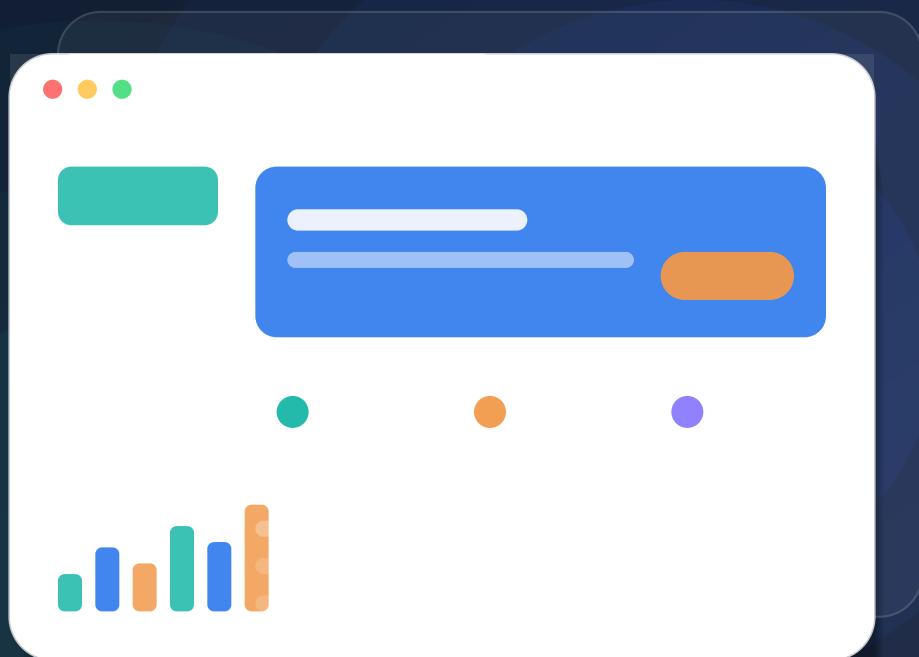


FIX IT FAST

A PRACTICAL TECHNOLOGY MANUAL



**The Essential Guide to
Basic Computer Troubleshooting**

DIAGNOSE • REPAIR • PREVENT

Fix It Fast

The Essential Guide to Basic Computer Troubleshooting

This guide is provided for general information. Steps and menu names may differ slightly between versions of Windows, macOS and individual devices. Always back up important files before making significant changes, and consult the manufacturer or a qualified technician if you are unsure.

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Introduction

Every computer fails eventually. It freezes in the middle of a deadline, the Wi-Fi drops during a video call, or the screen stays black on the one morning you are in a hurry. The good news is that most computer problems are small, common and fixable by an ordinary person with no technical training.

This book teaches you a calm, repeatable way to find and fix those problems. It is written for everyday users of Windows and Mac computers, and it avoids jargon wherever possible. Where a technical term is unavoidable, it is explained in plain language, and a glossary at the back covers the rest.

How to use this book

- **In a hurry?** Go straight to the chapter that matches your symptom: power, slowness, freezing, internet, display and sound, apps, storage, or security.
- **Want to learn the method?** Read Chapters 1 and 2 first. They teach the habits that solve the majority of problems.
- **Stuck?** Chapter 11 explains when to stop and call a professional, and what to tell them.
- **Want a one-page summary?** Appendix A is a checklist you can print and keep next to your desk.

TIP

Menu names change slightly between versions of Windows and macOS. The steps in this book are written for Windows 11 and recent versions of macOS. If your screen looks a little different, use the search box in Settings to find the same option.

The Troubleshooter's Mindset

Good troubleshooters are not people who know everything about computers. They are people who work in a calm, orderly way. Before touching a single setting, adopt the following habits.

1. Stay calm and change one thing at a time

When something breaks, the temptation is to click everything at once. Resist it. If you make five changes and the problem disappears, you will not know which change fixed it, and if the problem gets worse, you will not know which change caused it. Make one change, test, and only then move on.

2. Describe the problem precisely

"My computer is broken" is not a useful description. Compare it with "My laptop shows a black screen after the logo appears, but the fan is running." A precise description narrows the possible causes enormously. Ask yourself:

- What exactly is happening, and what did I expect to happen?
- Is it happening all the time, or only sometimes?
- Does it affect one program or the whole computer?
- Is there an error message? Write down its exact words or take a photo of the screen.

3. Ask what changed

Computers rarely break for no reason. Something usually changed shortly before the fault appeared: a software update, a new program, a new device plugged in, a power cut, a dropped laptop, or a spilled drink. Finding the change often points directly to the fix, and the fix is often to undo the change.

4. Start with the simplest and cheapest fix

Work from the easiest and safest fixes toward the more drastic ones. Checking a cable costs nothing and takes ten seconds. Reinstalling Windows costs an afternoon and risks your files. Always try the cable first.

5. Protect your data before you try anything risky

If the computer still starts and your files are important, copy them to an external drive or cloud storage before you attempt anything more serious than a restart. Chapter 9 explains how.

6. Keep notes

Jot down what you tried and what happened. If you eventually need help, your notes will save a technician a great deal of time and may save you money.

TIP

The troubleshooting loop: **Observe** the problem, **guess** the most likely cause, **test** one fix, **check** whether it worked. If not, undo it and guess again.

First Aid: The Universal Quick Fixes

A small set of simple actions solves a surprisingly large share of computer problems. Try these before anything else. They are safe, quick, and will not harm your files.

Restart the computer

It is a cliché because it works. Restarting clears the computer's short-term memory, stops stuck programs and reloads the system from scratch. Use **Restart**, not just **Shut down**. On Windows with Fast Startup enabled, a normal shut down does not fully reset the system, but a restart does.

1. Save your work if you can.
2. Click Start, then the power icon, then **Restart** (on a Mac, click the Apple menu, then **Restart**).
3. Wait for the computer to start fully, then test the problem again.

Check the physical connections

A loose cable causes more problems than most people would believe. Check that the power cable is firmly plugged into both the computer and the wall, that the wall socket or extension lead has power (test it with a lamp or phone charger), and that the monitor, keyboard, mouse and network cables are pushed in all the way. Unplug each cable and plug it back in firmly.

Try a different port, cable or device

If a USB device does not work, plug it into a different USB port. If it still fails, try it on another computer. This tells you whether the fault is in the device or in your computer.

Close the stuck program

If one program is frozen but the rest of the computer responds, close just that program:

- **Windows:** press **Ctrl + Shift + Esc** to open Task Manager, select the program marked *Not responding*, and click **End task**.
- **Mac:** press **Option + Command + Esc**, select the program, and click **Force Quit**.

Wait a minute

Sometimes the computer is simply busy, for example installing updates or scanning for viruses. If the activity light is flashing or the mouse pointer shows a spinning circle, give it one or two minutes before you assume it has frozen.

Install pending updates

Many faults are known bugs that the manufacturer has already fixed. Check for updates (Chapter 9 shows how), install them, and restart.

Undo the last change

If the trouble began right after you installed a program, a driver or an update, uninstall it. On Windows go to **Settings > Apps > Installed apps**; on a Mac, drag the app from the Applications folder to the Bin.

WARNING

Never switch off a computer by holding the power button while it is installing updates (look for the message "Do not turn off your computer"). Interrupting an update can damage the system. Be patient, even if it takes 30 minutes or more.

When the Computer Won't Turn On or Start

A computer that shows no signs of life is alarming, but the cause is often as simple as a dead power supply or a loose connection. Work through the steps below in order. First decide which of the three situations you are in.

Situation A: Nothing happens at all (no lights, no fans, no sound)

1. **Check the power source.** Plug a phone charger or lamp into the same socket to confirm it has electricity. Try a different socket.
2. **Check the power cable and adapter.** On a desktop, make sure the cable is seated firmly at the back and that the switch on the power supply (if there is one) is set to on (I). On a laptop, check that the charger's small light is lit and that the cable is not frayed or bent.
3. **Remove extension leads and surge protectors.** Plug the computer directly into the wall to rule them out.
4. **Charge a laptop properly.** Leave it plugged in for at least 30 minutes, even if the battery was completely flat, then press the power button.
5. **Do a power drain.** Unplug the charger, disconnect everything else (USB drives, printers, external screens), and remove the battery if it is removable. Hold the power button for 15 to 30 seconds, then reconnect only the charger and try again.

Situation B: Lights and fans run, but the screen stays black

- **Check the monitor.** Is its power light on? Is it set to the correct input (HDMI, DisplayPort and so on)? Try a different cable or monitor.
- **Wake the display.** Press a key, move the mouse, and on a laptop press the brightness-up key. You may simply have the screen turned all the way down.
- **Disconnect external devices.** A faulty USB device can stop a computer from starting. Unplug everything except the power cable, monitor, keyboard and mouse.
- **Reseat the memory (desktops, advanced).** Switch the computer off, unplug it, touch a metal part of the case to discharge static electricity, remove the memory sticks (RAM) and press them firmly back into their slots until the clips click. Only do this if you are comfortable opening the case.
- **Listen for beeps.** A series of beeps at startup is a coded message from the computer. The pattern varies by manufacturer, so search for your model's beep codes, or tell a technician what you heard.

Situation C: It starts, but will not load Windows or macOS

If you see an error such as "Operating system not found", "Boot device not found", a repeating restart loop, or a message that Windows is preparing automatic repair, the computer is starting but cannot load its operating system.

1. **Unplug all USB drives, discs and memory cards.** The computer may be trying to start from them by mistake.
2. **Let Automatic Repair run.** Windows often offers this itself after two failed starts. Choose **Advanced options** if it fails, then **Troubleshoot > Advanced options > Startup Repair**.
3. **Try Safe Mode.** This starts the computer with only the essential parts, so you can remove whatever is causing the trouble. On Windows, from the recovery screen choose **Troubleshoot >**

Advanced options > Startup Settings > Restart, then press **4** for Safe Mode. On an Intel Mac, hold **Shift** while it starts. On an Apple silicon Mac, shut down, then press and hold the power button until startup options appear, select your disk, hold **Shift** and click **Continue in Safe Mode**.

4. **Use System Restore (Windows).** From **Advanced options**, choose **System Restore** and pick a restore point from before the problem began. Your personal files are not affected.
5. **On a Mac, use Recovery.** Restart and hold **Command + R** (Intel) or hold the power button (Apple silicon) to reach macOS Recovery, then run **Disk Utility > First Aid** on your startup disk.

WARNING

If the computer makes repeated clicking or grinding noises, switch it off at once. This can mean the hard drive is failing, and every minute of use risks further data loss. See Chapter 11.

Fixing a Slow Computer

A computer that once felt fast and now crawls is one of the most common complaints. Slowness almost always has one of a handful of causes: too many programs running, too little free storage, a full or worn-out drive, outdated software, or unwanted programs. Work through the checks below.

Step 1: See what is using the computer's resources

Open the monitor that shows what is busy:

- **Windows:** press **Ctrl + Shift + Esc** and look at the **Processes** tab. Click the **CPU**, **Memory** and **Disk** columns to sort by the biggest users.
- **Mac:** open **Activity Monitor** (search for it with Spotlight, Command + Space) and check the CPU and Memory tabs.

If one program is using a huge share (say 80 percent or more) and you do not need it, close it. If you do not recognise a process, search its name online before ending it.

Step 2: Reduce what starts with the computer

Programs that launch automatically at startup slow everything down.

- **Windows:** go to **Settings > Apps > Startup** and switch off anything you do not need straight away.
- **Mac:** go to **System Settings > General > Login Items** and remove unnecessary entries.

Step 3: Free up storage space

A drive that is nearly full slows the whole computer. Aim to keep at least 15 to 20 percent of your storage free.

- **Windows:** open **Settings > System > Storage**, then use **Temporary files** and **Storage Sense** to clear junk. Empty the Recycle Bin.
- **Mac:** open **System Settings > General > Storage** and follow the recommendations. Empty the Bin.
- Uninstall programs you no longer use, and move large photos and videos to an external drive or cloud storage.

Step 4: Check your browser

Often the "slow computer" is really a slow browser. Close tabs you are not using (dozens of open tabs consume a great deal of memory), remove browser extensions you do not recognise, and restart the browser. Clearing cached files and cookies can also help.

Step 5: Update everything

Install operating system updates, browser updates and driver updates. Developers regularly fix performance problems.

Step 6: Scan for unwanted software

Adware and other unwanted programs can quietly use up your computer's power. Run a full scan with Windows Security (built into Windows) or a reputable security program. See Chapter 10.

Step 7: Consider a hardware upgrade

If the steps above do not help, the hardware may be the limit:

- **Replace a hard disk drive (HDD) with a solid-state drive (SSD).** This is the single most noticeable speed upgrade for an older computer.
- **Add more memory (RAM).** If your computer has 4 GB, going to 8 GB or 16 GB can make a big difference (check whether your model allows upgrades).

TIP

If the computer is slow only when it first starts and gets better after a few minutes, startup programs are the likely cause. If it is slow all the time, suspect low storage, a failing drive or unwanted software.

Freezes, Crashes and Blue Screens

A freeze means the computer stops responding. A crash means a program or the whole system shuts down unexpectedly. A blue screen (on Windows) appears when the system hits a serious error and has to stop to protect itself. They are alarming but give valuable clues.

When one program freezes or crashes

1. Wait a minute, then force the program to close (see Chapter 2).
2. Reopen it. Most programs recover your unsaved work automatically.
3. If it keeps happening, update the program, then restart the computer.
4. If it still happens, uninstall and reinstall the program, downloading the latest version from the official website.

When the whole computer freezes

1. Wait up to two minutes. The computer may be busy.
2. On Windows, try **Ctrl + Alt + Delete**. If the menu appears, the system is alive; choose **Task Manager** or restart from the power icon at the bottom right.
3. If nothing responds at all, hold the power button for about 10 seconds until the computer turns off, wait 30 seconds, then switch it on again.

WARNING

A forced shutdown should be your last resort, because any unsaved work will be lost and, rarely, files can be damaged. Save your work often.

Common causes of repeated freezing

- **Overheating.** If the fan is loud and the computer is hot, dust is probably blocking the vents. Switch off, unplug, and blow compressed air through the vents. Keep laptops on hard, flat surfaces, not on beds or sofas.
- **Low storage space or too little memory.** See Chapter 4.
- **Faulty or outdated drivers.** Update the drivers (see below), especially for graphics and Wi-Fi.
- **A failing hard drive.** Freezing together with clicking sounds or very slow file opening is a warning sign. Back up immediately.
- **A recently installed program or update.** Remove or roll it back.

Understanding the blue screen

A Windows blue screen shows a sad face and a **stop code**, such as *CRITICAL_PROCESS_DIED* or *MEMORY_MANAGEMENT*. Take a photo of the screen, or note the stop code. The computer usually restarts by itself.

1. Note the stop code and search for it online together with your computer model.
2. Disconnect any new hardware you recently added.
3. Install all Windows updates and update your drivers.
4. Start in Safe Mode (see Chapter 3) and uninstall recently added software.

5. Run the built-in repair tools. Open **Command Prompt as administrator** and run **sfc /scannow**. When it finishes, run **DISM /Online /Cleanup-Image /RestoreHealth** and restart.
6. Test the memory by searching the Start menu for **Windows Memory Diagnostic**.

How to update a driver

A driver is a small program that lets Windows talk to a piece of hardware. On Windows, right-click the Start button, choose **Device Manager**, find the device (a yellow warning triangle marks a problem), right-click it and choose **Update driver**. For graphics problems, download the newest driver directly from the maker of your graphics card or your computer manufacturer. On a Mac, drivers are updated through macOS updates.

Internet and Wi-Fi Problems

When the internet fails, the first job is to find where the fault is. There are three possible places: your device, your router, or your internet provider. Testing in the right order finds the answer quickly.

Step 1: Is it just one device?

Check whether other devices (a phone or another computer) can get online on the same network.

- **Only one device cannot connect:** the problem is probably on that device. Go to Step 2.
- **No device can connect:** the problem is the router or your provider. Go to Step 3.

Step 2: Fix the device

1. **Check Wi-Fi is on.** Make sure Airplane mode is off and Wi-Fi is switched on. Laptops may have a function key or a switch for this.
2. **Disconnect and reconnect.** Choose your network, select **Forget**, and join again with the password. Check the password for typing errors, since it is case-sensitive.
3. **Restart the device.**
4. **Run the network troubleshooter.** On Windows, go to **Settings > System > Troubleshoot > Other troubleshooters > Internet Connections**.
5. **Flush the DNS cache (Windows).** Open Command Prompt and type **ipconfig /flushdns**, then press Enter.

6. **Reset network settings (Windows).** Go to **Settings > Network & internet > Advanced network settings > Network reset**. You will need to rejoin your Wi-Fi networks afterwards.

Step 3: Restart the router and modem

This is the single most effective fix for home internet problems.

1. Unplug the router (and the separate modem, if you have one) from the power.
2. Wait a full 30 seconds. This lets it clear its memory properly.
3. Plug the modem back in first and wait two minutes for its lights to settle.
4. Plug the router in and wait another two minutes.
5. Test again.

Step 4: Check the lights and cables

Most routers have lights showing power, internet and Wi-Fi status. A red or orange light on the internet indicator, or no light at all, usually means the router is not receiving a signal from your provider. Check that the cable between the wall and the router is firmly connected. Look for a service outage by checking your provider's website or app on your phone using mobile data.

Step 5: Fix a weak or unreliable Wi-Fi signal

- Move closer to the router. Walls, floors, mirrors, microwaves and aquariums weaken the signal.
- Place the router in a central, open, raised position, not inside a cupboard or behind the television.
- If your router offers two bands, use the **5 GHz** network for speed at short range and the **2.4 GHz** network for longer range.
- For large homes, consider a mesh Wi-Fi system or a wired connection.

- Where speed matters most (video calls, gaming, large downloads), connect with an **Ethernet cable**. It is faster and more stable than Wi-Fi.

Step 6: Contact your provider

If a restart does not help and other devices are also offline, call your internet provider. Tell them which lights are on, what you have already tried, and whether the problem is constant or comes and goes.

TIP

To test whether the fault is Wi-Fi or the internet itself, plug your computer directly into the router with an Ethernet cable. If the wired connection works but Wi-Fi does not, the fault is in the wireless signal or settings.

Display, Sound and Peripheral Problems

Screens, speakers, keyboards, printers and other attached devices (called peripherals) cause a large share of everyday frustrations. Fortunately they follow predictable patterns.

Screen problems

- **Blank or black screen:** see Chapter 3. Check the brightness, cables and input source.
- **Flickering or strange lines:** try a different cable. On Windows, press **Windows + Ctrl + Shift + B** to restart the graphics driver. Update the graphics driver. If lines appear on a laptop even in the startup screen, the display itself may be failing.
- **Blurry or wrongly sized picture:** on Windows, go to **Settings > System > Display** and choose the **Recommended** resolution. On a Mac, use **System Settings > Displays**.
- **External monitor not detected:** check the cable and input, then press **Windows + P** and choose **Extend** or **Duplicate**. On a Mac, hold **Option** while clicking **Displays** settings and choose **Detect Displays**.

Sound problems

1. **Check the volume** on the computer, in the program (such as a video player) and on the speakers themselves. Make sure nothing is muted.
2. **Check the output device.** Click the speaker icon on the taskbar (Windows) or the sound icon in the menu bar (Mac) and make sure the right speakers or headphones are selected. A disconnected Bluetooth headset is a common reason for silence.

3. **Check the cables.** Look for loose plugs and the right socket.
4. **Run the troubleshooter.** On Windows: **Settings > System > Sound > Troubleshoot common sound problems.**
5. **For a microphone that does not work,** check **Settings > Privacy & security > Microphone** (Windows) or **System Settings > Privacy & Security > Microphone** (Mac). The program must have permission to use it.

Keyboard and mouse problems

- **Wireless devices:** replace or recharge the batteries first. Switch the device off and on, and re-pair it if needed.
- **USB devices:** try a different port.
- **Keyboard types the wrong characters:** the language or layout setting has probably changed. Check **Settings > Time & language > Language & region.**
- **Laptop touchpad not working:** many laptops have a key combination that disables it. Look for a touchpad icon on a function key.

Printer problems

Printers are a notorious source of frustration. Go through this checklist in order:

1. Is the printer on, with paper loaded and ink or toner present? Are there any error lights?
2. Is it connected (by USB cable or to the same Wi-Fi network as your computer)?
3. Clear any paper jam, gently pulling the paper in the direction of its normal travel.
4. Open the print queue (**Settings > Bluetooth & devices > Printers & scanners**), choose your printer, open the queue and cancel any stuck jobs.

5. Make sure the correct printer is chosen and that it is not set to **Offline**.
6. Switch the printer off, wait 30 seconds, switch it on. Restart the computer.
7. As a last step, remove the printer from the list and add it again, or install the latest driver from the manufacturer's website.

Webcam and USB problems

If a webcam or USB device is not recognised, try another port, then another computer. Check that no other program is using the webcam. Check privacy permissions for the camera as described for the microphone above.

Software and App Problems

When a particular program misbehaves but the rest of the computer is fine, the problem is almost certainly in that program or in its settings. The steps are the same for nearly every application.

The standard software repair routine

1. **Close and reopen the program.**
2. **Restart the computer** and try again.
3. **Check for updates** from within the program or from its store (Microsoft Store or Mac App Store).
4. **Run as administrator (Windows).** Right-click the program and choose **Run as administrator**. Some programs need extra permissions.
5. **Use the Repair option.** On Windows, go to **Settings > Apps > Installed apps**, click the three dots beside the program, choose **Advanced options** (or **Modify**) and then **Repair**. If that fails, try **Reset**. Microsoft Office has a built-in repair tool of its own.
6. **Uninstall and reinstall.** Download the newest version from the official website. Make sure you have your licence key or account details first.

Browser problems

Web browsers are the programs most of us use all day, so their faults are very noticeable.

- **A website will not load or looks broken:** reload with **Ctrl + Shift + R** (**Command + Shift + R** on a Mac), which ignores stored copies of the page. Then try a private or incognito window.

- **The browser is slow or crashing:** close tabs, disable extensions one at a time to find the culprit, and update the browser.
- **Clear the cache and cookies.** Open the browser's settings, search for **Clear browsing data**, and clear cached images and files. Clearing cookies will sign you out of websites.
- **The homepage or search engine keeps changing:** this is a sign of unwanted software. See Chapter 10.

A program will not install

- Check that your computer meets the program's system requirements and that you have enough free storage.
- Make sure you downloaded the correct version (Windows or Mac, 64-bit or 32-bit).
- Install while signed in as an administrator, and temporarily close other programs.
- If the download seems damaged, delete it and download it again.

Forgotten passwords and sign-in problems

Use the **Forgot password** link on the sign-in page, and follow the instructions sent to your email or phone. Consider using a password manager, which stores unique passwords for every account so that you only need to remember one. Never reuse the same password on important accounts such as email and banking.

File problems

- **A file will not open:** check that you have a program that supports that file type. The letters after the dot in the file name (such as .docx or .pdf) tell you the type.
- **You deleted a file by mistake:** check the Recycle Bin (Windows) or the Bin (Mac). If it is not there, stop using the drive and check your backups or cloud storage's version history.

- **A file is read-only or in use:** close all programs that might be using it, then try again. Restarting clears most such locks.

Storage, Updates and Backups

This chapter covers the quiet, preventive tasks that stop many troubles from starting. Spending a few minutes a month on them can save you hours of frustration.

Keeping storage healthy

- Check your free space regularly (see Chapter 4). Keep at least 15 to 20 percent free.
- Delete downloads you no longer need. The Downloads folder tends to become a dumping ground.
- Uninstall programs you no longer use.
- Move large photo and video collections to an external drive or cloud storage.
- Know the difference between **storage** (where files live, measured in GB or TB) and **memory** or **RAM** (the computer's short-term workspace). Running out of either causes slowness, but the fixes are different.

Updating safely

Updates fix bugs and, even more importantly, close security holes that criminals exploit. Do not postpone them for long.

- **Windows:** go to **Settings > Windows Update** and choose **Check for updates**. Consider turning on automatic updates and setting active hours so the computer does not restart while you work.
- **Mac:** go to **System Settings > General > Software Update**.
- **Apps and browsers** usually update themselves. Check their About pages if you suspect they are out of date.

- **If an update fails or gets stuck**, restart and try again, and make sure there is enough free space. On Windows, run the **Windows Update troubleshooter** from **Settings > System > Troubleshoot > Other troubleshooters**.

Backups: your most important habit

Hard drives fail, laptops are stolen, and files are deleted or encrypted by ransomware. A backup is the only thing that makes these events recoverable rather than disastrous. Follow the **3-2-1 rule**:

- **3** copies of your important files (the original plus two backups),
- on **2** different types of storage (for example, your computer and an external drive),
- with **1** copy stored somewhere else (cloud storage, or a drive kept at another location).

Simple ways to back up

- **Cloud storage** such as OneDrive, Google Drive, iCloud or Dropbox keeps copies of files online and lets you recover earlier versions.
- **External drive.** On Windows, use **File History** or **Windows Backup**; on a Mac, use **Time Machine**. Connect the drive regularly or leave it attached.
- **Manual copy.** Simply copy your Documents, Pictures and other important folders to an external drive. It is basic, but it works.

TIP

A backup you have never tested is only a hope. Every few months, try to open a few files from your backup to confirm that they are there and readable.

Signs that a drive is failing

- Clicking, grinding or buzzing noises from the computer.
- Files that disappear, become corrupted or take forever to open.
- Repeated crashes, blue screens, or the computer failing to start.
- Error messages about the disk or "bad sectors".

If you notice these, back up your most important files at once, stop using the drive as much as possible, and see Chapter 11.

Viruses, Pop-ups and Staying Safe

Malware is the general name for harmful software, including viruses, spyware, ransomware and adware. Most infections do not happen through clever technical attacks. They happen because someone was tricked into clicking something. Learning to spot the tricks is your best protection.

Signs your computer may be infected

- Constant pop-up adverts, even when no browser is open.
- Your homepage or search engine changes by itself.
- Unfamiliar programs or browser extensions appear.
- The computer suddenly becomes very slow or the fan runs constantly.
- Your files are locked and you are asked to pay money (ransomware).
- Friends receive strange messages from your accounts.

What to do if you suspect an infection

1. **Disconnect from the internet.** Turn off Wi-Fi or unplug the Ethernet cable to stop the problem spreading or sending out your data.
2. **Run a full scan** with your security software. On Windows, open **Windows Security > Virus & threat protection > Scan options > Full scan**. For a deeper check, choose **Microsoft Defender Offline scan**.
3. **Remove suspicious programs and extensions** that you did not install.

4. **Restart in Safe Mode** and scan again if the malware keeps coming back.
5. **Change your passwords** from a different, clean device, starting with email and banking.
6. **If files are encrypted by ransomware**, do not pay. Disconnect the computer, and seek professional help. Restore from your backup afterwards.

WARNING

Never call a phone number shown in a pop-up warning, and never let a stranger who phoned you take remote control of your computer. Genuine technology companies do not cold-call people to say their computers are infected. This is a very common scam.

Habits that keep you safe

- **Keep everything updated:** the operating system, the browser and your apps.
- **Use a reputable security program.** Windows Security is built in and is adequate for most people when kept turned on.
- **Use strong, unique passwords** and a password manager. Turn on **two-factor authentication** for email, banking and social media.
- **Think before you click.** Be suspicious of unexpected emails and messages that create urgency, offer prizes or threaten to close your account. Check the sender's real address, and hover over a link to see where it really leads.
- **Download software only from official sources**, such as the maker's own website or the official app store.
- **Be careful with public Wi-Fi.** Avoid banking or entering passwords on open networks, or use a trustworthy VPN.
- **Back up your files** (Chapter 9). It is your safety net against ransomware.

Spotting a phishing message

Phishing messages try to trick you into giving away passwords or payment details. Look for these warning signs: a generic greeting such as "Dear customer", spelling and grammar mistakes, a sender address that does not match the company, a link that leads to a different website than the one described, and pressure to act immediately. When in doubt, do not click. Go to the company's website by typing its address yourself, or phone it using a number from its official website.

Knowing When to Call a Professional

There is no shame in asking for help. A good troubleshooter knows the limits of their skills. Knowing when to stop can save your data and often saves money too.

Stop and get help when:

- The computer makes **clicking, grinding or burning** noises, or smells of burning. Switch it off immediately.
- There has been **liquid damage**. Switch off and unplug at once, do not try to turn it on, and get it professionally checked.
- The computer has been **physically damaged**, for example dropped, with a cracked screen or bent case.
- You have tried the steps in this book and the same problem keeps coming back.
- Your **important data is at risk** and you have no backup. A data-recovery specialist has the best chance when a drive is touched as little as possible.
- You suspect your **accounts or bank details** have been compromised.
- The fix would require **opening the case** and you are not comfortable doing so, or the computer is under warranty (opening it may void the warranty).
- The computer is for **work** and your employer has an IT department. Always contact them first. They may need to know about security problems.

Where to get help

- **The manufacturer's support**, especially if the computer is under warranty.
- **Your workplace IT department**, for a work computer.
- **A reputable local repair shop**. Ask friends for recommendations, check online reviews, and ask for a quote before work begins.
- **Official support forums and documentation** from Microsoft, Apple and the maker of your device.
- **A knowledgeable friend or relative**, with the caution that they should not be given access to private files without your permission.

How to describe your problem to a technician

A clear report speeds up repairs and lowers costs. Prepare these details, using the notes you kept while following Chapter 1:

- The make and model of the computer, and the operating system version.
- Exactly what happens, and the exact wording of any error message (a photo is ideal).
- When it started, and what changed just before it began.
- What you have already tried, and what happened each time.
- Whether you have a recent backup.

Repair or replace?

As a rough guide, if a repair would cost more than about half the price of a comparable new computer, or if the computer is more than five to seven years old and is slow in general, replacing it may be the better choice. If you replace it, transfer your files first and wipe the old computer before you dispose of or sell it.

Appendix A: Quick Troubleshooting Checklist

Print this page and keep it near your computer. Work from the top and stop as soon as the problem is solved.

1. **Stay calm.** Note exactly what is wrong and any error message.
2. **Ask what changed** recently: update, new program, new device, power cut, drop or spill.
3. **Save your work** if you can.
4. **Restart** the computer (use Restart, not just Shut down).
5. **Check the cables and power.** Unplug and replug. Test a different socket, port or cable.
6. **Close any frozen program** (Ctrl + Shift + Esc on Windows, Option + Command + Esc on a Mac).
7. **Disconnect extra devices** (USB drives, printers, adapters).
8. **Check free storage space.** Keep 15 to 20 percent free.
9. **Install updates** for the system, drivers and apps.
10. **Undo the last change** by uninstalling the newest program or update.
11. **Scan for malware** with Windows Security or your security software.
12. **Try Safe Mode** to see whether the problem disappears.
13. **For internet problems,** test other devices, then restart the router for 30 seconds and the modem for longer.
14. **Back up your important files** before any serious repair.
15. **Search online** for the exact error message with your model name.
16. **Call a professional** if there are strange noises, burning smells, liquid damage or data you cannot afford to lose.

Appendix B: Glossary

Antivirus / security software. A program that detects and removes harmful software.

App. A program or application that runs on your computer or phone.

Backup. A spare copy of your files kept in a separate place for emergencies.

Bluetooth. A short-range wireless technology for connecting devices such as headphones and keyboards.

Boot / startup. The process of the computer starting up and loading its operating system.

Browser. A program for viewing websites, such as Chrome, Edge, Safari or Firefox.

Cache. Temporary stored data that helps websites and apps load faster, but can sometimes cause problems when it becomes outdated.

Cloud storage. Storage on the internet that lets you reach your files from any device.

Cookie. A small file that websites save on your computer to remember you.

CPU (processor). The computer's brain, which carries out instructions.

Driver. A small program that lets the operating system work with a piece of hardware.

DNS. The internet's address book, which turns website names into addresses that computers use.

Ethernet. A wired network connection that uses a cable.

Firmware. Built-in software that controls basic hardware functions, for example in a router.

HDD. Hard disk drive: older storage with spinning parts that is slower and more fragile than an SSD.

Malware. Any harmful software, including viruses, spyware and ransomware.

Modem. A device that connects your home to your internet provider.

Operating system (OS). The main software that runs the computer, such as Windows or macOS.

Phishing. A trick that uses fake messages or websites to steal passwords or money.

RAM (memory). The computer's short-term workspace for the programs currently running.

Ransomware. Malware that locks your files and demands payment.

Router. A device that shares your internet connection between your devices, by cable or Wi-Fi.

Safe Mode. A special startup mode that loads only the essentials so problems can be fixed.

SSD. Solid-state drive: modern, fast storage with no moving parts.

System Restore. A Windows tool that returns system settings to an earlier point in time without touching personal files.

Two-factor authentication. An extra sign-in step, such as a code sent to your phone, in addition to your password.

VPN. A service that encrypts your internet traffic and hides your location.