








Keep Your Computer Healthy

In this class, you will learn about hardware and software maintenance. We will start with hardware and then we will move to software.

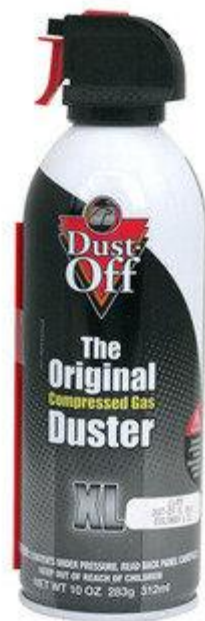
Software has many different utilities that can be used and applied for different reasons.

We will look at the following:

-  System Restore
-  Reset this PC
-  Defragmenter
-  Laptops
-  BitLocker (Encryption)
-  Microsoft Safety Scanner (remove viruses, spyware, and other malicious software)
-  Uninstall unwanted software

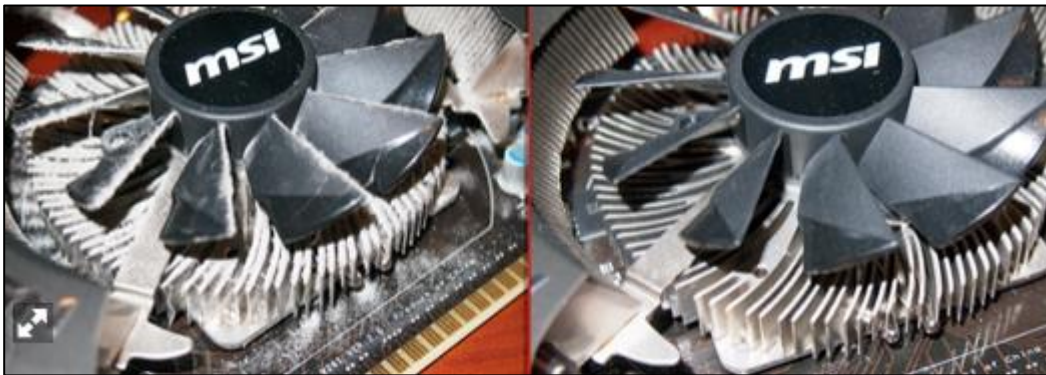
Hardware maintenance

The first thing to do with your computer is to keep it running cool. Dust can cause your PC components to hold heat. This can cause parts to fail over time.



The first thing you need to do is assemble your gear. **Before working on your PC make sure you unplug.**

Dust, dirt, hair, and other debris can build up on fans and heatsinks.



Before

After

Components can come loose or become unseated. If any component is loose or seems loose remove, clean and reseal the component.

Have a Dustbuster or similar small vacuum on hand. In addition, some paper towels and a bit of all-purpose spray cleaner (like Fantastik or Simple Green) are useful, as are a microfiber cloth and some isopropyl alcohol.

The canned air and brush are useful for dislodging hair, dust and other debris from all your PC's surfaces—especially heatsinks and printed circuit boards (PCBs), which have countless tiny nooks and crannies. The vacuum sucks up the various detritus. The paper towels, spray cleaner, and microfiber cloth are for wiping down hard, nonelectrical surfaces.

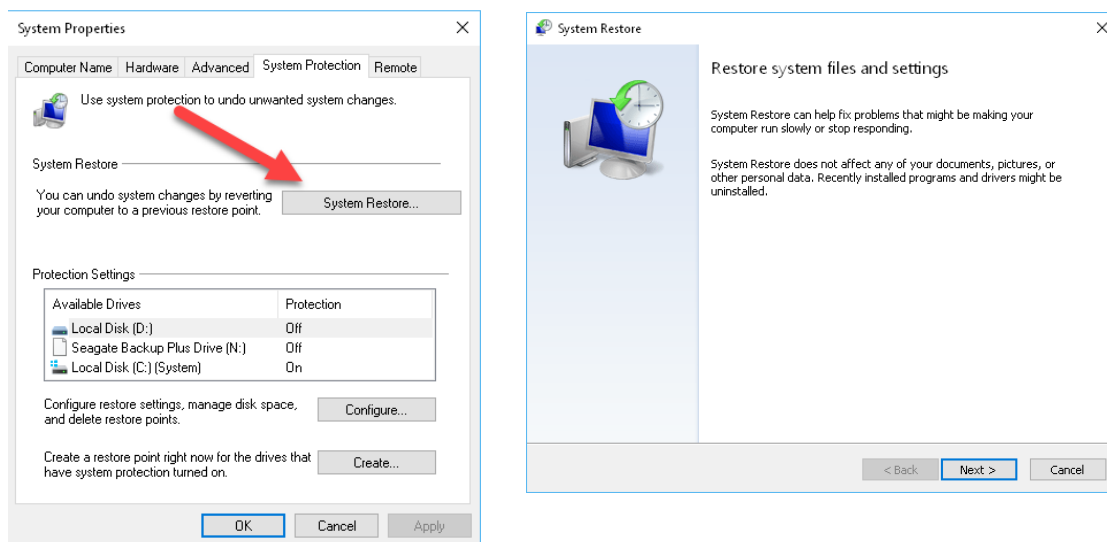
[Software maintenance](#)

There are several steps you can take depending on the direction you wish to go when it comes to your PC's internal workings.

1. System Restore

- a. In Windows 7 & 10 you have System Restore which can be used when Windows is having problems after you have installed a new program. This can also be used when you believe other things might have been loaded when clicking a link on a web site.

- b. The **System Restore** can be found by doing a search in both Windows 7 & 10.

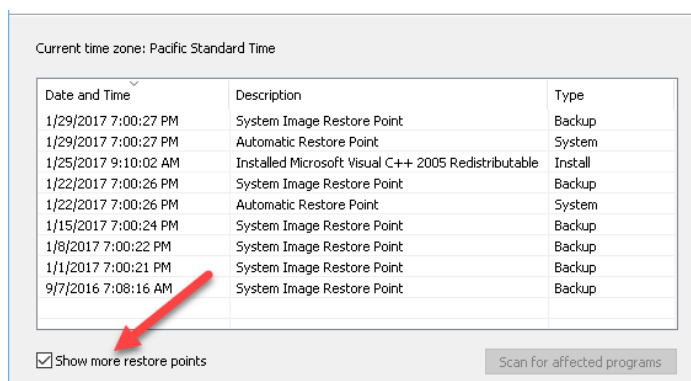


By clicking the **System Restore** button you will start the wizard, click **Next** to view restore points. Restore points are like a picture of your computer as it was at a point in time.

If you click the “Show more restore points” check box you will see more of the restore points.

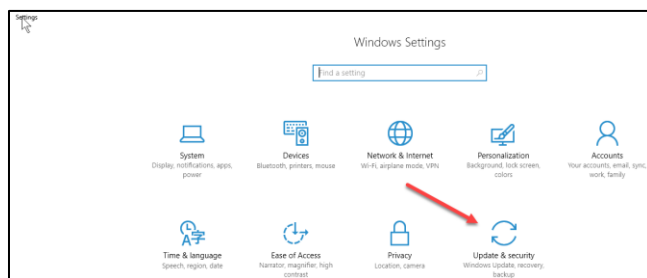
This will put your computer back the way it was before a software update or any software install, that you may believe caused problems with your system. In the wizard you would select a System Restore based on date and time when your computer was running fine.

Click **Next** button to continue the wizard and complete the restore. The restore process make take 30 minutes or more depending on the age and speed of your computer.

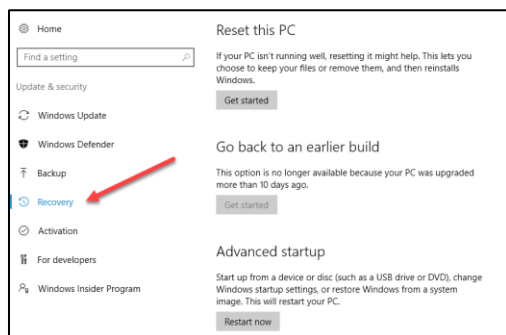


2. Reset this PC

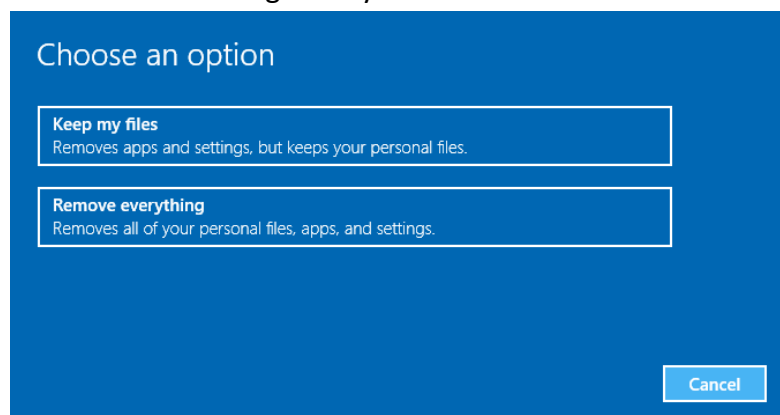
This PC is part of Windows 10. It can be found by pressing Win + I



When you press the hotkey you will see the **Windows Settings** window. Click the **Update & security** group. In the next screen click the **Recovery** category on the left.



Here you have three selections to choose, notice the grey button on the right. under Reset this PC. This is the first one and the simplest to use. Click the **Get started** button. The next two options depend on what you have on your computer. If you have lots of files and you do not want them to be deleted/removed, then you would select **Keep my files**. If you have your files all backed up or have copied them to an external drive, you could select **Remove everything**. Be careful once you click on one of the selection it is off and running, in other words doing what you selected.



This is a great way to get your PC back the way it was when you operating system was first installed.

3. Go back to an earlier build

This can be used if your latest upgrade was under 10 days. If it has been longer this feature will no longer be available. If it is available, you can click **Get started** button to remove the latest upgrade from your computer. This would normally be used when you feel the last upgrade did in fact cause you problems on your computer.

4. Restart now

This can be used if you have Windows software on a DVD, USB or a restore copy you have created. You would make sure your copy is in the DVD player or on the USB and the USB is plug in before you click the **Restart now** button.

5. At the bottom you can click the link “Learn how to start fresh with a clean installation of Windows” if you would like to learn more. Read the information carefully.

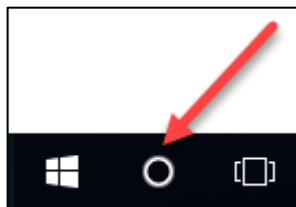
Defragmenter

The Defragmenter is a tool that can be used to make the hard drive work more efficiently. When a file is saved to your hard disk it may be saved in a number of different spots on the hard drive. This is called a fragmented file. The defragmenter will collect the parts of the file on the disk and re distribute the file in a location where the complete file (together) can be stored.

There are a number of tools on the market in case you would prefer to use them instead of the default tool that comes with Windows. Norton Utilities and AVG.com are a couple but there are many tools on the market, some we pay for some are free.

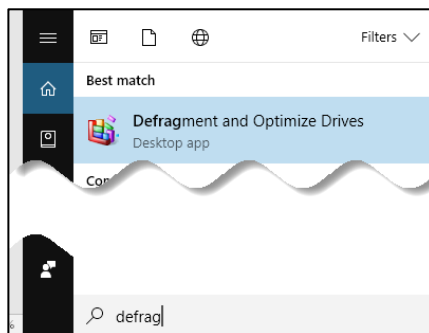
To locate and use the **Defragment and Optimize Drives** tools do the following:

1. In Windows 10, click the **circle** next to the Start button to start a search.



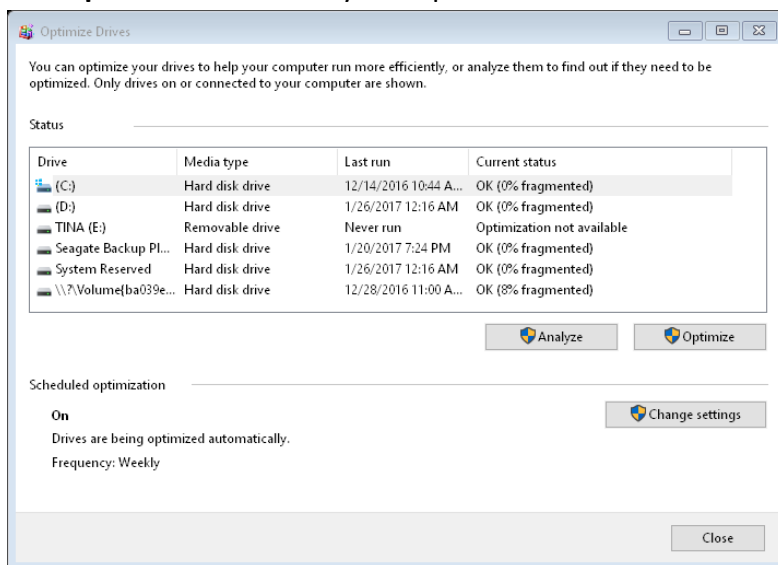
next to the Start button to

2. Type: **defrag**

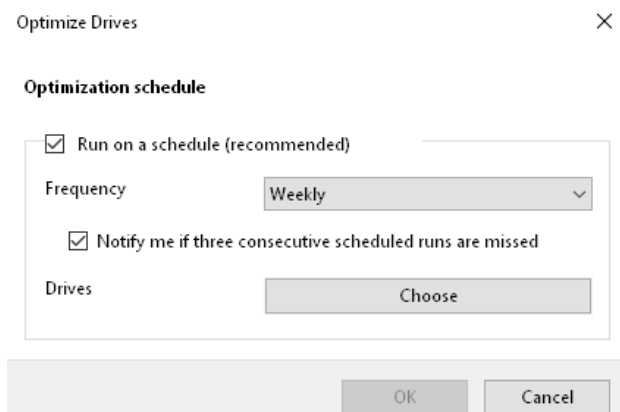


3. Click the “**Defragment and Optimize Drives**” menu item.

4. The **Optimize Drives** utility will open.



5. Click the **Change settings** button.



In the settings dialog box make changes as you would like, the default of Weekly works for most computers. If you have more than one drive, click the Choose button to select or unselect your drives.

6. Click **OK** button when done.

7. Back to the **Optimize Drives** dialog box.

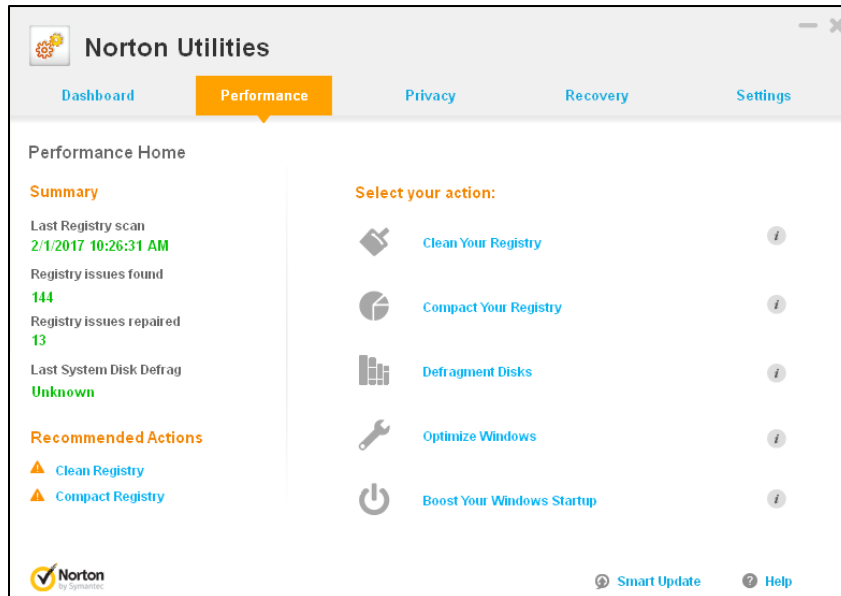
Here click the Analyze to see if defrag is needed, if your drive is above 10% you might plan to run the Optimizer.

8. Click the **Optimize** button (if needed).

9. Click the **Close** button when done.

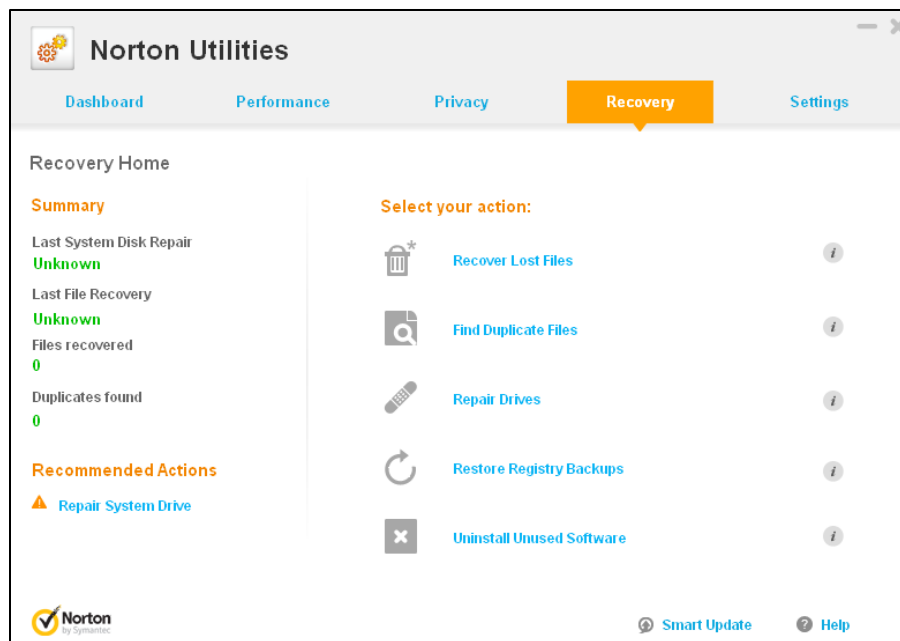
If you are really into performing task on your computer, more in the direction of a tech; then take a look at the other utilities that are available.

As an example; McAfee, AVG and Norton, notice here with Norton Utilities you can:
Clean Your registry, Compact Your Registry, Defragment Disks, Optimize Windows and Boost
Your Windows Startup.



None of these extra utilities are required but depending on how particular you are about your computer it is something to consider.

One of the other reasons to think about a utility program is the ability to recover deleted files. If you have deleted a file and it is not in the recycle bin these utilities in most cases can recover your deleted file.



Laptops

Software

- Take regular backups. From time to time you may need a system reinstall, and a backup is very handy when that need arises.
- Run automatic updates. Keeping software up to date helps prevent malware infection.
- Do your day to day work from a non-administrative account. This prevents accidental or unintentional software installation.
- Use software (virus protection) that includes a web browser check of sites.

Hardware

- Keep any vents clear of dust with compressed or canned air every month or so. Heat is the enemy of a laptop.
- Take care of the battery. Follow the manufacturer's instructions. Usually they recommend not leaving the laptop plugged in, and not storing the battery for a long time full or empty. More modern laptops are better at automatic battery management.
- Invest in an SSD card/drive. Not only is it faster, but is it more immune to the jostling that a laptop experiences.
- Keep drinks away from your laptop. This is experience talking, here.

If you wish to speed up your computer, you need to fork out money for new hardware: RAM, a graphics card or a faster processor. Do not fall for the software "Boost utilities" as they make little difference. A quote from PC Advisor.

We tested four popular Windows clean-up utilities to find out whether they genuinely improve system performance or are the digital equivalent of a placebo. We installed Ashampoo WinOptimizer 7 (£29 inc VAT), Iolo System Mechanic 10 (£24 inc VAT), plus two free utilities – the popular Piriform CCleaner and 360Amigo System Speedup Free – on five well-used Windows PCs of various specifications and generations.

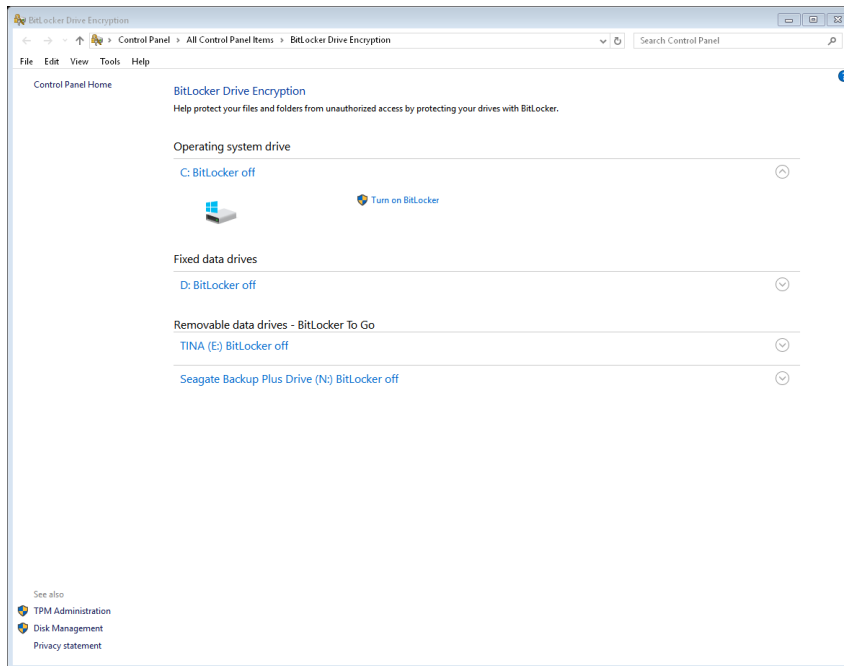
In most cases the clean-up utilities scarcely made a difference to overall system performance, and in a few instances they slowed down the machine. They did, however, shave off a few seconds from bootup times.


My suggestion is to skip these items and stay with the utilities we have reviewed here in this document.

Security for the laptop & ...

If you have Windows Pro (not the Windows home addition) you have access to BitLocker.

BitLocker encrypts your hard drive/memory sticks to make sure no one can access the data but you.

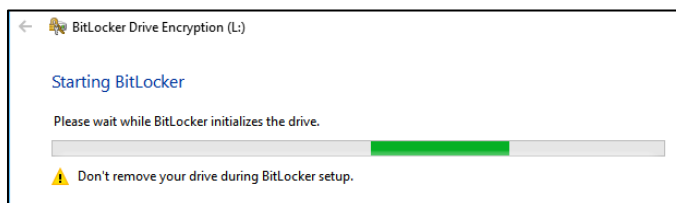


en·crypt 

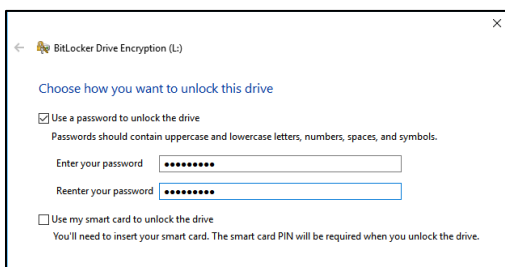
en·crypt (ĕn-kript) *verb, transitive*
en·crypt·ed, en·crypt-ing, en·crypts

1. To put into code or cipher.
2. *Computer Science.* To scramble access codes to (computerized information) so as to prevent unauthorized access.

1. Navigate to the BitLocker utility in the Control Panel.
Do a search in Windows for BitLocker.
2. Click the drive you wish to apply BitLocker to.
Be careful if you forget your password you will **NEVER** get your data back.
3. Next to the drive you wish to use BitLocker, click the link for “Turn on BitLocker”.
4. BitLocker will start.



5. The Password screen will appear.



BitLocker Drive Encryption (L:)

Choose how you want to unlock this drive

☒ Use a password to unlock the drive
Passwords should contain uppercase and lowercase letters, numbers, spaces, and symbols.

Enter your password: [password field]

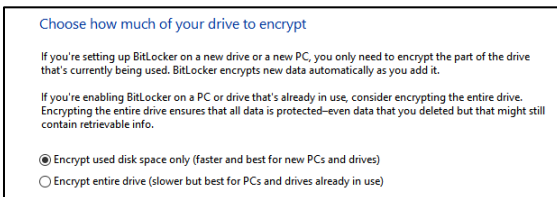
Reenter your password: [password field]

☐ Use my smart card to unlock the drive
You'll need to insert your smart card. The smart card PIN will be required when you unlock the drive.

6. Type in the password that you will use to access your drive.

*Remember – I repeat **Remember** your password!*

7. In the **next step** of the BitLocker wizard is the recovery section. Here you can save a recovery key to several places. I strongly suggest that you save a recovery key to your Microsoft account or to a file. But do **not** save the file on the laptop or computer you are encrypting.
8. Wizard will ask you a few more questions click next button after each one:

a. 

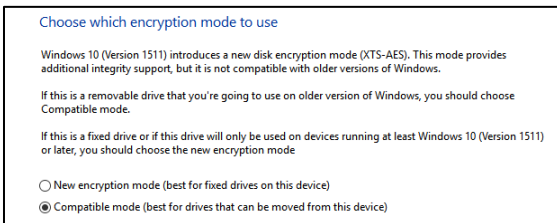
Choose how much of your drive to encrypt

If you're setting up BitLocker on a new drive or a new PC, you only need to encrypt the part of the drive that's currently being used. BitLocker encrypts new data automatically as you add it.

If you're enabling BitLocker on a PC or drive that's already in use, consider encrypting the entire drive. Encrypting the entire drive ensures that all data is protected—even data that you deleted but that might still contain retrievable info.

☒ Encrypt used disk space only (faster and best for new PCs and drives)

☐ Encrypt entire drive (slower but best for PCs and drives already in use)

b. 

Choose which encryption mode to use

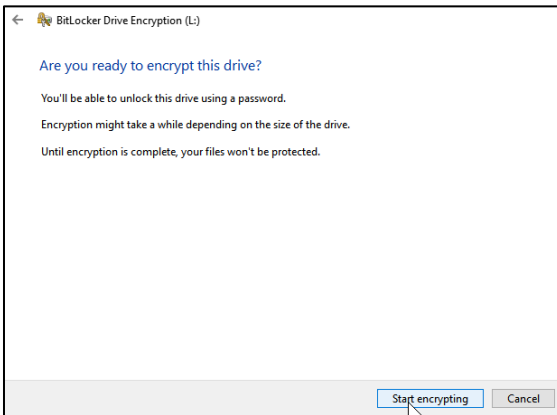
Windows 10 (Version 1511) introduces a new disk encryption mode (XTS-AES). This mode provides additional integrity support, but it is not compatible with older versions of Windows.

If this is a removable drive that you're going to use on older version of Windows, you should choose Compatible mode.

If this is a fixed drive or if this drive will only be used on devices running at least Windows 10 (Version 1511) or later, you should choose the new encryption mode

☐ New encryption mode (best for fixed drives on this device)

☒ Compatible mode (best for drives that can be moved from this device)

c. 

BitLocker Drive Encryption (L:)

Are you ready to encrypt this drive?

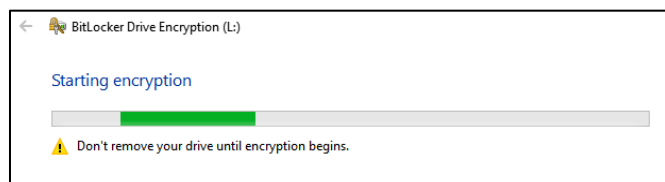
You'll be able to unlock this drive using a password.

Encryption might take a while depending on the size of the drive.

Until encryption is complete, your files won't be protected.

Start encrypting Cancel

Here on the last one, click the Start encrypting button. This will start the encrypting and may take a while depending on the size of the drive or memory stick.



BitLocker Drive Encryption (L:)

Starting encryption

[Progress bar]

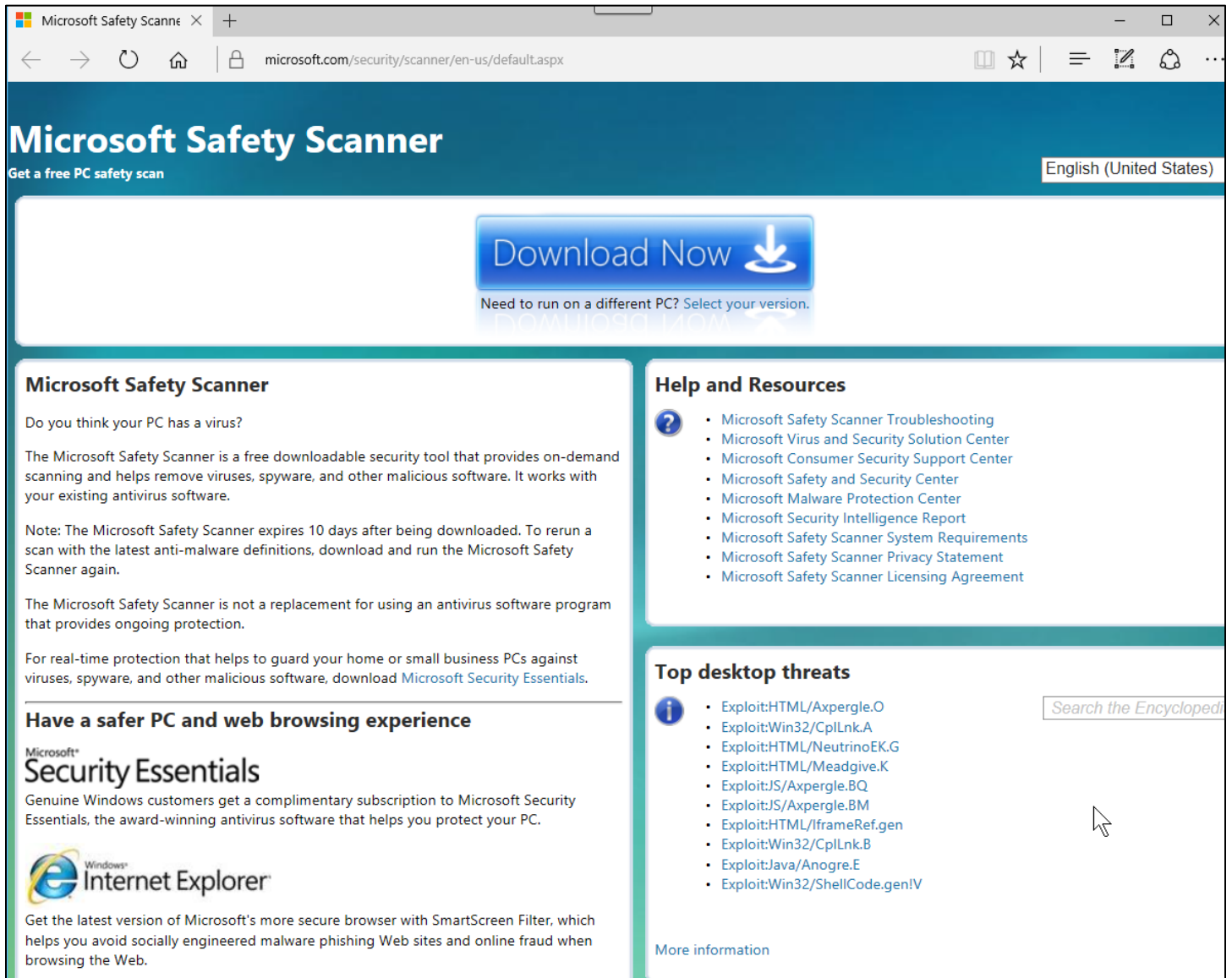
⚠ Don't remove your drive until encryption begins.

- d. As you wait BitLocker will show the percentage it has completed.



A safe scan


If you are concerned about a possible virus, spyware or other malicious software on your computer, you can download and run Microsoft Safety Scanner.



The screenshot shows the Microsoft Safety Scanner website in a web browser. The browser's address bar displays the URL [microsoft.com/security/scanner/en-us/default.aspx](https://www.microsoft.com/security/scanner/en-us/default.aspx). The page has a blue header with the text "Microsoft Safety Scanner" and "Get a free PC safety scan". A language selector on the right shows "English (United States)". Below the header is a large blue button labeled "Download Now" with a download icon. Underneath the button, it says "Need to run on a different PC? Select your version." The main content area is divided into three columns. The left column, titled "Microsoft Safety Scanner", contains text about the scanner's purpose, a note about its 10-day expiration, and information about Microsoft Security Essentials. The middle column, titled "Help and Resources", lists various support links. The right column, titled "Top desktop threats", lists several exploit names and includes a search bar labeled "Search the Encyclopedia".

Microsoft Safety Scanner
Get a free PC safety scan

English (United States)

Download Now 

Need to run on a different PC? Select your version.

Microsoft Safety Scanner

Do you think your PC has a virus?

The Microsoft Safety Scanner is a free downloadable security tool that provides on-demand scanning and helps remove viruses, spyware, and other malicious software. It works with your existing antivirus software.

Note: The Microsoft Safety Scanner expires 10 days after being downloaded. To rerun a scan with the latest anti-malware definitions, download and run the Microsoft Safety Scanner again.


The Microsoft Safety Scanner is not a replacement for using an antivirus software program that provides ongoing protection.

For real-time protection that helps to guard your home or small business PCs against viruses, spyware, and other malicious software, download [Microsoft Security Essentials](#).

Have a safer PC and web browsing experience

Microsoft®
Security Essentials

Genuine Windows customers get a complimentary subscription to Microsoft Security Essentials, the award-winning antivirus software that helps you protect your PC.

 **Internet Explorer®**

Get the latest version of Microsoft's more secure browser with SmartScreen Filter, which helps you avoid socially engineered malware phishing Web sites and online fraud when browsing the Web.

Help and Resources

- [Microsoft Safety Scanner Troubleshooting](#)
- [Microsoft Virus and Security Solution Center](#)
- [Microsoft Consumer Security Support Center](#)
- [Microsoft Safety and Security Center](#)
- [Microsoft Malware Protection Center](#)
- [Microsoft Security Intelligence Report](#)
- [Microsoft Safety Scanner System Requirements](#)
- [Microsoft Safety Scanner Privacy Statement](#)
- [Microsoft Safety Scanner Licensing Agreement](#)

Top desktop threats

- [Exploit:HTML/Axpergle.O](#)
- [Exploit:Win32/CplLnk.A](#)
- [Exploit:HTML/NeutrinoEK.G](#)
- [Exploit:HTML/Meadgive.K](#)
- [Exploit:JS/Axpergle.BQ](#)
- [Exploit:JS/Axpergle.BM](#)
- [Exploit:HTML/IframeRef.gen](#)
- [Exploit:Win32/CplLnk.B](#)
- [Exploit:Java/Anogre.E](#)
- [Exploit:Win32/ShellCode.gen!V](#)

[Search the Encyclopedia](#)

[More information](#)

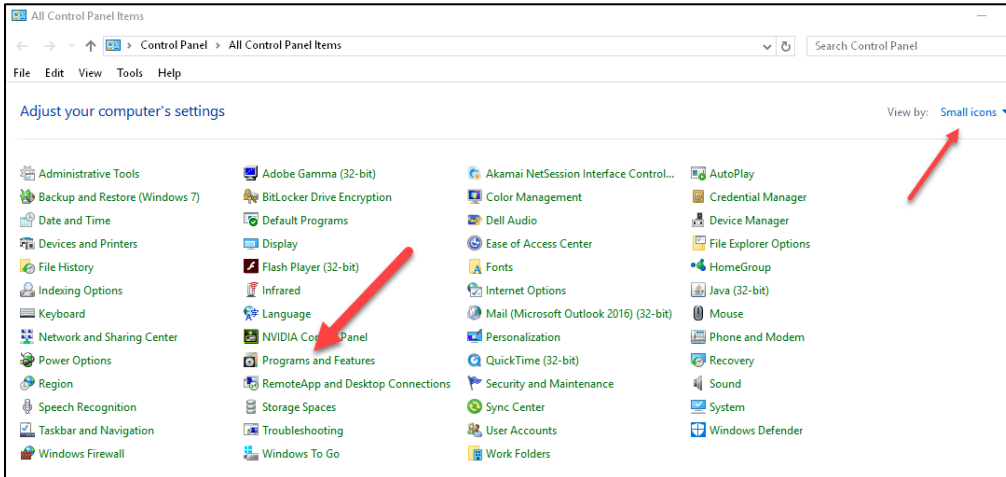
<https://www.microsoft.com/security/scanner/en-us/default.aspx>

How to uninstall unwanted software

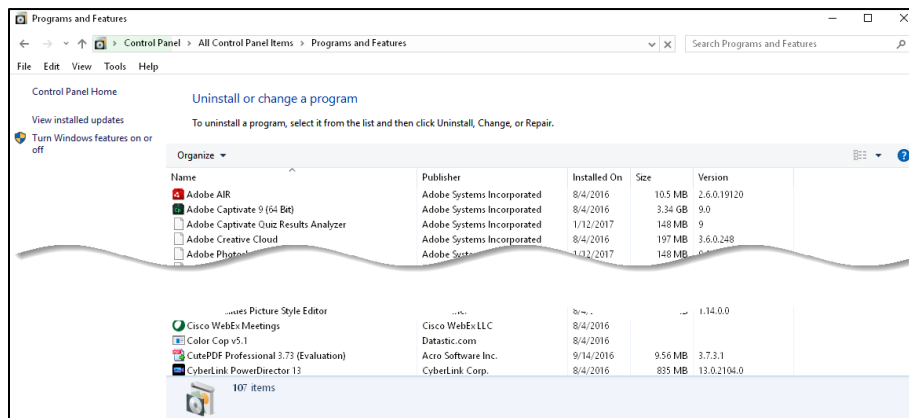
Even when you purchase a new computer there may be installed software that you do not want. You may also install new software that you would like to try and then later wish to remove the software.

In Windows this can be easily done by opening the Control Panel and navigate to the Programs and Features applet.

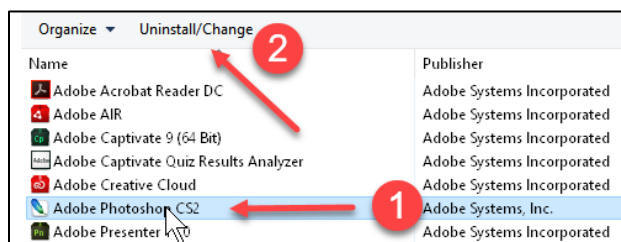
1. Do a search for Control Panel and then make sure your “**View by:**” is set to **Small icons**.



2. Click the **Programs and Features** applet.



3. Click on the software you wish to uninstall, then click the **Uninstall/Change** menu.



4. Follow the uninstall wizard to remove the software you have selected.