardware is supported by Windows XP Professional
- Verification that your computer's Basic Input/Output System (BIOS) is compatible with Windows XP Professional
- Whether the devices in your computer have Windows XP drivers
- The installation options suitable for your system, including which disk-partitioning scheme and file system you should select for Windows XP Professional to use

Critical Information

You can run the installation from the CD or over a network. There are four main steps in the Windows XP Professional installation process:

- Collecting information
- Preparing installation
- Installing Windows
- Finalizing installation

The Windows XP installation process is designed to be as simple as possible. The chances for installation errors are greatly minimized through the use of wizards and the step-by-step process. However, it is possible that errors may occur.

Table 1.1 lists some possible installation errors you might encounter.

TABLE 1.1   Common Installation Problems

Problem	Description
Media errors	Media errors are caused by defective or damaged CDs. To check the CD, put it into another computer and see if you can read it. Also check your CD for scratches or dirt—it may just need to be cleaned.
Insufficient disk space	Windows XP needs at least 2GB of free space for the installation program to run properly. If the Setup program cannot verify that this space exists, the program will not let you continue.
Not enough memory	Make sure that your computer has the minimum amount of memory required by Windows XP Professional (64MB). Having insufficient memory may cause the installation to fail or blue-screen errors to occur after installation.
Not enough processing power	Make sure that your computer has the minimum processing power required by Windows XP Professional (Pentium 233MHz). Having insufficient processing power may cause the installation to fail or blue-screen errors to occur after installation.
Hardware that is not on the HCL	If your hardware is not on the HCL, Windows XP may not recognize the hardware, or the device may not work properly.
Hardware with no driver support	Windows XP will not recognize hardware without driver support.
Hardware that is not configured properly	If your hardware is Plug and Play–compatible, Windows should configure it automatically. If your hardware is not Plug and Play–compatible, you will need to manually configure the hardware per the manufacturer's instructions.
Incorrect CD key	Without a valid CD key, the installation will not go past the Product Key dialog box. Make sure that you have not typed in an incorrect key (check your Windows XP installation folder for this key).

T A B L E 1 . 1   Common Installation Problems *(continued)*

Problem	Description
Failure to access Transmission Control Protocol/Internet Protocol (TCP/IP) network resources	If you install Windows XP with typical settings, the computer is configured as a Dynamic Host Configuration Protocol (DHCP) client. If there is no DHCP server to provide IP configuration information, the client will still generate an auto-configured IP address, but be unable to access network resources through TCP/IP if the other network clients are using DHCP addresses.
Failure to connect to a domain controller when joining a domain	Make sure that you have specified the correct domain name. If your domain name is correct, verify that your network settings have been set properly and that a domain controller and Domain Name System (DNS) server are available. If you still can't join a domain, install the computer in a workgroup, then join the domain after installation.

Exam Essentials

Know how to install and troubleshoot a Windows XP installation.   Be able to install third party disk drives. List the common installation problems and how they can be corrected.

Perform and Troubleshoot an Unattended Installation of Windows XP Professional

You can automate the installation of Windows XP Professional by using Remote Installation Services (RIS) to remotely deploy unattended installations (which require a Windows 2000 Server or Windows Server 2003) or by using the System Preparation Tool for disk imaging. To help customize both options for automating remote installations, you can also use answer files. Answer files are used with automated installations to provide answers to the questions that are normally asked during the installation process.

Critical Information

Remote Installation Services (RIS) was introduced in Windows 2000 Server and is also supported by Windows Server 2003. It allows you to remotely install Windows XP Professional.

A RIS server installs Windows XP Professional on RIS clients, as illustrated in Figure 1.1. The RIS server must have the RIS server software installed and configured. RIS clients are computers that have a Pre-boot eXecution Environment (PXE) network adapter or use a RIS boot disk. PXE is a technology that is used to boot to the network when no operating system or network configuration has been installed and configured on a client computer. The RIS boot disk

is a PXE ROM emulator for network adapters that don't have a PXE boot ROM or for a PC that doesn't support booting from the network. In order to use a RIS boot disk, the network adapter must be PCI compliant. The RIS boot disk is generated with the Remote Boot Floppy Generator (`rbfg.exe`) utility.

The RIS clients access RIS servers through DHCP to remotely install the operating system from the RIS server. The network must have a DHCP server, a DNS server, and Active Directory to connect to the RIS server. No other client software is required to connect to the RIS server. Remote installation is a good choice for automatic deployment when you need to deploy to large numbers of computers and your clients are PXE compliant.

The RIS server can be configured with either of two types of images:

▪ A CD-based image that contains only the Windows XP Professional operating system. You can create answer files for CD-based images to respond to the Setup program's configuration prompts.

▪ A Remote Installation Preparation (RIPrep) image that can contain the Windows XP operating system and applications. This type of image is based on a preconfigured computer.
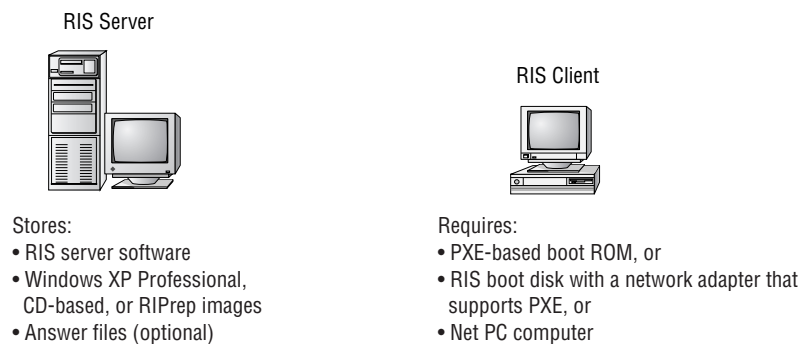
Using Remote Installation Services (RIS)

A variety of installation options are available through the Windows XP Client Installation Wizard (CIW). For RIS installation, you need a RIS server that stores the Windows XP Professional operating system files in a shared image folder, and clients that can access the RIS server. Depending on the type of image you will distribute, you may also want to configure answer files so that users need not respond to any Windows XP Professional installation prompts.

Following are some of the advantages of using RIS for automated installation:

▪ You can remotely install Windows XP Professional.

▪ The procedure simplifies management of the server image by allowing you to access Windows XP distribution files and use Plug and Play hardware detection during the installation process.

▪ You can quickly recover the operating system in the event of a computer failure.

F I G U R E   1 . 1   RIS uses a RIS server and RIS clients.

RIS Server

RIS Client

Stores:
• RIS server software
• Windows XP Professional,
  CD-based, or RIPrep images
• Answer files (optional)

Requires:
• PXE-based boot ROM, or
• RIS boot disk with a network adapter that
  supports PXE, or
• Net PC computer

Windows XP security is retained when you restart the destination computer. Here are the basic steps of the RIS process:

1. The RIS client initiates a special boot process through the PXE network adapter (and the computer's BIOS configured for a network boot) or through a special RIS boot disk. On a PXE client, the client presses F12 to start the PXE boot process and to indicate that they want to perform a RIS installation.

2. The client computer sends out a DHCP discovery packet that requests an IP address for the client and the IP address of a RIS server (running Windows 2000 Server or Windows Server 2003). Within the discovery packet, the client also sends its Globally Unique Identifier (GUID). The GUID is a unique 32-bit address that is used to identify the computer account as an object within the Active Directory.

3. If the DHCP server and the RIS server are on the same computer, the information requested in the discovery packet is returned. If the DHCP server and the RIS server are on separate networks, the DHCP server will return the client information for IP configuration. Then the client will send out another broadcast to contact the RIS server.

4. The client contacts the RIS server using the Boot Information Negotiation Layer (BINL) protocol. The RIS server contacts Active Directory to see if the client is a "known client" and whether it has already been authorized (also called pre-staged) through Active Directory.

5. If the client is authorized to access the RIS server, BINL provides to the client the location of the RIS server and the name of the bootstrap image (enough software to get the client to the correct RIS server).

6. The RIS client accesses the bootstrap image via the Trivial File Transfer Protocol (TFTP), and the Windows XP CIW is started.

7. The RIS client is prompted for a username and password that can be used to log on to the Windows 2000 or Windows 2003 domain that contains the RIS server.

8. Depending on the user or group credentials, the user sees a menu offering the operating systems (images) that can be installed. The user sees only the options for the installs determined by the parameters defined on the RIS server.

The following sections describe how to set up the RIS server and the RIS clients, and how to install Windows XP Professional through RIS.

RIS Client Options

RIS offers several client installation options. This allows administrators to customize remote installations based on organizational needs. When the client accesses the Windows XP CIW, they see the installation options that have been defined by the administrator. Remote installation options include the following:

Automatically setting up the computer   When you automatically set up the computer, the user sees a screen indicating which operating system will be installed but is not prompted for any configuration settings. If only one operating system is offered, the user does not even have to make any selections and the entire installation process is automatic.

Customizing the setup of the computer   If you configure RIS to support customizing the setup of the computer, then administrators who install computers within the enterprise can override the RIS settings to specify the name and location of the computer being installed within Active Directory.

Restarting a previous setup attempt   The option to restart a previous setup attempt is used when a remote installation fails prior to completion. The operating system installation will restart when this option is selected from the CIW.

Performing maintenance or troubleshooting   The maintenance and troubleshooting option provides access to third-party troubleshooting and maintenance tools. Examples of tasks that can be completed through this option include updating flash BIOS and using PC diagnostic tools.

Preparing the RIS Server

The RIS server is used to manage and distribute the Windows XP Professional operating system to RIS client computers. RIS servers can distribute CD-based images (created with the `Risetup.exe` utility) or images created from a reference Windows XP computer, called RIPrep images (created with the `RIPrep.exe` utility). A CD-based image contains the operating system installation files taken directly from the Windows XP Professional CD and can be customized for specific computers through the use of answer files. RIPrep images are based on a preconfigured computer and can contain applications as well as the operating system. `RIPrep.exe` is used to create the image of the target computers on the RIS server.

The RIS server is configured to specify how client computers will be installed and configured. The administrator can configure the following options for client computers:

- Define the operating system installation options that will be presented to the user. Based on access permissions from Access Control Lists (ACLs), administrators can define several installation options, and then allow specific users to select an option based on their specific permissions.

- Define an automatic client-computer naming format, which bases the computer name on a custom naming format. For example, the computer names might be a combination of location and username.

- Specify the default Active Directory location for client computers that are installed through remote installation.

- Pre-stage client computers through Active Directory so that only authorized computers can access the RIS server. This option requires a specified computer name, a default Active Directory location, and identification of RIS servers and the RIS clients the RIS Servers will service.

- Authorize RIS servers so that unauthorized RIS servers can't offer RIS services to clients.

- Create and modify the RIS answer file.

The following steps for preparing the RIS server are discussed in the upcoming sections:

1. Make sure that the server meets the requirements for running RIS (Windows 2000 Server or Windows Server 2003, TCP/IP, DHCP, DNS, Active Directory).

2. Install the RIS Server.

3. Configure and start RIS, using either a CD-based image or a RIPrep image.

4. Authorize the RIS server through DHCP Manager.

5. Grant users who will perform RIS installations the user right to create computer accounts.

6. Grant users who will perform the RIS installation the Log On as a Batch Job user right.

7. Configure the RIS server to respond to client computers (if this was not configured when RIS was installed).

8. Configure RIS template files (if you wish to customize installation options for different computers or groups).

Preparing the RIS Client

The RIS client is the computer on which Windows XP Professional will be installed. RIS clients rely on PXE, which allows the client computer to remotely boot and connect to a RIS server.

To act as a RIS client, the computer must meet all the hardware requirements for Windows XP Professional and have a network adapter installed. In addition, the RIS client must support one of the following configurations:

- Use a PXE-based boot ROM (a boot ROM is a special chip that uses read-only memory) with a BIOS that supports starting the computer with the PXE-based boot ROM (as opposed to booting from the hard disk).

- Follow the Net PC/PC 98 standard for PCs, which uses industry-standard components for the computer. This includes processor, memory, hard disk, video, audio, and an integrated network adapter and modem, in a locked case with limited expansion capabilities. The primary advantages of Net PCs are that they are less expensive to purchase and to manage.

- Have a network adapter that supports PXE and that can be used with a RIS boot disk. The only network adapters that can be used with RIS boot disks are the network adapters that are displayed when running the RBFG.exe utility. If your network adapter is not on the list, ensure that you have the most current RBFG.exe utility, since Microsoft makes updates and adds drivers to this utility periodically. You can obtain updates through Windows Update or Service Packs.

If the client computer does not have a network adapter that contains a PXE-based boot ROM, then you can use a RIS boot disk to simulate the PXE startup process. The PXE-based boot disk is used to provide network connectivity to the RIS server. In order to use a RIS boot disk, the client computer must use a PCI-compliant network adapter.

> **WARNING** If your client uses PCMCIA or ISA network adapters, there is no support to use RIS boot disks.

To create a RIS boot disk, take the following steps:

1. On a Windows XP Professional computer that is connected to the same network as the RIS server, select Start ➢ Run. In the Run dialog box, type the following command and click the OK button:

    \\RIS_Server\Reminst\Admin\I386\Rbfg.exe

2. The Windows XP Remote File Generator dialog box appears. Insert a blank floppy disk in your computer, select the appropriate destination drive, select the installed network card from the Adapter List, and click the Create Disk button. The network adapter must be on the list of those shown when running the RBFG.exe utility. When the disk is made, it will support any and all of these network adapters.

3. You see a message verifying that the boot floppy was created and asking whether you want to create another disk. You can click Yes and repeat the procedure to create another boot disk, or click No. After you are finished creating RIS boot disks, click the Close button.

Installing Windows XP Professional through RIS

After the RIS server has been installed and configured, you can install Windows XP Professional on a RIS client that uses either a PXE-compliant network card or a RIS boot disk with a network card that supports PXE.

To install Windows XP Professional on the RIS client, take the following steps:

1. Start the computer. When prompted, press F12 for a network service boot.

2. The Client Installation Wizard starts. Press Enter to continue.

3. The Windows XP Logon dialog box appears. Specify the domain to which you will log on, and enter a valid domain username and password.

4. A menu appears with the options Automatic Setup, Custom Setup, Restart a Previous Setup Attempt, and Maintenance and Troubleshooting. Select Automatic Setup.

If you have only one RIS image, it will automatically be installed. If you have multiple RIS images, the user will see a menu of RIS images. After you select a RIS image, the remote installation process will start. What happens next depends on the image type and whether you have configured answer files.

System Preparation Tool

The *System Preparation Tool* (Sysprep.exe) is used to prepare a computer for *disk imaging*, which can be done with third-party image software or with disk-duplicator hardware. Disk imaging (also sometimes called disk cloning or disk duplication) is the process of creating a reference computer for the automated deployment. The reference, or source, computer has Windows XP Professional installed and is configured with the settings and applications that should be installed on the target computers. An image is then created that can be transferred to other computers, thus installing the operating system, settings, and applications that were defined on the reference computer.

Using the System Preparation Tool and disk imaging is a good choice for automatic deployment when you have the hardware that supports disk imaging and you have a large number of computers with similar configuration requirements. For example, education centers that reinstall the same software every week might use this technology.

To perform an unattended install, the System Preparation Tool prepares the reference computer by stripping away the security identifier (SID), which is used to uniquely identify each computer on the network. The System Preparation Tool also detects any Plug and Play devices that are installed and can adjust dynamically for any computers that have different hardware installed.

If you are using disk-duplicator hardware, you create a reference computer, and then use the System Preparation Tool to create the image. You would then remove the drive that has the disk image and insert it into a special piece of hardware, called a disk duplicator, to copy the image. The copied disks are inserted into the target computers. After you add the hard drive that contains the disk image to the target computers, you can complete the installation from those computers. Figure 1.2 illustrates the disk-imaging process. You can also copy disk images by using special third-party software.

When the client computer starts an installation using a disk image, a Mini-Setup Wizard will execute. You can customize what is displayed on the Windows Welcome screen and the options that are displayed through the Mini-Setup Wizard process, which query for information such as username or time zone selection. You can also create fully automated deployments with disk imaging through the use of answer files.

Using the System Preparation Tool to Create Disk Images

To create a disk image, you install Windows XP Professional on the source computer with the configuration that you want to copy. The source computer's configuration should also include any applications that should be installed.

Once you have your source computer configured, you use the System Preparation Tool (`Sysprep.exe`) to prepare the disk image for disk duplication. After you've created the disk image, you can copy the image to destination computers through third-party software or through hardware disk duplication.

PREPARING FOR DISK DUPLICATION

To use a disk image, the source and target computers must meet the following requirements:

- Both the source and destination computers must be able to use the same hard-drive controller driver.

- Both the source and destination computers must have the same Hardware Abstraction Layer (HAL). For example, both use an Advanced Configuration and Power Interface (ACPI) HAL. If the source computer is ACPI-compatible and the target computer is non-ACPI-compatible, Windows XP Professional will not load properly.

FIGURE 1.2   Disk imaging with disk-duplicator hardware
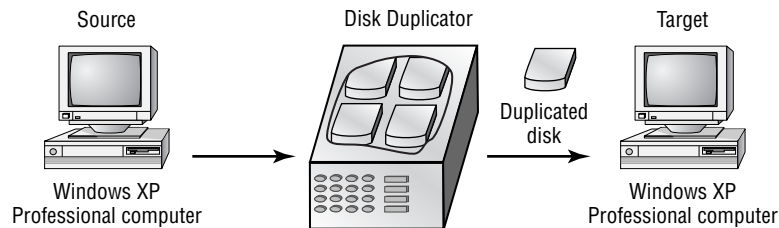
- The size of the installation partition must be as large as the smallest space the image pro-gram will install the image to.
- Plug and Play devices on the source and destination computers do not need to match, as long as the drivers for the Plug and Play devices are available.

USING THE SYSTEM PREPARATION TOOL

The System Preparation Tool (`Sysprep.exe`) is included on the Windows XP Professional CD in the `\Support\Tools` folder, in the `Deploy.cab` file. When you run this utility on the source computer, it strips out information from the master copy that must be unique for each computer, such as the security ID (SID).

After you install the copied image on the target computer, a Mini-Setup Wizard runs. This wizard automatically creates a unique computer SID and then prompts the user for computer-specific information, such as the product ID, regional settings, and network configuration. The required information can also be supplied through an automated installation script.

Table 1.2 defines the command switches that you can use to customize the System Preparation Tool's (`Sysprep.exe`) operation.

T A B L E   1 . 2   System Preparation Command-Line Switches

Switch	Description
-quiet	Runs the installation with no user interaction.
-pnp	Forces Setup to run Plug and Play detection of hardware.
-reboot	Restarts the target computer after the System Preparation Tool completes.
-noreboot	Specifies that the computer should be shut down without a reboot.
-clean	Specifies that critical devices should be cleaned out.
-nosidgen	Doesn't create a SID on the destination computer (used with disk cloning).
-activated	Prevents Windows Product Activation from resetting.
-factory	Allows you to add additional drivers and applications to the image after the computer has restarted.
-reseal	Reseals an image and prepares the computer for delivery after modifications have been made to an image using the factory mode.
-bmsd	Used to build a list of all available mass storage devices in `sysprep.inf`.

T A B L E   1 . 2   System Preparation Command-Line Switches *(continued)*

Switch	Description
-forceshutdown	If you have used the -reseal switch, this switch prepares the operating system as specified, then immediately shuts down the computer without any user intervention.
-mini	Specifies that you want to run the Mini-Setup Wizard on the next restart of the computer.

> **NOTE**   After you run the System Preparation Tool on a computer, you need to run the Mini-Setup Wizard. Then run the Setup Manager to create an answer file that will answer the Mini-Setup Wizard's questions when the computer (the imaged computer or the original computer that has had the System Preparation Tool run on it) is restarted.

In the following sections, you will learn how to create a disk image and how to copy and install from a disk image.

CREATING A DISK IMAGE

To run the System Preparation Tool and create a disk image, take the following steps:

1. Install Windows XP Professional on a source computer. The computer should have a similar hardware configuration to the destination computer(s). You should not join a domain, and the administrator password should be left blank.

2. Log on to the source computer as administrator and, if desired, install and configure any applications, files (such as newer versions of Plug and Play drivers), or custom settings (for example, a custom desktop) that will be applied to the target computer(s).

3. Verify that your image meets the specified configuration criteria and that all applications are properly installed and working. Extract the Deploy.cab file from the Windows XP Professional CD.

4. Select Start ➢ Run and click the Browse button in the Run dialog box. Select Local Drive (C:), then Deployment Tools; double-click Sysprep and click the OK button.

5. The Windows System Preparation Tool dialog box appears. This dialog box warns you that the execution of this program will modify some of the computer's security parameters. Click the OK button.

6. You will be prompted to turn off your computer.

7. You may now boot up with third-party imaging software and create an image of the computer to deploy to other computers.

COPYING AND INSTALLING FROM A DISK IMAGE

After you've run the System Preparation Tool on the source computer, you can copy the image and then install it on the target computer.

If you are using special hardware (a disk duplicator) to duplicate the disk image, shut down the source computer and remove the disk. Copy the disk and install the copied disk into the target computer. If you are using special software, copy the disk image per the software vendor's instructions.

After the image is copied, turn on the destination computer. The Mini-Setup Wizard runs and prompts you as follows (if you have not configured an answer file):

- Accept the End User License Agreement.

- Specify regional settings.

- Enter a name and organization.

- Specify your product key.

- Specify the computer name and administrator password.

- Specify dialing information (if a modem is detected).

- Specify date and time settings.

- Specify which networking protocols and services should be installed.

- Join a workgroup or a domain.

> **NOTE** If you have created an answer file for use with disk images, you should save the images on the reference computer prior to using the Sysprep utility. Answer files are described in the next section of this chapter. Answer files allow the installation to run without requiring any user input.

Unattended Answer Files

Answer files are automated installation scripts used to answer the questions that appear during a normal Windows XP Professional installation. You can use answer files with Windows XP unattended installations, the System Preparation Tool (disk images), or RIS installations. Setting up answer files allows you to easily deploy Windows XP Professional to computers that may not be configured in the same manner, with little or no user intervention.

You create answer files through the Setup Manager (`Setupmgr`) utility. There are several advantages to using Setup Manager to create answer files:

- You can easily create answer files through a graphical interface, which reduces syntax errors.

- It simplifies the addition of user-specific or computer-specific configuration information.

- You can include application setup scripts within the answer file.

- The utility creates the distribution folder and allows you to populate the distribution folder by adding files, programs, and applications that will be used along with the installation files.

In the following sections, you will learn about options that can be configured through Setup Manager, how to create answer files with Setup Manager, answer file format, and how to manually edit answer files.

Options That Can Be Configured through Setup Manager

The Setup Manager can be used to configure a wide variety of installation options. The following list defines what can be configured through Setup Manager and gives a short description of each parameter:

Set user interaction.   Sets the level of user interaction that will be used during the setup process. This can be fully automated, or the user can supply configuration information for the items you specify.

Set default username.   Specifies the username and organization that will be defined for the computer.

Define computer names.   Configures multiple usernames during the setup process. In this case, Setup Manager will generate a Uniqueness Database File (UDF), which maps unique names and settings to specific computers.

Set an administrator password.   Encrypts the administrator password that has been defined within the answer file, or allows you to prompt the user on the first logon to specify an administrator password.

Display settings.   Configures the display for color depth, screen area, and the refresh frequency display settings that should be applied.

Configure network settings.   Specifies any custom network settings you want to be applied. You can also configure the computer to be added to a domain or workgroup, and if you join a domain, automatically create an account within the domain for the computer.

Set time zone and regional options.   Specifies the appropriate time zone to be configured for the target computer. Regional options include language settings such as how time and date are displayed.

Set Internet Explorer settings.   Configures the basic settings that will be applied to Internet connections.

Set telephony settings.   Configures telephony properties—for example, area codes and dialing rules.

Add `cmdlines.txt` file.   Adds applications during the GUI-mode phase of Windows XP Professional installation.

Create an installation folder.   Uses the default installation folder (`\Windows`) to generate or set a custom folder during the setup process.

Install printers.   Sets up and configures printers as a part of the automated deployment process.

Add command to the Run Once.   Installs whatever command or applications you specify the first time a user logs on to the computer.

Run command at the end of setup.   Runs a command at the end of the setup process, but before a user logs on to the computer the first time.

Copy additional files.   Copies additional files to the user desktop.

Create a distribution folder.   Creates a Windows distribution folder on a network share that contains the Windows XP Professional source files or any additional files (such as device drivers) you want to add.

Creating Answer Files with Setup Manager

After you have extracted the Windows XP Deployment Tools from the Windows XP Professional CD, you can run the Setup Manager utility to create a new answer file, create an answer file that duplicates the current computer's configuration, or edit existing answer files.

The following steps describe how to create a new installation script. In this example, the instructions are for creating an answer file for a RIS installation. This answer file provides default answers, uses the default display configuration, configures typical network settings, and does not edit any additional options.

1. Select Start ➢ Run and click the Browse button in the Run dialog box. Double-click the Deployment Tools folder, double-click the `Setupmgr` program, and then click the OK button.

2. The Windows Setup Manager Wizard starts. Click the Next button.

3. The New or Existing Answer File dialog box appears. This dialog box provides choices for creating a new answer file or modifying an existing answer file. Select the option Create a New Answer File and click the Next button.

4. The Product to Install dialog box appears. You can choose Windows Unattended Installation, Sysprep Install, or Remote Installation Services. Select Remote Installation Services and click the Next button.

5. The User Interaction Level dialog box appears. This dialog box offers the following options:

   - Provide Defaults allows you to configure default answers that will be displayed. The user is prompted to review the default answer and can change the answer if desired.

   - Fully Automated uses all the answers in the answer file and will not prompt the user for any interaction.

   - Hide Pages lets you hide the wizard page from the user if you have supplied all of the answers on the Windows Setup Wizard page.

   - Read Only allows the user to see the Setup Wizard display page but not to make any changes to it (this option is used if the Setup Wizard display page is shown to the user).

   - GUI Attended allows only the text-mode portion of the Windows Setup program to be automated.

   Select the Provide Defaults option and click the Next button to continue.

6. Next, from the Display Settings dialog box, you can configure the following settings:

   - For the Colors option, set the display color to the Windows default, 16 colors, 256 colors, high color (16 bit), high color (24 bit), or high color (32 bit).

   - The Screen Area option allows you to set the screen area to the Windows default, or to one of the following: 640×480, 800×600, 1024×768, 1280×1024, or 1600×1200.

- The Refresh Frequency option (the number of times the screen is updated) allows you to set the refresh frequency to the Windows default or to 60Hz, 70Hz, 72Hz, 75Hz, or 85Hz.
- The Custom button displays a dialog box in which you can further customize display settings for the color, screen area, and refresh frequency.

  For this example, click Next to accept the default configuration and continue.

7. The Time Zone dialog box appears. Select your computer's time zone from the drop-down list and click the Next button.

8. The Providing the Product Key dialog box appears. Type in the product key for the computer that will be installed. Each computer will need its own license key. When you are done, click the Next button.

9. The Computer Name dialog box will appear. You can let a computer name be automatically generated or you can choose to specify the destination computer name.

10. Next is the Administrator Password dialog box. You can choose to prompt the user for a password, or you can specify the administrator password. You can also specify that when the computer starts, the administrator will automatically be logged on. Enter and confirm an administrator password. Then click the Next button.

11. In the Network Settings dialog box, you can choose from Typical Settings, which installs TCP/IP, enables DHCP, and installs Client for Microsoft Networks; or Custom Settings, which allows you to customize the computer's network settings. Select the Typical Settings option and click the Next button.

12. The Advanced Settings dialog box options appear. These additional settings allow you to configure the following options:
- Telephony settings
- Regional settings
- Languages
- Browser and shell settings
- Installation folder
- Install printers
- A command that will run once the first time a user logs on
- Additional commands that should be run at the end of unattended setup

13. The Setup Information File Text dialog box appears. This dialog box allows you to give the answer file a descriptive name and help text. Enter the name in the Description String text box and the help text in the Help String text box. Click Finish to continue.

14. The Setup Manager dialog box appears. Specify the path and file name you want to use to save your answer file, then click the OK button.

15. When you see the Completing Setup Manager dialog box, click the Finish button.

> An answer file can be used to provide automated answers for a CD-based installation. Simply create a new answer file named `winnt.sif` and copy it to a floppy. Insert the Windows XP Professional CD and set the BIOS to boot from CD. As the installation begins, Windows XP will look for `winnt.sif` and use it as the answer file.

Manually Editing Unattended Answer Files

In addition to creating answer files through Setup Manager, you can edit or create your answer files through a text editor program. Answer files consist of section headers, parameters, and values for the parameters. You do not have to specify every option through your answer file if the option is not required by the installation. Following is a sample answer file, `Unattended.txt`.

```
;SetupMgrTag
[Data]
    AutoPartition=1
    MsDosInitiated="0"
    UnattendedInstall="Yes"

[Unattended]
    UnattendMode=ProvideDefault
    OemPreinstall=Yes
    TargetPath=\Windows

[GuiUnattended]
    AdminPassword=abc
    OEMSkipRegional=1
    TimeZone=4

[UserData]
    FullName="Test User"
    OrgName="ABC Corp"
    ComputerName=SJ-UserTest

[TapiLocation]
    CountryCode=1
    AreaCode=408

[SetupMgr]
    DistFolder=C:\winXPdist
```

```
    DistShare=winXPdist

[Identification]
    JoinDomain=SJ-CORP
    DomainAdmin=administrator
    DomainAdminPassword=test

[Networking]
    InstallDefaultComponents=Yes
```

The Setup Manager utility allows you to configure answer files through a GUI interface. However, it has limitations on what can be configured, and many additional options can be configured by manually editing the answer files in a text editor (such as Notepad). In the following sections, you will learn how to configure settings for the following options:

- Mass storage devices
- Plug and Play devices
- HALs
- Passwords
- Language, regional, and time zone settings
- Display settings
- NTFS conversion
- Application installation
- Windows product activation
- Dynamic updates
- Driver signing

MASS STORAGE DEVICES

If you have a mass storage device on the remote computer and it is recognized and supported by Windows XP, you need not specify anything in the answer file for mass storage devices. However, if the device has a driver that is not shipped with the Windows XP Professional CD, possibly because the device is brand new, you can configure the device under the [MassStorageDrivers] section of the answer file.

Here are the steps to configure mass storage devices:

1. The distribution folder that contains the remote image files (all the files that will be used by the remote installation) must have a folder that was manually created called \$OEM$. Within the \$OEM$ folder, create a folder called Textmode and copy into it the Windows XP mass storage device driver that was provided by the device manufacturer. The driver files should include files with extensions of *.sys, *.dll, *.inf, and *.cat, and the Txtsetup.oem file. If you specified additional Plug and Play drivers in the [PnPdrvrs] section heading, you would also copy the Plug and Play driver files to the \$OEM$ folder.

2. Within your answer file, create a [MassStorageDrivers] section. The parameters and values to be set within the Txtsetup.oem file should be provided by the manufacturer of the mass storage device.

3. Within your answer file, create a section named [OEMBootFiles] that includes a list of all of the driver files that are in the \OEM\Textmode folder. For example, a device named driver might be configured as follows:

```
[OEMBootFiles]
   driver.sys
   driver.dll
   driver.inf
   Txtsetup.oem
```

4. In the [Unattended] section, include OemPreinstall=Yes.

PLUG AND PLAY DEVICES

If you have a Plug and Play device that does not have a driver included on the Windows XP Professional CD, you can add the driver to the unattended installation as follows:

1. Within the \$OEM$\$1 subfolder, create a folder that will be used to store the Plug and Play drivers—for example, \$OEM$\$1\PnPdrivers. You may even want to create subdirectories for specific devices, such as \$OEM$\$1\PnPdrivers\Modems.

2. In the answer file, edit the [Unattended] section heading to reflect the location of your Plug and Play drivers. For example, if you installed your Plug and Play modem in \$OEM$\$1\PnPdrivers\Modems and your sound card in \$OEM$\$1\PnPdrivers\SoundCards, your answer file would have the following line:

```
[Unattended]
   OEMPnPDriversPath=PnPdrivers\Modems;
   PnPdrivers\SoundCards
```

> **NOTE** If the drivers you are installing are not digitally signed, you will have to configure the driver-signing policy within the [Unattended] section of the answer file as DriverSigningPolicy=Ignore. Use unsigned drivers with caution, as they have not been tested by Microsoft and could cause operating system instability.

HALS

If you want to use alternate HALs, follow these steps:

1. Create a folder called \OEM\Textmode (or verify that one exists).

2. Copy any files that are provided by the HAL vendor into the Textmode folder.

3. Edit the [Unattended] section of the answer file based on the instructions from the HAL manufacturer.

PASSWORDS

If you are upgrading a Windows 98 or Windows Millennium Edition (Me) computer to Windows XP Professional, you can customize the answer file to set passwords for the user accounts. You can also opt to force users to change their passwords during the first logon.

Table 1.3 explains the options that can be configured for passwords.

T A B L E   1 . 3   Password Options for Answer Files

Answer File Section	Key	Usage	Example
[Win9xUpg]	DefaultPassword	Sets a password to whatever you specify, for all computers that are upgraded from Windows 98 or Windows Me to Windows XP Professional	DefaultPassword=*password*
[Win9xUpg]	ForcePassword	Forces all users who have upgraded from Windows 98 or Windows Me to change their password the first time they log on	ForcePasswordChange=Yes
[Win9xUpg]	UserPassword	Forces specific users to change their passwords on their local accounts when they log on to Windows XP Professional for the first time after upgrading from Windows 98 or Windows Me	UserPassword=*user,password,user,password*
[GuiUnattended]	AdminPassword	Sets the local administrator password	AdminPassword=*password*

LANGUAGE, REGIONAL, AND TIME ZONE SETTINGS

The [RegionalSettings] section heading is used to set language and regional settings. Time zone settings are in the [GUIUnattended] section under the TimeZone option.

To set regional settings for answer files, you must copy the appropriate language files to the computer's hard disk. This can be accomplished by using the /copysource:*lang* switch with Winnt32, or the /rx:*lang* switch with Winnt. Table 1.4 lists the options that can be set for the [RegionalSettings] section.

T A B L E 1 . 4   Regional Setting Options for Answer Files

Option	Description
InputLocale	Specifies the input locale and the keyboard layout for the computer
Language	Specifies the language and locale that will be used by the computer
LanguageGroup	Specifies default settings for the SystemLocale, InputLocale, and UserLocale keys
SystemLocale	Allows localized applications to run and to display menus and dialog boxes in the language selected
UserLocale	Controls settings for numbers, time, and currency

To set the time zone, you edit the [GuiUnattended] section of the answer file as follows:

```
[GuiUnattended]
    TimeZone=TimeZone
```

DISPLAY SETTINGS

The [Display] section of the answer file is normally used to customize the display settings for portable computers. You should verify that you know what the proper settings are before you set this option. Table 1.5 lists the options that can be set in this section of the answer file.

T A B L E 1 . 5   Display Setting Options for Answer Files

Option	Description
BitsPerPel	Specifies the number of valid bits per pixel for the graphics device
Vrefresh	Sets the refresh rate for the graphics device that will be used
Xresolution	Specifies the horizontal resolution for the graphics device that will be used
Yresolution	Specifies the vertical resolution for the graphics device that will be used

NTFS CONVERSION

You can configure the answer file to automatically convert FAT16 or FAT32 partitions during the installation. To convert the drives, you add the following entry:

```
[Unattended]
    FileSystem=ConvertNTFS
```

APPLICATION INSTALLATION

You can install applications through unattended installations in a variety of ways. Following are some of the options you can choose:

- Use the `Cmdlines.txt` file to add applications during the GUI portion of setup.
- Within the answer file, configure the `[GuiRunOnce]` section to install an application the first time a user logs on.
- Create a batch file.
- Use the Windows Installer.
- Use the `Sysdiff` tool to install applications that do not have automated installation routines. To use the Sysdiff method, install Windows XP Professional on a reference computer and take a snapshot of the base configuration. Then add your applications and take another snapshot of the reference computer with the differences. The difference file (difference between first snapshot and second snapshot) can then be applied to computers that are being installed through unattended installations.

WINDOWS PRODUCT ACTIVATION

Windows XP Professional includes a new feature called Windows Product Activation, which is used to prevent software piracy. You can create an entry within the answer file that supplies a unique product key for each computer that will be deployed within a mass deployment. To set Windows Product Activation, you must create a separate answer file for each computer, and use the value `ProductKey` under the `[UserData]` section of each specific user file. Under the `[Unattended]` section of the answer file, the `Autoactivate=Yes` parameter can be used to automate product activation.

DYNAMIC UPDATES

Dynamic updates are used to provide reliability and compatibility improvements to Windows XP Professional after the operating system CD has been released. You can apply dynamic updates to automated installations through Dynamic Update Packages. Dynamic Update Packages can be downloaded from the Microsoft website. You apply dynamic updates through the `[Unattended]` section of the answer file under `Dushare=`*path to update share* key and value.

DRIVER SIGNING

When drivers are applied to Windows XP Professional, they are checked to see if the driver has been digitally verified and signed. Drivers that are signed by Microsoft have passed extensive testing and are verified to be non-harmful to your system. Driver signing options can be set to Ignore, Warn, or Block. To set driver signing within an answer file, you use the `[Unattended]` section and the `DriverSigningPolicy` key.

Exam Essentials

Understand the features and uses of RIS.   Know when it is appropriate to use RIS to manage unattended installations. Be able to list the requirements for setting up RIS servers and RIS clients. Be able to complete an unattended installation using RIS.

Be able to use disk images for unattended installations.   Know how to perform unattended installations of Windows XP Professional using the System Preparation Tool and disk images.

Know how to use Setup Manager to create answer files.   Understand how to access and use Setup Manager to create answer files. Be able to edit the answer files and know the basic options that can be configured for answer files.

Upgrade from a Previous Version of Windows to Windows XP Professional

To upgrade to Windows XP Professional, you must follow a particular path. Only the following operating systems can be directly upgraded to Windows XP Professional:

- Windows 98 (all releases)
- Windows Me
- Windows NT 4 Workstation (requires Service Pack 4 or higher)
- Windows 2000 Professional

> **NOTE** There is no supported direct upgrade path for Windows 3.*x*, Windows 95, Windows NT 3.51, or any version of NT 4 Server or Windows 2000 Server.

The hardware requirements for upgrading are the same as those for a clean installation. To upgrade to Windows XP Professional, your computer hardware must meet the following requirements:

- Pentium 233MHz or higher processor (300MHz or higher is recommended)
- 64MB of RAM (128MB or higher memory is recommended)
- 1.5GB of available hard disk space (2GB or more is recommended)
- VGA or better resolution monitor (SVGA is recommended)

Critical Information

The following upgrade checklist (valid for upgrading from Windows 98 or Windows Me, Windows NT 4 Workstation, and Windows 2000 Professional) will help you plan and implement a successful upgrade strategy.

- Verify that your computer meets the minimum hardware requirements for Windows XP Professional. Be sure that all of your hardware is on the HCL.
- Run the Windows XP Upgrade Advisor tool from the Microsoft website, which also includes documentation on using the utility, to audit the current configuration and status

of your computer. It will generate a report of any known hardware or software compatibility issues based on your configuration. You should resolve any reported issues before you upgrade to Windows XP Professional.

- Back up your data and configuration files. Before you make any major changes to your computer's configuration, you should back up your data and configuration files and then verify that you can successfully restore your backup.

- Delete any unnecessary files or applications, and clean up any program groups or program items you don't use.

- Verify that there are no existing problems with your drive prior to the upgrade. Perform a disk scan, a current virus scan, and defragmentation.

- Uncompress any partitions that have been compressed with DriveSpace or DoubleSpace. You cannot upgrade partitions that are currently compressed.

- Once you verify that your computer and components are on the HCL, make sure that you have the Windows XP drivers for the hardware. You can verify this with the hardware manufacturer.

- Make sure that your BIOS is current. Windows XP requires that your computer has the most current BIOS. If it does not, the computer may not be able to use advanced power-management features or device-configuration features. In addition, your computer may cease to function during or after the upgrade. Use caution when performing BIOS updates, as installing the incorrect BIOS can cause your computer to fail to boot.

- Take an inventory of your current configuration. This inventory should include documentation of your current network configuration, the applications that are installed, the hardware items and their configuration, the services that are running, and any profile and policy settings.

- Perform the upgrade. In this step, you upgrade from your previous operating system to Windows XP Professional.

- Verify your configuration. After Windows XP Professional has been installed, use the inventory to compare and test each element that was inventoried prior to the upgrade to verify that the upgrade was successful.

Migrating Existing User Environments to a New Installation

Windows XP Professional ships with a utility called the *User State Migration Tool (USMT)* that is used by administrators to migrate users from one computer to another via command-line utilities.

In the following sections you will learn more about the USMT, requirements for the USMT, and how the USMT tool is used.

Overview of the User State Migration Tool

The USMT consists of two executable files, ScanState.exe and LoadState.exe. These files are located on the Windows XP Professional distribution CD under the \valueadd\Msft\Usmt

folder. In addition, there are four migration rule information files: `Miggapp.inf`, `Migsys.inf`, `Miguser.inf`, and `Sysfiles.inf`. The purpose of these files is as follows:

- `ScanState.exe` collects user data and settings information based on the configuration of the `Migapp.inf`, `Migsys.inf`, `Miguser.inf`, and `Sysfiles.inf` files.

- `LoadState.exe` then deposits the information that is collected from the source computer to a computer running a fresh copy of Windows XP Professional.

> **WARNING** This process cannot be run on a computer that has been upgraded to Windows XP Professional.

The information that is migrated includes the following: Internet Explorer settings, Outlook Express settings and store, Outlook settings and store, Dial-up connections, Phone and modem options, Accessibility, Classic Desktop, screen saver selection, Fonts, Folder options, Taskbar settings, Mouse and keyboard settings, Sounds settings, Regional options, Office settings, Network drives and printers, Desktop folder, My Documents folder, My Pictures folder, Favorites folder, Cookies folder, and Common Office file types.

Requirements for the User State Migration Tool

In order to use the USMT, minimum requirements need to be met for the source computer, the intermediate store device, and the destination computer.

The source computer requirements are as follows:

- The source computer must be running one of the following operating systems: Windows 95, Windows 98, Windows Me, Windows NT 4 Workstation, or Windows 2000 Professional.

- The source computer must have access to the intermediate store, which holds the configuration information until it is transferred to the destination computer. Examples of intermediates store devices are tape drive or CD-RW device. The intermediate store that is used must have sufficient free storage to save all of the information that will be transferred.

The destination computer requirements are as follows:

- The destination computer must be running Windows XP Professional.

- The destination computer must have access to the intermediate store.

- The destination computer must have sufficient disk space to accommodate the user state data that is being transferred.

Using the User State Migration Tool

In its simplest form, the USMT is used in the following manner:

1. `ScanState.exe` is run on the source computer, and the user state data is copied to an intermediate store. The intermediate store (for example, a CD-RW) must be large enough to accommodate the data that will be transferred. `ScanState` is commonly executed as a shortcut sent to the user that they will deploy in the evening or through a scheduled script.

2. The target computer is installed with a fresh copy of Windows XP Professional.

3. `LoadState.exe` is run on the target computer, and the intermediate store is accessed to restore the user settings.

Migrating Files and Settings

Windows XP Professional ships with a utility called the *File and Settings Transfer (FAST) Wizard* that is used by administrators to migrate files and settings from one computer to another. This option is used when you purchase a new computer with Windows XP Professional already installed and you want to migrate files and settings from an existing computer that is running a previous version of Windows.

The settings that can be transferred include

- Personalized settings for Internet Explorer
- Personalized settings for Microsoft Outlook Express
- Desktop settings
- Display settings
- Dial-up connection settings

The FAST Wizard works through the following process:

1. On the source computer that contains the files and settings to be transferred, you access the File and Transfer and File Settings Wizard on the Windows XP Professional CD, from the `\Support\Tools` folder through Windows Explorer. Double-click the `Fastwiz.exe` command to start the wizard. The wizard will walk you through the process of selecting the files and settings that will be transferred and the media that will be used for storing the files and settings.

2. Files and settings will be copied to an intermediate storage device—for example, tape or CD-RW.

3. The target Windows XP Professional computer uses Start ➢ All Programs ➢ Accessories ➢ System Tools ➢ File and Settings Transfer Wizard to start the transfer to their computer. The wizard will walk them through the process of locating the files and settings that are to be transferred.

Exam Essentials

Know how to use the USMT and what actions can be accomplished through this utility. Be able to use the ScanState utility to copy user state data to a file server and then use the LoadState utility to apply user state data to client computers.

Be able to transfer data and custom settings from an older computer to a new or existing computer that has Windows XP Professional installed. Know how to use the FAST Wizard and understand what information can be transferred using it.

Perform Post-Installation Updates and Product Activation

Once you are done with the Windows XP Professional installation, you can keep your operating system up-to-date through post-installation updates. Product activation is Microsoft's way of reducing software piracy.

Critical Information

You can perform post-installation updates of Windows XP Professional through Windows Update. *Windows Update* is a utility that connects to Microsoft's website and checks to ensure that you have the most up-to-date version of XP Professional files. To access Windows Update, confirm that your computer is connected to the Internet and access Start ➢ Help and Support. From the Help and Support dialog box, select Windows Update. Your computer will be scanned, and a list of suggested downloads will be customized and listed for you to select from. Some of the common update categories include

- Critical updates and Service Packs
- Windows XP updates
- Drivers

You can deploy the latest Windows XP updates and drivers during installation through the following steps:

1. Download the latest updates and drivers through Windows Update and save them to a network share point.
2. When you install Windows XP using `Winnt` or `Winnt32`, use the /DUShare option to point to the location of the network share that contains the Windows Update files.

Service Packs are updates to the Windows XP operating system that include bug fixes and product enhancements. Some of the options that might be included in Service Packs are security fixes or updated versions of software, such as Internet Explorer.

You can download Service Packs from Microsoft.com or you can pay for a CD of the Service Pack to be mailed to you. Before you install a Service Pack, you should read the Release Note that is provided for each Service Pack on Microsoft's website.

Windows Service Packs are distributed as self-extracting files. You can install a Service Pack simultaneously with a Windows XP Professional installation or you can apply a Service Pack to the operating system after it has been installed.

- If you are installing Windows XP Professional and the Service Pack at the same time, you would use the `Winnt` or `Winnt32` command-line utilities.
- If you were installing a Service Pack after you had installed Windows XP, you would need to extract the Service Pack files, and then use the Update command-line utility with the `-s` switch and point to the location of the Service Pack files.
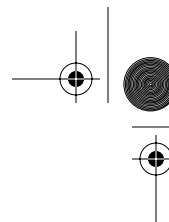
Performing Product Activation

Unless you have a corporate license for Windows XP Professional, you will need to perform post-installation activation. This can be done online or through a telephone call. After Windows XP is installed, you will be prompted to activate the product. There is a 30-day grace period when you will be able to use the operating system without activation. After the grace period expires, you will not be able to successfully log on to the computer without activation if you restart or log out of the computer. When the grace period runs out, the Product Activation Wizard will automatically start; it will walk you through the activation process.

Exam Essentials

Be able to install Windows Updates during the installation process.   You should know how to download the Windows Update files to a network share and use the local network share to install the Windows Update files during a Windows XP Professional installation.

Know how to keep Windows current by using Service Packs.   Be able to apply a Service Pack during installation or after Windows XP has been installed.

Know how to activate Windows XP.   Understand that Microsoft has a 30-day grace period for activating Windows XP Professional. After 30 days with no product activation, users will not be able to log on to the Windows XP operating system.

Troubleshoot Failed Installations

In the following sections, you will learn more about troubleshooting and correcting common installation problems. Specifically you will learn about

- Troubleshooting installation problems that relate to the `Boot.ini` file
- Ensuring that the computer boot device is properly configured
- Installing non-supported hard drives
- Troubleshooting installation errors using installation log files
- Using the default desktop in Windows XP Professional
- Uninstalling Windows XP Professional

Critical Information

If the text-based portion of the installation completes successfully, but the GUI-based portion of the installation fails, the error may be caused by a device driver that is failing to load properly. If you suspect that this is causing the installation error, you can edit a file called `Boot.ini` to list the drivers that are being loaded during the boot process. The `Boot.ini` file is located in the root of the system partition.

In order to cause the device drivers to be listed during the boot process, you need to edit the Boot.ini file to include the /sos switch, as shown here:

```
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS = "Microsoft Windows XP
Professional" /sos
```

Ensuring That Computer Boot Device Is Properly Configured

If your computer has multiple boot devices installed, you should ensure that the proper boot order has been configured in the computer BIOS. For example, your computer has an IDE hard drive and a SCSI drive. You can boot your computer successfully to the IDE drive and install Windows XP Professional on the SCSI drive. If the computer is configured to boot to the IDE drive, then when the computer reboots during the installation, you will get an error stating that the computer can't boot. In this case, you would configure the computer's BIOS to boot using the SCSI drive.

Installing Non-Supported Hard Drives

If your computer is using a hard disk that does not have a driver included on the Windows XP Professional CD, you will receive an error message stating that the hard drive cannot be found. You should verify that the hard drive is properly connected and functional. You will need to obtain a disk driver from the manufacturer for Windows XP, then specify that you are using a manufacturer-supplied driver (by pressing the F6 key when prompted) during the text-mode portion of the installation process.

Troubleshooting with Installation Log Files

When you install Windows XP Professional, the Setup program creates several log files. You can view these logs to check for any problems during the installation process. Two log files are particularly useful for troubleshooting:

- The action log includes all of the actions that were performed during the setup process and a description of each action. These actions are listed in chronological order. The action log is stored as *Windir*\setupact.log.

- The error log includes any errors that occurred during the installation. For each error, there is a description and an indication of the severity of the error. This error log is stored as *Windir*\setuperr.log.

Default Desktop Used With Windows XP Professional

When you install Windows XP Professional, the default desktop that is used will only display the Recycle Bin. This really isn't an installation error, but users who have used previous versions of Windows may perceive this as an error if they want the traditional icons that appear with Windows (My Computer, My Network Places, My Documents) to be displayed on their desktop. You can configure the desktop to display these icons through Control Panel. First select Display Program, then select the Desktop tab, click Customize Desktop, and then select the icons you want to be displayed on the desktop.

Uninstalling Windows XP Professional

In the event that you upgrade a computer to Windows XP Professional and your installation encounters problems (for example, legacy applications do not work with Windows XP Professional), you can revert to the previous operating system through Control Panel by selecting Add or Remove Programs, selecting Uninstall Windows XP, and then clicking Change/Remove. This will work as long as the original operating system that was upgraded was Windows 98 or Windows Me and that the boot partition was formatted with FAT16 or FAT32.

Exam Essentials

Know how to install Windows XP Professional if you are using an unsupported disk drive.
If you are using a disk drive that is not supported by Windows XP Professional, restart the installation and Press F6 when prompted, then supply the disk driver.

Be able to configure your computer's boot device. If your computer has multiple boot devices installed, be able to select the appropriate boot device that Windows XP is using within the computer's BIOS setup.

Know how to configure the desktop to display specific icons. By default, Windows XP Professional will only display the Recycle Bin icon. Users of previous Windows operating systems may perceive this as an installation error, and you should know how to configure the desktop to display traditional Windows desktop icons.

Be able to roll back a computer to its previous operating system if it was upgraded to Windows XP Professional. If you upgrade a computer to Windows XP Professional from Windows 98 or Windows Me, be able to roll back the installation using Control Panel.

Review Questions

1. You have 10 users who have been using Windows 2000 Professional. You just purchased 10 new computers that are running Windows XP Professional. What is the easiest way to migrate the user state data from the Windows 2000 Professional computers to the Windows XP Professional computers?

    A. Use the Windows Backup utility to back up the data from the Windows 2000 Professional computers and then restore it to the Windows XP computers.

    B. Use the ScanState utility on the old computers to copy the user state data to a network server, then use the LoadState utility on the new computers to restore the user state data.

    C. Copy the users' registry settings from the old computers to a network share, then copy them to the new computers.

    D. Use the SaveUST utility on the old computers to copy the user state data to a network server, then use the RestoreUST utility on the new computers to restore the user state data.

2. Your computer has three drives, an IDE primary drive and two SCSI drives. You install Windows XP Professional to the first SCSI drive. During the installation, your computer reboots and you receive an error message that the computer can't boot. What is the most likely error?

    A. You need to press F6 when prompted during the installation to supply the SCSI disk driver.

    B. You need to configure your computer's BIOS to boot from the SCSI drive.

    C. You need to restart the installation and use the Recovery Console to supply the SCSI disk driver.

    D. You need to restart the installation and use the Last Known Good option to boot to the correct partition.

3. Your computer is brand new and has the latest SCSI drive. You boot to the Windows XP Professional CD and start the installation. After the system reboots the first time, you get an error message letting you know the installation cannot continue because no hard drives are detected. How do you correct this error?

    A. You need to press F6 when prompted during the installation to supply the SCSI disk driver.

    B. You need to configure your computer's BIOS to boot from the SCSI drive.

    C. Restart the installation and use the Recovery Console to supply the SCSI disk driver.

    D. Restart the installation and use the Last Known Good option to boot to the correct partition.

4. How do you uninstall Windows XP on a computer that has been upgraded from Windows 98?

    A. Use System Restore to restore to the checkpoint that was created prior to Windows XP Professional being installed.

    B. Use the Last Known Good Configuration prior to logging into Windows XP Professional for the first time.

    C. Use Control Panel and select Add or Remove Programs, then select Uninstall Windows XP.

    D. You will have to reinstall Windows 98.

5. Your company has 25 users using Windows XP Professional. You want them to be able to install the latest updates and drivers. You want to do this without creating a large amount of traffic through your ISP. What is the easiest and most cost effective way to make these updates available?

   A. Let the users know they should check Microsoft's website on a regular basis and download any updates.

   B. Download the latest updates to a network share.

   C. Download the latest updates and distribute them to your users via CD.

   **D.** Deploy the Service Packs using Microsoft SMS services.

6. One of your users asked you to upgrade their Windows 2000 Professional computer to Windows XP Professional. Everything has been working properly for several weeks. This morning when the user tried to log on, they were unable to access Windows XP Professional. What should you do?

   A. Reinstall Windows XP Professional.

   B. Make sure that the latest Service Pack is installed on the user's computer.

   C. Activate the copy of Windows XP Professional.

   D. Instead of logging into the domain, log on to a local account and change the group policy so that the account is not logged out.

7. Your company recently purchased 100 new computers that need to have Windows XP Professional installed on them. You want to use the System Preparation Tool to create an image on a reference computer, which will then be distributed to target computers that will use automated installations. During the installations, you want to automate the responses to the queries generated by the installation process. What is the easiest way to manage this process?

   A. Use a RIS server to host the answer file; the reference computer will automatically use answer files stored on RIS servers.

   B. Create an answer file that is distributed to each target computer via a network connection.

   C. Create an answer file that is distributed to each target computer via a floppy disk.

   D. Create an answer file on the reference computer before the Sysprep utility is run.

8. Your company recently purchased 100 new computers for the Sales department. Each computer needs to be installed with Windows XP Professional, Windows Office 2003, and some customized Sales applications. You want to automate the deployment using the System Preparation Tool to automate the installations. Which of the following options should you use?

   A. Create an image that will be used by Sysprep by installing Windows XP Professional on the reference computer, copying the installation files to the reference computer for each of the applications that need to be installed, and then creating the Sysprep image.

   B. Create an image that will be used by Sysprep by installing Windows XP Professional on the reference computer, installing each of the applications that will be used, and then creating the Sysprep image.

   C. Copy the Windows XP Professional files and the installation files to the reference computer, then create the Sysprep image.

   **D.** The System Preparation Tool does not allow you to automate the installation of applications.
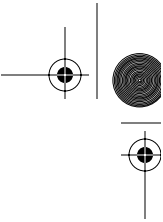
9. Which of the following services are required on a RIS server? Choose all that apply.

    A. DHCP

    B. DNS

    C. WINS

    D. Active Directory

10. You want to use RIS to install Windows XP Professional on 25 computers that are not PXE enabled. What utility should you use to create a remote boot floppy disk?

    A. rbfg

    B. makeboot

    C. RISboot

    D. PXEboot
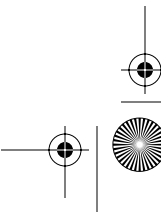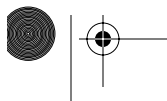
Answers to Review Questions

1. B. The USMT consists of two executable files, `ScanState.exe` and `LoadState.exe`. `ScanState.exe` collects user data and settings information based on the configuration of the `Migapp.inf`, `Migsys.inf`, `Miguser.inf`, and `Sysfiles.inf` files. `LoadState.exe` then deposits the information that is collected from the source computer to a computer running a fresh copy of Windows XP Professional.

2. B. If your computer has multiple boot devices installed, you should ensure that the proper boot order has been configured in the computer BIOS. If the computer is configured to boot to the IDE drive, then when the computer reboots during the installation, you will get an error stating that the computer can't boot. In this case, you would configure the computer's BIOS to boot using the SCSI drive.

3. A. If your computer is using a hard disk that does not have a driver included on the Windows XP Professional CD, you will receive an error message stating that the hard drive cannot be found. You should verify that the hard drive is properly connected and functional. You will need to obtain a disk driver from the manufacturer for Windows XP, then specify that you are using a manufacturer-supplied driver (by pressing the F6 key when prompted) during the text-mode portion of the installation process.

4. C. In the event that you upgrade a computer to Windows XP Professional and your installation encounters problems (for example, legacy applications do not work with Windows XP Professional), you can revert to the previous operating system through Control Panel by selecting Add or Remove Programs, selecting Uninstall Windows XP, and then clicking Change/Remove. This will work as long as the original operating system that was upgraded was Windows 98 or Windows Me and as long as the boot partition was formatted with FAT16 or FAT32.

5. B. To deploy the updates, download the latest updates and drivers through Windows Update and save them to a network share point. When you install Windows XP using Winnt or Winnt32, use the /DUShare option to point to the location of the network share that contains the Windows Update files.

6. C. Unless you have a corporate license for Windows XP Professional, you will need to perform post-installation activation. This can be done online or through a telephone call. After Windows XP is installed, you will be prompted to activate the product. There is a 30-day grace period when you will be able to use the operating system without activation. After the grace period expires, you will not be able to successfully log on to the computer without activation if you restart or log out of the computer. When the grace period runs out, the Product Activation Wizard will automatically start; it will walk you through the activation process.

7. D. If you have created an answer file for use with disk images, you should save them on the reference computer prior to using the Sysprep utility. This will allow the installation to run without requiring any user input.
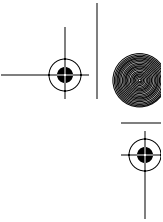
8. B. The System Preparation Tool (`Sysprep.exe`) is used to prepare a computer for disk imaging, which can be done with third-party image software or with disk-duplicator hardware. Disk imaging (also sometimes called disk cloning or disk duplication) is the process of creating a reference computer for the automated deployment. The reference, or source, computer has Windows XP Professional installed and is configured with the settings and applications that should be installed on the target computers. An image is then created that can be transferred to other computers, thus installing the operating system, settings, and applications that were defined on the reference computer.

9. A, B, C. The RIS server must be running Windows 2000 Server or Windows Server 2003, with TCP/IP. DHCP, DNS, and Active Directory must be running on the network.

10. A. PXE is a technology that is used to boot to the network when no operating system or network configuration has been installed and configured on a client computer. The RIS boot disk is a PXE ROM emulator for network adapters that don't have a PXE boot ROM or for a PC that doesn't support booting from the network. In order to use a RIS boot disk, the network adapter must be PCI compliant. The RIS boot disk is generated with the Remote Boot Floppy Generator (`rbfg.exe`) utility.