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4th Edition

# Troubleshooting & Maintaining PCs

ALL-IN-ONE

for  
**dummies**<sup>®</sup>  
A Wiley Brand

**5**

**Books**  
in one!



**Dan Gookin**

Author of *Word 2019 For Dummies*  
and *C Programming For Dummies*



# Troubleshooting & Maintaining PCs

ALL-IN-ONE

4th Edition

by Dan Gookin

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# **Troubleshooting & Maintaining PCs All-in-One For Dummies®**, 4th Edition

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## Table of Contents

[Cover](#)

[Title Page](#)

[Copyright](#)

[Introduction](#)

[About This Book](#)

[How This Book Works](#)

[Icons Used in This Book](#)

[Beyond the Book](#)

[Where to Go from Here](#)

[\*\*Book 1: Solve My Problem Now!\*\*](#)

[\*\*Chapter 1: Trouble Comes Hither\*\*](#)

[The Root of All PC Trouble](#)

[What's Changed?](#)

[Hardware-versus-Software Problems](#)

[When to Give Up](#)

## **Chapter 2: Quick Fixes**

[Things to Try First](#)

[Help!](#)

## **Book 2: O, We Got Trouble!**

### **Chapter 1: Startup Problems**

[The Onset of PC Heartbreak](#)

[Phase I: Power On](#)

[Phase II: The POST](#)

[Phase III: Startup Options](#)

[Phase IV: The Search for an Operating System](#)

[Phase V: Operating System Initialization](#)

[Phase VI: Sign In to Windows](#)

[The Last Thing You Do](#)

### **Chapter 2: Disk Disaster**

[PC Storage Overview](#)

[Mass Storage Tools and Utilities](#)

[Drive Management and Maintenance](#)

[Fun with Partitions](#)

### **Chapter 3: Monitor Mayhem**

[The PC Graphics System](#)

[Captain Video Troubleshooter](#)

### **Chapter 4: Internal Issues**

[Deep Inside the Case](#)

[Things to Upgrade, Fix, or Repair Inside the Case](#)

[Power Management Issues](#)

### **Chapter 5: Printer Problems**

[Between the Computer and Printer](#)

[The Windows Side of Printing](#)

[Printer Problems and Solutions](#)

## **Chapter 6: Peripheral Perils**

[Hardware Troubleshooting](#)

[Audio Anxieties](#)

[Keyboard and Mouse Woes](#)

## **Chapter 7: Software Situations**

[Installation Issues](#)

[Banish the Unwanted](#)

[The Good and Evil of File Association](#)

[Common Software Problems and Solutions](#)

## **Chapter 8: Network Nonsense**

[The Network Big Picture](#)

[Network Hardware Connection and Configuration](#)

[The Software Side of Networking](#)

[Network Troubleshooting](#)

[Network Problems and Solutions](#)

## **Chapter 9: Shutdown Issues**

[Such a Turn-Off](#)

[Problems with Restarting](#)

[Shutdown Malaise](#)

## **Book 3: Tools to Use**

### **Chapter 1: Windows Recovery Environment**

[Startup Keys and Recovery Options](#)

[The Sacred Recovery Volume](#)

[Windows Recovery Environment Duties](#)

### **Chapter 2: The Device Manager**

[Your Pal, the Device Manager](#)

[Device Manager Duties](#)

### **Chapter 3: MSCONFIG and the Task Manager**

[The System Configuration Utility](#)

[MSCONFIG Startup Options](#)

## **Chapter 4: Safe Mode**

[The Mode Is Safe](#)

[Safe Mode to the Rescue](#)

[Safe Mode Duties](#)

[Not Safe Mode Duties](#)

## **Chapter 5: System Restore**

[The System Restore Philosophy](#)

[Restore the System, Restore Your Sanity](#)

[System Restore on Schedule](#)

## **Chapter 6: The Task Manager**

[Task Control Central](#)

[Here a Task, There a Task](#)

## **Chapter 7: The Windows Registry**

[Behold the Registry](#)

[Registry Cleaning](#)

## **Chapter 8: Events and Diagnostics**

[What Has Gone On Here?](#)

[Diagnostics to the Rescue](#)

## **Book 4: PC Privacy and Security**

### **Chapter 1: PC Privacy**

[App Permissions](#)

[On the Interwebs](#)

### **Chapter 2: Keeping Software Current**

[Windows Updates, Doesn't It?](#)

[Other Software Updates](#)

[Update Hiccups](#)

### **Chapter 3: Keep Mr. PC Safe**

[Malicious + Software = Malware](#)

[Defending Against Viruses and Malware](#)

[Life Behind the Firewall](#)

## **Chapter 4: Backup and Restore**

[An Emergency Copy](#)

[Prepare for Backup!](#)

[File Time-Travel](#)

[The System Image](#)

## **Book 5: This Old PC**

### **Chapter 1: Performance and Resources**

[The Relationship Between Performance and Resources](#)

[How Ya Doin', PC?](#)

### **Chapter 2: More Mass Storage**

[The Mass Storage Pie](#)

[Get Yourself More Mass Storage Capacity](#)

[Even More Storage](#)

### **Chapter 3: Boost PC Performance**

[Man, Your PC Is Slow!](#)

[Speed Up Your PC](#)

## **Index**

## **About the Author**

## **Advertisement Page**

## **Connect with Dummies**

## **End User License Agreement**

# List of Tables

## **Book 2 Chapter 2**

[TABLE 2-1 File Systems and Formats](#)

## **Book 2 Chapter 6**

[TABLE 6-1 PC Sound Jack Color Codes](#)

## **Book 3 Chapter 1**

[TABLE 1-1: Command Prompt Commands](#)

## **Book 3 Chapter 4**

[TABLE 4-1: SFC Command Options](#)

## **Book 3 Chapter 7**

[TABLE 7-1: Registry Hives](#)

## **Book 3 Chapter 8**

[TABLE 8-1: Event Categories](#)

[TABLE 8-2: Event Types](#)

## **Book 5 Chapter 3**

[TABLE 3-1: Services You Can Disable](#)

# List of Illustrations

## **Book 1 Chapter 1**

[FIGURE 1-1: A typical UAC warning.](#)

## **Book 1 Chapter 2**

[FIGURE 2-1: Locating your Account icon.](#)

[FIGURE 2-2: Repairing a program.](#)

[FIGURE 2-3: The Padlock icon.](#)

## **Book 2 Chapter 2**

[FIGURE 2-1: Storage devices in Windows 10.](#)

[FIGURE 2-2: The AutoPlay notification and options.](#)

[FIGURE 2-3: AutoPlay control in the Settings app.](#)

[FIGURE 2-4: Properly ejecting a storage device.](#)

[FIGURE 2-5: Using the Settings app to remove storage.](#)

[FIGURE 2-6: The Disk Management console.](#)

[FIGURE 2-7: Media maintenance options.](#)

[FIGURE 2-8: A stadium parking lot.](#)

[FIGURE 2-9: Drive fragmentation info.](#)

[FIGURE 2-10: It's not impressive, but it's useful.](#)

[FIGURE 2-11: The Format dialog box.](#)

[FIGURE 2-12: Reassigning a drive letter.](#)

[FIGURE 2-13: Physical drives and partitions.](#)

[FIGURE 2-14: Shrinking a volume.](#)

[FIGURE 2-15: The before-and-after effects of drive-shrinking.](#)

## **Book 2 Chapter 3**

[FIGURE 3-1: The PC graphics system.](#)

[FIGURE 3-2: Common display adapter connectors.](#)

[FIGURE 3-3: Display adapter information.](#)

[FIGURE 3-4: Measuring a monitor.](#)

[FIGURE 3-5: A typical monitor menu.](#)

[FIGURE 3-6: Adjusting the second monitor.](#)

[FIGURE 3-7: Screen saver settings.](#)

[FIGURE 3-8: Monitor power options.](#)

[FIGURE 3-9: Setting monitor resolution.](#)

[FIGURE 3-10: Controlling the display adapter's driver.](#)

## **Book 2 Chapter 4**

[FIGURE 4-1: A typical PC's guts.](#)

[FIGURE 4-2: A typical motherboard.](#)

[FIGURE 4-3: The System window.](#)

[FIGURE 4-4: Memory module allocation.](#)

[FIGURE 4-5: Memory slot clips.](#)

[FIGURE 4-6: A typical internal hard drive.](#)

[FIGURE 4-7: Power management settings.](#)

[FIGURE 4-8: The Power Options dialog box.](#)

[FIGURE 4-9: Power management for the network adapter.](#)

## **Book 2 Chapter 5**

[FIGURE 5-1: Printers available to a Windows 10 PC.](#)

[FIGURE 5-2: A printer app.](#)

[FIGURE 5-3: Windows printer control.](#)

[FIGURE 5-4: A typical Page Setup dialog box.](#)

[FIGURE 5-5: Paper orientation for a printer.](#)

## **Book 2 Chapter 6**

[FIGURE 6-1: The Device Manager.](#)

[FIGURE 6-2: The pantheon of USB ports and connections.](#)

[FIGURE 6-3: Testing the PC's volume.](#)

[FIGURE 6-4: The Volume Mixer.](#)

[FIGURE 6-5: Mouse pointer options.](#)

[FIGURE 6-6: Mouse pointer choices.](#)

[FIGURE 6-7: Keyboard repeat and delay settings.](#)

## **Book 2 Chapter 7**

[FIGURE 7-1: File associations in Windows.](#)

[FIGURE 7-2: An unknown file type is encountered.](#)

[FIGURE 7-3: The Paint program's MRU list in the Registry.](#)

## **Book 2 Chapter 8**

[FIGURE 8-1: A typical network.](#)

[FIGURE 8-2: Connectors on a typical gateway.](#)

[FIGURE 8-3: Available Wi-Fi networks.](#)

[FIGURE 8-4: Checking the network security level.](#)

[FIGURE 8-5: The Network window.](#)

[FIGURE 8-6: An Internet connection's taskbar notifications.](#)

[FIGURE 8-7: The current network status.](#)

[FIGURE 8-8: Confirming network sharing options.](#)

## **Book 2 Chapter 9**

[FIGURE 9-1: Power options.](#)

[FIGURE 9-2: The Startup and Recovery dialog box.](#)

## **Book 3 Chapter 1**

[FIGURE 1-1: Windows Recovery Environment options.](#)

[FIGURE 1-2: The Disk Management console.](#)

[FIGURE 1-3: A typical boot menu.](#)

[FIGURE 1-4: The Windows Recovery Environment.](#)

[FIGURE 1-5: Advanced options in the Windows Recovery Environment utility.](#)

[FIGURE 1-6: Startup settings.](#)

## **Book 3 Chapter 2**

[FIGURE 2-1: The Device Manager.](#)

[FIGURE 2-2: Hardware gizmos listed in the Settings app.](#)

[FIGURE 2-3: Devices and Printers, but no troubleshooting.](#)

[FIGURE 2-4: Driver control for an Ethernet network adapter.](#)

## **Book 3 Chapter 3**

[FIGURE 3-1: The System Configuration utility.](#)

[FIGURE 3-2: MSCONFIG's Boot tab.](#)

[FIGURE 3-3: The Services tab.](#)

[FIGURE 3-4: Details about the current Windows version.](#)

[FIGURE 3-5: The Computer Management console.](#)

[FIGURE 3-6: The System window.](#)

## **Book 3 Chapter 4**

[FIGURE 4-1: Startup options in MSCONFIG.](#)

[FIGURE 4-2: Safe mode \(safe boot\).](#)

[FIGURE 4-3: Safe mode options.](#)

## **Book 3 Chapter 5**

[FIGURE 5-1: System Restore controls.](#)

[FIGURE 5-2: Choose a restore point.](#)

[FIGURE 5-3: The System Restore undo option.](#)

[FIGURE 5-4: The Task Scheduler.](#)

## **Book 3 Chapter 6**

[FIGURE 6-1: Windows version 3.1 Task List.](#)

[FIGURE 6-2: The Windows 10 Task Manager.](#)

[FIGURE 6-3: How a program relates to a process.](#)

[FIGURE 6-4: The Services console.](#)

[FIGURE 6-5: Startup programs.](#)

## **Book 3 Chapter 7**

[FIGURE 7-1: Registry Editor.](#)

## **Book 3 Chapter 8**

[FIGURE 8-1: The Event Viewer.](#)

[FIGURE 8-2: The System Information window.](#)

[FIGURE 8-3: The DirectX Diagnostic Tool.](#)

[FIGURE 8-4: The Windows Memory Diagnostic tool in action.](#)

[FIGURE 8-5: The memory diagnostic ran successfully.](#)

## **Book 4 Chapter 1**

[FIGURE 1-1: Checking app permissions.](#)

[FIGURE 1-2: Microphone permissions.](#)

## **Book 4 Chapter 2**

[FIGURE 2-1: Windows Update in the Settings app.](#)

[FIGURE 2-2: Windows Update history.](#)

[FIGURE 2-3: Checking for Microsoft 365 updates.](#)

## **Book 4 Chapter 3**

[FIGURE 3-1: The Windows Security Center window.](#)

[FIGURE 3-2: Windows Firewall.](#)

[FIGURE 3-3: A firewall warning.](#)

[FIGURE 3-4: Firewall rules.](#)

## **Book 4 Chapter 4**

[FIGURE 4-1: The Backup Options screen.](#)

[FIGURE 4-2: Previous versions of a file.](#)

[FIGURE 4-3: Browsing for files and folders to recover.](#)

## **Book 5 Chapter 1**

[FIGURE 1-1: The Performance Monitor.](#)

[FIGURE 1-2: The Task Manager's Performance tab.](#)

[FIGURE 1-3: The Resource Monitor.](#)

## **Book 5 Chapter 2**

[FIGURE 2-1: The PC's storage overview.](#)

[FIGURE 2-2: Storage details for Drive C.](#)

[FIGURE 2-3: Locating large files.](#)

[FIGURE 2-4: The Disk Cleanup dialog box.](#)

[FIGURE 2-5: Large programs, sorted by size.](#)

## **Book 5 Chapter 3**

[FIGURE 3-1: ReadyBoost is ready to boost.](#)

[FIGURE 3-2: Set the number of processors here.](#)

# Introduction

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If trouble were predictable, it wouldn't be a problem. That's because the problem with trouble is that it's unpredictable.

You hold in your hands a thrill-packed book that's all about solving computer problems. The topic is troubleshooting. It needs to be covered in so many pages here because a computer hasn't yet been invented that didn't have trouble following it like a shadow on a sunny day.

The computing experience should be a pleasant one. And it can be — if you're informed and able to deal with the troubles you encounter. This book helps you along that journey in an informative and entertaining way. Welcome to *Troubleshooting & Maintaining Your PC All-in-One For Dummies*.

## ***About This Book***

*A byte of prevention is worth a gigabyte of cure.*

This book's philosophy is that troubleshooting is easier to do when you understand how the computer works. This philosophy is the opposite of what most computer users expect, which is to look up a specific condition and find a specific cure for it. This approach has two glitches.

The first downfall with the look-it-up approach is that you don't learn anything. Because there's a method behind PC madness, often, the same solution can be applied to multiple problems. After you understand why things go wrong, it's not only easier to fix them — it's also possible to prevent them in the first place.

The second difficulty with the specific-solution approach is that it would make this book obnoxiously huge. With millions upon millions of potential hardware and software configurations available in all the PCs in the world, it would take several fat books to document every problem and its solution. Such a book would need to be delivered by forklift.

My approach is simple: Look up the problem, learn a bit about what might have caused it, and then arrive at a solution. The notion is that when trouble arises again later, you have the experience to deal with it in a practical manner. Because most PC troubles have a common origin, this solution works.

Before moving on, please be aware that there's a difference between trouble and an event that's merely annoying. For example, if the text you print from an email message is tiny, it's annoying, but it isn't a bug. Though specific annoying problems might not be covered in this book, you still can find a solution here. This is the beauty behind my philosophical approach to troubleshooting. After all, using Windows shouldn't be a frustrating experience.

# *How This Book Works*

This book is composed of five *minibooks*, each of which addresses a computer troubleshooting topic. The minibooks are split into traditional chapters, all geared to a specific subject within the minibook topic. Then the chapters are split into sections consisting of paragraphs, words, letters, and — finally — tiny dots. So, if you understand tiny dots, you'll understand this book.

To run the special troubleshooting tools and utilities, you take advantage of the Windows Start menu. Tap the Windows key to pop up this menu, and then start typing the name of a tool or utility. The text explains what to type. You then choose the matching utility from the search results list. This method is much faster than hunting for tools on the Start menu's programs list.

Because this book approaches troubleshooting in a philosophical way, lots of material is cross-referenced. For example, startup issues are also related to disk disaster recovery. So, in both chapters, you'll find references to the other chapter's material.

This book covers all varieties of computers, from a traditional desktop to an all-in-one model, a laptop, a 2-in-1, or even a tablet. As long as the computer runs Windows 10, you're good.

Speaking of Windows 10, this book is specific to that operating system. When this book refers to "Windows," it means Windows 10.

Text that you type appears in **bold**. In the context of a step, where the text is normally bold anyway, the stuff you type appears in regular roman text.

Do not press the Enter key until you're directed to do so. And even then, I recommend that you review what you

type before you press Enter, just to ensure that you get everything typed properly.

Do not press a period at the end of any text you type, unless I explain that the period is needed. Unlike sentences in English, computer commands don't end with a period.

## *Icons Used in This Book*



**TIP**

I'd like to think that everything in this book is a tip, but for those special, worthy items, you'll find this icon lurking nearby.



**WARNING**

A reminder of something not to do, something to avoid, or something that can cause serious trouble is flagged by the Hazard icon.



**REMEMBER**

This icon flags text that is important enough to remember or that reminds you of something you may have forgotten that bears repeating.



**TECHNICAL  
STUFF**

When the urge to blurt out something nerdy overwhelms me, I succumb and use this icon to supply a warning sign. You're free not to read any technical text near this icon.

# ***Beyond the Book***

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My email address is [dgookin@wambooli.com](mailto:dgookin@wambooli.com). Yes, this is my real address. I reply to all email I receive, and you'll get a quick reply if you keep your question short and specific to this book. Although I enjoy saying "Hi," I cannot

answer technical support questions or help you  
troubleshoot your computer. Thanks for understanding.

Please enjoy my book, and thank you for reading the  
Introduction.

Dan Gookin

# Book 1

# Solve My Problem Now!

## Contents at a Glance

### Chapter 1: Trouble Comes Hither

[The Root of All PC Trouble](#)

[What's Changed?](#)

[Hardware-versus-Software Problems](#)

[When to Give Up](#)

### Chapter 2: Quick Fixes

[Things to Try First](#)

[Help!](#)

# Chapter 1

## Trouble Comes Hither

---

### IN THIS CHAPTER

- » Understanding PC problems
  - » Examining software changes
  - » Reviewing hardware issues
  - » Adjusting PC settings
  - » Determining the source
  - » Tossing in the towel
- 

It's sudden, unexpected, and unwelcome. It's PC trouble, and it sneaks up like the dawn. Unlike the sun, however, technology issues 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 eventual arrival. You can also become familiar with the core cause of digital distress. The more you know about why things go wrong, the better you can prepare yourself for the inevitable.

## *The Root of All PC Trouble*

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

Computers foul up 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 gets old, eventually wears out, and fails.

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

## ***What's Changed?***

No, it's not your fault that something changed. Computers are designed to be flexible. Rather than blame yourself when trouble arises, just recall what changed. When you do, you make it easier to troubleshoot and find the source of what's going wrong.

For example, you install a new keyboard and the mouse doesn't work. Perhaps you unplugged the mouse instead of the old keyboard? You update a graphics driver, 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 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! That's because you do a lot with your computer and sometimes you do several things at once. For example, a dialog box may feature multiple settings but only one OK button. All the settings are applied

instantly with a 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 Book 3, [Chapter 8](#) for information on the Event Viewer, which lets you peruse system logs for signs of trouble.

## ***Installing software***

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. This way, should problems arise, you can uninstall the software and use the restore point to recover the system's previous configuration.

- » The good news: Windows automatically creates a restore point whenever you install new software.
- » The bad news: Some older programs may not prompt Windows to create a restore point. And, when you modify settings, a restore point isn't created.
- » Refer to Book 3, [Chapter 5](#) for details on System Restore. That chapter explains how to manually set a restore point and how to use the System Restore utility to recover from software installation boo-boos.

## ***Adding or removing 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 can 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. Refer to Book 3, [Chapter 5](#).
- » 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 because you omit that 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 fewer. 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 Book 2, [Chapter 4](#) 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.”](#)

## ***Changing settings***

If you're like me, you might change settings so often that you forget you do it. The settings can be subtle, from accessing a new Wi-Fi network to changing the screen

resolution. Anytime you change a setting, you alter the computer's behavior, which can lead to something 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, similar to the one shown in [Figure 1-1](#).

As long as you're making the change, click the Yes button to proceed. If you're unaware of why the UAC warning appears, click No. And, if you have a standard-level user account, you must input an administrator password; a text box appears in the UAC warning (not shown in [Figure 1-1](#)).



**FIGURE 1-1:** A typical UAC warning.



Settings that affect the entire system feature the UAC Shield icon, shown in the margin. Choosing this type of setting prompts a UAC warning if your user account type is standard. Even then, administrator accounts get prompted with warnings as well.

Regardless, the Shield icon serves as a reminder that the option you're changing can alter the system's 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 text unreadable. The solution is to undo the change.



- » **REMEMBER** A UAC warning appears whenever you change a system-wide setting. It's your clue that proceeding might portend problems.
- » The best way to undo settings is to run System Restore, though a restore point may not be handy enough to affect the change. See Book 3, [Chapter 5](#) 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 Book 3, [Chapter 4](#) for details on Safe mode.

## ***Hardware-versus-Software Problems***

Because a computer system is a combination of hardware and software, problems fall into one category or the other. Determining 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 to follow.

- » *Software* consists not only of the program you use, but also the operating system, control programs or drivers, and utilities. Software tells the hardware what to do. It's the computer's "brains."
- » *Hardware* is anything you can touch in a computer: 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. Firmware provides the smarts that gets the system started and controls 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 Word always crashes when you try to print, it's a software issue not having anything 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.



- » **REMEMBER** Software drivers need updating from time to time, and even the update can be the problem. See Book 4, [Chapter 2](#) for details.
- » Also refer to Book 2, [Chapter 7](#) for various software solutions.

## ***Solving hardware issues***

The most obvious sign that hardware is to blame occurs when the device doesn't work. In that case, replace it. All hardware on a 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. Because the laptop's hardware is integrated, you can't readily swap out a keyboard or replace a power supply. That's why I recommend a full warranty on a laptop, just in case the parts go bad.

- » Yes, you can replace any hardware on a PC, though at some point you must consider when to just buy a new computer. See the next section.