Backup Strategies for the Home PC User
Using Microsoft's Utilities

What is Backup

Backup is different things to different people. The conventional definition of back up is a safe reliable way of restoring a file, set of files or system. But… what is "Restore"? A separate but related term is "archive copy". This is a copy that allows you to restore a file, set of files etc. to a specific point of time in the past. Backups typically are to allow you to recover to one point in time – period. There are many vendors offering tools to provide backup of essential files, many offering online services. This document will discuss archival backup using the tools provided in Microsoft Windows 7. Many of the features discussed also exist in Windows Vista and Windows XP. I suspect similar capabilities are offered by Apple. This will not discuss the relative merits of various third party offerings.

A second aspect of backup is reliability of the data. What can go wrong that requires recovery? The events include:

- User error – you delete the wrong file
- Software failure or virus attack that deletes or alters files
- Hardware failure – your hard drive stops working or you drop your laptop
- Vandalism / theft– someone damages or steals your computer
- Disaster – something happens to your home that makes its contents unusable or inaccessible, such as a fire.

Reliable archival backup requires an investment in equipment and ongoing effort. The cost of backup must always be weighed against the cost of no backup. What is your data worth to you?

Backup processes
System Restore

Windows provides various backup strategies. Firstly it automatically performs System Restore backups that provide previous versions facility available using the Windows Explorer tool, the one that lets you look at all your disk and directory structure. If you right click on a file or directory you will see a "restore previous version" choice and if there is more than one version of the file you can restore the older version(s). Of course there's also the Recycle Bin to recover accidentally deleted files.

Backup

Backup in Windows 7 is very powerful but simple program to use. This allows you to simply:

- Schedule backups to run automatically
  You can set backups to run as needed. I schedule a backup to run every night (early morning). Other do it less frequently

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- Include a system Image – allows a full restore in the case of hardware failure.
  This takes disk space but only once as each automatic backup replaces what is needed for the full image to be viable. There are no archived copies of the system restore.
- Is space efficient – it only backups what has changed since the last backup.
  And this change is tracked to the part of the disk drive that has changed. For example if you have 2 GB Outlook email file and you only get one email today, tomorrow back up of the Outlook file will not be 2GB copy but just the parts of the file that changed. This may be as little as 4kb to 8kb.
- Restore is integrated with Windows Explorer
  The recover previous version technology mentioned earlier is integrated so you can restore shadow copies or backed up archival copies of the file.

Hardware

The choice of hardware is simpler (perhaps). There are many types of external hard drives available today. The principle manufactures of the hard drives are Western Digital and Seagate but many firms provide package solutions in the $100 - $200 range. Local vendors include BestBuy, FutureShop and The Source (AKA RadioShack). Select something that has at least 1TB of capacity. Many will also come with "one button" backup. I expect this is competent technology but I have done no research. If they have USB 2.0 support it will work on your Windows machine. If your computer supports it, and very new ones do, select a unit with USB 3.0 capability, it is much faster.

Your first backup will be slow, perhaps many hours, as it will be doing a 100% copy of your computer hard drive. Thereafter daily backups will be significantly faster.

Reliability

This is the big issue. If you want significant protection from all risks then you should store each daily backup off site until the next daily backup is complete. This takes time and effort and most of us won't do it. A compromise that leaves you somewhat exposed ot catastrophic and theft problems is to buy a second backup drive, or in my case a third drive also, and rotate the units periodically. I rotate my drives off site on a monthly basis. Off site can be as simple as storing it in your car or leaving it with a friend or relative. Then on a periodic basis, drop of the recent backup device and pick up the old one and put it back on your machine. I use three so that one is always offsite and redundancy reduces the risk of failure in a backup drive. I paid about $100 each for my backup units and consider the $300 an investment. Remember, if you ever upgrade your main computer, the external drives can continue to be used.

More Information

Most of this information was learned by reading the online help provided in Windows 7. I just went to Start ➜ Help and typed in topics such as Restore and Backup. Here are web links for some of these.

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Microsoft publishes a web version copy of all its computer help. These links match what's available on your computer.

http://windows.microsoft.com/en-CA/windows7/Back-up-and-restore-frequently-asked-questions

http://windows.microsoft.com/en-CA/windows7/Recover-lost-or-deleted-files

This one is very technical.

http://windows.microsoft.com/en-CA/windows7/Backup-and-recovery-strategies-for-IT-pros