Backing Up A Hard Drive
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When I was just beginning to bumble around the computer world, I recognized the importance of backing up a hard drive. It was laborious way back then. I had a whopping 20-meg hard drive about one-half full.

But protecting those 10 megs from destruction way back then made one want never to install another software program. That XT chugged along at 4.77 mhz and I had about 16 floppies to fill, In out. In. Out.

Today, of course, things are much different. The computer moves at lightning fast speed and just one CD-ROM holds about 750 megabytes. Of course, the hard drives are a little bigger so when I backed up my half full 20 gig hard drive recently, I used 14 CDs. In. Out. In Out.

The difference was that there was more time between the ins and the outs. I had to sit there longer. As they say, the more things change, the more they remain the same. There has to be a better way.

And there is. As a computer columnist who gets paid for solving problems, I'd love to say I invented it. Woe is me, I copied it. And I copied it from, of all places, Microsoft.

The idea is simple. Separate what must be backed up from what doesn't . Next, put all the files that need to be back up in one place. Backups become easy and fast.

Think about how Microsoft loads programs. Is it by accident all those applications become subdirectories – subfolders for those of you who broke in under Windows 95 or later – in one place called C:\Program Files\.

The beauty of backing up the entire hard drive is so few of the files need to be backed up. All the program files, for example, are unnecessary. Reinstall your software from the original disks and all the program files are back. The first step to plan organized backups is to determine what needs to be backed up.

1. DATA you create is the first and most important category because the data is what your computer is all about. Do you write letters on your computer? Each letter is a piece of your data. Lose that and reinstalling the software doesn't get it back.

2. Software updates: Most applications today allow the user to automatically download updates from the Internet and we all do it. All too often, however, after the update is installed, it's forgotten.

If software needs to be reinstalled on a reformatted hard drive, the original disks only recreate the original programs. Not only can that leave you with a program slightly obsolete, it can leave you with one that doesn't work.

An update may do little more than fix a bug that never affected your machine anyway. But the update also may be the patch that takes your Windows Millennium application and makes it compatible with Windows XP.

3. System files: Everyone is going to need the files in C:\Windows\system. They can be recreated but it takes little to back them up and have them at your disposal. Consider other system files: win.ini and system.ini, for example, in this category, too.

4. The registry: It would be silly to backup your personal files – the reason you use a computer – without also backing up the files needed to make the computer work.

5. Anything not covered: The unavoidable catchall. Everyone has something not covered in the above list that needs to be protected. Maybe it's an old DOS program for which the disks no longer exist. Maybe it's a new program borrowed from a friend and getting the disks would be a problem.

Whatever it is, think about it now. Organizing the hard drive and planning for the backup is a step that need to be undertaken only once so it must be done right the first time.

Take each category, and write it on top of a sheet of paper. Call the final category, the too big files.

Beneath each heading, think of every sub category and mark it down. This will be the list of things you back up and it will be your roadmap to hard drive reorganization.

It is important to realize that this limited backup plan differs from the traditional backup method. Traditionally, the drive is backed up entirely – called a full backup. Then a file that has changed since the last backup is backed up. That's an incremental backup. After several incrementals, one did a differential backup, copying every file that had changed since the last **full** backup.

That eliminated the need for incrementals and those disks or floppies could be reused. That completed the first backup set and those disks were saved. The process was repeated for a second set and when that was done, set one disks were reused for set three.

That still is an excellent backup method for a major business that can't afford to lose even a singly byte of data – and which will take the time to perform the backup. But home users will not. Rather than follow such a labor-intensive procedure, they won't back-up or will make yearly backups. When the hard drive crashes, they cry.

To begin the backup, create a folder called DATA on the C:\ drive. That is your basic backup folder. Create a subfolder for every subcategory on your list. There will be many. And those subfolders will have subfolders. How many there are depends on how you use your computer.

If the dates of the content are most important, for instance, one subfolder should be 2002 and its subfolders should be January, February, March, etc. If the applications are more important than the dates, then the applications might be the next subfolders after DATA and each application might have a 2002 folder.
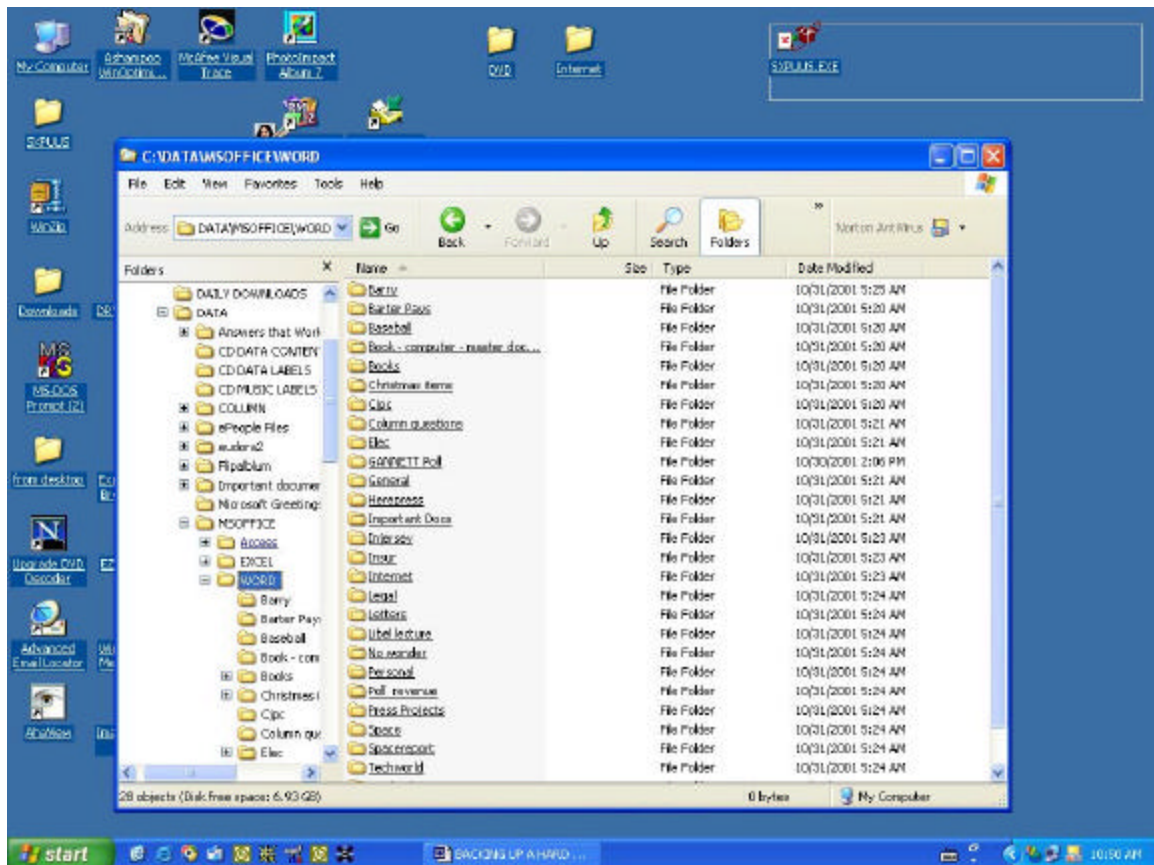
Figure 1 - H**ow Windows Explorer will look from the DATA folder down.**

Every application you use should have its own subfolder and probably many, many subfolders. One of my subfolders, for example is MSOFFICE. Under that, I have three sub-folders, Access, Excel and Word. And then more subfolders. I have 28 sub-folders under Word.

Create all the subfolders you need for the Data category. At the same time, go back to your applications. Most require you to set the save folders each time you save but some, like word, allow default folders. Set the default folders to be one of the folders you just created in data.

When that is done, move to the second sheet of paper. Downloads. I find it easier to give it the meaningless name of Daily Downloads. It's meaningless because few people download files every day that need to be saved and backed up.

But Windows Explorer sorts folders alphabetically. Daily Downloads and Data both begin with DA and probably will be next to each other. It makes it that much easier when you are dragging and dropping folders you want to back up.

A category not previously mentioned is pictures. Ideally, pictures are not part of this backup plan because pictures shouldn't be stored regularly on your hard drive. They take up too much space. They should be stored on some removable media, a CD-ROM or a Zip drive, and you should two copies of that drive, one for backup.

But if you do store pictures on your hard drive, create a folder called Daily Pictures.

In response to the natural question, why can't Daily Pictures and Daily Downloads be subfolders under DATA, they can. I have found it easier not to organize like that because I often don't need to backup downloads and pictures because they haven't changed since the last backup.

The idea is to make the backup process simple enough so that I don't have to look and see which files need to be archived. Rather than going through a long list, I want to be able to select data and have everything under it selected automatically.

That brings you to the next category, very large files. Let's take a database you use at work that's huge. Unless you use it frequently, it, like pictures, should be stored off the hard drive. But if it is stored on the hard drive, give it it's own category so it's not automatically selected for each backup.

The registry is a little more complicated to copy. In Windows 9x, go to start, RUN type Regedit, click OK. When the registry editor opens, select export. You'll be asked to what location do you want to export the registry. Select C:\Daily registry backup (but first create a folder by that name). In Windows 2000 or XP, make "System State" a part of your backup. You can select it from the backup module.

That backup includes one category of system files – those needed to start Windows. But it doesn't include another important category. It doesn't include the dll files inserted into Windows by other programs. To make sure I include those, without which your applications may not work, I copy all of C:\Windows\system and C:\Windows\system32.

The final category are the catch-all files. New computer users probably won't have any of those. But those of us who have been around for a while may have one or two old DOS programs we love. Some of those may not create DATA. Others may create data but store it in a subdirectory they create that doesn't fit our backup plans. Rather than copy everything to the DATA folder, simply copy those programs individually.

Think you have everything? One last trip to be sure. Go through Explorer, folder by folder. If it's data, is it included in your data folder? If it's an application, do you have the disks needed to reinstall it. Anything you are unsure of should be added as a category to your backup plan.

Now that this abbreviated backup plan seems so easy, remember to start the good old fashioned way – by backup up everything on the hard drive. In case of a hard drive failure when everything must be reinstalled, you'll find it easier to copy one backup than to reinstall original

applications. And that original backup will contain huge files that come under the catch-all category anyway.

Did you upgrade from Windows 98 to XP, for example. If you did, you hard drive contains all the Windows 98 files so XP can return you to that system.

Before making any backup, remember that this is an excellent time to clean your hard drive. You just surveyed your entire computer. How many programs were there that you seldom use. How many folders were there that you couldn't identify until you ran the program? Some surprise, huh. Forgot you had that one?

Why keep it? Do you really need it?

This also is a good time to run disk cleanup. Do you really want to back up all the tmp files.

It took me several hours to arrange my hard drive the way I wanted it for this backup plan. But it was time well spent because I use my computer for work and had to have my files backup up frequently. With the differentials and incrementals, it wasn't happening.

Now, it is.