

# The Complete Guide to Windows

**110  
PAGES  
OF ADVICE  
& TIPS**



# 7

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# Welcome

*...to the Complete Guide to Windows 7*



Windows 7 launched to much fanfare in late 2009, having first been available as a beta version that anyone could try. A first for a Microsoft operating system, this public airing was testament to the company's confidence that it had got Windows right this time. And feedback was—and remains—positive. Windows 7 is already Microsoft's most popular operating system so far, achieving a faster adoption rate than either Windows XP or Vista.

It offers a friendly face, is secure and stable, supports easy home networking and media sharing but also fulfils the needs of business users. Those knowingly stupid adverts in which everyday folk proclaim Windows 7 was their idea reinforce the message that the latest Windows is something they're proud to use. Having spent more than a year with Windows 7, getting to know its strengths and looking hard for weaker elements to criticise, we have to concur.

Windows 7 is our favourite version to date. As well as making merry with fun features such as Play To, which magically plays music stored on the PC through an Xbox in another room, we've admired the improved home networking and security features and the fact that it almost never falls over. Not something we could say about Vista, for example.

In this book, we share what we've discovered about Windows 7 and how to get the most from it. We've learnt a lot over the last year. So come with us as we explore, in depth, Microsoft's best ever OS.



*Rosemary Hattersley*  
*Editor*





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*Inside the OS*  
**What's new  
in Windows 7**

# Not flashy, just effective

*Microsoft's new operating system focuses on getting the basics right.*

**I**magine if a new version of Windows didn't try to dazzle you. What if, instead, it tried to disappear except when you needed it?

Such an operating system would dispense with glitzy effects in favour of low-key, useful new features. Rather than pelting you with alerts, warnings and requests, it would try to stay out of your way. And if any bundled applications weren't essential, it would dump them.

It's not a what-if scenario. Windows 7 does have a minimalist feel and attempts to fix annoyances. In contrast, Vista offered a flashy new interface, but its poor performance, compatibility glitches and lack of compelling features made some people regret upgrading, while others still refuse to leave Windows XP.

Windows 7 is hardly flawless. Some features feel unfinished; others won't realise their potential without heavy lifting by third parties; and some long-standing annoyances remain intact. But overall, it's the worthy successor to Windows XP that Vista wasn't.

We'll start this book by taking an in-depth look at how Microsoft has changed its OS, mostly for the better.

## THE TASK BAR

In everyday use, the Windows experience takes place mainly in the Taskbar, and especially in the Start menu and System

Tray. Vista gave the Start menu a welcome redesign; in Windows 7, the Taskbar and System Tray get a thorough makeover.

The new Taskbar replaces the old row of small icons and text labels with larger, unlabelled icons representing your applications. If you can keep the icons straight, the new design painlessly reduces Taskbar clutter. If you don't like it, you can always shrink the icons and/or bring the labels back.

In the past, while the Taskbar showed only those programs that were already running, you could set up one-click access to others by dragging their icons to the Quick Launch toolbar. Windows 7 eliminates Quick Launch and folds its capabilities into the Taskbar. Drag any app's icon from the Start menu or desktop to the Taskbar, and Windows will pin it there, so you can launch the program later without rummaging around in the Start menu. You can also organise icons in the Taskbar by moving them to new positions.

To indicate that a particular application on the Taskbar is actually running, Windows draws a subtle box around its icon—so subtle, in fact, that figuring out whether an app is live can take a moment, especially if its icon is pinned between two icons for currently running apps.

In Windows Vista, hovering the mouse pointer over an application's





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What's new in Windows 7



## ▲ The revamped Taskbar shows unlabelled icons for both running and “pinned” apps.

Taskbar icon produced a thumbnail window view known as a Live Preview. But when you have multiple windows open, you saw only one preview at a time. Windows 7's version of this feature is slicker and more efficient: hover the pointer over an icon, and thumbnails of that app's windows glide into position above the Taskbar, so you can quickly find the one you're looking for. (The process would be even simpler if the thumbnails were larger and easier to decipher.)

### JUMP LISTS

Also new in Windows 7's Taskbar is a feature called Jump Lists. These menus resemble the context-sensitive ones you get when you right-click within various

Windows applications, except that you don't have to be inside an app to use them. Internet Explorer 8's Jump List, for example, lets you open the browser and load a fresh tab, initiate an InPrivate stealth browsing session, or go directly to any of eight frequently visited Web pages. Non-Microsoft apps can offer Jump Lists, too, if their developers follow the guidelines for creating them. For example, Firefox has its own Jump List, which gains additional features in version 4.

Other Windows 7 interface adjustments are minor, yet so sensible that you may wonder why Windows didn't include them all along. Shove a window into the left or right edge of the screen and it'll expand to fill half of your desktop. >

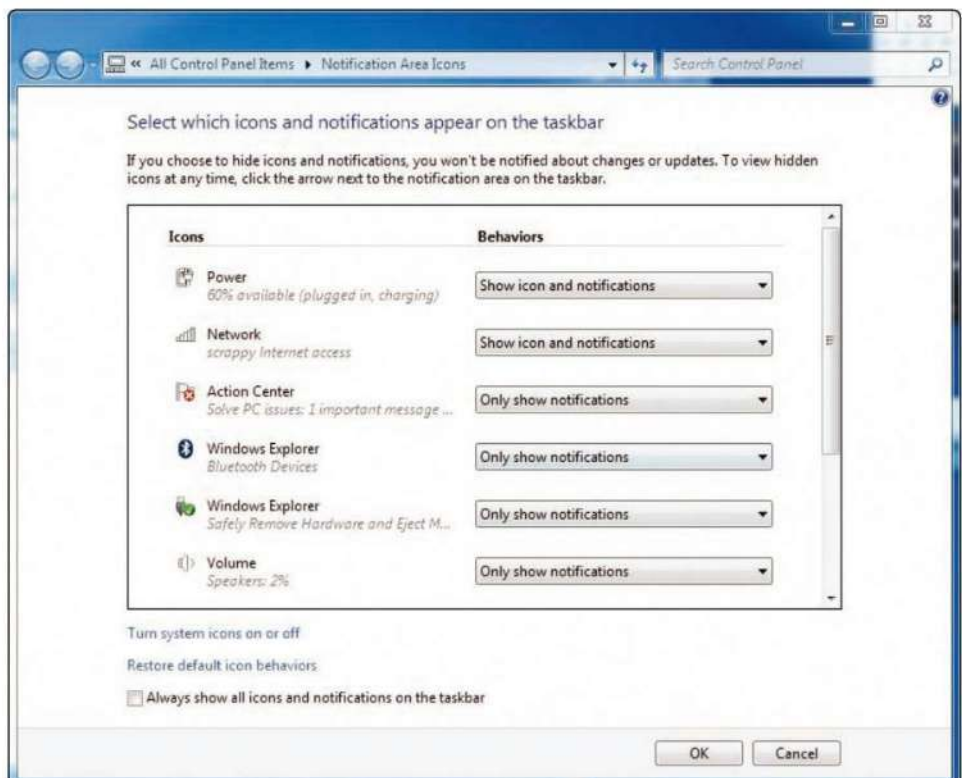
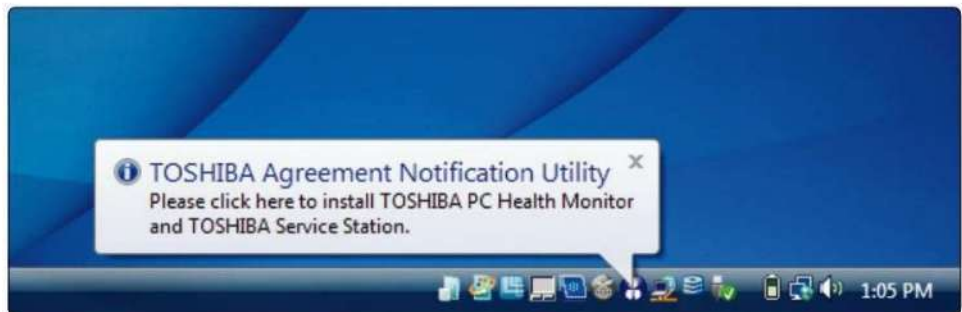
› Nudge another into the opposite edge of the screen, and it'll expand to occupy the other half. That makes comparing two windows' contents easy. If you nudge a window into the top of the screen, it will maximise to occupy the whole display.

The extreme right edge of the Taskbar now sports a sort of nub; hover over it, and open windows become transparent, revealing the desktop below. (Microsoft calls this feature Aero Peek.) Click the nub, and the windows scoot out of the way, giving you access to documents or apps

that reside on the desktop. This effectively duplicates the Show Desktop feature that Quick Launch used to offer.

Getting at your desktop may soon become even more important than it was in the past. That's because Windows 7 does away with the Sidebar, the portion of screen space that Windows Vista reserved for Gadgets such as a photo viewer and a weather applet. Instead of occupying the Sidebar, Gadgets now sit directly on the desktop, where they don't compete with other apps for precious screen space.

► **Vista's System Tray (right) would rapidly fill up with icons, many of them unwanted. In Windows 7 (below right), you can block selected icons from the Tray or thwart their pop-up alerts.**







## THE SYSTEM TRAY

Windows 7's Taskbar and window management tweaks are nice. But its changes to the System Tray—aka the Notification Area—have a huge positive effect.

In the past, no feature of Windows packed more frustration per square inch than the System Tray. It quickly grew dense with applets that users did not want in the first place, and many of the unwanted guests employed word balloons and other intrusive methods to alert users to uninteresting facts at inopportune moments. At their worst, System Tray applets behaved like belligerent squatters, and Windows did little to put users back in charge.

In Windows 7, applets can't pester you unbidden because software installers can't dump them into the System Tray. Instead, applets land in a holding pen that appears only when you click it, a much-improved version of the overflow area used in previous incarnations of the Tray. Applets in the pen can't float word balloons at you unless you permit them to do so. It's a cinch to drag them into the System Tray or out of it again, so you enjoy complete control over which applets reside there.

More good news: Windows 7 largely dispenses with the onslaught of word-balloon warnings from the operating system itself about troubleshooting issues, potential security problems and the like. A new area called Action Center—a revamped version of Vista's Security Center—queues up such alerts so you can deal with them at your convenience.

Action Center does issue notifications of its own from the System Tray, but you can shut these off if you don't want them.

All of this helps make Windows 7 the least distracting, least intrusive Microsoft OS in a very long time. It's a giant step forward from the days when Windows thought nothing of interrupting your work to inform you that it had detected unused icons on your desktop.

## LIBRARIES

Compared to the Taskbar and the System Tray, Windows Explorer hasn't changed much. However, its left pane does sport two new ways to get at your files: Libraries and HomeGroups.

Libraries could just as appropriately have been called "filing cabinets", since they let you collect related folders in one place. By default, you get Libraries labelled Documents, Music, Pictures and Videos, each of which initially directs you to the OS's standard folders for storing the named items, such as My Pictures and Public Pictures.

To benefit from Libraries, you have to customise them. Right-click any folder on your hard drive and you can add it to any Library; for instance, you can transform the Pictures Library into a collection of all your folders that contain photos. And you can create additional Libraries of your own from scratch, such as one that bundles up all folders that relate to your holiday plans.

Libraries would be even more useful if Microsoft had integrated them with Saved Searches, the Windows feature >





▲ **HomeGroups make it easier to set up a network, but they only work with other PCs that are running Windows 7.**

> (introduced in Vista) that lets you create virtual folders based on searches, such as one that tracks down every “.jpg” image file on your system. But while Windows 7 lets you add standard folders to a Library, it doesn't support Saved Searches.

## HOMEGROUPS

Closely related to Libraries are HomeGroups—a new feature designed to simplify the notoriously tricky process of networking Windows PCs. Machines that are part of one HomeGroup can selectively grant each other read or read/write access to their Libraries and the folders they contain, so you can perform such mundane but important tasks as providing your spouse with access to a folder of tax documents on your computer.

HomeGroups can also stream media, enabling you to pipe music or a movie off the desktop in the study onto your notebook in the living room. And they let you share a printer connected to one PC with all the other computers in its HomeGroup, which is very handy if you can't connect the printer directly to the network.

HomeGroups aren't a bad idea, but Windows 7's implementation seems half-baked. HomeGroups are password protected, but rather than inviting you to specify a password of your choice during initial setup, Windows assigns you one consisting of ten characters of alphanumeric gibberish and instructs you to write it down so you won't forget it. To be fair, passwords made up of random characters provide excellent security, and the only time you need the password is when you first connect a new PC to a HomeGroup. But it's still a tad peculiar that you can't specify a password you'll remember during setup—you can do that only after the fact, in a different part of the OS.

More annoying and limiting is that HomeGroups won't work unless all of the PCs in question are running Windows 7, a scenario that won't be typical any time soon. A version that also worked with XP, Vista and Macs would have been cooler.

Federated Search, a new Windows Explorer feature, feels incomplete, too. It uses the Open Search standard to give Windows 7's search feature “connectors” for external sources. That means you can search sites such as Flickr and YouTube from within Explorer. Pretty neat—except that Windows 7 doesn't come with any of the connectors you'd need to add these sources, nor any way of finding them. Many are now available, but you'll have to track them down using a search engine.

## SECURITY

Speaking of annoyances, let's talk about User Account Control—the Vista security >





## Windows 7's best features

*The new OS has lots of improvements. Here are ten that we like.*

- 1 The Taskbar reloaded** Windows 7's version of the Taskbar is less cluttered than Vista's, and it handles both running and nonrunning apps with equal aplomb.
- 2 Slicker, quicker Taskbar previews** Now they show you all of an application's open windows, all at once.
- 3 The convenience of Jump Lists** These context-sensitive Taskbar menus let you start accomplishing things in applications before you even open them.
- 4 A System Tray you can love** New controls prevent the System Tray from overflowing with unwanted apps and distracting you with irrelevant messages.
- 5 A more media-savvy Windows Media Player** Love Apple's iTunes Store but hate iTunes? New file format support enables Windows Media Player 12 to play back unprotected audio and video from Apple's online store.
- 6 Alerts via Action Center** Windows 7's version of Vista's Security Center queues system messages so you can respond to them on your schedule, not Windows'.
- 7 User Account Control control** If you're OK with this security feature's *raison d'être* but can't stand the rapid-fire prompts, you can now make it less paranoid.
- 8 Library privileges** You can bundle folders from locations all across your hard drive into Libraries that provide one-click access from the left pane of Explorer.
- 9 Reasonable hardware requirements** Historically, new versions of Windows have gobbled up twice the amount of CPU power and RAM. But Windows 7 runs a bit better than Vista on the same system; it's even tolerable on a netbook.
- 10 The potential of touch** Support for multitouch input lays the groundwork for an exciting new generation of touchscreen devices and apps.

> feature that came to stand for everything that rankled people about that OS. UAC aimed to prevent rogue software from tampering with your PC by endlessly prompting you to approve running applications or changing settings.

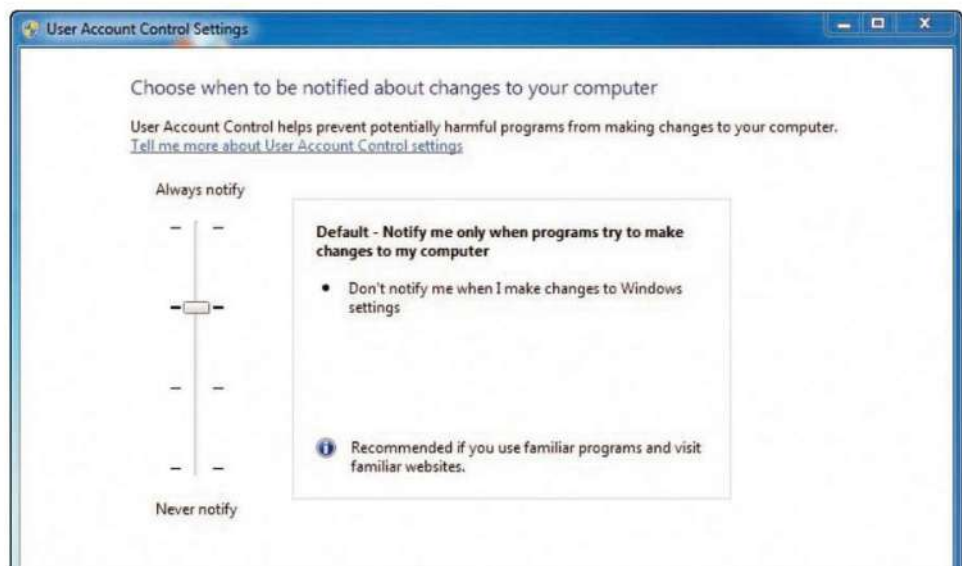
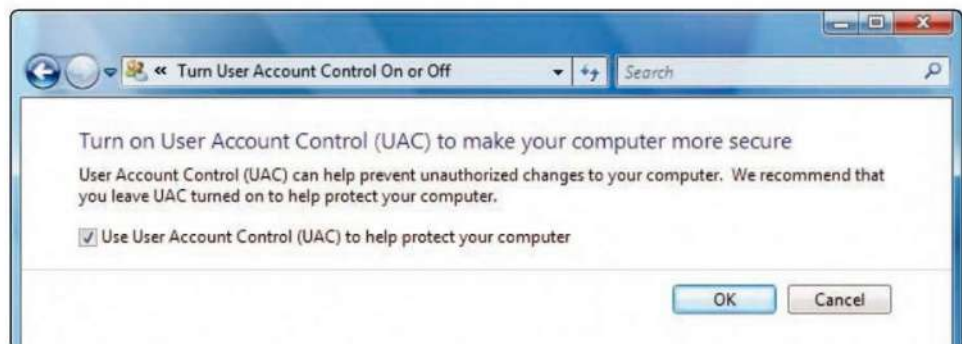
The experience was so grating that many users preferred to turn UAC off and take their chances with Internet attackers. Those who left it active risked slipping into the habit of incautiously clicking through every prompt, defeating whatever value the feature might have had.

Windows 7 gives you control over UAC, in the form of a slider containing four security settings. As before, you can accept the full-blown UAC or elect to

disable it. But you can also tell UAC to notify you only when software changes Windows settings, not when you're tweaking them yourself. And you can instruct it not to perform the abrupt screen-dimming effect that Vista's version employed to grab your attention.

If Microsoft had its way, you would still use UAC in full-tilt mode: the slider that you use to ratchet back its severity advises you not to do so if you routinely install new software or visit unfamiliar sites (don't we all?), and it warns that disabling the dimming effect is "Not recommended." Speak for yourselves—we have every intention of recommending the intermediate settings to most people,

► **User Account Control, new in Vista (right), was supposed to keep users safe from malware—but its constant prompts and screen dimming angered many people. In Windows 7 (below right), two intermediate settings let you retain UAC's security value while reducing its intrusiveness.**







since those settings retain most of UAC's theoretical value without driving users bonkers.

Other than salvaging UAC, Microsoft has made relatively few significant changes to Windows 7's security. One meaningful improvement is in BitLocker, the drive encryption tool that's included only in Windows 7 Ultimate and the corporate-oriented Windows 7 Enterprise. This lets you encrypt USB drives and hard disks, courtesy of a feature called BitLocker to Go. It's one of the few good reasons to choose the pricier Windows 7 Ultimate over Home Premium or Professional.

Internet Explorer 8, Windows 7's default browser, has many security-related enhancements, including a new SmartScreen Filter (which blocks dangerous websites) and InPrivate Browsing, which permits you to use IE without leaving traces of where you've been or what you've done. Of course, IE 8 is equally at home in XP and Vista—and it's free—so it doesn't constitute a reason to upgrade to Windows 7. The upcoming version 9 also works in Vista, but not XP.

## BUNDLED APPLICATIONS

Here's a startling indication of how different an upgrade Windows 7 is: rather than weighing it down with new applications, Microsoft has eliminated three non-essential programs that used to come as standard. Windows Mail (née Outlook Express), Windows Movie Maker (which premiered in Windows Me) and Windows Photo Gallery are all absent.

If you don't want to give them up, you can find all three at [live.windows.com](http://live.windows.com) as free Windows Live Essentials downloads. They may even come with your new PC, courtesy of deals that Microsoft is striking with PC manufacturers. But since they are no longer tied to the leisurely release schedules of Windows, they are far less likely than before to be mired indefinitely in an underachieving state.

Still present—and nicely spruced up—are the operating system's two applications for consuming audio and video, Windows Media Player and Windows Media Center. Windows Media Player 12 has a revised interface that divides operations into a Library view for media management and a Now Playing view for listening and watching stuff. Minimise the player into the Taskbar and you get mini player controls and a Jump List, both of which let you control background music without having to leave the app you're working in.

Microsoft has added support for several media types that Media Player 11 didn't support, including AAC audio and H.264 video—the formats it needs to play unprotected music and movies from Apple's iTunes Store. (Protected files, including the majority of video purchases, are still not supported).

Media Center is omitted from the bargain-basement Windows 7 Starter Edition, but—unlike with Vista—does come with all other editions of Windows 7. It remains most useful if your PC has a TV tuner card and you use it to record TV shows to hard disk. Among its enhance- >

# 10 things that still need fixing

*Microsoft, please think of this as a working to-do list for Windows 8.*

**1 Overall consistency** For a Microsoft product, Windows 7 is quite refined. But it still suffers from needless inconsistency. Why do most of its tools place menus on the left, while Internet Explorer 8 and the help system shove them over to the opposite side? Does "HomeGroup" have zero, one, or two capital letters? Why does Microsoft Office's Ribbon interface show up only in Paint and WordPad?

**2 The names of things** Too often, Microsoft's nomenclature confuses. "User Account Control" has nothing to do with the feature it's named after; "Action Center" sounds like Alan Partridge's local TV newscast; and an OS that already has a feature called Device Manager shouldn't call a new feature "Devices and Printers".

**3 Windows Update** The operating system's built-in patching capability is essential. But Windows Update also remains its most irritating feature. Tell it to download and install everything without

further intervention (as it recommends), and it may still insist on rebooting your PC when you are in the middle of important work—or deny you access to your computer altogether while it installs updates.

**4 Search** Windows 7's Federated Search lets you add external sources such as Flickr and YouTube to Windows Explorer searches. But the OS doesn't help you find those sources and doesn't mention Federated Search in its help system.

**5 Help** Talking of which, Help needs help. Some sections target nerdy command-line aficionados; others address clueless newbies. Few sections focus on intelligent-but-busy users of intermediate experience.

**6 Flip3D** Press Windows-Tab and you get Vista's fancy 3D task switcher, which pointlessly requires you to cycle through tasks one by one. This duplicates the functionality of Alt-Tab instead of

> ments are a better programme guide (EPG) and support for more tuners.

The new version of Paint, meanwhile, has Office 2007's Ribbon toolbar and adds various prefab geometric shapes

and a few natural-media tools, such as a watercolour brush. But our regimen for preparing a new Windows PC for use will still include installing the more impressive free image editor Paint.Net.





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What's new in Windows 7

letting you get to any task in a couple of clicks—as the Mac's Exposé does.

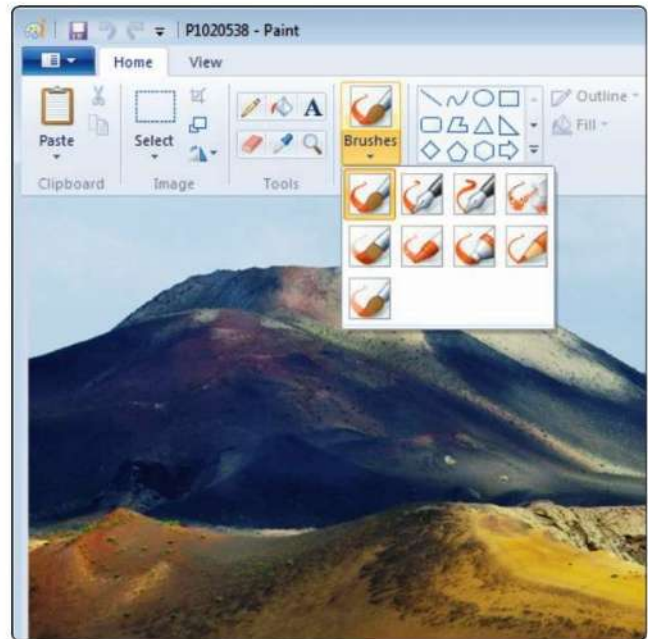
**7 Backup** Windows 7's Backup and Restore no longer requires you to devote an external hard drive to a full system backup. But Microsoft's decision to put network backup only in Windows 7's priciest editions is just silly.

**8 Versionitis** Selling multiple editions is fine in theory. But their arbitrary differences and names invite confusion. Windows 7 "Home Premium" is actually the *only* home version you can buy.

**9 Internet Explorer 8** Windows 7's bundled browser is adequate, but it's playing catch-up with innovative competitors such as Firefox and Google's Chrome, not setting new standards.

**10 Document viewing** Like Vista, Windows 7 lets you create application-independent documents in Microsoft's PDF-like XPS format. But PDF is pervasive and XPS hasn't caught on, so wouldn't it be more convenient if Windows 7 supported PDF out of the box?

The nearest thing Windows 7 has to a major new application is the intriguingly monikered "Windows XP Mode". It's not a way to make Windows 7 look like XP—you can do that with the Windows



▲ **Paint, like WordPad, is updated with new tools and the Ribbon interface.**

Classic theme—but rather a way to let it run the minority of XP programs that would otherwise be incompatible with Windows 7. Unfortunately, only Windows 7 Professional, Enterprise, and Ultimate offer XP Mode, and even then it comes as an optional 350MB download that requires you to have Microsoft's free Virtual PC software installed and only works on PCs with Intel or AMD virtualisation technology enabled in the BIOS.

Once active, XP Mode lets Windows 7 run apps that normally balk at finding themselves in an unfamiliar operating system by launching them in separate windows that contain a virtualised installation of XP. Microsoft clearly intends this to serve as a security blanket for business types who rely on ancient, often proprietary programs that may never be rewritten for current OSes. >

> Of more interest to the typical user is Windows' Backup app. Vista's oddly underpowered Backup and Restore Center allowed users to specify particular types of files to back up—such as Music and Documents—but not specific files or folders. Although Microsoft corrects that deficiency in Windows 7, it deprives Windows 7 Starter Edition and Home Premium of the ability to back up to a network drive.

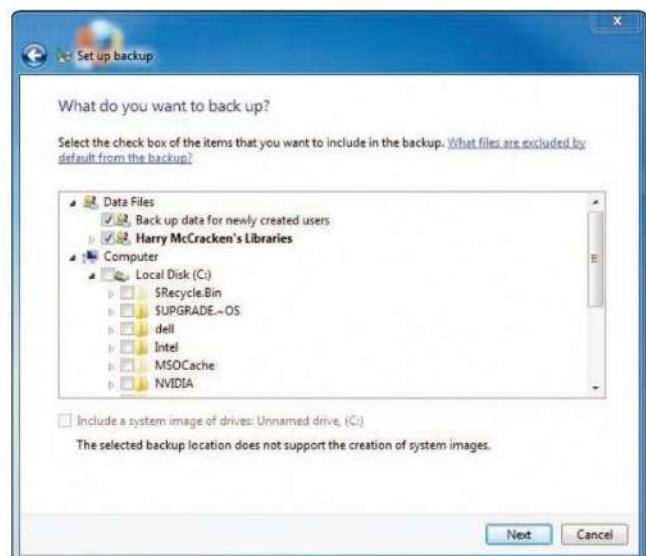
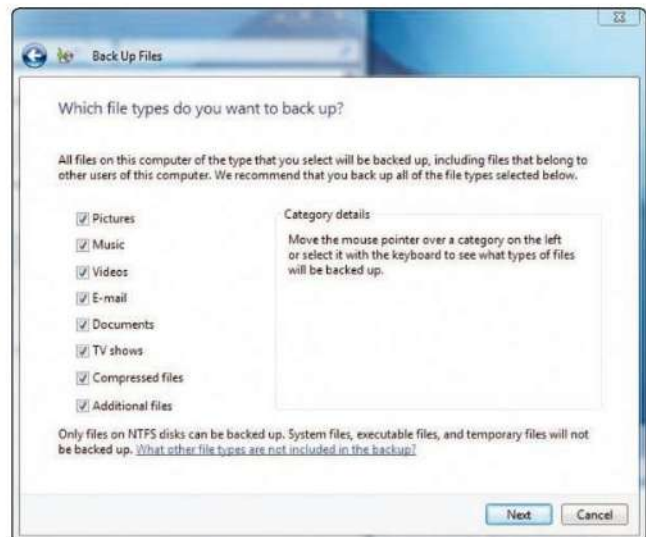
That feels mean, like a car company cutting back on a base model's airbags. It also continues a long streak of versions of Windows that lack a truly satisfying backup utility.

## DEVICE MANAGEMENT

Windows 7 offers you numerous ways to connect your PC to everything from tiny flash drives to hulking networked laser printers—via USB, Wi-Fi, Ethernet, slots and more.

Devices and Printers, a new section of the Control Panel, represents connected gadgets with the largest icons we've ever seen in an operating system. When possible, they're 3D renderings of the device; the one for our Sansa Clip MP3 player is almost life-size.

More importantly, the OS introduces Device Stages: hardware-wrangling dashboards tailored to specific products and designed by their manufacturers in collaboration with Microsoft. A Device Stage for a digital camera, for instance, may include a battery gauge, a shortcut to Windows' image-downloading tools, and links to online resources such as manuals,



▲ In Vista (top), Backup only allowed you to specify categories of files to back up. Windows 7's version of the app (above) gives you full file-by-file control.

support sites, and the manufacturer's accessory store.

You don't need to rummage through the Control Panel or Devices and Printers to use a Device Stage—that functionality is integrated into Windows 7's new Taskbar. Plug in a device, and it will show up as a Taskbar icon; right-click that icon,





and the Device Stage's content will at once appear as a Jump List-like menu.

Device Stages made a bad start by not working at all in the version of Windows 7 initially supplied to us. Now that the teething troubles are fixed, there's still a question mark over whether, and how fast, hardware manufacturers will create Device Stages for their wares.

Microsoft says it's encouraging makers to concentrate their efforts on including Device Stages with upcoming products, rather than adding them to existing ones, which would mean you're unlikely to see any benefit at all until you invest in new kit. That's not necessarily so: Canon, for instance, has set about building them for most of its printers.

Other manufacturers, however, have been slow to offer Device Stages even for new products. Microsoft has now decided to help them out by providing a Device Stage Visual Editor to make the job easier. It remains to be seen whether this results in more Device Stages appearing—and indeed whether they actually offer much new functionality. When no fully-fledged Device Stage is available for a particular item, Windows 7 will still try to find you at least a basic or generic one.

## TOUCH

The biggest new user interface trend since Windows Vista shipped in January 2007 is touchscreen input. Windows 7 is the first version of the OS to offer built-in multitouch support.

These features are only available on PCs with the latest type of touchscreen,

and even then are quite subtle. But the difference they make to how you interact with applications is potentially huge. You'll be familiar with the principles if you've used an iPhone or iPad. Swipe your finger up or down to scroll through document files and Web pages; pinch or "unpinch" two fingers to zoom in and out. Dragging up on program icons in the Taskbar reveals their new Jump Lists, and the button that reveals the Windows desktop is a bit bigger on touchscreen PCs to help you hit it with a finger.

We tried Windows 7 on an HP TouchSmart all-in-one PC, and the touch features worked as advertised. But it's new applications written with touch as their primary interface that will determine whether this input method becomes useful and ubiquitous. Until they arrive, Windows will continue to feel like an OS built chiefly for use with a keyboard and mouse—which it is.

You might have expected Microsoft to lead the way by reinventing its own familiar tools, such as Paint and Media Player, for touch input. In fact, the closest it comes to that is with the Windows 7 Touch Pack, a set of six touch-based programs, including a version of Virtual Earth that you can explore with your finger and an app that lets you assemble photo collages. The Touch Pack isn't part of Windows 7, but will ship with some Windows 7 touchscreen PCs, and it's a blast to play with.

Still, ultimately the Pack is just a sexy demo of the interface's potential, not an argument for buying a touch computer >





▲ **Windows 7's support for multitouch displays enables a new generation of touch-based software. Microsoft's demo apps, including Collage, point the way.**

> today. Third-party developers won't start writing touch-centric apps in force until a critical mass of PCs can run them. With finger-ready machines already on the market from Asus, Dell, HP, Lenovo, Sony and others, the process has certainly begun, but touch input is still not commonplace. While it has certainly caught on in mobile devices, and is featured on an increasing number of laptops, users find it awkward on desktop screens. Apple's Magic Trackpad shows one way that a touchscreen interface can be operated without a touchscreen—but where all this will end up is anyone's guess.

### **IS WINDOWS 7 WORTH IT?**

Reading about a new operating system can tell you only so much about it. After all, Windows Vista had far more features

than XP, yet fell far short of it in the eyes of many users. To judge an OS accurately, you have to live with it.

After Windows 7 appeared, we spent several months running it on our PCs in multiboot configurations with Windows Vista and/or XP, so we had a choice each time we turned the computer on: should we opt for Windows 7 or an older version of the OS? In practice, the decision turned out to be easy to make, because Windows 7 is so pleasant to use.

So why *wouldn't* you want to run this operating system? Concern about performance is one possible reason, especially since Vista, on its launch, managed to turn PCs that had run XP with ease into lethargic underperformers. PC Advisor lab speed benchmarks on five test PCs showed Windows 7 to be faster than Vista, if only by a little; we've found it to be reasonably quick on every computer we've tried—even a basic netbook, once we upgraded it to 2GB of RAM. (With 1GB of RAM, it still worked, but a shade slower than XP.)

Here's a rule of thumb that errs on the side of caution: if your PC's specs qualify it to run Vista, get Windows 7; if they don't, avoid it. Microsoft's official hardware configuration requirements for Windows 7 are nearly identical to those it recommended for Windows Vista: a 1GHz CPU, 1GB of RAM, 16GB of free disk space, and a DirectX 9-compatible graphics device with a WDD M 1.0 or higher driver. That's for the 32-bit version of Windows 7; the 64-bit OS requires a 64-bit CPU, 2GB of RAM and 20GB of disk space.





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What's new in Windows 7

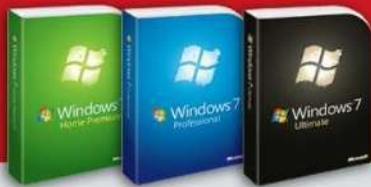
Fear of incompatible hardware and software is another understandable reason to be wary. One unfortunate law of operating system upgrades—which applies equally to Apple Macs and to Windows PCs—is that they will break some systems and applications, especially at first. Under the hood, however, Windows 7 isn't radically different from Vista. That should greatly reduce the volume of difficulties relating to drivers and apps compared to Vista's bumpy rollout. We've performed several Windows 7 upgrades, and most of them went off without a hitch. The gnarliest problem arose when we had to track down our own graphics driver for a Dell laptop: Windows 7 installed a generic VGA driver that couldn't run the Aero user interface,

and as a result failed to support new features such as thumbnail views in the Taskbar. (The Starter edition of Windows 7, supplied with some netbooks, enforces the same limitation to avoid taxing low-end hardware, and there's no option to turn it back on—one reason why we'd always prefer to choose at least Windows Home Premium if at all possible.)

Waiting a bit before making the leap made sense; waiting forever does not. Microsoft has taken far too long to come up with a satisfactory replacement for Windows XP. But whether you choose to install Windows 7 on your current systems or get it on the next new PC you buy, you'll find that it's the unassuming, thoroughly practical upgrade you've been waiting for—flaws and all. □

## Choose your version of Windows 7

*Windows 7 comes in six different versions, but only three are sold as retail products. Here's a quick look at what each option offers.*



Version	Full price	Upgrade price	Features
<b>Home Premium</b>	£149.99	£99.99	Windows Media Center, HomeGroup
<b>Professional</b>	£219.99	£189.99	Everything in Home Premium, plus Windows XP Mode, business domain network support, network backup
<b>Ultimate</b>	£229.99	£199.99	Everything in Professional, plus BitLocker data encryption and advanced support for 35 languages







# *Installation* **Moving up to Windows 7**

# How to upgrade to Windows 7

*Yes, you can do it without losing functionality—or gaining grey hairs.*



Upgrading your operating system always causes anxiety, and quite often disaster. But by taking the right precautions, gathering the needed materials, and hoping for the best while preparing for the worst, you can move to Windows 7 painlessly. Here's how.

We'll assume you've already made the decision, checked your hardware is compatible and bought your upgrade. If you haven't yet confirmed your PC can run the new OS, download and run the Windows 7 Upgrade Advisor from <http://bit.ly/win7adv>. As a general rule, if you're already running Vista you're probably OK.

You have one other early decision to make: do you want to upgrade your existing Windows installation, or go for a fresh install? The upgrade is certainly easier—your applications, settings and data travel with you, and there's little extra work. After a "custom" install, you'll have to set up your users and network, reinstall your drivers and applications (which means digging out boxes and discs), and return your backed-up data to its proper place.

A custom install, however, is cleaner. Windows accumulates garbage as you use it, and flushing it out every so often makes sense. So does starting a new version of the OS with a clean slate. Upgrades, in any case, only work between equivalent versions: for example, the 32-bit Home Premium edition of Vista to

32-bit Windows 7 Home Premium. If you're switching editions, or currently using XP, the choice has been made for you: a custom install is your only option.

You can choose between 32 and 64-bit at install time—both are supplied—but you can't easily switch later. 64-bit lets your PC access more than 4GB of RAM, an increasingly useful, if not vital, ability. But some existing devices have no 64-bit drivers available, which means they'd become useless, so look before you leap.

The following instructions cover both clean and upgrade installations. If you're moving from XP rather than Vista, read the next chapter first for extra tips.

## PREPARE YOUR PC

You've got a few chores to do before you insert that Windows 7 DVD. First, consider the driver issue. Almost every device you plug into your PC needs a software driver to make it work correctly. If you're upgrading from Vista, chances are you'll have no driver problems. If you're currently on XP, you almost certainly will.

Check that you can get Windows 7 or at least Vista drivers (which will mostly continue to work) for your display, audio and networking adapters. If you use a wireless keyboard or mouse, check the drivers for those as well. If in doubt, ask Device Manager: in XP, go to Start, right-click My Computer, select Properties, click





### ▲ The online Compatibility Centre helps you identify what will work with Windows 7.

the Hardware tab, then click the Device Manager button. Or in Vista, click Start, type **device manager** and press Enter. It's also important to check the drivers for your printers and scanners: without them, kit you use every day could be defunct.

Once you know the devices, how do you find the drivers? Check the Windows 7 Compatibility Centre, at <http://bit.ly/win7compat>. You can also check your devices' manufacturer websites—most will have drivers in a Downloads section.

Speaking of hardware and websites, now would be a good time to update your PC's firmware, especially if you're not in the habit of doing this on a regular basis. Go to your computer maker's site and hunt for system firmware updates. Follow

the instructions (and precautions) carefully to install the latest version.

No matter how good your precautions, operating system upgrades can go horribly wrong. Some important program or device won't work in the new environment. Windows 7 won't boot. Maybe you just don't like the new interface. Whatever the reason, you need a way to go back to where you were before, just in case.

An image backup of your hard disk offers an easy, dependable way to do just that, since it restores *everything* on the drive: Windows, applications, data, and even the Master Boot Record. To create one, you'll need an external hard drive and an image backup program. A good option is the free version of Macrium >

› Reflect, although other image backup apps will do. Plug in the external hard drive first, and select that drive as the backup destination. Be sure to take the option to create a bootable rescue CD (this option is on Macrium Reflect's Other Tasks menu) before you start the upgrade.

An image backup of a big hard drive can take hours. Run it overnight, and plan to do the upgrade the following morning.

## SAVE YOUR STUFF

Good morning! If you're doing a simple upgrade, that's all the prep work, so you can skip down to "Run the upgrade", below. But if you're planning a clean (aka custom) install, you've got more to do before you begin.

You first need to gather up installable versions of all of the programs on your hard drive that you want to keep. If you bought an application from a shop as a physical package, you'll need the disc. If you downloaded the program, you'll have

to either find the installation file or download the latest version (really your best option). We suggest you make a stack of physical programs on your desk and put all the downloaded files into a folder in My Documents.

You'll also need the licence or product ID number that proves you purchased each program. In a physical package, this is probably on the disc sleeve or on a card in the box. If you bought the software online and downloaded it, it's probably in an email that hopefully you didn't delete.

What if you can't find the licence key? Open the program and go to Help, About. There's a good chance your licence or ID will be displayed there. Jot it down and triple-check it for accuracy. If all else fails, contact the vendor and ask if they can resupply your licence number. This should be straightforward if you registered the product and put your personal information on file; if not, be ready for some polite negotiation.

► **The Upgrade Advisor utility checks your PC's hardware, software and peripherals and lets you know if anything isn't up to scratch for the new operating system.**







▲ **Upgrade is the faster option, but Custom gives Windows 7 a fresh start.**

A utility called Product Key Explorer (<http://www.product-key-explorer.com>) might also help, although in our experience it doesn't always. The free demo version can't print or save what it finds, so you'll have to write down the numbers by hand or pay the \$30 (£19) registration fee.

## RUN THE UPGRADE

Are you ready? It's time to take a deep breath, bite your lip, and step forward into the next generation of computing.

There are two ways to start the installation: you can boot your PC from the Windows 7 Upgrade DVD, or you can insert the DVD while in your current version of Windows and start from there. If you're doing an upgrade installation, you have to start from inside Windows. For a custom install, either way is fine.

Exactly what pages the installation wizard displays, and in what order, will depend on how you started the installation, what's already on your PC and what choices you make. Here are some of the major options you'll see along the way.

**1** Early on, you'll get the option to either check for compatibility online or install. That first option brings you to the web page for the Windows 7 Upgrade Advisor. You should have run that by now. So click Install Now and get on with it.

**2** After agreeing to the 5545-word End User Licensing Agreement, you have to make the big decision: Upgrade or Custom install? We've explained the reasons to pick one or the other above.

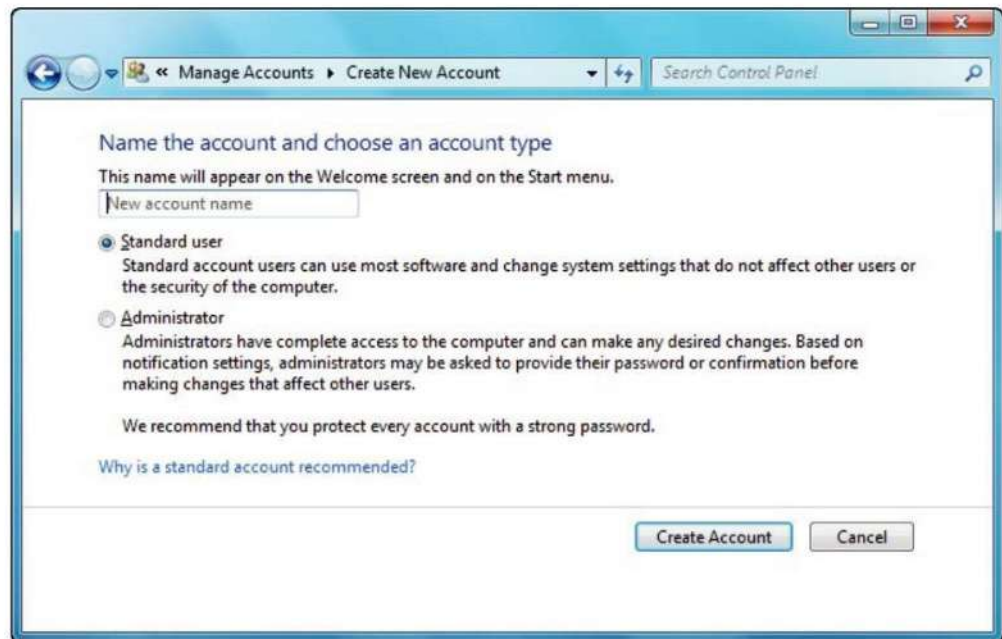
**3** You might be asked to choose a hard disk partition. Unless you're planning on a multiboot system, pick the one with your current version of Windows.

**4** If you're doing an Upgrade install, you'll now receive a compatibility report. It will warn you about certain issues (for instance, if you use Windows Mail, it will inform you this is no longer included). It may also tell you to cancel the upgrade and uninstall a problematic program or driver. Best do what it says.

**5** If you're doing a clean install, a warning box will tell you that you're about to lose your existing version of Windows. You're not, as long as you made an image backup. The warning will also reassure you that you won't lose your files. They'll be moved to a new folder called C:/Windows.old. Be glad they are.

When the Installing Windows box appears with its list of automated tasks ("Copying Windows files", "Expanding Windows files" and so on), get up, jog, >

► After a clean install, you'll need to recreate any user accounts you previously had set up in Windows.



> read a book, or take a nap. It could easily be an hour—and maybe more—before you're needed again.

**6** The wizard will eventually come back, now running in Windows 7 on your hard drive. Its next set of questions will be pretty self-explanatory, but a couple are worth noting.

You don't have to enter the Product Key when asked, although you will have to enter it eventually to keep your copy of Windows 7 running. If you click Next with the field blank, then click No, the install will continue. You can always enter the Key and activate Windows after it's up and running and you're sure you like it.

**7** One page, titled "Help protect your computer and improve Windows automatically", offers options for how Windows will update itself. We recommend the middle option, Install important updates only.

When the wizard is done, your PC will reboot (not for the first time in this install, but for the last) and bring you up in a full, interactive version of Windows 7.

Congratulations! If you did an Upgrade install, you're almost finished. For a Custom install, you still have some way to go.

## SETTINGS AND DRIVERS

Lean back and admire the new look of Windows 7. It's really quite lovely.

Unless, of course, the resolution is too low and all the objects on screen are too big. If so, right-click the desktop and select Screen resolution to fix the problem. You may have to do this again after reinstalling your video drivers, but you may not, and it's easy enough to do twice.

Check the lower right corner (where the System Tray used to be) for a flag icon. If you see it, click it for a problem report. It will probably just tell you that you need antivirus software—as you already





know—and that the new Windows Defender has yet to scan your computer. But it might give you some actual, useful advice.

With that taken care of, it's time to deal with your drivers. If you chose an Upgrade install from Vista, you'll probably just check Device Manager and discover that everything is fine. If you did a clean upgrade from Vista, any problems you find should be easy to fix. If you started from XP, expect some major challenges.

However you upgraded, select Start, type **device manager** and press Enter. Do the following for any item that's accompanied by a yellow exclamation point: double-click the item, then click the Update Driver button. Select Search automatically for updated driver software and wait for the results. Hopefully, that will fix the problem.

If it doesn't, and you did a clean install from Vista, click the Update Driver button again. This time, click Browse my computer for driver software. For the path, enter **C:\Windows.old\Windows**, make sure that Include subfolders is checked, then click Next. Chances are, this will work.

Why? Because along with your data, the installation program moved all of your Windows files to C:\Windows.old—including all, or at least most, of your old drivers. But the installation program doesn't know enough to look for drivers where it put them. But this won't work if you upgraded from XP, even though the old drivers are still in subfolders of C:\

Windows.old. Windows XP drivers aren't compatible with Vista.

If you've come from XP, before going any further you should install and update your security software—antivirus, firewall and so on. You're about to do some heavy web surfing, and you need protection. Then go back to the Windows 7 Upgrade Advisor and look up the device there. If that doesn't help, search on the device name and Windows 7 driver. Or even the device name and Vista driver.

If you did an upgrade install, you can skip to "Final reminders", below. If you did a clean install, your next job is to reinstall all of your programs.

## APPLICATIONS AND DATA

We told you to gather them up beforehand; now it's time to get them back. The downloaded files, which you stored in a subfolder of My Documents, will now be in a subfolder of C:\Windows.old\Documents or Settings\Logon\My Documents.

Start with your security software, if you haven't reinstalled it already. Do the others in any order. Make sure you have the licence keys handy. And after each program is installed, check for updates.

You will have created a logon for yourself near the end of the installation process, but if other people use your PC and have had their own logons in the past, you'll need to recreate them. If you can't remember all the user names, use the folders inside C:\Windows.old\Users (C:\Windows.old\Documents and Settings if you upgraded from XP) as a reference. To create additional user logons, go to >

› Start, Control Panel and click Add or remove user accounts. You don't have to create a Public or shared account—it's already there.

Now you're ready to restore your data. Luckily, thanks to that C:\Windows.old folder, this is pretty easy. Select Start, type C:\users and press Enter. If you don't

already have the C:\Windows.old\Users (or C:\Windows.old\Documents and Settings) folder open, open it now.

At this point, you have two Explorer windows open. The Windows.old one, which we'll call the *source*, contains your data. The C:\users window, which we'll call the *target*, is where your data should

## Windows 7 upgrade checklist

*Confirm that you have all the following to hand before you start.*

- ✓ **A compatible PC** If your machine is running Vista, chances are it can run Windows 7. But to make sure, or if you're currently on XP, use the Upgrade Advisor.
- ✓ **Upgrade disc and product ID** Sorry, you'll have to buy the upgrade to upgrade.
- ✓ **Image backup software** If the installation goes horribly wrong, an image backup can take you back safely. Try the free version of Macrium Reflect.
- ✓ **An external hard drive** To store that image, look for an external drive that has at least as much capacity as your internal hard disk. They're cheap these days.
- ✓ **Pencil and paper** There are things you'll need to jot down as you go along.
- ✓ **Your programs in installable form** You can skip this one if you're doing an upgrade install, but if you want to start Windows 7 off with a clean slate, you'll need to reinstall every program currently on your PC that you want to keep.
- ✓ **Time** If you're lucky, you could have Windows 7 up and running in a couple of hours. But for a clean install it could take all day—and that will be a day you're stuck around your PC while having little or no access to it. Make sure you can afford that.
- ✓ **A good book** You'll be spending a lot of that time waiting...





end up. Do the following for each folder named for a person who uses your PC.

Open the respective folders in each Explorer window (so the source window is open to `C:\Windows.old\Users\name` and the target to `C:\Users\name`). Make sure hidden folders are indeed hidden: if you see an AppData folder in the target, go to Organize, Folder and search options. Click the View tab and select Don't show hidden files, folders, or drives, and click OK. (You can change this back later.)

Now drag all the folders—but not the individual files—from the source to the target. You'll get a lot of questions as the files move. When Windows says you need administrator permission, make sure Do this for all current items is checked and click Continue. If you're told "The destination already contains a folder named...", check Do this for all current items and click Yes. If you're told there's a file with the same name, check Do this for the next *nn* conflicts and click Move and Replace.

Windows XP keeps pictures, music and videos inside folders within My Documents, while Vista and 7 store them separately. You'd expect that to cause problems, but Windows 7 is smart enough to put everything in the right place.

When you've done the user folders, repeat the steps for the Public folders. If you upgraded from XP, your source won't have a Public folder, but it will have a shared folder: move the folders from there to the target's Public folder.

At this point, Windows 7 is finally ready to use. But keep the Windows.old folder around for a few months. There



▲ **After a clean install, you'll need to check your drivers and system settings.**

may still be something important inside—especially in the hidden AppData or Applications Data folder.

## FINAL REMINDERS

If you didn't enter your product ID and activate Windows 7 during installation, now would be a good time to do it. Select Start, type **activate** and press Enter. Click Activate Windows online now and follow the prompts.

One last suggestion. Once Windows 7 is set up the way you like it, create another image backup, and keep this as long as you have the PC. If you ever need to reinstall Windows later, you can restore the image and skip several steps. □

# Moving up from Windows XP

*Upgrading from XP is not as straightforward as from Windows Vista.*

**Y**ou had good reason to stick with XP and skip Vista. But now that Microsoft has a new operating system that's worth switching to, you're at a disadvantage, because you'll have to perform a clean install of the OS. Here are the issues you need to be aware of.

## HARDWARE AND SOFTWARE

Your PC may not be up to running Windows 7, and even if it is, the drivers for your components and peripherals won't work, because Windows 7 simply can't use XP drivers. Before contemplating the upgrade, it's vital to run the Windows 7 Upgrade Advisor to see what will and won't work. Also check the Windows 7 Compatibility Centre. There's more on both of these in the previous article.

Upgrading your motherboard's firmware also becomes more important.



**▲ As you'll be warned by the installer, there is only one method of moving from XP to Windows 7: a clean installation.**

Check your system manufacturer's website to see if an update is available.

Not all XP applications will work in Windows 7 (as, indeed, they may not have done in Vista). Again, the Compatibility Centre can generally tell you what works, what doesn't, and where you can download the necessary patches. If you have bespoke business software, its supplier may be the only source of information.

Got essential apps that aren't compatible? Windows 7's XP Mode could be the solution. This runs XP in a virtual machine inside Windows 7, and is more integrated than most virtual machines. For instance, XP and 7 applications appear together on the same desktop. But XP Mode may not work on your PC: its CPU must have virtualisation capability, and you'll need to turn it on. Find out more at <http://bit.ly/virtualcpu>. XP Mode doesn't ship with Windows 7, but is available as a free download with a full version of XP; the catch is that the Home Premium edition of Windows 7 doesn't support it, so you'll have to go for one of the pricier business-oriented editions.

## FILE LOCATIONS

Be aware that Windows 7 stores your data files in different locations. The XP folder C:\Documents and Settings is now C:\Users. Application Data is now the abbreviated AppData. Local Settings\





## To switch or not to switch

*Some XP users think there's life in the old OS yet. But how much?*

Windows XP is the most popular operating system Microsoft has ever produced. Given the apathetic reaction to its successor, Vista, it's hardly surprising that many people have chosen to stick with it up to now. Microsoft, however, is determined to move on, and since July 2010 neither the original incarnation of XP nor Service Pack 2 are officially supported.

You can extend the life of your XP system a little longer by updating it with Service Pack 3, which you can get from <http://update.windows.com> or through Windows Update on your PC. Unlike SP2 (which was almost a new operating system), this is merely an accumulation of updates and fixes, but we recommend you install it so you can get ongoing support. Microsoft will continue to back XP SP3 until 8 April 2014.

Another way to keep your existing system running for as long as possible is to install Microsoft's Fix it Center. This is similar to the new Action Center in

Windows 7, but works in XP and Vista and allows you to troubleshoot your own PC by diagnosing problems and then offering to address them. You can download Fix it Center from the Microsoft Support site at <http://tinyurl.com/y24ptxz>. Once it's installed, you'll be prompted to run a check of what's installed on your computer. It will then make suggestions about what can be made to run better.

When we ran a test on our three-year-old Windows XP SP3 machine, Fix it Center came up with eight troubleshooting suggestions, none of which required major Registry changes. We got recommendations for handling web pages in Internet Explorer, fixing issues with our CD/DVD burner and making video play smoothly in Windows Media Center.

Some users will also find it helpful to create a Fix it Center Online account so that future issues can be picked up based on your Windows history. You'll need to set up and log in with a Windows Live ID.

Application Data is now AppData\Local. And your Music, Pictures, and Videos folders now sit beside My Documents rather than inside it.

As we described in the previous article, the Windows 7 installer will move all of your existing folders to C:\Windows.old. You may need to remember, as you

try to get your new program installations together with your old data, that the Outlook.pst file that's now in C:\Windows.old\Documents and Settings\yourname\Local Settings\Application Data\Microsoft\Outlook belongs in the new location C:\Users\yourname\AppData\Local\Microsoft\Outlook. □

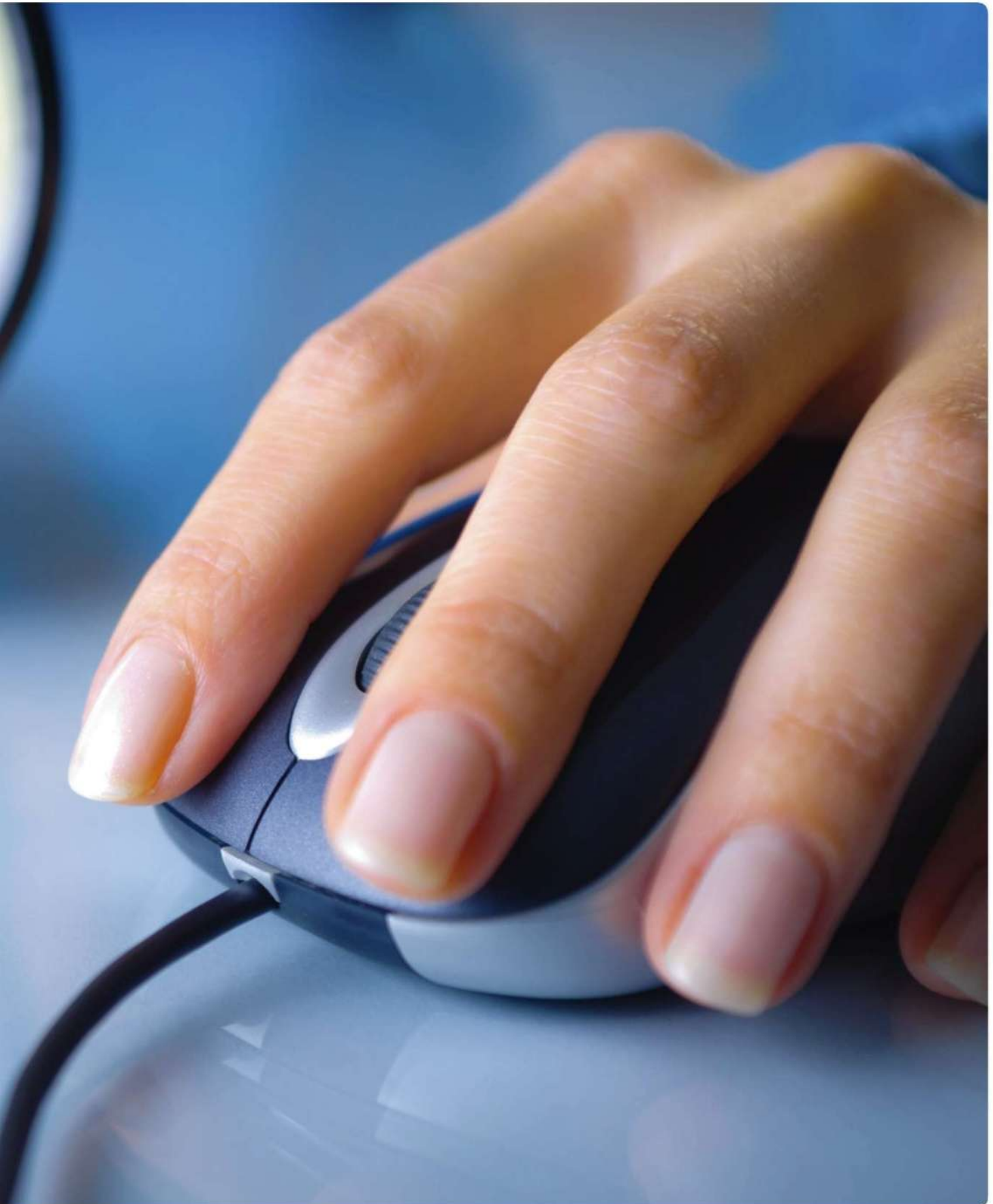


*Performance*  
**How fast is  
Windows 7?**





3



# Windows 7 versus Vista

*We tested the new OS's performance against its predecessor.*

**M**ost users didn't rate Windows Vista as particularly speedy. Whether or not it deserved the reputation, word on the street was that it was both slow and bloated—one reason why many people chose not to bother upgrading. So it's no wonder that improving performance was one of Microsoft's main design goals with Windows 7.

Did it succeed? PC Advisor carried out a series of evaluations to find out. And yes, we found an increase in speed—though the overall improvement wasn't dramatic. We also found differences in startup time and laptop battery life.

We installed Windows 7 on five PCs (two desktop systems, two laptops and a netbook) and put each through our WorldBench 6 benchmark suite. This consists of a number of tests that assess a machine's performance in popular real-world applications. We also ran timed tests to measure how the choice of OS affected bootup and shutdown times, battery life, and the launch times of several common apps.

In "How we tested Windows 7", overleaf, you can find out exactly how our tests were carried out. Read on to find out all about the results we recorded. Spoiler: Windows 7 showed some performance gains over Vista—but in one area the new OS actually lagged considerably behind its predecessor.

## THE RESULTS

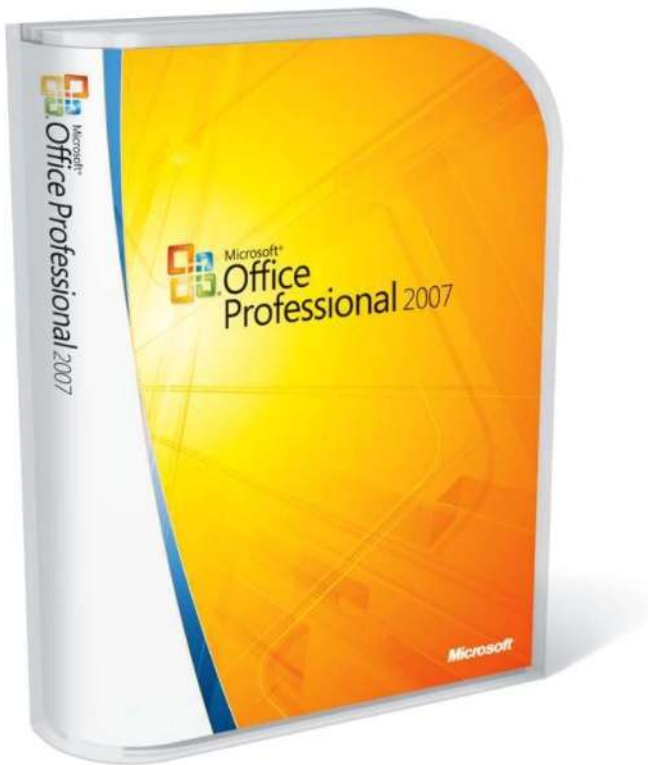
As we've already hinted, Windows 7's performance improvement over Windows Vista, on the same hardware, proved to be slight. But the important thing is that there is an improvement at all. In general, new operating systems tend to demand more of the hardware they run on, and therefore deliver lower performance unless you upgrade your system.

On our high-end desktop (with a 2.66GHz Intel Core i7 processor over-clocked to 3.8GHz), Windows 7 Ultimate 64-bit earned a WorldBench 6 mark of 144, narrowly edging Windows Vista Ultimate 64-bit, which scored 139. Here Windows 7 was roughly 3.6 percent faster.

When comparing the two versions of Windows on our mid-range desktop (with a 2.6GHz Pentium Dual Core E5300 CPU), we tested both the 32-bit and 64-bit editions of Windows Vista Ultimate and Windows 7 Ultimate. With the 32-bit OSes, our WorldBench 6 score increased just a little in Windows 7, from 104 under Vista to 106. But when we compared the 64-bit versions, WorldBench 6 recorded a somewhat larger boost with Windows 7, going from a score of 96 to 103.

We saw similar incremental performance improvements on our portable test PCs. With the 32-bit versions of Vista Home Premium and Windows 7 Home Premium, our budget laptop went from a





▲ **Our tests were based on real-world tasks in everyday applications, not abstract performance benchmarks.**

WorldBench 6 score of 58 in the older OS to a sprightlier result of 64. Our mid-range laptop's WorldBench 6 score under Vista improved by only one point with Windows 7 in our comparison of 32-bit Ultimate editions, going from 83 to 84, and when we tested the 64-bit editions we again saw a slightly greater boost, with the score increasing from 79 to 83.

## HARD DISK TESTS

We also tested hard disk performance, and here Windows 7 showed bigger gains. For example, in our disk-intensive WorldBench 6 Nero test, using the popular Nero media software, we created a series of images of an optical disc and then saved them. Every PC we tested

showed an improvement in the speed of this process in Windows 7 compared to Vista. In our comparison of the 64-bit versions of Vista and Windows 7, the higher-specified laptop completed the test twice as quickly with the new OS.

Even more impressively, our budget laptop was almost two-and-a-half times faster when upgraded, going from a time of 1648 seconds to complete the test in Vista to just 667 seconds on Windows 7.

This remarkable result didn't come as a complete surprise: we'd noticed a similar speedup in disk-intensive tests when we first tried an earlier evaluation release of Windows 7. The explanation must lie in the updated hard disk drivers supplied with the new OS.

One particular aspect of these results is worth noting. In our Vista tests, the 64-bit versions actually produced poorer disk performance than the 32-bit editions. With Windows 7, however, Microsoft has brought the 64-bit versions' disk performance more in line with that of the 32-bit editions. This explains the larger WorldBench 6 score advantages over Vista that we saw with 64-bit Windows 7 compared to those with 32-bit Windows 7.

## BOOTUP SPEED

Microsoft says that in Windows 7 it changed the way the operating system handles processes that start up automatically when you boot your computer. For some operations, it now employs a scheme called "trigger-start services". These are system services and processes that under Vista would have started up >

## How we tested Windows 7

*Who cares about technical measurements? It's real tasks that matter.*

Testing Windows performance isn't rocket science. Here's how the PC Advisor labs compared Windows 7 and Vista.

We ran our WorldBench 6 test suite on a set of five different PCs: two desktop systems (the high-end E&C Black Mamba and the mainstream HP Pavilion a6710t), two laptop systems (the budget Gateway T-6815 and the mainstream Lenovo IdeaPad Y530), and one netbook (the IdeaPad S10-2, also from Lenovo).

On the two desktops and two laptops, we compared Windows 7 against Vista. The netbook was supplied with Windows XP, and we tested Windows 7 against this to see how it coped with the machine's relatively low hardware specifications. For more on the results we saw, see "Windows 7 on a netbook" on page 41.

### REALITY CHECK

Unlike many benchmarks, ours is a real-world test. We run actual, commonly used applications, not synthetic, arbitrary test

programs, to give you a better idea of how well a machine will really perform in regular everyday use.

To test laptop battery life, we alternated between 15 minutes of typing and 15 minutes of full-screen video playback. We repeated this process until the battery died. We ran the test twice and then averaged the scores. If the scores differed by more than 10 percent, we ran the test a third time and took the closest two scores for the average.

For bootup and shutdown times, a member of the PC Advisor Test Centre team hand-timed our speed tests. To ensure accurate results, we repeated each test ten times and then took the average.

We measured startup times from when we pressed the computer's power button until the Windows desktop had loaded (defined for these purposes as when the mouse pointer and the desktop background appeared). We measured shutdown times from when we clicked the

> when you booted your PC, but now kick in only as needed. One example Microsoft gives is Windows 7's handling of Bluetooth: instead of launching at system boot, Bluetooth now starts up whenever you use a Bluetooth device with your PC.

Logically enough, reducing the number of services that start at boot time is supposed to reduce the time it takes to boot. In our bootup tests using one desktop and one laptop machine, though, we saw mixed results. On our budget laptop,





Start menu's Shut Down button until the PC completely powered down and the power lights (if present) went dark.



To test application launch times we used Microsoft Word 2007 and Excel 2007 along with Adobe Photoshop CS4 (the latest versions at the time of testing, shortly after the release of Windows 7). Photoshop CS4 opened in 32-bit mode on 32-bit systems and in 64-bit mode on 64-bit PCs. For Word, we launched the program and then opened a two-page document. We used a similar process in Excel and Photoshop, opening a 10-page worksheet in Excel and both a PDF file and a JPEG image in Photoshop CS4. We ran these tests three times per application to ensure consistent results.

When measuring app launch times, we began timing when we clicked the program or document icon and stopped when the application was fully usable.

Windows Vista Home Premium 32-bit had the advantage, booting up in 39.6 seconds on average. Windows 7 Home Premium (also the 32-bit edition) took slightly longer, averaging 43.6 seconds. On our mid-range desktop, running the

64-bit edition of each OS, the outcome was reversed. The 64-bit edition of Windows Vista Ultimate Edition booted in 55.2 seconds, whereas Windows 7 Ultimate Edition 64-bit came out slightly ahead, booting in 48.3 seconds.

At first, we couldn't explain why the 64-bit edition of Windows 7 improved the bootup time over Vista (on the desktop) while the 32-bit edition of the new OS lagged behind its predecessor (on the laptop). In subsequent testing, however, we discovered that the 32-bit version of Windows 7 exhibited a similar speedup on the desktop PC, going from an average of 54.5 seconds with 32-bit Vista to 47.7 seconds with 32-bit Windows 7.

The conclusion: whether Windows 7 will start faster than Vista for you will depend on your particular computer's setup. It could go either way.

## SHUTDOWN TIME

As for the time taken to shut down, in our tests we observed no significant differences between Windows 7 and Windows Vista. On our budget laptop, the 32-bit version of Windows Vista Home Premium shut down in 11.72 seconds on average. The 32-bit version of Windows 7 Home Premium took 11.57 seconds to shut down—an improvement of just one-seventh of a second. Don't blink.

The results were just as tight on our mid-range desktop. 64-bit Vista Ultimate shut down in 9.1 seconds on average, while the 64-bit version of Windows 7 Ultimate took 9.0 seconds—an even tinier difference of one-tenth of a second. >

## Windows 7 versus Vista: the results

Test system	WorldBench 6 overall <i>Higher scores are better</i>		DirectX 3D rendering <i>Lower times are better</i>	
	Windows 7	Vista	Windows 7	Vista
<b>High-end desktop 64-bit</b> Intel Core i7 overclocked to 3.8GHz	<b>144</b>	139	<b>244</b>	263
<b>Mid-range desktop 64-bit</b> 2.6GHz Pentium Dual Core E5300	<b>106</b>	104	<b>375</b>	378
<b>Mid-range desktop 32-bit</b> 2.6GHz Pentium Dual Core E5300	<b>103</b>	96	<b>399</b>	404
<b>Budget laptop 32-bit</b>	<b>64</b>	58	<b>719</b>	1093
<b>Mid-range laptop 32-bit</b>	<b>84</b>	83	563	<b>515</b>
<b>Mid-range laptop 64-bit</b>	<b>83</b>	79	572	<b>532</b>

> To say that such results are too close to call would be an understatement: the differences are so minor that you wouldn't notice them even if you had the two operating systems running side-by-side on identical hardware.

Granted, bootup and shutdown times aren't as important today as they once were, now that many people use their computer's sleep or hibernate mode to avoid ever having to fully restart the system. But the number of updates issued by Microsoft for Windows 7, many requiring a restart, means you'll find yourself at the mercy of these delays more often than you might like—so a speed boost would have been welcome.

As it is, your mileage may vary, but our results indicate that you'll probably experience only slight differences from Vista, if any.

### BATTERY LIFE

Another aspect of performance that has been addressed in Windows 7 is energy efficiency. With the new operating system, Microsoft is introducing technology aimed at reducing your computer's energy consumption and thereby increasing laptop battery life.

This is achieved in a number of ways. For instance, in a procedure called "timer coalescing", Windows 7 will simultaneously perform certain routine tasks



**Firefox browser***Lower times are better*

Windows 7    Vista

**169**    171262    **256****264**    271443    **431**371    **305**373    **320****Nero media software***Lower times are better*

Windows 7    Vista

**203**    218**313**    365**314**    688**667**    1648**517**    703**530**    1127**WinZip file compress***Lower times are better*

Windows 7    Vista

**147**    153**203**    222**208**    219**449**    495**252**    313**253**    291

Bold numbers show better result: blue=Windows 7 win, red=Vista win. All times in seconds. Tests performed by PC Advisor Test Centre, August 2009, using final release version of Windows 7 vs Windows Vista Service Pack 2.

that require processor activity, which in turn allows the computer to spend more time in lower-power mode when nothing is running.

In our tests, the low-end laptop gained an additional 15 minutes of battery life on average with Windows 7. Running under Vista, it lasted an unimpressive two hours and 58 minutes on a single full battery charge; under Windows 7 it ran for a more commuter-friendly three hours and 12 minutes.

Don't get too excited, though. Our mid-range portable, in contrast, eked out an insignificant one-minute improvement over Vista with Windows 7. Of course, your individual system

performance gain will depend to a large extent on your particular machine. The main thing is that, on average, we did see longer rather than shorter times. At best, your laptop should gain a few extra minutes of run time; at worst, the battery life will be about the same as it was under Windows Vista.

**APPLICATION LAUNCH TIMES**

As our tests demonstrated, Windows 7 makes many modest performance strides beyond its predecessor. Our evaluations of the two OSes uncovered one notable exception to this encouraging rule, however: Windows 7 was consistently slower than Vista at launching applications. >

> In every application launch test, Windows 7 took between 0.7 and nearly seven seconds longer. The biggest difference was seen in the launching of Adobe Photoshop CS4 on our mid-range desktop running the 64-bit versions of Vista and Windows 7. Under Windows Vista Ultimate, Photoshop took an average of 2.7 seconds to open. Under Windows 7 Ultimate, it launched in 9.6 seconds. That's three-and-a-half times slower.

In our other application launch tests, the difference was no greater than 3.7 seconds on average—but still all in Windows Vista's favour. Keep in mind, though, that while the percentage

difference was sizable, the actual difference is only a few seconds.

You may notice the slow-down, but it isn't as big a deal as the numbers might suggest. And remember that these tests were carried out with applications that have since been superseded (by Office 2010 and Photoshop CS5). We can't yet say what the results would be with the latest versions, which may well have been optimised to play nicer with Windows 7.

### OVERALL: A FASTER OS

Although Windows 7's performance improvements may not blow anyone away, Microsoft's new operating system

## Windows 7 versus Vista: selected comparisons


**HARD DISK SPEED** Windows 7 showed big improvements in our disk-intensive Nero test. Averaged over all of our test PCs, performance nearly doubled compared to Vista.

<b>ALL MACHINES</b> Shorter bars are better	WINDOWS VISTA		792 secs
	WINDOWS 7		424 secs

**BATTERY LIFE** One laptop gained 15 minutes of life, another just one. Your results may vary.

<b>BUDGET LAPTOP</b> Longer bars are better	WINDOWS VISTA		2 hours 58 mins
	WINDOWS 7		3 hours 12 mins
<b>MID-RANGE LAPTOP</b> Longer bars are better	WINDOWS VISTA		3 hours 13 mins
	WINDOWS 7		3 hours 14 mins

**PHOTOSHOP STARTUP** Application launching was one area where Windows 7 failed to impress. Photoshop took two to three times longer to start—but it's a matter of seconds.

<b>BUDGET LAPTOP</b> Shorter bars are better	WINDOWS VISTA		5.32 secs
	WINDOWS 7		9.71 secs
<b>MID-RANGE DESKTOP</b> Shorter bars are better	WINDOWS VISTA		2.68 secs
	WINDOWS 7		9.55 secs

Blue bar=Windows 7 win, red bar=Vista win.





## Windows 7 on a netbook

*Can the most affordable of portables finally move on from XP?*

Microsoft promised that its new OS would run smoothly on netbooks. But to make it happen, and persuade reluctant manufacturers to switch from XP, it had to introduce a specially reduced Starter Edition.

The few netbook models that shipped with Windows Vista performed sluggishly in our tests. So how does Windows 7 fare? Starter Edition isn't quite as cut-down as its Vista counterpart—you're not limited to running three applications at once—but it still arbitrarily omits certain features. (No option to change the desktop background? Lame!) You might prefer a less hamstrung, but more expensive, edition of Windows 7. And if you're thinking of upgrading an existing netbook, that's your only option, because Starter isn't available to buy.

On the other hand, you could stick with Windows XP. We tested Windows XP



Home Edition and three editions of Windows 7—Starter, Home Basic (neither sold separately) and Home Premium—on a basic Lenovo IdeaPad S10-2 netbook with a 1.6GHz Intel Atom processor. As we expected, Windows 7 ran slightly slower than XP on this machine. Starter, specially made for netbooks (or, as Microsoft puts it, “low-cost small notebook PCs”), managed a score of 31 in our WorldBench 6 test suite, while the other two Windows 7 editions topped out at 30. With its original installation of XP, the Lenovo achieved a score of 33.

On a typical laptop a three-point drop wouldn't be very much, but on a low-end netbook it represents about 10 percent shaved off already lacklustre performance. However, some netbooks now have significantly better specifications. Our advice: if possible, try before you buy, and see how Windows 7 feels on the machine you're contemplating.

proved speedier overall with every computer we tested it on. Of course, our tests were limited to five machines out of thousands of possible configurations available on the market, so your day-to-day results may vary.

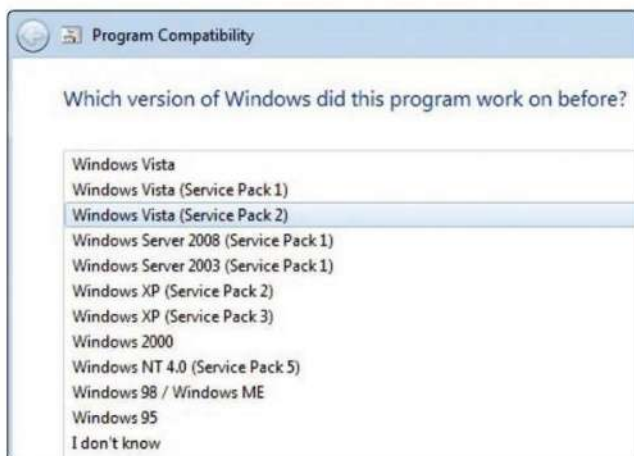
Even so, the most important part of our conclusion stands: Windows 7 is faster than Windows Vista. In a world where software upgrades are often performance downgrades, this may be the biggest Windows 7 feature of all. □

# Optimise your Windows 7 PC

*A few tweaks will squeeze the very best performance from the new OS.*

**A**s we've seen, Windows 7 comes with a slight performance improvement over its predecessor, Vista. But if you want to get the very best results possible, you need to make a few adjustments to eliminate resource-hogging programs and features. In this article, we'll show you a few good ways to make your PC run better under Windows 7 without upgrading your hardware.

First, a word of warning: a quick Internet search will lead you to plenty of advice for making the most of your OS, but beware—many of those suggestions are fool's gold, myths inherited from Vista and XP optimisation guides that could do more harm than good in Windows 7. In fact, a useful search to start with would be "Windows 7 performance myths".



**▲ Invoke Windows 7's Compatibility wizard to help it cope with older software, including Vista versions of drivers.**

The suggestions we offer here won't transform a rust bucket into a screaming new Porsche, but they should help you get some extra speed and space out of your Windows 7 system. If you intend to try additional modifications beyond these, don't be tempted by the more outlandish claims and tutorials you may find elsewhere. Confirm the facts about the changes you intend to make before you start doing anything, or you might find yourself in an undesirable (or even irreparable) situation. Windows doesn't always take kindly to being messed about with.

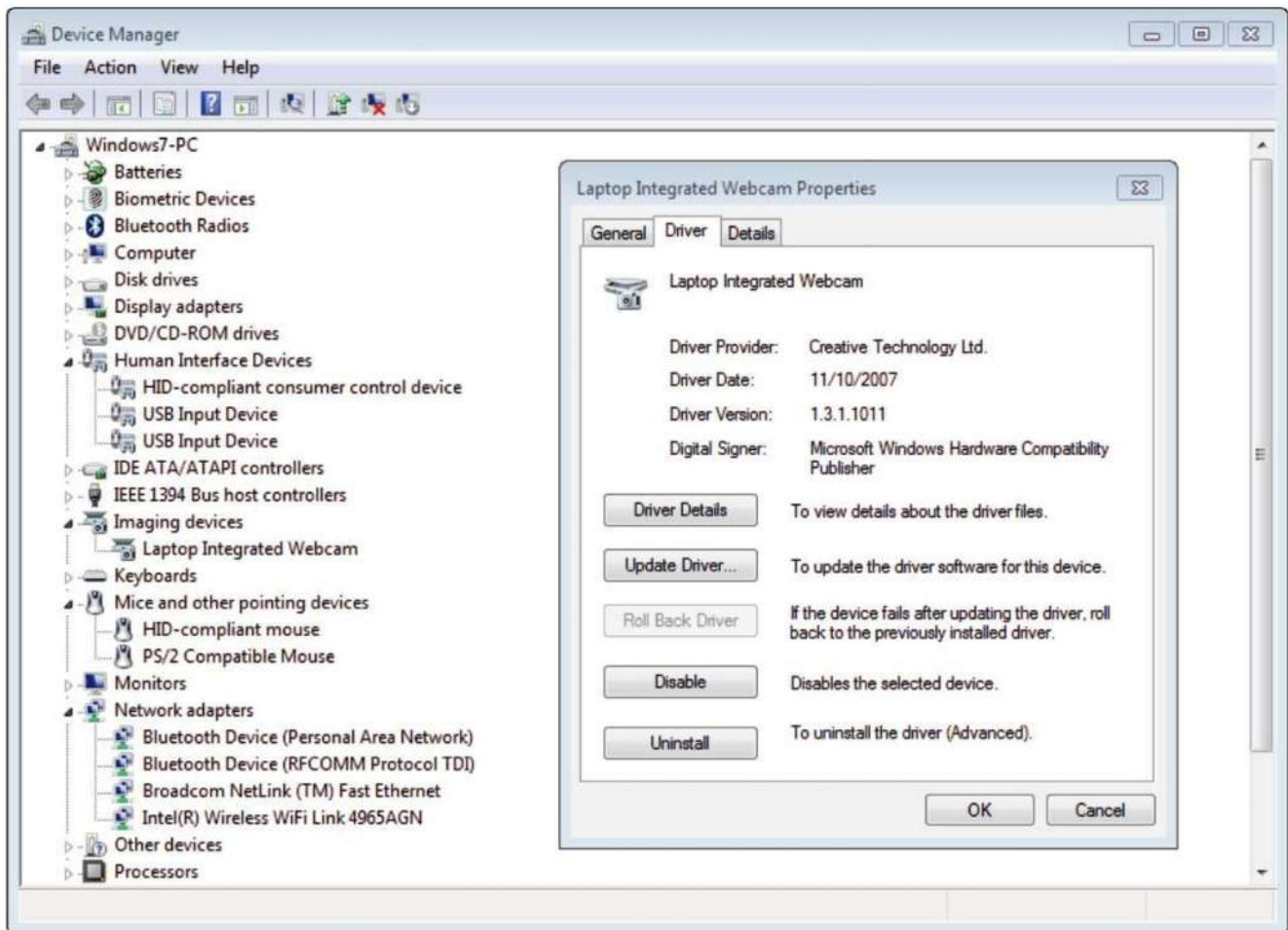
## AFTER THE UPGRADE

When you reach the first, fresh desktop after completing a successful Windows 7 installation, you might be surprised to find your components in perfect working order. For the most part, Windows 7 is pretty good about setting up drivers for networking, video, input devices and other essential elements.

Good—but not great.

To maximise your PC's performance, the first job is to hunt down and install new Windows 7 drivers for all of the critical components attached to your system. Motherboard drivers are the most important, especially if your system's video and sound are integrated onto the main board. If those components aren't integrated, and instead are provided by





### ▲ Run Windows 7's Device Manager to check out your drivers and find updates.

separate components, you'll need to add drivers for your video card and sound card to the list, followed by your input devices and any additional parts you've attached to your system since you bought it—including, but not limited to, a Wi-Fi adaptor, any PCI card devices and printers. If you're not sure what components you have, grab the free program Driver-Max (easy to find online) and use it to scan your system for components and for potential driver updates.

Can't find Windows 7 drivers for a particular product? Windows Vista drivers should work. If you run into trouble, try

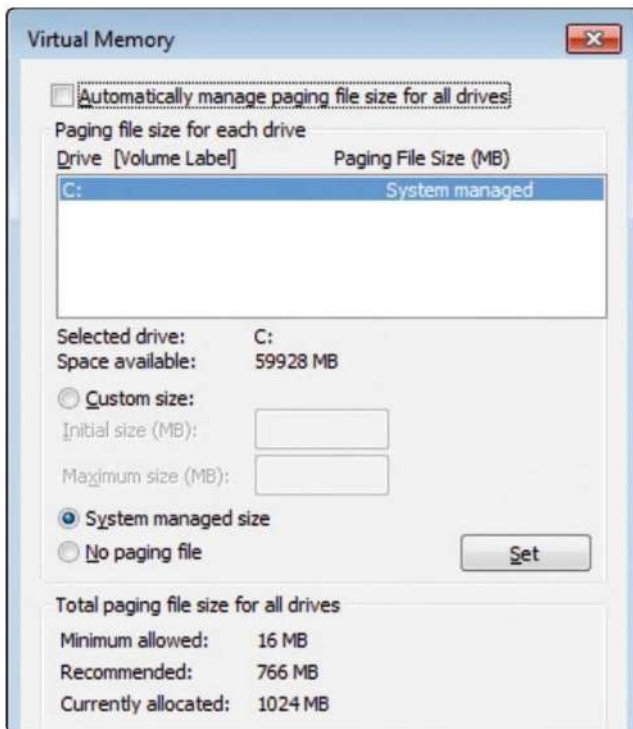
right-clicking on the executable file and left-clicking Troubleshoot Compatibility. Run through the wizard and select the option that refers to the program running fine in an earlier version of Windows but not in Windows 7. Select Windows Vista as the subsequent operating system, click Next through the offered prompts, and then run the installation executable again.

Finally, though it might sound odd, we'd be wary of using Windows Update to update drivers for your components and peripherals: Microsoft has a history of releasing old and/or incompatible drivers through this service. >

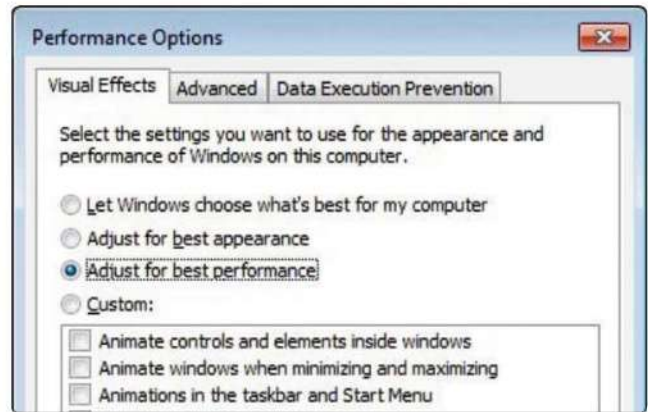
## SORT OUT YOUR STORAGE

If you installed Windows 7 as an upgrade from Windows Vista, you'll find a folder labeled C:\Windows.old. This folder, as you might expect, holds the full contents of your old Vista system. It's huge—and it's a waste of space. Scroll through the folders for any files you still need in your new Windows 7 system, then delete the entire folder from your drive. Space saved.

If your PC has multiple hard disks, you can boost performance by moving the location of the system's paging file from the drive containing the C:\ partition to a separate drive. To do that, open Control Panel and choose System. From there, click Advanced System Settings. Select the Advanced tab, then click the



▲ **Moving Windows' paging file to a drive that doesn't contain the operating system itself will improve performance.**



▲ **If you're willing to sacrifice the pretty looks of Windows 7, you can boost speed by disabling some or all of its eye candy.**

Settings button under the Performance category. In the new window that pops up, choose the Advanced tab.

Finally, click Change. Uncheck the box labelled "Automatically manage paging file size for all drives". Select C: from the Drive box and switch it to the No paging file option. Next, select a different hard drive and choose System managed size. Click OK and restart your computer.

## IMPROVE THE INTERFACE

A sneaky way to create a faster Windows 7 experience is to modify the amount of time that mouseover boxes and clicked menus take to appear. Click the Start button and type **regedit** into the Search programs and files box.

Welcome to the Windows 7 Registry! Don't touch or modify anything without good reason. Left-click on the disclosure triangle next to HKEY\_CURRENT\_USER. Expand the Control Panel folder, then click directly on Desktop in the hierarchical list. In the right-hand pane, look for





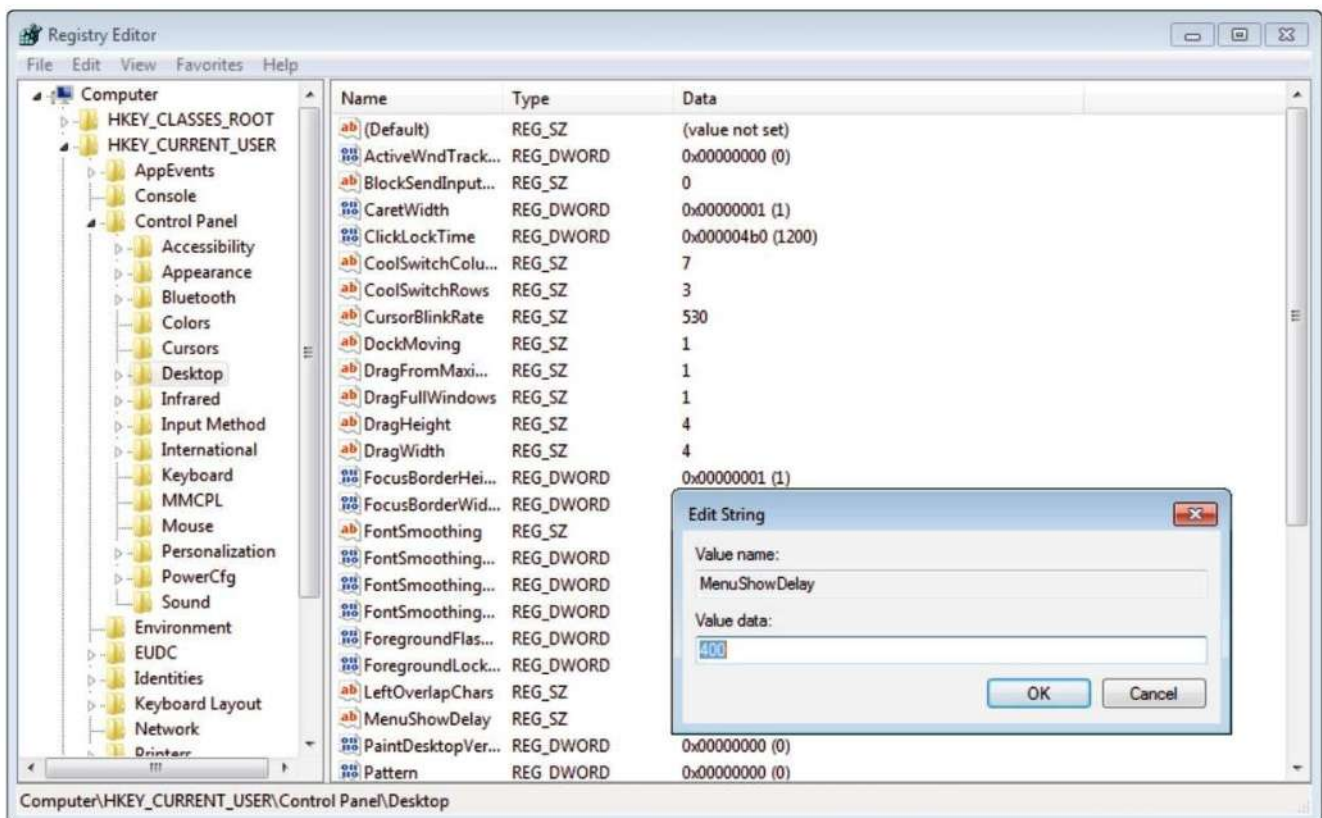
and double-click `MenuShowDelay`. Change the value from 400 to any lesser number that's 1 or greater; this figure represents the milliseconds of delay between your click and a menu's appearance. Restart the computer to apply the changes immediately, or continue to the next tweak.

See the folder labelled `Mouse` (below `Desktop`)? Click that, then search for and select the `MouseHoverTime` Registry key. Just as before, change this value to any lesser number that's 1 or greater. Close the Registry Editor, restart the computer, and you'll have faster mouseovers.

If you're willing to sacrifice looks for speed, you can also modify the visual settings of the Windows 7 interface to

emphasise performance over presentation. Go back to the System section of Control Panel and click on `Advanced System Settings`. In the System Properties window that appears, choose the `Advanced` tab and then click on the `Settings` box underneath the Performance category. The Performance Options window will pop up.

Here you'll see a list of checked boxes corresponding to all the window-dressing in the operating system. If you don't mind transforming your OS into something that looks like Windows 2000, click the button that tells Windows to "Adjust for best performance". It's a harsh step to take, though—if you'd prefer a piecemeal approach, uncheck only the >



▲ Editing the Registry can be perilous. Take care to alter only the entries you mean to.

> boxes that relate to Windows Aero (such as Aero peek and transparent glass). You'll retain a semblance of a pretty desktop while improving performance a little bit.

## RECLAIM RESOURCES

Once you've installed a fair amount of programs on your PC—your core base of apps, as it were—you'll want to check that your system doesn't have any unwanted applications running in the background that could otherwise impede its general performance. These programs launch themselves during Windows' startup process, and are often designed to help you load their corresponding applications faster. The problem is that they run every time, regardless of whether you intend to use the application in question during a given session.

Click Start and type **msconfig** into the Search programs and files field. Press Enter. In the System Configuration window that appears, select the Startup tab. Move your mouse between the headers of the Manufacturer and Command columns, and shrink the Manufacturer

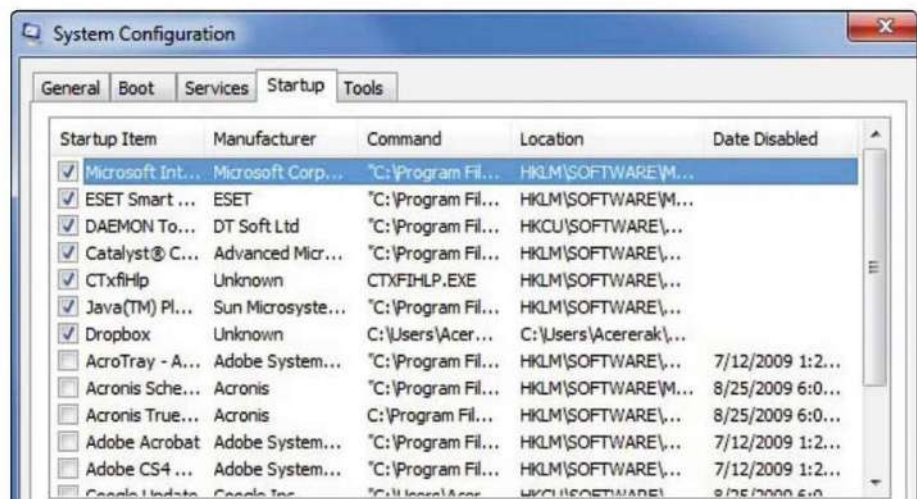
column down; the Command column is the one you care about.

A number of startup applications will sit in the background, consuming resources. For example, take Apple's iTunes: if you've installed this app, you'll find both iTunes and QuickTime listings in the Startup tab. Both iTunesHelper.exe and QTTask.exe are unnecessary additions to your system—the former launches when you start iTunes anyway, and the latter just places a QuickTime icon in the corner of your system for easy program launching. Uncheck them both.

As for the other programs on your list, try a quick web search for the name of each application's executable file to find out if the program is worth keeping (because it supports a function that you need) or can safely be removed. Once you've checked the boxes for the programs you want to launch at startup and unchecked those you don't, click OK.

In addition to startup programs, you'll find various services running on your PC. Microsoft recommends trimming both for the best performance. For

► **Speed up your Windows 7 launch times by disabling unnecessary programs that rush to load as soon as the OS starts.**

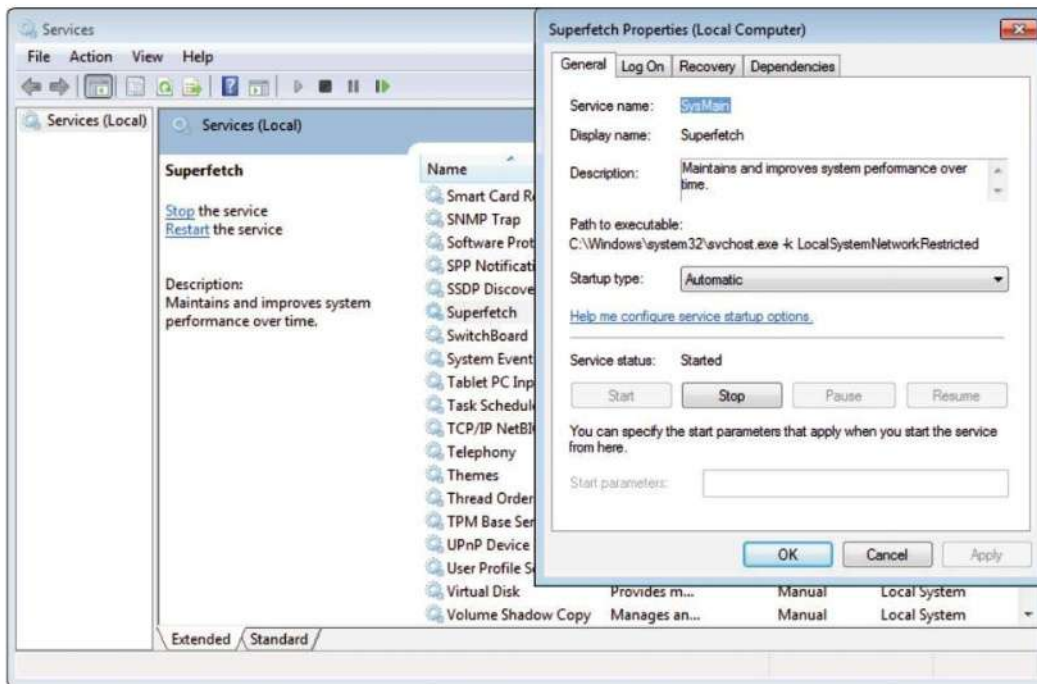






3

How fast is Windows 7?



◀ Use Black Viper's suggestions to prune Windows 7's services. It's better to follow his advice than just to go at it yourself, because some services are critical.

services, click Start, type **services.msc** into the search field and press Enter. Up pops the Services window—a list of options and executables that's even more confusing than the startup window.

You can't identify which services to turn off (and which to leave on) without taking a close look at how each one affects the OS. Thankfully, someone has been doing exactly that since Windows XP: Charles Sparks, under the alias Black Viper, has listed every permutation of Windows 7's services across all of its versions, along with a "safe" and "tweaked" list of which services you should modify and how you should set their parameters.

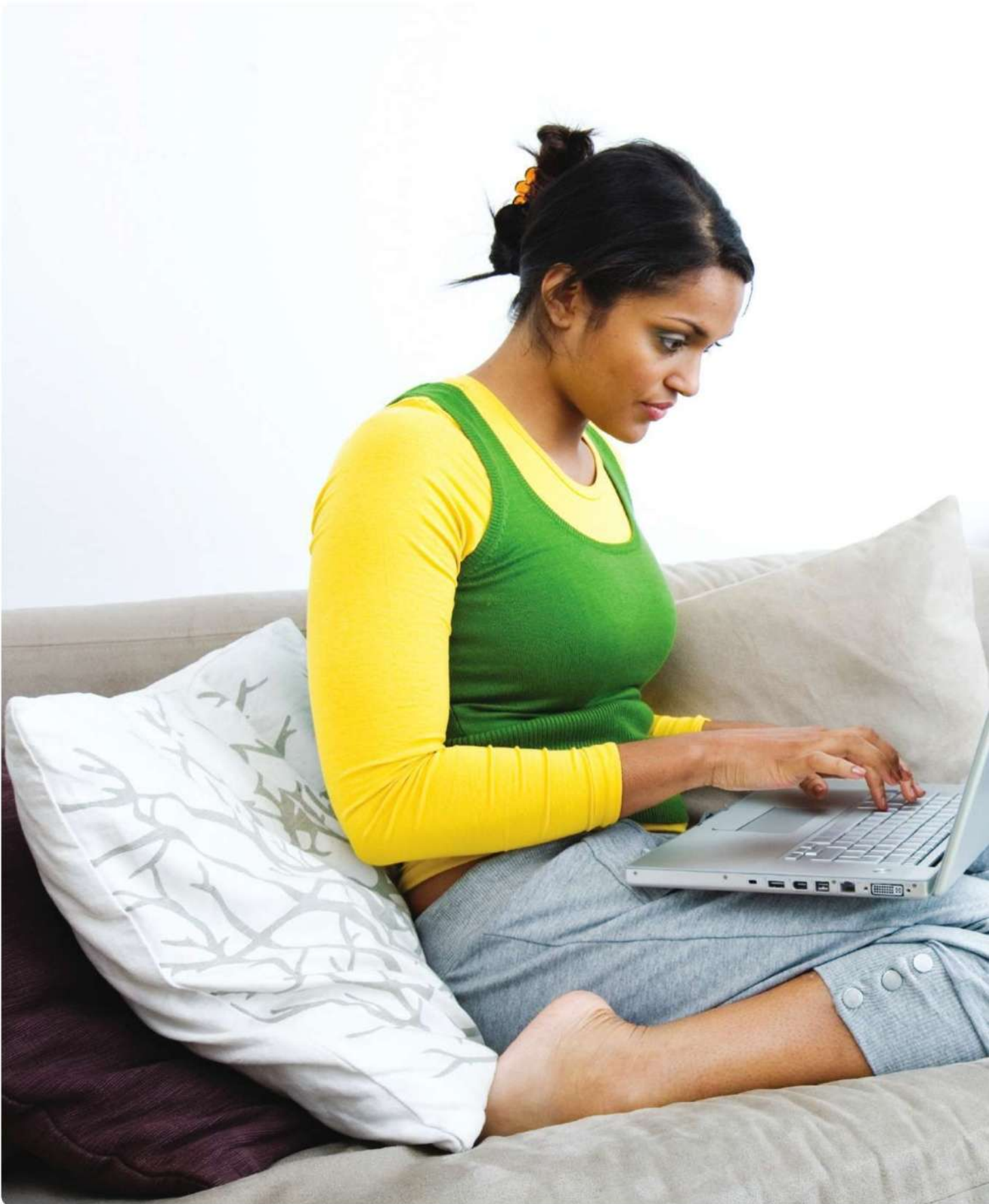
You can find his advice at <http://www.blackviper.com>. To follow it, just double-click on any listed service. You need concern yourself only with the Startup type listing in the screen that appears next. By switching among the Automatic, Manual and Disabled modes,

depending on Charles's recommendations, you'll be able to control exactly how services launch—if at all—during the Windows startup process and during your general use of the OS. Every little helps.

## KEEP IT CLEAN

If you want to maintain performance, be sure to clear out your C:\Windows\Temp folder every now and again. Do it as soon as you boot into the OS, or even through Safe Mode, to ensure that you wipe every unused file from your drive.

In the same vein, rather than using Windows 7's uninstall function or a program's own uninstaller when you want to remove an app, download and use the free Revo Uninstaller; this removes programs using their default uninstall routines, then goes one step further by scanning your system and Registry to clean away any and all traces of the program from your hard drive. □







4

worldmags



# *Get connected* **Networking in Windows 7**

# Set up a home network

*Connect multiple PCs so you can share files, media and resources.*

**W**indows 7 is packed with features that make home networking easier. For a start, if you have several PCs around the house and would like to move them all up to the new operating system, Microsoft is offering the Windows 7 Family Pack, which includes three licences for Windows 7 Home Premium at a heavily discounted price.

Inside the OS, the help continues. Setting up a basic network—so that all your PCs can see each other, access each other's files, play music from one machine on another, and share resources such as printers—is much simpler than it ever was in Windows XP or even Vista. Windows 7 makes the entire process more seamless and intuitive, especially if it's running on all your PCs.



▲ Simple wizards guide you through setting up different kinds of connections.

## NETWORK SETTINGS

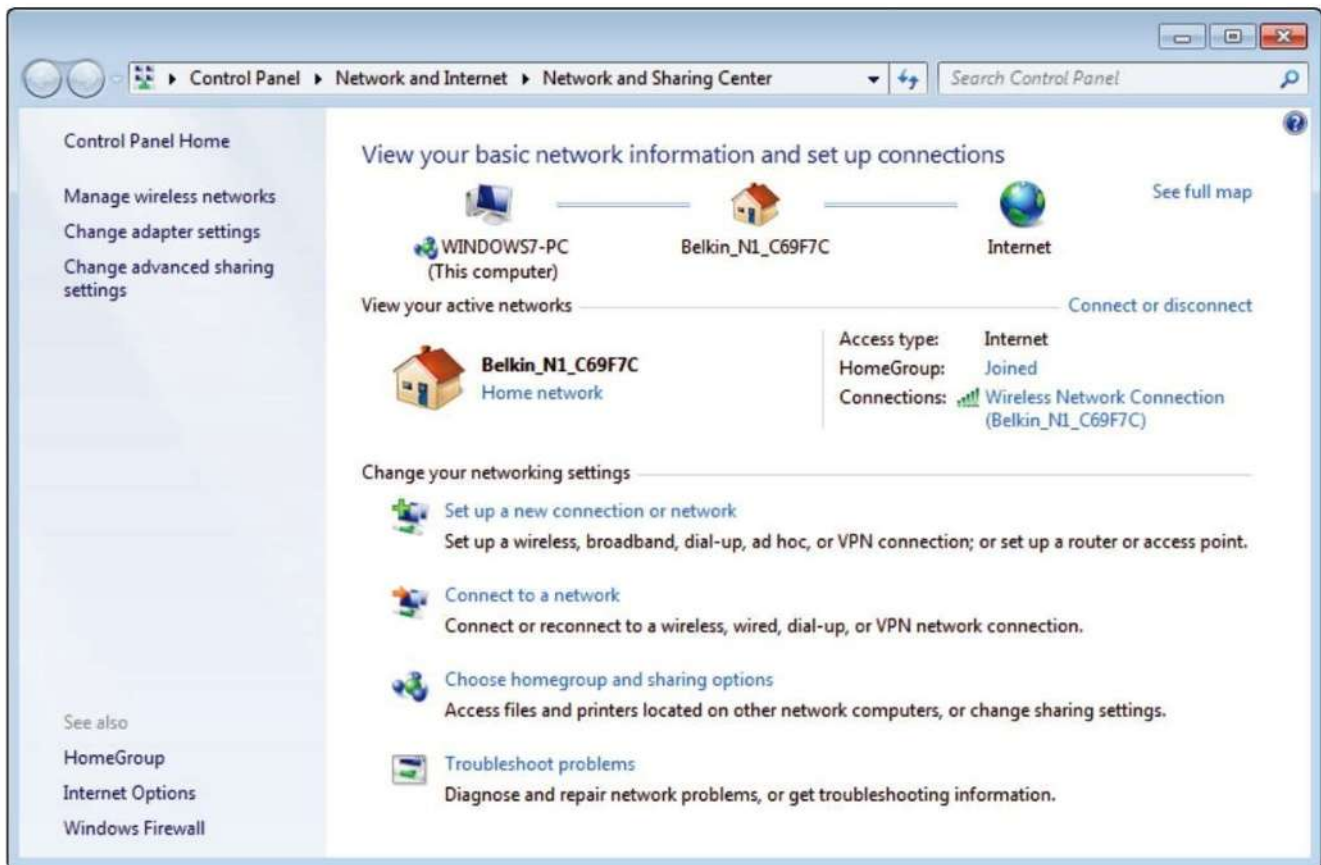
In Windows 7, Microsoft has improved the Network and Sharing Center (introduced in Windows Vista) to provide greater functionality and make it the first port of call for managing all aspects of networking. Available in all editions of the OS, this allows you to find new networks and create new network connections, verify your connection status, and troubleshoot network connectivity issues.

At the top is a visual representation of the current connection; you'll also find a link that displays the full map of your network visually. If you lose your connection, the graphic will show the broken link so that you can easily identify which portion is causing the problem.

You can also click Troubleshoot problems at the bottom of the Network and Sharing Center to initiate diagnostic tests that will help you identify and resolve the issue. To establish new wireless network or VPN (secure business network) connections, just click Set up a new connection or network and follow the prompts in the wizard.

The left side of the Network and Sharing Center provides links to more advanced networking functions, such as changing adapter settings and managing the Windows Firewall. One significant enhancement in Windows 7 gives you the





### ▲ Network and Sharing Center provides access to all the essential networking options.

ability to configure unique firewall profiles for the different location types (Home, Work, and Public); as you move from one location to another, Windows 7 will automatically apply the firewall rules for the current location type, giving you an appropriate level of protection.

## HOMEGROUP

The next significant enhancement in Windows 7 is HomeGroup. Microsoft has designed this feature to mimic the way people generally protect their homes: you keep the outside doors locked to deter unwanted visitors, but you keep the interior doors unlocked to allow family members to move around freely. When

guests visit your home, you give them access to common areas such as the living room, but you may not want them to venture into more private areas.

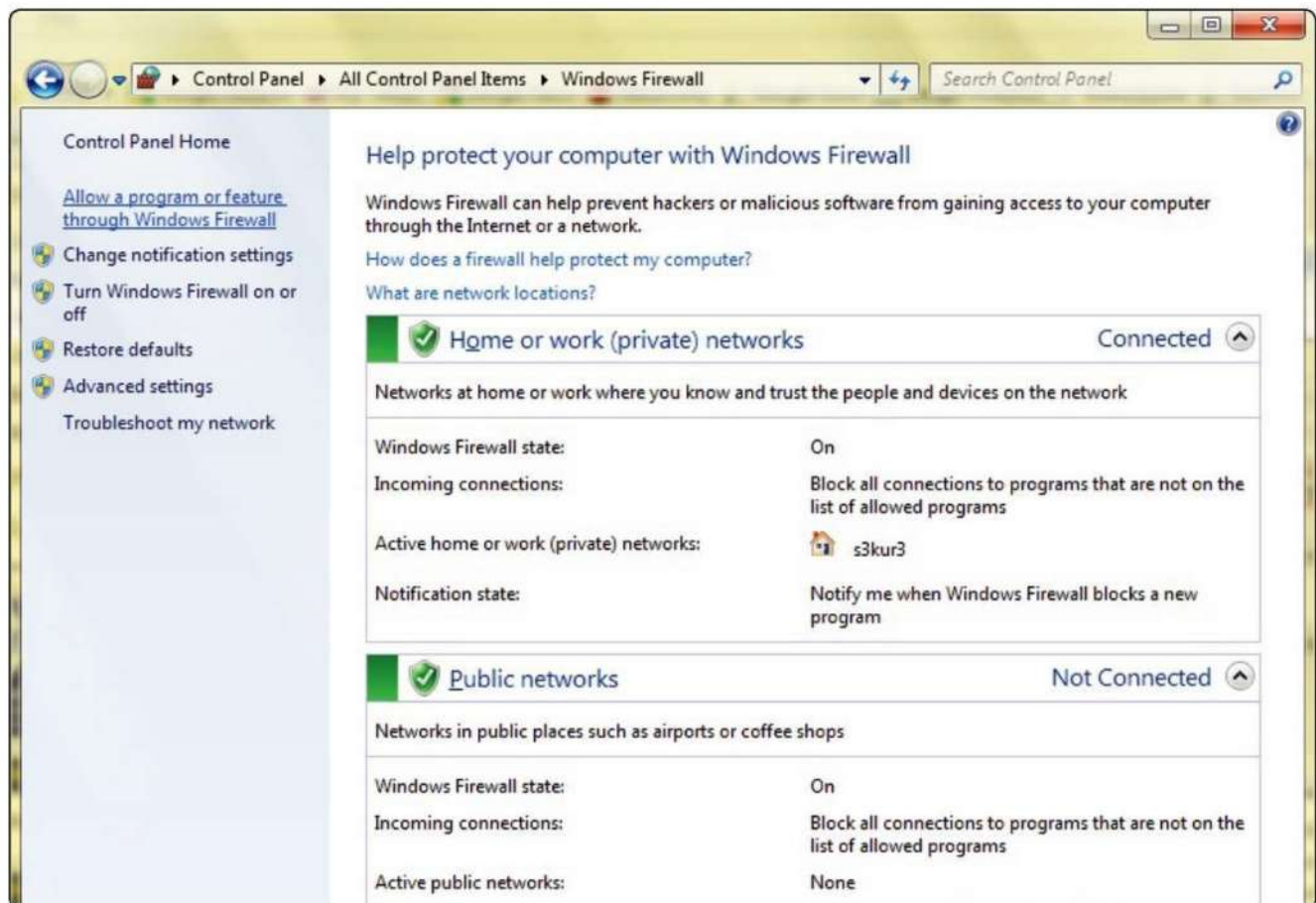
In previous editions of Windows, resources that were shared on the network were generally available to all, so a guest who was allowed to use the network—or an attacker who gained access through weak wireless security, for example—would be able to access all of the same resources as your family members. (The risks could still be minimised by setting up good network security—for example, making sure that encryption was enabled on your router and your password was a secure one.) >

➤ Now, a Windows 7 HomeGroup allows you to share resources, such as files and printers, only with those who join the HomeGroup by entering the proper password. You can still grant guests access to the network, so they can connect to the Internet while staying with you, *without* inviting them to join the HomeGroup and giving them the privileges that brings.

There are a few different ways to create a HomeGroup. You can select HomeGroup in Control Panel; you can use the HomeGroup link at the bottom left of the Network and Sharing Center; or you can click the Choose HomeGroup

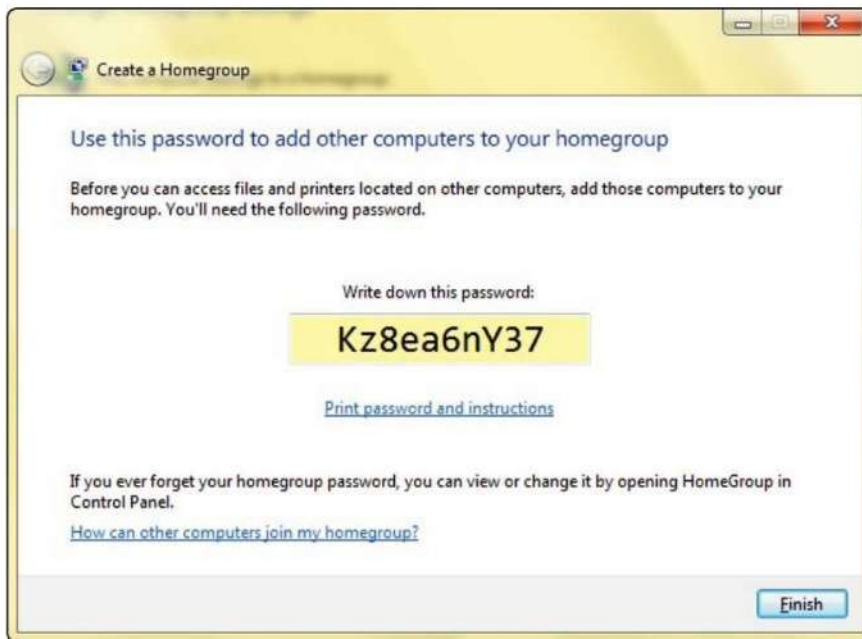
and sharing options link from the Network and Sharing Center console.

Regardless of how you get there, click the Create a HomeGroup button to begin the process. Select the Libraries you want to share with other members of the HomeGroup by checking or unchecking the appropriate boxes. After you click Next to create the HomeGroup, Windows 7 will automatically generate a password, which other users will need in order to join the HomeGroup and share the resources. The password is intentionally complex to provide better security, but if you prefer you can change it after you've set up the HomeGroup: go back to the



▲ You can choose how Windows Firewall works for each type of network location.





◀ Rather than asking you to choose a password, the Create a HomeGroup wizard invents one for you and suggests that you write it down—a wise move, since it's almost impossible to remember.

Network and Sharing Center and select Choose HomeGroup and sharing options.

In the same place are other useful settings. Once a PC has joined a HomeGroup, you can click Choose HomeGroup and sharing options to reach controls for determining what resources to share from your computer, or for excluding specific files and folders that you don't want other computers in the HomeGroup to access.

All versions of Windows 7 can participate in a HomeGroup, but Windows 7 Starter and Windows 7 Home Basic versions cannot create a HomeGroup on their own. Unfortunately, HomeGroup does not work with prior versions of Windows, so any Windows XP or Windows Vista systems will be unable to participate.

## SHARING MEDIA

Though HomeGroup takes the headache out of sharing resources, the really cool network sharing feature is Windows 7's ability to share music between devices

and to stream media to any connected device on the network. You can turn on the media streaming functionality via Windows Media Player. Click Stream and choose from the options available in the drop-down menu. Here you can allow other devices to play media from this computer, permit other devices to control your Windows Media Player remotely, or allow streaming of media to and from the Internet, making your music available from anywhere with a connection.

This interconnected media network, which can also include devices such as Microsoft's Zune media players and Xbox 360 game console, enables you to share and access all of your media from wherever you want, as if it were all part of a common pool. You can view music or recorded TV shows from remote libraries and play them by streaming across the network. Or, if you want to watch a recorded show while on the move, you can easily transfer it to your laptop. >



▲ On each PC, you can choose what to share with other HomeGroup members.

➤ With the PlayTo feature you can select songs—or even whole playlists—and direct them to stream to and play on connected devices. For example, you can choose a playlist on your Windows 7 PC and tell it to play on a streaming-

compatible stereo system in your living room. A PlayTo icon is at the top of the playlist pane, on the right side of the Windows Media Player console. You can also right-click on Music and video files and choose PlayTo from the menu that appears to select the devices to which you want to stream the media.

## TOGETHER AT LAST

From Windows 2000 to XP to Vista, Microsoft has made steady improvements in the operating system's networking features and functionality. Years from now, though, Windows 7 will be remembered as the version that finally got it right—making networking simple enough that the average user can manage without having to invite the family tech guru over for dinner. □



▲ Streaming via Windows Media Player is a great way to view media around the home.





# Get connected for business

*Windows 7's advanced networking helps you work from anywhere.*

**N**o matter if you're at home, on the move or in the office, Windows 7 lets you connect and get things done. The trend these days is towards remote and mobile computing, and it's important for an operating system to provide the tools necessary to keep you connected and productive wherever you may be. So Microsoft has incorporated a variety of new networking features in Windows 7 that simplify connectivity and help users access resources. Here we'll take a closer look at some of the innovations—and bear with us if we get a little bit technical, because this stuff can make all the difference to your work/life balance.

## VPN RECONNECT

Roaming users generally rely on VPNs (virtual private networks) to provide a secure connection between their computer and the internal company network. You don't have to know how it works, but it's the magic technology that convinces IT managers to say yes to working from outside the office.

When you're sitting in a hotel room, at a customer's office or in your own study, and you establish a VPN connection, your PC will generally stay logged on without any problems. However, when you're relying on a Wi-Fi hotspot or mobile broadband dongle to establish a VPN connection while on the move, you



▲ **Working outside the office often means dealing with less reliable network connections. Windows 7's VPN Reconnect reduces the hassle that can ensue.**

may suffer frequent dropped connections and a cumbersome process for re-authenticating and re-establishing the VPN connection each time.

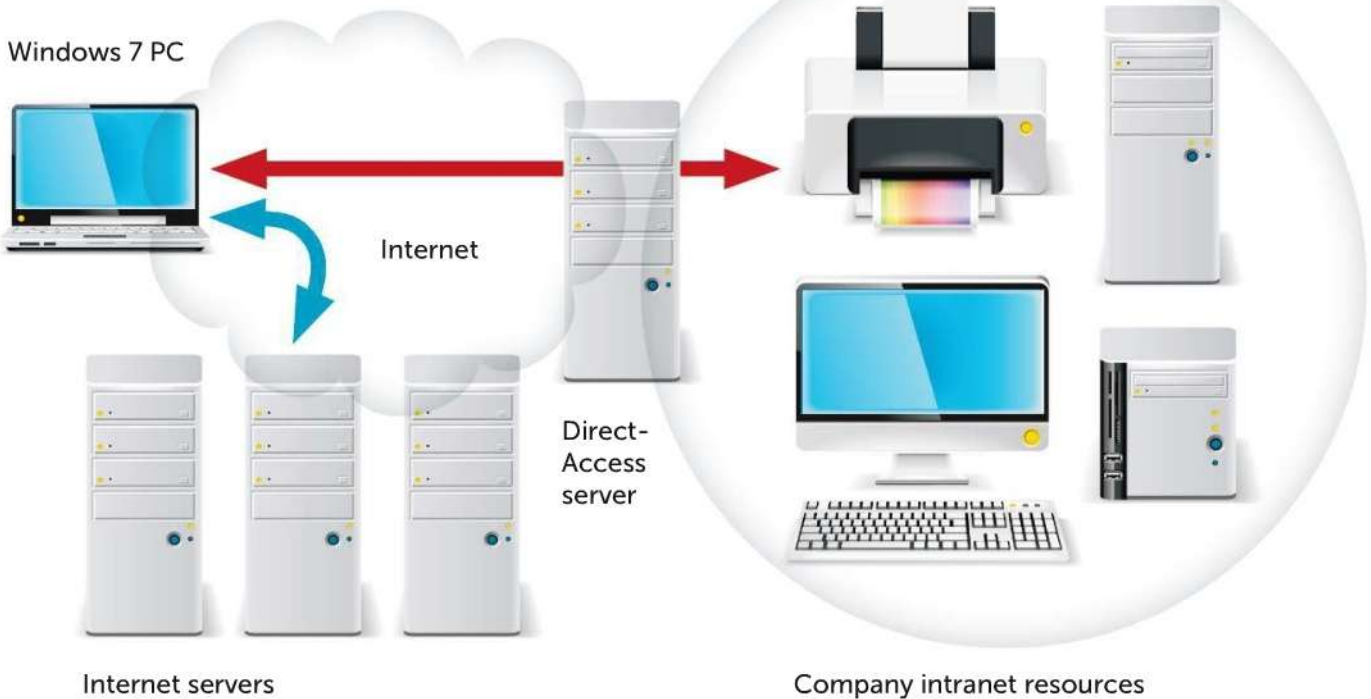
The VPN Reconnect feature allows Windows 7 to automatically re-establish active VPN connections after Internet connectivity is interrupted. As soon as Windows 7 reconnects to the Internet, it will also reconnect to the VPN.

Inevitably, the VPN will still be unavailable as long as the Internet connection is down, and the process of reconnecting will take a few seconds after access becomes available again, but VPN Reconnect at least ensures that your network resources will pop back up as >

# How DirectAccess connects you to work

*Split-tunnel routing intelligently directs traffic to its proper destination.*

**KEY:**  INTERNET TRAFFIC  INTRANET TRAFFIC



soon as possible, without you having to fiddle around with anything.

We promised you some technical details, so: VPN Reconnect is basically an IPsec tunnel using the IKEv2 (Internet Key Exchange) protocol for key negotiation and for transmission of ESP (Encapsulating Security Payload) packets. ESP is part of the industry standard IPsec security architecture, which provides confidentiality, authentication of data origin and connectionless integrity.

In plain English: the system knows where data is coming from and that it hasn't been seen or modified on the way.

Why all this fuss just to maintain your connection? Well, it's a trickier job than it might seem. For example, when viewing streaming video over a VPN connection while you're on a train, you would typically lose all buffered data and have to start the video again every time the connection went down.

But the features of the IKEv2 IPsec tunnel and ESP help to ensure a persistent connection, despite wrinkles like the IP address changing during the reconnection (as it well might when you're connecting to someone else's server, such as a Wi-Fi hotspot or cellphone network),





and allow the streaming video to resume from the point it was at when VPN connectivity was lost.

## DIRECTACCESS

What would be even better than a VPN that automatically reconnects and retains its connection state? How about not needing a VPN in the first place?

DirectAccess is a new feature of Windows 7 that's designed to achieve exactly that. It's potentially one of the most important features of the operating system, both for business users and for system administrators faced—as they increasingly are—with a remote and roaming workforce.

Aside from the issues mentioned above for users trying to stay connected on a VPN and access internal network resources, roaming users pose all kinds of problems for IT people. Mobile computers that aren't connected to the network at a given time will miss out on security updates, software patches and group policy updates. They will get the updates when they eventually connect, but as time goes by, missing critical updates can bring unwanted consequences.

The solution is to allow systems to stay connected as much of the time as possible, without users having to think twice about it. DirectAccess provides a persistent and seamless bi-directional connection between the internal network and the user's Windows 7 system, as long as Windows 7 can connect to the Internet. With DirectAccess, remote and roaming users experience the same access to

corporate shared resources, intranet sites and internal applications as they would if they were sitting in the office connected directly to the network.

DirectAccess works both ways. Not only can the user's computer access the network seamlessly and securely across any Internet connection, but the IT administrator can also connect to DirectAccess client computers—even when the user isn't logged on. That means they can monitor, manage and deploy updates to the computer just as easily as if it was in the building.

DirectAccess uses split-tunnel routing to intelligently route network traffic based on its intended destination. Only traffic destined for the corporate network is routed through the DirectAccess server, while traffic intended for the public Internet is routed directly to its destination. Split-tunnelling ensures that the resources of the DirectAccess server are not consumed by unnecessary traffic.

Again, IPsec is used for authentication and encryption. DirectAccess can also integrate with Network Access Protection (NAP) to require that DirectAccess clients be compliant with system health requirements before being allowed to connect to the network. IT administrators can restrict access through DirectAccess and configure the servers that users and individual applications can access.

Put simply, DirectAccess makes it matter less whether your PC is in the office, on the road or at another location. And the way we're all working these days, that's extremely significant.

## WHAT YOU NEED

Computing innovations are often interdependent, and Microsoft's replacement for VPNs is no exception. For DirectAccess to work, it requires a number of supporting technologies.

First of all, it has to be able to address your particular computer directly. That means you need a "globally routable" IP address, and that in turn depends on IPv6—the relatively new system that's set to replace IPv4, the basis of most existing Internet connectivity. IPv6 has been around for a while, and most systems and network devices are IPv6-capable by now, but it's proved to be a slow process getting people to actually adopt IPv6 and leave IPv4 behind.

When creating DirectAccess, Microsoft was well aware that IPv6 wasn't yet available to everyone, so it designed DirectAccess to take advantage of IPv6 transition tools—such as 6to4, Teredo and ISATAP—that IT managers are using to smooth the journey from the old system to the new. Within the network, DirectAccess relies on NAT-PT (Network Address Translation-Protocol Translation) to provide connectivity between DirectAccess and IPv4 resources.

You also need to be aware that DirectAccess can't function in a vacuum on a Windows 7 system. It requires a DirectAccess server to connect to, and running a DirectAccess server means running Windows Server 2008 R2. The DirectAccess server must have two network interface cards: one connected to the public Internet and one to provide



▲ You can troubleshoot any DirectAccess connection problems using the built-in wizard, as with other connection types.

access to the internal intranet resources. DirectAccess also requires at least two consecutive IPv4 addresses on the network interface card that's connected to the Internet.

The IPv6 translation technologies mentioned above (6to4, Teredo, and ISA-TAP) must be implemented on the DirectAccess server. Only a PKI (Public Key Infrastructure) environment can issue the necessary certificate for security and authentication, and a DNS server running on Windows Server 2008 or Windows Server 2008 R2 is required as well.

Setting up DirectAccess may sound pretty technical, but Microsoft's intention is that as the user of a Windows 7 client PC you won't find it any more complicated to connect via DirectAccess than to any other kind of network. If you do experience problems connecting, you can use





the appropriate troubleshooting wizard to identify and resolve problems. Open the Network and Sharing Center and click on Troubleshoot problems, then select the Connection to a Workplace Using Direct-Access wizard to begin troubleshooting.

## QUALITY OF SERVICE

No matter how much network bandwidth an organisation has, it's safe to assume it is not unlimited. As more users access the network, or more users connect to bandwidth-intensive data such as streaming audio and video, the network's capacity is nibbled away until it's gone. It's then up to the router to queue data, which in turn slows down network communications.

Even when the internal network capacity isn't maxed out, this type of queueing often takes place where the internal network meets the external network. The internal network may be operating at 1Gbit/sec speeds, but the connection to the public Internet might be 10Mbit/sec, for example. So network packets from the internal network are queued by the router and transmitted on a first-come-first-served basis as bandwidth becomes available on the external connection.

The trick here is to be smart about letting the most important data jump the queue. Not all network destinations are created equal, and they shouldn't be treated equally. Requests to an application server that's used to process orders, or data being sent to a mission-critical database, should take precedence over traffic destined for Google or Facebook, for

example. The technology that makes these decisions is known as Quality of Service, or QoS.

Administrators can configure QoS to prioritise traffic and ensure that vital communications get preferential treatment. Windows will assign outgoing packets a DSCP (Differentiated Services Code Point) number that the router can use to determine the priority of the packets. As the network gets bogged down and packets are queued up, the default first-in-first-out functionality is overridden, and high-priority packets are sent first.

QoS functionality has been a part of previous versions of Windows, but it required priority to be assigned based on specific IP addresses and port numbers. The problem with this is that multiple websites may use the same IP address, and one website may have multiple IP addresses, making it impossible to ensure QoS can prioritise the right traffic.

With Windows 7, Microsoft has added an ability to configure QoS based on URLs (Internet addresses). Administrators can ensure that traffic intended for intranet applications or important websites gets processed ahead of lower-priority traffic without having to configure the specific IP addresses and ports of the destination sites.

URL-based QoS can also be used to intentionally downgrade the priority of typically non-business-related sites, such as Facebook or BBC iPlayer. Assigning these URLs a low priority will force those packets to be handled with even less urgency than normal traffic. □







5

worldmags



# *Setup and security* **Managing Windows 7**

# Manage user accounts

*Use built-in tools to oversee multiple users on your PC and network.*

**A** computer running Windows 7 might be used by a single person, by a group of people in an office, or by a family. So Windows 7 was designed from the ground up to be a multiuser operating system. The OS is flexible enough to support many different scenarios, with each user having appropriate permissions and their own customised environment. To make this work, each person using Windows 7 needs to log in with their own account. Each account has a personalised desktop, Start menu, Documents folder, History, Favorites and more.

All this stuff resides in the Users folder on the root of the system drive, where each account has a subfolder named after it. The two main tools we'll

describe in this article are the User Accounts and Family Safety wizard, found in the Control Panel, and the traditional Local Users and Groups tool, which is available in Computer Management.

## ACCOUNT TYPES

Before you start creating new users on your Windows 7 PC, you should understand the difference between the two main account types.

"Administrator" accounts have full control over the system. They can install programs and drivers, and they can create and modify new users and groups. They can also reset passwords, set policies and edit the Registry. The OS identifies tasks that require Administrator permissions with a Windows security icon.

► **User Accounts and Family Safety provides a straightforward interface for setting up and managing all your user accounts. Find it in Windows 7's Control Panel.**







► **The Create New Account wizard makes light work of setting up a new user account.**



When you first install Windows 7, the default account is an Administrator, for obvious reasons: you need full access to set up and manage your computer. But that doesn't mean you have to make this the account you regularly use, or that other accounts should be Administrators too—though they can be.

“Standard” accounts are permitted to log on to the computer, run programs, customise their accounts, and save files in their user folders. These users are restricted from making fundamental or system-wide changes.

## ADDING ACCOUNTS

When Windows first installs, it asks you for a user name and password, which it then uses to create your first account. This account joins the Administrators group, which has the highest set of privileges. From this account you can create and manage all other user accounts.

When one person is the sole user of a computer, this first account is sometimes the only one ever created. However,

even if you are the only user, it's recommended practice to create a second, Standard account for daily use, keeping it separate from the account with administrative privileges that you use to manage the system. If you want to install software or make other system changes while logged in as a Standard user, never fear: when you attempt to make the change, Windows will prompt you to authenticate your administrator account (by entering the password for it)—you won't need to log off and back on again.

The point of having two different levels of account even for yourself is that while you're logged in as Administrator, your system is to some degree open to abuse. Someone else might jump in while you're making a coffee, or malicious software might try to make changes. By using a Standard account, you force Windows to check with you before allowing potentially damaging operations.

To create a new account, open Control Panel and under User Accounts and Family Safety choose Add or remove >

> user accounts. Click on Create a new account. Type in the name you want for the new account, select either the Administrators or Standard Users user type, and then click Create Account. By default, Windows doesn't assign a password at this point; you can add one by clicking on this user's icon and selecting Create a password. Alternatively, if you leave it blank, the user will be asked to set a password when they first log on.

Once you've created an account, you can customise it further. To edit an account, again open Control Panel and go to User Accounts and Family Safety, Add or remove user accounts. This takes you to the Manage Accounts window, where

## Last resort

Windows 7 has a hidden account that has no password. It's an Administrator account, with full control of the system. Provided as a backstop, it only comes into play when you've removed all the other Administrator accounts and you restart the computer in Safe Mode. You can normally activate Safe Mode by restarting the PC and hitting F8 just before the first Windows screen appears. This takes you to Advanced Boot Options, where you can choose Safe Mode from the menu options offered. Choose Safe Mode with Networking if you'll need to access other PCs or the Internet before restarting again.



▲ **A strong password should include a combination of letters, numbers and special characters—but don't forget it.**

you can select an account to edit by clicking on its icon. In this window you can change the account name, create or remove its password, change the picture, set up parental controls, change the account type or delete the account.

Be very cautious about removing a password, because this will cause that user to lose any encrypted files, personal certificates and stored passwords. Less drastically, users can pick a different password at any time, as explained below.

## PARENTAL CONTROLS

Concerned parents are often wary about letting their children have free rein on the family computer. Windows 7's parental controls offer a way to keep your children's web surfing or gaming in check. To set up parental controls, go to Control Panel and select User Accounts and Family Safety, Set up parental controls for any user. Click on the user you want to edit.





Since all administrators can disable these controls, if any Administrator account has no password you're now offered the option to force that user to set a password at their next logon, preventing other users logging on as Administrator and undoing their own parental controls.

Turn on parental controls by selecting On, enforce current settings, then modify each setting as appropriate:

**Times** If you want to keep a child off the computer, say, before school and after bedtime on every week night, this is where you can permit or deny computer usage by time and by the day of the week.

**Programs** If you want to limit your child's computer use to certain applications, this is where you choose them.

**Games** Here you can define whether an account is permitted to play games, which game ratings are acceptable, and whether unrated games are allowed. You may also allow or block particular games. Note that this applies to games installed as programs on the computer; the likes of

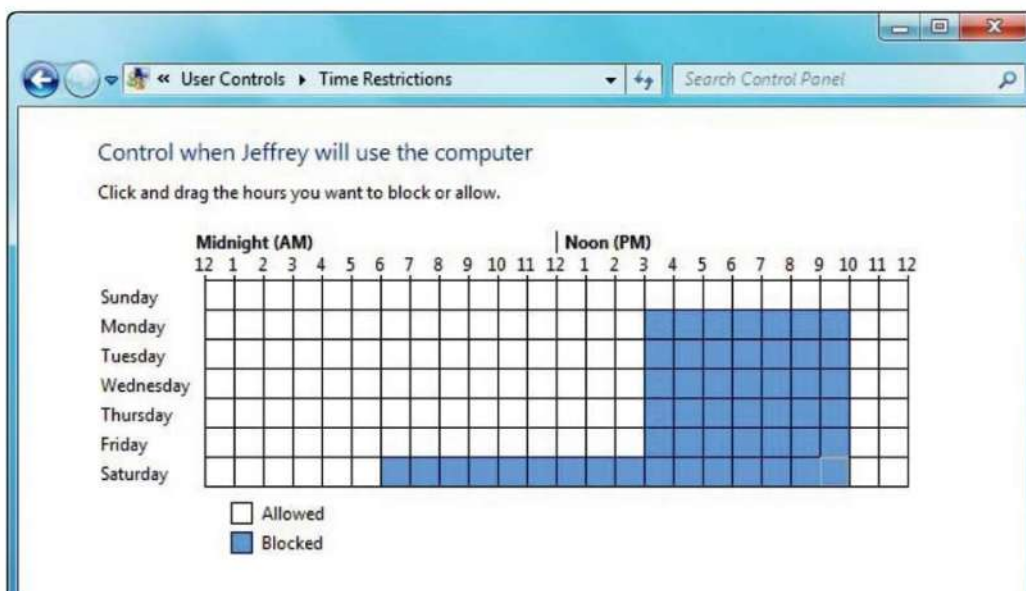
Flash games on websites can't be policed with this degree of control.

However, Windows 7's parental controls can work in conjunction with Windows Live Family Safety, part of the Windows Live Essentials suite of downloadable apps, which allows you to set parental controls on web content.

## PASSWORDS AND PICTURES

Windows 7 lets you associate a picture with each account. This is the image icon you click to log on to the computer. To change it, open Control Panel and choose User Accounts. Under Users, click Change your account picture. You can select from a number of built-in images, or browse to one of your own pictures on the system.

The simplest way to change your account password, while logged in, is to press Ctrl-Alt-Del and click Change a Password. Now simply type in your old password and your new one, then confirm it. Administrators can also change the name and password of other users. >



◀ At 10pm, Windows 7 will automatically log Jeffrey off if he's still using the computer.

➤ Forgetting your password is a pain. To pre-empt the problem you can create a password reset disk, which needn't literally be a disk (how many people even remember floppies?) but can be stored on a USB memory drive. The only catch is that you have to create it while you're logged in, so if you've already forgotten your password, it's too late.

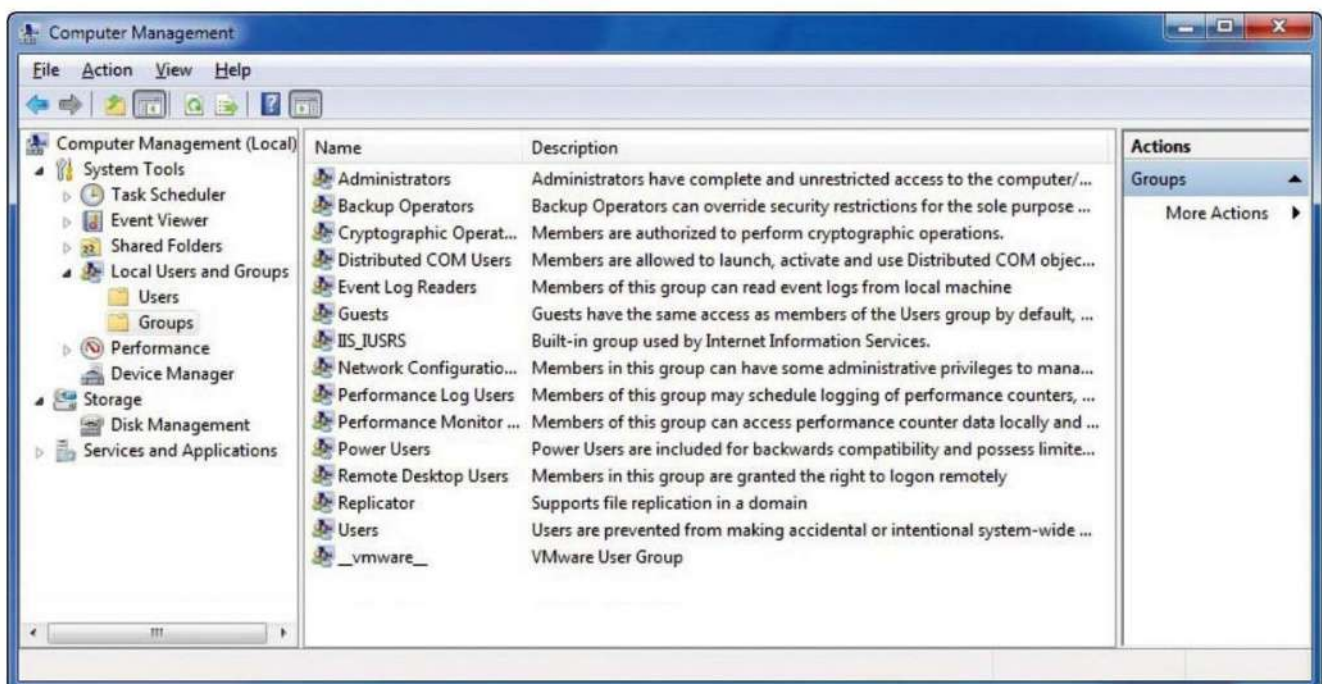
To create a password reset disk, open Control Panel and go to User Accounts and Family Safety, User Accounts. Click on Create a password reset disk (in the left pane) and a wizard will guide you through the procedure, asking you what your current password is and on which drive you want to store the password key. The password won't be legible on the drive, but anyone who gets hold of it and plugs it into the PC will be able to access your

user account—that's the point of it, after all—so be careful where you store it. Using a USB stick that's regularly borrowed by other members of the family will leave your system rather less than childproof.

If you enter your password incorrectly when you attempt to log on, Windows will display a Reset password link under the password box. Click it to launch the Password Reset Wizard. When prompted, select the drive that contains the password key, then type in a new password and password hint.

## DOING IT THE OLD WAY

Although Windows 7's wizard-based account management tools are easy to use, some people prefer the original Local Users and Groups tool, which has changed little since its introduction in



▲ It may be overkill for a home setup, but Windows provides ready-made groups of accounts with various privileges to help you dictate exactly who has access to what.





## Be my guest

Windows 7 includes an account named Guest, which has a bare minimum of permissions and is disabled by default. If you want to use this as a simple way to let guests access basic services, click Local Users and Groups, expand Users, double-click on the Guest account and clear the Account is disabled check box.

Windows 2000. Access it by right-clicking Computer on the Start menu and selecting Manage. This will open Computer Management; from there, expand Local Users and Groups. To create a new user, click on Users, select New User, then enter the user name. You may supply a full name, description and password if you choose. Click Create to make the account.

To modify user accounts, again go to Local Users and Groups, then expand Users and double-click on the appropriate user name. On the General tab, you can modify the following settings by checking the appropriate box: User must change password at next logon; User cannot change password; Password never expires; Account is disabled (to prevent an account being used, without actually deleting it); or Account is locked out.

To unlock an account that Windows has locked because a user entered an incorrect password too many times, clear this last check box. Alternatively, check it to lock out an errant user temporarily.

## MANAGING GROUPS

Every Windows account is a member of at least one group. This defines what set of permissions it has. Besides the built-in groups (referred to as Account Types in the Create User wizard), you can also create your own. Groups allow you to apply permissions and policies to multiple accounts. This isn't really relevant if you only have a few accounts, but as well as Users (aka Standard accounts) and Administrators you'll find groups for purposes such as allowing access to backups or Remote Desktop connections.

To create a new group, right-click on Groups in Local Users and Groups and select New Group. Enter a name and description, then click Add to add members to the group. Finally, click Create.

Each computer, in turn, is a member of a workgroup or a domain. Computers in a domain usually have a network administrator who manages user accounts. These accounts are kept in a central database called Active Directory. A workgroup is more of an ad-hoc network, where each PC is managed separately. Only computers running Windows 7 Professional or higher can join a domain.

When a PC joins a domain, Parental controls are unavailable, the User Account tool replaces User Accounts and Family Safety, and you can only create local users via Local Users and Groups. To add a domain user to a local group, go to Control Panel, User Accounts, Give other users access to this computer. Enter a user name and domain (or click Browse), click Next to add them, and click Finish. □

# Secure your Windows 7 PC

*Safeguard your system and protect your data with new security tools.*

**V**ista was the most secure version of Windows ever, and Windows 7 picks up where it left off to create an even more protected computing experience. Microsoft has also incorporated user feedback from Vista to make the security features more user-friendly. Let's take a tour of some of the OS's more significant enhancements in this area.

Microsoft developed Windows 7, like Vista, according to what it calls the Security Development Lifecycle (SDL). That means the operating system is built from the ground up to provide a secure environment. It retains key security features that helped protect Vista, such as Kernel Patch Protection, Data Execution Prevention (DEP), Address Space Layout Randomization (ASLR) and Mandatory

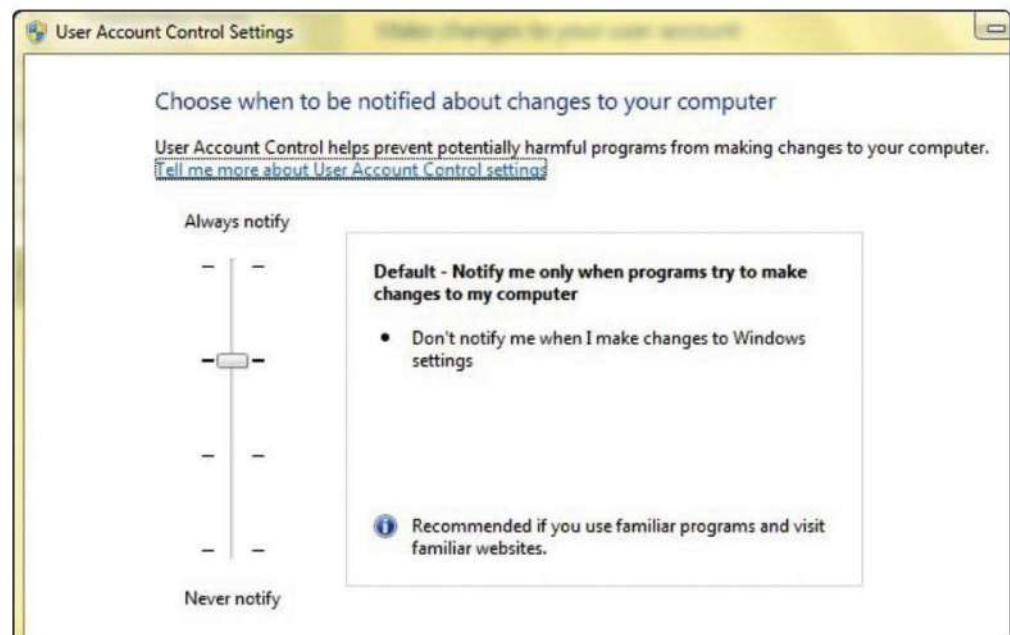
Integrity Levels. These features provide a strong foundation to guard against malicious software and other attacks. A few key elements are worth noting.

## ENHANCED UAC

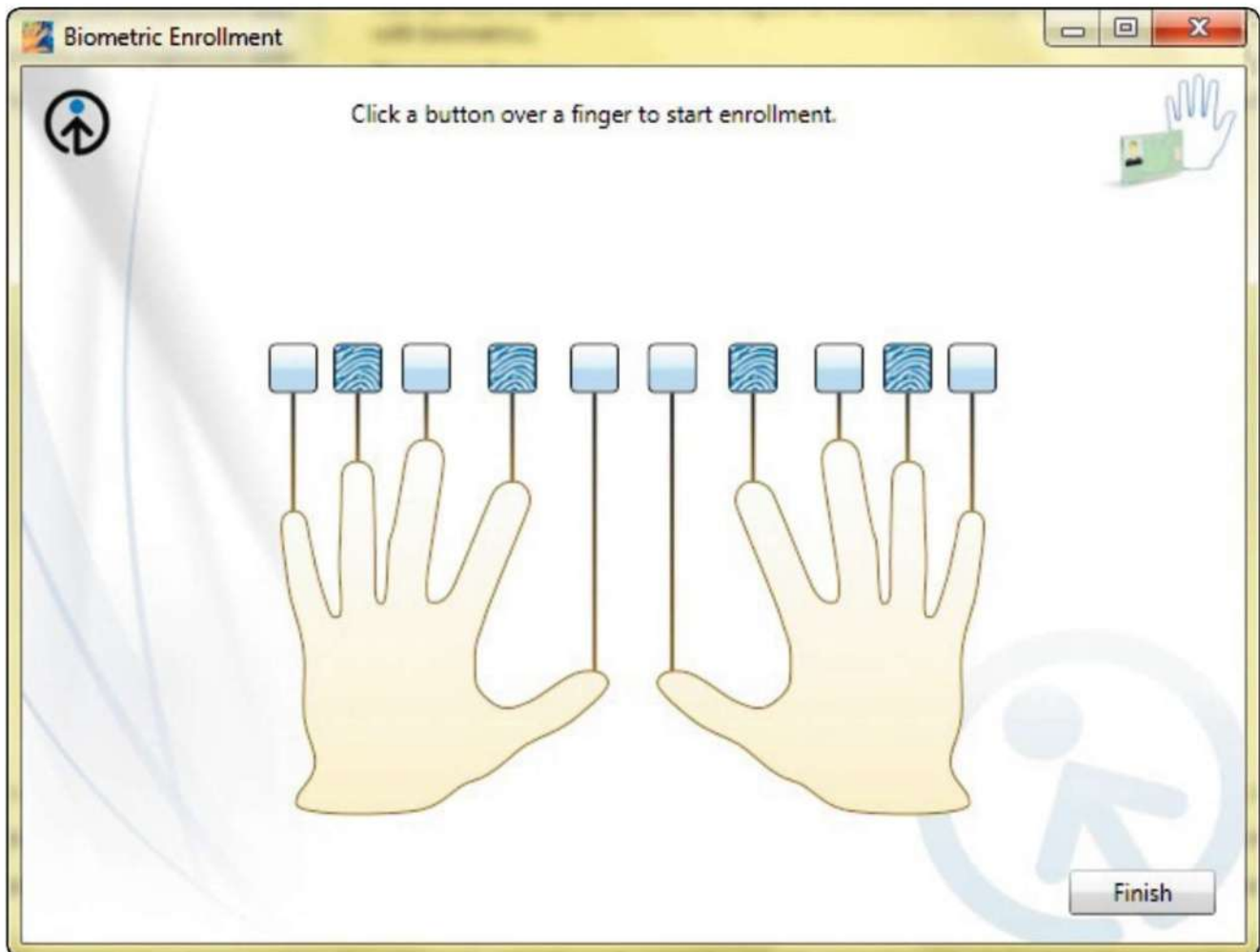
You're probably all too familiar with UAC (User Account Control). Introduced in Vista, it's a feature that was meant to encourage Windows users and system administrators to keep access privileges to a minimum, so that users wouldn't be able to make significant changes to the system as a matter of course, but instead would be asked to validate such operations as an Administrator.

In fact, Microsoft's primary intention with UAC was to force software developers to use better coding practices and not

► **Windows 7** lets you configure the level of User Account Control protection, so you can avoid endless pop-up alerts without leaving your PC open to attacks and accidents.







▲ Many computers now have built-in fingerprint scanners, and Windows 7 is ready.

expect their programs to have access to sensitive areas of the operating system, but to most people UAC is the thing that keeps dimming the screen and popping up requests to confirm their actions.

Because of this perception, UAC has come to be thought of as at best annoying and at worst self-defeating, because users constantly pestered by consent requests tend to dismiss them without properly checking what they say. Though Microsoft has made significant progress since Vista's introduction in reducing the types and number of events that trigger the

UAC prompt (or that entirely prevent Standard users from executing tasks themselves), UAC has still been the subject of a great deal of negative feedback.

With Windows 7, Microsoft has further reduced the number of applications and operating system tasks that will trigger the prompt—though again software makers have their own part to play. It has also incorporated a more flexible interface for UAC. Under User Accounts in the Control Panel, you can select Change User Account Control Settings to adjust the feature with a slider. >

➤ This slider lets you choose from among four levels of UAC protection, ranging from Always Notify (essentially the same level of protection that Windows Vista provided) to Never Notify. Obviously, you'll get the most protection with Always Notify. At the other end of the scale, the advantage to setting the slider to Never Notify—as opposed to disabling UAC completely—is that the prompt is

only one aspect of what UAC does. When set to Never Notify, even though UAC pop-ups will no longer interrupt you at all, some of UAC's core protections remain, including Protected Mode Internet Explorer, which wards off online attacks.

## FINGERPRINT SCANNING

Many Windows users configure the OS to log them in on startup without entering a

## Use BitLocker without a TPM

*If your PC hasn't got the right chip, you can still encrypt your data.*

By default, BitLocker requires a Trusted Platform Module (TPM) chip in your PC to store the BitLocker encryption keys and facilitate the encryption and decryption of the BitLocker-protected data. Unfortunately, many desktop and laptop computers are not equipped with a TPM chip—but all is not lost. Microsoft has included the option to use BitLocker Drive Encryption without a compatible TPM. It's not very obvious, though, so here are the steps you need to follow.

- 1 Click Windows 7's Start orb.
- 2 In the Search Programs and Files field, type **gpedit.msc** and press Enter.
- 3 Under Computer Configuration, go to Administrative Templates, Windows Components, BitLocker Drive Encryption, Operating System Drives.



- 4 Double-click on the Require additional authentication at startup option.
- 5 Select the Enabled radio button at the top and check the Allow BitLocker without a compatible TPM check box.
- 6 Click OK.





user name and password (by removing the password from their Administrator account)—but that’s the computer equivalent of leaving the front door of your house wide open with a neon sign above it advertising free biscuits and consumer goods. We highly recommend that you assign all user accounts in Windows 7 a strong password or passphrase.

Even a password, though, is secure only until it’s cracked, which is more a matter of when than if, assuming an attacker is sufficiently dedicated. Often they won’t need to be, because your password is the name of your dog or football team (both listed on Facebook for good measure), or “12345”, or written on a sticky note attached to your PC. So experts recommend two-factor authentication—another layer of protection on top.

To provide this, many computers, especially laptops, now come equipped with built-in biometric security in the form of a fingerprint scanner. And Windows 7 offers much smoother integration between the operating system and this hardware. There’s better driver support and more reliable fingerprint reading.

Configuring and using a fingerprint reader for logging on to Windows 7, as well as for authenticating users for other specific applications and websites, is easy. Click on Biometric Devices in the Control Panel to access the Biometric Devices console, which will display any detected biometric devices. If your fingerprint reader is not yet configured, the status will be Not Enrolled. Click on that status description to access the setup page.

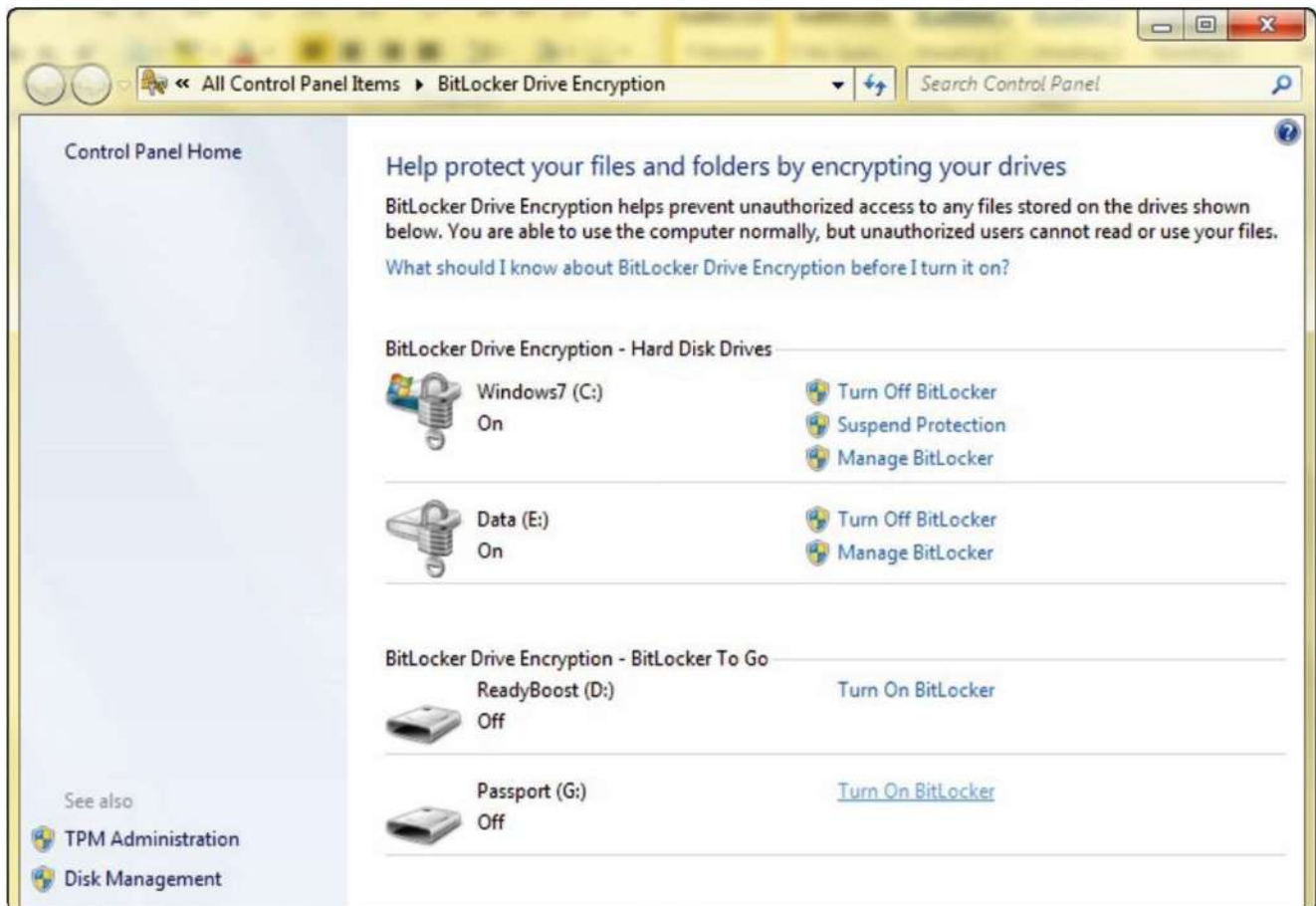
You can scan one finger or all ten. Adding multiple fingers allows you to pass the biometric security even if your primary finger is in a bandage, for instance. On the display, select the finger you want to add, then place that finger on the fingerprint reader (or slowly drag it across, depending on the type of hardware). You have to scan each finger successfully at least three times to register it in the database—similar to re-entering a password to confirm it’s typed correctly.

## DATA ENCRYPTION

Thousands of computers, particularly laptops, are lost or stolen each year. If you don’t have appropriate safeguards and security controls in place, unauthorised users who come into possession of your machine will be able to access any sensitive information it contains. The risk of data being lost or stolen is also exacerbated by the proliferation of tiny USB flash drives and other portable media.

Windows 7 retains Vista’s data protection technologies, such as EFS (Encrypting File System) and support for AD RMS (Active Directory Rights Management Services). In addition, it significantly improves on Vista’s BitLocker drive encryption, and adds BitLocker to Go for encrypting data on removable media. These features are only available in the Ultimate and Enterprise editions.

When BitLocker made its debut in Vista, it could only encrypt the primary operating system volume (your main hard disk). Service Pack 2 extended this to other volumes, such as additional drives >



### ▲ BitLocker can now encrypt any of your computer's hard disks and portable drives.

> or partitions on the primary hard drive, and now Windows 7's BitLocker to Go can also protect data on portable drives while still providing a means of sharing that data with other authorised users.

Before you can start using BitLocker Drive Encryption, your volumes have to be configured properly. Windows requires a small, unencrypted partition to contain the core system files it needs to begin the boot process and authenticate the user to access the encrypted volumes. Most people don't consider that when setting up their drives initially, so Microsoft has created a tool to repartition a drive to prepare it for BitLocker. You can learn

more about the BitLocker Drive Preparation Tool, and download it, on Microsoft's website at <http://bit.ly/bitlockerprep>.

Once your drive is properly partitioned, go to BitLocker Drive Encryption in the Control Panel. The BitLocker console will display all of the available drives and their current state (that is, whether BitLocker is already protecting them). The display separates the drives according to whether they're fixed drives, which can be encrypted with BitLocker, or removable drives, to be protected by BitLocker to Go.

Click the option labelled "Turn on BitLocker" next to any unencrypted drive to begin the encryption process. You're





asked to assign a password for unlocking the encrypted data (or to insert a smart-card, if you prefer, for authentication). BitLocker then offers to save a BitLocker Recovery Key, either as a text file or as a printout. Note that if you forget your password, or if the authentication fails in any way, this Recovery Key will be the only way to unlock the encrypted data.

You can now carry on working and the data will be encrypted in the background. After it finishes, you can click on Manage BitLocker and opt to unlock your encrypted drives automatically each time you (and only you) log on to Windows 7.

## MALWARE PROTECTION

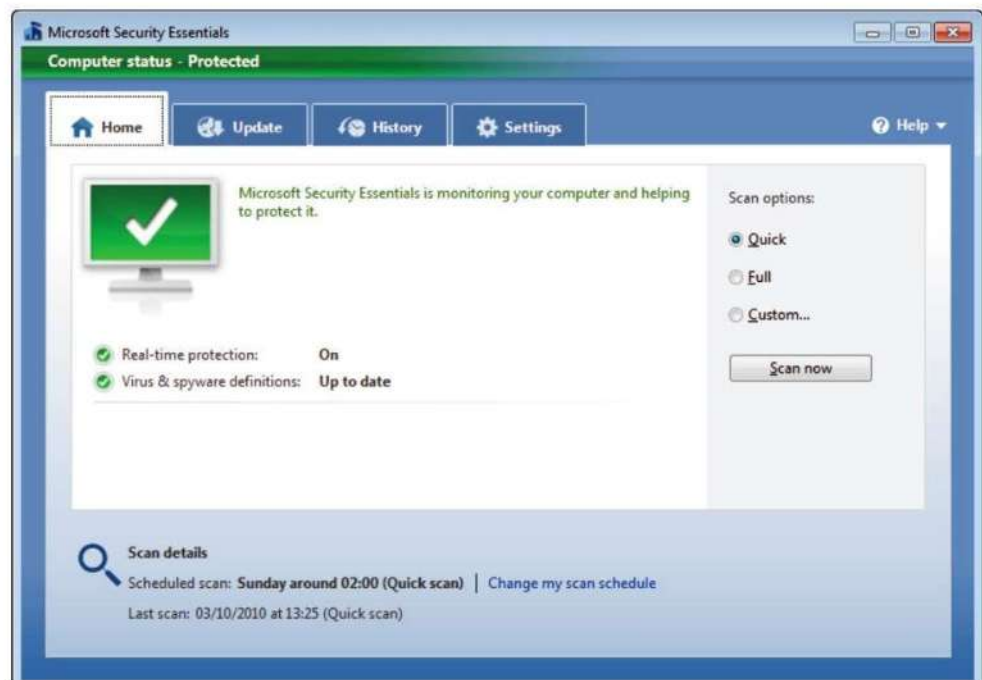
Computers connected to the Internet are vulnerable to all manner of threats, from hacking and phishing to viruses and Trojans. That's why it's critical to batten down your new Windows 7 system's hatches from the outset.

Luckily, Windows 7 is pretty secure. Windows Defender, its firewall and anti-malware tool, offers robust protection from everyday threats. The latest version of Internet Explorer 8.0 has its own features to keep you safe from browser hijacking and other online nasties, while rivals such as Firefox have also introduced protection. As for email, Windows Live Hotmail, Gmail and Yahoo! all have anti-virus, anti-spam and anti-phishing built in.

Even so, it's worth adding a couple more tools to your system's armoury. The first you'll probably have already: a router. Its built-in firewall should render your machine invisible to the Internet at large, making it hard for hackers to target.

The second is Microsoft's free Security Essentials antivirus software, from [http://microsoft.com/security\\_essentials](http://microsoft.com/security_essentials). Other free antivirus programs are worth considering, but this will give you a good basic level of protection straight away. □

► **Microsoft Security Essentials**, like it says on the tin, is a vital addition to your newly installed operating system.



# Customise Windows 7

*Manage your menus, tweak the Taskbar and make files easier to find.*

**T**here are more ways than ever before to make Windows 7 your own—from total control over annoying pop-up messages to homebrew search connectors that let you trawl the web right from Windows Explorer. A few of the options we'll look at require third-party apps, but they're all freebies and all easy to use. Most of the tweaks, however, can be accomplished immediately with a few clicks. So get ready to make a good operating system even better by adding some personal touches.

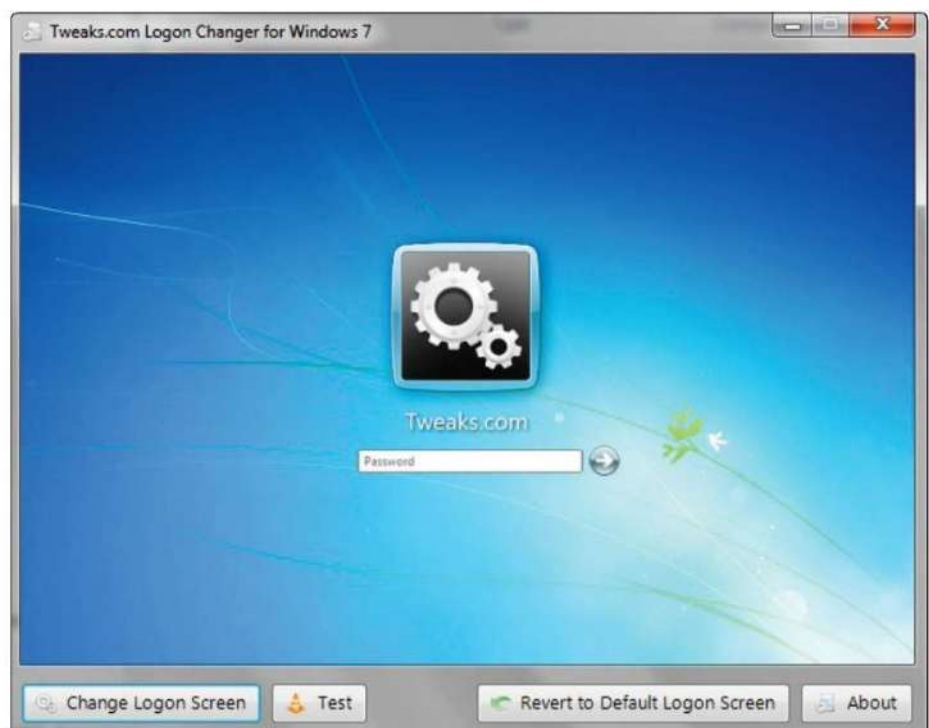
## CHANGE THE LOGON SCREEN

Windows 7 has a lovely blue logon screen, but it gets a little boring after a while.

▶ **Already getting tired of seeing the same old logon screen every time you start Windows 7? Logon Changer lets you replace it with an image of your choice.**

Wouldn't it be nice if you could customise it the way you can the desktop background? Well, you can—and without having to mess about with the Registry. All you need is the Tweaks.com Logon Changer for Windows 7, a free utility that lets you turn any image into your logon screen background. Find it at Softpedia or Download.com.

Run the program, click Change Logon Screen, then navigate to the folder containing the image you want to use. If it's too large (Windows limits the size to 245KB), Logon Changer will offer to copy and resize it. Once the new background is in place, you can preview it at full-screen size by clicking Test. If you want the







► An unofficial successor to the late lamented Microsoft utility TweakUI, the Windows Club's Ultimate Windows Tweaker gives you a huge number of user interface controls in one accessible place.



original wallpaper back, click Revert to Default Logon Screen.

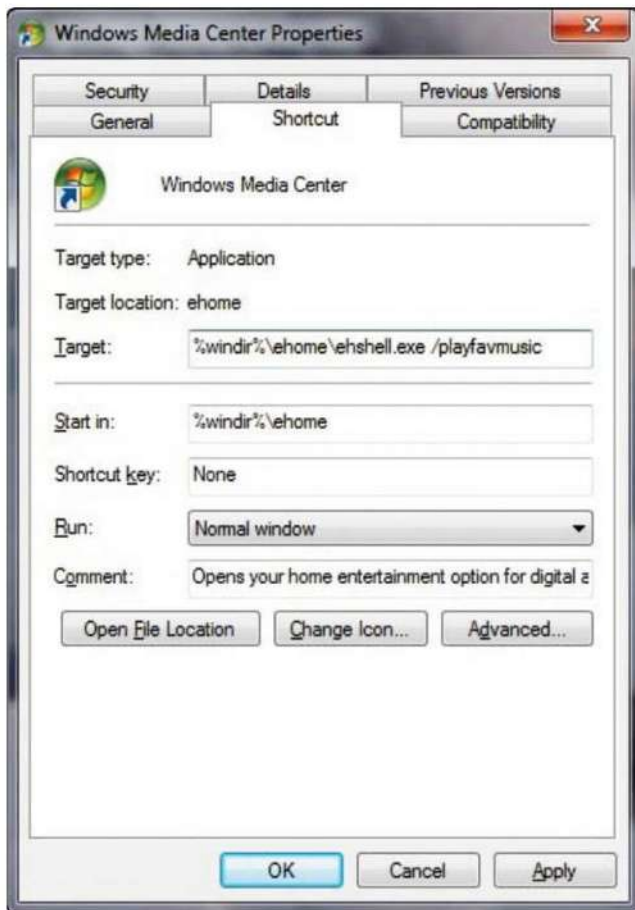
## TWEAK THE USER INTERFACE

You may remember TweakUI, the old Microsoft utility that let you fine-tune the Windows interface. The makers of the Windows Club's Ultimate Windows Tweaker (UWT), its unofficial successor for Windows 7, certainly do: they go so far as to bill it as a "Tweak UI utility".

Sure enough, like TweakUI, UWT provides a treasure trove of customisation controls, from changing what appears in the Start menu to optimising performance by disabling various Windows

features (such as Aero and the more esoteric Tablet PC). Of particular interest to many frustrated users will be the ability to prevent Windows from automatically rebooting after an unattended system update, interrupting your work. You can turn off that option and countless others.

UWT even lets you wrangle Internet Explorer 8—no more warnings when you're about to close multiple tabs, for example. Granted, you can reach many of the same settings by delving into the Control Panel, Registry and other areas. But Ultimate Windows Tweaker puts every imaginable option (and some you never imagined) under one convenient >



▲ **Edit the Target command line in Media Center's Shortcut Properties to tell it what to do whenever you launch it.**

> roof. Available from <http://www.thewindowsclub.com>, it's a must-have tool for any serious Windows 7 enthusiast.

## FIX MEDIA CENTER STARTUP

If you use Windows Media Center, you've probably wished for a way to bypass the startup animation and go straight to live TV or your favourite music. Fortunately, by flipping a few hidden switches you can configure the application to start up exactly the way you want.

Click Start, go to All Programs, find and right-click the Windows Media

Center icon, then choose Properties. Click to place your mouse cursor at the end of the Target field, where you'll see this line: %windir%\ehome\ehshell.exe. Now it's time to add on one or more of the following switches:

### /nostartupanimation

*Disables the startup animation so you get into Media Center a few seconds faster*

### /playallmusic

*Immediately plays your music library*

### /playfavmusic

*Immediately plays your music Favorites*

### /playslideshow

*Immediately slideshows all of your photos*

### /playslideshowwithmusic

*Immediately plays a slideshow with music*

### "/mcesuperbar://tv?live=true"

*Goes directly to live TV (assuming your PC has a tuner connected)*

Getting back to our initial example, suppose that you want to bypass Media Center's default startup animation and go straight to live TV. Here's how the Target field should read (make sure to leave a space before each switch):

```
%windir%\ehome\ehshell.exe
/nostartupanimation "/mcesuperbar://
tv?live=true"
```

Far more fun than that pesky animation.

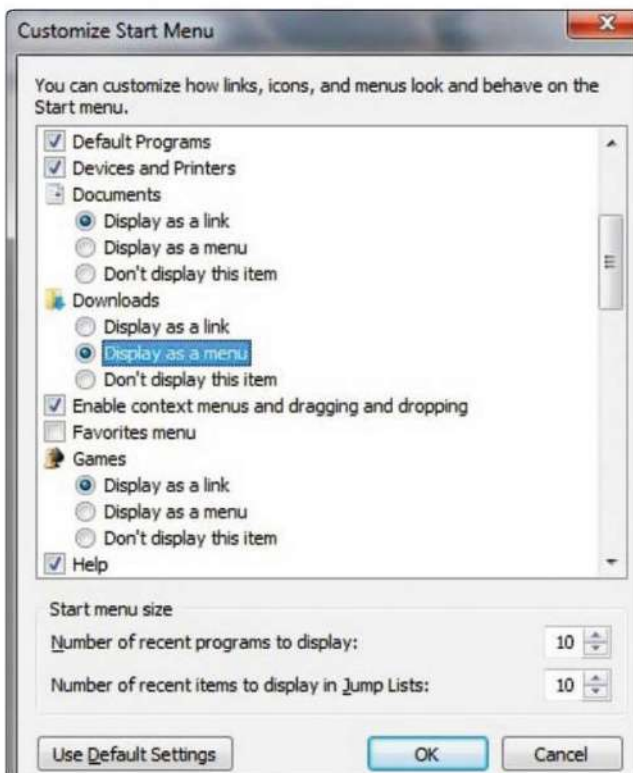




## MAKE DOWNLOADS VISIBLE

By default, any files you download land in the Downloads folder. So why doesn't Windows make that folder easier to find? Here's how to add it to the Start menu:

- 1 Right-click Start and select Properties.
- 2 Click the Customize button.
- 3 Scroll down to the entry for Downloads. Enable either Display as a link or Display as a menu. The former will open your Downloads folder in a new window; the latter will display its contents as a menu.
- 4 Click OK, then OK, and you're done.



▲ **Add the Downloads folder to Windows' Start menu and you'll never again have to hunt for the file you just downloaded.**

Now click Start and examine the options in the right-hand column—you'll see Downloads ready and waiting.

## KILL UNWANTED FEATURES

If you're running Windows on a netbook or an older PC, you'll want to keep it as lean and fit as possible. Windows 7 makes it easy to turn off unwanted features that might slow it down. And (unlike Vista) it also lets you disable high-profile apps such as Internet Explorer 8, Windows Media Center and Windows Search.

To make changes, click Start, type **features** into the Search box, then click Turn Windows features on or off. Wait a few seconds for the menu to appear; when it does, clear the checkbox for any feature you want to disable.

Netbook users, for example, might want to send Windows DVD Maker packing, and there's no sense keeping Tablet PC Components around if you're not using a tablet or other touchscreen PC.

Click OK when you're done, and wait a minute or several while Windows reconfigures itself.

## ADD INTERNET SEARCHES

One of the great things about Windows Vista was the way search capabilities permeated the OS. From the Start menu through Windows Explorer to the Control Panel, search was everywhere.

The same is true of Windows 7, and in addition you can install "search connectors" that let you search websites directly from Windows Explorer. If you've ever added search engines to Internet >

› Explorer 7 or 8, it's a similar idea. In Windows 7, you download a small file from the site you want to search—Amazon, eBay, Flickr or whatever—and open it to show the Add Search Connector dialog box. Click Add and you'll get a new option in the Favorites section of Windows Explorer. Start typing in the search field and watch the results appear.

Microsoft doesn't make search connectors particularly easy to find, but you can get a bunch of them at Seven Forums (<http://www.sevenforums.com>), where you'll also find instructions for creating connectors of your own: scroll down to Create Your Own Standard Basic Search Provider. If you can copy and paste commands, you can make a connector for just about any site. Copy the XML code into Windows 7's Notepad app, replace the bold bits with the appropriate information, then save the file with an .osdx extension. Double-click this file to install it as described above.

## TAME JUMP LISTS

Jump Lists work like a souped-up Recent Documents menu, providing quick access to application-specific options. For example, right-clicking Internet Explorer's Taskbar icon reveals a list of frequently visited websites and available tasks, such as New Tab and InPrivate. Once you get started using Jump Lists, you'll wonder how you ever got along without them.

Then again, they may not be set up in quite the way that's most convenient for you. Want to change the number of items that appear in your Jump Lists? It's



▲ **Search connectors let you search the Internet the same way you search your own computer, within Windows Explorer.**

10 by default; if that's too many or too few for your liking, modifying it is a snap:

- 1 Right-click Start and select Properties.
- 2 Click the Customize button.
- 3 Just below the options window, you'll see "Number of recent programs to display in Jump Lists". Use the arrows to adjust the setting, or type the number you want into the box. (Zero is an option!)
- 4 Click OK, then OK, and you're done.

## KEEP ACTION CENTER QUIET

Microsoft promised to make Windows 7 less annoying than Vista, starting with issuing fewer User Account Control warnings and pop-up system messages. Windows 7's new Action Center is in charge of the latter, and lets you specify which messages you want to see. Here's how to tweak its settings:





- 1 Click Start, type **action** into the Search box and click Action Center.
- 2 Click Change Action Center settings.
- 3 Clear the checkbox next to one or more of the security or maintenance options.
- 4 Click OK and you're done.

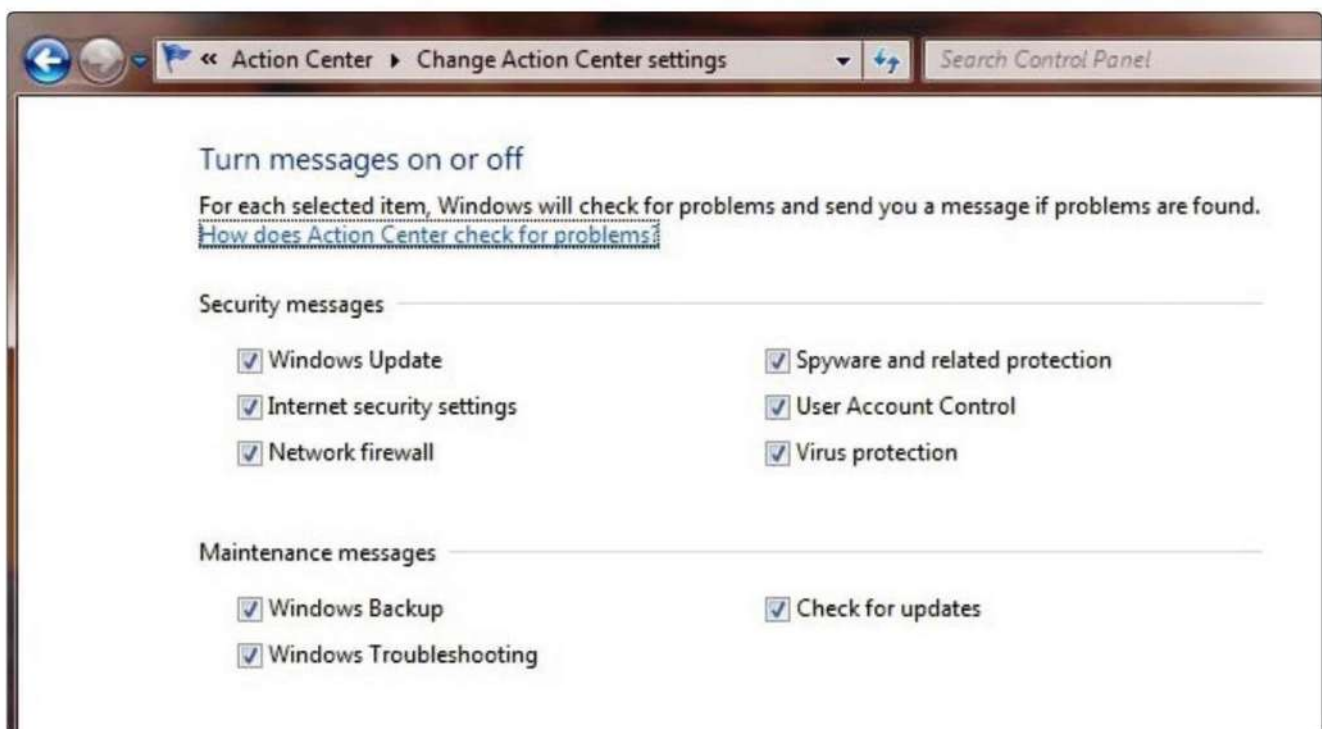
Bear in mind that the purpose of these system messages is to keep your PC running safely and smoothly. If you disable them, there's a chance you may miss an important warning.

## SHIFT THE TASKBAR

Today's widescreen monitors are great for watching movies and organising windows, but a lot of time all that width goes

to waste. So why not free up some space by moving the Windows Taskbar to the side of the screen? After all, you've got plenty of room horizontally, not so much vertically. Windows 7 makes this option particularly attractive because it defaults to label-free icons. Traditionalists may hate this at first, but it's a practical way to gain extra room in your web browser, word processor and other apps.

- 1 Right-click an empty area of the Taskbar, and clear the checkmark next to Lock the Taskbar.
- 2 Left-click and hold an empty area of the Taskbar, then drag it to the left side of the screen. Once you get close, you'll see it lock in, at which point you can release the mouse button. Try it—you might like it! □



- ▲ Adjust Action Center's settings to warn you only about the things that concern you.

# Add Windows Live Essentials

*Get Microsoft's free programs to complete your Windows 7 system.*

**A** brand new addition to Windows 7 is the completely revamped Windows Live Essentials 2011.

Besides adding back the mail, photo gallery and video editing programs that were previously included with Windows, it offers blogging, messaging and more.

To download and install Live Essentials, hit the Windows key and type "live" into the Search box to get an item named "Go online to get Windows Live Essentials". Select this to go to <http://explore.live.com/windows-live-essentials>, where you can click the Download now button to start an installer that lets you choose which elements you want. It's all free.

## WINDOWS LIVE MESSENGER

Windows Live Essentials 2011 has four main elements: Messenger, Mail, Photo Gallery and Movie Maker. Messenger is not just for instant messaging chat; it can also be used for keeping up to date with social networks, saving you logging in to Facebook or other such sites to see what's going on. Just add the details of the sites you use to your Messenger profile. Photo sharing sites such as Flickr can be included, as can music streaming sites.

Messenger also handles voice and video chat. You can take part in a web-based chat with one or more friends, and share photos and web links with them. Create and log in to your Windows Live

(or Hotmail) email account and find contacts there. You can also ask friends for their Messenger user names so you can chat online or even play web-based games against each other.

For a more phone-like chat, you can use Messenger from a USB phone handset to make free calls to friends. You'll need a good broadband connection, and this is even more vital for video chat. With a webcam (whether built into your laptop or plugged in) you can make video calls via Messenger over your Wi-Fi network.

## WINDOWS LIVE MOVIE MAKER

We all enjoy taking photos and videos, but the resulting footage often languishes on the camera or phone it was taken on.



▲ **Live is all about connections, and the apps can integrate with social networks.**





◀ While Windows 7 comes with fewer built-in apps than previous versions, you can get more functionality than ever by downloading Windows Live Essentials. The difference is you can just take the parts you want.

Importing it into the My Photos or My Videos folder on your PC is a start, but Windows Live Movie Maker encourages you to do something meaningful with your shots. In a few minutes, you can cut out the boring bits and turn both video clips and photos into movie presentations that you'll actually want to watch. Then you can share this by burning it to a DVD, saving it as a file or uploading it straight to YouTube. Find out more over the page.

## WINDOWS LIVE PHOTO GALLERY

Since the elements of Windows Live Essentials are linked, it's no surprise that you can use Photo Gallery not only to organise your images but also to share them via Facebook, Flickr and YouTube, email and Messenger. You can make basic edits, such as cropping and removing redeye, and batch-convert photos.

## WINDOWS LIVE MAIL

Your email and contact tools now offer calendar and synchronisation features. Because everything is web-based, you

simply need to log into your Live account to check your diary, rearrange a meeting or view the inboxes of multiple email accounts. Windows Live Mail works with Gmail, Yahoo! and Hotmail; just enter the username and password for each account and save it in your Mail settings.

More surprisingly, Mail is also the best way to show someone your photo collection. Send them a link to view the photos you've arranged online in Photo Gallery, avoiding large attachments and letting you control who can see what.

## AND THERE'S MORE...

There are several other tools of note in the Live Essentials bundle. Family Safety is useful for keeping a watchful eye on what your kids can access on the web, creating a "walled garden" for them to play in.

Bloggers will find Writer useful for preparing and publishing posts. Although Microsoft has discontinued the blogging service it initially offered to go with this, Writer works closely with other blogging platforms, such as WordPress. □

# Windows Live Movie Maker

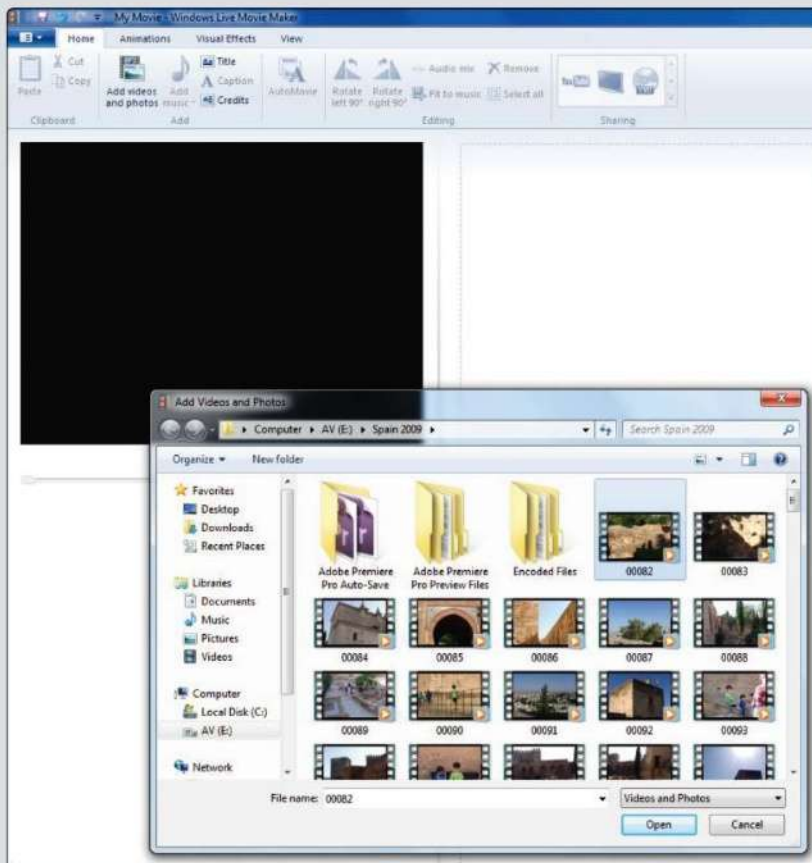
With camcorders available from as little as £100, and YouTube nudging Google and Facebook as the third most popular website, it's easier than ever to shoot and share video. But it's still worth putting in the effort to turn your raw footage into a memorable, well-paced movie.

Download Microsoft's free Windows Live Movie Maker software (part of Live Essentials) and you can get started right now. Movie Maker has been around a while—it was included with most versions of Vista, and with XP's Service Pack 2—but this new version, released to coincide with Windows 7, is a significant update, providing everything you need to go from camcorder to final output.

## WHAT YOU NEED

Most modern PCs are capable of at least basic video editing, but HD cameras with their H.264 footage make it one of the most demanding tasks. As a rule of thumb, any recent dual-core processor should suffice; low-power mobile or Atom CPUs won't. The more RAM, the better: we recommend at least 4GB if your video is HD. Here 64-bit Windows 7 has the advantage, because it can use more than 4GB.

Video also eats storage for breakfast. Although the H.264 compression used by AVCHD camcorders is very efficient, it still takes 2MB or more for every second at the best quality. So a gigabyte of hard disk space will only be enough for around eight



## 1 Import from disk

Once you've installed Movie Maker, the first step is to import some video. If the files are already on your hard disk, you can either drag and drop them into the software or click on the Drag videos and photos... label that you see in the main window. Use the browser that appears to find the files you want, select them in the dialog box, and click Open to bring them into Movie Maker. You can import photos in exactly the same way to incorporate into a movie or slideshow.





minutes. If you plan to edit video regularly, shop for a second hard drive (whether internal, in a desktop PC, or external) just for storing footage. You need room not only for the original clips, but also for the final movie and temporary files—at least four times as much as your finished length.

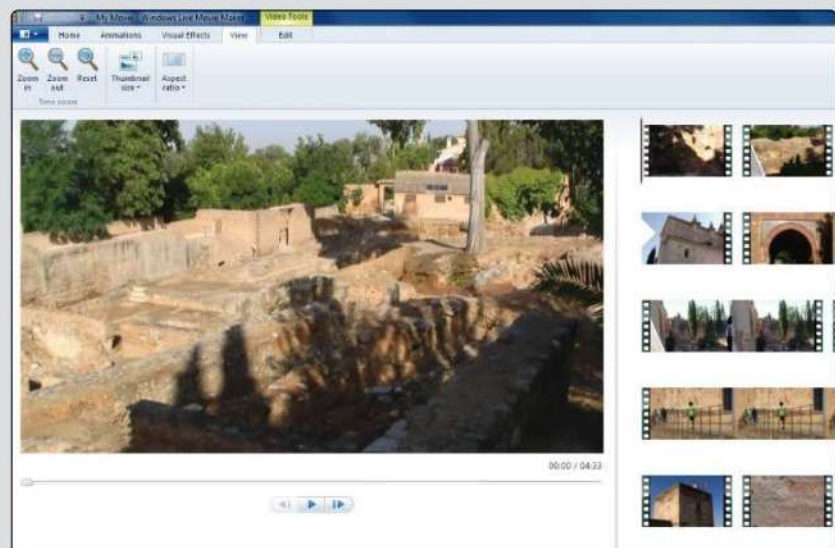
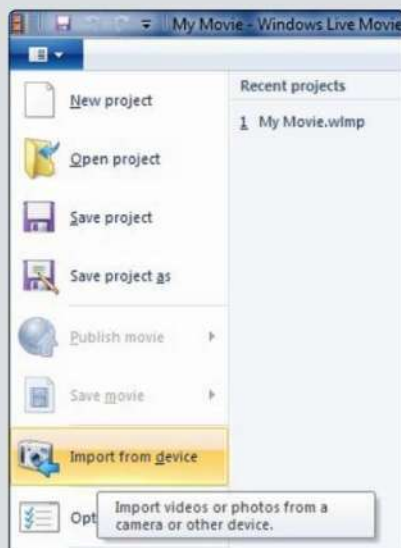
Movie Maker now supports more formats: WMV, ASF and WM; M2TS and M2T AVCHD; Apple's QuickTime MOV and QT; DV in AVI format; both MP4 and M4V-based MPEG-4; most flavours of MPEG-2 (including unencrypted VOB files from DVDs); and the MOD format used by JVC.

If you've recorded TV shows using Media Center in DVR-MS or WTV format, these are also supported (copyright

permitting). To import from tape-based DV or HDV camcorders, you'll need a PC with a FireWire (iLink) port, and you have to record your clips to disk first via the Import from device menu option in Movie Maker.

### THE EASY WAY

If you don't feel like editing your own movie, Movie Maker has an even easier alternative. After importing clips, select AutoMovie from the Home menu. This will guide you through a short wizard to create a simple edit automatically. You'll be prompted to choose background music, and then your clips will be spliced together with transitions, a title at the beginning and "The End" to round things off.



**2 Import from camera** Alternatively, attach your camera via USB or insert its memory card, then click the drop-down menu next to Home and select Import from device. A wizard helps you import footage.

**3 Set up for editing** Select clips, using More options to switch the destination from My Pictures to My Videos. Then go to step 1 to bring the files into Movie Maker. If widescreen footage shows black bars, use Aspect ratio (under View) to switch to widescreen editing. >



**4 Arrange clips** Your clips appear in a timeline. Now arrange them in your desired running order simply by dragging into position. You won't want to use all of each clip, so now's the time to trim. Select one, then choose the Edit toolset in the menu at the top and pick the Trim Tool. The clip is loaded into the preview window. Drag the markers either end of the playback line underneath to mark your desired start and end points, then click Save trim.



**5 Add transitions** By default, clips cut straight from one to the next. If you want a more interesting transition between two clips, click the second one, then go to Animations and choose from the options.

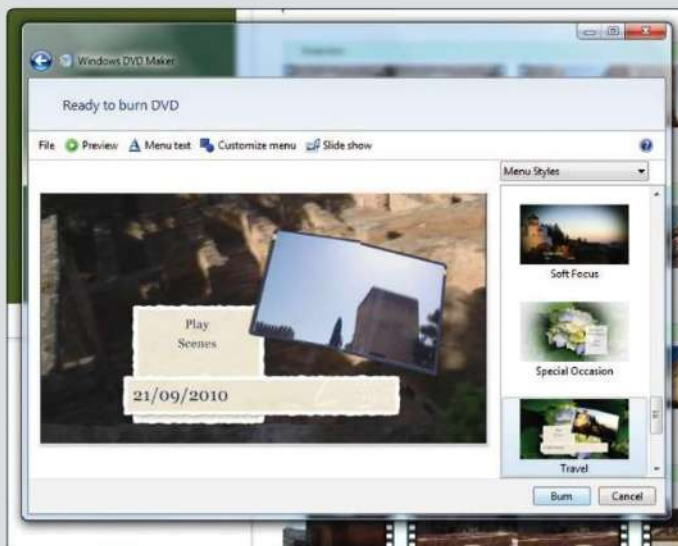
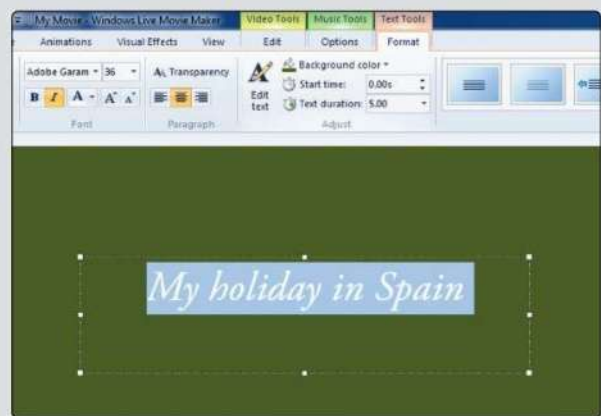
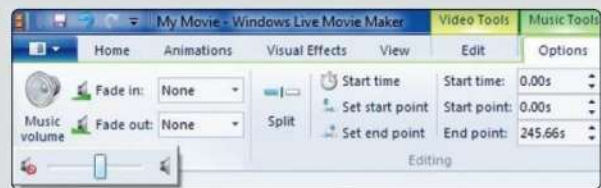
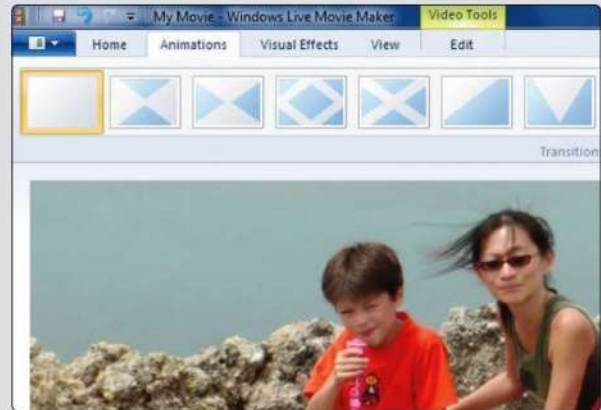
**6 Add visual effects** You can also add filters to your clips using Visual Effects. The simplest is Brightness, which is handy for correcting clips where the lighting has come out wrong. The icons to the left offer a selection of special effects such as posterise, black-and-white and sepia. Unless you're reading this in the 1980s, we'd advise using transitions and effects sparingly.





**7 Work with stills** If you've imported photos too, you can bring them to life by selecting them and heading back to Animations. Still image animations are listed to the right of the transitions. Use the automated animation option, or one that pans and zooms in from a specific direction.

**8 Add music and titles** Import background music via the Home menu. Double-click the green band that appears above your footage to call up Music Tools, where you can set the volume, fade the start and end, and adjust the duration to fit. You'll also want titles and captions to tell the audience what they're looking at. To add an opening slide, place the timeline marker at the start, then choose Title from the Home menu. Use the Text Tools to enter, format and animate your text. Add titles between clips by moving the timeline marker first. For scrolling credits, go to the end of the timeline and choose the Credits option. Add a list of names and it will scroll up smoothly.



**9 Export** You can save your finished movie as a high-quality video file, upload it straight to YouTube or burn it to a DVD. All of these options are in the Sharing section of the Home menu. We've chosen to create a DVD. Movie Maker sends the necessary file to Windows DVD Maker, where you can choose a menu style and add text. If you choose YouTube, Movie Maker will ask you to log in and pick a category. That's it! □







6



*Under the hood*  
**Windows 7**  
**tips and tricks**

# Top tips for a slicker system

*Tune up Windows 7 to get the best results from your installation.*

**I**nstalling Windows 7 is a good way to make your PC work better and maybe a little faster, but there's much more you can do. A few simple tweaks can make any computer work more smoothly.

Of course, the biggest difference can be made by adding more RAM (especially if you're running 64-bit Windows to enable more than 4GB of memory), a more capable graphics card, a faster processor, or a bigger hard disk that's less pushed for free space—but not every boost to

performance or convenience has to cost you money. Here are some of our favourite free tips for your new OS.

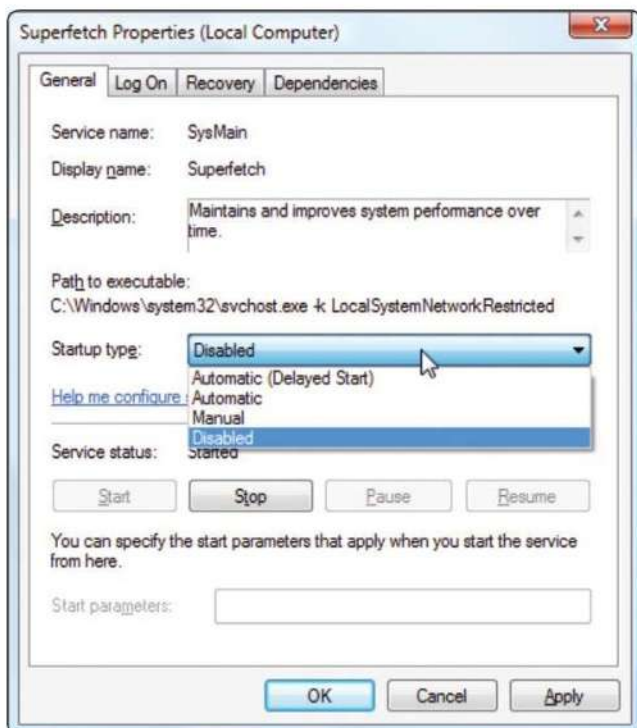
## TAME SUPERFETCH

One of the ways Microsoft tries to improve the performance of its operating system is to anticipate what users are likely to want to do so that the underlying software can be ready to do it, rather than having to jump at the last minute to line up the appropriate resources. Sometimes this can work very well, but at other times wrongly pre-empting your actions can actually slow things down.

Superfetch is a good example. This feature anticipates what the user will do next and readies the appropriate data (such as program code that's been paged out to hard disk to make room in RAM) to roll. It works even better in Windows 7 than Vista, and generally speaking it's a good thing, because generally speaking you're likely to be switching between several tasks. (Press Ctrl-Alt-Del to bring up Task Manager and you can instantly see just how many processes are competing with the one you're currently using.)

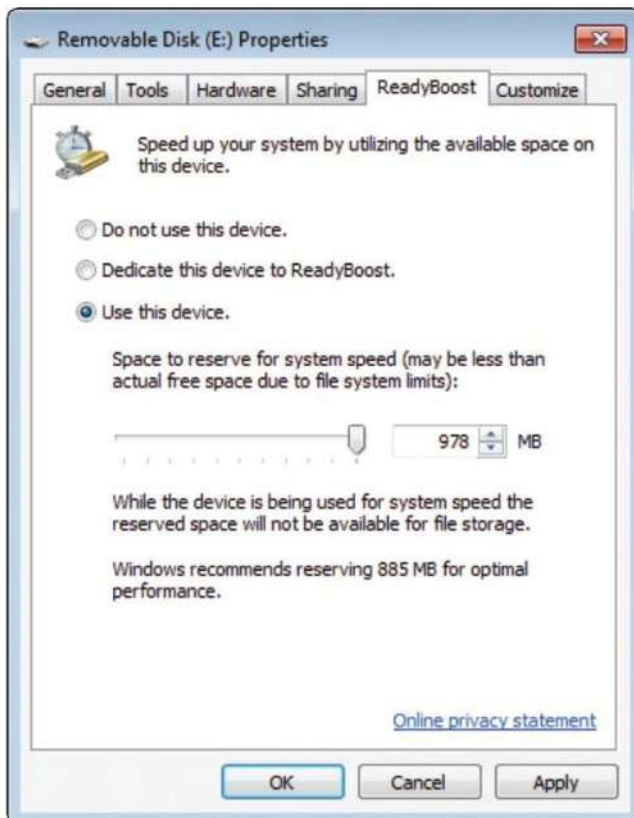
At times when you want to focus on one processor-intensive program and dedicate all your PC's power to it, however, such thoughtfulness on the part of Windows is counterproductive.

If you need to curb Superfetch's



▲ **Behind-the-scenes features such as Superfetch can aid performance, but in some circumstances are better disabled.**





▲ **ReadyBoost uses memory on USB sticks to supplement your PC's RAM. Take the option when you plug in the device.**

enthusiasm, go to Start, type **services.msc** in the Search box, scroll down to SuperFetch in the list that appears and click it. In the left pane, you can click Stop to halt the service until you restart it or reboot Windows. Alternatively, to turn it off more permanently, double-click SuperFetch in the list to open its Properties and select Disabled from the Startup type drop-down. If you later want to turn it back on, switch this back to Automatic. Alternatively, Automatic (Delayed Start) means the service will wait a few minutes after startup to avoid tying up resources while you're trying to get started on your tasks.

## GIVE MEMORY A BOOST

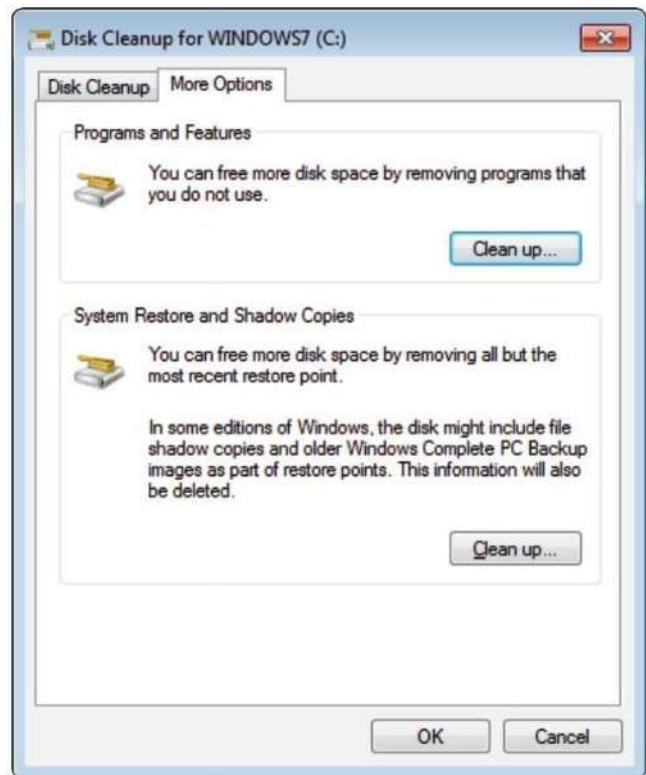
Like Vista, Windows 7 allows you to perform an instant hardware upgrade that doesn't involve any chips or cards, just a USB memory drive—or even another USB device with accessible memory, such as an MP3 player. The ReadyBoost feature can use any unallocated memory on an external drive as virtual memory. It's not quite the same as adding more RAM, because flash memory isn't as fast or integrated, but it does let you give Windows a bit more headroom without the messy job of opening up the computer and switching memory modules.

In fact, using ReadyBoost is almost embarrassingly simple. Just plug in a USB stick or flash memory drive. Windows will bring up a pane offering you the choice of copying files, autoplaying or using ReadyBoost. Guess which option you should choose?

## DUMP THE DETRITUS

As you add, edit and delete files on a hard disk, its storage space becomes fragmented. Modern operating systems try to minimise this as they go along, but defragmenting a disk can still make it a little more efficient. By default, your PC will probably be set to run a defrag on a weekly basis, which is sensible. To check this, type **disk defrag** into the Start menu's Search box and press Return to launch Disk Defragmenter. Under Schedule, you can see the current timetable or click the Configure schedule button to alter it.

Your hard drive is almost certainly full of stuff you don't need, which will >



### ▲ Disk Cleanup identifies and removes several categories of potentially unwanted files.

› also cause fragmentation and reduce the amount of free space, potentially reducing Windows' performance. Whether it's documents you no longer need, temporary files, downloaded installers you no longer need or a proliferation of System Restore points, all but the newest of PCs will have accumulated odds and ends that do nothing useful. The best place to start clearing these out is Disk Cleanup (again easy to find via Start, Search).

When you first run this tool, you'll see a single tab that lists categories of files you're likely to want to ditch, complete with calculations of how much space you could save in each case. Check the box for each set of files you know you can live without, then click OK. We saved an astounding 33GB, mostly from a Recycle

Bin we hadn't emptied in ages—simple.

To go further, click the Clean up system files button. This asks you once again which disk you want to look at—normally the one Windows is installed on—and gives you an extra tab, More Options, where you can release space by deleting unwanted programs and features or reducing the number of stored System Restore points. Restore points are great if something goes wrong and you need to take your PC back to a previous state, but they can consume a lot of storage.

### INCONVENIENT INDEXING

We've mentioned the often underestimated value of Windows 7's built-in search functionality, which lets you access almost anything on the system





instantly—whether it's a program, a document, an email or a system setting—by typing its name into the Start menu's Search box. The only downside is that the desktop indexing tool that makes this possible can be a bit of a resource hog.

To stop it running in the background and potentially limiting the performance of other tasks, you can tell it to wait until later. Click Start and type **index** into the Search box to bring up Indexing Options, then press Return to launch this. If indexing is currently in progress, you can click Pause to halt it. Click Modify to see which drives and folders are being indexed: this should include the main locations you use, but exclude things like recovery drives whose contents you'll never need to search through.



▲ **Windows 7's search is incredibly useful, but you don't have to put up with it slowing your PC down while indexing.**

## FIX FILE ASSOCIATIONS

It's frustrating to click on a document and find it tries to open in a program you don't normally use. This may be because the person who sent you the file uses different software, or you've accidentally allowed a new program you've installed to take over responsibility for that file type.

In Windows 7 (as in Vista) you can globally set which apps open which files. Go to Start, Default Programs, Set program access and computer defaults. Pick Microsoft Windows from the list to use Microsoft's apps: Internet Explorer for browsing, Live Mail for email, Media Player for media, and so on. Select Non-Microsoft if you prefer to use programs from other vendors for all of these. Or to pick from all the available apps, select Custom and make your own choices.

## USE OFFLINE SHARES

When you're accessing data from the office at home or on the move, working on remote files will slow things down. The Business and Ultimate editions of Windows 7 give you the option of syncing network files to your PC, so they're copied to your own hard disk, then automatically synced back when changes are made. (An additional benefit is that your work won't be interrupted if the connection is lost.)

In Windows Explorer, select the network files or folders that you want and right-click. Choose Properties, Sharing, Share. Then right-click the folders you're now sharing and select Always Available Offline. That's it—the rest of the process happens automatically. □

# Keep your system backed up

*Windows 7's Backup tool has all you need to safeguard your data.*

**Y**our PC is probably one of the more expensive bits of kit you own. But the price of the hardware pales into insignificance beside the value of what's stored on it. The information in a document on a hard drive might be impossible to replicate or replace. Music and movies build up into libraries that would be time-consuming and expensive to acquire again, even if you could remember all their titles. And when it comes to your own digital photos and videos, memories are priceless.

When a hard drive goes bad—and, being the last component of the typical PC that actually has moving parts, they're prone to it—it's no fun at all running around checking whether you have copies of your vital stuff on USB drives, email attachments, memory cards and other PCs. The only way to save yourself hassle and heartache is a proper backup regime.

For the average home user, misplacing or deleting files is at least as much of a concern as the threat of data theft, which can generally be thwarted by basic security precautions (like turning on Windows Firewall and installing free antivirus software) when you're not an organisation that's likely to be targeted directly. It's more important to keep hold of our data than to hide it. Yet many of us put all the proper protection in place and then forget about organising a regular backup.

One option is simply to copy anything important onto a USB stick every few days. But cheap flash memory isn't designed for permanent storage, and is susceptible to friends, family and colleagues "borrowing". Far better to back up regularly to a more reliable location. And it needn't be expensive or time-consuming. External hard drives now cost under £50 per 500GB, and with broadband you also have the option of keeping backups online, at prices starting from zero.

You may already have some server space with your ISP account. For greater convenience, a service such as Carbonite (<http://carbonite.co.uk>) or Mozy Home (<http://mozy.com/home>) will handle a modest quantity of data. For photos, Flickr (<http://flickr.com>) lets you store hundreds at their original high resolution; the Pro version handles more for \$25 (£16) a year.

## IMAGE CONSCIOUS

As well as standard backups, we'll look at creating a drive image. This is a snapshot of your current setup that can easily be restored after you reinstall Windows or reformat the hard drive. It isn't so much about the documents as the state of the PC, settings and preferences, the drivers you need for your printers and cameras and so on. A drive image can also be used as an alternative to a restore partition to reinstall Windows.





## 6

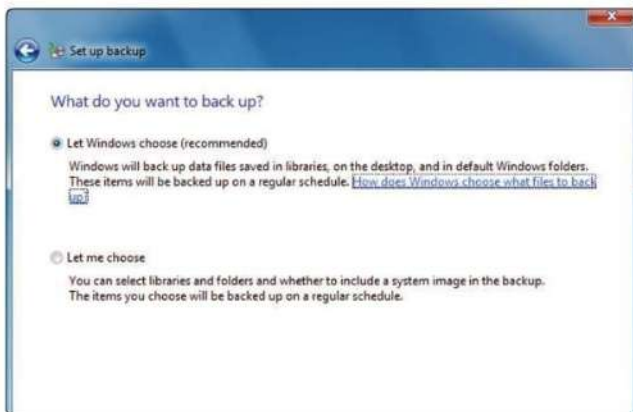
## Windows 7 tips and tricks



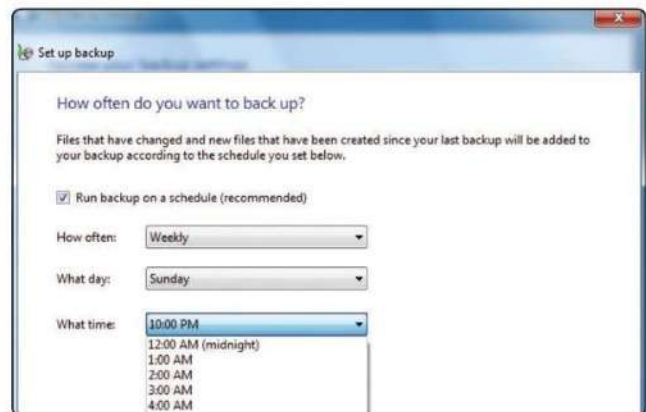
**1** Backup and Restore Center, introduced in Vista, is in Windows 7 too. Go to Control Panel choose System and Security, Backup and Restore. (XP had similar tools under Control Panel, Performance and Maintenance.) Let's do our first backup.



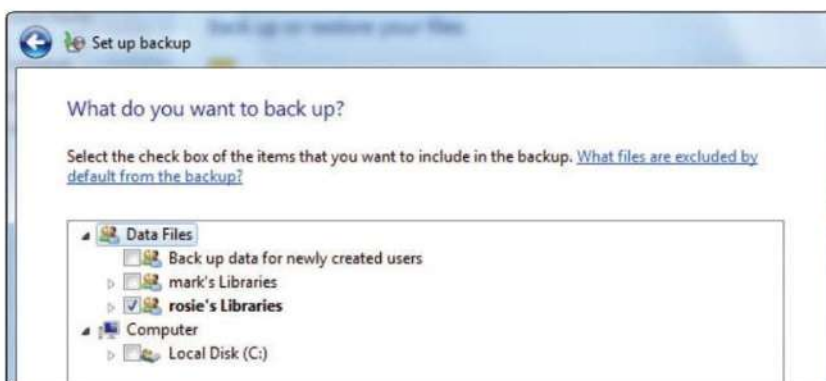
**2** Click the option to back up your PC and you're taken to the Backup and Restore Center. You need a suitable device to back up to; a USB hard drive is usually the best bet. Browse for a device and you're shown how much space is available on it.



**3** If you allow Windows to choose what to back up, it will automatically back up the files and folders under your user account and any other user account or public/shared account on the local drive. Networked and attached drives aren't backed up here, so that would have to be done separately.

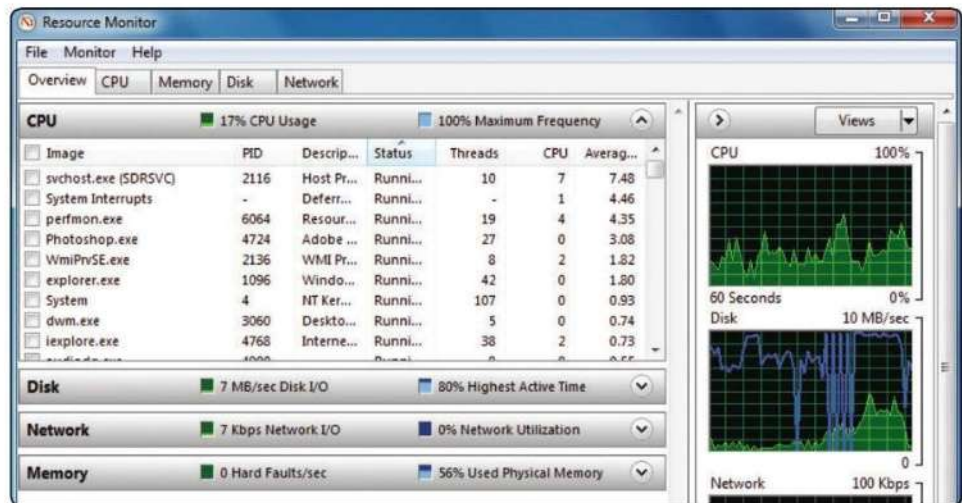


**4** The next step is to choose a convenient time for backups. Windows will normally schedule this for once a week. On the settings page you can accept this or click Change schedule. When you're happy with the arrangement, click Save settings and run backup. Your initial backup will now begin.



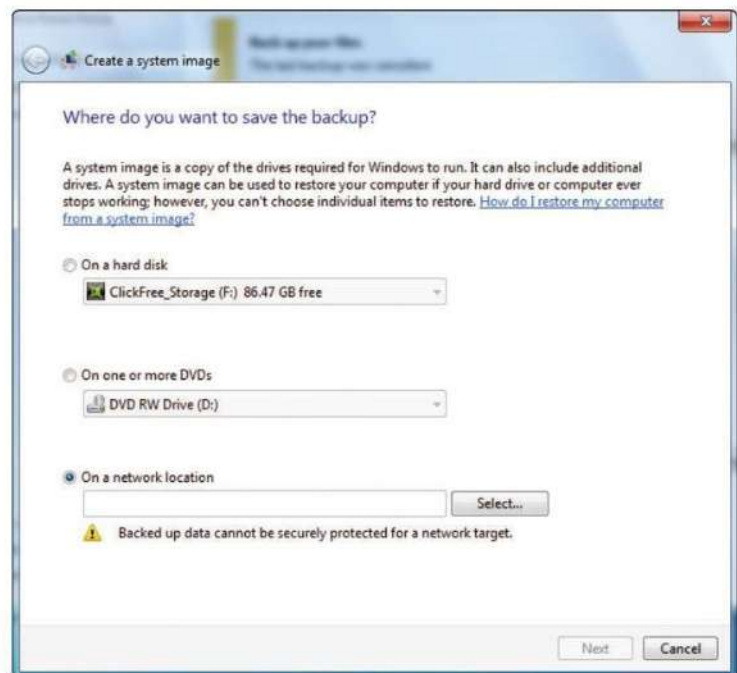
**5** Having performed an initial backup of all the user accounts and files on the PC, we'll now elect to run a regular backup of just our user account. Click Change settings in the Backup and Restore Center and decide what to back up. When you're happy, select Review your backup settings, Save settings and run backup. >

**6** Some people say they don't back up their PC regularly because it takes too much time or slows down the system. But it's definitely worth the trouble, and in fact, on a reasonably modern computer, even a complete Windows Backup shouldn't hog too much processing power. For an overview, go to Start and type Resource Monitor.



**7** The Backup and Restore Center has two more types of backup worth creating: a system repair disc and a system image. The former can help you restart the PC when Windows won't boot. Choose Create a system repair disc, insert a blank recordable disc when prompted and click Create disc. It takes only a minute or two to burn the disc. Click OK when Windows Backup says it's finished. A message will instruct you to remove the disc and label it: we'd suggest the slightly longer format [Computer name] Repair disc Windows 7 [32/64]-bit. Put it somewhere safe.

**8** Finally, let's create a disc image. This will come in useful if your PC experiences a catastrophic failure and you need to reformat the hard drive or reinstall Windows, then restore your desktop and settings. As you'll be warned if you attempt to do so, you can't create this over a network. Here, Windows tells us a 1GB USB stick would be sufficient for our drive image. However, an optical disc, carefully stored, will probably be more reliable than a convenient but easy-to-lose flash drive. Again, keep the disc or drive somewhere safe, labelled clearly.



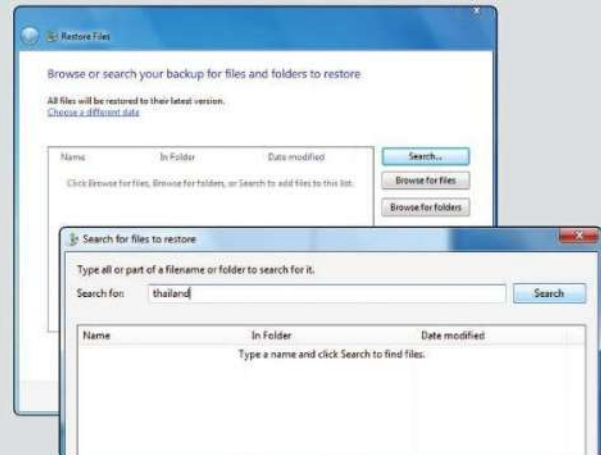
**9** Once your backups are in place, you can sit back and relax until you need them. Then follow the instructions opposite to restore the latest backup of your files.





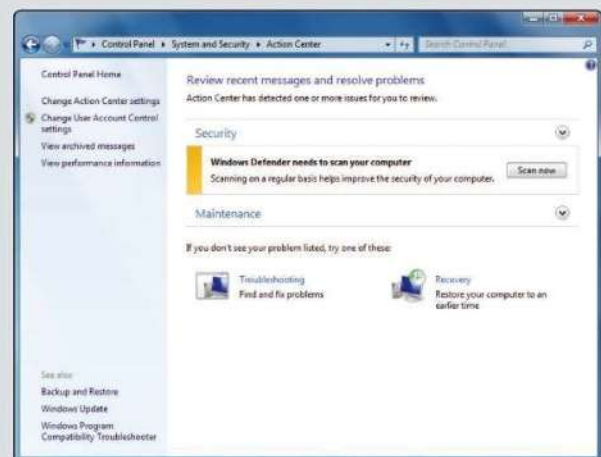
## Restoring from your backup

*Laugh in the face of disaster as you calmly retrieve your files.*



**1** Back in Windows 7's Backup and Restore Center you should see a list of backups you've created, as well as those that are scheduled to run. Below this, in the Restore half of the pane, are options for restoring files. Click **Restore my files** to delve into the specifics.

**2** If you've lost a whole hard drive's worth, click through the options to restore the entire backup. But if you've simply deleted a folder, say, you'll find it faster to track down and reinstate only those files. Enter a keyword, or **\*.[extension]** to bring up all items of one type.



**3** Having located your folder, click **OK** to restore it. If you're looking for multiple files or folders, you can add them all to the restore list before transferring them to your replacement drive or rejuvenated PC. Alternatively, pick **Recover system settings or your computer**.

**4** You may need to do a System Restore before you can reinstate files—this takes your PC back in time to before it went awry. Go to Control Panel, System and Security, Action Center. Once your PC is back on track, update your antivirus tool and run a system scan. □

# Master keyboard shortcuts

*Ten must-know key combos to speed up your work in Windows 7.*



Windows 7 may just be the most keyboard-friendly operating system yet. Without ever laying a finger on your mouse, you can dock windows, quick-launch your favorite apps, enable external displays and much more. Taking advantage means memorising a few new key combinations, but once you've integrated them into your daily routine, you'll wonder how you ever got along without them.



## Start menu searching

Arguably one of Windows' most undervalued features. A tap of the Windows key activates the Start menu, where you can type the first few letters of a program name, Control Panel, Word document or, well, anything on your PC, and then hit Enter to launch it. Who needs a mouse?



## Minimise other windows

This combo lets you send all open windows packing, except the one that's

currently active. Beats clicking the Minimise button on every individual window. Tap the same keys again to restore them.



## Transparent windows

This is the keyboard equivalent of mousing over the button at the right-hand end of the Taskbar. It's great for those times when you need to get at something on the desktop (maybe a gadget) but don't want to have to minimise all your windows. After tapping Windows-Space, all your windows will stay see-through until you let go of the Windows key.



## Launch Taskbar apps

As we've seen, Windows 7 lets you "pin" frequently used programs to the Taskbar. But did you know that these programs are automatically assigned a number and corresponding key shortcut? Just press Windows-1 to launch the first pinned app (counting from the left), Windows-2 to launch the next one, and so on.





6

Windows 7 tips and tricks



## Dock the active window

A great shortcut for widescreen monitor users, this docks the active window to the left or right half of the screen (depending on whether you tap the left or right cursor arrow key), at the same time maximizing it top-to-bottom. You're instantly set up to compare or cannibalise two documents.



## Magnify your view

Windows 7's built-in magnifier lets you zoom in wherever you place your cursor. Just hold the Windows key and tap the plus key to enable the magnifier and set a 200% zoom level. Obviously you can now only see part of the desktop, but when you mouse to any edge of the screen, your view scrolls accordingly. Tap again to increase the level of zoom, or zoom out by switching to the minus key.



## Set up for a presentation

Good news for business users constantly struggling to get Windows to cooperate

with projectors: a quick tap of Windows-P activates a monitor settings panel. Click Duplicate or Projector only to send your display to the big screen, or Extend if you've connected a second monitor.



## Make a new folder

Forget the old way of creating new folders. In Windows 7, just tap Ctrl-Shift-N. This works in any Explorer window and on the Desktop. When the folder appears, type a name for it and hit Enter.



## Bring gadgets to the fore

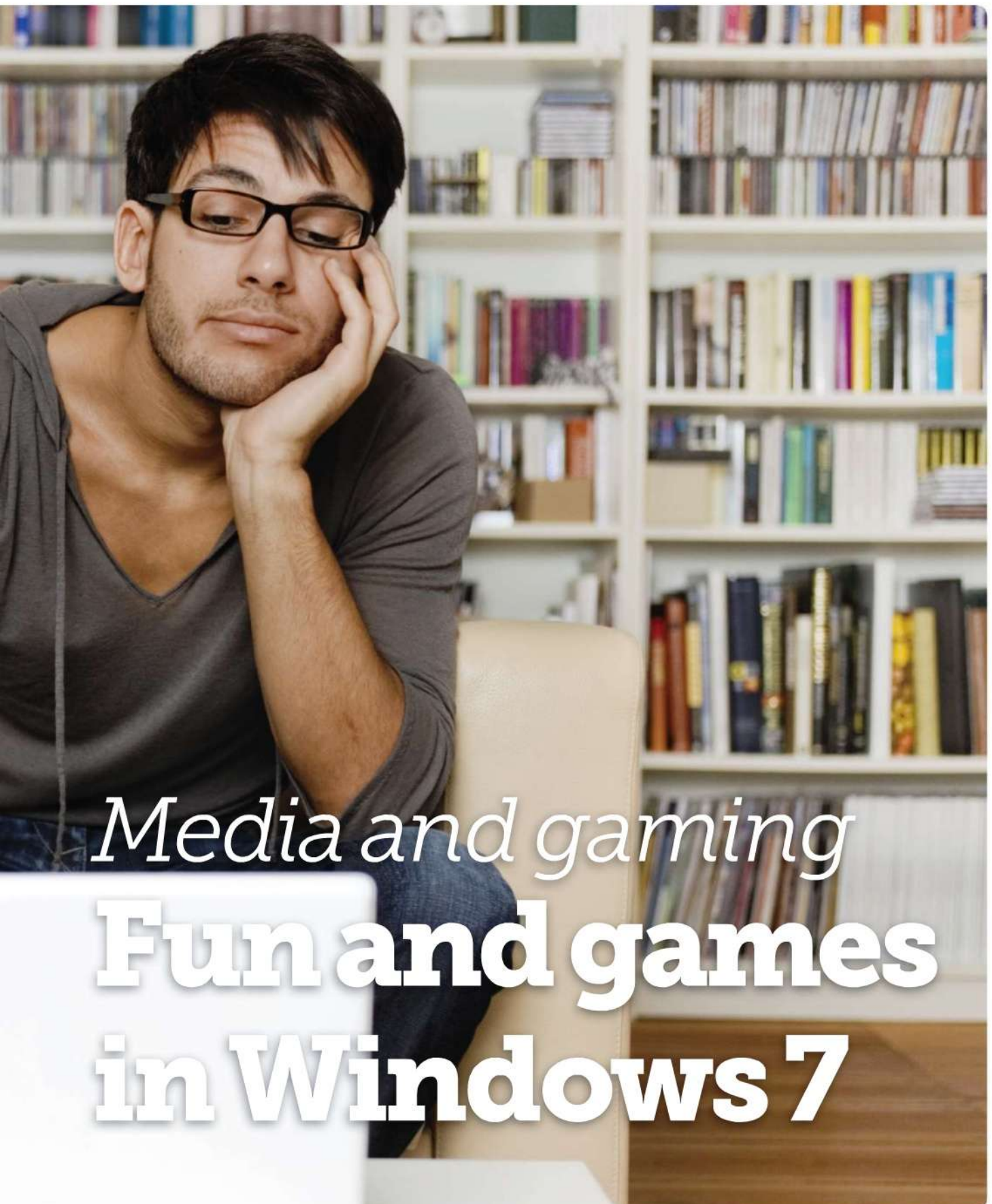
In Windows 7, gadgets are no longer relegated to the Sidebar but can sit anywhere on your Desktop. So they can get obscured by windows. Tap Windows-G to bring them all instantly to the front.

## Create your own hotkey

Like Vista, Windows 7 lets you assign a quick launch hotkey to any program. Just right-click its icon, choose Properties, then click the Shortcut tab. Click once in the Shortcut key field, press the key combination you want to assign (Ctrl-Shift-H, for instance), and click OK. The only limit is your memory for shortcut combos. □







*Media and gaming*  
**Fun and games  
in Windows 7**

# How to manage your media

*From libraries to streaming, Windows 7 is here to entertain you.*

**W**hether you're leaping directly from Windows XP to Windows 7 or you stopped at Vista along the way, you'll find the latest version of the operating system handles media files in several new ways. The methods for photo and video importing, editing, and exporting have been all updated. You have new options for sharing and streaming files between computers. And media libraries now become more versatile vessels for finding and managing your media files. Let's take a look at these and other entertainment features of Windows 7.

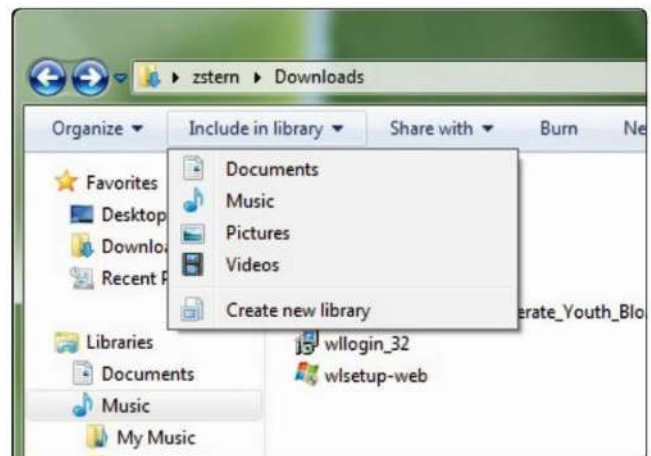
## LIBRARIES

Windows 7 manages media files differently from previous versions. The familiar Pictures, Videos, Music, and Documents folders are still there, but you can also

assign further library locations to collect your media files more dynamically.

Here's how it works. By default, programs look in the Pictures, Videos, Music and Documents folders instead of having to scrutinise your whole hard disk. And Windows XP and Vista tied your media libraries to those specific folder locations. For example, Windows Media Player watched vigilantly over C:\Users\name\Music. Whenever you added new audio files to that folder, Media Player would show them in your music library. But if you wanted Media Player to look for media in other areas—say, in the iTunes music folder or in another user's music library—you had to add the new locations manually within the program.

In Windows 7, libraries organise file types to help applications find the media



▲ Libraries are accessible to all Windows features and apps. Go to any folder and use **Include in library** to add it to any of your libraries—or create a new library of your own.





7

Fun and games in Windows 7



### ▲ Whether via your aerial or the Internet, there's plenty to watch in Media Center.

they're looking for. But the Pictures, Videos, Music and Documents folders are not the only places to which the corresponding libraries can open a door; you can add any other disk location you like, and library-savvy applications will automatically pool your media wherever it's stored. As far as applications are concerned, whatever's in the library is in the library; but where it's actually stored on your system is up to you.

Instead of manually curating media in the traditional user folders, you can turn any folder into a library. Applications will know where to find media, and you can keep your computer organized in whatever way you want.

For example, you can turn a networked folder into an auxiliary library, or even pool music files from a different user

account on the same PC. Or transform your Downloads folder into a library, instantly putting any new MP3 and video downloads into media applications.

The process is essentially the same in all these cases. Open the Start menu and click your username. Then open the folder—we'll continue with the Downloads example—that you want to add to a library and pick Include in library from its toolbar. Select the folder you want, such as Music, and then repeat if you want the same folder to appear in another library too, such as Movies. Henceforth, without your having to open them immediately after downloading them, any music and movie files that you download will be scooped into Windows Media Player.

To detach a folder from a library, open a Windows Explorer window (for >

> example via Start, Computer) and select the relevant library folder in the left pane. In our case, the menu path is Libraries, Music, Downloads. Right-click the library-enabled folder (Downloads, in this case) and choose Remove location from library.

## WINDOWS MEDIA CENTER

Of the two playback apps supplied with Windows, Media Player (which we'll come back to) is most likely to get attention because it pops up whenever you double-click a video file. Windows Media Center is often overlooked, yet it's a great way to watch and record TV (from a tuner add-on), show movies, listen to music and flip through your photos outside the confines of the regular Windows user interface.

Like a living room set-top box, Media Center displays a simple, visual menu system, designed to be operated as easily by a remote control as a mouse. You can also navigate it with the cursor keys, using Return or the spacebar to "click". Hit the green Windows logo button to go back to the main menu at any time, or go back a step by clicking the back arrow button or pressing Backspace.

On first launch, selecting any of the options will take you to a screen that asks you to confirm that you want to set up Media Center. Take the Express option unless there's anything you feel the need to tweak, and you can then scroll through the options to view various media.

Your photos, for example, can be viewed in a simple browser or as a slideshow, and you can browse your music and videos too. Under Tasks, you can also



▲ **Photos, videos, music and movies can all be played in Media Center. Like other apps, it finds your media in your libraries.**

burn content to CDs and DVDs within Media Center and use the Add extender option to stream media to another compatible device on your network, such as an Xbox 360 connected to your TV set.

Even if your PC doesn't have a TV tuner connected, you can access Microsoft's Internet TV service, which offers hundreds of free shows including BBC. Media Center isn't the only way to view this content, but it makes the experience feel much more like home entertainment and less like using a PC. There's also an option to watch Sky Player from here if you have a subscription.

## WINDOWS LIVE ESSENTIALS

We introduced Live Essentials in the previous chapter, and this suite of extra programs really is a must-have addition





to Windows 7's standard installation. Photo Gallery and Movie Maker are key multimedia apps that you can and should download from <http://explore.live.com/windows-live-essentials>. If you haven't already, you'll also want to install Silverlight, Microsoft's answer to Flash, which is increasingly used by websites to provide multimedia elements and video streaming. You'll also have the chance to sign up for a Windows Live ID if you don't already have one: this isn't required to run the apps, but you can use it to share photos and other media online, and you'll also need it to stream files over the Internet.

Once installed, Windows Live Photo Gallery is the natural home for imported photos and video. The import procedure is straightforward: launch Windows Live Photo Gallery, then introduce your image source by plugging your camera into a USB port, inserting its flash memory card into your PC's reader, loading a DVD of pictures or whatever.

From the File menu, choose Import from camera or scanner. Select your image source and click Import. You can pick items individually and even group them automatically by date and time if you like. The Adjust groups slider at the bottom of the screen then lets you divide several photo (or video) sessions that took place on the same day by reducing the amount of time allotted to a single group—handy if you tend to flit between activities and between work and play.

You can use these groupings to your advantage to get your pictures properly organised. Click Next, then click Add tags

next to any of the groups. Enter a few keywords from that photo session, separated with semicolons (for example, **holiday; family; landscape**). Click Import.

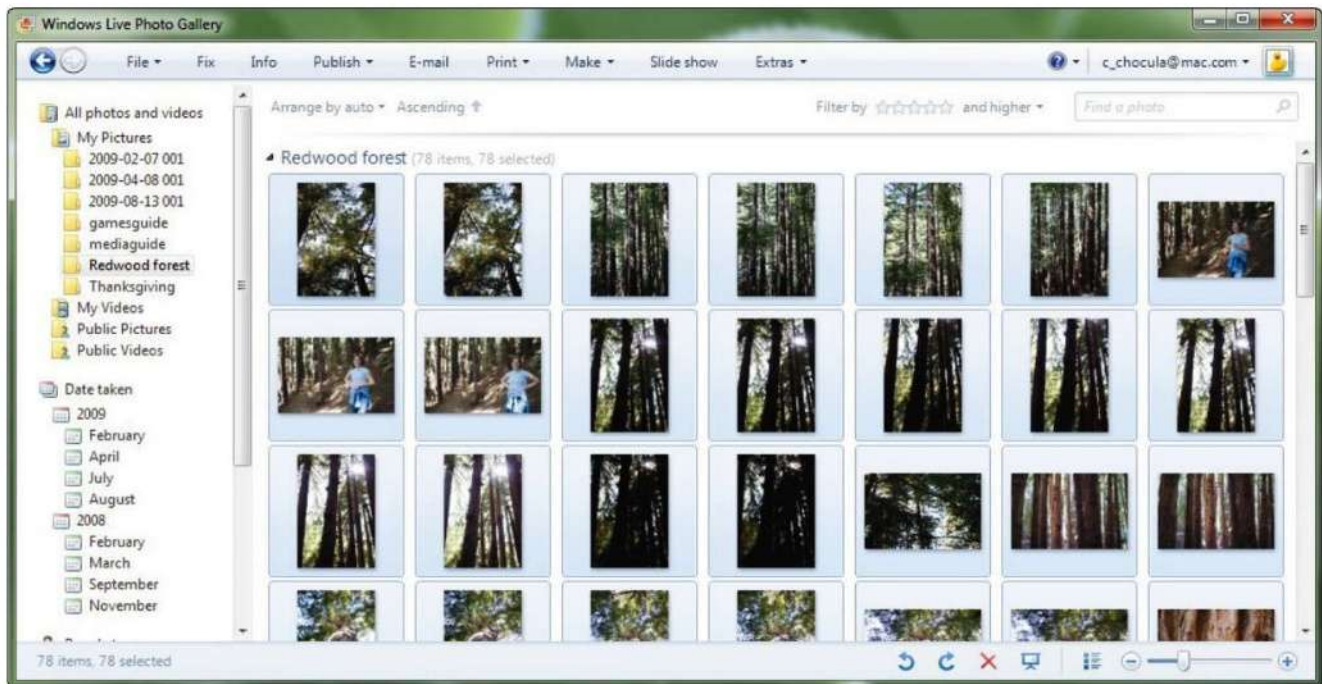
If your camera shoots RAW files, you may be prompted to download and install an additional codec. We had to go through that process for our digital SLR. You'll only need to do this once, and from then on Windows 7 will display your RAW files in the same way as regular JPEGs.

## PUBLISH A PHOTO GALLERY

Your friends and family can view your photos via the Windows Live website. After importing and arranging an album, upload the images from Windows Live Photo Gallery. In that app, right-click My Pictures and pick Create new folder. Name the new folder. Drag in the pictures that you want to put online. Click the name of the folder within the main window, near the top, to select all of the pictures. Choose Publish, Online album. Sign into your Windows Live account if asked. Now give the album a title, and in the pop-up menu choose who can view the pictures. Change the value for 'Upload size' in the pop-up menu if you wish: Medium gives enough detail for web viewing; Large and Original allow ample size for displaying on a big screen or printing out. Then click Publish.

After the photos have finished uploading, the program will prompt you to view them. Click View Album to open the page in your web browser. (If you miss that option, click your account name in the upper right corner of Windows >





▲ **Photo Gallery and Movie Maker no longer come with Windows; add them via Live.**

› Live Photo Gallery and select View your photos.) Copy the link from the web page and pass it on to your friends so they can view your photos too.

If you prefer to limit who can see an album, visit that album's web page and click Shared with: Everyone (public) at the bottom. Click Edit Permissions on the following page, and uncheck Everyone (public).

If you've made friends through the Network area of Windows Live, you could check the My network box instead. Or add email contacts at the bottom, pressing the spacebar between addresses

Back in Photo Gallery, you can add more photos to a published group by selecting the new pictures and choosing Publish, [gallery name]. As in Windows Explorer, you can use the Shift and Ctrl keys to select multiple photos at a time.

## EDIT AND PUBLISH VIDEO

While Photo Gallery is primarily a tool for importing and organising, Windows Live Movie Maker is all about getting video into better shape. It eschews its own video capture tools in favour of the import functionality provided by Windows 7 itself. Once your clips are on the PC you can import them into Movie Maker.

Drag video files—and photos, if you like—from Windows Explorer into Movie Maker's right-hand pane, or if you can't see that, drag them over the Movie Maker icon in the Taskbar, hold the mouse down, then drop them into the right pane when it pops to the front. Alternatively, select Add videos and photos in the software, select your media and click Open.

Rather than using a conventional timeline, Movie Maker lets you drag and drop clips into order on a storyboard. You





can expand or contract the length of time that an image will appear: within the Edit tab, click a photo and adjust the value shown for Duration. Click the Home tab to return to the main view.

Windows Live originally supported Microsoft's Soapbox video hosting service, but this has been discontinued, so YouTube is your best bet for video sharing. You'll find an option to upload to it from Movie Maker in Home, Sharing. As long as you have your YouTube logon details, Movie Maker will prepare the movie and upload it for you. The process may take anything from several minutes to more than an hour, so be prepared.

## STREAM YOUR MEDIA

Windows 7 adds some great media streaming tools, including the ability to listen to music from home on another Windows 7 PC over the Internet. Like Microsoft's other online features, this requires a Windows Live ID. Sign up for free at <https://signup.live.com>.

To set up streaming, first open the



▲ **Import Photos and Videos can be accessed from within both Windows Live Photo Gallery and Movie Maker.**

User Accounts Control Panel and choose Link online IDs. Select Add an online ID provider and click the Windows Live logo in the new page. Download the right file for your Windows 7 installation (either 32-bit or 64-bit), then run the installer.

The host PC (the one that has the media files) must be set up in a Home network and a HomeGroup. If yours isn't configured this way, click the Stream menu, select Turn on media streaming with HomeGroup and follow the prompts. Once your HomeGroup is ready, select Stream, Allow Internet access to home media. If you don't see that option listed, choose Link an online ID. The User Accounts Control Panel will open again. Select Link online ID, enter your logon info and click Sign In, then Close.

Back in Windows Media Player, select Allow Internet access to home media, click Yes and click OK. You'll need to leave this computer running whenever you want to share media. Repeat these setup steps on the remote PC, link the account with your Windows Live ID and activate streaming. Your home media should appear under the Other Libraries heading, where you can browse and stream music, pictures and video. (Note that corporate firewalls may block this streaming service if you're at work or on another secure network.)

Within your own network, Windows 7 simplifies streaming—for example, playing tracks from your study PC on your laptop in the living room—with the help of HomeGroup. You'll let only trusted devices into your HomeGroup, and >

they'll have unfettered access to media files. These settings are managed within the HomeGroup section of the Networking and Internet Control Panel.

Deactivate the appropriate checkboxes if you want to share only certain kinds of media files. Your Documents folder, for example, remains private by default. You can turn on media streaming here, too: select Stream my pictures, music, and videos to all devices on my home network.

Alternatively, you can activate local streaming from within Windows Media Player: select Stream, Automatically allow devices to play my media. Then choose Automatically allow all computers and media devices. Networked libraries will show up under Other Libraries within Media Player and Photo Gallery.

## PLAY DVD AND BLU-RAY DISCS

Most Windows 7 editions include codecs for playing back standard video formats such as .mov, DivX and DVD files. (Starter omits this.) So if you want to watch a movie, just pop in a DVD and start it with AutoPlay or within Windows Media Player or Windows Media Center.

Blu-ray discs aren't supported natively in Windows 7, so you'll have to add Blu-ray software such as CyberLink PowerDVD or ArcSoft TotalMedia Theatre. You can watch high-definition discs within those playback applications, or you can launch Blu-ray discs from within Windows Media Center after installing the necessary third-party codecs. In Media Center, navigate to the appropriate heading and activate the third-party option. If it's the first time you've played a Blu-ray



▲ You can stream media from Windows Media Player over your HomeGroup network.





▲ **Windows Media Player's Lightweight Playback Mode turns the app into a small controller that you can keep in a corner.**

movie, the extra software may still launch to complete its installation process before your movie will begin to play.

## WINDOWS MEDIA PLAYER

Media Player is the default tool for playing back media in Windows, and supports a comprehensive range of formats. If you're like us, you'll often leave it running in the background, playing music, while you work or surf the web. But jumping back to the app when you want to change a track, checking the name of what's playing or otherwise interacting with your media takes a distracting few extra clicks.

Here's a better way to do it in Windows 7. In Media Player, begin playing a file, then click the icon at the lower right. The Media Player window shrinks, and

you can move it into a corner of the screen while it continues to run. You have all of the controls and information to hand without the app getting in the way.

Alternatively, you can interact with media from the Taskbar. Just hover the mouse over the Media Player icon. You'll instantly preview the current file and get control via simple playback buttons.

We've already mentioned Windows 7's streaming capabilities. If you have compatible networked devices, including a PC connected to a stereo system or TV, you may be able to push media directly to them from your main Windows 7 computer. For this purpose, there's a new Play To function that instantly broadcasts media without you having to dig through any menus on your devices.

This is designed to work with recent DLNA-enabled streaming devices, though you should check compatibility with your specific hardware company. For example, even though Microsoft's Xbox 360 isn't DLNA-certified, you can still reach it.

You can activate Play To on HomeGroup PCs from within Windows Media Player. On the host PC, open Windows Media Player, pick Stream, Allow remote control of my Player, and click Allow remote control on this network. Now, on any compatible system connected to the same network, you'll be able to right-click a playlist or file, select Play To, and choose the name of the remote system or media streaming hardware.

You can even select Play To by right-clicking on the Desktop, instantly starting a file running without any further setup. □

# Prepare your PC for gaming

*Windows 7 provides a better platform than ever to run the latest titles.*

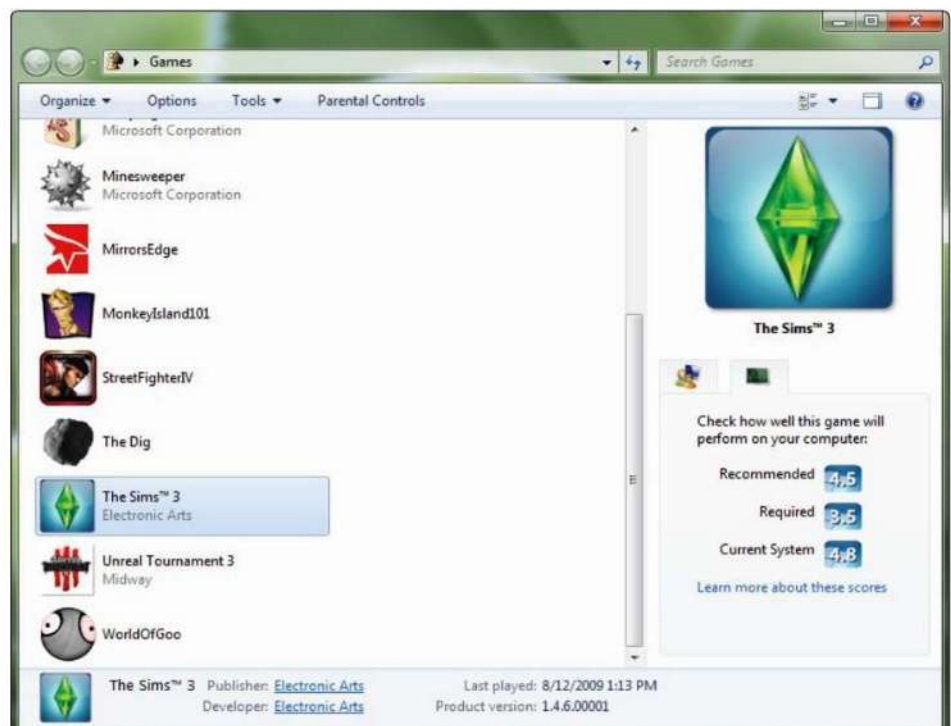
**B**esides enabling all the everyday applications you use for work and home, Windows has long been one of the great videogaming platforms. And Windows 7 builds on this pedigree by bringing gaming capability to the forefront. A new version of Microsoft's DirectX graphics processing technology lets the latest titles deliver blazing performance and astonishingly realistic visual effects, bringing the kind of cinematic quality to gameplay that was previously reserved for pre-recorded scenes. Meanwhile, new features, both visible and behind the scenes, make it easier and more convenient to start playing. Follow our tips to get the best from the new OS.

## START ME UP

"Games" appears as a heading within the Start menu by default. Click Start—or hit the Windows key on your keyboard—and choose this item to launch the Games browser, which shows a list of Microsoft's pre-installed freebies along with (most of) your own purchases. Some of our titles—especially those we downloaded—didn't turn up in this menu automatically, but you can add your favourite games manually: just drag the application file onto the Games browser. Before you release the mouse button, a pop-up annotation will confirm that this will create a link.

The Games browser might include titles that you don't want to play, such as

► **The Games Browser** lists your installed games (as before, Windows 7 comes with some casual titles to get you started) and compares their requirements to your PC's capabilities.







▲ **DirectX 11 games such as Colin McRae: DiRT 2 show Windows 7's amazing potential.**

boring old Minesweeper. Put those away by going to the right-click menu and choosing Hide this game or Remove from list. If you're not a regular gamer—or you're just bad at resisting temptation—you can remove the Games item from the Start menu altogether. Right-click the empty area at the upper right corner of the Start menu and select Properties. Click the Start Menu tab, pick Customise and click the radio button under Games, labelled Don't display this item, to excise it from the Start menu. Click OK and Apply.

### LOOK AND LEARN

Once the Games browser shows the titles you want, you can begin playing simply by double-clicking one. But the browser

also includes several other features that can improve the process. When you single-click a game, the preview pane on the right will usually show more details. The left tab gives the game's official ratings, which will help you decide which titles are appropriate for your kids; click the rating for more information.

The right tab shows the required and recommended Windows Experience Index scores along with the current rating for your system. This rating has been updated since Vista, but follows the same principle, scoring your PC based on its processor, RAM, graphics card and other factors. If your system beats the game's requirements, it should run OK; if not, you're likely to have trouble. It's not a >



## Improve your experience

*Updates and upgrades can maximise your performance score.*

As we've seen, the Windows Experience Index benchmark is used to gauge how well games will run. Results are rough, but you can re-run the score to improve the stats in certain situations. As the Basescore report tells you, the overall result is determined by the weakest link, so focus on improving that if you can.

Be sure that you have the latest driver for your PC's graphics card. From the Games area, open Tools, Display Devices. Click Advanced settings. Click the Adapter tab if needed, and pick Properties. Open the Driver tab.

Click Update Driver and Search automatically for updated driver software. This should do the trick, but in some cases your video card company could have issued an update that Windows doesn't find. The only way to be sure is to manually compare the driver version number listed there with the latest



software available from your graphics card maker's website, then download and install the new files if needed.

Open the Performance Information and Tools Control Panel to see your Experience Index scores. After you install new hardware or update drivers, click Re-run the assessment—and cross your fingers for a higher score.

> foolproof way to tell how well a game will run, but it's a useful rough guide. The ratings and hardware requirements are downloaded for each game, though you may find they're not always available, especially for games that you have to add manually to the browser.

Another handy feature is game updates. Right-click a title and choose Check online for updates to be sure you're

running the latest version, which again will help to ensure the best performance.

### UNDER THE HOOD

It's likely you'll need to adjust a few settings to create the best results for gaming. The Games browser thoughtfully collects together these frequently visited options in its Tools menu. Click Tools to begin. Pick Hardware to go to the Hardware and





Sound Control Panel. Click Display Devices to adjust your screen resolution. (You can click Advanced settings to update your graphics card drivers too.) Input Devices configures gamepads and joysticks. Audio Devices lets you set the system volume, speaker and microphone settings. Windows Firewall is here too, so you can disable security that's preventing certain games from getting online. And Programs and Features lets you uninstall a game when you've had enough.

## TEENAGE KICKS

Windows 7's parental controls let you restrict certain user accounts from playing games that exceed a specified rating. Of course, it's always best to check out what your kids are playing yourself, but this gives you an extra line of defence when you can't always be present.

Click Parental Controls to begin, opening the Parental Controls area of the User Accounts and Family Safety Control Panel. As we saw earlier, these settings work by giving different levels of permission to different users, so they rely on family members each logging on with

their own user account whenever they use the PC. You'll see only your own user account unless you've set up multiple logins. To add another, click Create a new user account, enter the name of your child, and click Create account.

Click one of the user account names to adjust its settings. Set On, enforce current settings, then click Games. In the next screen, click Set game ratings. Pick a level of rating, and click Block games with no rating if you want to prevent unrated titles being played. (You can also use Block or Allow specific games to specify which ones are and aren't allowed.)

You can set additional options to block games with certain content, such as Blood and Gore. If a game fits the age rating but triggers one of these, it'll be blocked. Note that nearly all games that access the Internet get the "Online Interactions Are Not Rated" warning, so either ignore it or check it to block them all.

If your main account lacks a password, add one: all these controls will lose their purpose if your kids can just log on as you! Click User Accounts at the lower left and create your password now. □



◀ **Parental controls help you give children some leeway to play games on the PC while limiting the type of content that's allowed and the times when they can access it.**



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