A+ Guide to Managing and Maintaining Your PC, 7e

Chapter 12 – 7th Edition
Installing Windows (02/06/2014)
Objectives

• How to plan a Windows installation
• How to install Windows Vista/7
• Enterprise deployment strategies
Microsoft Has A Problem!

- Windows XP: 31.22%
- Windows 8: 6.66%
- Windows Vista: 3.57%
- Windows 8.1: 2.64%
- Mac OS X 10.9: 2.42%
- Mac OS X 10.8: 1.85%
- Other: 4.98%
- Windows 7: 46.64%
Windows Installation

• Why upgrade Windows?
• Which version to purchase?
• Upgrade paths
• Hardware requirements
• Installation choices
• Disk partitioning
• Networking considerations
• Enterprise upgrade options
How to Plan a Windows Installation

• Situations requiring a Windows installation
  – Hard disk drive replacement due to failure, capacity shortage, performance
  – Existing Windows installation is corrupted
  – Compatibility with new or emerging tech
Choose the Version of Windows

• Purchase options
  – Retail
  – Original Equipment Manufacturer (OEM)
  – Site License (Large organization)

• Vista/7 editions
  – Variety of user needs that can be met
  – All editions included on Vista/7 setup DVD
    • Windows Anytime Upgrade feature
## Windows 7 Editions

<table>
<thead>
<tr>
<th>Feature</th>
<th>Starter</th>
<th>Home Basic</th>
<th>Home Premium</th>
<th>Professional</th>
<th>Enterprise</th>
<th>Ultimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aero user interface</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Create homegroups</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Scheduled backups</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Backup to network</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>System image</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BitLocker Drive Encryption</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Encrypting File System (EFS)</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Windows DVD Maker</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Windows Media Center</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Join a domain</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Group Policy</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Remote Desktop host</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Multiple languages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Windows XP Mode</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Processor: 32-bit or 64-bit</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Maximum Memory Addressing

- Vista/7/XP 64-bit offerings
  - Ability to use more RAM (> 4 gigabytes)
  - *Must have compatible hardware drivers!*

- Upgrade paths
  - Clean install or upgrade license

<table>
<thead>
<tr>
<th>Operating System</th>
<th>32-Bit Version</th>
<th>64-Bit Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vista Ultimate</td>
<td>4 GB</td>
<td>128 GB</td>
</tr>
<tr>
<td>Vista Enterprise</td>
<td>4 GB</td>
<td>128 GB</td>
</tr>
<tr>
<td>Vista Business</td>
<td>4 GB</td>
<td>128 GB</td>
</tr>
<tr>
<td>Vista Home Premium</td>
<td>4 GB</td>
<td>16 GB</td>
</tr>
<tr>
<td>Vista Home Basic</td>
<td>4 GB</td>
<td>8 GB</td>
</tr>
<tr>
<td>Vista Starter</td>
<td>1 GB</td>
<td>NA</td>
</tr>
<tr>
<td>XP Professional</td>
<td>4 GB</td>
<td>128 GB</td>
</tr>
<tr>
<td>XP Home Edition</td>
<td>4 GB</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Table 12-2** Maximum memory supported by Windows editions
### Maximum Memory – Windows 7

<table>
<thead>
<tr>
<th>Operating System</th>
<th>32-Bit Version</th>
<th>64-Bit Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 7 Ultimate</td>
<td>4 GB</td>
<td>192 GB</td>
</tr>
<tr>
<td>Windows 7 Enterprise</td>
<td>4 GB</td>
<td>192 GB</td>
</tr>
<tr>
<td>Windows 7 Professional</td>
<td>4 GB</td>
<td>192 GB</td>
</tr>
<tr>
<td>Windows 7 Home Premium</td>
<td>4 GB</td>
<td>16 GB</td>
</tr>
<tr>
<td>Windows 7 Home Basic</td>
<td>4 GB</td>
<td>8 GB</td>
</tr>
<tr>
<td>Windows 7 Starter</td>
<td>2 GB</td>
<td>NA</td>
</tr>
</tbody>
</table>

*Table 1-2* Maximum memory supported by Windows 7 editions and versions
Maximum Memory - Windows 8 (x64)

- Windows 8 – 128 GB
- Windows 8 Professional – 512 GB
- Windows 8 Enterprise – 512 GB
<table>
<thead>
<tr>
<th>From This OS</th>
<th>To Vista Home Basic, 32-Bit</th>
<th>To Vista Home Premium, 32-Bit</th>
<th>To Vista Business, 32-Bit</th>
<th>To Vista Ultimate, 32-Bit</th>
<th>To Any 64-Bit Vista Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vista Home, 64-bit</td>
<td>N/A</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Upgrade</td>
</tr>
<tr>
<td>XP Professional</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Upgrade</td>
<td>Upgrade</td>
<td>Clean install</td>
</tr>
<tr>
<td>XP Home</td>
<td>Upgrade</td>
<td>Upgrade</td>
<td>Upgrade</td>
<td>Upgrade</td>
<td>Clean install</td>
</tr>
<tr>
<td>XP Media Center</td>
<td>Clean install</td>
<td>Upgrade</td>
<td>Clean install</td>
<td>Upgrade</td>
<td>Clean install</td>
</tr>
<tr>
<td>XP Tablet PC</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
</tr>
<tr>
<td>XP x64</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
</tr>
<tr>
<td>Windows 2000</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
<td>Clean install</td>
</tr>
</tbody>
</table>
# In-place Upgrade Paths

<table>
<thead>
<tr>
<th>From OS</th>
<th>To OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vista Home Basic</td>
<td>Windows 7 Home Basic, Home Premium, or Ultimate</td>
</tr>
<tr>
<td>Vista Home Premium</td>
<td>Windows 7 Home Premium or Ultimate</td>
</tr>
<tr>
<td>Vista Business</td>
<td>Windows 7 Professional, Enterprise, or Ultimate</td>
</tr>
<tr>
<td>Vista Enterprise</td>
<td>Windows 7 Enterprise</td>
</tr>
<tr>
<td>Vista Ultimate</td>
<td>Windows 7 Ultimate</td>
</tr>
<tr>
<td>Windows 7 any edition</td>
<td>Can be repaired by performing an in-place upgrade of the same OS</td>
</tr>
<tr>
<td>Windows 7 Starter</td>
<td>Anytime upgrade to Windows 7 Home Premium, Professional or Ultimate</td>
</tr>
<tr>
<td>Windows 7 Home Basic</td>
<td>Anytime upgrade to Windows 7 Home Premium, Professional or Ultimate</td>
</tr>
<tr>
<td>Windows 7 Premium</td>
<td>Anytime upgrade to Windows 7 Professional or Ultimate</td>
</tr>
<tr>
<td>Windows 7 Professional</td>
<td>Anytime upgrade to Windows 7 Ultimate</td>
</tr>
</tbody>
</table>

*Table 1-4 In-place upgrade paths to Windows 7*
Windows XP to Window 7 Upgrade

• You **cannot** do an in-place upgrade from *Windows XP* to *Windows 7*

• You **must** perform a clean installation
Windows 8 Upgrade Path

- Upgrade to Windows 8 and keep your Windows settings, personal files and applications when upgrading from
  - Windows 7 Starter
  - Windows 7 Home Basic
  - Windows 7 Home Premium
Windows 8 Pro Upgrade Path

- Upgrade to Windows 8 Professional and keep your Windows settings, personal files and applications when upgrading from
  - Windows 7 Starter
  - Windows 7 Home Basic
  - Windows 7 Home Premium
  - Windows 7 Professional
  - Windows 7 Ultimate
Windows 8 Enterprise Upgrade Paths

• Upgrade to the Volume License versions of Windows 8 Enterprise from the Volume License versions of:

  • Windows 7 Professional
  • Windows 7 Ultimate
  • Windows 7 Enterprise
Vista – Minimum Hardware Requirements

- Vista minimum hardware requirements
  - Processor rated at least 800 MHz
  - 512 MB of RAM
  - SVGA video
  - 20 GB hard drive with at least 15 GB free space
  - CD-ROM drive
- Please note these are the minimum requirements to install Vista – NOT to use it.
## Windows 7 Installation Requirements

<table>
<thead>
<tr>
<th>Hardware</th>
<th>For 32-Bit Windows 7</th>
<th>For 64-Bit Windows 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>1 GHz or faster</td>
<td>1 GHz or faster</td>
</tr>
<tr>
<td>Memory (RAM)</td>
<td>1 GB</td>
<td>2 GB</td>
</tr>
<tr>
<td>Free hard drive space</td>
<td>16 GB</td>
<td>20 GB</td>
</tr>
<tr>
<td>Video device and driver</td>
<td>DirectX 9 device with WDDM 1.0 or higher driver</td>
<td>DirectX 9 device with WDDM 1.0 or higher driver</td>
</tr>
</tbody>
</table>

*Table 1-3* Minimum and recommended hardware requirements for Windows 7
Windows 8 Installation Requirements

• 1 Ghz or faster CPU
  – Support for PAE, NX, and SSE2
• 1 GB of RAM (32-bit)
  – 2 GB of RAM (64-bit)
• 16 GB of HDD space (32-bit)
  – 20 GB of HDD space (64-bit)
• DirectX 9 video adapter with WDDM drivers
Table 12-5 Minimum and Recommended Requirements for Windows XP Professional

<table>
<thead>
<tr>
<th>Component or Device</th>
<th>Minimum Requirement</th>
<th>Recommended Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or two CPUs</td>
<td>Pentium II 233 MHz or better</td>
<td>Pentium II 300 MHz or better</td>
</tr>
<tr>
<td>RAM</td>
<td>64 MB</td>
<td>128 MB up to 4 GB</td>
</tr>
<tr>
<td>Hard drive partition</td>
<td>2 GB</td>
<td>More than 2 GB</td>
</tr>
<tr>
<td>Free space on the hard drive partition</td>
<td>1.5 GB (bare bones)</td>
<td>2 GB or more</td>
</tr>
<tr>
<td>CD-ROM drive or DVD-ROM drive</td>
<td>12x</td>
<td>12x or faster</td>
</tr>
<tr>
<td>Video</td>
<td>Super VGA (800x600)</td>
<td>Higher resolutions are nicer</td>
</tr>
<tr>
<td>Input devices</td>
<td>Keyboard and mouse or other pointing device</td>
<td>Keyboard and mouse or other pointing device</td>
</tr>
</tbody>
</table>
Hardware Compatibility

• Windows hardware compatibility issues
  – Manufacturers not producing Vista/7 drivers for older devices
  – Check Windows Vista or 7 Compatibility Center
  – Run Vista or 7 Upgrade Advisor to check system
  – Run XP Readiness Analyzer to check system
  – In many cases Vista drivers will work on Windows 7
    • You can also try running the Vista driver install program in the compatibility mode (use Action Center)
  – If unsure about reliability, use the dual-boot installation option
Windows Action Center

- New to Windows 7
- Easy to use central access center for support tools
- How to access it
  - Click Start
  - In the Search box type Action Center
  - Press Enter
- Alternate access
  - Start > Control Panel > System > Computer Status
Action Center – Tray Icon

- Check your backup (Important)
- Solve a problem with Foxit Firefox Plugin
- Troubleshoot a problem with Windows Internet Explorer
- Check for solutions to unreported problems

Open Action Center
Action Center – Message Details
Action Center – Security Messages
Methods of Installation

• Installation method dependencies
  – Circumstances
  – Available hardware

• Installation choices
  – Boot media
  – Network installation
  – Hard drive image
  – Recovery CDs and DVDs
  – Factory recovery partitions
  – Repairs to existing installation
Installation Media

• Boot media for installation
  – Hard drive
  – OS not installed on hard drive:
    • Use any device PC can boot from (DVD or CD drive)
    • Access BIOS setup and set boot order as necessary

• Network installation
  – Use a distribution server
    • Copy Windows CD or DVD setup files to network file server
    • Saves time for multiple installations
Method of Installation

- Unattended installation
  - Automated installation
  - Store installation question answers in an answer file
  - Works for both upgrades and clean installs
- Install from an image
  - Drive imaging, disk cloning, and disk imaging
  - Copy entire Windows volume to another bootable media (CDs or USB drive)
  - Image contains duplicate of all drive contents
    - Operating system, applications, and data
Method of Installation

• Install from an image (cont’d.)
  – Steps to create original image
    • Original image created by Windows
    • Windows sysprep.exe utility removes configuration settings
    • All applications installed
    • Drive-imaging software used to clone entire hard drive to another media
  – Steps to use hard drive image
    • Boot from bootable media containing image
    • Follow directions on-screen to copy image to hard drive
Figure 12-5 Opening menu after booting from the Acronis bootable media
Courtesy: Course Technology/Cengage Learning

Figure 12-6 Select the image to copy to the hard drive
Courtesy: Course Technology/Cengage Learning
Recovery Media

• Recovery CD’s and DVD’s
• Recovery CD or DVD provided by computer manufacturer
  • Has drivers and build specific to the system

**Figure 12-7** Windows Setup CD and Windows Recovery CDs for a notebook computer. Courtesy: Course Technology/Cengage Learning
Recovery Partitions

• Factory recovery partition
  – Most brand-name computers have hidden recovery partition
    • Contains a utility to create a recovery CD/DVD
    • Recovery CD/DVD must be created **before** drive failure
    • To access the hidden partition, press a key during startup

• Repair an existing installation
  – For computers using off-the-shelf Windows installations
    • Several different ways to repair the installation
    • Dependent on seriousness of problem
Installation Using a Virtual Machine

• Installation in a virtual computer
  – Virtual computer or virtual machine
    • Software simulating hardware of a physical computer
    • Allows installation and running of multiple operating systems at the same time on a PC
  – Some reasons to use a virtual machine
    • Train users, run legacy software, and support multiple operating systems
    • Can capture screen shots of the boot process in a virtual machine for troubleshooting purposes.
Installation Types

• Clean
  – Erasing existing OS, apps, and data

• Upgrade (In-place)
  – Upgrade only the OS

• Dual Boot
  – Preserve the existing OS
  – Install new OS on a different partition or hard disk drive
General Criteria for Installation

• Installing Windows on a new hard drive
  – Perform a clean install
• Upgrading from 32 to 64-bit OS
  – Perform a clean install
• Windows already installed on hard drive
  – Clean install
    • Overwrite existing operating system and applications
  – Upgrade (if allowed)
    • Upgrade Windows XP to Vista/7
  – Dual boot
    • Install Windows Vista/7/XP in a second partition or physical hard drive
Clean Install

• Erases existing installation(s)
  – Advantage
    • Get a fresh start
    • Registry and applications: clean as possible
  – Disadvantage
    • Must reinstall application software
    • Must restore data from backups
  – If drive is not formatted first:
    • Data is still on the drive
    • Previous settings and applications will be lost
    • Run antivirus program prior to new install
Upgrade Installation

• Upgrade installation (In-place)
  – Advantage
    • All applications, data, and most OS settings are carried forward into new Windows environment
    • Faster installation
  – Disadvantage
    • Problems with applications, OS might be carried into new Windows Vista/XP load
  – Requires installation from current OS desktop
  – Appropriate if system healthy
Dual Boot Installation

• Creating a dual boot
  – Advantage
    • Used only to verify applications and hardware works under Windows Vista before deleting the old OS
  – Disadvantage
    • Requires at least two hard drive partitions or a second hard drive
MBR and GPT Partitioning
MBR and Disk Partitions

• MBR Windows Partitioning
  – Windows can have up to four partitions
  – Master boot record (MBR)
    • First 512-byte sector
    • Holds partition table
    • Maximum size of a partition is 2 TB
  – Windows allows up to three primary partitions (volumes) and one extended partition
    • Extended partition may contain one or more logical drives
  – Active partition is always a primary partition
  – Each partition formatted with a file system
Limits of MBR

- Limited to (4) partitions
- Cannot address more than 2 TB of disk space
- Has a single point of failure
  - One one MBR per physical disk
GUID Partition Table (GPT)

- Introduced originally by Intel with EFI (UEFI)
- Overcomes limitation of MBR
  - Can address > 2 TB of disk space (up to 18 exabytes)
  - > 4 partitions on a physical hard disk drive
    - Up 128 partitions in Windows
  - Partition table is redundant, less prone to failure
    - Included CRC to check for corruption
  - Supports a wide variety of partition types
  - Removable drives still use MBR only
Protective MBR

- Equivalent of an MBR, “Fake MBR”
- Prevents software tools not GPT-aware from damaging the GPT
- Allows BIOS-based computers to boot from a GPT disk
  - If the OS supports it
Windows Support for GUID

• Windows Server 2003 SP1+
• Windows XP (64-bit)
• Vista
• Windows 7
• Windows Server 2008
Booting from GPT Partition

- PC must have UEFI support
- OS Support (64-bit)
  - Windows Vista
  - Windows 7
  - Windows Server 2008
What is UEFI?

- **Unified Extensible Firmware Interface**
- Replacement for current BIOS system
- Present BIOS – x86 processor 16 bit legacy
  - Limits
    - Address space it can use (1 megabyte)
    - Device support
    - Functionality
    - Difficult to modify
UEFI

Operating system

Extensible Firmware Interface

Firmware

Hardware
UEFI Features

• Modular Design
  – Can be easily modified
• Faster Boot-up
• Boot from large disks > 2 TB
• Supports GUID
• CPU independent architecture & drivers
  – 64 bit CPU support
• Flexible pre-boot environment
• Networking support
Disk Partitioning
Understanding the Choices You’ll Make During the Installation

• **System partition**
  – Active hard drive partition (normally C)
  – Contains OS boot record

• **Boot partition**
  – Stores Windows operating system

*Figure 12-11 Two types of Windows hard drive partitions*  
Courtesy: Course Technology/Cengage Learning
Understand the Choices You’ll Make During the Installation (cont’d.)

• Drives, partitions, and file systems
  – System partition and boot partition are often the same
    • Drive C
    • Windows Vista/7/XP installed in C:\Windows
  – Different system partition and boot partition
    • Windows Vista/7 can be installed as a dual boot with Windows XP
Understand the Choices You’ll Make During the Installation (cont’d.)

• Drives, partitions, and file systems (cont’d.)
  – Windows installation decisions
    • Drive and partition to hold OS
    • Partition size
  – Most installations use single hard drive
    • Allocate all space to drive C
  – Reasons to use multiple volumes
    • Dual-boot system
    • Organize data on one drive and OS on the other
Understand the Choices You’ll Make During the Installation (cont’d.)

• Drives, partitions, and file systems (cont’d.)
  – Vista/7 volume size: 20 GB with 15 GB free
    • NTFS format automatically
  – XP needs 5 GB and uses FAT32 or NTFS
    • Choose FAT32 if volume size less than 2 GB
  – Advantages of NTFS over FAT32
    • Smaller cluster sizes than FAT32
    • Retains two copies of its critical file system data
    • Supports encryption and compression
    • Offers better security
Using a Network for Installation
A Windows workgroup is a type of peer-to-peer network where no single computer controls the network and each computer controls its own resources. Courtesy: Course Technology/Cengage Learning

**Figure 12-13** A Windows workgroup is a type of peer-to-peer network where no single computer controls the network and each computer controls its own resources. Courtesy: Course Technology/Cengage Learning
Figure 12-14 A Windows domain is a type of client/server network where security on each PC or other device is controlled by a centralized database on a domain controller. Courtesy: Course Technology/Cengage Learning
Domain & Active Directory

• Network configuration
  – Network operating system:
    • Windows Server 2008
  – Active Directory database controls the network
    • Database of resources: user accounts and permissions
    • Managed by system administrator
  – Joining a domain:
    • Know domain name, computer name, username, and password
    • Users have domain-level accounts (global account)
General Network Requirements

- Network configuration
  - Administrator account on every Windows computer
    - Local account recognized by local computer
    - Has rights and permissions
  - Vista/7 Installation
    - Can enter password to local user account assigned administrator privileges
    - Default administrator account is disabled by default
  - Windows XP/2000 installation
    - Can enter password to default administrator account
    - Account enabled by default
General Network Requirements

• Network configuration
  – Logging on as administrator after OS installed
    • Create local user accounts
    • User can log onto system with local account even if computer belongs to a domain
    • Domain managed resources are not available until user logs on with domain-level account and password
  – User State Migration Tool (USMT)
    • Transfers settings and data from old PC to new PC
      • Scanstate command
      • Loadstate command
USMT in Windows 7

User State Migration Tool (USMT)

- Used to transfer user settings, application settings, and user data files to a new installation of Windows 7
- Included in the Windows Automated Installation Kit (AIK)
User State Migration Tool (USMT)

- Order of operation:
  1. Download and install the AIK software on the technician computer
  2. Copy USMT program files to the source computer
  3. Run ScanState command to copy data from source computer to file server
  4. Install Windows 7 and apps on destination computer
  5. Run LoadState command to apply from server to destination computer
User Settings & File Transfer Tools

• Copying user data and settings using a workgroup network
  • Windows XP: Files and Settings Transfer Wizard
  • Windows Vista: Windows Easy Transfer
### Final Checklist before Beginning the Installation

#### Table 12-6 Checklist to complete before installing Windows

<table>
<thead>
<tr>
<th>Questions to Answer</th>
<th>Further Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the PC meet the minimum or recommended hardware requirement?</td>
<td>CPU:</td>
</tr>
<tr>
<td></td>
<td>RAM:</td>
</tr>
<tr>
<td></td>
<td>Hard drive partition size:</td>
</tr>
<tr>
<td></td>
<td>Free space on the partition:</td>
</tr>
<tr>
<td>Do you have in hand the Windows device drivers for your hardware devices and</td>
<td>List hardware and software that need to be upgraded:</td>
</tr>
<tr>
<td>application setup CDs?</td>
<td>Product key:</td>
</tr>
<tr>
<td>Do you have the product key available?</td>
<td>Workgroup name:</td>
</tr>
<tr>
<td></td>
<td>Domain name:</td>
</tr>
<tr>
<td></td>
<td>Computer name:</td>
</tr>
<tr>
<td>How will users be recognized on the network?</td>
<td>Static or dynamic IP addressing:</td>
</tr>
<tr>
<td></td>
<td>IP address (for static addressing):</td>
</tr>
<tr>
<td>How will the PC be recognized on the network?</td>
<td>Current operating system:</td>
</tr>
<tr>
<td>Will you do an upgrade or clean install?</td>
<td>Does the old OS qualify for an upgrade?</td>
</tr>
<tr>
<td>For a clean install, will you set up a dual boot?</td>
<td>List reasons for a dual boot:</td>
</tr>
<tr>
<td></td>
<td>For a dual boot:</td>
</tr>
<tr>
<td></td>
<td>Size of the second partition:</td>
</tr>
<tr>
<td></td>
<td>Free space on the second partition:</td>
</tr>
<tr>
<td></td>
<td>File system you plan to use:</td>
</tr>
<tr>
<td>Have you backed up important data on your hard drive?</td>
<td>Location of backup:</td>
</tr>
</tbody>
</table>

A+ Guide to Managing and Maintaining Your PC, 7e
WHAT TO DO AFTER THE WINDOWS 7 INSTALLATION

After you have installed Windows 7, you need to do the following:

- For an OEM installation, affix the product key sticker to the computer.
- Verify that you have network access.
- Activate Windows.
- Install updates and service packs for Windows.
- Verify automatic updates are set as you want them.
- Install hardware.
- Install applications.
- Turn Windows features on or off.
- For a laptop, configure power management settings.
Enterprise Deployment Strategies
Windows 7 Deployment Types

- High-Touch with Retail Media
- High-Touch with Standard Image
- Light-Touch, High Volume
- Zero-Touch, High Volume
High-Touch With Retail Media

- Recommended with fewer than 100 computers
- Use standard *Windows 7* install disk
  - Clean
  - Upgrade (In-place)
  - Dual-boot
- To transfer settings, etc. use
  - Windows Easy Transfer
  - User State Migration Tool
High-Touch with Standard Image

• Recommended for 100 to 200 computers
• Prepare a standard image which includes
  – Windows 7 O/S
  – Drivers
  – Applications
• Tools needed included in the Windows AIK
• Image usually stored on a bootable 8GB or larger USB drive.
• Use USMT to transfer settings, etc.
Lite-Touch, High Volume Deployment

- Recommended for 200 to 500 computers
- Uses a deployment server
- Files deployed over a network to each computer include
  - Windows O/S
  - Device drivers
  - Applications
- Collectively they are called a distribution share
Preparation

• Tech usually uses the Windows 7 Upgrade Advisor to determine whether a PC can be upgraded
• Microsoft Assessment and Planning Toolkit (MAP)
  – Query many computers in a single scan
  – Examine hardware and application on each computer to determine compatibility with Windows 7
  – Can also be used to determine what hardware and software upgrades are needed upgrade
Procedure – Part 1

• Uses Windows PE, a bare-bones minimum OS to boot from the PC
  – Windows Preinstallation Environment
  – Included in the Windows AIK

• PC can be booted directly to the network
  – BIOS priority set the Ethernet or network boot
  – Uses PXE (Preboot eXecution Environment)
    • Search for server hosting a bootable OS
Procedure – Part 2

• After installation the answers to the setup program prompts are provided by an answer file.
• USMT is used to transfer settings and user files
Zero-Touch, High Volume Deployment

- Recommended for more than 500 computers
- Most difficult to set up
- Requires complex tools
- Uses push automation
  - Server automatically pushes the installation when the user is not likely using the computer
- Upgrade process is 100% automated
- Works even when there is no O/S or a corrupted O/S on the target computers
Summary

• Planning requires many decisions
  – Purchase options, versions, 32-bit or 64-bit, hardware requirements, installation method, and network issues
• Windows 7 installation choices
  – Upgrade, clean install, or dual boot
• Windows XP installation