

Part Five: Hardware & Peripherals

Chapter 17: Print, Fax, & Scan

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Print, Fax, & Scan

Technologists got pretty excited about “the paperless office” in the 1980s, but the PC explosion had exactly the opposite effect. Thanks to the proliferation of inexpensive, high-quality PC printers, the world generates far more printouts than ever. Fortunately, there’s not much to printing from Windows 7.

Installing a Printer

[All Versions](#)

A printer is a peripheral device—something outside of the PC—and as such, it won’t work without a piece of driver software explaining the new hardware to Windows. In general, getting this driver installed is a simple process. It’s described in more detail in Chapter 18; here are a few notes on the process to get you started.

USB Printers

If the technology gods are smiling, then installing the driver for a typical inkjet USB printer works just as described in Chapter 18: You connect the printer, turn it on, and marvel as Windows autodetects it and autoinstalls the driver, thanks to its secret cache of hundreds of printer drivers (Figure 17-1).

If you have a really old printer, its drivers might not be compatible with Windows 7. Check the manufacturer’s Web site, such as www.epson.com or www.lexmark.com, or a central driver repository like www.windrivers.com, to see if there’s anything newer.

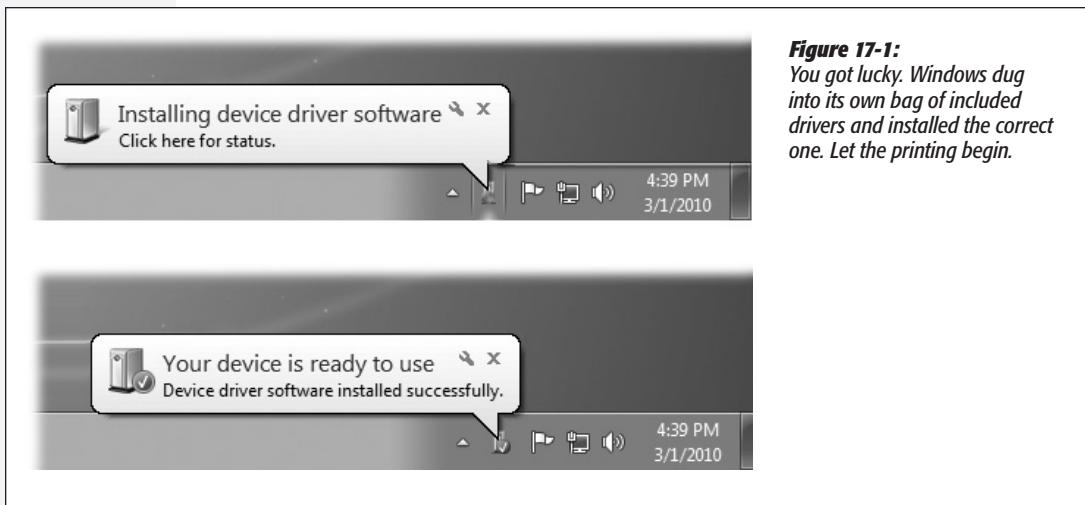
Network Printers

If you work in an office where people on the network share a single printer (usually a laser printer), the printer usually isn’t connected directly to your computer. Instead,

it's elsewhere on the network; your PC's Ethernet cable or wireless antenna connects you to it indirectly.

In general, there's very little involved in ensuring that your PC "sees" this printer. Its icon simply shows up in the Start→Devices and Printers folder. (If you don't see it, click "Add a printer" in the toolbar. On the wizard's second screen, you're offered the chance to "Add a network, wireless or Bluetooth printer." That's the one you want.)

Note: As you've probably guessed, that's also how you install a wireless or Bluetooth printer.



Parallel, Serial, and Infrared Printers

Although USB printers are the world's most popular type today, there was, believe it or not, a time before USB. In those days, most home printers fell into one of these categories:

- **Parallel.** Before USB changed the world, most printers connected to PCs using a printer cable or *parallel cable*. The cable connects to your PC's parallel port, which Microsoft's help screens call the LPT1 port—a 25-pin, D-shaped jack. (On many PCs, this connector is marked with a printer-icon on the back panel.)
- **Serial.** Other older printers use a cable connected to one of your computer's *serial* (or *COM*) ports, the connectors that often accommodate an external modem. The primary advantage of a serial connection is the extended cable length—parallel cables must be no more than nine feet long, while serial cables up to 50 feet long work fine.

Tip: To protect its innards, turn off the PC before connecting or disconnecting a parallel or serial cable.

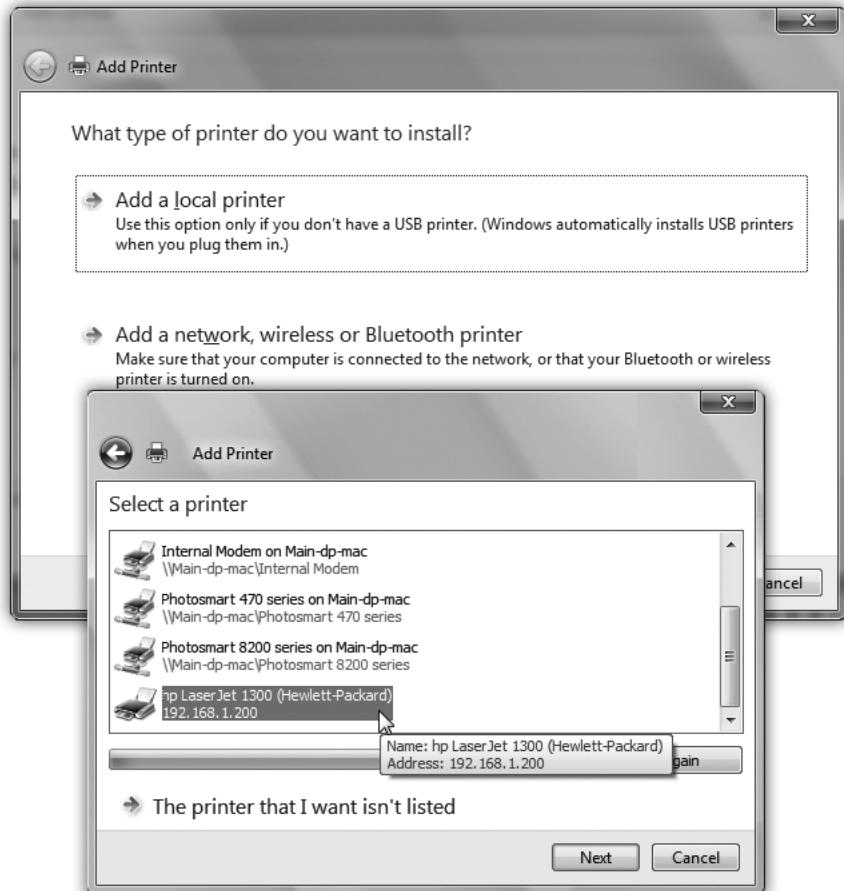
- **Infrared.** Certain printers from HP, Canon, Citizen, and other companies print using *infrared* technology—that is, there’s no cable at all. Instead, if your PC has an infrared lens (a few aging laptops may still have them), it can communicate with the printer’s similar lens wirelessly, as long as the printer and PC are within sight of, and relatively close to, each other.

Sometimes you get lucky, and these printers work just like modern USB printers: You connect the printer, turn on your PC, and delight in the “Found new hardware” message that appears on your taskbar. You’re ready to print.

Figure 17-2:

Top: As the note explains, use the Add Printer Wizard only if your printer doesn’t connect to your USB port.

Bottom: Hurrah! Windows has found the laser printer on the network. In the following screens, you’re asked to name the printer and offered the chance to print a test page.



But if Windows doesn’t recognize the printer model you’ve hooked up, it can’t install its drivers automatically.

In that case, you’ll have to call upon the mighty powers of the Add Printer Wizard (Figure 17-2). Choose Start→Devices and Printers, and then click “Add a printer” on

the toolbar—if indeed the Add Printer wizard hasn't appeared automatically. Click Next to walk through the questions until you've correctly identified your printer (Figure 17-3), told Windows which computer it's connected to, and installed the appropriate software.

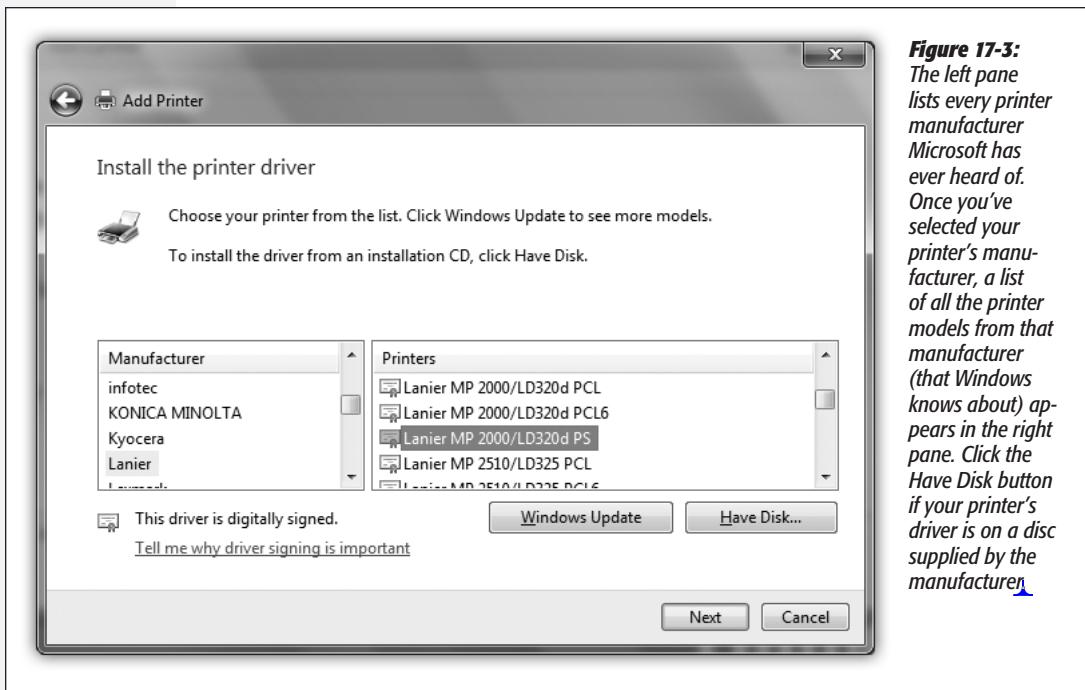


Figure 17-3: The left pane lists every printer manufacturer Microsoft has ever heard of. Once you've selected your printer's manufacturer, a list of all the printer models from that manufacturer (that Windows knows about) appears in the right pane. Click the Have Disk button if your printer's driver is on a disc supplied by the manufacturer.

The Devices and Printers Window

If your driver-installation efforts are ultimately successful, you're rewarded by the appearance of an icon that represents your printer.

TROUBLESHOOTING MOMENT

If Your Printer Model Isn't Listed

If your printer model isn't in the list of printers (Figure 17-3), then Windows doesn't have a driver for it. Your printer model may be very new (more recent than Windows 7, that is) or very old. You have two choices for getting around this roadblock.

First, you can contact the manufacturer (or its Web site) to get the drivers. Then install the driver software as described in the previous section.

Second, you can use the *printer emulation* feature. As it turns out, many printers work with one of several standard drivers that come from other companies. For example, many laser printers work fine with the HP LaserJet driver. (These laser printers are not, in fact, HP LaserJets, but they *emulate* one.)

The instructions that came with your printer should have a section on emulation; the manufacturer's help line can also tell you which popular printer yours can impersonate.

This icon appears in the new *Devices and Printers* window—an important window that you’ll be reading a lot about in this chapter. The Start menu includes a link to Devices and Printers, but you can also open the window in other ways, depending on how you’ve set up Windows 7:

- If you’ve set up your Start menu to display a submenu for the Control Panel (page xx45), just choose Start→Control Panel→Devices and Printers.
- If you view your Control Panel in Category view, choose Start→Control Panel, and then click “View devices and printers” (in the Hardware and Sound category).
- If you view your Control Panel in the Small Icons or Large Icons view (page xx281), choose Start→Control Panel, and then **open** the Devices and Printers icon.

In any case, the Devices and Printers window contains big, good-looking icons representing every gadget plugged into your PC—including the printers you’ve installed (Figure 17-4).

If you have a printer from a big-name company, double-clicking its icon here might open the Device Stage, a new Windows 7 feature: a mini-Web page full of details and useful links like what’s printing now, ink levels, and so on. Other devices and printers may open a more generic preference pane or management program.

GEM IN THE ROUGH

Installing Fake Printers

If your printer has two paper trays, switching to the secondary one is something of a hassle. You must spend time making the changes in the Print dialog box, as described later in this chapter. Similarly, switching the printout resolution from, say, 300 dpi to 600 dpi when printing important graphic documents is a multistep procedure.

That’s why you may find it useful to create several different icons for *the same printer*. The beauty of this stunt is that you can set up different settings for each of these icons. One might store canned settings for 600 dpi printouts from the top paper tray, another might represent 300 dpi printouts from the bottom one, and so on. When it comes time to print, you can switch between these virtual printers quickly and easily.

To create another icon, just run the Add Printer Wizard a second time, as described on the preceding pages. At the point in the installation where you name the printer, invent

a name that describes this printer’s alternate settings, like *HP6-600 dpi* or *Lexmark-Legal Size*.

When the installation process is complete, you see both printer icons—the old and the new—in the Devices and Printers window. Right-click the new “printer” icon, choose “Printing preferences” from the shortcut menu, and change the settings to match its role.

To specify which one you want as your *default* printer—the one you use most of the time—right-click the appropriate icon and choose “Set as default printer” from the shortcut menu.

Thereafter, whenever you want to switch to the other set of printer settings—when you need better graphics, a different paper tray, or other special options for a document—just select the appropriate printer from the Select Printer list in the Print dialog box (Figure 17-5, top). You’ve just saved yourself a half-dozen additional mouse clicks and settings changes.

No matter which approach you take, printer icons come in handy in several different situations, as the rest of this chapter clarifies.

Note: When you're finished with a printer—when you sell it, for example—you can eliminate its icon from your Devices and Printers window. Right-click its icon; from the shortcut menu, choose [Remove Device](#).

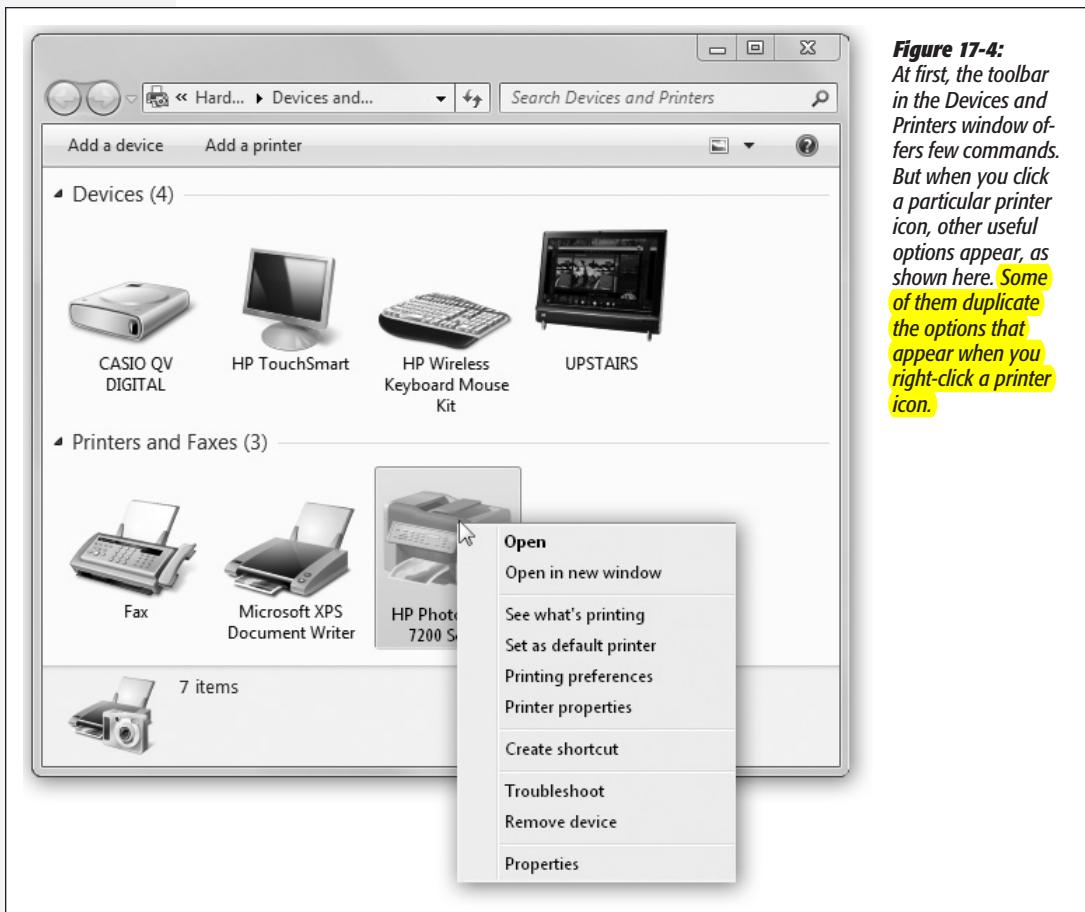


Figure 17-4: At first, the toolbar in the Devices and Printers window offers few commands. But when you click a particular printer icon, other useful options appear, as shown here. Some of them duplicate the options that appear when you right-click a printer icon.

Printing

[All versions](#)

Fortunately, the setup described so far in this chapter is a one-time-only task. Once it's over, printing is little more than a one-click operation.

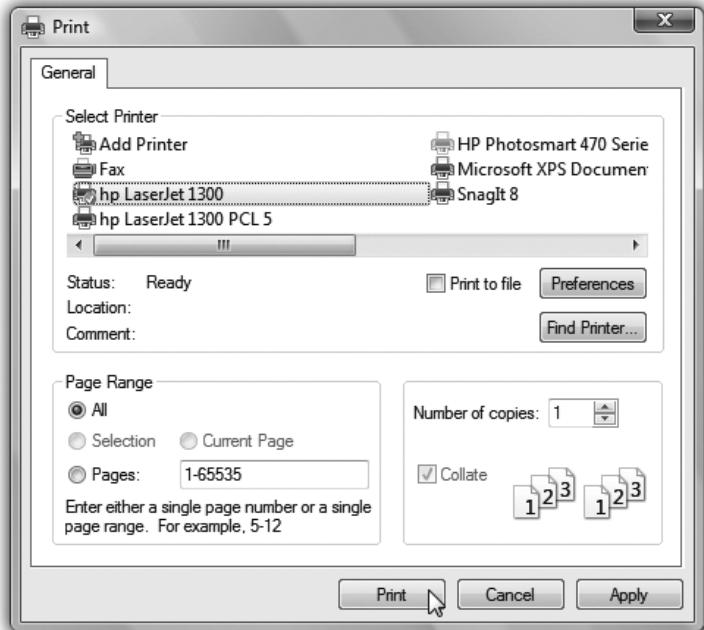
Printing from Programs

After you've created a document you want to see on paper, start the printout (choose File→Print, click the Print button on the toolbar, or press Ctrl+P). The Print dialog box appears, as shown at top in Figure 17-5.

This dialog box, too, changes depending on the program you're using—the Print dialog box in Microsoft Word looks a lot more intimidating than the WordPad version—

Figure 17-5:
Top: The options in the Print dialog box are different for each printer model and each application, so your Print dialog box may look slightly different. For example, here is the Print dialog box from WordPad in Windows 7. Most of the time, the factory settings shown here are what you want (one copy, print all pages). Just click OK or Print (or press Enter) to close this dialog box and send the document to the printer.

Bottom: During printing, the tiny icon of a printer appears in your notification area. Pointing to it without clicking produces a pop-up tooltip, like this one, that reveals the background printing activity.



- **Name.** If your PC is connected to several printers, or if you've created several differently configured icons for the same printer, choose the one you want from this list of printers.
- **Preferences/Properties.** Clicking this button opens a version of the printer's Properties dialog box, as shown in Figure 17-6.
- **Page range** controls which pages of the document you want to print. If you want to print only some of the pages, click the Pages option and type in the page numbers you want (with a hyphen, like 3-6 to print pages 3 through 6).

Tip: You can also type in individual page numbers with commas, like 2, 4, 9, to print only those three pages—or even add hyphens to the mix, like this: 1-3, 5-6, 13-18.

Click Current Page to print only the page where you've placed the blinking insertion point. Click Selection to print only the text you selected (highlighted) before opening the Print dialog box. (If this option button is dimmed, it's because you didn't highlight any text—or because you're using a program that doesn't offer this feature.)

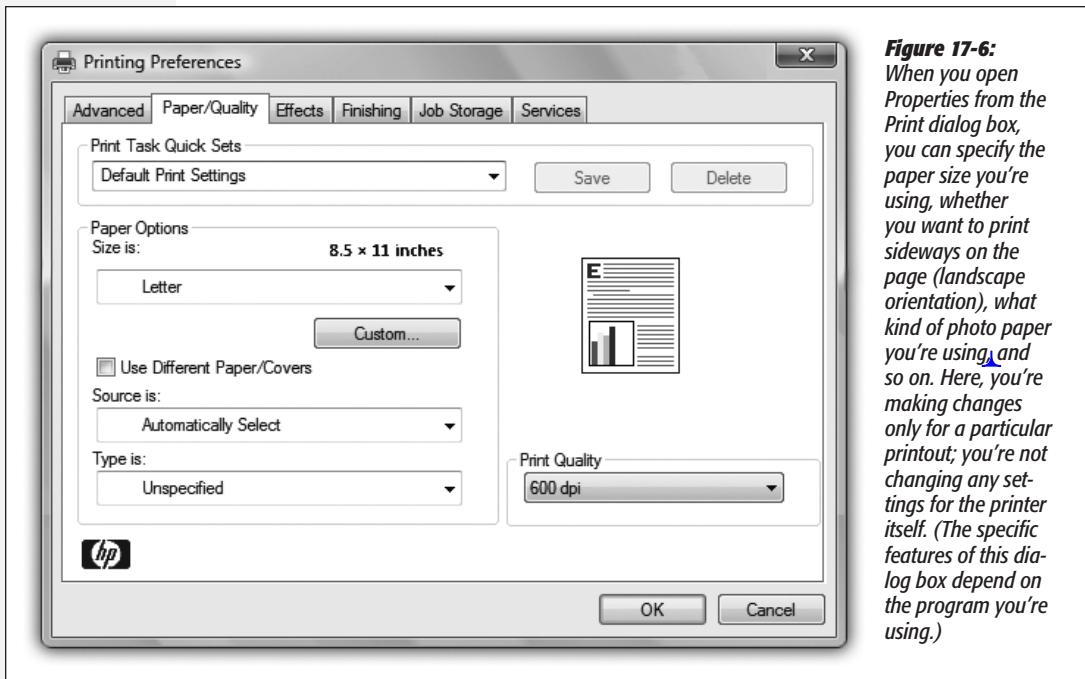


Figure 17-6: When you open Properties from the Print dialog box, you can specify the paper size you're using, whether you want to print sideways on the page (landscape orientation), what kind of photo paper you're using, and so on. Here, you're making changes only for a particular printout; you're not changing any settings for the printer itself. (The specific features of this dialog box depend on the program you're using.)

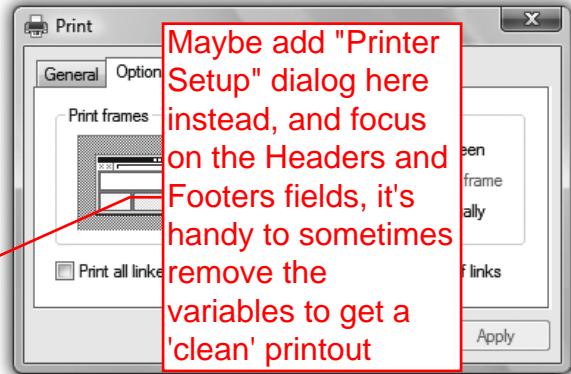
- **Number of copies.** To print out several copies of the same thing, use this box to specify the exact number. You get several copies of page 1, then several copies of page 2, and so on—*unless* you also turn on the Collate checkbox, which produces complete sets of pages, in order.
- **Print.** The Print drop-down list that might appear in the lower-left section of the dialog box offers three options: “All pages in range,” “Odd pages,” and “Even pages.” Use the Odd and Even pages options when you have to print on both sides of the paper but your printer has no special feature for this purpose. You'll have to print all the odd pages, turn the stack of printouts over, and run the pages through the printer again to print even pages.
- **Application-specific options.** The particular program you're using may add a few extra options of its own to an Options tab in this dialog box. For example, Internet Explorer offers an Options tab (Figure 17-7).

When you've finished making changes to the print job, click OK or Print, or press Enter. Thanks to the miracle of *background printing*, you don't have to wait for the

document to emerge from the printer before returning to work on your PC. In fact, you can even exit the application while the printout is still under way, generally speaking. (Just don't put your machine to sleep until it's finished printing.)

Figure 17-7:

Say you're printing something from Internet Explorer. The Web page about to be printed uses frames (individual, independent, rectangular sections). The Print dialog box in Internet Explorer recognizes frames and lets you specify exactly which frame or frames you want to print. If the page contains links to other Web pages (and these days, what Web page doesn't?), you can print those Web pages, too, or just print a table of the links (a list of the URLs).



Maybe add "Printer Setup" dialog here instead, and focus on the Headers and Footers fields, it's handy to sometimes remove the variables to get a 'clean' printout

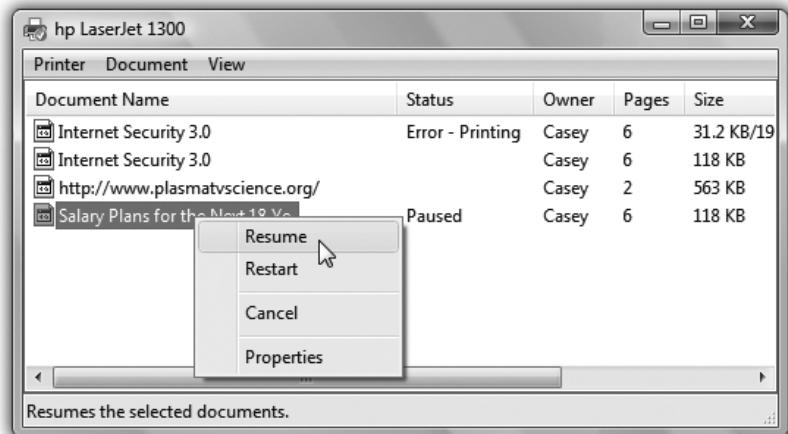
Printing from the Desktop

You don't necessarily have to print a document while it's open in front of you. You can, if you wish, print it directly from the desktop or from an Explorer window in a couple of ways:

- Right-click the document icon, and then choose Print from the shortcut menu. Windows launches the program that created it—Word or Excel, for example. The document is then printed automatically to the default printer.
- If you've opened the printer's own print queue window (Figure 17-8) by right-clicking the Printers icon in your Devices and Printers window and choosing "See

Figure 17-8:

The first document, called "Internet Security 3.0," has begun printing; the waiting documents are put on hold. By right-clicking documents in this list, you can pause or cancel any document in the queue—or all of them at once.



what’s printing,” then you can drag any document icon directly into the list of waiting printouts. Its name joins the others on the list.

These methods bypass the Print dialog box and therefore give you no way to specify which pages you want to print, or how many copies. You just get one copy of the entire document.

Controlling Printouts

[All Versions](#)

Between the moment you click OK in the Print dialog box and the arrival of the first page in the printer’s tray, there’s a delay. Usually, it’s very brief, but when you’re printing a complex document with lots of graphics, the delay can be considerable.

Fortunately, the waiting doesn’t necessarily make you less productive, since you can return to work on your PC, or even quit the application and go [watch TV](#). An invisible program called the *print spooler* supervises this background printing process. The spooler collects the document that’s being sent to the printer, along with all the codes the printer expects to receive, and then sends this information, little by little, to the printer.

Note: The spooler program creates huge temporary printer files, so a hard drive that’s nearly full can wreak havoc with background printing.

To see the list of documents waiting to be printed—the ones that have been stored by the spooler—open the Devices and Printers window, right-click your printer’s icon, and then choose “See what’s printing” to open its window.

Tip: While the printer is printing, a printer icon appears in the notification area. As a shortcut to opening the printer’s window, just double-click that icon.

The printer’s window lists the documents currently printing and waiting; this list is called the *print queue* (or just the *queue*), as shown in Figure 17-8. (Documents in the list print in top-to-bottom order.)

You can manipulate documents in a print queue in any of the following ways during printing:

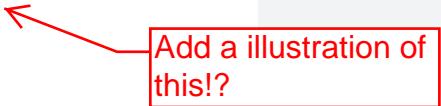
- **Put one on hold.** To pause a document (put it on hold), right-click its name, and then choose Pause from the shortcut menu. When you’re ready to let the paused document continue to print, right-click its listing and choose Resume (Figure 17-8).
- **Put them all on hold.** To pause the printer, choose Printer→Pause Printing from the window’s menu bar. You might do this when, for example, you need to change the paper in the printer’s tray. (Choose Printer→Pause Printing again when you want the printing to pick up from where it left off.)

- **Add another one.** As noted earlier, you can drag any document icon directly *from its disk or folder window* into the printer queue. Its name joins the list of printouts-in-waiting.
- **Cancel one.** To cancel a printout, click its name and then press the Delete key. If you click Yes in the confirmation box, the document disappears from the queue; it'll never print out.
- **Cancel all of them.** To cancel the printing of all the documents in the queue, choose Printer→Cancel All Documents.

Note: A page or so may still print after you've paused or canceled a printout. Your printer has its own memory (the *buffer*), which stores the printout as it's sent from your PC. If you pause or cancel printing, you're only stopping the spooler from sending *more* data to the printer.

- **Rearrange them.** If you're used to, say, Windows Me, it may take you a moment—or an afternoon—to figure out why you can't simply drag documents up or down in the list of waiting printouts to rearrange their printing order. In Windows 7, the procedure is slightly more involved.

Start by right-clicking the name of one of the printouts-in-waiting; from the shortcut menu, choose Properties. On the General tab, drag the Priority slider left or right. Documents with higher priorities print first.



Add a illustration of this!?

Fancy Printer Tricks

The masses of Windows users generally slog through life choosing File→Print, clicking OK, and then drumming their fingers as they wait for the paper to slide out of the printer. But your printer can do more than that—much more. Here are just a few of the stunts that await the savvy PC fan.

Printing at 39,000 Feet

Printing any document is really a two-step procedure. First, Windows converts the document into a seething mass of printer codes in the form of a *spool file* on your hard drive. Second, it feeds that mass of code to the printer.

When you're not connected to your printer—for example, when you're sitting in seat 23B several miles over Detroit—you can separate these two tasks. You can do the time-consuming part of the printing operation (creating the spool files) right there on the plane. Then, later, upon your happy reunion with the printer, you can simply unleash the flood of stored spool files, which then print very quickly.

To set this up, right-click the icon for your printer in the Devices and Printers window (Figure 17-4). From the shortcut menu, choose “See what’s printing.” Then, on the Printer menu, choose “Pause printing.” That’s all there is to it. Now you can merrily “print” your documents, 100 percent free of error messages. Windows quietly stores all the half-finished printouts as files on your hard drive.

When the printer is reconnected to your PC, right-click its icon once again, choose “See what’s printing,” and then click “Pause printing” again to clear this setting. The printer springs to life almost immediately, spewing forth your stored printouts with impressive speed.

Sharing a Printer

If you have more than one printer, they all can use the network. More expensive network printers like laser printers. But in Windows 7, you can share even the cheapest little inkjet connected to the USB port of one computer.

To begin, sit down at the computer to which the printer is attached. Choose Start→Control Panel. Click Network and Internet, and then open Network and Sharing Center. In the left pane, click “Change advanced sharing settings.” Proceed as described in Figure 17-9.

Once you’ve *shared* the printer, other people on the network can add it to their own Devices and Printers windows using these steps:

1. Choose Start→Devices and Printers. In the Devices and Printers window, click “Add a printer.”

The “What type of printer do you want to install” window appears.

2. Click “Add a network, wireless or Bluetooth printer.”

After a pause while your PC searches, you see a window populated by all the printers available to the other PC.

Tip: You can usually find a printer status dialog showing you how many printouts it has made for you during its life. Laser printers are notorious to have insanely high numbers after a few years of use.

UP TO SPEED

Location-Aware Printing

Speaking of shared printers, if you’re running the Professional or Ultimate edition of Windows 7 and working on a laptop computer, you can let Windows handle the printing chores that arise when you move from one network to another. Windows uses a feature called location-aware printing to do this.

When you’re at home, for example, and printing to your family’s homegroup printer, Windows uses that as your default printer. When you head back to the office the next day and log onto your company’s network, Windows knows which

printer you used the last time you printed at the office and switches to that printer as the default.

To associate printers with a particular network, choose Start→Devices and Printers, and then select one of the printers you’ve installed. On the toolbar, click “Manage default printers.”

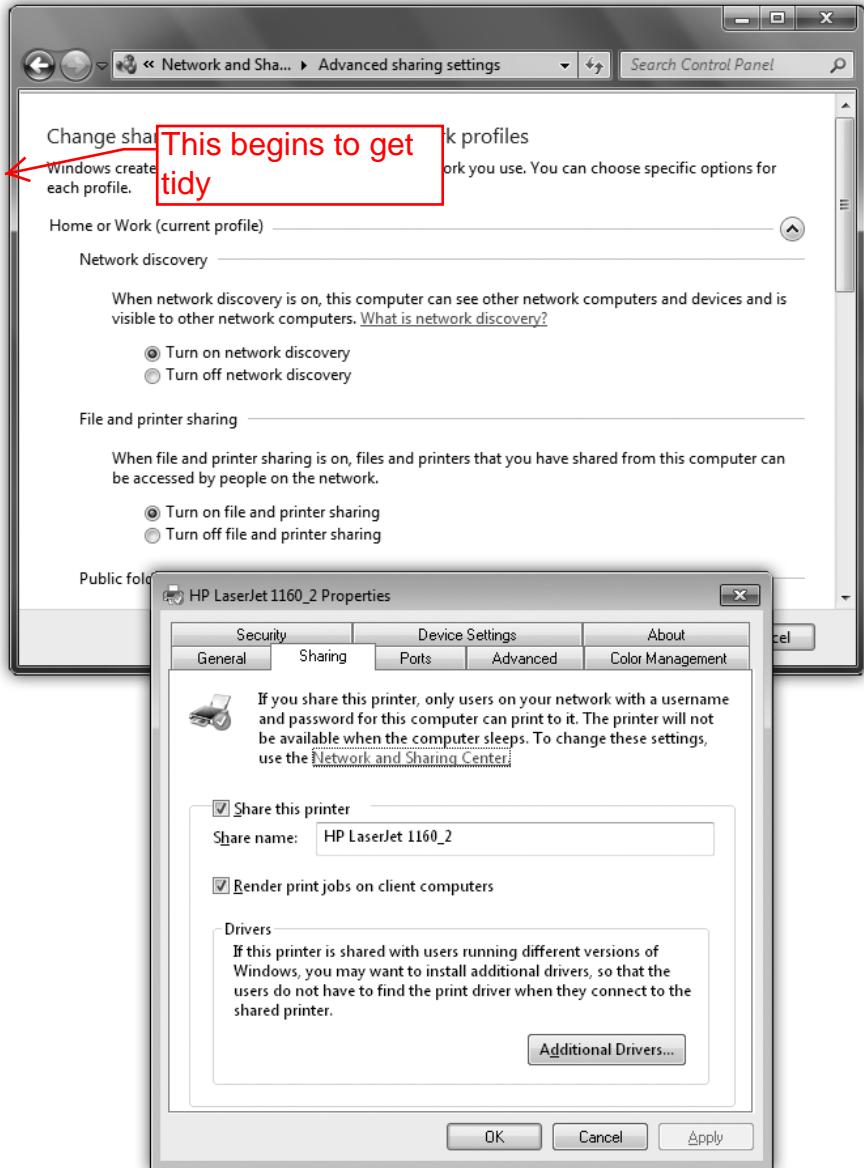
In the resulting dialog box, you can tell Windows to always use the same printer as your default (if that’s your preference) or change default printers network to network. Use the Select Network and Select Printer lists to assign the printers you want to use.

- Click the icon of the printer you want to use, and then click Next. On the “which driver” page, click Next again. Finally, type a name for the printer (as you want it to appear on your PC), and then click Next. On the final screen, click Finish.

Figure 17-9:

Top: Sharing a printer takes a couple of steps. First be sure that the network you’re using has printer sharing turned on. (Home and Work networks have this setting turned on automatically.) Under the current network profile, check that “Turn on file and printer sharing” is selected. If it isn’t turned on, select it, and then click Save Changes. (Authenticate yourself if necessary.)

Bottom: Open Devices and Printers from the Start menu. Right-click the printer you want to share, and then click Printer properties. Click the Sharing tab, and select the “Share this printer” checkbox.



This is old skool

The shared printer appears in *your* Devices and Printers window, even though it's not directly connected to your machine. It's now available for any printing you want to do.

Printing to a File

When it comes to printing, most of the time you probably think of printing onto paper. In certain circumstances, however, you may not actually want a printout. Instead, you might want to create an electronic printer file on your hard drive, which can be printed later. You might want to do so, for example, when:

- You're working on a document at home, and you've got only a cheesy \$49 inkjet printer. By creating a printer file, you can delay printing until tomorrow, in order to use the office's \$4,000 color laser printer.
- You plan to send your finished work to a service bureau—that is, a professional typesetting shop. Sending a finished printer file avoids incompatibilities of applications, fonts, layout programs, and so on.
- You want to give a document to a client who has the software to create it, but has the software on a different machine. You want to see your glorious design.

Tip: Most printing shops will accept your document as a PDF, which is currently the most prevalent universal document standard today.

Creating a printer file

To create such a printer file, choose File→Print, just as you would print any document. The Print dialog box appears; now turn on the “Print to file” option. When you then click OK or Print, the Print to File dialog box opens.

Some programs let you choose *where* you want to save the file; others ask you only to name the file itself. In that case, your saved printout goes automatically into your Documents folder. The file extension for these printer files is **.prn**.

Printing a printer file

To print a printer file, choose Start→All Programs→Accessories→Command Prompt. You've just started an **MS-DOS command** session; your cursor is blinking on the command line.

Now type `copy c:\foldername\filename.prn lpt1: /b` and then press Enter.

Here's how this instruction breaks down:

- **Copy** is the name of the command you use to print the file—notice that it's followed by a space.
- **C:** is the letter of the drive that contains your printer file. You can omit this part if the printer file is on the current drive (usually C:).
- **\foldername** is the name of the folder into which you saved the printer file (Documents, for example).
- **\filename** is the name you gave the file.

- `.prn` is the filename extension (which Windows added to the file automatically when you saved the printer file).
- `lpt1:` is the port to which the printer is connected. Note the colon following the name, and also note that there's a space *before* this part of the command. If the printer is attached to LPT2, substitute that port name.
- `/b` tells the Copy command that the file is *binary* (containing formatting and other codes), not simply text.

Note: A printer file (a `.prn` file) can be printed only on the same printer model that was selected in the Print dialog box when the file was generated. If you want to create a printer file for that color printer at work, in other words, be sure to first install its driver on your computer.

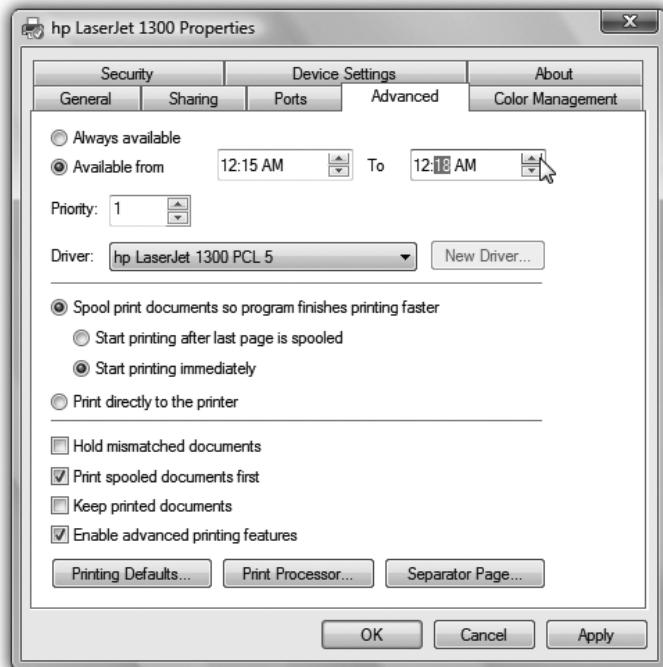
Limiting Hours of Access

If it's just you, your Dell, and a color inkjet, then you're entitled to feel baffled by this feature, which lets you declare your printer off-limits during certain hours of the day. But if you're the manager of some office whose expensive color laser printer makes printouts that cost a dollar apiece, you may welcome a feature that prevents employees from hanging around after hours in order to print out 500 copies of their head shots.

To specify such an access schedule for a certain printer, follow the instructions in Figure 17-10.

Figure 17-10:

Right-click your printer's icon in the Printers window. From the shortcut menu, choose Properties, and then click the Advanced tab, shown here. Select "Available from," and use the time-setting controls to specify when your underlings are allowed to use this printer from across the network. Clicking OK renders the printer inoperable during off hours.



Add a Separator Page

If your PC is on a network whose other members bombard a single laser printer with printouts, you might find *separator pages* useful—the printer version of fax cover sheets. A separator page is generated before each printout, identifying the document and its owner.

This option, too, is accessible from the Advanced tab of the printer's Properties dialog box (Figure 17-10). Click the Separator Page button at the bottom of the dialog box. In the Separator Page dialog box, click the Browse button to choose a *.sep* (separator page) file.

POWER USERS' CLINIC

Color Management

As you may have discovered through painful experience, computers aren't great with color. That's because each device you use to create and print digital images "sees" color a little bit differently, which explains why the deep amber captured by your scanner may be rendered as brownish on your monitor, but come out as a bit orangey on your Epson inkjet printer. Since every gadget defines and renders color in its own way, colors are often inconsistent as a print job moves from design to proof to press.

The Windows *color management system* (CMS) attempts to sort out this mess, serving as a translator among all the different pieces of hardware in your workflow. For this to work, each device (scanner, monitor, printer, copier, and so on) must be calibrated with a unique *CMS profile*—a file that tells your PC exactly how your particular monitor (or scanner, or printer, or digital camera) defines colors. Armed with the knowledge contained within the profiles, the CMS software can make on-the-fly color corrections, compensating for the quirks of the various devices.

Most of the people who lose sleep over color fidelity do commercial color scanning and printing, where "off" colors

are a big deal—after all, a customer might return a product after discovering, for example, that the actual product color doesn't match the photo on a Web site. Furthermore, not every gadget comes with a CMS profile, and not every gadget can even accommodate one. (If yours does, you'll see a tab

called Color Management in the Properties dialog box for your printer, as shown here.)

If you're interested in this topic, open the Color Management tab for your printer. (Opening the Color Management applet in the Control Panel gets you to the same place, shown here.) The Automatic setting usually means that Windows came with its own profile for your printer, which it has automatically assigned. If you click Manual,

you can override this decision and apply a new color profile (that you downloaded from the printer company's Web site, for example).

Remember to follow the same procedure for the other pieces of your color chain—monitors, scanners, and so on. Look for the Color Management tab or dialog box, accessible from their respective Properties dialog boxes.



If you scroll to the very bottom of the resulting list of geeky Windows folder names, you'll find four of them:

- **Sysprint.sep** is the one you probably want. Not only does this page include the name, date, time, and so on, but it also automatically switches the laser printer to PostScript mode—if it's not already in that mode, and if it's a PostScript printer.
- **Pcl.sep** is the same idea, except that it switches the laser printer to PCL mode—commonly found on HP printers—before printing. (PostScript and PCL are the two most common languages understood by office laser printers.)
- **Pscript.sep** switches the printer to PostScript mode but doesn't print out a separator page.
- **Sysprtj.sep** prints a separator page, switches the printer to PostScript mode, and sets Japanese fonts, if they're available on your printer.

Printer Troubleshooting

[All Versions](#)

If you're having a problem printing, the first diagnosis you must make is whether the problem is related to *software* or *hardware*. A software problem means the driver files have become damaged. A hardware problem means there's something wrong with the printer, the port, or the cable.

Test the printer by sending it a generic text file from the command line. To perform such a test, locate a text file or create one in Notepad. Then choose **Start→All Programs→Accessories→Command Prompt**; send the file to the printer by typing **copy filename.txt prn** and then pressing Enter. (Of course, remember to type the file's actual name and three-letter extension instead of *filename.txt*.)

If the file prints, then the printing problem is software-related. If it doesn't, then the problem is hardware-related.

For software problems, reinstall the printer driver. Open the Devices and Printers window, right-click the printer's icon, and then choose Remove Device from the shortcut menu. Then reinstall the printer as described at the beginning of this chapter.

If the problem seems to be hardware-related, try these steps in sequence:

- Check the lights or the LED panel readout on the printer. If you see anything other than the normal "Ready" indicator, check the printer's manual to diagnose the problem.
- Turn the printer off and on to clear any memory problems.
- Check the printer's manual to learn how to print a test page.
- Check the cable to make sure both ends are firmly and securely plugged into the correct ports.

- Test the cable. Use another cable, or take your cable to another computer/printer combination.

Another way to check all these conditions is to use the built-in Windows *troubleshooter*—a wizard specifically designed to help you solve printing problems. To run, choose Start→Help and Support. Type *printing troubleshooting* into the Search box and press Enter. Click “Open the Printer troubleshooter” to open that article.

If none of these steps leads to an accurate diagnosis, you may have a problem with the port, which is more complicated. Or even worse, the problem may originate from your PC’s motherboard (main circuit board), or the printer’s. In that case, your computer (or printer) needs professional attention.

Fonts

[All Versions](#)

Some extremely sophisticated programming has gone into the typefaces that are listed in the Fonts dialog boxes of your word processor and other programs. They use *OpenType* and *TrueType* technology, meaning that no matter what point size you select for these fonts, they look smooth and professional—both on the screen and when you print.

Managing Your Fonts

Windows comes with several dozen great-looking fonts: Arial, Book Antiqua, Times New Roman, and so on. But the world is filled with additional fonts. You may find them on Web sites or in the catalogs of commercial typeface companies. Sometimes you’ll find new fonts on your system after installing a new program, courtesy of its installer.

To review the files that represent your typefaces, open the Fonts icon in the Control Panel. (Switch to Large Icons or Small Icons view to see the Fonts icon.) As Figure 17-11 illustrates, it’s easy and enlightening to explore this folder.

Tip: The Fonts icon in your Control Panel window is only a shortcut to the *real* folder, which is in your Local Disk (C:)→Windows→Fonts folder.

To remove a font from your system, right-click it and then choose Delete from the shortcut menu, or highlight it and then click Delete on the toolbar. To install a new font, first download the font (from the Internet, for example) and then drag its file icon into this window (or right-click the font and then click Install). You can also choose to show or hide specific fonts in your programs. The Fonts window in Control Panel includes a column that shows the status of a font. Select a font, and then click Show or Hide to make this font available in the programs you use.

Whatever you do, you see the changes immediately reflected in your programs’ Font dialog boxes.

Faxing

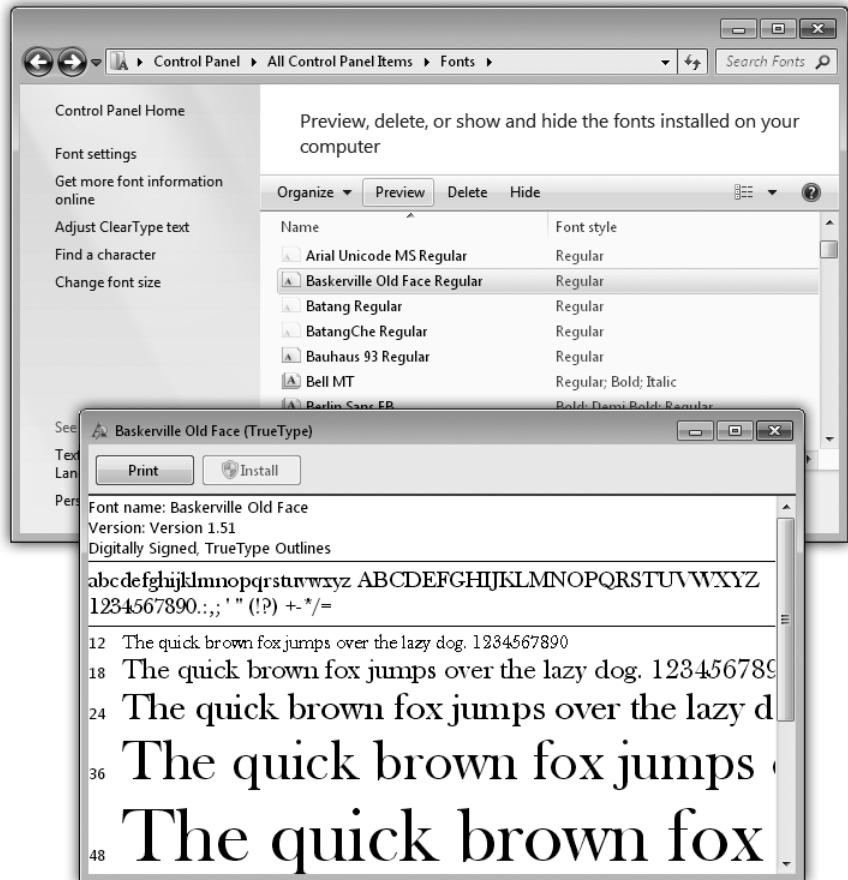
Business • Enterprise • Ultimate

One of Windows 7's most spectacular features is its ability to turn your PC's built-in fax modem into a fax machine. This feature works like a charm, saves all kinds of money on paper and fax cartridges, and may even spare you the expense of buying a physical fax machine.

Faxing in Windows 7 is a much more official feature than it was in Windows XP, where it wasn't even installed automatically. Now there's a new program dedicated just to faxing: Windows Fax and Scan.

Sending a fax is even easier on a PC than on a real fax machine; you just use the regular File→Print command, exactly as though you're making a printout of the onscreen

Figure 17-11:
Top: All your fonts sit in the Fonts folder. You'll frequently find an independent font file for each style of a font: bold, italic, bold italic, and so on.
Bottom: To see how a font looks at various sizes and styles, click it, and then click Preview.



document. When faxes come *in*, you can opt to have them printed automatically, or you can simply read them on the screen.

Tip: The similarity with printing doesn't stop there. The Devices and Printers folder even contains a Fax icon that works just like a printer icon.

Sending a Fax from Any Program

Now, the one big limitation of PC-based faxing is that you can only transmit documents that are, in fact, *on the computer*. That pretty much rules out faxing notes scribbled on a legal pad, clippings from *People* magazine, and so on (unless you scan them first).

If you're still undaunted, the procedure for sending a fax is very easy:

1. **Open up whatever document you want to fax. Choose File→Print.**

The Print dialog box appears.

2. **Click the Fax icon (or choose Fax from the Select Printer list, as shown in Figure 17-12), and then click OK or Print.**

The very first time you try faxing, you encounter the Fax Setup Wizard. It first asks you to connect to a fax modem. Choose that option, and then type a name for your fax modem.

POWER USERS' CLINIC

Cover-Page Art Class

You don't have to be content with the handful of fax cover pages that Microsoft provides. The Fax and Scan program comes with its own little cover-page design studio. To get started, choose Tools→Cover Pages.

At this point, you could click the New button to call up a pure, empty, *virginal* cover page. But by far the easiest way to get going is to open one of the existing cover pages, make changes to it, and then save it under a different name.

To do so, click the Copy button now in front of you, and then open one of the four cover-page templates that Windows presents. Windows puts it into what's now a one-item list. Select the item and click Rename to give it a new name, if you like, and then click Open to begin work on your redesign.

The design program works like any standard drawing program. In order to type text that won't change—a confidentiality notice, for example—click the Text tool on the toolbar

(which looks like this: **abj**), and then click the page. Use the commands in the Insert menu to plopp placeholder text boxes onto the page—special rectangles that, on the actual cover sheet, will be filled by your name, fax number, the number of pages, and so on. You can transfer your own company logo onto the page just by pasting it there (Edit→Paste).

Every item you place on the page—a text block, a graphic, and *so on*—is a separate object that you can move around independently using the arrow tool. In fact, you can even move a selected object in front of, or behind, other objects, using the commands in the Layout menu.

When you're finished with your masterpiece, choose File→Save. It gets saved into your Documents→Fax→Personal CoverPages folder (meaning that only you have access to it—not other people who share the PC and log in with their own accounts).

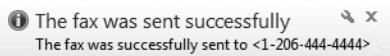
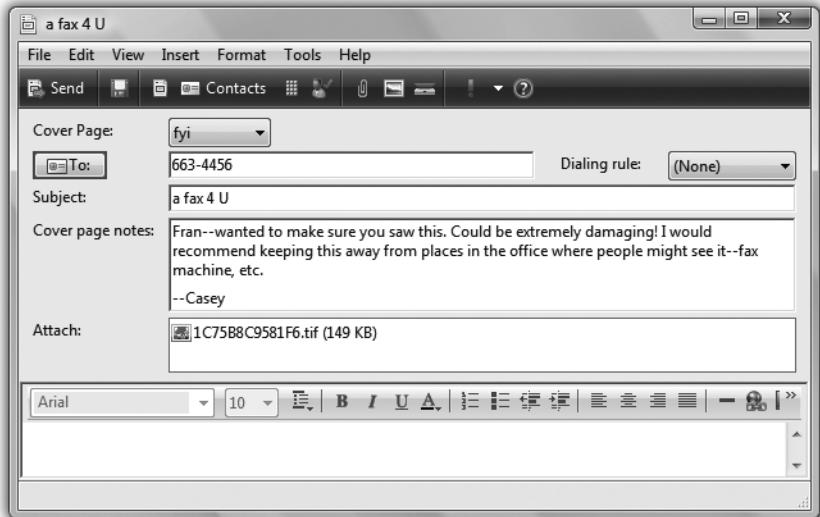
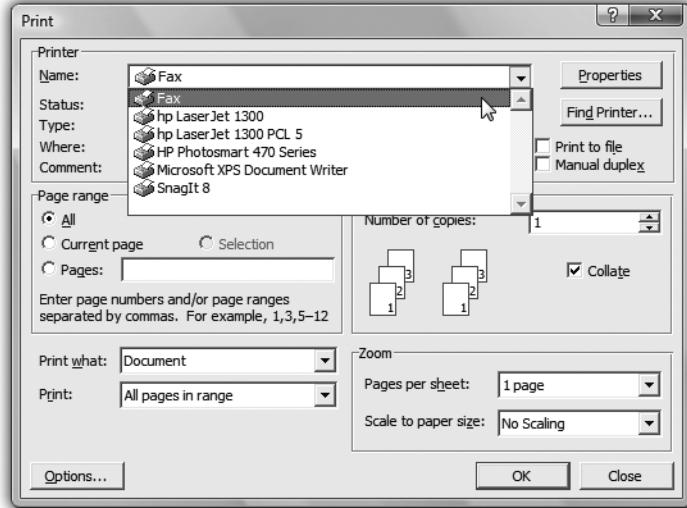
Next, it wants you to specify what happens when someone sends a fax to *you* (that is, when the phone line your PC is connected to “rings”). Click “Answer automatically” if you want Windows to answer incoming calls after five rings, assuming that if you haven’t picked up by that time, the incoming call is probably a fax.

Figure 17-12:

Top: To send a fax, pretend you’re printing the document—but choose Fax as the printer.

Middle: Address and send the fax.

Bottom: Good news! This old-fashioned technology actually worked.



If you choose “Notify me,” then each incoming call triggers an onscreen message, asking you whether you want the PC to answer as a fax machine. And if you choose “I’ll choose later,” you can postpone the decision and get on with sending your first fax.

Note: At this point, the Windows Firewall, rather stupidly, may interrupt to ask if it’s OK for Windows Fax and Scan to run. Click Unblock.

Finally, you arrive at a New Fax window (like a New Message window) (Figure 17-12, middle).

3. Type the recipient’s fax number into the “To:” box.

Or click the tiny envelope next to “To:” to open up the Select Recipients list (where you can find people listed as your Windows Contacts and others). Double-click the name of the fax-equipped buddy you want.

4. If you want a cover page, choose a cover-page design from the Cover Page drop-down menu.

If you do, then a new text box opens up, where you can type a little note, which also appears on the cover page.

Note: You can ignore the main message box at the bottom of the window for now. It’s intended for creating faxes from thin air, as described below, rather than faxes that began life as documents on your PC.

At this point, type a subject for your fax. You may also want to choose View→Preview (or click the tiny Preview icon on the toolbar) to give it a final inspection before it goes forth over the airwaves. When you’re finished looking it over, your fax is ready to send.

5. Click Send in the toolbar.

Your modem dials, and the fax goes on its merry way. A status dialog box appears (although its progress bar doesn’t actually indicate how much time remains). You can go do other work on the PC; when the fax goes through, a cheerful message appears in your notification area (Figure 17-12, bottom).

Your recipient is in for a real treat. Faxes you send straight from your PC’s brain emerge at the receiving fax machine looking twice as crisp and clean as faxes sent from a standalone fax machine. After all, you never scanned them through a typical fax machine’s crude scanner on your end.

Faxing Using Windows Fax and Scan

If you just have a few quick words to fax to somebody, you can use Fax and Scan by itself, without first opening a document on your PC. Open the Fax and Scan program from your Start→All Programs menu.

Click New Fax in the toolbar, fill in the fax number, and choose a cover page as described in the preceding steps. This time, however, you can use the broad message area at the bottom of the window to type the body of your text.

Tip: Cover pages automatically include your name, fax number, and so on. And how does it know all this? Because, in Fax and Scan, you chose Tools→Sender Information and filled it out.

Receiving Faxes

There are several reasons why you may *not* want your PC to receive faxes. Maybe you already have a standalone fax machine that you use for receiving them. Maybe your house has only one phone line, whose number you don't want to give out to people who might blast your ear with fax tones.

But receiving faxes on the PC has a number of advantages, too. You don't pay a cent for paper or [ink](#) cartridges, for example, and you have a handy, organized software program that helps you track every fax you've ever received.

Note: The discussion here applies to normal people who send faxes using a computer's built-in fax modem. If you work in a corporation where the network geeks have installed a *fax server*, life is even easier. Incoming faxes automatically arrive in the Inbox of the Fax and Scan program.

Exactly what happens when a fax comes in is up to you. Start by opening Windows Fax and Scan; then choose Tools→Fax Settings, and proceed as shown in Figure 17-13.

You have two options for receiving faxes:

- **Manually answer.** This option is an almost-perfect solution if your PC and telephone share the same phone line—that is, if you use the line mostly for talking, but occasionally receive a fax. From now on, every time the phone rings, a balloon in your notification area announces: “Incoming call from [the phone number]. Click here to answer this call as a fax call.” (See Figure 17-13.)

When you do so, your PC answers the phone and begins to receive the fax. To see it, open Fax and Scan.

- **Automatically answer after.** Use this option if your PC has a phone line all to itself. In this case, incoming faxes produce a telephone-ringing sound, but there's otherwise no activity on your screen until the fax has been safely received. Once again, received faxes secret themselves away in your Fax and Scan program.

While you're setting things up in the Fax Settings dialog box, don't miss the “More options” button. It's the gateway to two useful features:

- **Print a copy to.** If you like, Windows can print out each incoming fax, using the printer you specify here. Of course, doing so defeats the environmental and cost advantages of viewing your faxes onscreen, but at least you've got something you can hold in your hand.

- **Save a copy to.** Ordinarily, incoming faxes are transferred to your Fax and Scan program. If you turn on this option, however, you can direct Windows to place a *duplicate* copy of each one—stored as a graphics file—in a folder of your choice.



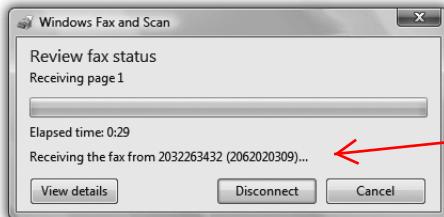
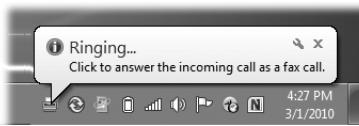
Figure 17-13:

Top: Click the General tab, and then turn on “Allow device to receive fax calls.” If you choose “Automatically answer,” you can also specify how many rings you want to go by before the PC answers; you don’t want it answering regular incoming voice calls before you’ve had a chance to pick up.

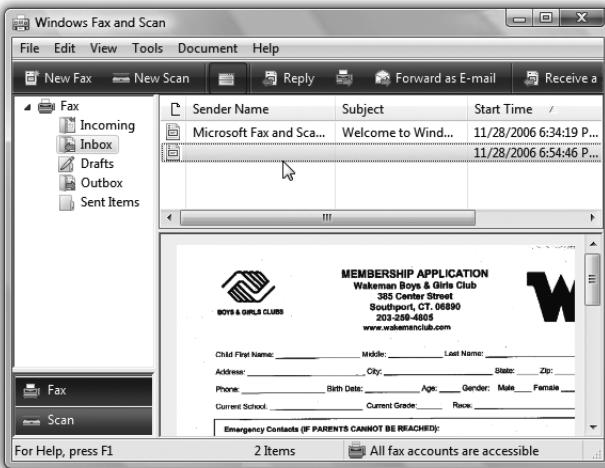
Second from top: Uh-oh! You’re getting a call! Click the balloon itself if you think it’s a fax.

Third from top: Windows Fax and Scan takes over and begins to download the fax. This window is cleverly known as the Fax Status Monitor.

Bottom: The incoming fax winds up in your Inbox, just as though it’s a particularly old-fashioned email message.



Number visible, privacy?



(Either way, it's handy to know that these are standard TIFF graphics files that you can email to somebody else—or even edit.)

To look at the faxes you've received, open Fax and Scan. Click the Inbox to see a list of faxes that have come in—and then double-click one to open it up (Figure 17-13, bottom).

Tip: Another great way to capitalize on the power of your PC for fax purposes is to sign up for J2 or eFax (www.j2.com and www.efax.com). These services issue you your own personal fax number. And here's the twist—all faxes sent to that number arrive at your PC as email attachments.

The brilliance of the system, of course, is that you don't need another phone line for this, and you can get these faxes anywhere in the world, even on the road. And here's the best part: As of this writing, both of these services are absolutely free. (You might consider reserving a separate email address just for your J2 or eFax account, however, since waves of junk mail are part of the "free" bargain.)

Scanning Documents

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You already know that Windows Fax and Scan makes a great little fax center. But faxing is only one technology that turns paper into digital bits. Scanning is the other—and that, too, is a talent of Fax and Scan.

First, install your scanner (and its driver) as described in Chapter 18.

Load it up with the page you want to scan. In Fax and Scan, click New Scan. The New Scan dialog box appears. Click Preview to trigger a quick, temporary scan so that you can see how the document will look after the scan (Figure 17-14). If it all looks good, click Scan.

FREQUENTLY ASKED QUESTION

Scanning Text—and Then Editing It

I scanned an article from a magazine. How do I copy a couple of paragraphs from it into my word processor?

When you scan an article or a page of a book, you're not capturing text; you're just taking a *picture* of text. You can no more copy and paste a paragraph out of the resulting graphics file than you can copy text out of a photograph. Your PC sees everything on the scanned page as one gigantic graphic.

If you want to edit text that you've scanned, then you need

optical character recognition (OCR) software, which comes free with certain scanners. This kind of software analyzes the patterns of dots in each scanned graphics file and does a fairly good job of turning it into a word processor document that contains the original text. When businesses decide to convert old paper documents into computer files (insurance policies, research papers, and so on), OCR software is what they use.

Once the document has magically turned into a graphic in your Scan list, you can do all kinds of neat things with it: Forward it as a fax or an email attachment (click “Forward as Fax” or “Forward as E-mail” on the toolbar); export it as a JPEG, GIF, BMP, TIFF, or PNG document (click “Save as” on the toolbar); print it; or delete it.

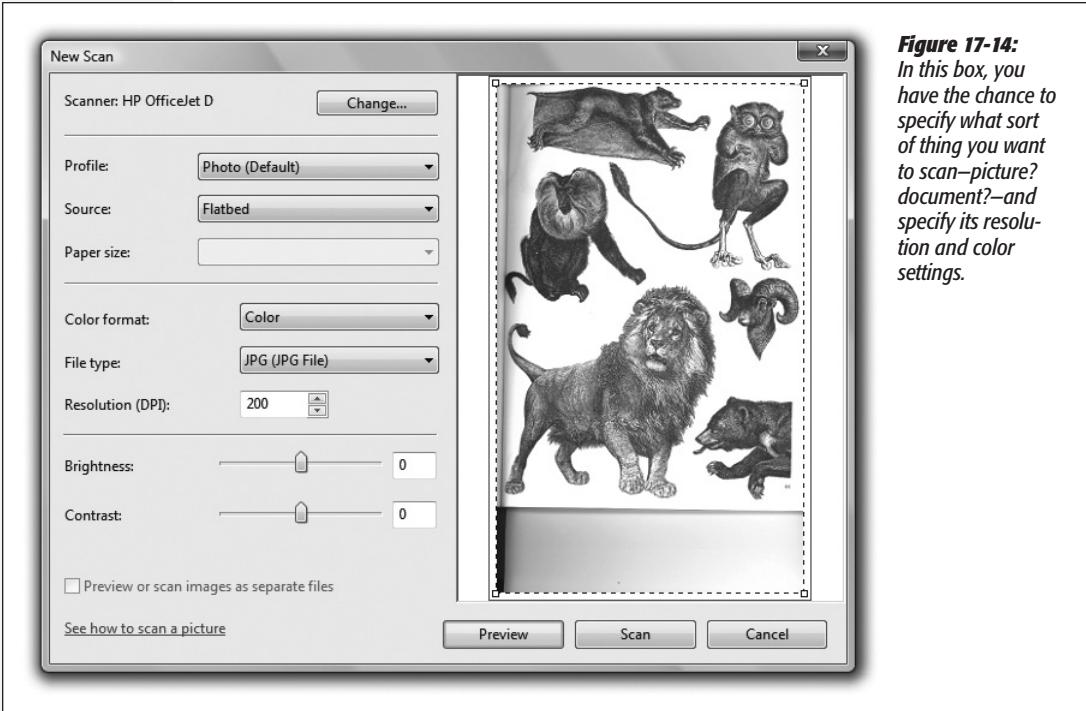


Figure 17-14: In this box, you have the chance to specify what sort of thing you want to scan—picture? document?—and specify its resolution and color settings.

← Tip: If you want the highest possible resolution, that is the level of details, try to scan with 300-600 DPI (Dots Per Inch). For a more general sized scan, try 150-200 DPI. The file size will vary depending on the value chosen.