

# Security: Backups prevent data loss

Security for your PC also extends to backups, protecting your data against loss. Without proper backups, you have no way to retrieve the information that has been lost. While not perhaps everyone's favorite thing, backing up your data is essential in any business. Doing it right will mean the difference between being in business and losing money while you recover.

Windows XP and Windows Vista have tools for backing up and subsequently restoring your data. Under Windows 98, Backup did the job as well. What's important is how you backup, and how often, not which application you use in particular. Backups are not just about saving a copy of the information. They are also about saving the information to somewhere safe. Somewhere away from the original source of the data, so that if a calamity befalls the source, it does not also affect the backup.

Offsite backups are the way to go. We use inexpensive external hard drives to "mirror" - be an exact duplicate, of our main drives. These external drives can then be taken offsite. We just take them home until the next backup is done. In our case, we backup weekly. If you enter large amounts of information daily, maybe you should do daily backups. The question is; how much information are you willing to recreate? Just pick a dollar figure, and work backwards.

How many days worth of labor would it take to redo the work that would be lost? This figure will tell you at once how often you should backup. There is also the question of how much to backup. Do you choose all the data, or just the working files? How much time will be spent in reinstalling operating systems and applications, then restoring the files?

These are difficult questions, and ones you should make an effort to answer. Also consider for a moment whether or not you have a plan for replacing equipment damaged by theft or disaster. Will you simply go to the local office store and buy the needed items? Have a technician install them, or will you do it? Having a plan is part of a backup routine.

In our instance, if the primary server were to completely fail, we can use a backup machine, and use our external drives as shared volumes. This will keep us going until we can purchase and install a new computer. If any one vol-

ume fails in the server, we can restore it from the backup, using a hard drive purchased and installed locally. As long as our backup drives do not suffer the same fate as the server's drives, we're fine.

The key to backing up effectively is to make it as simple as possible. Easy to do, and ideally, automatic. Most backup software available commercially has the ability to schedule unattended backups and execute them in your absence. We choose the middle of the night, when the server load is low.

You can of course determine which time is right for you.

### Incremental

You can choose to do incremental backups, where you have an original backup and then everything that is new is added to this set each time it is run. This method requires a continually growing destination, and is generally limited to methods that use removable media like CD's, DVD's, tapes and floppies. The original set for instance, could span 5 DVD's. Each night's incremental backup is then written as a "session" onto a CDR disc, which is finalized when the disc is full.

The same applies for floppy disc and tape backup systems. Traditionally, large businesses chose tapes, resembling cassettes. As each one filled up, a new one was added to the set. The trouble was, when restoring, you had to run through all tapes in the set, regardless of how large it had become. It was necessary to do new sets frequently to get around this, and they too, were time-consuming.

### Replacement

You can choose to do a replacement style backup, in which all of the data is deleted and then a new, fresh copy is written each time the backup is done. This is a sound decision, except that it wastes time rewriting files which have not changed, every time. Those of you with small backups can choose this and use a fresh disc each time.

### Synchronization

In this method, like incremental, only files that are new or altered since the last run are read and copied to the backup medium. The software makes sure the source and destination drives are identical, erasing and/or writing file changes. The major drawback to this method is that it requires a random-access backup device. You can't use a write-once DVD or CD as a destination. DVD-RW and CD-RW can be used, but they are

very slow to erase and rewrite, and you can only erase them so many times. It's best for use with hard drives or partitions that are the same size as the source drive(s).

Which of these methods (or others) you choose depends largely on the frequency of your backups, how much information you will be archiving, and the amount you want to spend to secure your data.

In our instance, nearly a terabyte (1 TB = 1,000 GB) is a significant amount to backup. A tape

system designed to handle this would be slow and costly. DVD's, at 4.7 GB or even 9+ gigabytes each in the case of dual layer, would also be costly, time-consuming and labor intensive (around 70 dual layer DVD's). The easiest and least expensive option for us is hard drives.

At the time of this writing, 500 GB hard drives are available for about \$130. An external case (USB or Firewire) is another \$50 or so. Two of these can handle all the information we need to backup, and can easily be taken offsite for added security (just handle them gently).

If you backup just your business accounting files however, you may be able to fit them onto a single CD. Writing a new CD each night and taking it offsite or putting it in a firebox is convenient and affordable.

No matter which method you choose to use, or source media you will copy to, backups need to be a part of your routine, and a part of your strategy for recovering from mishaps. The less time you can afford to be out of business, the more aggressive your backup strategy needs to be. Plan for the worst, and hope for the best.



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