



# Beginning Windows 10

Do More with Your PC

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Everything you need to know about  
Windows 10 in one volume

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Mike Halsey

WIN.DOWS

Apress®

# Beginning Windows 10

Do More with Your PC



**Mike Halsey**

Apress®

# Beginning Windows 10: Do More with Your PC

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# Introduction

Shortly after the release of Windows 10, it became clear that this was going to be a hugely popular operating system. The reintroduction of the Start menu was welcomed by many. Popularity alone, though, doesn't change the fact that Windows 10 is still a hugely complex and often confusing operating system to use. There are so many features, time-savers, productivity enhancements, and utilities that a non-expert PC user might never find them all.

That's where this book comes in. Showing people how to use feature X or Y is one thing, but in *Beginning Windows 10*, you'll learn not just how to get the very best from each feature to aid in your productivity and enjoyment of using your PC, but also why you'd want to be doing so. After all, we all need to get stuff done, and nobody wants the very tool they use to achieve that productivity to also stand as a barrier to it.

Whether you use your PC at work, at college, or at home for enjoyment, and whether you work in a large multinational corporation, a small business, or on your own at home (as I do), there's something here for you. Everything from making the most of your photo and video collections, to streaming games from your Xbox One console, to juggling multiple apps, windows, and desktops, or to building a robust and resilient OS that'll keep working and keep you productive—everything is covered.

Need a little extra help using Windows 10? In this book you'll find a whole chapter dedicated entirely to making Windows 10 easier to use. Whether color blindness, poor eyesight, a motor skills disorder, or another disability—I'll help you make the most out of your PC.

Want to take things a little further? Well, there's no need to buy an extra book, because tweaking and customizing the OS is included here—even some fun and handy registry tweaks that you can try as your skills develop.

All of this for desktop PCs, laptops, convertibles, tablets, and smartphones, and for users of any (or even no) ability, I've got it all covered. I wanted to make *Beginning Windows 10* the most comprehensive, useful, and easy to understand book there's ever going to be on Windows 10. I hope you enjoy reading it as much as I've enjoyed writing it.

## CHAPTER 1



# Introducing Windows 10

To begin describing Windows 10 is to take a step back and look holistically at practically every device in our lives. Long gone are the days when Microsoft would release an operating system for just the PC on our desk. The aim with Windows 10 is to create a connected operating system (OS) that will simplify and synchronize our lives across *every* device that we use. Whether it is your smartphone, Xbox console, Raspberry Pi programming and development board, HoloLens augmented reality headset, or the computer in your refrigerator, the entertainment and navigation system in your car, or the ATM from which you withdraw cash for a night out, everything will be running Windows 10.

It's for this reason that Microsoft announced that Windows 10 is the last “major” version of Windows, but what does this actually mean? For the first thirty years of the Windows operating system, Microsoft released a new major version roughly every three years. You'll probably be familiar with names such as Windows 95, Windows XP, and Windows 7. Each version was distinctly different from its predecessor. There were user interface (UI) changes, new features, and major updates to the core system files, known as the *kernel*.

As our PCs and their operating systems have evolved, however, a few things have become clear. First and probably foremost is that no matter how popular touch devices such as smartphones and tablets become, if you want to get real work done, no interface has ever emerged to challenge the keyboard, mouse, and multiple desktop windows. We've also reached a point with technology that just about every interface style the human body can accommodate—from the gesture-based approach of Microsoft's Kinect sensor, to facial recognition and speech—has been implemented and already refined in some form. Add to this that our PCs are now so powerful that we're keeping them for many more years than we used to, and a clear picture emerges.

Handwriting recognition has not changed much on PCs since the advent of Windows XP, and touch was fully embraced with Windows 8. Cameras and other sensors have been in general use since Windows 7, and biometric devices, such as fingerprint scanners, have existed for many years longer. When coupled with a clear understanding of how people like to both create and consume content on their devices, be that desktop PCs, smartphones, tablets, TVs, or laptops, it's fairly obvious that for the next twenty years at least, operating system interfaces won't be changing very much from what we currently have.

And so this brings us back to the reason why Windows 10 is the last major version of Microsoft's operating system. There simply isn't the need to change and evolve it that existed before. Couple this with the fact that we all live connected lifestyles, and want all of our devices to be able to do the same things, provide us with the same information, and help us to organize our lives; and releasing and maintaining a new operating system every three years for all of these devices would be economically unfeasible.

With Windows 10, Microsoft is giving us a core interface experience that will not change dramatically over time. All of the elements of how we work and play are being ported from Windows 7, Windows 8.1, and Windows Phone, where they have proven hugely successful, with new and improved features being added over time.

For you, the PC user, this means a more fluid and consistent experience, as there'll be no need to relearn how to use Microsoft Windows every few years, and no concern over whether to skip a version because your PC doesn't yet need replacing. New features and improvements will filter down, over the years, via Windows Update alongside security and stability fixes; and for the most part, you're unlikely to even notice.

That isn't to say that Windows 10 doesn't bring some major new features and productivity enhancements to the table, and in this book I'll detail everything you need to know to get the very best from whatever Windows 10 device you use. We'll begin, though, by looking at some of the questions and technical aspects of Windows 10 that you might encounter when moving to Windows 10 for the first time.

## There's an SKU for You

On the face of things, Windows 10 comes in three main variants, known as Stock Keeping Units (SKUs): Windows 10 Home, Windows 10 Pro, and Windows 10 Enterprise. In truth, however, there are many more variants than this, and it's important to know that you get the right one if you're purchasing a new copy of Windows 10.

If you've upgraded to Windows 10 from Windows 7 or Windows 8.1, then the version you're using matches the version that existed before (see Table 1-1). The upgrade paths from Windows Phone 8 and Windows 7 and 8.1 Enterprise are simpler and clearer, with the first upgrading to Windows 10 Mobile and the latter to Windows 10 Enterprise.

**Table 1-1.** Windows 10 Upgrade Paths

Upgrade from ...	Upgrade to ...
Windows 7 Starter	
Windows 7 Home Basic	
Windows 7 Home Premium	Windows 10 Home
Windows 8.1	
Windows 8.1 with Bing	
Windows 7 Professional	
Windows 7 Ultimate	Windows 10 Pro
Windows 8.1 Pro	

Some additional SKUs exist, however, and if you are a student, you might be asked if you want to upgrade your own Windows 10 laptop or pro tablet to Windows 10 Education. This version enables college IT administrators to more easily provide you with apps and services related to your time on campus. Additionally, businesses that subscribe to Microsoft's Volume Licensing service can upgrade smartphones to Windows 10 Mobile Enterprise, which, again, includes additional management and integration services not available in the core Windows 10 Mobile version.

## The Encryption Question

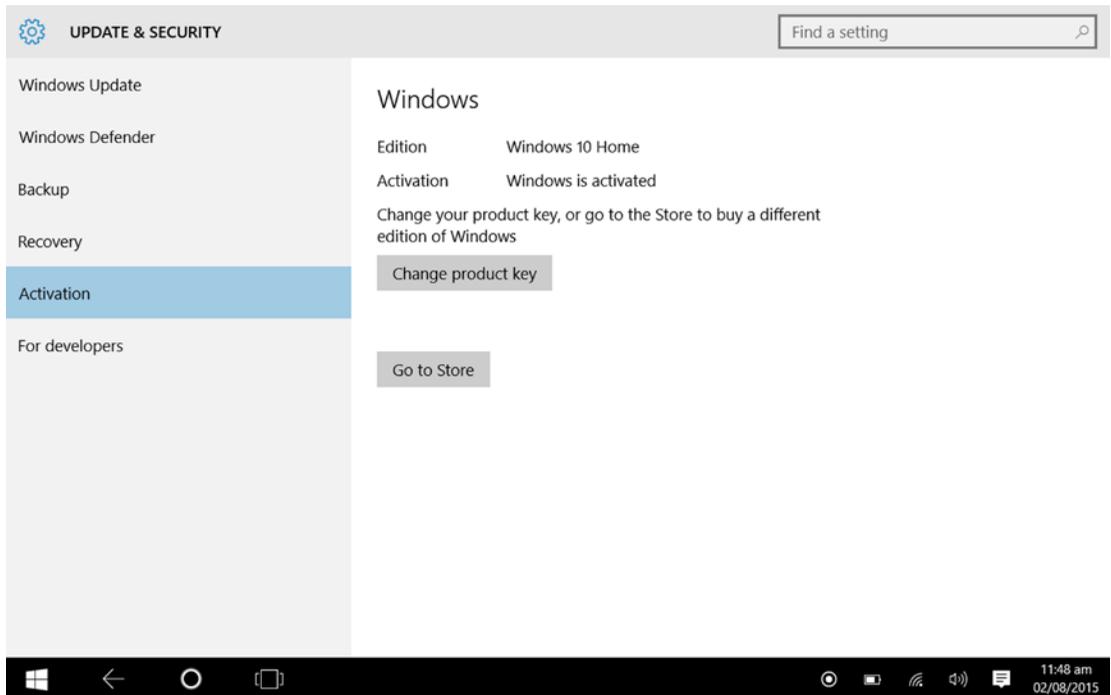
It's most likely that you'll use Windows 10 Home or Windows 10 Pro. So what are the differences? There are a few features of Windows 10 that only exist in the Pro and Enterprise editions. Largely, these apply to connecting PCs to company networks, such as domain connections, and enterprise-level features, such as Workplace Join and Group Policy. If you want to use virtual machines in Windows (effectively running a different PC inside a window on your desktop), you need Windows 10 Pro. One important difference that might make you want to choose Windows 10 Pro over Windows 10 Home, however, is Microsoft's BitLocker drive encryption system.

I'll show you how to use it in depth in Chapter 11, but to summarize, BitLocker is a technology that allows you to fully encrypt the hard disk(s) on your PC, laptop, and tablet. If the device comes with a necessary chip called a Trusted Platform Module (TPM) on the hardware, you can use BitLocker. (You can check your PC's specifications to see if it does, but all Windows 8.1 and Windows 10 laptops and tablets with screens larger than 10 inches almost definitely include a TPM because it's part of Microsoft's reference specification for those devices).

Being able to silently and securely encrypt the hard disk in your PC means that, while your files will always be visible and available to you, the moment you sign in to the device, anybody who might steal your beloved laptop or tablet from a coffee shop or a train station won't be able to see your files at all, not even if they remove the hard disk and plug it into a different PC.

Given that we often carry our PCs with us—complete with sensitive files containing account details and automatic logins to banking and shopping web sites, it's important to ensure that information is safe and secure from thieves. BitLocker allows you to have this peace of mind. I believe that if your PC includes a TPM, it's well worth paying the upgrade price from Windows 10 Home to Windows 10 Pro.

If you're already using Windows 10 Home, you can upgrade the OS "in place" without having to reinstall Windows or your apps. To do this, open the Settings app and navigate to **Update & Security** and then **Activation**, which allows you to purchase an upgrade to Windows 10 Pro by clicking either the **Change product key** button (if you already have a Windows 10 Pro key) or **Go to Store** where you will be able to purchase one (see Figure 1-1).

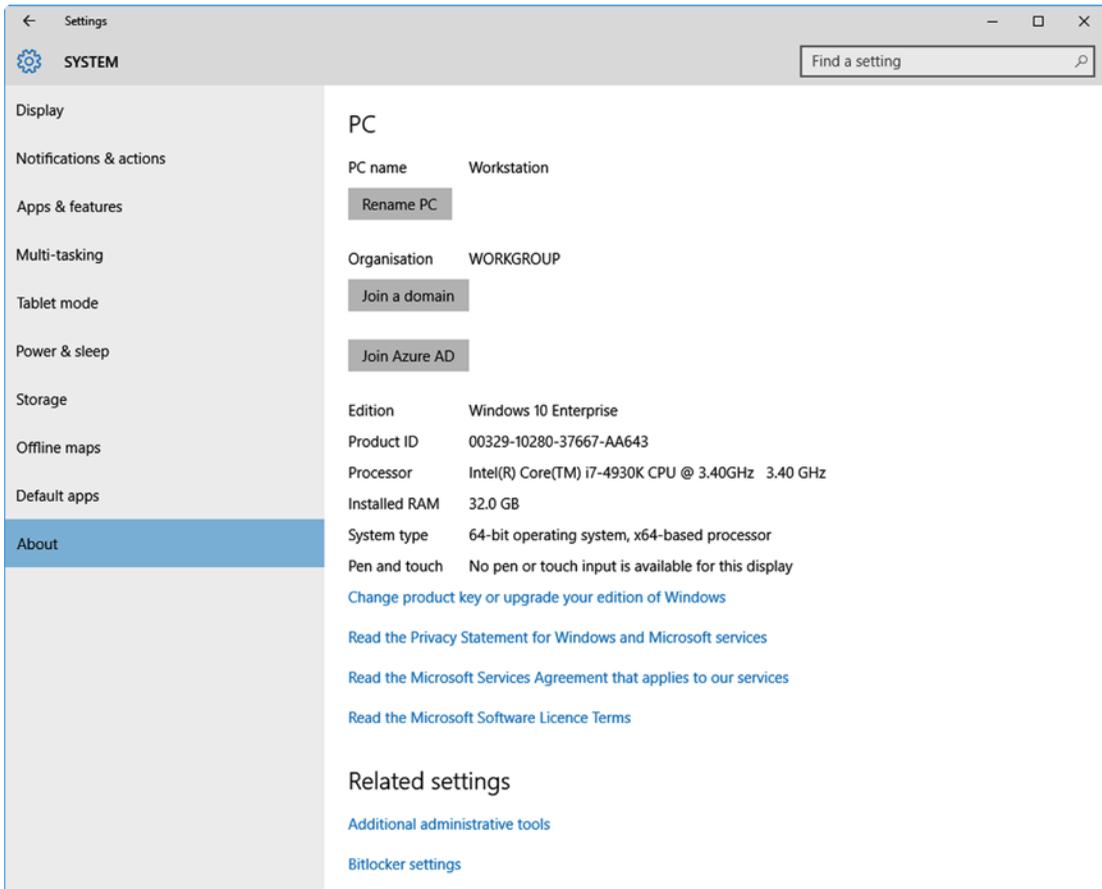


**Figure 1-1.** You can add features to Windows 10 Home to upgrade it

## 32-Bit (x86) and 64-bit (x64) Windows

That last major consideration when purchasing or upgrading to a copy of Windows 10 is whether to use the 32-bit or 64-bit version of the OS. In layman's terms, the difference between the two is that 64-bit operating systems can see and use much more memory in a PC. This can make the operating system and your apps run faster and enable you to do much more simultaneously, such as running many apps on the desktop. 64-bit operating systems are also considered more stable than 32-bit operating systems, though with Windows 10 the difference is very minor.

You can find out which version your PC has installed by looking in the Settings app. Navigate to **System** and then **About** to see details about your PC and the installed copy of Windows. The **System type** information will tell you if you are using a 32-bit or 64-bit edition of the operating system (see Figure 1-2).



**Figure 1-2.** Windows can tell you which version of the OS you are using

If your PC supports 64-bit operating systems, it can be well worth upgrading, but there are some important caveats. The first of these is that the version of Windows 10 you have, either on DVD or as a digital download, might be locked to 32-bit only. Also, you cannot carry out an in-place upgrade from a 32-bit version of Windows to a 64-bit version. If you are currently using the 32-bit version, you need to perform a “clean install” and then also reinstall your apps. I will show you how to do this in Chapter 15.

## Will My PC Run Windows 10?

As with any new version of Windows, to begin with, you are always asked if your PC can actually run it. Microsoft Windows has become leaner over the years, even as more features were added, allowing it to run on PCs that might have struggled with upgrades in the past. In theory, this means that any PC currently running Windows 7 or Windows 8.1 can run Windows 10 just fine. In practice, it's a little more complex.

The following are the minimum specifications for a PC running Windows 10:

- **Processor:** 1GHz or faster
- **Memory (RAM):** 1 gigabyte (1GB) for the 32-bit version and 2GB for the 64-bit version
- **Hard disk space:** 16GB for the 32-bit OS and 20GB for the 64-bit OS
- **Graphics card:** DirectX9 or later with WDDM 1.0 driver
- **Display:** 800 × 600 pixels or greater

If you are not sure what hardware your PC has, you can check with the manufacturer or the specification documentation that came with the machine. Even cheap Windows 8.1 tablets meet this specification, and any PC that came with Windows 7 preinstalled should not have a problem.

There are some features of Windows 10 that require specific hardware, however, and if you wish to use these features, you'll need to check your PC's specification to see if they will run.

Windows Hello is a new feature that allows you to sign in to your PC and even some Windows and web services by simply sitting in front of it. This requires a compatible infrared camera, and only a tiny number of Windows 8.1 tablets and laptops would ship with this. For desktop PCs, you are able to purchase a USB webcam that includes the correct functionality.

Device Guard is a new security feature that acts as a barrier to malware infection on your PC. This requires a newer PC with a UEFI secure boot system, a TPM 2.0 chip, and virtualization support. It's unlikely that the typical PC user will know what any of this is, let alone whether or not their PC hardware supports it. The information can be obtained from your PC manufacturer or the specification documentation that came with the machine.

If you want to use Microsoft's Hyper-V virtualization software to run virtual machines on your desktop, then your processor will need virtualization support. If you've already been using Hyper-V in Windows 8.1, however, you will be fine.

Some other features of Windows won't be available to you without the correct hardware. A TPM chip is required for BitLocker drive encryption, and other features—such as Miracast wireless display connections, Wi-Fi Direct printing, Secure Boot to help prevent malware rootkits from infecting your PC, Instant Go to enable your PC to resume from sleep in just 1 second, and touch-features—require specific hardware.

This means that as you're reading about Windows features in this book, you might find that something isn't available to you, but I will highlight where this might be the case.

## New Features in Windows 10

As with all new versions of Windows, Windows 10 brings a whole host of new and improved features. There are two different ways to look at this, however, because many people upgrading from Windows 7 will skip the features that Windows 8.1 introduced. It seems sensible, then, to begin with the features that have been around for a while, but will still be new to many Windows 10 users.