

A simple job interview question might be, “Have you ever installed Windows 7?” You want to be able to reply, “Yes.” It’s not difficult, but you should be aware of what you’ll see during the installation. This section describes the process.

A repair installation should be completed only when all other methods have been exhausted. Chapter 8, “Troubleshooting Windows”, covers some tools you can use to troubleshoot and repair a system before trying this.

### A. Selecting Time/Date/Region/Language Settings

The first screen you’ll see when installing Windows 7 is shown in Figure 5-5. You are prompted to choose settings based on where you’re installing Windows 7.

You’ll normally have only one choice for the Language To Install field. However, the Time And Currency Format and the Keyboard Or Input Method fields will have multiple choices.

The time and currency format affects how the time, date, and currency are displayed. For example, June 5, 2016, using English (United States), is displayed as 6/5/2016. Keyboards have alternate keys to support different languages, and there are also several alternate layouts available. These settings can also be manipulated by using the Region And Language applet in the Control Panel after the installation completes.



Figure 5-5 Choosing the installation settings.

During the installation, you’ll also be prompted to verify the correct time and date and to set the time zone. If you want to modify this later, you can use the Date And Time applet in the Control Panel.

### B. Choosing the Install Method

When installing Windows 7 from the installation DVD, you’ll have two options, Upgrade or Custom (Advanced), as shown in Figure 5-6. You’ll choose Upgrade if you’re upgrading from an operating system that is included in the upgrade path. Custom (Advanced) is used for new installations.

You can also choose where to install the operating system. Most of the time, you’ll have only a single disk, but sometimes you will want to create additional partitions. For example, if you plan on creating a dual-boot system, you’ll need at least two partitions. Additionally, some people like to have one partition for the operating system and another partition for data. The installation program gives you several options for configuring the hard drive.

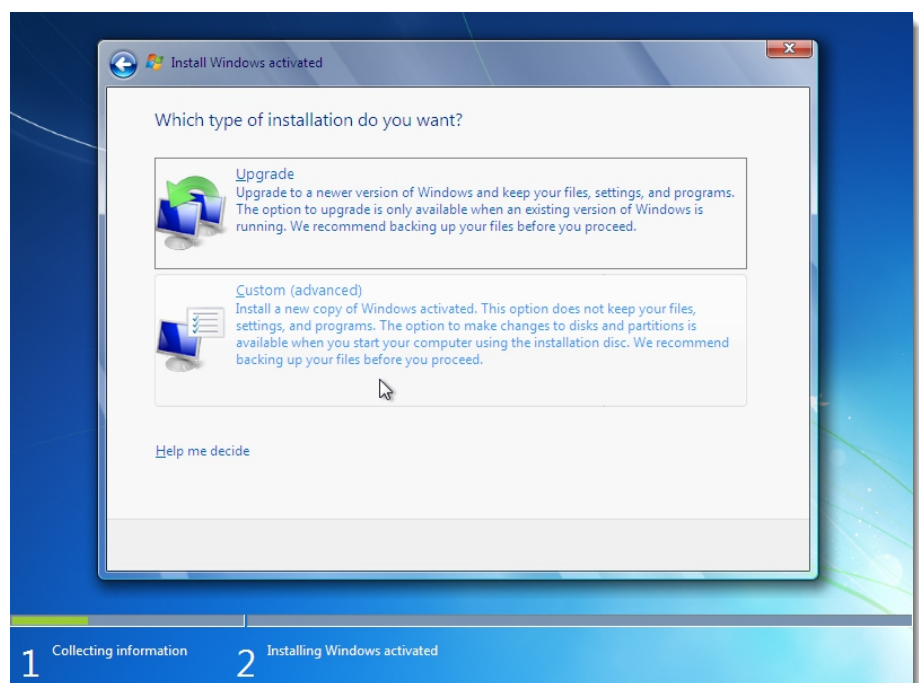


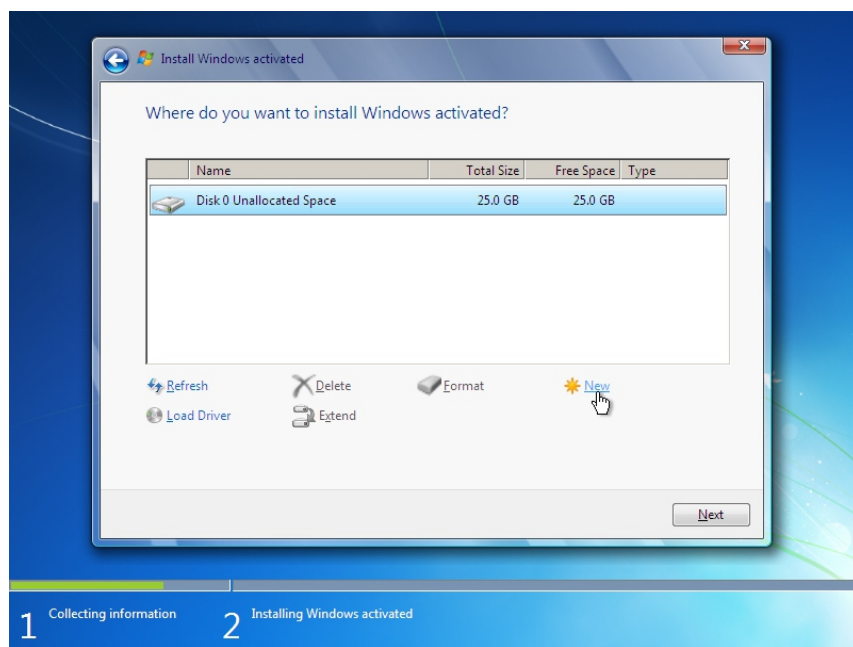
Figure 5-6 Choosing the type of installation.

## C. Drive Options

When installing Windows 7, you are prompted to identify where you want to install Windows. If you have a single drive with a single partition, the choice is clear; select it and move on. However, if you have multiple drives or multiple partitions on a drive, you'll have more choices. Additionally, you might want to manipulate existing drives and partitions during the installation.

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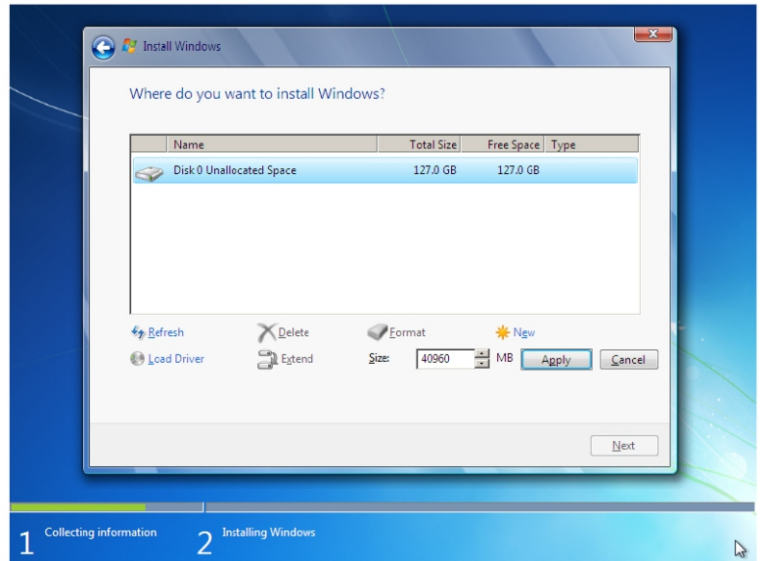
*Figure 4-7 Manipulating partitions.*

You have multiple options available to manipulate the hard drive, including the following:

- **Load Driver.** If your hard drive is not recognized, it might be that Windows 7 doesn't have a driver for it. For example, if your system is using a hardware-based RAID system, it might not be recognized until you load the driver. Drivers can be loaded from a floppy disk, CD, DVD, or USB flash drive.
- **Delete.** Choose this to delete an existing partition. All data and files on the partition will be lost, so be careful when choosing this option. The space from the deleted partition will be reported as unallocated space.
- **Extend.** You can extend an existing partition onto unallocated space. For example, in Figure 12-7, partition 2 is about 40 GB. You can extend this to include any amount of the 87 GB of unallocated space.
- **Format.** This option will format the partition with NTFS, and doesn't give you any options. All data on this partition will be lost.
- **New.** If your drive has unallocated space, you can click the unallocated space, select New, and create a partition. This gives you the option of choosing the size of the partition.
- **Refresh.** After making a modification to a drive, you might need to click Refresh to show the changes.

You can use the following steps to manipulate partitions. These steps assume that your hard drive is a single hard drive without any allocated space.

1. Click Drive Options (Advanced).
2. Click New.
3. In the Size text box, enter the desired size of the partition. For example, we entered 40960 for a size of about 40 GB. as shown in the picture(right).
4. Click Apply.
5. If you want to delete a partition, do the following:
  - A. Select the partition and click Delete.
  - B. Review the warning and click OK. All the data on the partition will be deleted, and space from this partition will be added to the unallocated space.
6. If you want to format a partition, do the following:
  - A. Select a partition and click Format.
  - B. A warning appears indicating that any data stored on the partition will be lost. Review the warning and click OK. The partition is formatted with NTFS.
7. If you want to extend a partition to included unallocated space, do the following:
  - A. Select a partition and click Extend.
  - B. Enter the size that you want the partition to be after it is extended in the Size text box. The text box defaults to the maximum size. If you want to include all the unallocated space, leave this text box unchanged.
  - C. Click Apply. A dialog box appears indicating that this is not a reversible action. Review the information and click OK.
  - D. The partition will be resized to the size you specified, and the unallocated space will decrease by that amount.



## System Reserved Partition

If there is unallocated space on a drive, Windows 7 often creates an additional 100-MB partition during the installation. This system partition doesn't have a drive letter but instead is listed as a system partition. In Figure 12-7, you can see the system partition listed first as Disk 0 Partition 1: System Reserved.

This partition started as an unallocated 127-GB disk. I clicked New and entered 39960 to create a partition, and the installation program automatically created the 100-MB system partition.

This partition is reserved for the following:

- **System boot files.** The partition includes bootmgr, bootsect.bak, and the boot folder. These files are used during the boot of the system. If the system partition is not created during the install, Windows 7 stores these files in the system partition.
- **BitLocker drive encryption.** This reserved space ensures that BitLocker can later be enabled on the system.
- **Windows Recovery Environment (WinRE).** The WinRE can be used to recover from many system errors after a failure.

The system partition isn't always created. For example, if you are installing Windows 7 on a system with another operating system as a dual-boot system, the installation program does not create the system partition. Similarly, if the drive does not have any unallocated space available, the install program does not create the system partition.

If the system partition was created during the installation of Windows 7, it should not be deleted. If a user does manage to delete it, you can recover the system by using Windows 7 recovery procedures and the installation DVD. If you want to ensure that the system partition isn't created, you can format your drive using 100 percent of the space before starting the installation of Windows 7.

## D. Performing a Clean Install

You can complete a clean installation of Windows 7 Ultimate with the following steps:

1. Place the installation DVD into the DVD drive and start the system. If the system is not configured to boot to the DVD, you might need to change the BIOS settings as described in previous chapter.
  - A. If you're running another Windows-based system, you can also start the installation from within the operating system. Place the DVD into the DVD drive.
  - B. Browse to the DVD and double-click the setup program.
2. An installation screen will appear, similar to Figure 5-5. Select the appropriate language, time and currency format, and keyboard or input method based on your location. Click Next.
3. Click Install Now.
4. The Microsoft Software License Terms screen appears. Review the license terms and select I Accept The License Terms. Click Next.
5. When prompted to select an Upgrade or a Custom (Advanced) installation, click Custom (Advanced).
6. You'll be prompted to choose where to install Windows. You can manipulate the drive partitions by clicking Drive Options (Advanced) as mentioned in the "Drive Options" section earlier in this chapter. Select the drive and partition where you want to install Windows 7 and click Next.



*Figure 5-5 Choosing the installation settings.*

- Windows 7 will begin the installation. It copies files to your system, starts installing them, and restarts on its own. This process can take some time, but it does not require any interaction until the Set Up Windows screen appears.
7. When the Set Up Windows screen appears, enter a user name. The name of the computer will be created automatically by appending the user name with -PC as shown in the following graphic. However, you can enter a different computer name if desired.
  8. Click Next.
  9. On the Password page, enter a password in the Type A Password (Recommended) text box and in the Retype Your Password text box.

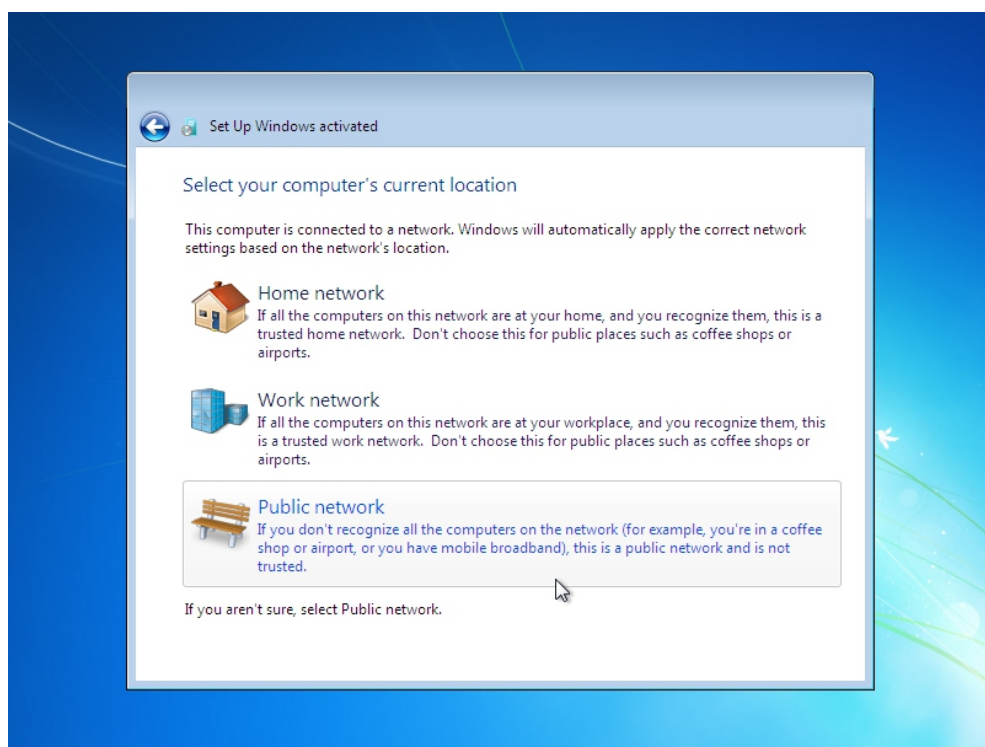


### *Passwords provide security*

*You can skip the password, but as a security precaution, it's recommended to use a password to protect your user account from other users.*



11. On the Windows Product Key page, enter your product key. Click Next.
12. On the Update page, you can select Use Recommended Settings, Install Important Updates Only, or Ask Me Later. The recommended settings will automatically install updates and are the easiest settings for many uses. Select the option you want.
13. On the time and date page, select your time zone and click Next.
14. If your computer is connected to a network, you'll be prompted to choose your computer's location, as shown in the following graphic. Click on your location.
15. If you're connected to a home network that has a homegroup, you'll be prompted to enter the homegroup password. If you know it, you can enter the password here and click Next. If you don't want to join the homegroup, you can click Skip.
16. Windows 7 will complete the setup, and your desktop will appear. If you chose the recommended settings for updates, updates will automatically be downloaded. If prompted to restart the computer, click Restart Now.



## E. Activation

Microsoft operating systems use an activation program. This helps verify to users that their copy of Windows is genuine. It also ensures that Windows has not been used on more computers than the Microsoft Software License Terms allow.

Windows 7 needs to be activated within 30 days after installation and can be activated over the Internet or by phone. Most installations are configured to automatically activate Windows when the users are online. Automatic activation begins trying to activate Windows three days after the user logs on for the first time.

The activation program pairs the activation key with details on the computer hardware. If you need to reinstall Windows 7 on the same computer, you can use the same key. However, if you try to install it on a different computer, the activation key will not work.



### *Hardware replacement may require reactivation*

*If a hardware failure requires you to make a significant hardware change, you might need to reactivate the system. This can usually be completed over the Internet, but in some cases, users must call Microsoft to reactivate the system after replacing hardware.*

# Chapter 5

## Laboratory Manual

# INSTALLING AND UPGRADING WINDOWS



### Laboratory Activities

- 5.01 Installing/Upgrading Considerations
- 5.02 Using Windows Easy Transfer
- 5.03 Upgrading a Windows Operating System
- 5.04 Performing a Clean Installation of Windows 7
- 5.05 Performing a Clean Installation of Windows XP
- 5.06 Post-Installation Tasks: Drivers and Updates

Chapter Analysis and Written Test

## Lab Activity 5.03 Upgrading a Windows Operating System

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A client running Windows Vista Home Premium, decides to modernize by moving to a more recent OS. He asks you to upgrade his system to Windows 7 Home Premium. You agree to upgrade the system for him.

### Learning Objectives

You need to perform at least one complete upgrade, both for practice and to prepare yourself for the actual laboratory examination.

At the end of this lab, you'll be able to

- upgrade an operating system

### Lab Materials and Setup

The materials you need for this lab are

- a working Windows Vista Home Premium PC with a hard drive that you can write to without negative consequences (make sure it can also run Windows 7)
- a Windows 7 installation disc

### Let's Get the Lab Started

You'll need quite a bit of time to complete this lab; most of that time will be spent waiting for Windows to install files. The exercise will walk you through upgrading a Windows Vista Home Premium system to Windows 7 Home Premium. Depending on the systems and software licenses you have available, you may not be able to do this lab exactly as it's laid out here. The important thing is that you actually perform a Windows upgrade, to see the questions that are asked during the installation, and to become familiar with the process.

**Step 1** You've completed the compatibility exercise in the earlier labs, and you know whether or not your system can handle Windows 7. Since you won't actually be using Windows 7, just installing it, the main consideration for performing this installation is hard drive space. Make sure you have at least 40 GB of hard drive space available on the computer you're upgrading.

The first step to doing an upgrade installation to Windows 7 is to make sure your computer is booted into Windows Vista. Because an upgrade installation is meant to be installed on a computer with a preexisting OS, Windows 7 will not allow you to do an upgrade installation unless you start the installation while booted into another Windows OS. So, with your computer booted up, insert the Windows 7 installation disc, wait until the Setup program starts, and click *Install now*.

**Step 2** When asked whether or not you want to download the latest updates for installation, choose the second option, *Do not get the latest updates for installation*. Ordinarily, you would agree to do this, but it can take a long time to complete this download, and you'll be updating this computer in Lab Activity 5.05, so you don't need to bother right now.

**Step 3** The next screen is the End User License Agreement (EULA), shown in Figure 5-9. This document enumerates the deal made between you and Microsoft that you agree to by installing their software. EULAs typically contain a great deal of legalese, and are generally quite lengthy, and the Windows 7 EULA is no exception. You are certainly free to read through it if you like, but you don't have to. When you're done, check the box that says *I accept the license terms* and click Next.

**Step 4** The next screen enables you to choose either an upgrade installation or a custom installation. For this lab, you're doing an upgrade installation, so select Upgrade. This option may or may not be available to you based on the version of Windows Vista that you're starting with and the edition of Windows 7 you're installing to, as you saw in the first lab in this chapter. The Windows 7 installer may give you an error at this point, and if it does, follow any instructions it gives you and start the installation process again. If there are no errors, click Next.

**Step 5** Wait around for a while as Windows installs itself.

**Step 6** Wait some more.

**Step 7** Twiddle your thumbs. Did you know that Windows 7 can be installed from a thumb drive? Use another computer to go online and search for Windows 7 USB tool. This tool will take the contents of your Windows 7 disc and place it on your thumb drive. That might speed up this process (for the next time you install Windows 7, at least).

**Step 8** Why does it have to copy files and then "gather" them? What does that even mean?

**Step 9** It finished! Once the installer's done copying files, it will need to reboot the computer to continue setting up Windows 7.

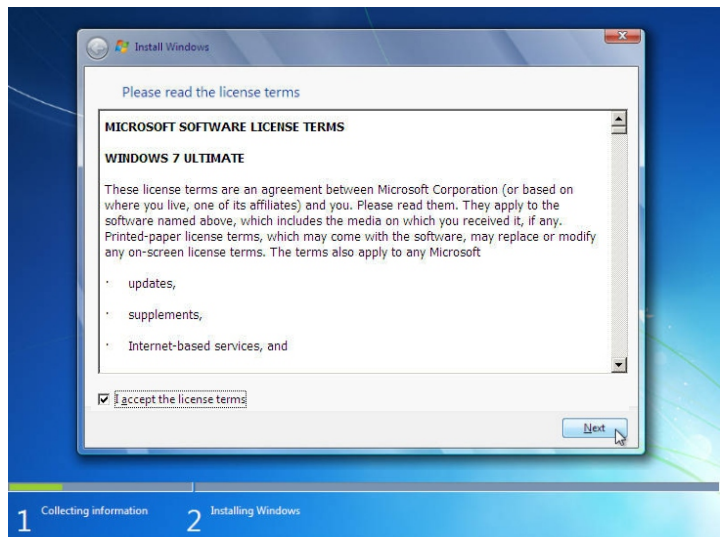
**Step 10** If you have a legitimate Windows 7 product key, enter it on the next screen (see Figure 5-10). If not, just click Next and then answer No to the dialog box that pops up asking you if you want to enter your product key.

**Step 11** On this next screen you will decide how you want the operating system to interact with Windows Update. I suggest clicking on *Use recommended settings* in order to keep your computer fully patched from vulnerabilities.

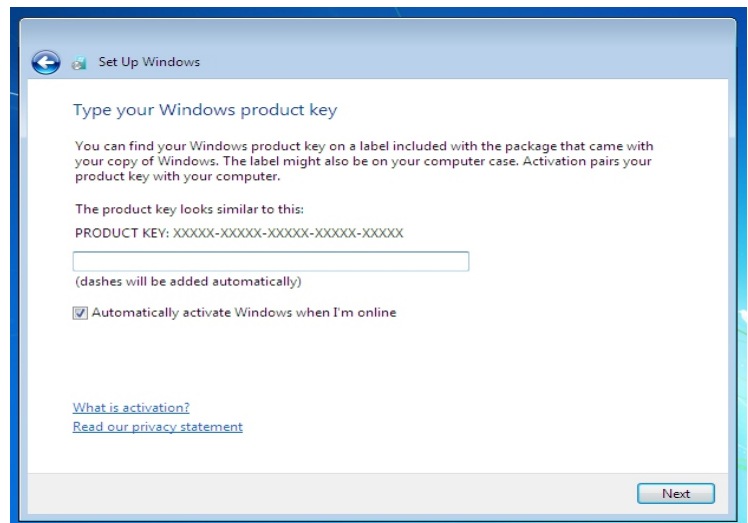
**Step 12** Now you're asked to set your time zone, the time, and the date. Make sure all the settings are correct and click Next.

**Step 13** If your computer has network access, the installer will ask you whether you are on a home, work, or public network. Answer appropriately.

**Step 14** You're done! Type in your credentials to log on. Click Start and enjoy the Windows 7 experience. After installing Windows 7, you will have 30 days to run the Windows Activation Client to activate Windows, or else the OS will stop functioning, so keep that in mind, especially if you didn't enter a product key.



**FIGURE 5-9** Windows 7 EULA agreement Screen



**FIGURE 5-10** Product Key Screen