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- Understanding PC problems
- Reviewing system changes
- Detecting hardware and software issues
- Determining the source of woe
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Chapter 1

O Trouble, Hinder Thy Bidding!

You know it's coming. Unlike bad weather or the flu, a computer crisis rarely drops any cryptic portents. Sure, check the entrails if you dare, but PC trouble sneaks up like dawn.

Unlike the sun, however, technology troubles hardly warm up your day with welcome sunshine. No, the dread and foreboding that comes with computer woe is a splash of cold water, a pebble in your shoe, and a long-term visit from an unwelcome guest all rolled into one.

You can't avoid computer woe, but you can prepare for its arrival. You can also become familiar with the causes of digital distress. The more you know about why things go wrong, the better you can prepare yourself for the inevitable.

The Secret Source of Computer Woe

The cause of nearly all PC trouble is rooted in one thing: change.

Technology runs afoul because something has changed. It could be something you did, such as modify a setting, uncover a software bug, run a malicious program, or

experience any of several items that all qualify as "change." Even time itself is an agent of change, in that PC hardware grows old and then eventually wears out and fails.

The goal isn't to avoid change, but rather to be aware of its impact. The process of troubleshooting becomes easier when you realize that something you just did, intentionally or not, might have triggered a problem.

The Four Horsemen of the Computer Apocalypse

Computers are designed to be flexible. Rather than blame yourself when trouble arises, just recall what has changed. When you do, you make it easier to troubleshoot and find the source of what's gone wrong.

For example, you install a new keyboard and the mouse doesn't work. Perhaps you unplugged the mouse instead of the old keyboard? The graphics driver is updated, which is good, but now all your computer games are reset to low resolution. The point is to be aware of what you've just done, to see how it relates to the current problem.

To help you discover what's changed, or what might have caused recent issues, ask yourself, "What did I just do?" Specifically, did you recently or just now:

- Install new software?
- Add new hardware?
- Change a setting?

Think hard because you do a lot with your computer, and sometimes you do several things at a time. For example, a dialog box may feature multiple settings but only one OK button. All the settings are applied instantly with a single mouse click. Undoing the change requires that you recall which changes you just made.

TIP

Windows keeps track of all system activities, including those that cause woe. See Chapter 15 for information on the Event Viewer, which lets you peruse system logs for signs of trouble.

New software and updates

Software covers the gamut from the PC's operating system to programs you install. It also includes the software that controls specific pieces of hardware, which are referred to as *drivers.*

The best way to avoid issues caused by installing new software is to create a restore point. Windows does so automatically. Then, should problems arise, you can uninstall the software and use the restore point to recover the system's previous configuration.


TIP

Some older programs may not prompt Windows to create a restore point. And, when you modify settings, a restore point isn't created. Even so, you can set your own restore point. See Chapter 16.

New or failing hardware

Major hardware changes most definitely affect a computer system. Further, keep in mind that when you attach or remove a USB device, you're also adding and removing hardware. This process may trigger an issue that could occur right away or surface later, but the hardware change is probably the source.

- Create a restore point before you make hardware changes. Unlike with software installation, you must manually create a restore point before installing new hardware. See Chapter 16.
- The quick fix for bad hardware is to remove it. Sometimes, detaching the bum device fixes the problem, and sometimes not. If software (driver) was installed when you attached the hardware, the software must be uninstalled as well.
- Ensure that you read the hardware installation directions (or flimsy pamphlet) before you install the device. The directions describe which to install first, the device or its special software. Sometimes, new hardware screws up when you omit this step.
- If hardware is going to fail, it usually does so within 30 days of installation, which is why most hardware warranties are for 90 days or less. In my experience, hardware that fails generally does so within 72 hours.
- A power supply (hardware) might fail when overloaded, which goes against the "hardware-fails-quickly" rule. See Chapter 6 for details on the power supply.
- Unlike software errors, which are consistent, hardware problems can be intermittent. See the later section "Hardware-versus-Software Problems."

Altered settings

If you're like me, you might change settings so often that you forget you did so. The settings can be subtle, from accessing a new Wi-Fi network to changing screen resolution. Anytime you change a setting, you alter the computer's behavior, which can lead to an unusual or unexpected happening.

Most importantly, be on the lookout for User Account Control (UAC) warnings. Anytime you change a setting that can affect the entire system, you see such a warning, such as the one shown in Figure 1-1.

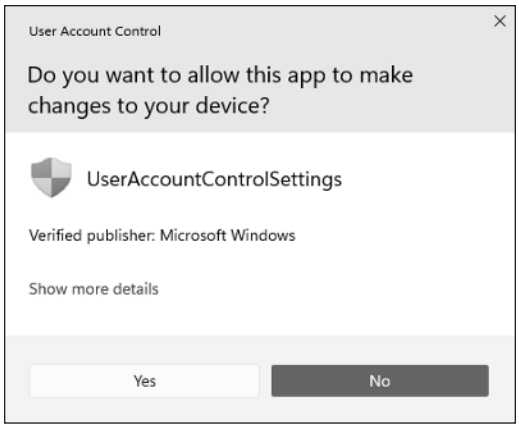

FIGURE 1-1: A typical UAC warning.

If you're making the change, click the Yes button to proceed. When a UAC warning appears unexpectedly, click No. For standard-level user accounts (which are rare), you must input an administrator password when faced with a UAC warning. Fill in the text box (not shown in Figure 1-1) with the administrator's PIN or password.

Settings and controls that affect the entire system feature the UAC Shield icon, shown in the margin. Choosing such an option generates a UAC warning if your user account type is standard. Administrator accounts get prompted with warnings in many such situations as well. Regardless, the Shield icon serves as a reminder that the option you're changing can alter system-wide behavior.

The point of the UAC is to pay attention! Changing settings can lead to PC trouble. For example, changing the text color to bright green and the text background color to bright green renders the text unreadable. The solution is to undo the change.

» The best way to undo settings is to run System Restore, though a restore point may not be handy enough to undo the change. See Chapter 16 for details.

- By the way, green-on-green text is a horrid problem that's difficult to fix. You can select text to view it; selecting highlights the text and makes it readable. For a long-term solution, reboot into Safe mode to undo such a heinous text setting. See Chapter 18 for details on Safe mode.

Time

One condition you have no control over is time. The swift hands of time stop for no reason. Eventually, computer hardware fails. Software becomes incompatible as you perform various upgrades and updates. Time marches on, but your computer system may get trampled.

The good news is that modern computer systems last for years. When well-maintained, a PC can serve you well for a decade or longer. Laptops have a shorter lifespan, due to their specific parts and heat issues. Still, the point is that time may catch up with you and present unavoidable trouble.

TIP

- Each time I get a new computer, I create a text file titled Purchase Date. It contains the date when I first activated the computer. This file provides evidence I need to gauge the system's age and plan for its eventual replacement.
- Plan for getting a new computer just as you plan for replacing an older car. Yes, it can be a financial burden, but hopefully it's one that you know is coming and can make plans for in advance.

Hardware-versus-Software Problems

Computer system consists of both hardware and software. Therefore, problems fall into one category or the other. Detecting the specific source, however, is an art form. People who troubleshoot computers for a living follow three general rules to diagnose such errors:

- If the issue is consistent, it's probably software.
- If the issue is inconsistent, it's probably hardware.
- If the issue is with the PC's firmware — good luck!

You're probably used to such ambiguity when it comes to technology, though these three axioms are worthy of following.

- *Software* tells the hardware what to do. It's the computer's "brains." Software are the programs you use, but also the operating system, control programs or drivers, and utilities.
- *Hardware* is anything you can touch: the power supply, mass storage, keyboard, memory, and so on. By itself, hardware is dumb. It needs software to make the system useful.
- *Firmware* is software that's encoded on a hardware chip. It provides the smarts that get the system started and control specific hardware subsystems, including graphics, networking, power management, and other key parts of a computer.

Dealing with software issues

Software problems are predictable. If the Backup program won't run as scheduled, it's a consistent issue, and the program itself (or the task scheduler) is to blame. If Microsoft Excel always crashes when you try to print a worksheet, it's a software issue, having nothing to do with the printer.

- Software issues with a program — *bugs* — are fixed by the software developer. You can check the developer's web page for updates and support information, but you can't resolve the problem on your own, other than to avoid the feature that doesn't work.
- Software drivers need updating from time to time, and even the update could be the problem. See Chapter 20 for details.

REMEMBER

Solving hardware issues

The most obvious sign that hardware is to blame occurs when the device doesn't work. In this case, replace it. All hardware on a desktop PC is component-replaceable, so if you need a new power supply, you buy a new one. You can even install it yourself, if you're handy with a screwdriver and don't mind risking death by opening the PC case.

For peripherals, you can troubleshoot by swapping out a suspect device with one that works. For example, if the keyboard is acting funky, attach another keyboard and see whether the problem persists. If not, the original keyboard is defective. Replace it.

The only time hardware swapping doesn't work is with a laptop or small-footprint desktop PC. Because this type of system's hardware is integrated, you can't readily replace a power supply or swap out a memory card. For this reason, I recommend purchasing a full warranty on laptops and smaller desktop systems, just in case the parts go bad.

- Yes, you can replace any hardware on a desktop PC, though at some point you must consider when to just get a new computer.
- Even mass storage (a hard drive or SSD) can be replaced, though always ensure that you have a fresh backup handy and that you've created a System Recovery disk.
- Backup is covered in Chapter 22.
- Creating a System Recovery disk is covered in Chapter 19.

Addressing firmware issues

As with software, problems with the firmware must be addressed by the computer or motherboard manufacturer. Routinely, firmware updates are available. You should install them when prompted, just as I recommend installing updates for Windows, Microsoft Office, and other software on your PC.

- Firmware is software encoded on chips and integrated into the computer's motherboard. The chips are hard-wired, so you can't readily replace them, but you can update their software programming.
- Because the firmware controls so many aspects of the PC's basic hardware, a firmware bug would be near impossible to catch.
- Some motherboard manufacturers offer diagnostic tools that let you check the firmware's status. Even then, if the firmware is suspect, you must choose between replacing the entire motherboard or buying a new PC. Neither option is inexpensive.

When and Whether to Give Up

He's tried his best. He's written poems. He showered her with gifts. The local florist beams whenever he walks through the door. Yet his overtures of affection are spurned. At some point, Stanley must give up and realize that Jessica Marie will never date him. Time to move on.

Yes, the same philosophy that applies to a teenage boy's dating strategy also applies to technology troubleshooting.

On the upside, I believe you'll find that your computer is far more attentive to your affections than your tenth-grade crush. The computer *wants* to be liked. So, before you toss in the digital towel, consider some quick fixes, such as restarting the PC or using the System Restore utility.

If your tool chest of quick fixes doesn't work, turn to the Internet to pose questions and search for solutions. You might not be the only one who's ever had the same problem.

Computer repair places still exist in the real world. No, they're not cheap, but often they'll fix your problem faster and with less frustration than you'd experience working on your own.

And yes, this book offers plenty of suggestions and tips for fixing the most common PC problems, as well as advice on how to deal with just about any computer ailment.

Finally, at some point you must accept that you need a new computer. Given the advances in technology, plus a fresh and hopefully smooth-running system, buying a new computer is a worthy investment.