InfoWorld DeepDive

FROM IDG

Windows 10

INSTALLATION SUPERGUIDE

Deep Dive

12 Windows 10 install issues —
and what to do about them

Having trouble installing and setting up Win10?

You aren't alone. Here are a dozen-plus of the most common problems, along with a few solutions. BY WOODY LEONHARD

**With Microsoft saying that 110 million PCs run** Windows 10, you've no doubt encountered a problem or two or three, either with your upgrades or with those of your colleagues, family, or friends. Of course, we'll never see statistics on the number of folks who were coerced into installing Windows 10, which happens when Windows Update won't work because it's frozen on the Win10 payload. We'll never know the number of systems that were upgraded and rolled back. But even if a tiny percentage of those 100 million machines hit hiccups, the total number of problems is enormous.

Deep Dive

I've bumped into many different problems, and I bet you have, too.

Here's my attempt to address the most frequent Windows 10 installation problems, including initial setup problems. Hopefully the advice and pointers will help ease the pain, should you find yourself trapped between the offal and the impeller.

The prime directive: If you're prompted for a product key but don't have one, don't sweat it
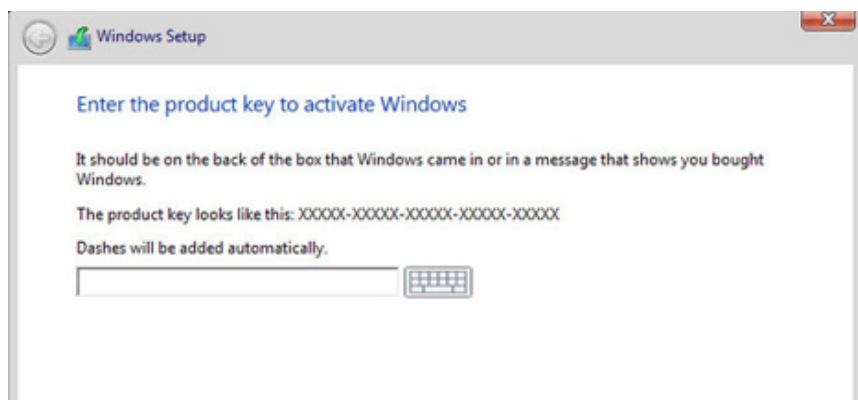
Assuming you're upgrading from a "genuine" Windows 7 or 8.1 machine, if you're prompted for a Win10 key, click Skip, Do This Later, or Next (depending on the dialog box). Don't bother trying to find a Windows 10 key. Chances are very good that Windows will recognize the error of its ways and not bother you again, although it may take a couple of days for the activation routine to figure it out. If you get repeated prompts, see the section below on Activation problems.

Installer hangs for hours or reboots continuously

First, make sure you've disconnected any nonessential hardware: Unplug all hard drives other than the C: drive. Yank that external hard drive, disconnect peripherals that aren't absolutely necessary, including extra monitors, smart card readers, weird keyboards, whatever. If possible, consider turning off Wi-Fi and plugging into a router with a LAN cable (that worked for me).

Second, make sure you have the right

upgrade: 32-bit for 32-bit machines, 64-bit for most. If you started with Windows 7 Starter, Home Basic, or Home Premium, or Windows 8.1 (standard, usually called Home), you should install Windows 10 Home. If you started with Win7 Pro or Ultimate, or Win8.1 Pro or Pro for Students, you should install Windows 10 Pro. If you're working with any Enterprise version of Windows 7 or 8.1, the upgrade isn't free — it's dependent on your Software Assurance license terms.

Then try running the upgrade again.

If you continue to have the same problem, Microsoft's best advice is to use the Windows 10 media creation tool to create a USB drive (or DVD). See the Download Windows 10 page for details, but be very aware of the fact that your "genuine" license is dependent on running the upgrade sequence correctly. Specifically, you must first upgrade the PC instead of performing a clean install, to make sure your old Windows 7 or 8.1 license is recognized as a valid license for the free Windows 10 upgrade. There are full instructions on the Installing Windows 10 using the media creation tool page. Be sure you follow the steps in order.

If that still doesn't work and you end up with an installer hang or repeated reboots, simply sit back and wait. Microsoft's still ironing out a lot of bugs, and you may have one or two (or 20) of them.

Error: "Something Happened 0x80070005-0x90002"

The Windows 10 installer has such descriptive error codes, doesn't it? This one's a classic. The 80070005 error has been around for ages, and it generally means that the installer can't work with a file that it needs. Possible causes are many, but the general solution goes like this:

1. Disable all antivirus and firewalls. Yes, even Microsoft's.

2. Reset Windows Update by going to KB 971058 and running the Fixit.

3. Run the Windows 10 installer again (presumably through Windows Update).

Deep Dive

4. If that doesn't work, turn your AV and firewall back on, then follow the instructions at KB 947821 to run DISM or the System Update Readiness Tool.

5. Turn off your AV and firewall, then try installing Win10 again.

If that doesn't work, try any or all of the suggestions listed here.

Error: 0xC1900101-0x20017, -0x30018, -0x20004 and others

More specifically: "The installation failed in the SAFE_OS phase with an error during INSTALL_ RECOVERY_ENVIRONMENT operation" or something along those lines.

This is another Windows installer error that dates back (at least) to the times of Windows 8. Many people report these errors occurring in conjunction with freezes and crashes of varying intensity and length.

There's a six-page thread about this on the Microsoft Answers forum, one on Reddit that's about two miles long, and many others around the Web, but nobody seems to have found a general solution.

My advice is to wait. If you have a spare weekend, you can try the comprehensive solutions presented by Gunter Born on his blog. But in general, this one's a mammoth, insurmountable time sink. Give Microsoft a few months or more to figure it out.

Activation problems

There's a trick to activating your free Windows 10 upgrade — a trick that Microsoft didn't bother explaining until a month after it released the final version of Windows 10 on July 29.

Here's how activation goes for free Win10 upgraders: When you upgrade a "genuine" Windows 7 or 8.1 system to Windows 10, if you want to end up with a "genuine" copy of Windows 10, you have to do an in-place upgrade first. As part of the in-place upgrade, Microsoft confirms that you have a genuine Win7 or Win8.1 key and, if so, stores a record of your machine and the fact that your machine now has a "genuine" copy of Win10. Microsoft

calls that a "digital entitlement."

Once your machine has a digital entitlement, you can install or reinstall Windows 10 any number of ways, and Microsoft will always remember that your machine is authorized for a genuine copy of Windows 10. You don't have a Win10 key, there's nothing to write down, no hoops you have to jump through.

Microsoft explains the nuances on its Activation in Windows 10 page.

The trick is to do an in-place upgrade first. If you perform a clean install initially, you wipe out all evidence of the "genuine" Win7 or Win8.1 installation, and your life will become considerably more complicated.

To perform an in-place upgrade and preserve your license, you have three choices:

1. Upgrade through Windows Update.

2. Run the "Upgrade this PC now" option from the Download Windows 10 site.

3. Create an installation disk with the Windows 10 Media creation tool, stick the disk in the PC you want to upgrade, and run setup.exe on the disk.

Once you've performed the in-place upgrade,

Deep Dive

you can boot from that same installation disk and use it to perform a clean install, deleting your hard drive partitions in the process. But if you want the license to travel with your machine, use one of those three methods to upgrade your PC first.

> Who owns this PC?
>
> This choice is important, and it isn't easy to switch later. If this PC belongs to your organization, signing in with that ID will give you access to their resources.
>
> My organization
>
> I do

Remember the prime directive: If you're prompted for a Win10 key, click Skip, Do This Later, or Next (depending on the dialog box). Don't bother trying to find a Windows 10 key.

What to do if you've already performed a clean install and wiped out all vestiges of your ("genuine") Windows 7 or 8.1 key? First, make sure you upgraded correctly — 32-bit to 32-bit, 64-bit to 64 — and make sure you have the correct version as described in the section "Installer hangs for hours."

Got the right version? Wait a few days. Windows 10 has an ability to magically heal its activation problems.

If that doesn't work, you can try an automatic phone activation. Grab a pencil and a piece of paper. Press Windows key-R. Type:

```
slui.exe 4
```

(Note the space.) Hit Enter. Choose your country. You receive a toll-free number and a horrendously long list of numbers known as the "installation ID." Call the toll-free number and type in the installation ID. You will hear an automated voice with an installation key. Write it down. Click Next on the slui dialog box, type in the numbers, and you should be home free.

If that doesn't work, get on the phone and talk to a human. I've been working with phone activation for many years, and although there are a few notable exceptions, in almost every case if you have a good story, you'll get a Windows 10 key.

Before you call, check your computer's case for a 25-character key. If you don't have a sticker, make a note of when and where you bought the machine. Tell the folks on the other end of the phone that you had a genuine copy of Windows 7 or 8.1, but you used the
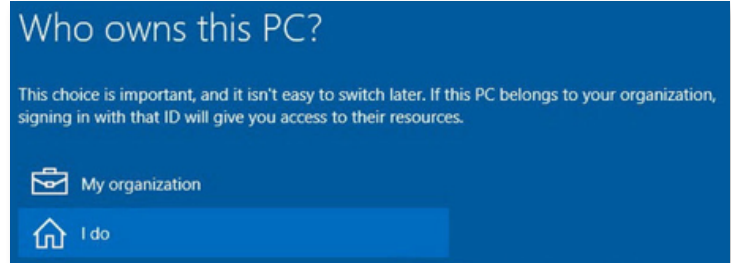
Windows 10 Media Creation Tool to create a boot USB, then perform a clean install, before Microsoft posted details on the proper upgrade sequence. A good attitude and profuse thanks are called for. If they suggest you reinstall Win7 or 8.1 and upgrade again, tell them it would be a pain in the neck because you've been using the system for several days. Sometimes a gentle request for a supervisor works.

If you can't get a key over the phone, you'll have to reinstall Windows 7 or 8.1, and upgrade again. Sigh.

Who owns this PC?

When you set up Windows 10 Pro, you get to answer this question almost immediately: "Who owns this PC?"

Much mystery surrounds that dialog — for example, if you own a small business, do you own the PC, or does your organization? — and the details of the ramifications of the answers aren't at all clear. To a first approximation, though, if you choose "I do," you're telling the installer that you want to provide either a Microsoft account or (with suitable gymnastics) a local account. If you choose "My organization," Windows tries to join you to a domain or to Azure AD.

Even if you choose "I do," you can still join a domain if you're running Windows 10 Pro.

I'm told you should choose "My organization" if you use a business Office 365 account. Otherwise, the choice doesn't make much difference. The real hairball appears if you set up the PC with your personal Microsoft account and later want to join a company domain with a company account. That leads to lots of jumping back and forth between personal and business accounts, apps, data, and restrictions. Windows 10 isn't unique in this regard: The same mashup

Deep Dive

happens with Win7 and 8.1. There's a brief discussion on the TechNet forum. Tim Anderson at The Register has a detailed discussion of the implications for using Office 365.

Trouble with video, sound, and other drivers

After basic installation problems — typically ending in hangs or reboots — the problem I hear about most involves lousy drivers. Sometimes the driver problem appears immediately after you install Windows 10. Sometimes, the problems don't appear until you've rebooted the machine a few times and allowed Microsoft's forced updates to wipe out your stable drivers.

There's a lengthy post by Microsoft MVP and Answers Forum moderator Andre Da Costa that steps through the finer points of installing drivers. He shows you how to install drivers the official way — through Windows Update — and the semi-official way, through Win10's Device Manager. Then he drops back a few yards and punts with instructions for using Compatibility Mode.

Da Costa's advice appeared before the final version of Windows 10 shipped (July 29, RTM build 10240), but the advice there applies to the RTM version. He doesn't cover the next phase of driver untangling, where you manually uninstall a driver and then prevent Windows 10 from automatically updating it, presumably to a bad (but newer!) driver. I talk about using the wushowhide program and KB 307930 in this InfoWorld post.

Unfortunately, wushowhide has to be handled in a very specific way: It can only hide updates that have already been applied and found to be faulty, and you can't reboot between uninstalling the bad driver and running wushowhide. It's not a friendly solution.

Start menu isn't working

Here's how to fix one of my favorite Windows 10 error messages: "Critical Error/Your Start Menu isn't working. We'll try to fix it the next time you sign in." You may also see the error, "Critical Error/Start menu and Cortana aren't working. We'll try to fix it the next time you sign in." The Microsoft Answers forum main

thread for this problem is currently up to 73 pages, with 1,195 people chiming in that they've had the problem, too.

Short answer: Microsoft still hasn't figured it out. Microsoft engineer Paul Sey says:

You may be able to temporarily resolve the issue by booting to Safe Mode, and then immediately booting back into normal mode. This workaround may resolve your problem for a while, however the error may return later.

To boot to Safe Mode:

- Hold the Shift key down while you click Start, Power, Restart.

- Once you are in the Windows Recovery Environment, select Troubleshoot, then Advanced options, then Startup Settings, and Restart.

- When it restarts, you should see a number of options. Press 5 or F5 for Safe Mode with networking.

- Once you sign into your account in Safe Mode, you're done. Just restart your PC to return to a normal boot.

If you are running a third-party antivirus software, we recommend uninstalling, then reinstalling the antivirus software, as this may also provide a work-around for this problem. Some customers have reported that adding a new local administrator account has resolved their Critical Error. If that doesn't work, try removing the original administrator account now that you have a new one created.

As far as I can tell, that's the whole story.

Create a local account

Microsoft really, really wants you to use a Microsoft account. Over the years, the company has made it increasingly difficult to create a local account — one that isn't hooked into Microsoft's stuff in the sky. (It's an open point of debate as to whether using a local account also curtails Microsoft's snooping, given the ever-present Advertising ID, but that's another story.)

Deep Dive

Here's how to create a new local account:

- Click Start, Settings, Family & other users, Add someone else to this PC. (Note that you can't "Add a family member" with a local account. Presumably that is tied in to parental controls.)

- In the box marked "How will this person sign in?" down at the bottom, click "The person I want to add doesn't have an email address."
- In the "Let's create your account" dialog, at the bottom, click "Add a user without a Microsoft account."
- At that point, finally, you can type in a user name, password and password hint. Click Next and you suddenly have a local account ready to use on your machine.

And you thought creating a local account would be easy.

Your programs don't appear on the Start menu's All Apps list

If you have more than 512 programs on your machine, Windows 10 gives up — the apps don't appear on your Start all apps list. Although the apps are still installed, you can't get to them through the Start menu. Your system may freeze, it may become very lethargic, and links might not work.

The 512 limit applies not only to programs. It's the total of all the programs, folders, files, and shortcuts that you have in your Start menu, on the left and right (tiled) sides.

It's a bug — nothing you can do about it. In later builds, Microsoft apparently fixed the bug, but it isn't clear when/if the fix will roll out to the Windows 10 build 10240 masses.

Windows 10 Store won't start

A lot of people report that they can't get in to the Windows Store: Click on the tile or on the icon in the taskbar, and nothing happens.

There must be hundreds of posts on various forums about this problem. The Windows 10 forum has a thread where the original poster — after trying a PowerShell command, a DISM

and an SFC command, re-registering the Store — only solved the problem by performing a Refresh. You can delete the local cache. Chris Snyder has a lengthy description of the problem he encountered and its solution — for reasons unknown! — on his Common Ground Software Solutions blog. There's a troubleshooter for Windows apps that may dislodge the problem.

It's another problem that doesn't seem to have a single solution.

Windows 10 Mail won't sync

This problem appears over and over again. The latest suggestion, on the Microsoft Answers forum, is to uninstall the Mail/Calendar app, then reinstall it from the Store.

Uninstalling Mail is easy: Right-click on the tile, on the right side of the Start menu, and choose uninstall. Then go to the Windows Store, search for Mail, click on it, and click Install.

Unfortunately, that fix doesn't work in many cases. Fortunately, Microsoft's been pummeled about problems with Mail, and the company seems to update it frequently.

The old problems continue

Microsoft still forces updates on all machines except those connected to a Windows Update server. You can use the Metered Connection trick to block updates, but there's no guarantee that approach will continue to work.

Microsoft's patch documentation has gone from bad to nonexistent. In some cases, patches get released long before any documentation appears, as was the case with the Surface Pro 3 firmware update last week.

On the positive side, Microsoft managed to install Windows 10 on an enormous number of computers. If you had no problems with the upgrade, you're likely in the majority. But if you had problems, there's a more than tiny chance that no solutions exist yet. ∎

Deep Dive

20 fixes for a Windows 10 update meltdown

Latest Win10 update got you fuming?
Here's how to get your PC back on track   BY WOODY LEONHARD

If you're having problems with Windows 10's forced updates, you're not alone. Thankfully, with 11 cumulative updates behind us, we've accumulated some coping experience.

Each cumulative update is different, but there's a handful of tricks that can help jolt your system back into consciousness when a troubling cumulative update strikes. If you're having problems, the following solutions are worth a try. If you can't get back on course, follow the instructions at the end to find more personalized help — and the hope to live to fight another day.

I've avoided recommendations that seem old-in-the-tooth nowadays. As best I can tell, few recent cumulative update problems are solved by creating a new user account (although there are exceptions). Nor have I hit any mass resets of file associations, which is a problem that plagued earlier cumulative updates. I'm also stepping lightly over Windows Mobile — sorry, it's a very different can of worms.

This isn't meant to be an exhaustive list of problems and solutions. Instead, it tackles the most common problems, offering the most common solutions. And if your Windows 10 updating experience has been stable, consider yourself among the lucky.

For the rest of us, read on. You may find yourself coming back again and again.

Deep Dive

Before you do anything else

Make sure your antivirus software is turned off. That's the No. 1 source of bad updates — or no updates.

Check for mundane hardware problems

Coincidences happen. Sure, your PC went to Hades in a handbasket right after you installed the latest cumulative update, but that doesn't mean the update caused the problem.

It's the old *post hoc ergo propter hoc* fallacy.

Consider the possibility that your problem has nothing to do with the cumulative update. At the very least, anyone with a cumulative update problem should right-click Start, choose Command prompt, type **chkdsk /f** in the box and press Enter. That'll scan your main drive and fix any errors.

If you're having problems with a mouse or keyboard, or a monitor or speaker, try plugging them into another computer to see if they're dead.

It's rudimentary, but it works surprisingly often.

Recover from a bricked PC

For most people this is the scariest situation. The cumulative update installs itself (possibly overnight, while you aren't looking), and when you come back to your machine, nothing happens. It's dead, Jim.

Ninety times (or at least 50, hard to say) out of 100, you can get back to a working machine by booting into Safe Mode, uninstalling the cumulative update, blocking it, then rebooting normally.

My old friend Lincoln Spector has the rundown on booting into Safe Mode in a PC World article from last October. Unfortunately, booting into Safe Mode isn't as easy in Windows 10 as it was in Windows 8.1 (or any other Windows, for that matter).

Once you're in Safe Mode, follow the instructions in the section "Make sure your problem is the patch," below, to uninstall the aberrant cumulative update. Then follow the instructions in the section "Break out of the endless update loop," below, to make sure you aren't tossed back into the fire. Reboot and you'll be back in your previous version of Windows 10.

Know when to give up

Some people, in some situations, report that going through the update process takes hours — many hours, with multiple restarts and hangs. My best advice: Let the update run for three or four hours. If you come back to those spinning dots, then it's time to pull the plug (literally turn the electricity off), reboot, and see if things worked or not.

You can always see what version you're running. In Cortana's search box, type **winver** and press Enter to see which version you're on. Compare it to Microsoft's official Win10 update history list.

(See "Walk away and forget it," below.)

Make sure your problem is the patch

First, restart your machine at least three times. I don't know why, but rebooting numerous times sometimes shakes out the gremlins.

Second, try to uninstall the patch and see if the problem goes away. Click Start > Settings > Update & security > Advanced options > View your update history > Uninstall updates. With a bit of luck, the aberrant update will appear at the top of the Microsoft Windows update list, as you can see in the screenshot.
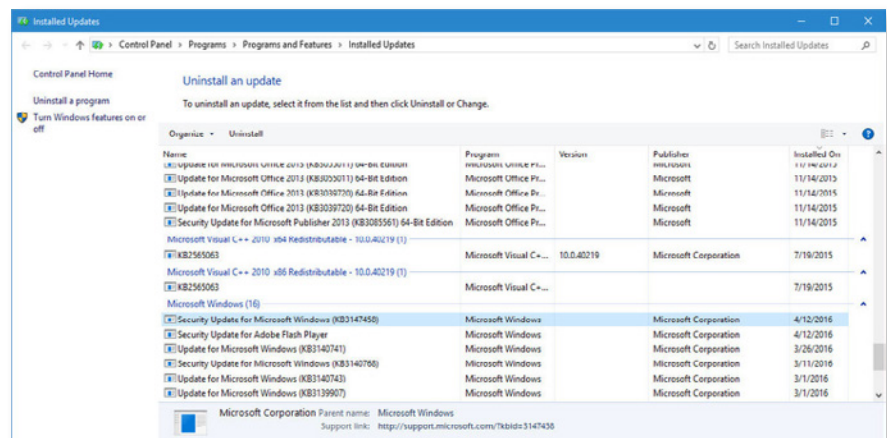
Deep Dive

Double-click on the update and when Windows asks, "Are you sure you want to uninstall this update?" reply Yes. Windows will take a while — maybe a long while — to reboot, and when it comes back, you should be retreated to the previous (presumably functional) version of Win10.

Immediately test to see whether your problem went away. If it did, use Wushowhide (instructions in the next section) to hide the bad patch. If your problem persists, chances are good the cumulative update didn't cause the problem. In that case, get onto the latest version: Reboot, go to Windows Update (Start > Settings > Update & security > Check for updates) and re-install the patch. Your problem probably doesn't lie with this particular update. Note the operative term "probably."

Some patches catch software manufacturers flat-footed. For example, the latest patch (KB 3147458) broke the Interaction Desktop on ININ phone systems; it also broke the desktop version of Pershing's broker program NetX360. If a program you normally use goes belly-up right after installing the update, get over to the manufacturer's website quickly and complain loudly. Chances are they will eventually tell you to uninstall the Win 10 patch or apply a new patch of their own.

The sooner you can get them started on a fix, the sooner everybody will get it.

Break out of the endless update loop

It's like watching a PC bang its head against the wall, over and over and over again.

Sometimes the cumulative update fails — you see a message saying "Installation failed," or something similar, followed by "Undoing changes." When your system comes back to life an hour or two or five or six later, it goes right back to trying to install the same cumulative update. You get the same error. Wash, rinse, repeat.

You might want to let your system go through the full self-mutilation cycle twice to see whether you get lucky, but after that it's too painful. You need to put Win10 out of its misery.

Fortunately, Microsoft has a tool that'll do exactly that — it'll tell Windows Update to stop looking for the specific cumulative update that's causing problems. The tool wasn't built for stopping cumulative updates dead in their tracks, but it works nonetheless.

Here's how to use it:

Step 1: Go to KB 3073930 and download Microsoft's Wushowhide tool. (Click the link marked "Download the 'Show or hide updates' troubleshooter package now.") Drag the downloaded file, `Wushowhide.diagcab`, to any convenient location.

Step 2: Double-click on `Wushowhide.diagcab` to run it.
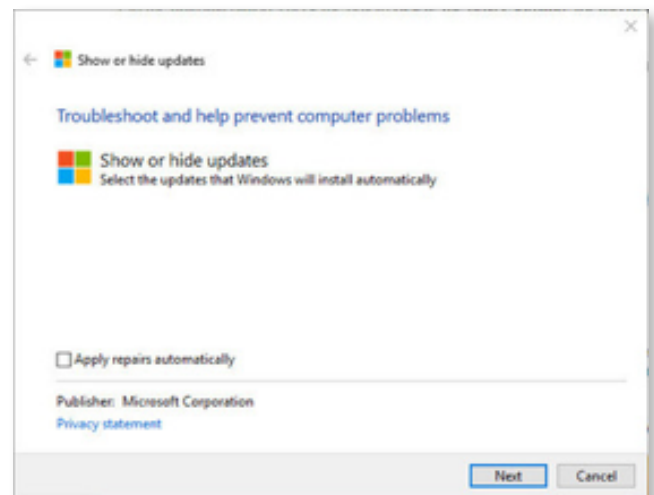
Step 3: This part's important and easy to miss: Click the link marked Advanced. Uncheck the box marked "Apply repairs automatically" (see screenshot). Click Next.

Step 4: Wait for Wushowhide to look for all of the pending updates on your system. When it comes up for air, click Hide Updates.

Step 5: There should be a box marked "Cumulative Update for Windows 10 Version 1511 for x64-based (or x32-based) Systems (KB xxxxxxx)"

Deep Dive

or a similar statement. If you're curious whether you've found the wight wascally wabbit, look at Microsoft's Win10 update history log and compare the KB numbers.

Step 6: Check the box in front of the "Cumulative Update…" line, click Next, and close out of Wushowhide.

Windows will hide the update for you. The Windows Update program won't even see the update unless you specifically Unhide it. If you've found a solution to your problem (see the end of this article for pointers) and want to re-install the cumulative update, try this:

Step 1: Double-click on `Wushowhide.diagcab` to run it.

Step 2: Uncheck the box marked "Apply repairs automatically" (see screenshot). Click Next.

Step 3: Wait for Wushowhide to look for all of the pending updates on your system. When it comes up for air, click Show Hidden Updates.

Step 4: Check the box marked "Cumulative Update for Windows 10 Version 1511 for x64-based (or x32-based) systems" and click Next.

Step 5: This is weird, but Wushowhide will tell you that it "fixed" the "problems found." (See, I told you it wasn't built to hide cumulative updates.) Click Close.

Step 6: Go back into Windows Update (Start > Settings > Update & security, then Check for Updates). Windows will find the Cumulative Update and install it for you.

Although cumulative updates frequently contain security updates, and you don't want to wait too long to install security patches, sometimes Windows won't cooperate and you have to put Windows Update out of its misery.

Fix error 0x80070020

Frequently this is the error number that accom-

panies a failed cumulative update installation and rollback. All too frequently, it's followed by another automatic attempt to install the cumulative update, then another failure, with the same error code.

See the preceding section for advice on ending the loop. The steps there won't fix the error, but at least you can get your machine back (usually).

Once you're back on your feet, you should try to figure out whether any of your files are locked. (Error 0x80070020 generally means a file that the installer needed was locked.) Common culprits include corrupt Windows system files (see the next section), antivirus programs, and some video drivers.

Run SFC and DISM

This seems to be everyone's go-to suggestion for cumulative update installation problems. In my experience, it works only a small fraction of the time, but when it does, you come back from the brink of disaster with few scars to show.

System File Check (sfc) is a Windows 10 program that scans system files, looking to see if any of them are corrupt. There are ways to run sfc — switches — that can tell sfc to replace bad versions of system files.

If sfc can't fix it, a second utility called Deployment Image Servicing and Management (DISM) digs even deeper. Microsoft recommends that you run both, in order, regardless of the dirt dug up (or missed) by sfc.

Be painfully aware that, in the past, sfc has flagged files as broken, when in fact they aren't. What you're looking for is the automatic repair from sfc, not its diagnosis.

Here's how to run sfc:

Step 1: Right-click Start and choose Command Prompt (Admin)

Step 2: In the Admin (elevated) Command Prompt type `sfc /scannow` (yes, there's a space between `sfc` and `/scannow)`. Press Enter and go have a latte. It can take half an hour or longer.

Deep Dive

Step 3: If sfc reports "Windows Resource Protection did not find any integrity violations" then you're out of luck — whatever problem you have wasn't caused by scrambled Windows system files. If sfc reports "Windows Resource Protection found corrupt files and repaired them," you may be in luck — the problem may have been fixed. If sfc reports "Windows Resource Protection found corrupt files but was unable to fix some of them," you're back in the doghouse.

Step 4: No matter what happened with `sfc /scannow`, run a DISM. Again, right-click Start and choose Command Prompt (Admin). Gee, it feels like we're back in the days of DOS, doesn't it?

Step 5: In the Admin (elevated) Command Prompt, type `DISM /Online /Cleanup-Image /RestoreHealth` (again, spaces before all the slashes, and note that's a dash [minus sign] between Cleanup and Image). Press Enter and let it run — half an hour, an hour, whatever. If DISM finds any corrupt system files, it fixes them.

Step 6: Reboot and see whether your system was fixed. It probably wasn't, but at least you've taken the first step.

If you hit an odd error message or if one of the programs finds a bad file and can't fix it, refer to Microsoft's official documentation in KB 929833 for more information. (Don't feel too complacent: See how the KB article is up to revision 26?)

The result of the scans gets placed in the `C:\Windows\Logs\CBS\CBS.log file`. ("CBS" stands for "Component Based Servicing.") You may want to make a Zip of that file, in case one of Microsoft's helpers needs to take a look. See the final section in this article, "Where to find more help."

Check the System Event Log

Almost everything gets posted to the System Event log. The biggest problem with the Log? People freak out when they see all the errors. That's why you won't see it recommended very often. It's hard to believe that an Error in a System Event log is a natural occurrence.

Fair warning: Telephone scammers frequently have customers look at their System Event logs to convince them their computer needs repair. It ain't so.
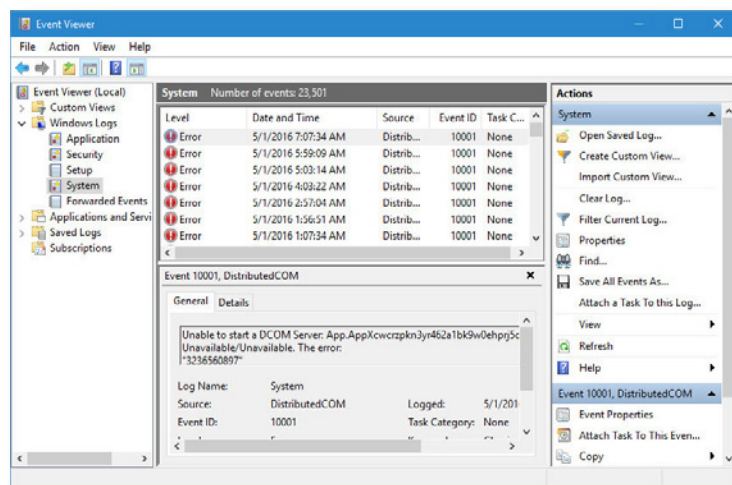
Here's how to bring up your System Event log:

Step 1: Promise me you won't get freaked out.

Step 2: Down in the Cortana search box, type `eventvwr` and press Enter.

Step 3: On the left, click Windows Logs, then System.

Step 4: Remember Step 1. Don't get freaked out. In the middle, look at the events list.

This screenshot is from my main Windows 10 machine — the machine's perfectly normal and running well.

Step 5: Look at the log and see if you can find anything weird. Generally, an EventID of 10001 is nothing to be concerned about. An EventID of 7 indicates a bad sector on your hard drive — run `chkdsk` (see "Check for mundane hardware

Deep Dive

problems" at the beginning of this article).

If you encounter an Event ID that doesn't ring a bell, try looking it up on the EventID.net website. Garden-variety events are a dime a dozen. But there's a tiny chance you'll stumble into something that will lead to a fix.

Refresh the built-in Windows programs

After the `sfc /scannow` run, this is the second-most-common general recommendation for fixing a bad Win10 cumulative update. It reaches into your computer, looks at each app installed in your user profile, and re-installs a fresh, supposedly glitch-free copy.

Although it sounds like the process will fix only errant built-in Windows apps, users report it fixes all manner of problems with Win10, including icons that stop responding, Start menu and Cortana problems, balky apps, and halitosis.

The approach uses PowerShell, which is a world unto itself — a very powerful command-line adjunct to Windows 10. Here's how to refresh all sorts of apps, possibly knocking the Start menu and Cortana back into shape, in the process:

Step 1: Right-click Start and choose Command Prompt (Admin).

Step 2: In the Admin (elevated) Command Prompt, type **powershell** and press Enter. That brings up PowerShell. You get a window that looks a lot like a Command Prompt window, except **PS** appears before the name of the current directory.

Step 3: Copy and paste this text:
```
Get-AppXPackage -AllUsers | Foreach
{Add-AppxPackage -DisableDevelopmentMode
-Register "$($_.InstallLocation)
\AppXManifest.xml"}
```
into the PowerShell window and press Enter. It's all one line. Don't try to type it.

Step 4: You'll see a bunch of red error messages. Don't panic! Ignore them, even the ones that say, "Deployment failed with HRESULT: blah blah. The package could not be installed

because resources it modifies are currently in use" or "Unable to install because the following apps need to be closed."

Step 5: When the Get-AppXPackage loop finishes — even with all the red warnings — you'll be returned to the PS PowerShell prompt. "X" out of the Command Prompt, reboot, and see whether the demons have been driven away.

Surprisingly, that approach seems to clean up some Start, taskbar, and Cortana problems. Even if it doesn't, you've now undertaken the second standard approach (after sfc /scannow) that you'll find offered nearly everywhere.

Look at Task Manager

If sfc and Get-AppXPackage don't work, it's possible that a renegade program is taking over your machine, freezing up the parts that should be running smoothly. Nothing beats a visual check.

Press Ctrl-Shift-Esc to bring up Task Manager (see screenshot).

Take a look at the listed Apps and Background processes. Does anything look totally out of whack?

Deep Dive

If you find an app or process that's taking up 50 percent of your CPU or beating your disk to death, you should focus on that app or process. Check with the software vendor, in particular, to see whether they know of any reason why the latest cumulative update is driving their program bonkers.
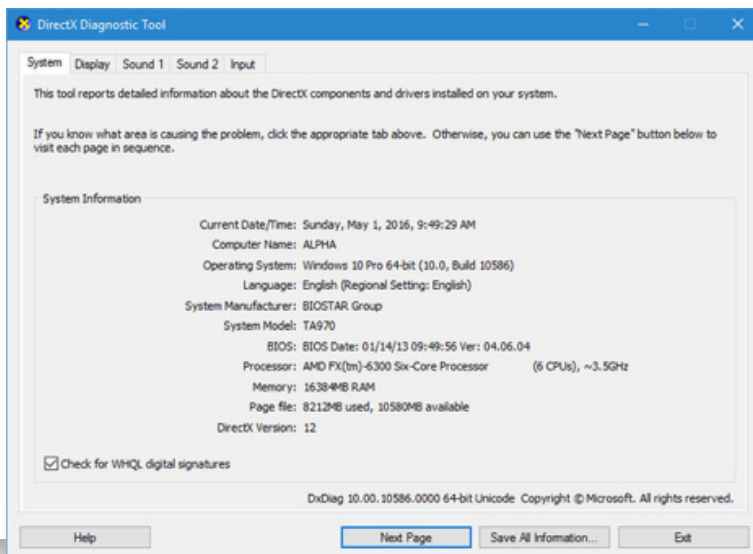
Don't be too surprised if Service Host: DCOM Service Process Launcher has taken over your CPU. If that's your problem, the current best advice is to run the DirectX Diagnostic Tool to gather information about the problem (see the next section), then roll back the cumulative update and block it with Wushowhide, as described in the sections "Make sure your problem is the patch" and "Break out of the endless updates" earlier in this article.

Run a DirectX Diagnostic test

The most common source of problems with the DCOM Service Process Launcher red-lines (see the preceding section) is DirectX, the set of system calls that Windows uses to run multimedia. If you have reason to suspect DirectX, try dislodging the problem with the DirectX Diagnostic Tool:

Step 1: In the Cortana search box type **dxdiag.exe** and press Enter. Windows will take a while to examine your system, then toss up a screen like the one in the screenshot.

Step 2: Click on each of the tabs — Display, Sound 1, Sound 2, Input, and any others — and look in the Notes box at the bottom to see whether any problems were encountered.

Step 3: If you found problems with a specific hardware device, check the manufacturer's website to see whether there's a newer version of the driver available. If so, install it and pray. If not, look in the section "Where to get more help" at the end of this article to tell Microsoft all about it.

Run a NetTrace

If you're having trouble with Wi-Fi or you can't connect to a network by other means, your first step is to check the router and make sure other devices can still get in.

If that doesn't solve the problem, you can run a NetTrace, which looks into all sorts of networking nooks and crannies. The problem with a NetTrace is that normal people can't do much with it. You can run Microsoft's Network Monitor ([download on MSDN](#)) to look inside the file, but most of it's gibberish to those who don't speak IP natively.

If you want to try, it's easy:

Step 1: Right-click Start and choose Command Prompt (Admin).

Step 2: In the Admin (elevated) Command Prompt type:
```
netsh trace start wireless_dbg
capture=yes
```
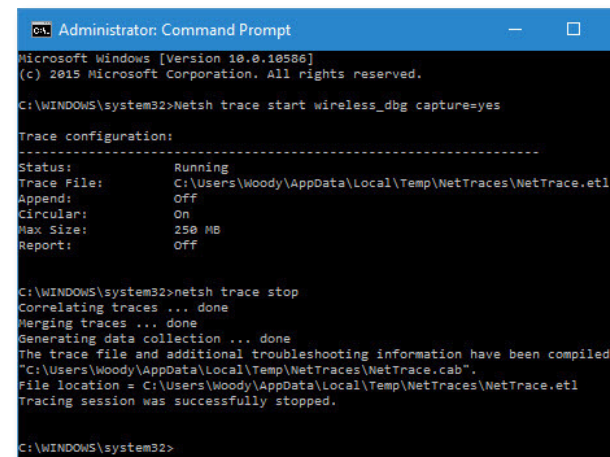

Press Enter. NetTrace will do its thing, as you can see in the screenshot.

Deep Dive

Step 3: When your system comes back up for air, type:

`netsh trace stop`

It takes a while, but eventually Netsh packs up all of its report and sticks it in a `NetTrace.etl` file, in the location noted in the Command listing.

You can try to pry the file open with Microsoft's Network Monitor. More likely, you'll end up sending it off to a Microsoft tech, who may be able to parse it. See "Where to get more help" at the end of this article.

Check your Device Manager

Many problems can be traced back to non-Microsoft peripherals with drivers that don't work right. (Many can be traced back to Microsoft peripherals that don't work right, too, but I digress.)

First stop for bad devices is the Device Manager, and it hasn't changed much since Windows XP.

Step 1: Right-click on the Start icon and choose Device Manager.

**Step 2:** Look for yellow Exclamation! icons.

Step 3: If you find any, double-click on the device that's causing problems, click the Driver tab, and see whether you can find a newer driver, typically on the manufacturer's website.

Make sure the new driver works better than the old one — Google is your friend — and that it's specifically designed for Windows 10. Failing that, usually Win 8.1 and Win 7 drivers work, but ya never know for sure.

Troubleshoot printers

If you can't get a printer to work and everything else looks OK, try removing and re-installing the printer. Sometimes that works, frequently it doesn't. Here's how:

Step 1: Click Start > Settings > Devices.
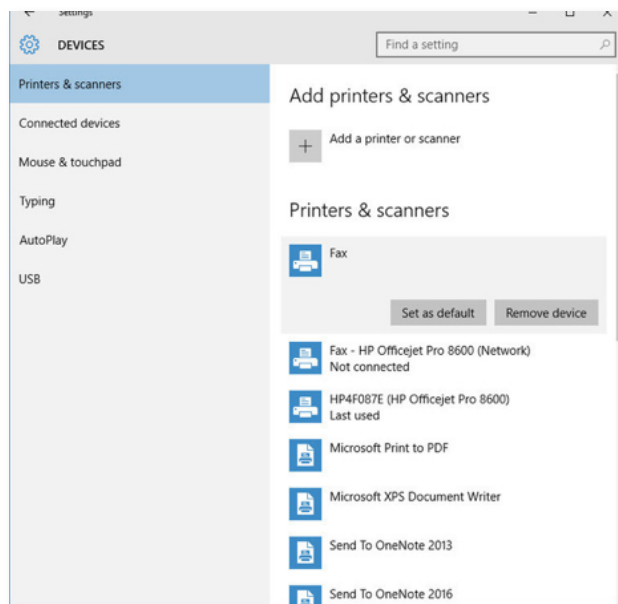
Step 2: In the Printers & scanners section (see screenshot), click on the printer that isn't behaving.

Step 3: Click Remove device.

Step 4: Let the device manager do its thing and reboot. (The reboot may not be technically necessary, but it won't hurt.)

Step 5: Add the device back. Click Start > Settings > Devices. In the Printers & scanners group, on the right, click Add a printer or scanner.

Chances are very good Windows will find the printer and install the driver automatically. If it doesn't, you may have to click the link "The printer that I want isn't listed" then follow the instructions to specify a shared printer, to use manual settings, or to get help.

Re-install missing programs

The cumulative update installers are notorious for wiping out specific programs that you may rely on — old versions of Norton Security, Speccy, CPU-Z, even the AMD Catalyst driver control center. It's boorish behavior, but Microsoft has a reasonable excuse — the eliminated programs, typically older versions, crash Windows 10. Or so it's said.

Deep Dive

The best solution in every case is to download and install the latest version of the zapped-out program. In every instance I know about (admittedly, a small subset of all known problems), the vendor has updated its program to work with Windows 10.

Re-install the program, and get on with your life.

Roll back to a previous restore point

Lots of people report that installing the latest cumulative update zaps out their restore points. I don't think anyone has ever gotten to the bottom of that problem. But if you're ready to throw in the towel and re-install Windows 10, you should first take a minute (or 10 or 20) to see whether your computer can be saved by restoring to an earlier restore point.

Here's how:

Step 1: In the Cortana search box type **restore point** and press Enter.
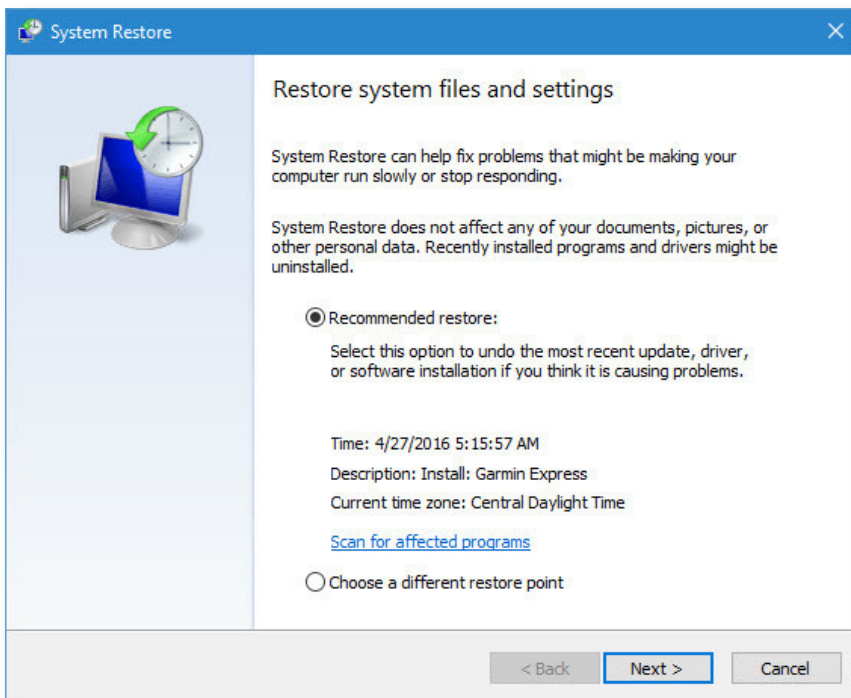
Step 2: In the System Properties dialog box, on the System Protection tab, at the top click System Restore. Windows will show you a dialog like the one in the screenshot.

Step 3: System Restore will show you the latest restore point. Don't be too surprised if it's from a long time ago — Windows 10 rarely takes restore points unless you tell it to. (I talked about setting up restore points, File History, and system protection settings, in the original Windows 10 Tour. If you haven't set up File History, now's a good time to do so.)

Step 4: If you feel comfortable turning all of your registry settings back to the date and time noted, click Next. Otherwise, click the radio button marked "Choose a different restore point," and go fish for something more to your liking.

Using a restore point won't fry any of your data, but it may change file associations, and you may have to re-install programs after you use it. Chris Hoffman at How-To Geek has a good overview.

Re-install Windows 10

Ready to toss the damn computer out the window? Yeah. Been there, hurled that. Figuratively, of course.

Fortunately, as long as you've installed Windows 10 once on your computer, and you haven't changed any major hardware (say, the motherboard), re-installing Windows 10 and making it "genuine" is easy. Keeping your data and programs, that's not so easy.

Win10 has the ability to nuke itself from afar, and if you decide to toss in the blanket, that should be your first approach, if you can get Win10 to work at all. Click Start > Settings > Update & security > Recovery, and click the button under "Reset this PC" that says "Get Started." You see the ominous message shown in the screenshot.
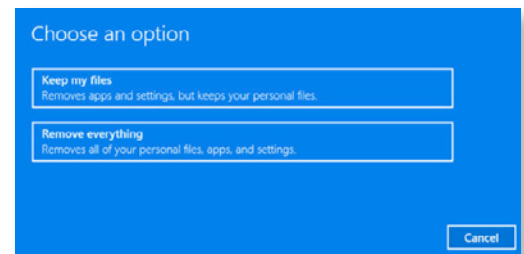
Try the first option first ("Keep my files") — it'll reset the system files, pull your apps,

Deep Dive

re-install the registry, but leave your data intact. If that doesn't work, back up everything you can get your hands on, then come back to this point and click "Remove everything."

If you can't boot Windows or get it to the "Reset this PC" setting, use a different PC and follow the instructions on the Windows 10 Software Download page to create a file on a USB or DVD that you can use to boot and install Windows 10. The version of Windows 10 that you install may not be the latest, but after you go through one update cycle (Start > Settings > Update & security > Check for updates) you'll be caught up with the latest.

You won't get your data or your other programs back, but Win10 should install fine.

Walk away and forget it

It's good to keep a little bit of perspective. If the latest cumulative update won't install (or breaks something) and you can get your machine back to a normal state — using, perhaps the unin-stall/Wushowhide sequence described at the beginning of this article — you should seriously consider doing nothing.

I know it's heresy, but the most recent cumu-lative update doesn't necessarily fix anything you need (or want!) to have fixed immediately.

Yes, there are security patches tossed into the giant cumulative update maw, but Micro-soft doesn't bother to split those out and let you install them separately. You're stuck with an undifferentiated massive mess of fixes and secu-rity patches that may or may not be important for you.

There's no penalty for sitting out this particular cumulative update. The next one will come along, usually within a month, likely on Patch Tuesday (the anointed second Tuesday of the month) and it may well treat you and your machine better.

Or maybe not.

Get more help

When the April cumulative update, KB 3147458, came out, a Microsoft engineer named John Wink took to the Microsoft Answers forum, the TechNet forum, Twitter, and Reddit, offering to help with any problems. It was a noble effort of

unprecedented goodwill that should be lauded, but John was completely overwhelmed from the get-go. My guess, at this point, is that John — along with his able sidekick Stephanie Anderl — is drowning under many, many thousands of complaints.

John, and his bosses at Microsoft, simply underestimate the magnitude of the problem. Instead of putting one or two people out there to suffer the slings and arrows of outraged customers, there should be a platoon of Win10 hotshots — a division, an army. If Microsoft wants to convince people that Windows 10 is ready for prime time, they need to start putting support money where their business plans are.

Why doesn't Microsoft simply pull a bad cumulative update? Good question — but I don't think it can. At least, it's never tried. Pulling a cumulative update leaves Microsoft in the precarious position of supporting multiple builds of Windows 10 when it's devilishly hard to get a normal user to figure out which build they're using. There aren't any catalogued lists of problems associated with a particular build. Most of all, skipped cumulative updates don't fit in to the one-way-only Windows as a Service vision. Microsoft's having this precise problem with bugs in Office 365 Click-to-Run. I, for one, don't see a solution.

After making a laudable entrance, John appears to be missing in action — at least, I can't find any recent posts from him in the now-120-page-long complaint in the Microsoft Answers forum. Even the irrepressible jenmsft on the Reddit forum hasn't posted any update fixes in nearly three weeks.

Right now, your best bet for finding a solution is to log on to the Microsoft Answers forum and post a question about your specific problem. You probably won't get an answer from a Microsoft employee, but the MVPs are out there (remember, they're unpaid volun-teers who don't work for Microsoft!) and other people are trying to help.

Someone on the support forums may ask you to send a Windows CBS Log. Here's how to do it. In Windows Explorer, right-click on `c:\windows\logs\cbs` and choose Send do / Compressed (zipped) folder. Windows will

Deep Dive

warn you that it can't create the zipped folder in the location, but it can put one on the desktop. Click Yes and a new file called **CBS.zip** appears on your desktop. Rename the file so that your support contact will know who it came from. That's the file you want to send to Microsoft.

If you're asked to provide a memory dump for your support person, take a look at NotMyFault, yet another amazing diagnostic tool from Sysinter-

nals. It creates a huge file and takes forever, but it may be what the techies need to get to the bottom of your problem.

When you look for help, keep your sense of humor! I know you're frustrated, but none of the people you'll bump up against — not even the Microsoft engineers you're likely to encounter — caused the problem. But if you're lucky they may help you solve it. ∎

Deep Dive

How to roll back your Windows 10 upgrade

Windows 10 not your cup of tea? Here's how to get back to your previous version of Win7 or Win8.

BY WOODY LEONHARD

Hundreds of millions of Windows 10 users can't be wrong — or can they? I hear from people every day who tried the Win10 upgrade and for a variety of reasons — broken drivers, incompatible programs, unfamiliarity, fear of snooping, doubt about Win10's future — want to get back to their good ol' Windows 7 or 8.1.

THINKSTOCK

Deep Dive

If you performed an upgrade using Microsoft's tools and anointed techniques, rolling back should be easy. Operative term: "should." Unfortunately, many people find that Win10 is a one-way trip — sometimes for very good reason.

Here's a thorough rundown of what you should expect, during the upgrade, then amid the rollback, along with a list of what frequently goes wrong and a bunch of tips on how to make the round trip less painful.

If you've upgraded from Win7 or Win8.1 to Win10 and you love your new system, more power to ya. But if you have a nagging doubt — or want to know what's in store if you decide to move back — this report details what awaits.

Anatomy of a hassle-free rollback
Most people who want to roll back from Windows 10 to their previous version of Windows have no problem with the mechanics. Providing you still qualify for a rollback (see the next section), the method for moving back is easy.

Caveat: If your original Windows 7 or Windows 8.1 system had log-on IDs with passwords, you'll need those passwords to log in to the original accounts. If you changed the password while in Windows 10 (local account), you need your old password, not your new one.
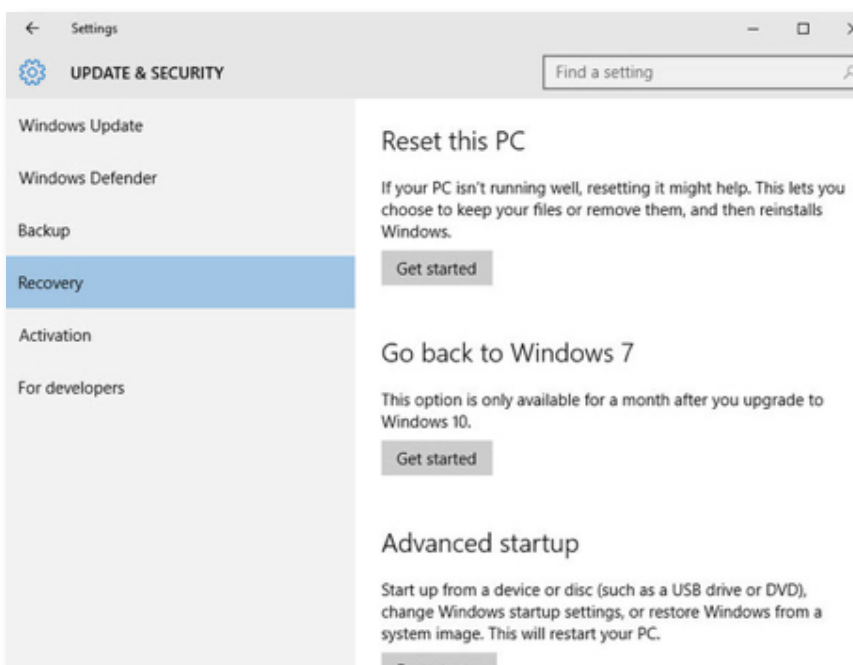
If you created a new account while in Windows 10, you have to delete it before reverting to the earlier version of Windows.

Step 1. Before you change any operating system it's a good idea to make a full system backup. Many people recommend Acronis for the job, but Windows 10 has a good system image program as well. It's identical to the Windows 7 version, but it's hard to find. To get to the system image program, in the Win10 Cortana search box, type **Windows Backup**, press Enter, on the left click Create a System Image, and follow the directions.

Click Start > Settings > Update & security > Recovery, and you'll see an entry to "Go back to Windows 7" or "Go back to Windows 8.1."

Step 2. In Windows 10. Click Start > Settings > Update & security > Recovery. On the right, you'll see an entry to "Go back to Windows 7" (see screenshot) or "Go back to Windows 8.1," depending on the version of Windows from whence you came.
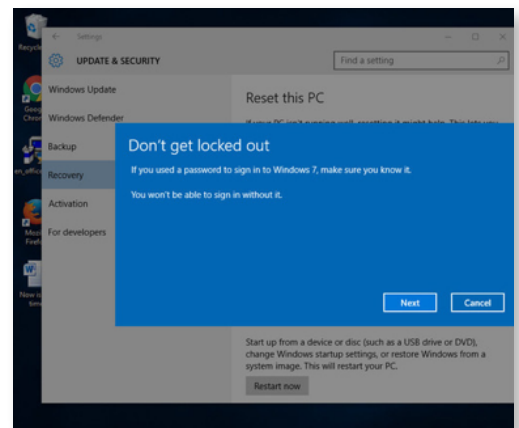
If you don't see the "Go back to" option and are using an administrator account, you've likely fallen victim to one of the many gotchas that surround the upgrade. See the next section — and don't get your hopes up.

When going back to a previous Windows, you're given the choice keep your files or remove everything.

Step 3. If you choose "Go back to a previous Windows," you're given a choice (screenshot),

Deep Dive

Important lesson:
Back up your data files before you revert to an earlier version of Windows. If you lose a file while going from Windows 7 to Windows 10, you can usually find it from inside Win10 in the hidden Windows.old folder.

analogous to the choice you made when you upgraded to Windows 10, to either "Keep my files" or "Remove everything." The former keeps your files (as long as they're located in the usual places), so changes you made to them in Windows 10 will appear back in Windows 7 (or 8.1). The latter wipes out all of your files, apps, and settings, as you would expect.

Step 4. The Windows rollback software wants to know why you are rolling back, offers to check for updates in a last-ditch attempt to keep you in the Windows 10 fold, warns you "After going back you'll have to reinstall some programs" (a problem I didn't encounter with my rather pedestrian test programs), thanks you for trying Windows 10, then lets you go back.

Step 5. After a while (many minutes, sometimes hours) you arrive back at the Windows 7 (or 8.1) log-on screen. Click on a log-on ID and provide a password; you're ready to go with your old version.

I found, in extensive testing, that "Keep my files" does, in spite of the warning, restore apps (programs) and settings to the original apps and settings — the ones that existed when you upgraded from Win7 to Win10. Any modifications made to those programs (for example, applying security updates to Office programs) while using Windows 10 will not be applied when you return to Win7 — you have to apply them again.

On the other hand, changes made to your regular files while working in Windows 10 — edits made to Office documents, for example, or new files created while working with Windows 10 — may or may not make it back to Windows 7. I had no problems with files stored in My Documents; edits made to those documents persisted when Windows 10 rolled back to Windows 7. But files stored in other locations (specifically in the \Public\Documents folder or on the desktop) didn't make it back: Word docs created in Win10 simply disappeared when rolling back to Win7, even though

they were on the desktop, or in the Public Documents folder.

One oddity may prove useful: If you upgrade to Windows 10, create or edit documents in a strange location, then roll back to Windows 7 (or 8.1), those documents may not make the transition. Amazingly, if you then upgrade again to Windows 10, the documents may re-appear. You can retrieve the "lost" documents, stick them in a convenient place (such as on a USB drive or in the cloud), then roll back to Windows 7, and pull the files back again.

Important lesson: Back up your data files before you revert to an earlier version of Windows. If you lose a file while going from Windows 7 to Windows 10, you can usually find it from inside Win10 in the hidden Windows.old folder. But when you go back from Win10 to Win7, there is no Windows.old folder.

Impediments to rollbacks

Microsoft promises that you can upgrade to Windows 10, then roll back, if you perform the rollback within 30 days. While that's true to a first approximation, the details are a shade more complex.

When you perform an in-place upgrade from Windows 7 (or 8.1) to Windows 10, the installer creates three hidden folders:

1. `C:\Windows.old`
2. `C:\$Windows.~BT`
3. `C:\$Windows.~WS`

Those folders can be very large. Upgrading from a clean Windows 7 machine with Office 2010 installed, C:\Windows.old runs 21GB.

We're sorry, but you can't go back
The files we need to take you back to a previous version of Windows were removed from this PC.

Deleting `C:\Windows.old`, `C:\$Windows.~BT`, or `C:\$Windows.~WS` — or any of their contents — will prevent you from rolling your system back.

Deleting the hidden `C:\Windows.old` folder, either of the other two folders, or any of

Deep Dive

their contents, will trigger a "We're sorry, but you can't go back" message (screenshot). Those are the folders that hold all of your old system, including programs and data. Generally, it's difficult to delete the folders manually, but if you run Disk Cleanup in Windows 10, opt to Clean up System files, and check the box marked Previous Windows installation(s), your Windows.old folder disappears and can't be retrieved.

(Older posts suggest that running the Windows Media Creation tool will delete the `$Windows.~BT` folder. That may have been true six months ago, but it looks like Microsoft fixed the problem.)

Although it isn't well documented, apparently the Win10 upgrade installer sets a Scheduled Task to delete those files — they take up a lot of room, and understandably, Microsoft wants to give that room back to you. I couldn't find any associated setting in Task Scheduler, nor could I find any documentation about the task, so the removal of those files after 30 days may be more complicated than most assume. Others have found that moving (or renaming) those files, then moving them back after the 30 days has expired, does not reload the rollback mechanism. If you think you can be tricky and hide the files, returning them when you want them, I've found no indication that's possible.

You can, however, roll back from Windows 10 to Windows 7, then roll forward again. By rerunning the downgrade/upgrade cycle within the 30-day window, you're good for another 30 days. I've rolled back and forth four different times on the same machine, with no noticeable problems.

There are other situations where either `Windows.old` never gets generated, or it is stripped of all of your programs and data. That's what happens with a clean install.

It shouldn't be any surprise that if you run the Windows Media Creation tool, use it to "Upgrade now," and in the dialog marked "Choose what to keep," specify Nothing, you won't be able to roll back to your original programs or files. This is a common technique for performing a clean install of Windows 10 — highly recommended to make sure Win10 is more stable. Unfortunately, it also removes your

ability to go back to Win7 or 8.1.

In the same vein, if you upgrade to Windows 10, use either the Media Creation Tool or the Windows 10 "Reset this PC" function (Start > Settings > Update & security > Recovery), then tell Windows that you want to "Remove everything / Removes all of your personal files, apps and settings," the key folders will be removed, and you can't revert to your old version of Windows.

I've seen a lot of advice for recovering the three key hidden folders, should they be deleted. Unfortunately, I haven't witnessed any approach that works consistently.

That thing about the 30-day clock

After 30 days, you're up the ol' creek without a paddle. If you want to go back to Win7 or 8.1, you have to re-install it from scratch, and you're responsible for moving your apps and data.

If you made a system backup before you upgraded to Win10, you can, of course, go back to that backup. Usual system backup rules: What you get is an exact copy of what you had at the point you made the backup.

If you're coming close to your 30 days, and are the cautious type, you should consider rolling back (taking into account the disappearance of files in unusual places), then rolling forward again. That resets the clock, so you get an additional 30 days to see if you like the Win10 experience.

It's not clear how Microsoft sets the 30 day clock. You'd think it would be a Scheduled Task, but I looked high and low and couldn't find it. (I was anticipating a hack where you could re-schedule the task manually.) But what is clear is that once the files necessary to roll back are wiped out, you're SOL.

What to do if the wheels fall off

In my experience, the rollback to Windows 7 and 8.1 works remarkably well, given the caveats mentioned previously. I have heard of problems, though, ranging from icons that don't display properly on the recovered desktop, to missing data, to programs/drivers that aren't working correctly, even though they used to work fine.

If you can't get Windows to roll back and

Deep Dive

absolutely detest Windows 10, you're up against a very tough choice. The only option I've found that works reliably is to re-install your original version of Windows from scratch. On some machines, the old recovery partition still exists, and you can bring back your old version of Windows by going through the standard recovery partition technique (which varies from manufacturer to manufacturer), commonly called a "Factory restore." More frequently, you get to start all over with a fresh install of Windows 7 or 8.1.

That is a completely different can of worms. There are raging debates about the availability and legality of copies of Windows 7 — suffice it to say that Microsoft doesn't have any legal source of the bits for individuals. If you're very

lucky and you have the right kind of key, you can download an ISO of Windows 8.1 on an official Microsoft site.

I had a friend stuck in a similar situation, where Windows 10 was unstable. Rolling back from Win10 to Win7 left him with a system that constantly crashed. My suggestion: Back up his data as best he could, rerun the upgrade, then go to Windows 10. Inside Windows 10, run a Reset (Start > Settings > Update & security > Recovery), then "Remove everything / Removes all of your personal files, apps and settings." That triggers a clean install of Windows 10. He may not like Windows 10, but running that clean install made it substantially more stable. He learned to live with it.

Your mileage may vary, of course. ∎