

If you are upgrading Vista to Windows 7, you can start the installation program after booting into Windows Vista. Place the installation DVD into the drive, and if it doesn't start automatically, browse to the DVD and double-click the setup program.

This works very much like the clean installation of Windows 7 but with a couple of differences. First, instead of choosing Custom (Advanced) on the installation screen, you'll choose Upgrade. Second, the upgrade will try to keep all of the applications, settings, and data intact.

You should ensure that the current service pack is applied to Windows Vista before upgrading. Windows Service Pack 2 was released in April 2009, and it's unlikely that another service pack will be released for Windows Vista. Therefore, apply Service Pack 2 to Vista before upgrading.



### *Back up data before an upgrade*

*An upgrade is considered a risky operation. Everything will usually work fine, but things can go wrong. It's important to back up all important data before starting an upgrade.*

## Migrating User Data

When you install a new operating system for a user who had a previous computer, the user often wants to keep data and settings from the previous installation. There are two valuable tools you can use to capture this information from the older version of Windows and reapply it the new version of Windows: Windows Easy Transfer and User State Migration Tool.

Each of these tools can capture a wide variety of data and settings, including the following:

- Files and folders
- User accounts and profiles
- Multimedia files such as photos, music, and videos
- Email files such as Outlook data files, including email, contacts, and calendar events
- Settings for Windows, applications such as Internet Explorer, and other programs



### *Migration not needed for upgrade*

*If you're doing an upgrade, there is no need to migrate the user data and settings. This information will be migrated to the newer version as part of the upgrade process.*

Each of these tools is described in the following sections.

One of the tasks that these programs perform is to move the files and folders to locations that Windows 7 understands. For example, in Windows XP, the user profiles are stored in C:\Documents and Settings by default. In Windows 7, they are stored in C:\Users. If you migrate user accounts and profiles from Windows XP to Windows 7, the migration tool moves them to the C:\Users folder on Windows 7.

## Windows Easy Transfer

You can use Windows Easy Transfer to transfer files and settings from one computer to another. For example, you can transfer files and settings from Windows XP to Windows 7, from Windows Vista to Windows 7, or even from one computer running Windows 7 to another computer running Windows 7.

Windows Easy Transfer enables you to migrate information by using one of the following methods:

- **An Easy Transfer cable.** This is a special cable that plugs into the USB port of the two computers. You can purchase it on the web or in an electronics store. It allows you to transfer files directly between the old computer and the new computer.
- **A network.** If the computers are connected to each other in a network, you can transfer the files over the network.
- **An external hard disk or USB flash drive.** You can transfer the files to an external disk or a flash drive connected to the old computer. You can later connect the drive to new computer and transfer the files from the drive.

Windows Easy Transfer is included in Windows 7. However, if you are migrating data from Windows XP or Windows Vista, you'll first need to download and install the appropriate Windows Easy Transfer tool onto that system.

For example, if you want to capture data from Windows XP, you can download Windows Easy Transfer for XP and install it on the Windows XP-based computer. Free versions are available for 32-bit and 64-bit Windows XP and for 32-bit and 64-bit Windows Vista. Go to the Windows download site (<http://www.microsoft.com/download>) and search for Windows Easy Transfer for Windows XP or Windows Easy Transfer for Windows Vista, based on your needs.

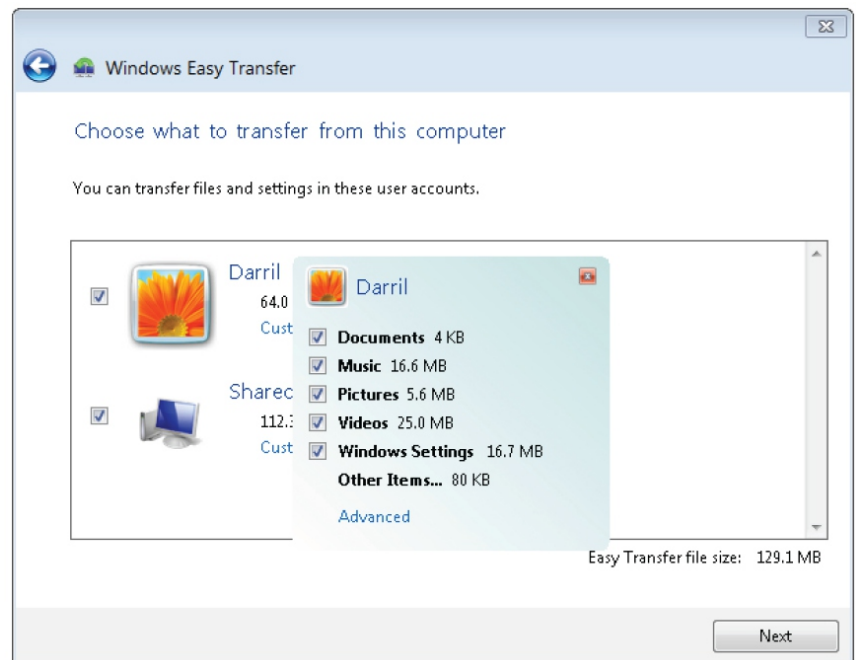
You can start the Windows Easy Transfer tool on Windows 7 by

1. Clicking Start, All Programs, Accessories, System Tools
2. Selecting Windows Easy Transfer.

Because this tool can access files and folders for all users on the system, you must have administrative access to run it.

This tool automatically selects files in the Documents, Music, and Pictures folder, and also gives you the option of selecting additional files and folders. Figure 5-8 shows the screen you can use to select or deselect categories such as Documents or Music. If you click Advanced on this page, you can select individual files and folders to migrate.

After you've run this program, you can view any reports it has created by running the Windows Easy Transfer Reports. The report identifies any files or settings that weren't transferred.



**Figure 5-8 Windows Easy Transfer.**

The Windows Easy Transfer tool doesn't transfer applications. However, if the application is installed on both the old and the new operating systems, it can transfer settings for the application. For example, if a user had specific settings for Microsoft Word, these settings would be migrated.



#### **Programs and applications**

*Windows Easy Transfer is used to transfer files and settings from earlier editions of Windows to Windows 7. It is easy to use when migrating a single user's computer, such as in a home or small office environment. You must be logged on with an administrative account to run it.*

You can view a video of the Windows Easy Transfer tool in action here: <http://windows.microsoft.com/en-US/windows7/help/videos/transferring-files-and-settings-from-another-pc>.

# 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 5.04 Performing a Clean Installation of Windows 7

Your boss has traditionally ordered new workstations already assembled and loaded with the desired Windows OS. She recently decided that with her great in-house PC techs, she should be buying PC parts from a wholesaler instead and having you and your team build the systems. You've enjoyed choosing the various hardware components and building these custom machines, but now it's time to bring your creations to life! You need to load Windows 7 Professional onto these new machines that have never seen the light of day.

### Learning Objectives

You should complete at least one clean Windows installation, both for the experience and to prepare for actual laboratory examination.

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

- install a Windows operating system on a blank hard drive

### Lab Materials and Setup

The materials you need for this lab are

- a working PC with a blank hard drive, or with a hard drive that you can write to without negative consequences
- a Windows 7 installation disc

### Let's Get the Lab Started

In this laboratory exercise, you'll be putting an operating system onto a hard drive that doesn't currently have one. Even if the hard drive has an operating system on it, doing a clean installation will format that drive and erase all its data, so be sure you've backed up any important files!

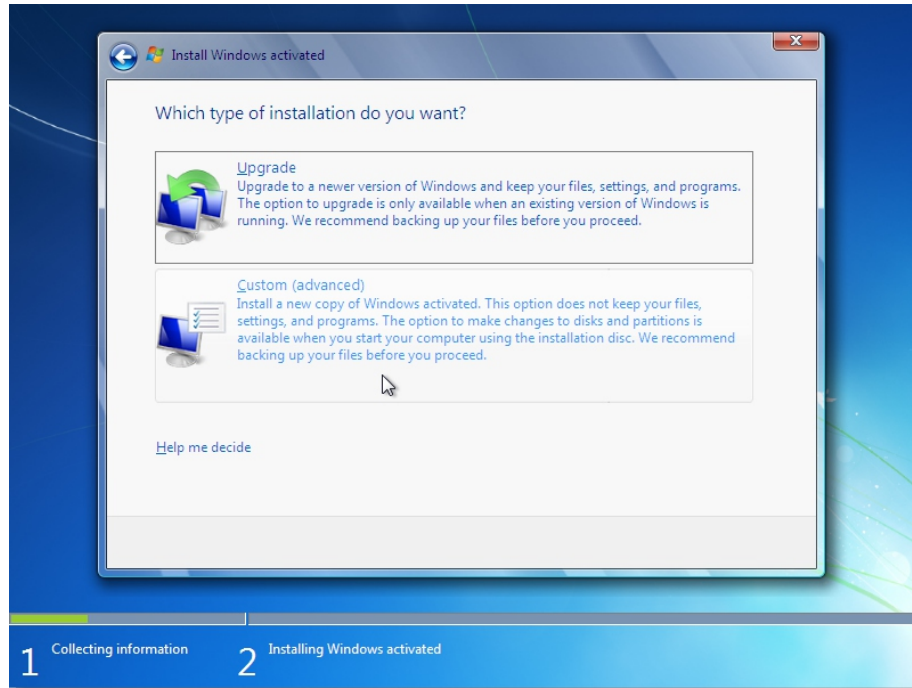
**Step 1** Insert the Windows 7 installation DVD into the optical drive, close the tray, and reboot your PC. If prompted, press any key to boot from the DVD. Wait for the Install Windows screen to appear. Windows 7 will first ask you to select your preferred language (see Figure 5-11). After you do so, click Next. Then, click *Install now*.



**FIGURE 5-11** Language Selection Screen

**Step 2** This process is almost identical to the upgrade installation, with a few key differences, so if you start to feel a sense of déjà-vu, just stick with it. Here are the steps for performing a clean installation of Windows 7:

- a. The next screen is your old friend, the End User License Agreement (EULA). When you're done reading it, check the box that says I accept the license terms and click Next.
- b. The next screen, shown in Figure 5-12, is the fork in the Windows 7 installer's road. You've already tried the Upgrade, so go ahead and click Custom (advanced) to do a clean installation.



**FIGURE 5-12** Installation Selection

- c. The next screen is the disk partitioning page, where you can select which drive to install Windows 7 on to, as well as how to partition that drive. You should already be familiar with partitioning drives using this screen, but that's not important for now. Simply select the drive you wish to install to and click Next.
- d. Wait, once again, for Windows 7 to install itself.
- e. Once the installer is done copying files, it will need to restart the computer.
- f. Once the computer finishes restarting, type in your name. This will be the user name for the computer. Next, type in a computer name. If you want to, you can choose to keep it set as the default, but you also have the option of changing how your computer appears on the network. When you are finished, click Next.
- g. Type in a password for your user account that you can remember, and give yourself a hint. Click Next. You have the option of skipping this step and going without a password. Doing so can be a huge security risk.
- h. If you have a legitimate Windows 7 product key, enter it in the appropriate box. 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.
- i. Now you're back in familiar territory, at the screen asking how you want to set up Windows Update. Generally, there's no reason not to select the first option, *Use recommended settings*, so click that now.
- j. Now you're asked to set your time zone, the time, and the date. Make sure all the settings are correct and click Next.
- k. If your computer has network access, the installer will ask you whether you are on a home, work, or public network. Answer appropriately. If you select home, you will be prompted with the option of setting up a homegroup. For now, skip this step.
- l. You're done! Click Start and enjoy the Windows 7 experience.



## Lab Activity 5.05 Performing a Clean Installation of Windows XP

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You work for a school and you have just received some old computer equipment from a few local businesses. These computers don't meet the minimum requirements for Windows Vista or Windows 7, so you have no option but to load the longest running operating system that Microsoft ever released, good old Windows XP.

### Learning Objectives

You should complete at least one clean Windows installation, both for the experience and to prepare for actual laboratory examination.

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

- install a Windows operating system on a blank hard drive

### Lab Materials and Setup

The materials you need for this lab are

- a working PC with a blank hard drive, or with a hard drive that you can write to without negative consequences
- a Windows XP Professional Edition CD-ROM with a valid product key

### Let's Get the Lab Started

In this laboratory exercise, you'll be putting an operating system onto a drive that doesn't currently have one. If the hard drive that you plan to use currently has data on it (even data that no one needs), then you must wipe that drive clean before you begin the exercise. Once you have a clean hard drive, you can proceed as directed.

**Step 1** Turn on the computer and insert the Windows XP CD-ROM into the optical drive, close the tray, and boot from the optical drive. Ensure that your boot order is correct in CMOS.

**Step 2** The Windows setup will begin in text mode, which means you won't have any mouse support and everything feels like the old days of the command-line interface. It is at this point you will notice a bunch of text cycling through at the bottom of your screen. These are drivers being loaded. During this process, you will have the option to press F6 to load third-party drivers. This is essential if you are installing Windows XP on an SCSI drive or on a RAID setup. If you are installing Windows XP onto a SATA hard drive with an installation disc that has a pre-Service Pack 1 version of Windows XP, you will need to press F6 to load SATA drivers.

**Step 3** You will then see the Welcome to Setup screen. Press ENTER to set up Windows. Read the EULA (End User License Agreement) and agree to it to proceed by pressing F8.

**Step 4** When the Setup program prompts you to partition your drive, set up a single NTFS partition that uses all the available drive space. Then you'll simply need to wait and watch while the Setup program does its magic and reboots the computer.

**Step 5** When the computer has rebooted, work through the graphical portion of the installation process by carefully reading each screen and filling in the appropriate information. Be sure to enter the product key correctly, as you won't get past that screen with an invalid key.

**Step 6** When you come to the Networking Settings screen, ask your instructor (if you're in a classroom setting) whether to choose Typical settings or Custom settings, and what specific information to use. If you're not in a classroom setting, select Typical.

**Step 7** Click Next. Your computer will reboot one more time. You'll need to adjust your display settings by following the prompts.

**Step 8** The Welcome to Microsoft Windows screen appears. Press Next to continue.

**Step 9** Click the option to protect your computer by having it pull down updates from Microsoft's Web site.

**Step 10** Next, you have the option to register your copy of Windows XP. Keep in mind that registration is completely optional.

**Step 11** Who will use this computer? Type in the names that identify as many users as you would like (up to five users during the setup of Windows XP).

**Step 12** Click Finish. Welcome to Windows XP!

## Lab Activity 5.06 Post-Installation Tasks: Drivers and Updates

As a tech, you will run into countless well-meaning, industrious, but ultimately hopeless customers who have taken their OS installation into their own hands, only to find that some critical piece of hardware doesn't work properly post-installation. Because of this, you absolutely must become well versed in the art of finding and installing hardware drivers and Windows updates.

Imagine, then, that you have a friend who has been happily using Windows XP Professional on his custom-built PC for a few years. The PC recently grew unstable, so your friend decided to do his own migration to Windows 7, which seemed to go pretty well. Now, however, his wireless networking card doesn't work. And his graphics card seems to be acting kind of funny. And he can't hear any sound. And ... you get the picture. Because you're an excellent tech, you instantly recognize the problem, and you graciously let him know that the problem is a result of his not properly following up his Windows installation with the appropriate driver installations. Then, of course, you offer to help him out.

### Learning Objectives

In this exercise, you'll learn how to finish up an installation by installing hardware drivers and operating system updates.

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

- find and install the correct hardware drivers for your operating system
- install updates to the operating system

### Lab Materials and Setup

The materials you need for this lab are

- a working Windows 7 PC
- a notepad and pencil
- possibly a second PC and a thumb drive or other removable media

### Let's Get the Lab Started

The first thing you should do post-installation is to update your operating system, so you'll learn how to do that before you move on to finding and installing drivers.

**Step 1** When you install Windows 7, it installs basic drivers for a wide range of products, so it's highly likely that Windows 7 will immediately have Internet access. If that isn't the case, you will have to use another computer to find network drivers for your Windows 7 PC, and then use a thumb drive or other removable media to transfer them over. For more information on how to do that, see the next step of this lab.

Once you have Internet access, click Start | All Programs | Windows Update. Over the years, Microsoft has made this a fairly painless process, so all you have to do is click the *Check for updates* button and wait. When Windows Update has finished finding updates for your OS, click the *Install updates* button to begin the installation process. If you're curious about the updates being installed, you can click the *View available updates* button for more information.

After clicking the *Install updates* button, you may be asked to agree to further license agreements, which you should agree to. Then, Windows 7 will download and install any updates it found. Note that for a just-installed OS, this can take a long time, so you may have to be patient for this step. Once the updates have all been downloaded and installed, you will be asked to restart your computer. Do so, and you're done. Sometimes, it's a good idea to run Windows Update again after updating, just to make sure it got everything, but that's really up to you.

**Step 2** Once you've got your operating system updated (or if you need drivers to access the Internet), it's time to install hardware drivers. On a custom-built PC, this step can be pretty intimidating, since you can't just go to, say, Dell's Web site and download all the drivers in bulk. Instead, you have to track down drivers for each and every component in your system. This can be a time-consuming process, but there are a few tools that all good geeks should know about that can drastically reduce the frustration of this process.

The first thing to do when looking for drivers is to check **Device Manager** to get an idea about what drivers you should be looking for.

To get to Device Manager in Windows XP, right-click My Computer, go to Properties, select the Hardware tab, and click Device Manager (in Vista/7, just open the Start menu, type Device Manager into the Search bar, and then click the Device Manager icon). If you see “Video controller (VGA compatible)” listed in Device Manager with a yellow question mark next to it, you know you need to look for graphics drivers. If you see “Ethernet controller” listed, you know you need to look for drivers for your network interface card, and so on. Most of the missing-driver descriptions should give you a hint as to what they are for.

To find the drivers, you’ll need to know the model name or number of your devices. Shut down your computer, open the case, and look at the motherboard, graphics card, and any other expansion cards the PC may have, like sound cards, TV tuners, and so forth. Often, these parts will have a manufacturer and model number on them somewhere, such as Gigabyte GA-MA790GPT-UD3H written on your motherboard, or NVIDIA GeForce GT X 560 on your graphics card. Write those things down and then do a Google search for them. If you can find the manufacturer, just go to its Web site, look up your product, and follow the link to download drivers. Sometimes, you’re not lucky enough to get a manufacturer or model number, but just about every device out there should have a sticker with some sort of part number or serial number on it. Usually, doing a quick Google search for that number and the word “driver” will get you the results you need. Finding drivers can be pretty frustrating, but keep searching and you’re almost guaranteed to find what you’re after.

In today’s computing world, if you can find your motherboard’s chipset drivers, most of the unknown driver icons in Device Manager will go away, so concentrate on finding your motherboard drivers first, and the expansion cards second.