

12 Backups

This write up is for casual computer users working at home, that is not connected to a network such as usually found in a business.

If you do an Internet search on how to backup the articles will casually refer to using "Cloud" storage as a backup – that is you send your files to servers connected to the Internet. Using cloud storage is usually simple and no more complex than dragging files/folders as you would to a USB flash drive.

Whilst this may be practical for backing up small folders it is often impractical in a South African context due to limited upload speeds. As many do not have uncapped ADSL but rely on mobile data packages this can also be very expensive and exceed your monthly data cap in one step.

Windows 10 contains an automated backup facility (File History) which relies upon you having a connected suitable external storage device. If you are a serious computer user you may have to consider this. However, for the users for whom this is intended it is probably an overkill.

Scope of this article

It is good practice to do a one-time full backup of your computer. There is plenty of help on the Internet as to how to do this.

The first part of the document covers a procedure to copy files/folders to an external device. The second part covers backing up emails. Once the structure is established the process should be within the capabilities of most computer users.

Why do backups ?

This is an important question and the answer leads to the backup processes.

1. The most obvious is the failure of your computer. This can be broken down into two sub-categories
 1. Hardware : the most likely failure is with your hard disk. Sometimes the failure is only partial in that it prevents Windows from booting. Taking the disk out of the failed laptop and putting it in to a suitable frame with power supply and then connecting it to an operational laptop as a USB device **might** allow you to extract some of the files.
 2. Software : If essential Windows files are corrupted or deleted it may make it impossible to boot. Although these problems can often be resolved sometimes it is necessary to totally reload and all existing files will be lost. Before reloading you should be able to extract all or most files using the technique above.
2. Damage caused by malware: Read exercise/notes 07 on malware for more info.
3. User unintended deletes: Probably the most common use of restoring from a backup is retrieving an old file which was accidentally deleted or amended and you need an earlier version. To solve this issue it is advisable to keep multiple backups over an extended period of time since missing items are often only noticed months after being deleted/amended.

Will the backups be usable when I need them ?

1. The first mistake to avoid is taking a backup by overwriting your one and only current backup. Murphy may well make an appearance while you are backing up. You avoid this by
 1. If using CDs or DVDs by using a new one each time. They are relatively cheap and best not reused even if rewritable. Although the quoted storage capacity of a DVD is 4.7 Gigabyte this is actually 4.7 billion bytes which is 4,489 Mbytes or 4.38 Gbytes (due to a kilobyte being 1024 and not 1000 bytes).
 2. If using an external drive or large capacity USB flash memory by saving the backup in a new folder. You would create a folder preferably with a name such as "2016-09-01 Part backup" and copy all the required data as sub-folders.
 3. If you only have one external drive you must combine this with the use of CDs or DVDs.

2. **Using File Explorer to check the backup. Open one or two items stored on the device.**

Is it difficult ?

No. Most of the effort is one time in reorganising your folders to reduce the size of the regular backups. We will create a structure where we separate out folders/files which we can back up once and then can concentrate on those which are being added to/amended on a regular basis.

How often should you do backups ?

There is no one answer which satisfies all conditions. The most important questions are:

- how important is loss of data to you
- can you retrieve lost items from another source
- how much new material do you create which requires backing up

To ensure zero loss you would need to do continuous backing up. This is impractical for a casual user so in most cases a monthly backup should suffice.

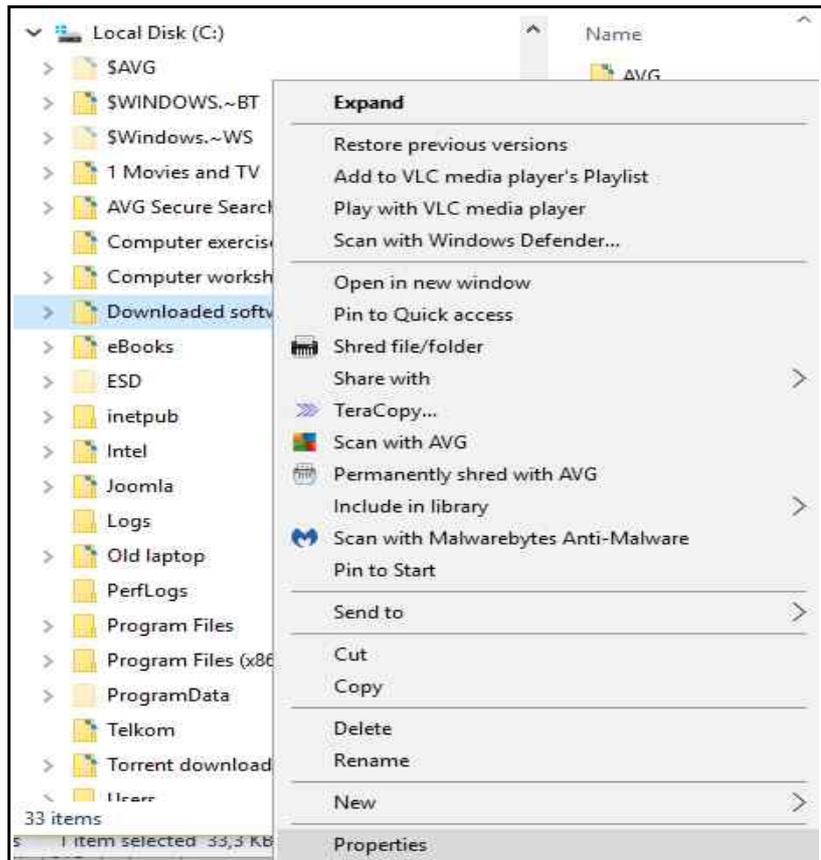
If your main activity is email and you make use of a service such as Gmail you will most probably be able to recover all your emails if you do not transfer them off Gmail into a local folder. In this case a less frequent backup might suffice.

Preparing for backups

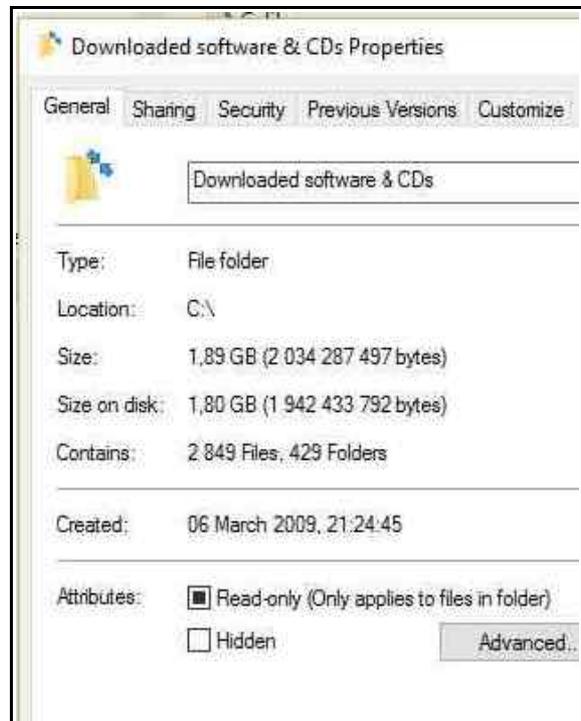
The first steps are to decide

1. what data needs backing up
2. how much storage each main folder will require
3. how often it needs to be backed up.

1. Open File Explorer and expand the display of the C drive
2. Look through the list of folders on the left side and identify which folders contain data which you have added to the system.
3. You can ignore all the folders such as Programs Files which were created by the Windows installation or various applications.



4. For the moment ignore the Users folder.
5. **Make a list of these folders** (there may not be any directly below the "C" drive which you have created.)
6. For each selected folder left click to select it (should have a light blue background) and then right click to bring up the menu as per the image above.
7. Click on properties and a pop-up will be displayed which will show the size of the folder and how many files and folders it contains.
8. In the example, the folder takes 1.80 Gbytes disk space and contains 2849 files and 429 folders. Convert any Gbytes to Mbytes by multiplying by 1024.



9. **Next to the list make a note of the size of that folder.**

10. Once you have completed those folders expand the users folder
11. Identify your login user name, in my case I log in to Doug
12. Expand "Doug"
13. Make a list of the folders in "Doug" that you wish to backup.
14. Repeat the previous process of left clicking to select a folder, right clicking to bring up the pop-up menu, and left clicking on properties to establish the size of that folder.
15. Note the size of the folder in Mbytes.

Working out your strategy

1. The starting point is to add the total size of the folders to be backed up.
2. If the total is within the capacity of the device onto which you will copy you could transfer all files.
3. However, it is suggested that you examine the larger folders and identify sub-folders which will not change in the future.
4. For example, in the pictures folder create sub-folders for each year.
5. Move all the necessary folders so that they now reside in a particular year.
6. Redo the sizing so that you know the size of each year folder.

