

How to...

THE
HELPFUL BOOK
COMPANY

SPEED UP YOUR PC

3rd Edition



Speed up a slow PC – without spending a penny!

Tim Wakeling

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3rd Edition

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Contents

Introduction & Understanding the Basics

| | |
|-------------------------------|---|
| Introduction | 3 |
| A Word about Windows | 4 |
| What makes a PC go slow?..... | 5 |

Problem 1: It's doing something else

| | |
|--|----|
| The fairly obvious reasons... .. | 6 |
| The not-so-obvious reasons... .. | 7 |
| More on not-so-obvious reasons..... | 8 |
| A few more things it could be up to..... | 11 |
| Slightly more serious things..... | 12 |
| More serious things – Viruses | 13 |
| More serious things – Spyware..... | 16 |
| More serious things – Zombie PC | 18 |
| Don't Panic! | 19 |

Problem 2: Not Enough Resources

| | |
|---|----|
| What are the PC's "resources"? | 20 |
| Upgrading your PC | 22 |
| If it's not using the resources well..... | 23 |
| Defragmenting your hard drive..... | 24 |
| Clean up your Hard Drive..... | 26 |
| Sort out the drivers..... | 33 |
| Split your PC's effort properly..... | 35 |

Problem 3: It's Confused

| | |
|----------------------------------|----|
| Why it could be confused..... | 38 |
| Ending Your PC's confusion | 39 |
| A final word..... | 44 |

Introduction

It's funny how using computers all the time changes how you think about things.

I was just thinking about before I had the internet. How I used to look things up in books. If I had a book that I knew would have the fact I was after, I'd get it off the shelf – or look in several if I wasn't sure which one was my best bet.

Or I'd toddle down to the library to have a look at what they had.

All in all, it could take me a hour to find what I was after. Even if I had a relevant book myself it could easily take ten or fifteen minutes.

It's so different now. The other day I wanted to know exactly when Microsoft launched Windows 7. I knew roughly but wanted the exact date. So I went online, typed "Windows 7 launch date" into Google and got the answer – in just a few seconds.

The snag is I'm used to it. If the webpage takes 30 seconds to appear, I get a bit impatient. And if it takes a minute to give me the results of my search, I'll be fiddling around like I'm sitting on an anthill.

I'm so used to the PC doing things pretty much instantly that if there's any delay, I get impatient.

Luckily, there are certain things you can do to make your PC faster – and to keep it running fast as it gets older. I'll show you what to do and how.

Most of it isn't hard – it's just a case of knowing what you need to do.

And when your PC runs nice and quickly, it's much less frustrating to use. That's why this information in this book is so useful.

A Word about Windows

Before I start, I wanted to give you a quick word about the different versions of Windows.

As I write this there are three versions that most people have: Windows 7 (older but still used by a lot of people), Windows 8/8.1 (not used by many people any more) and Windows 10 (the newest version, which was initially offered as a free upgrade from Windows 7 and 8.1 so has become very widely used now).

A lot of the things that can slow them down are the same for all three – and so a lot of the things you can do to speed them up are the same, too.

But how you do some of those things are different – because Microsoft has changed where different options are from one version to the other. That’s their way of “making it easier”...

So where it’s the same in the different versions, I’ve just explained it once.

Where you need to choose different options to do the same thing, I’ve given you pictures of the screen for the different versions.

Generally there’s one method for Windows 7, and then the methods for Windows 8/8.1 and 10 are the same. But not all the time – that would make it simple! I’ll make it clear as we go, don’t worry.

What makes a PC go slow?

So, what make a computer go slowly in the first place? Well, there are just three things*:

1) *It's doing something else (as well)*

If the PC is busy with something else, it won't have so much brainpower left to do what you want it to do. Now, if the other thing it's doing is something small and simple, like playing a CD for you to listen to while you type a letter, it'll be fine. But if it's doing several demanding things, it'll start to slow down. And if it's doing lots of things at once, then it's even more likely to make a difference.

2) *It doesn't have enough (or the right) resources*

This is why old PCs struggle with fancy new programs. If your computer just doesn't have enough memory, a big enough hard drive or a fast enough processor, then it's going to struggle. Again, it depends what you want to use it for. If you're just using it to check emails, an older PC will be fine - you'll never notice. If you're editing home video, you'll probably need more power.

3) *It's confused*

If something has become corrupt on your PC, it can get confused. For example if you installed a new hard drive and it didn't install properly, it might be constantly trying to access it and finding it isn't working properly. So it's constantly trying to connect properly, failing and re-trying. It's a bit like the first reason (it's doing something else) but in practice you don't want to just stop it trying - you want to help it succeed by taking away the confusion!

In the rest of this book I'll talk about how to fix the different kinds of problems that can cause each of these three... and how to work out which is the problem you're having.

* I reckon there's a fourth: if it knows you're in a rush, it slows down. Claire (my editor) said I should take that one out of the book - so I almost have! But you could always try looking like you've got all the time in the world...

Problem 1: It's doing something else

The fairly obvious reasons...

The most obvious time when your PC is already doing something else is when you've asked it to.

For example, if you have a CD playing on it while you write an email. Or you have a word document open at the same time as you're on the internet. Or you have two web pages open at once.

Those examples are pretty harmless – any even vaguely modern PC should be fine.

But what if you have 10 web pages open at once, or you have a word document open while you edit some home video and also have a picture editing program open so you can remove the red-eye on a photo you're using in the video? If you do all that, your PC will probably start to slow down.

The solution's easy – just close down a program or two. If you're doing something that the PC finds really hard, only have one program open at once.

There's a more surprising example as well, though.

Suppose you type up an email to send to a friend and you include several photos. Then you click send and close down the email program. It looks like nothing is going on so you start up the internet to check the news – only to find it's slow.

In fact your PC could still be sending the email, even though you can't see it. All you need to do is wait for a bit, it'll finish sending the email and things will speed up again.

Or, if you're using Windows 7, before you close Windows Live Mail, click on "send and receive". It'll pop up a window showing you how far through sending the email it is. Once the bar gets all the way to the right, it's done and you can use the PC without it being slowed down.

Bear in mind, though: It doesn't actually matter if you slow it down a bit. As long as you don't mind the internet being a bit slow, you can go ahead and use it before the email has finished sending.

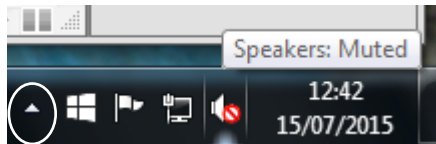
The not-so-obvious reasons...

It's not always obvious that your computer is up to something in the background... or what it is that it's up to.

Another way you can tell it's doing something in the background is when you hear the hard drive grinding away in the computer. Some PCs are very quiet and you won't notice but on some it sounds like someone's sawing a plank in half in there!

Sometimes you can tell by looking in the notification area in the bottom right hand corner, by the clock. Often the computer will put an icon there to tell you what's it's up to – usually it will be changing or moving in some way to show it's doing something.

If you hover the mouse over it (ie point the mouse at it for a few seconds without clicking) it will usually pop up a little box telling you what it's up to. Like this:



If you can't see any icons but you have an arrow pointing upwards, like this:
...or like this in Windows 10:



...then click on the arrow to get it to show you all the icons – it's hidden some to keep it looking tidy.

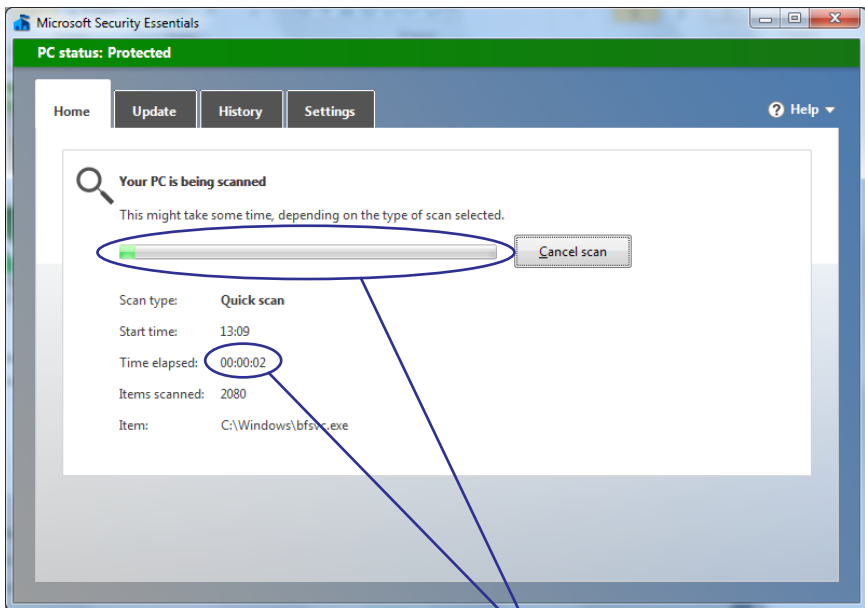
One of the most common things it'll do that slows things down is a virus or spyware scan. That's where it checks everywhere on your computer to make sure there are no viruses or spyware hiding. But since it checks every bit of space on your hard drive, it takes a long time – especially if you have a big hard drive.

You've got three (well, four really) choices.

More on not-so-obvious reasons...

The **first** option is you could carry on doing whatever you're doing. It's running slowly for now, but you know why and it won't do the PC any harm. So if you don't mind the speed it's working at, just carry on.

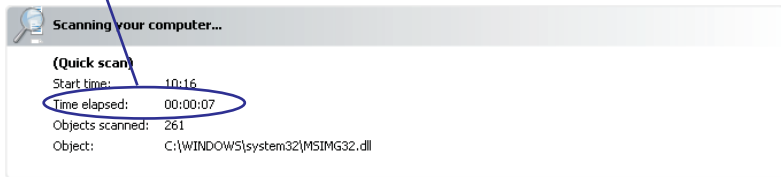
Secondly, you could stop and wait until the PC has finished its scan before carrying on. Always a good excuse to make a cup of tea in my opinion! The only snag is that a virus scan can take hours. With most programs you can check, if you double click on the icon that you found rotating in the notification area, it'll tell you how far through it is. For example it might say "457346 files scanned out of 2374894". If it's nearly done, waiting for it to finish is a reasonable idea. If it's only just started, it's not such a good plan.



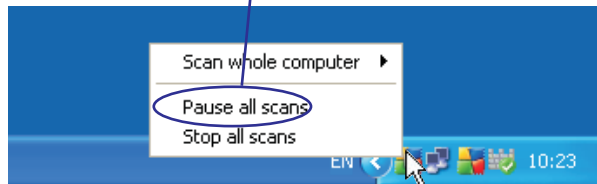
In this antivirus program (Microsoft Security Essentials), it tells you how much it's done, and there's a bar showing roughly how far through it's got. You can use that to guess how long it'll be before it's likely to finish.

More on not-so-obvious reasons...

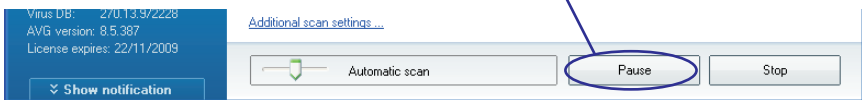
In this version of Defender, it only tells you how much is done, and there's no bar to show you how much is to go. But if you know how long it normally takes, you'll have a good idea how much longer it'll be.



The **third** thing you could do is pause the scan. Then do the thing you wanted to do – and afterwards un-pause it again. Try right clicking on that icon – you may get a pause option in the menu that appears.



Or double click on the icon and see if there's a pause option in the screen that appears.



Some anti-virus programs can't be paused, but most of them can be.

I hinted there was a fourth thing you could do... and there is. It's just I wouldn't recommend doing it very often – more over the page...

More on not-so-obvious reasons...

I did mention that there was **fourth** way. But I wouldn't recommend it as something to do very often.

Instead of pausing the scan, you can stop it entirely. The PC will stop and just skip the bits it hasn't done yet.

I don't recommend it because if there is a virus hidden in a bit of your hard drive that the program hasn't checked yet, it won't find it – so you'll have a virus and not even know about it.

On the other hand if your anti-virus program is set up to scan every day (which I'd recommend) and once in a while you skip a scan, it's not so bad. As long as you let it run right through next time.

To stop a scan, try right-clicking on that icon in the bottom right corner of the screen, like on page 9. Usually you get an option like "halt scan" or "Stop scanning". Click that one.

If you don't get that option, you could try double clicking instead of right clicking. You'll get the main screen like on pages 8 and 9 and there should be a "Stop" option.

Not just scans - updates slow it down as well

Antivirus programs, anti-spyware programs and Windows itself all update themselves over the internet. It keeps them all up to date. For Antivirus programs it's especially important. New viruses are appearing all the time. Your PC needs to know about the new ones so it can deal with them.

But while it's downloading these updates from the internet, your PC will run slower.

Sometimes, you can tell what it's up to by hovering the mouse over the icons in the bottom right hand corner of the screen, but not always – updates to Windows 10 just happen in the background and don't tell you what they're doing until they've done it. The good news is it usually doesn't take very long so I'd suggest just giving it a few minutes (time for another cuppa) while it finishes before trying to carry on.

It won't do any harm if you use it in the meantime – it'll just go a bit slow and take a bit longer to download the updates.

A few more things it could be up to

There are a few more bits and pieces that your computer could be up to without you knowing that might slow it down.

Programs in startup

When you turn your PC on, several programs automatically start up. Then they run constantly in the background. Some of them you want to be there – your anti-virus program for example. Others you might not need.

Here's the first thing to check:

In Windows 7:

- 1) Go to your start menu, point the mouse at “All Programs” and then at “Startup”.
- 2) Look at the list of programs in there. If there are any you don't want (for example a calendar program you don't use or a photo editing and importing program you never use) you can either right click on them and select delete (if you're brave) or click, hold the mouse button down and drag the icon onto your desktop (if you're a scaredy-cat like me). That way if you ever change your mind you can drag the icon back from your desktop into the startup folder again.

In Windows 10 and 8/8.1:

Hold down the Ctrl and Alt keys together, and tap Del. Then choose Task Manager from the list.

It'll open a new window, with lots of tabs at the top. Click on the Startup tab.

It'll list all the programs/apps that are set to start up as soon as the computer starts up. If there are any you want to remove from the list, click on them, and then on the “Disable” button.

Slightly more serious things

I've told you about the "obvious" things your PC might be doing - where you've asked it to do them.

And I've told you about the "not-so-obvious" things - where your PC has decided to do something of its own accord.

But there's one more type. The "serious-and-even-a-little-bit-scary" things - where some bad guy somewhere has told your computer to do something in one way or another.

There are three main types:



If you have a **virus**, the PC could be busy messing about with your files or just deliberately going slowly.



If you have **spyware**, the PC could be busy watching what you're doing and sending messages to the person who created it, telling them what you're up to.



If someone has taken control of your PC over the internet (called turning your PC into a **zombie**), the PC could be busy doing whatever they ask it to. They could be using your PC to send spam email.

This is what they look like. Honestly.

If you have any of these, they really do need dealing with. Here's what to do.

If you think you might have a virus

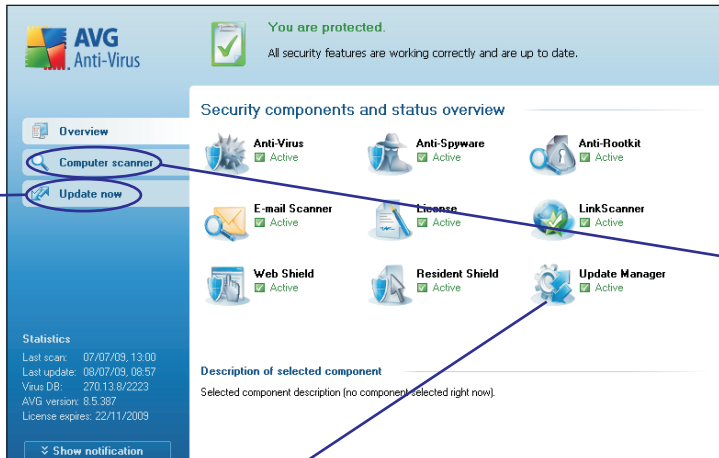
First, make sure you have an anti-virus program installed. In fact make sure of this even if you don't have a virus.

If you have Windows 8/8.1 or 10 you should have Defender already installed, which is a combined anti-virus and anti-spyware program that comes free with these versions of Windows.

If you're using Windows 7 you'll need to get some antivirus protection (the version of Defender that comes with Windows 7 doesn't include anti-virus protection). AVG, Avira, Avast, Microsoft Security Essentials, Norton, Kaspersky, McAfee are all fine. It doesn't matter too much which one you have - as long as you have one. If you don't, go to the Inner Circle website and click on the "Essential Downloads" link at the top.

More serious things – Viruses

Second, make sure it's fully up to date. That way, even if the virus your PC has is a new one, your anti-virus program will be able to cope. Most anti-virus programs keep themselves up to date automatically but to make sure, start up the program (double click on the icon) and find the option to “update” or “update now”.

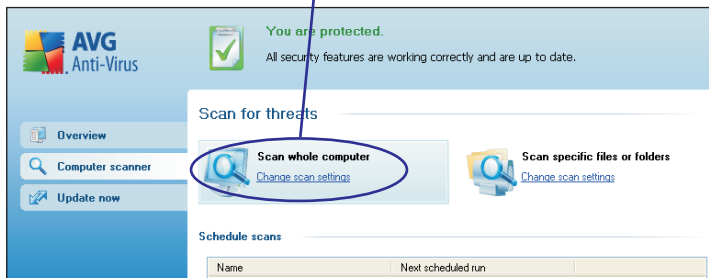


It's here in my version of AVG.

Click here to set up your anti-virus program to automatically update itself (a good idea).

Do that – it might take a few minutes or it might be done instantly. It all depends on how many new viruses have been created lately.

And then thirdly, run a full virus scan. Again, your computer might be set up to do this automatically every so often, but you can tell it to do one now. On mine, you click on “Computer scan” here and then click on “Scan whole computer”.



More serious things – Viruses

Depending on what type of anti-virus program you have, it might look a little different, but you should still have an option called “Scan Computer” or “Scan now” or similar.

One important tip: If you have the option to do a “quick scan” don't do it! It's “quick” because it's not as good. You need a full-blown top-notch scan. Otherwise, the bit that isn't scanned properly might be where the virus is hiding.

A virus scan can take a hour or more – even up to four hours if you have lots on your PC, so I'd leave the PC on and go and do something else for a while.

When it finally finishes, you should get a screen telling you what the results of the scan were. If it didn't find anything, great – you don't have a virus after all.

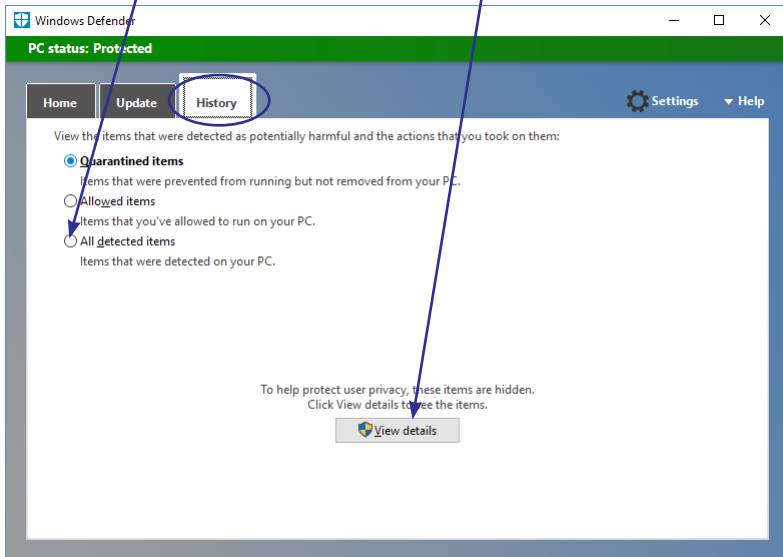
If you do have, your program should tell you how to deal with it. Usually, it'll give you an option to get rid of it or put it into “quarantine” (where it can't do any harm). Just click on one of those. Occasionally it'll give you some instructions to follow.

But one catch with some anti-virus programs

When your anti-virus program finishes a scan, it puts a screen up giving you the results. Fine. But sometimes the results only stay up for a little while (even if there **is** a virus), so you might miss them. Luckily it's usually pretty easy to check. You usually need to look for an option like “Scan History” or “Scan Report”, or sometimes you need to click on “Scan” first, before you get this option. Here's where you find it in a couple of different programs:

More serious things – Viruses

In **Defender** (in Windows 10 & 8/8.1), click on the “History” tab. Choose “All detected items” and click “View Details”.



In **Kaspersky**, you click on “Scan”, then where it lists the last scan, click on “Detailed Report”. You can click on “Full Scan” to see what it found.

If you have a different anti-virus program, yours will probably be in a slightly different place, but at least now you know what sort of thing you’re looking for.

How to make sure viruses are never a problem for you...

Make sure that your anti-virus program is set up to:

- 1) Update itself automatically at least every day.
- 2) Do a full scan of the computer every so often.

More serious things – Spyware

If you might have spyware...

The good news is if you're already checking for viruses, you're probably also checking for spyware without even knowing it. Most of the main anti-virus programs are now more than just that – they check for all kinds of “nasties”, including spyware. So if you're using any of the following, you don't need to worry:

- Defender (the Windows 10/8/8.1 version)
- AVG
- Avira
- Avast
- Microsoft Security Essentials
- Norton
- McAfee
- Kaspersky

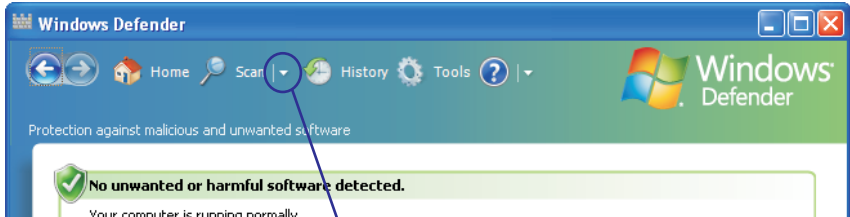
If you have a different anti-virus program from these, you'll need to check if it also checks for spyware as well as viruses. If it isn't obvious by looking at the program, you could look on their website, and it should give you some more details.

Remember that if you're using Windows 7, it comes with Defender, which is an anti-spyware program. So if you're using a separate anti-virus program without protection against spyware, you can use Defender as well.

BUT if you're using Windows 10 or 8/8.1, don't try to use Defender as well as any other anti-virus program, because this Windows 8/8.1/10 version of Defender is also an anti-virus program, and you should never have two of those running at once. They'll interfere with each other and could leave your PC not properly protected.

More serious things – Spyware

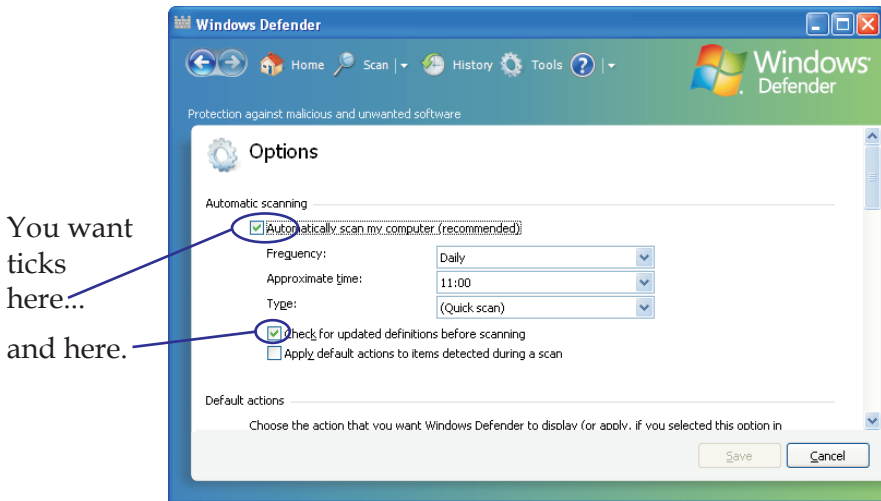
If you have Windows 7, here's how to use Defender to check for spyware on your computer:



You can do a full scan by clicking on the little arrow next to "Scan" and select "Full scan" from the menu that appears. Don't just click on "Scan" because it'll only do a quick one – not good enough.

To make sure you don't have problems in the future

Make sure it's set up to regularly update itself and to regularly do a full scan. Click on Tools at the top, then on "Options". You'll get this screen:



You can also scroll down the list to see other options. I'd recommend making sure you have "Use real-time protection" ticked (that means it keeps an eye on what's going on all the time, not just when it scans everything) and also at least the first two "Advanced" options.

More serious things – Zombie PC

One more slightly scary thing...

Sorry – this is all a bit bleak, isn't it? And the last thing I want to be doing is making it sound, well, scary. But the good news is once you've got these three things set up properly, you can forget about them. And this one is the last scary one, I promise!

It's possible for someone to control a PC across the internet. They can turn your PC into what's called a "zombie" – using it to send spam email and do other nasty things.

What you need is a firewall. That's a program that stops anything on the internet from controlling your PC (unless you say to allow it). That means your PC can't be turned into a zombie. Phew.

And the good news is that all the later versions of Windows have one built in. All you need to do is double check it's turned on, and here's how:

- 1) In Windows 7 and 8.1, press the Start button and search for Firewall. In Windows 8, go to the Start screen and start typing the word "Firewall" – it'll automatically start searching for it. In Windows 10, click in the search bar on the Taskbar, and search for Firewall.
- 2) It should find "Windows Firewall" – click on that.
- 3) It should tell you that it's turned on – if so, that's great! If not, click on the little blue link on the left that says "Turn Windows Firewall on or off". That will bring up a screen where you can turn it on, then click OK at the bottom.

Once that is done, you're fine.

One word of warning – some people think that if one firewall is good, two is better. They buy a separate program to put on their PC. But if you have two, they can trip each other up and be worse than either would be on their own. There's nothing wrong with buying a new one, but turn OFF the one that comes with Windows.

Or do what I do and stick with the one that comes with Windows.

Don't Panic!

It does all sound scary, I know.

But if you make sure that:

Three golden rules to a safe (and fast) PC:

- 1) You have an anti-virus program and it's set to update itself and scan automatically.
- 2) You have anti-spyware (probably built into your anti-virus program or possibly a separate one) and it's set to update itself and scan automatically.
- 3) You have a firewall – and it's turned on.

Then you're safe and can stop worrying!

But why do they do it?

Every so often someone asks me where these nasties come from? Are viruses things that just happen, like actual viruses that give you the flu?

No.

I'm afraid it's because of twisted individuals who deliberately create them. Some viruses they create just to cause other people trouble – they find that fun. Some viruses also contain spyware – which they can use to track credit card details. And they control your PC so they can distribute spyware or send spam email.

They're rotters, no doubt about that.

But do those three things in the list above and they won't get your PC.



Problem 2: Not Enough Resources

What are the PC's "resources"?

Not all PCs are created equal.

Some are faster than others.

But it doesn't necessarily matter. You see, if you have a slowish one but you only want to check your email and occasionally look at the internet, it could be fine – as long as it's fast enough to do that, it doesn't matter if it's slower than Joe Bloggs' PC.

But if you have a slowish PC and you want to edit home video, it might struggle. It doesn't necessarily mean you need to buy a new PC. You can find out which area it's weak in, and upgrade it.

There are several things that affect how fast a PC is

The Memory

This is how much space the PC has for remembering what it's currently doing. Storing photos or documents doesn't affect this – it puts them on the hard drive – more about that in a moment.

The more memory you have, the faster it will be.

My PC has 8 GB of memory. (That's the same as 8192 MB.) That's a reasonably powerful computer. 16 GB would be very powerful, and 4 GB would be fine for basic use.

The Hard drive disk

The hard drive disk is where the computer stores things it will need later. For example, your photos, documents, programs, even Windows itself.

It's different from the memory – if a PC's memory is like your memory, the Hard Drive is more like a library or notepad. And one big difference is that when you turn the PC off, it forgets what's in the memory but not what's on the hard drive.

The bigger the hard drive, the better – at least up to a point. The reason is that when it starts getting full, it slows things down. So as long as yours is big enough that it doesn't get full, you're fine.

My hard drive is 1 TB (ie 1024 GB, or 1,048,576 MB) – over 100 times bigger than the memory. That's a reasonable size to have.

What are the PC's "resources"?

The Processor (or CPU)

The processor, or Central Processing Unit (CPU) is the chip that does the thinking. In a way, you could say that it **is** the actual computer – and all the other things are extras.*

Since it does the thinking, the faster it works, the faster your PC works. But it's not just the out and out speed that counts. You can get "dual-core", "quad-core" and so on chips. They're a bit like having 2 or 4 chips in one – which is faster even if they're only working at an average speed.

To give you a comparison, mine runs at 3 GHz and it's pretty quick.

The Graphics Card

The graphics card handles all the things that are displayed. But it isn't in the monitor. It's in the computer – it's the bit that **tells** the monitor what to display. For some things, it doesn't matter too much how good your graphics card is. For example, if you're typing up letters, using the internet or sending emails it won't make much difference.

Where it does make a difference is if you have lots of fast moving things on screen – particularly in 3D. So if you edit home video it might make a difference and if you play fast action 3D games it will. Otherwise, I wouldn't worry too much about it.

So what can you do?

What if your PC is a bit slow because of one of these things, you don't have to get a new computer. You can upgrade the specific bit that's holding it up. I'll tell you more on the next page.

* Pretty important extras, in the case of the keyboard & monitor. By the way, strictly speaking the big box or tower is not the CPU. The tower has the memory, hard drive, DVD drive and so on in it as well. The CPU is just the main chip inside it.

Upgrading your PC

If you decide you do want to upgrade your PC, there's one important thing to bear in mind:

No-one can tell you what upgrade you need without knowing what you use the PC for.

It's always a good idea to use a good PC shop to get the upgrade – and you can even get them to fit it for you. But they do have a tendency to want to fit more than you need. I don't think it's just that they want to sell more. The people who work there are generally, well enthusiasts. So they're enthusiastic. And if it was their PC, they'd want to add all those extra bits and bobs. But you might not need them. Before agreeing to any upgrades, make sure the person knows what you use the PC for and make sure they've told you how that upgrade will help you.

Have a look at the last two pages, where I've talked about each part of your PC. If you think one of them might be the problem, go to a good PC shop, tell them what you use the PC for and what specification it is (ie how big the hard drive is, how fast the processor and so on) and ask their advice.

If it turns out that you'd need to upgrade several bits, it might be cheaper to just replace the computer. You can always keep the same monitor and just buy a new main unit (unless you have a laptop of course!).

One more tip. If you think you need a bigger hard drive, you don't have to replace the existing one. You can add another as well as the one you have, instead. You could either get another one fitted into the computer or buy one that plugs into a USB port – which means you don't need anyone to fit it for you. You just buy it, plug it in and there you go. It also means if you ever get a new PC you can easily use your new hard drive with it!

If it's not using the resources well

It's also possible that your PC has enough resources – but that it's not able to use them properly.

For example...

Suppose you have a nice fast PC. And you're using it to edit your photos from a holiday – removing red-eye (the kind you get from the camera flash, I mean, not the kind from too many brandy sours) and so on. Shouldn't be a problem.

But it's still slow. Why?

Well, it could be that it can't use all the resources, maybe because:

- The hard drive is nearly full, so even though it's big, the PC has to hunt around to find space on it.
- The hard drive has plenty of spare space, but it's scattered about the disk. So the PC has to hunt around it to find enough space in one place – and maybe even break one file up into several bits to store them in different parts of the disk. Then when you access the file it has to get all of them and put them back together before you can even start. (The techie phrase is the disk is *fragmented*.)
- You might have a super-duper, all-singing-all-dancing graphics card – but the driver (the bit of software that tells your PC how to use it) is out of date, so you aren't getting the full advantage.

So what do you do? Well, it's easier than you might think.

The computer can fix a lot of these problems for you.

Speed-up-tip 1 – defragment your hard drive

Luckily it's easy to tell your PC to defragment your hard drive. But first, if you've got lots of files you don't need on your PC, it's best to get rid of them first. No point in defragmenting files you're about to delete anyway!

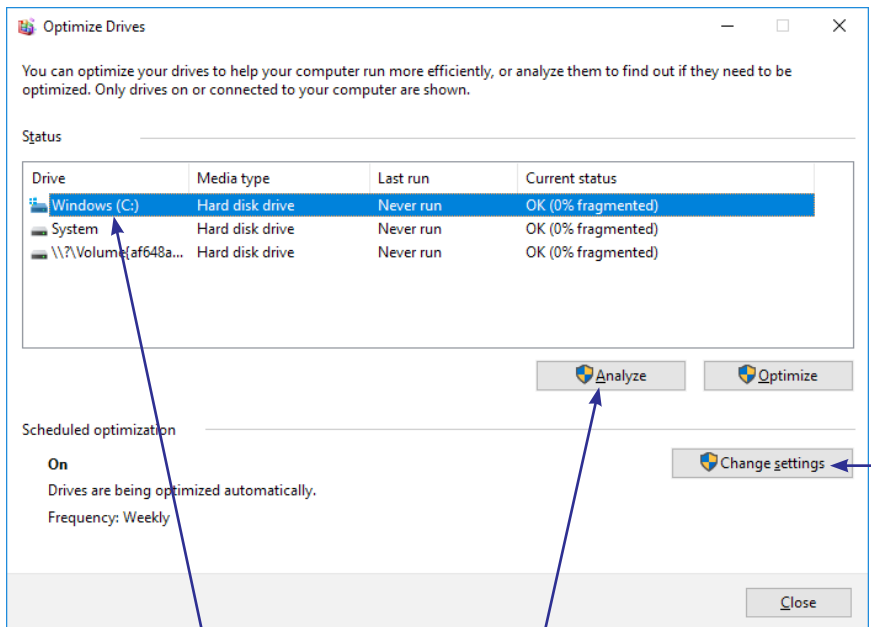
Windows 10 PCs defragment the hard-drive automatically, so you don't have to do anything (hurrah!). If you're running an older version of Windows, the next page shows you how to do manually.

Defragmenting your hard drive

Here's how to defragment the hard drive:

If you have Windows 10 or 8/8.1:

- 1) Click in the search box on the Taskbar (in Windows 10) and type the word "defragment". If you're using Windows 8/8.1, you can just start typing when you're on the Start Screen, and it'll start searching for you.
- 2) In the search results, click on "Defragment and Optimize Drives".
- 3) A window like this will appear:



- 4) Click on the disk here, then click on "Analyse". It'll take a few minutes to check the hard drive.
- 5) It will then tell you how fragmented it is, and whether it needs attention. If so, click on "Optimize". It'll take a while to do it, so best go and make a cuppa while you wait.
- 6) At the bottom of this window, under the heading "Scheduled optimization" you can see that mine is set to automatically optimize every week. If you want to set yours to do that, or to change the settings, click here.

Defragmenting your hard drive

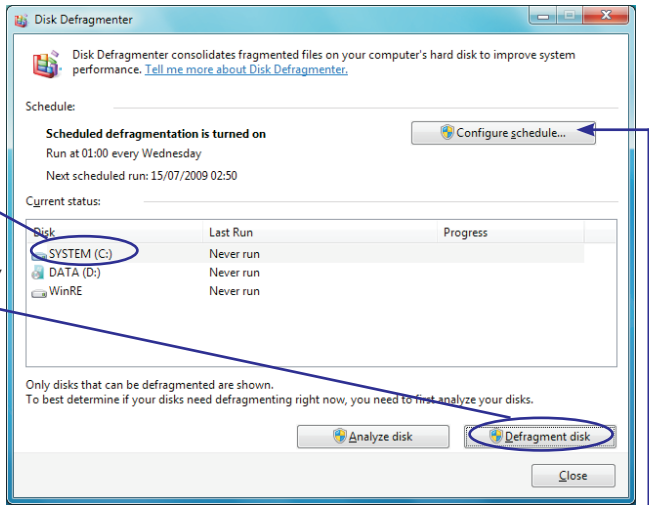
If you have Windows 7:

- 1) Open the start menu by clicking on the start button.
- 2) Go to "All Programs".
- 3) Go to "Accessories"
- 4) Go to "System Tools"
- 5) Click on "Disk Defragmenter".

The screen will look like this:

You click on the disk here:

And then on "Defragment disk" here:



- 6) At the top of this window, under the heading "Schedule" you can see that mine is scheduled to automatically defragment every week. If you want to set yours to do that, or to change the settings, click here.

Clean up your Hard Drive

But remember I said about deleting files you don't need first?

If you have files you can just delete, do so. Or if there are files you might want at some point but don't need to have on the PC, put them on a flash disk/pen drive or writeable CD and then delete them from your PC.

As well as that, you can tell the PC to delete files it doesn't need any more. More about that now...

Speed-up-tip 2 - clean up your hard drive

You can just delete any files you don't want any more. And I'd recommend that. If you have lots of photos, why not put them onto CDs and clear up the space on your PC?

But there's also lots of junk that it's not so easy to get rid of. Things your computer puts there while you're using it - but it doesn't actually need any more.

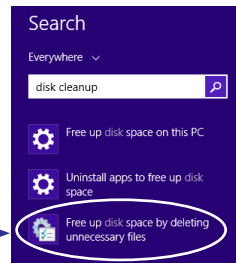
Luckily, again, the computer can clean them up for you (only fair since it made the mess in the first place!) Here's what to do:

In Windows 10:

- 1) Open the start menu by clicking on the start button.
- 2) In the list of programs, scroll down to "Windows Administrative Tools". Click on it to expand it, and then click on "Disk Cleanup".

In Windows 8/8.1:

- 1) From the Start screen, start typing "Disk Cleanup", and it'll start searching for you.
- 2) In the list of results, click here, on "Free up disk space by deleting unnecessary files". →

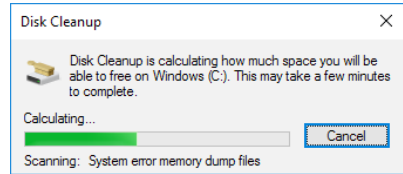


In Windows 7:

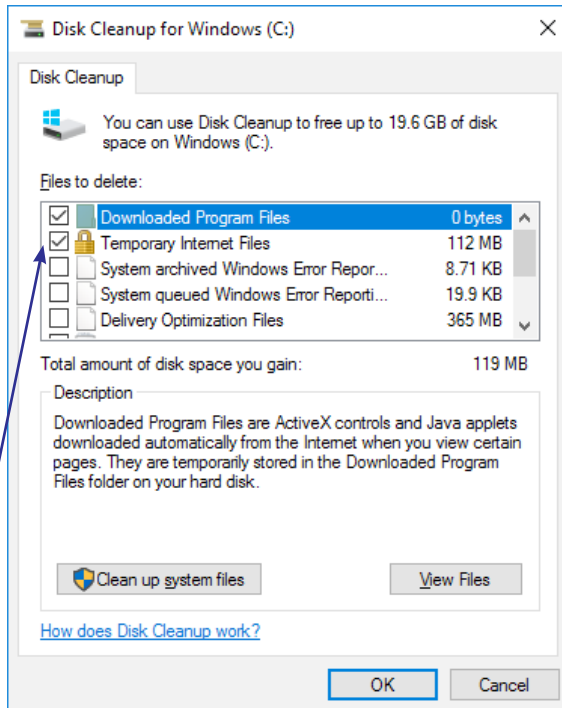
- 1) Open the start menu and click on "All programs".
- 2) Scroll down to "Accessories", then click on "System Tools", and finally on "Disk Cleanup".

Clean up your Hard Drive

- 3) You might be asked which disk you want to check – if so, choose your main one, which is usually the C drive. Or it might automatically choose the main one for you. Either way you'll see a little box like this, while it's checking your hard drive:



- 4) After a little while, when it's finished checking it, you'll see a window like this, which is the more or less the same for Windows 7 and 8/8.1:



- 5) Put ticks next to the files you want cleared up and click on OK. Anything that says “temporary” in the list you can safely get rid of. It'll be things like graphics in web pages you've viewed. By storing them the computer can display the page a bit quicker next time you visit it. You don't really lose anything by deleting them. The same goes for downloaded program files.

Clean up your Hard Drive

The next thing I'd recommend doing is emptying the recycle bin. Right click on it on the desktop or start menu and select "Empty Recycle bin".

For most people the things I've covered so far will sort out a Hard Drive that's slowing things down. But it just could be that your hard drive is simply full, in which case tidying it up will only help a tiny bit. You need to clear some space on it first.

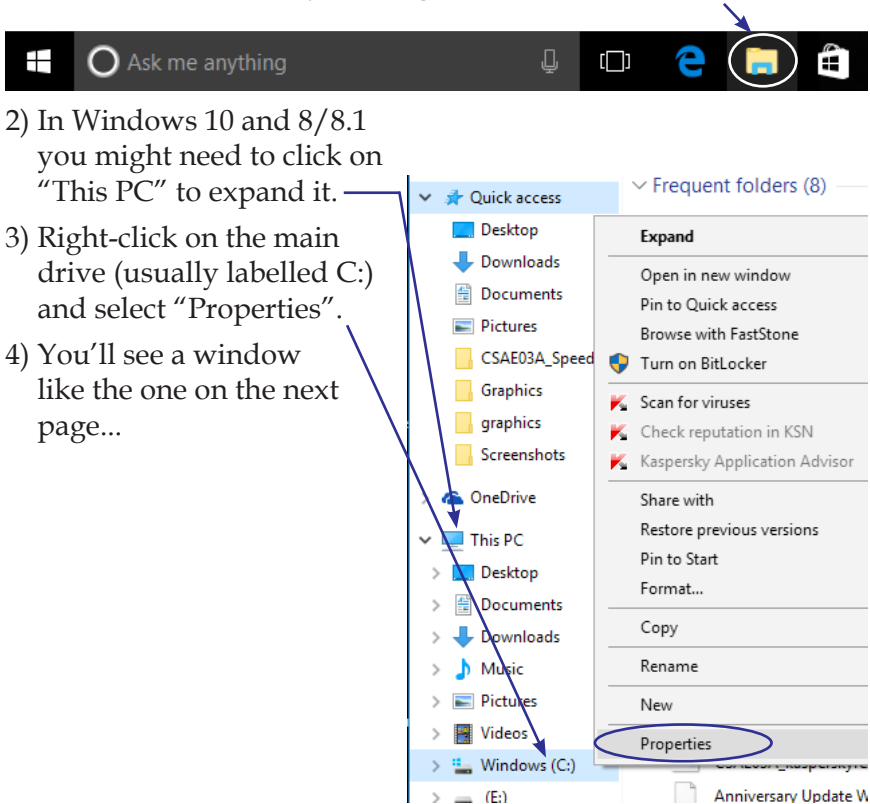
Here's how to check whether it's getting full

1) Open File Explorer by clicking on this icon on the taskbar.

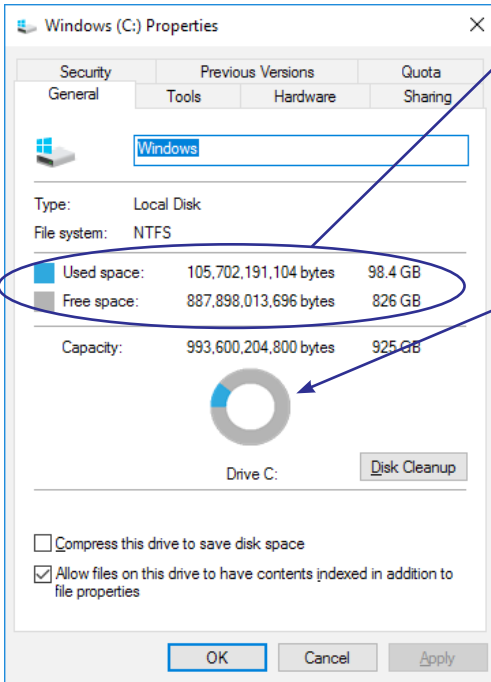
2) In Windows 10 and 8/8.1 you might need to click on "This PC" to expand it.

3) Right-click on the main drive (usually labelled C:) and select "Properties".

4) You'll see a window like the one on the next page...



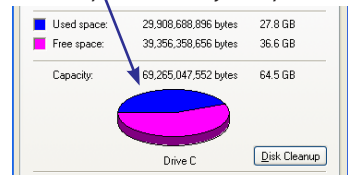
Clean up your Hard Drive



This tells you exactly how much of the hard drive is used and how much is free.

This gives you a chart to show you – the grey is free and the blue is used.

In Windows 7 and 8/8.1 the chart looks slightly different – here the pink shows free space:



If your hard drive is over 90% full, then it's really worth clearing off some space. If it's getting close but not there yet you might want to clear it off now to save you doing it later – but it's not so urgent.

So the question is: What's taking up all the space?

There are two main possibilities. It could be files (eg photos, documents, emails, even video clips) or it could be programs (Microsoft Word, a graphics program, games...)

Or I suppose there's a third possibility: it could be a mixture of both.

Clearing off files is easy. You go to your Documents folder (or wherever you have the files stored), select the files to get rid off and press delete on the keyboard. Of course if you might want them again, you should back them up to a CD or flash drive or something first.

Clean up your Hard Drive

The process on page 26 and 27 can help a little bit, too. But on its own it's unlikely to make much difference.

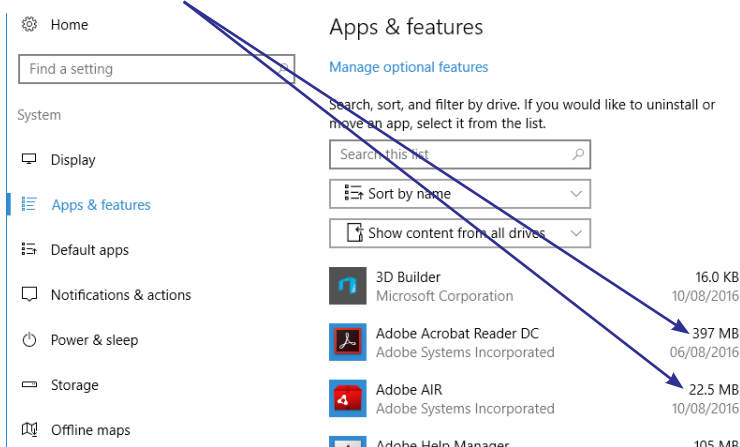
When you're looking for files to get rid of, bear in mind that generally documents in Word or things like that don't take up all that much space. Photos are far more likely to be clogging up your hard drive, because they have a bigger file size. And if you have any home video (or downloaded films) on your PC, that's even more likely.

Clearing off unwanted programs

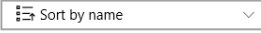
But unless you have home video or a lot of photos, chances are your files aren't what's causing the problem. It's more likely to be too many programs. But getting rid of unwanted programs or apps isn't as hard as it might sound.

In Windows 10 and 8/8.1:

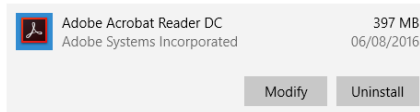
- 1) Click in the search box on the taskbar (Windows 10) or go to the Start screen (Windows 8/8.1). Type "Uninstall apps".
- 2) Click on "Apps & Features" (Windows 10) or "Uninstall apps to free up disk space" (Windows 8/8.1).
- 3) You'll see a list of apps/programs, showing how much space each one is taking up. (By the way, to help you compare sizes, a GB is roughly 1000 MB and a MB is roughly 1000 KB. And a typical photo might take up about 2MB, so you can see some of these programs are quite big.)



Clean up your Hard Drive

4) If you like, you can sort them in order of size to see which apps/programs are the biggest. To do this, click on this dropdown menu:  and choose "Sort by size" instead.

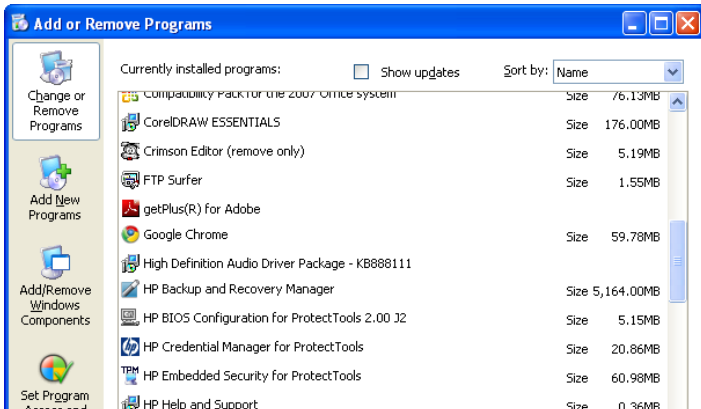
5) To remove an app/program, click on it in the list. You'll see something like this:



6) Click on "Uninstall".

In Windows 7:

- 1) First go to the start menu and then to the control panel.
- 2) Look for "Uninstall Programs" and click on that.
- 3) You should get a window like this:



On some PCs this might take a while to appear – don't worry, that's fine. It usually means it's going to be a long list!

This works very like in Windows 10 and 8/8.1 – it's just laid out a bit differently. Again, it lists all the programs installed on your PC, and over on the right it tells you how much space they're taking up – and you can sort it by size if you like using the dropdown menu at the top right. And again, to remove a program, click on it and then click on "Remove" or "Uninstall".

Clean up your Hard Drive

It'll pop up a window asking if you're sure you want to get rid of the program – if you're sure you want to get rid of it, click on **uninstall**.

I'd always recommend restarting the PC after uninstalling a program, unless it does it automatically.

But how do you know what to uninstall?

Here are my tips:

- Don't uninstall anything if you're not sure what it is – it just might be crucial to the PC's running.
- Look for programs that you know you don't use. Either ones that you installed to try out and didn't find very useful or something that came with the PC. Lots of new PCs have loads of programs with them that you'll probably never use.
- Look for trial versions that are now expired. Lots of new PCs come with a 60 day trial of Microsoft Office. But after the 60 days are up, it doesn't go, it just won't work. So it sits there, clogging up your hard drive. A prime candidate for removal.
- Don't uninstall anything called "Recovery Manager" or similar. It's a program that gets the computer working again if the hard drive gets seriously corrupted. Very handy if you need it (though fingers crossed you never will).
- When you click on something in the list it'll sometimes tell you how often you use a program and when you last used it. That's useful to help you know whether you want to keep it or not, but remember what I said about "Recovery Manager" programs. Chances are you've never used it but don't delete it!

That should help you get rid of some of the programs you simply don't use – and that should clear up a big chunk of your hard drive.

NB – once you've cleared off the hard drive (either by deleting files or programs), it's a good idea to defragment it. See p24-25.

Sort out the drivers*

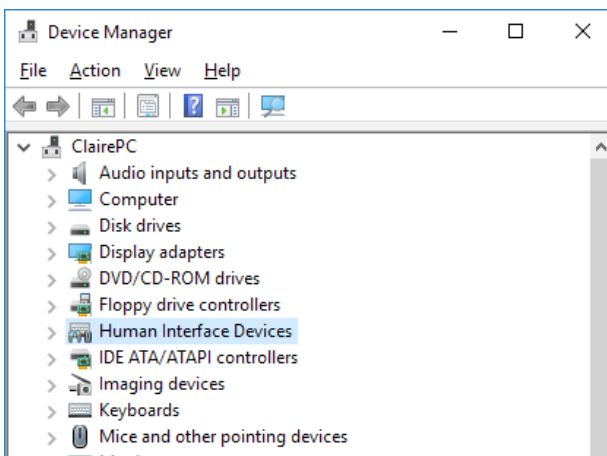
Speed-up-tip 3 - check your drivers

A driver is a small piece of software that tells Windows how to communicate with the printer or whatever it is. When you get a new toy... sorry, essential add-on, Windows will automatically look on the internet for a suitable driver. Or for some older gadgets, they would have come with a CD containing the driver.

But as programmers come up with new ways of using the equipment and as they fix bugs and snags in how it works, the driver you did have can become out of date. Then if someone writes a program assuming you have the new version of the driver, you get problems, which can make it slower. Or can even make it not work at all.

Luckily you can update a driver to make sure it's all bang up to date. Here's how:

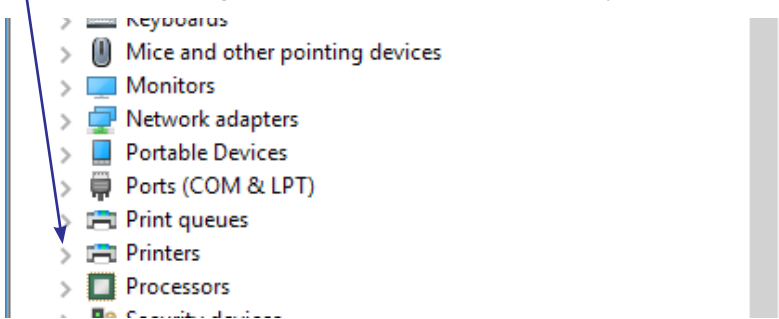
- 1) Open up the Start Menu and click on "Control Panel".
- 2) Click on "Hardware and Sound".
- 3) In the "Devices & Printers" section, click on "Device Manager".
(If your Control Panel is laid out differently, and you don't get the same options, you can click at the top in the search box and search for "Device Manager".) When you open it, it looks like this:



* I'm tempted to make a joke about Lewis Hamilton & Nico Rosberg agreeing that the best way to make things faster is to get the right driver. But it's an awful joke, so I won't.

Sort out the drivers

- 4) Find the device you want to update in the list. You can click on the little + or > signs to see the full list of each type of device.



- 5) Right click on the device you want to update. You'll get a little pop-up menu. Click on "Scan for hardware changes" (Windows 10 and 8/8.1) or "Update Driver Software" (Windows 7) and your PC will connect to the Internet and find any new drivers for that device. Follow the instructions on the screen to install it. By the way, you might have to restart your computer afterwards before it actually makes any difference.


That's it - once you've done that, your new driver is installed and the old one gone.

Split your PC's effort properly

Speed up tip 4 – make sure it's concentrating on the right things

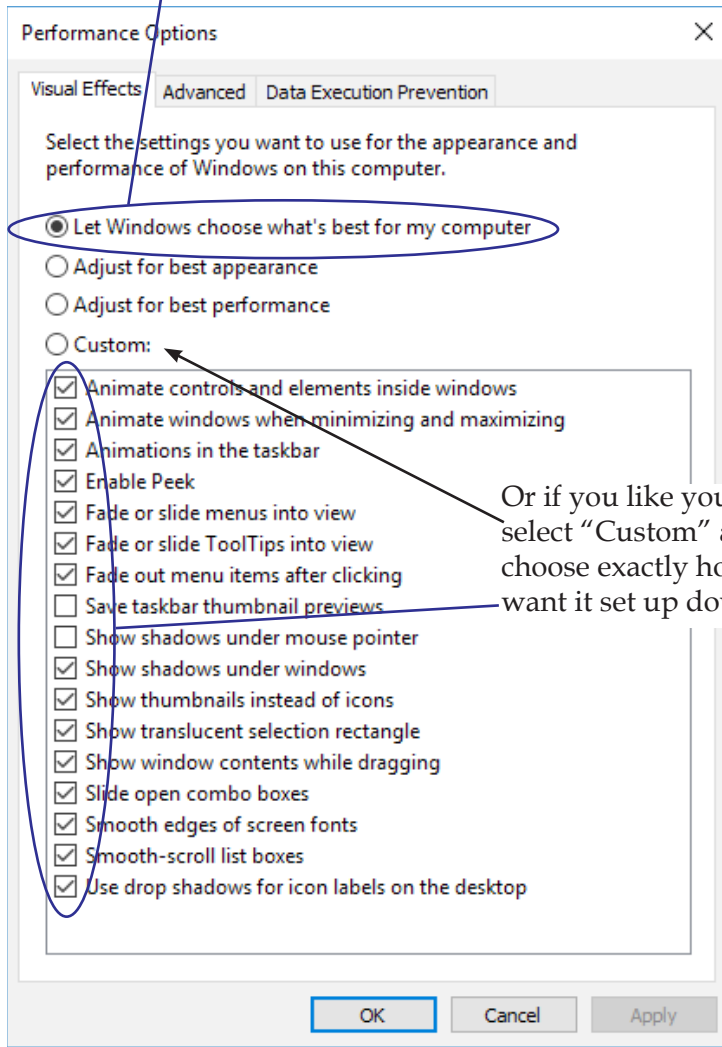
The computer is always dealing with more than one thing at once. For example, if you're typing up a letter, it's still checking to see whether you've plugged anything new in – that's how it knows to pop up a screen when you do. Assuming you have an anti-virus program set up, that'll be keeping an eye out for anything dodgy as well. And whatever you're doing, the PC is also making sure the display is working properly.

So it has to decide how to split its effort. It needs to know whether to put most of the effort into what you're trying to do, or into all these things happening in the background. It's best to have it putting most of its effort into what you're using it for, not what it needs to do in the background – here's how to make sure it does:

- 1) ***In Windows 10***, click in the search box on the Taskbar and type "Performance".
In Windows 8/8.1, go to the Start screen and type "Performance" (you just start typing and it'll automatically start searching).
In Windows 7, go to the start menu, click on Control Panel, and in the search box at the top, type "Performance".
- 2) In the search results you should see "Adjust the appearance and performance of Windows". Click on that.
- 3) You should get a screen like the one on the next page. If nothing seems to appear, check for this symbol on the taskbar and click on it:  (sometimes it's there but hidden behind whatever else you were working on).

Split your PC's effort properly

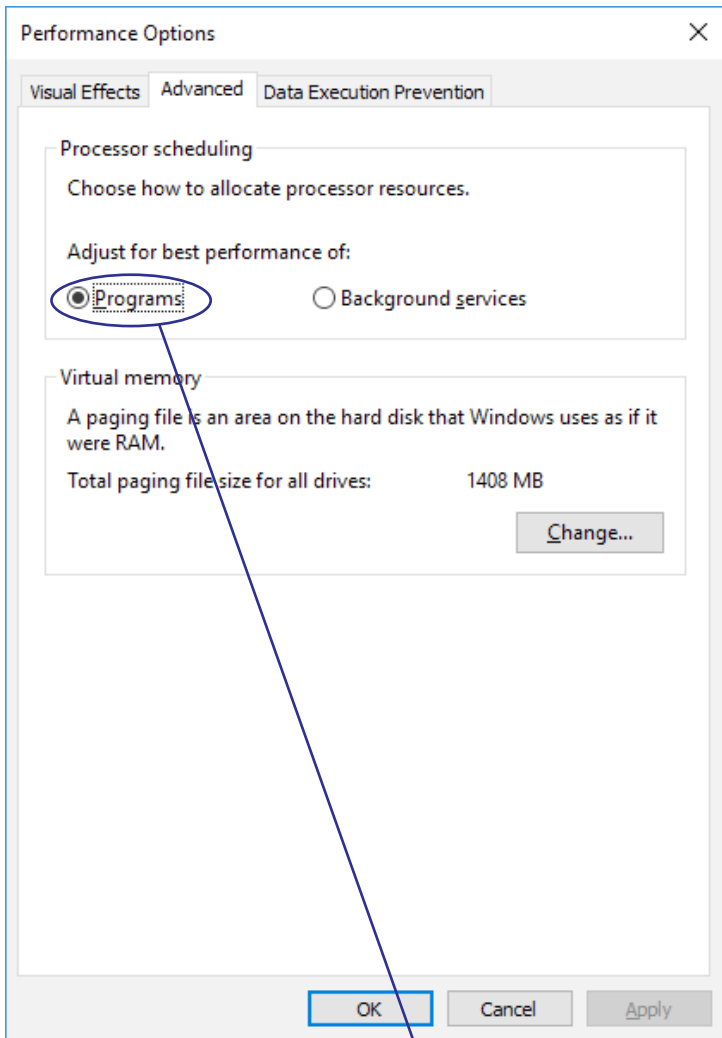
4) I'd suggest having the option "Let Windows choose what's best for my computer". But if you want the ultimate in speed, you could select "Adjust for best performance".



Or if you like you can select "Custom" and choose exactly how you want it set up down here.

Split your PC's effort properly

5) Then click on the “Advanced tab at the top and you’ll get this screen:



6) Make sure that “Programs” is selected here.

7) Click on OK.

That’s it – your computer is now set up to use as much of its effort on what you want it to do as possible. It’ll still do things in the background – but they won’t get priority over what you want it to do.

Problem 3: It's Confused

Why it could be confused

It does seem a bit odd, talking about computers as if they could think. I've talked about the CPU being like the computer's brain. I've talked about the computer sharing its "brainpower". And now I'm talking about it being "confused".

It does sound odd but it is a good way to describe it. I admit, computers don't actually think, not as such. But the way they behave sometimes is as if they were confused.

Here's what I mean:

Windows isn't just one thing. It's made up of a bit of software to handle all your files, another bit to handle the mouse, a bit to handle what it's displaying on the screen, a bit to handle to hard drive and so on*. That way, if you get a different monitor or change your files, only that bit of Windows needs to know about it – the other bits just keep talking to the "display bit" or the "file manager".

All the bits have to "talk" to each other (there I go again – not actually talking like a person, of course, they communicate electronically).

The problem comes when one bit (say the file manager) thinks another bit (say the bit that runs the hard drive) is different from what it is. Or is stored in a different place – or is asking for different information. So the bit that runs the hard drive doesn't get what it's expecting – and that causes mayhem.

That's what I mean by it getting confused.

You might wonder why it would happen – what causes it to suddenly get confused like this. Usually it doesn't just happen of its own accord. It's normally because of something new on the PC. For example if you install a new program and it overwrites one bit by mistake. Or you attach a new monitor or graphics card with a new and improved version of the bit that controls it – but it doesn't tell all the other bits so they keep trying to talk to the old version.

** Despite what you might think, there's no bit to make sure it frustrates you every so often. That just happens...*

Ending Your PC's confusion

Usually, you can tell if the reason your PC is slow is because it's confused. Here are the symptoms to watch for:

- 1) It tends to happen suddenly - one day your PC is zipping along fine, the next it's dragging its feet.
- 2) It tends to happen after you've installed something new.
- 3) Sometimes it'll only be one thing that's slow - maybe when you open your web browser or when you use a particular program.

The only catch is it's not always obvious that you've installed something new. If you've bought a new hard drive or just got a copy of Microsoft Office, you'll know. But if the computer automatically downloaded an update to Windows or a new add-on for Edge (or Internet Explorer), you might have noticed it doing it... or you might not.

My advice: if your PC suddenly gets slower, suspect it's confused.

Putting it right

Right - it's not much help just knowing what's going wrong. You need to know how to put it right again! There are several things you can try.

1) Restart the computer

Sometimes it's only temporarily confused. When you restart the computer it sorts itself out. It's definitely worth trying this first because it's so easy!

2) Uninstall the program/gadget or whatever & install it again

You'd think if installing it once caused problems, doing it again would cause more problems. After all, computers are suppose to be logical.

But it doesn't always work that way. Uninstalling the program/gadget and reinstalling it again can really help.

Ending Your PC's confusion

Of course, this depends on you knowing what you've installed. If the computer did something automatically you'll have to skip to number 3 - "Use System Restore" (below).

But if you do know...

If it's a program, follow the method on pages 30-31 to uninstall it. Restart the computer, then install the program again using the disk or download file that you originally installed it from.

If it's a physical thing (for example a printer), turn it off and unplug it from the PC (with the PC turned off) then turn on the computer. Then follow the method on pages 30-31 and remove any associated programs that came with it. It's worth shutting down the computer again before you plug it back in to set it up again, just like you did in the first place.

3) Use System Restore (if you can*)

If you don't know what's been installed or if uninstalling it didn't help, you can try system restore. It puts the computer back to the way it was at a previous time. It might put back changes that uninstalling missed - on the other hand it might also put back changes you didn't want it to.

Don't worry, though. It doesn't get rid of any files you've created - your letters, emails & photos are all safe.

**If you have Windows 10, you might not be able to use System Restore. It's turned off by default, which means that unless you turned it on again, there won't be any restore points to return to. If you find you've got some restore points, great. If not, see the note on page 42 about how you can set a restore point now, in case you have problems in the future.*

Here's how to use System Restore:

- 1) Make sure all your programs are closed.
- 2) ***In Windows 10***, type "Restore" into the search box on the taskbar. Then click on "Create a restore point" from the search results. In the window that opens, click on "System Restore...".

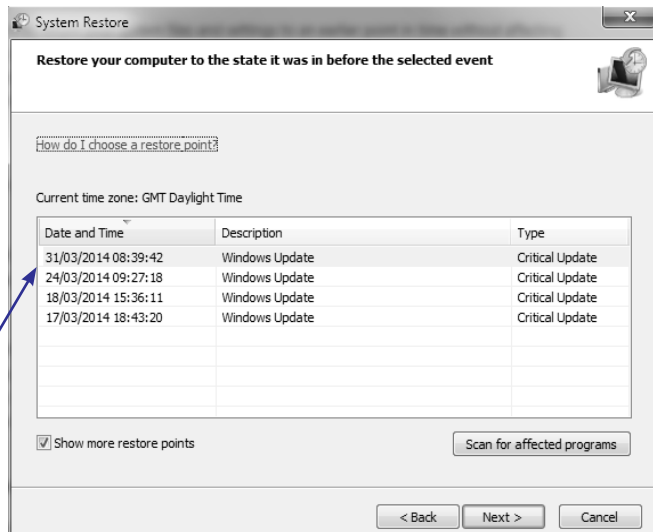
Ending Your PC's confusion

If the System Restore button is greyed out, System Restore is probably turned off, and you won't be able to use it (sorry). Turn to p42 for how to turn it on, in case you need it in the future.

In Windows 8/8.1, go to the Start screen and type "Recovery" – click on "Recovery" in the search results.

In Windows 7, click on the Start button in the bottom left-hand corner of the screen, then on "All Programs", then "Accessories", then "System Tools" and finally on "System Restore". In the window that opens select "Open system restore".

- 1) However you get there, a System Restore window like will open. Click "Next" at the bottom.
- 2) This will open up a list of restore points for you to choose from:



- 3) Click on the one you want (usually that'll be the most recent one), then click "Next".
- 4) You'll then get another screen summarising what it's about to do. Click on "Finish".

Once you start system restore, you'll have to leave your computer alone for a few minutes, and it'll warn you about that. Click "Yes" and make a cup of tea while it does the restore and restarts the computer.

Ending Your PC's confusion


Undoing a System Restore

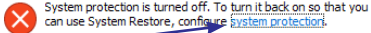
If you want to undo this, open System Restore again. This time when the window shown in step 2 opens, you'll be given the option to undo the most recent restore you did. Make sure that option is selected, click on "Next" and follow the instructions.

Turning System Restore on in the first place

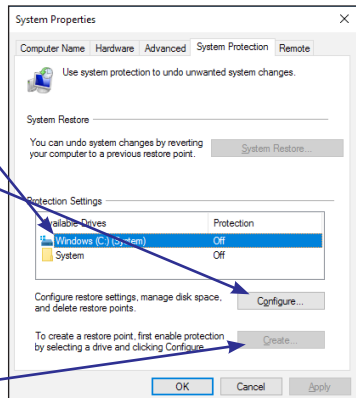
If you're using Windows 10 and System Restore is currently turned off, here's how you can set it up:

1) Click in the search box on the taskbar and type "Recovery".

2) Click on "Recovery - Control Panel" in the results:  (Don't click on "Recovery options - System settings" – this takes you into the serious stuff like reinstalling Windows, which is a bit drastic just yet!)

3) Click on "Open System Restore". It'll open a little window showing you this error message: 

4) Click on "system protection". You'll get this window: Click on your main hard drive and click "Configure".



5) Another window will pop up, showing that it's set to "Disable system protection". Click "Turn system protection on". Click on "Apply", then "OK".

6) You will now come back to this window and see that this "Create" button is no longer greyed out. Click on it, and it'll let you type a name to remind you why you set that restore point, e.g. "after installing MS Word". Don't worry about the date and time – they're automatically added for you. Click "Create" to finish the process and leave your computer alone for a couple of minutes while it does it. It'll tell you when it's finished.

You can now go back to this point at any time in the future, using System Restore as I showed you earlier.

Ending Your PC's confusion

4 - The heavyweight options

If none of that helps, there are other options, but I really don't recommend them unless you know what you're doing...

- You can change the "registry". (The registry is a part of Windows that keeps track of what programs you have, what they all do, how they interact and so on. Over time it can get cluttered up with information about programs you don't have any more and so on... and that can slow your PC down.)
- You can clear out by hand old files that Windows has left lying about.
- You can even completely reinstall Windows itself.

The thing is, these are all pretty tricky to do and you really don't want to get them wrong. So as I say, they're not things that I'd recommend attempting unless you really know what you're doing. So if you get to this point, I'd suggest taking your PC to a "PC doctor", or maybe a local PC shop, and asking if they can help.

Or if you have a friend who's a real computer whizz, you could get their help.

You don't want to end up making it worse!

A final word...

Phew.

There's a lot of information there.

So I'm going to say something you might find a bit surprising:

Don't feel you need to take it all in.

By all means read through this book (in fact if you're reading this page, there's a good chance you already have read through the book). But don't feel you have to learn it all properly. It's more like a reference book. Once you've read it, you might not remember every last bit. But if one day you have a problem with the PC, you'll think "Oh, I read something about this in that book" and you can come back and flick through it 'til you get to the right bit. And then follow the instructions.

A slow PC can be so frustrating when you've been used to it zipping along at a rate of knots. Hopefully with this book you'll be able to fix it if it happens to you.

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