

Windows backup – Don't leave it until it is too late!

Using Windows backup software to make backup copies of all your important data is one of those tasks that most computer users never get around to. Figuring out how to use backup software just seems too boring. That is until something goes wrong and suddenly all those important documents you were working on can't be accessed any more. All too often, people only learn about the need to backup their data after they have lost a large proportion of it due to a hardware failure.

It Will Happen to You!

Unfortunately, computer components, like all other machines, do eventually wear out. While components like the CPU (central processing unit) and the computer's memory can last for many decades, hard drives are precision mechanical instruments and usually have life-spans of around five years, though this can vary considerably. Other types of media, such as USB stick drives or flash cards use a different type of storage but are still susceptible to wear and failure. Even the humble compact disc, once thought to be nearly indestructible under normal usage conditions, has shown to be less robust than we originally thought.

Even if your disks never fail (and they will) what about you? Have you ever accidentally deleted something and then realised you needed it? Most people have, after all, that is why you can open the recycle bin in Windows and retrieve things you deleted! In short, there's no escaping it, if you store valuable data on your computer then you are going to have to backup that data.

Your hard drive will fail eventually!

Here's a statistic that you simply cannot dispute. 100% of hard drives that remain in use will fail eventually, it is simply a matter of time. If you don't plan your backup strategy now, then it is almost certain you will lose some data or have to pay to have your data recovered. Professional data recovery laboratories can charge thousands just to inspect a faulty hard drive!

Planning Your Backup Strategy



Windows Backup programs like Acronis True Image, pictured here, can backup your whole hard drive or just your important data.

While using Windows backup software isn't too complicated, understanding what to backup often is. This problem isn't helped by the fact that Windows is a complex operating system that stores potentially important data in many different places. There are all kinds of Windows backup software available but before you rush out and buy a cutting edge backup solution, you should carefully consider your needs.

Consider the data on your computer, we can split it roughly into two categories:-

Programs – These are the things you install and run on your computer. They include word processors, web browsers, games, music players and anything and everything that runs on your computer.

Data – This is information that programs work with. It includes word processor documents, spreadsheets, music and video files, digital photographs, saved game positions and anything and everything that the programs you run on your computer work with.

Now, although it is possible to make a complete copy of your hard drive, most home users only need to backup their data files. Making a complete copy of your hard drive (called a “hard drive image” or “hard drive snapshot”) does have some advantages. In the event of a failure, this type of backup can have you up and running again in minutes rather than hours or even days. Doing a complete copy of your hard drive also makes sure that every piece of data (valuable or useless) is saved. However, making a complete copy of your computers hard drive is time consuming and potentially quite expensive in terms of the amount of storage space needed. Because of this most home users are better off just backing up their data. In the event of a complete failure of your computers hard disk, programs (including Windows itself) can be re-loaded onto the computer from their original disks, or downloaded again from the internet. While this can be time consuming, hopefully this kind of failure will not happen very often!

Having decided what to backup, you need to decide which media to store your backup data to and how to go about backing it up. The next part of our guide will discuss the different types of storage media you can use when backing up data, click the link below to go to the next part of the guide.

Choosing backup media is easy when you know how, thanks to this handy guide

In this article, we are going to consider which backup media to use, that is, where you store your backup data. In our previous article we discussed why backups were important and which data you should consider backing up.

Backing up data can consume a lot of storage space so it is important to consider carefully how best to store it. There are dozens of options, so we will concentrate on the five that are of most use to home users and take a look at the advantages and disadvantages of each option. Whichever backup media you choose you will also need to use some backup software, which we will be covering in the next article.

Let's take a look at our short-list of backup media now. Remember, you are not restricted to one choice, you could use any combination of the media below depending on your requirements.

DVD/CD Recordable



Recordable CDs and DVDs have become extremely affordable in recent years. (Picture courtesy of [Wikimedia](#))

There are now affordable DVD recordable disks on the market that can store up to 8.55 gigabytes of data, making them an attractive option for smaller backup needs. Software which backs-up to DVD or CD disks is readily available and DVD writing hardware is extremely affordable.

However, as the prices of external hard drives have tumbled, the popularity of optical media such as CD and DVD has waned and many new PCs don't even ship with an optical drive any more.

Advantages:- Very affordable, easy to store and transport disks.

Disadvantages:- Limited capacity may require several manual disk swaps, may be slow to record and verify. Newer PCs are not always equipped with DVD drives.

Portable hard drives/USB flash drives



Portable hard drives are readily available on the high street and the web and make excellent backup media (Picture courtesy of [Wikimedia](#))

Portable hard drives are getting cheaper and cheaper, making them an attractive option to use as backup media. Readily available in very high capacities they are an ideal backup solution for the home or small office. For smaller backup needs, many users carry a [USB flash drive or pen drive](#). These are easier to carry around but have more limited storage capacities.

More expensive portable hard drive enclosures include not one but two or more physical hard drives. The second drive can be configured to automatically copy the contents of the first drive, meaning that your data is safe even if one of the drives fail. This technology is called [RAID](#) and is very useful for protecting highly important data.

However, since any data stored or deleted on a RAID array will be immediately changed on all disks in the array, it should not be considered a backup strategy on its own.

Advantages:- Fast recording times, very large capacities available.

Disadvantages:- Can be more expensive than DVD backups, especially for smaller backups, cannot make multiple backups for off-site storage without investing in extra drives.

Tape drives/cartridges



Tape cartridges make excellent enterprise level backup media but their prohibitive costs usually put home users off. (Picture courtesy of [Wikimedia](#))

Many home users have not used magnetic tape drives to store programs and data since the early days of home computing, but big businesses all over the world rely on them for enterprise level backup. Tape drives such as the ones commonly used by businesses have not caught on so much with home users because of their prohibitive costs.

Advantages:- Virtually unlimited backup capacities available, easy to store and transport media, tape backups are usually fully automatic requiring no user intervention aside from changing tape cartridges.

Disadvantages:- Hardware and media is expensive for home users, many home computers will require extra hardware and software upgrades before they can use tape drives.

Network backup to another PC or network enabled storage



Building a small network is now inexpensive and easy, making network backup a viable option for many users. (Picture courtesy of [Wikimedia](#))

Businesses have used the network backup model for many years, often in conjunction with tape backups. Now many home users are connecting two or more PC's to their broadband connection. In doing this they are also creating their own private network in their homes, which allows for easy sharing of computer resources such as printers, scanners and storage space. On a small network like this, backing up data from one machine to the other is usually as easy as copy and paste.

Because network backup is so convenient, many vendors have started producing network-attached storage (NAS) devices. These devices are like mini-computers that plug into your network and provide additional storage space. Some NAS devices can also stream music and video to other devices in your home, such as games consoles or multimedia players. Some can even connect to a printer and allow it to be used by any computer on the same network. Many NAS devices also support [RAID](#) technology which can automatically back up one hard drive to another in real time.

Advantages:- Storage capacity is only limited by hard drive space on the networked PC or NAS and can be expanded almost without limits. Backups can be fully automated, fast recording times (especially on wired networks).

Disadvantages:- Requires investment in a second PC or NAS device which must be turned on at the same time as the first PC. Performance on the second PC may be degraded while backups take place, it is not usually convenient to securely store or transport a second PC or NAS.

On-line/Cloud



As internet access gets faster and cheaper, more and more big corporations will allow us to store our data on their servers, for a fee of course. (Picture courtesy of [Wikimedia](#))

On-line backups are a relatively new idea. Now that many of us have very fast internet connections, some companies (such as Amazon) are offering to store our data in their data-centres. Using specially designed software users can automatically encrypt and upload copies of their data for safe keeping.

James Duncan Davidson wrote an interesting blog article on the economics of on-line backup for large amounts of data. You can read this blog entry by [clicking here](#). Prices have fallen since then, but cloud backup can still be costly, especially if you have a large amount of data to store.

Advantages:- Virtually unlimited backup capacities available, backup process can be fully automated, backup is stored off-site, meaning your data is safe even in the event of theft or fire.

Disadvantages:- No way to access your data if your internet connection fails (until connectivity is restored), can be expensive especially where large amounts of data are stored and transferred. Creating and restoring backups is very slow compared to other backup media, even with a very fast internet connection.

For the vast majority of home users, we would recommend backing up to a portable hard drive. Small businesses may wish to investigate NAS devices and on-line backups. If you have a very large volume of data to back up, for example if your work involves freelance video or photography, you may want to consider tape drives as backup media.

That is all for our guide to backup media. In our next article, we explore some of the best backup software solutions available for your Windows PC.

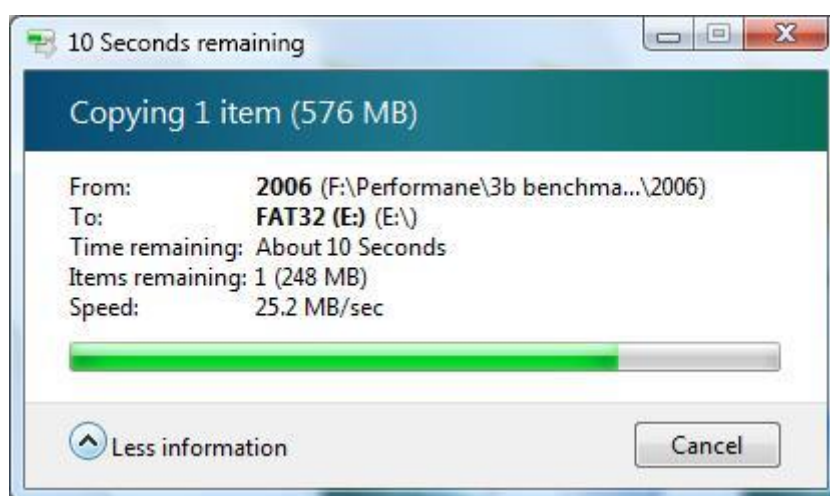
How to choose the right Windows backup software to suit your budget and requirements

In this article we will be investigating Windows backup software. In our previous two articles, we discussed what files you need to backup and where to back them up to.

Now, we'll take a look at how you can start backing your files up. As with selecting backup media, there are dozens of choices and choosing the correct one depends largely on your needs and budget. Let's explore a few of the advantages and disadvantages of some of the options.

Copy the files yourself, using Windows Explorer

Yes, there is plenty of Windows backup software around that can help you backup your files and folders and backup software even comes bundled with Windows XP and Windows Vista. However, if you have only a small amount of important files, this option may be worth considering. Basically, if you take this approach to backup, you simply copy your important files by hand, using Windows explorer, to another location, such as a second hard drive or a recordable CD/DVD. This is the least secure of all the options but sadly is the route most users take, if they bother to make backup copies at all.



Yes, copying files yourself can count as backup, but make sure you are disciplined!

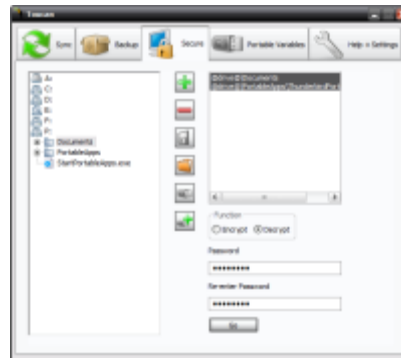
Advantages:- Most users are already familiar with copying files, requires no investment in new software.

Disadvantages:- Relies on the user to remember to periodically copy the data. The user must remember which copy of the data is the most recent and this can quickly become difficult to manage for modest sized file collections. Human error can easily result in a file being omitted or incorrectly backed up.

Use an automatic file synchronization tool

This is a similar approach to using a third-party backup tool but this option may be more desirable for some users.

Installing a tool like this can automatically synchronise files in one location with files stored in another. Perhaps you regularly take your work to school or the office on a USB stick drive. Using a utility like this, you can automatically synchronise your work between your home computer, your USB stick and your network area at school or the office.



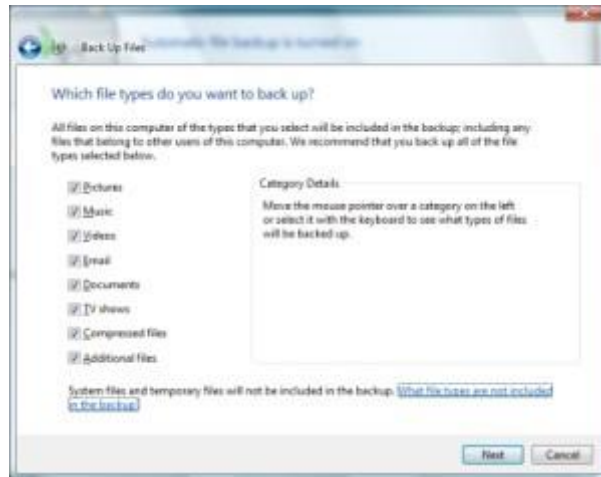
Free applications like [Toucan](#) can automatically synchronise and encrypt your data.

Advantages:- Backup is handled automatically after initial configuration, making this a good solution for those on the move. Many good quality free file synchronization tools exist.

Disadvantages:- May not be an adequate solution for large amounts of data. Some of the more advanced file synchronization tools have a steep learning curve. May require software to be installed on computer(s) at your place of work, which may be in violation of your workplaces IT policy (it is worth discussing this with your IT department, however).

Use the Windows backup software provided with Windows XP, Vista or Windows 7

Windows XP, Vista and Windows 7 ship with backup utilities of their own. Windows Vista Business, Ultimate, and Enterprise editions and all editions of Windows 7 except home basic also include a whole drive backup utility. These backup utilities provide a reasonable range of options and being included with the operating system, require no additional investment to use.



Windows backup software comes bundled free with Vista XP and Windows 7, but it might not be up to the job.

Advantages:- Enables automatic backup of files, folders and even whole drives (on certain versions of Windows). Suitable for large amounts of data. Requires no additional investment if you already own a copy of the operating system.

Disadvantages:- The Windows backup software bundled with Windows does not have all the advanced options available in third party backup software packages. Both the XP and Vista backup utilities have been poorly received by critics. The Windows 7 backup utility was a little better received, but still lacks many of the advanced features available in commercial packages.

Use full disk backup software



Full disk backup software like Nero's excellent BackItUp provide the most comprehensive backup solutions

Full disk backup software is special backup software designed to create backups of the entire contents of a computer's hard drive. The backups can be copied directly to another hard drive, or stored in image files. Image files are single files which contain the entire contents of the hard drive backup. Because they are typically very large, most full disk backup software will apply compression to the files in order to try to reduce their size.

Full disk backup software is sometimes called "bare metal recovery software". This is because it has the facility to recover your computer even when no operating system is available, for example, when your computer's hard drive fails completely. After replacing the hard drive you can use a full disk backup program to restore from a backup you created earlier.

Advantages:- The most thorough backup solution possible. Everything on your computer is preserved at the time of taking the drive image.

Disadvantages:- Drive image backups require a significant amount of storage space. Creating a full drive image can take a considerable amount of time, especially across a network connection or to a slower backup medium.

We recently reviewed and bench tested five popular full disk backup packages. [Click here](#) to read the review and find out which program was the best.

Use file level backup software

Unlike full disk backup software, which aims to capture everything on your hard drive, file level backup software allows the end user to specify which files require backup. File level backup software cannot usually restore your computer in the event of a total hard drive failure. However, you can still restore your computer from your operating system recovery disks and then copy your important files from your backup.

Advantages:- By allowing the user to choose which files to backup, backup sets are significantly smaller and do not contain unimportant data. Less unnecessary data also means quicker backups.

Disadvantages:- The user must be careful to select all the data which requires backup. Recovering from a complete hard drive failure will take significantly longer with this approach.

We recently reviewed several file and time capsule style backup programs. [Click here](#) to read the review and find out which program was the best.

Use time capsule style backup software

This is a relatively new type of backup software that works in a similar fashion to file level backup software. The difference is that every time you change a file, the software will save the old version. This is particularly handy if you accidentally overwrite a file or edit a document and then later wish you hadn't.

Advantages:- All the advantages of file level backup, but with the added security of knowing that older versions of files can be recovered. Backup process is usually “set and forget” and does not require scheduling.

Disadvantages:- All the disadvantages of file level backup software, plus saving multiple versions of files can take up more disk space.

You can find out what we thought of two popular time capsule backup packages by reading our [file backup software review](#).

That is all for our introductory guide to Windows backup software and it is also the last part of this Windows backup guide. We hope this guide has been useful to you and has inspired you to take action if you were one of the many users who never got around to backing up their data. If you are still confused or feel overwhelmed by all the information you just read, don't worry. We plan to completely overhaul our backup tutorials and articles and bring you case studies and advice on the best practices for you.