



The Newsbyte

Inside this issue:

Dell Enters Printer Market	1
New AOL & MSN Versions Ready	1
HD Optimization	2
HD Backups	5
Comp. Factoids	8
Website of Month	10

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Editor: Brian Powell
(330) 828-8365
newsbyte@tricountycc.org

Dell Enters Printer Market

In a move that is bound to have a significant impact on the printing and imaging industry, computer manufacturer Dell announced on September 24, 2002, that it would be entering into the printer business. According to Dell, it has reached an agreement under which Lexmark will supply Dell-branded inkjet and laser printers and printing supplies (i.e., ink cartridges and toner). The printers and supplies would then be sold directly to consumers beginning in 2003. This arrangement seems to be quite similar to a former deal between Lexmark and Compaq that produced

Compaq-branded printers. This arrangement was ended when Compaq was acquired by Hewlett-Packard earlier this year.

Although it had been predicted for some time, many analysts have their doubts on the viability of Dell's business plan. The largest concern seems to involve the availability of supplies. For most printers, consumers can head to their local stores to get supplies. With Dell, however, it appears that items will have to be ordered. It is not known how consumers will handle this potential inconvenience.

New AOL & MSN Versions Ready

The latest battle between the two dominant online services takes place this fall with the release of AOL 8 and MSN 8. Although both programs offer some new features, this latest round of programs represents more of an evolutionary change than a revolutionary one.

The first new version to make its debut will be AOL 8, which is scheduled to its launch party on October 15, 2002. As a part of the new version, AOL executives hope to capitalize on products and services that are exclusive to the AOL service. Aside from facilitating new content, there are two major new features in AOL 8. The first, known as "AOL Companion" is a small transparent toolbar that keeps alerts

users about new e-mails and instant messages when the main AOL window is closed. The toolbar can also be used to change screen names and has a quick-link menu to certain sections of the AOL service.

Microsoft's MSN 8 is scheduled to be released on October 24, 2002. A key upgrade in MSN 8 involves improved communications features. MSN 8 will include the MSN Messenger 5 instant messenger program, which has a number of features not found in the stand-alone version. Other new features include services from Microsoft Money and Encarta, improved parental controls, and enhanced spam filtering technology.

Hard Disk Drive Optimization

by Herb Wong, North Orange County Computer Club

Hard disk drives have evolved into highly reliable and extremely inexpensive mass storage devices. A few simple ideas may help improve your daily computing experiences.

Size Matters

Computer science has a standard set of definitions for quantities. A thousand bytes is 1,000 bytes (ten to the third power). A kilobyte is 1,024 bytes (two to the tenth power). A million bytes is 1,000,000 (ten to the sixth power; 1,000 times 1,000) and megabyte is 1,048,576 bytes (two to the twentieth power; 1,024 times 1,024). Finally, a billion bytes is 1,000,000,000 (ten to the ninth power; 1,000 times 1,000 times 1,000), at least in the United States, and a gigabyte is 1,073,741,824 bytes (two to the thirtieth power; 1,024 times 1,024 times 1,024).

Computer marketing sells you short. Advertising redefines many standard computer science terms. A kilobyte becomes 1,000 bytes, a megabyte becomes 1,000,000 bytes, and a gigabyte becomes 1,000,000,000 bytes.

In other words, 1,000 equals 1,024, 1,000,000 equals 1,048,576, and 1,000,000 equals 1,073,741,824. Of course, this works in the favor of the manufacturer and shortchanges you. An advertised "twenty gigabyte" drive should be almost one and a half billion bytes larger.

To be clear and accurate, distinguish between one thousand bytes and one kilobyte, one million bytes and one megabyte; and one billion bytes and one gigabyte whenever possible.

Partitions

The foundation of a hard disk drive's file system is a partition. The framework is the formatting of logical drives (C:, D:, E:, etc.). There are two types of partitions under Windows, primary and extended.

A primary partition can contain the boot drive (which can load the operating system at startup) after formatting (with the FORMAT utility). An extended partition can contain one or more logical drives that cannot be boot drives. The partitions and logical drives are created using the FDISK utility. The logical drives must be formatted with the FORMAT utility before they can contain data.

Under older versions of Windows, a physical hard disk drive can contain a single primary partition, a single extended partition, or both a primary

partition and an extended partition. Technically, those are the only things that Windows can recognize. The rest of the world is decades more advanced.

Under older versions of Windows (and DOS), logical drive letters are assigned (at least initially during OS installation) to hard disk drives according to a few simple rules. The physical hard drives are inspected in sequence (port 0's master, port 0's slave, then port 1's master, port 1's slave, etc.) and logical drive letters are first assigned to each primary partition that is found.

Next, the first physical hard drive is inspected again and logical drive letters are assigned to any logical drive contained in an extended partition (if it exists). Each of the remaining physical hard disk drives is inspected in sequence (port 0's master, port 0's slave, then port 1's master, port 1's slave, etc.).

I suggest labeling logical drives with a naming convention to facilitate having a collection of drives in a computer or network. I abbreviate the manufacturer's name, drive capacity, number of the drive (first, second, third, etc.), and logical drive number (a primary partition's logical drive number is given 0 and an extended partition's logical drive starts at 1).

Suppose a computer contains a Seagate 80 gigabyte drive and a Maxtor 40 gigabyte drive. Both contain a single primary partition and an extended partition with two logical drives. The drive letters C: through H: would go to: SEA80GB#1P0, MX40GB#1P0, SEA80GB#1P1, SEA80GB#1P2, MX40GB#1P1, and MX40GB#1P2, respectively.

Suppose the same computer contains a Seagate 80 gigabyte drive and a Maxtor 40 gigabyte drive. Now the Seagate contains a single primary partition and an extended partition with two logical drives; and the Maxtor contains only an extended partition with three logical drives. The drive letters C: through H: would go to: SEA80GB#1P0, SEA80GB#1P1, SEA80GB#1P2, MX40GB#1P0, MX40GB#1P1, and MX40GB#1P2, respectively.

This (or similar) naming convention helps to easily identify where data resides. There has been many an occasion where the label told me that I was in the wrong folder on the wrong drive.

(Continued on page 3)

Hard Disk Drive Optimization (Continued)

Change Drive Letter And Path

The first thing that I do after installing Windows is to change the drive letter of all the CD/DVD-ROM (read only memory) and CD-R/RW drives. I change the first CD-ROM to drive R:, the DVD to drive V: (or to drive R: if there is no CD-ROM), and the CD-R/RW to drive W:. Now I can stick in an optical disc into every machine and know what drive letter it is.

If you don't change the drive letters as above, bad things can happen. If you add another hard disk drive, that hard disk drive's letters will appear after the CD-ROM's.

ScanDisk

Microsoft's ScanDisk is a lightweight utility that is best known for automatically running after an improper exit from Windows. Most common causes are pressing the hardware reset button due to a frozen system, a "blue screen of death" crash, or worse.

A sector is the basic storage unit of 512 bytes. A cluster is a series of logical sectors whose total size is predetermined by the operating system's file system. For example, FAT32 (ideally) uses 4-kilobyte clusters on partitions that are less than 8-gigabytes, 8-kilobyte clusters on partitions that are less than 16-gigabytes, 16-kilobyte clusters on partitions that are less than 32-gigabytes, and 32-kilobyte clusters on partitions that are greater than 32-gigabytes. The hard disk drive may not physically store data in this manner, but may perform translations as needed.

Windows uses a FAT (file allocation table) as a filename directory. Every file has an entry in the FAT that contains a pointer to the first cluster of the file itself. If the current cluster is not large enough to contain the whole file, a pointer within the cluster will point to the next cluster in the chain. It is possible for a file to be composed of millions of clusters.

ScanDisk's primary functionality is to test the chain of clusters that comprise each file. A file that contains a pointer to a cluster owned by another file is a cross-linked file. An allocated cluster that is not contained in a valid file is a lost cluster. A FAT entry may be invalid if it does not point to a file.

Run ScanDisk after occasions when Windows was not able to complete a "Shutdown" instruction by

itself.

Defragmentation

Files are created and deleted in the normal course of operation. Some files were persistent and some were temporary (for use during the current session or for some short operation).

Imagine a wall with many random groups of bricks (deleted file clusters) removed. As a new large batch of bricks (the clusters in a single new file) comes in, they fill in the random openings as possible. These new bricks now appear in groups on various different rows.

In a hard disk drive, bricks are clusters and the many rows of bricks are tracks. The read/write heads take a long time (for computers) to step from track to track. A file read/write operation is fastest if the file is in consecutive clusters and in adjacent tracks. If the clusters in a single file are scattered randomly about the disk, reading/writing will take a large amount of time since stepping is so slow.

By periodically running the defragmentation utility, the gaps in the fragmented files are removed. Disk performance can be noticeably improved. Do not reset or turn off the power to the computer until you have terminated the defragmentation. Nasty things can happen if you disrupt a defragmentation.

Microsoft claims to enhance load times on some of their operating systems by moving boot files to the outer tracks of the disk (since they have the fastest data transfer rate). In addition, they claim that some files (such as .DLL) are intentionally split up so that important sections of the file are moved to the outer tracks for speed. All of this rearranging of files is "done in the background." This explains some of the mysterious and otherwise inexplicable hard disk drive activity that occurs on some computers.

Many people maintain a small logical drive as a place to hold file before burning them to a CD-R/RW. The files are subsequently deleted. Rumor has it that some file systems do not efficiently clean up after such system. It is claimed that the logical drive must be formatted (or defragmented) again to be sure that the drive is truly defragmented.

(Continued on page 4)

Hard Disk Drive Optimization (Continued)

Two Heads Are Better Than One

A system that has two physical hard disk drives can be slightly optimized by changing a few system defaults. Under Windows, the boot drive (drive C:) is the default drive for temporary files (ex. - C:\temp) and system memory-page swap-files (ex. - pagefile.sys). Writing these files can be significantly faster if these defaults are changed to another physical hard disk drive.

The explanation is quite simple. As the first physical hard disk drive's read/write heads are locating specific files, the second physical hard disk drive's read/write heads can quickly and efficiently move to other files without the interference that would result if only a single drive was serving the same purpose.

Cable Select

The low cost of hard disk drives allows even basic systems to have two devices. Since there is not a Microsoft operating system that fills everyone's needs, many people want to run two different operating systems on one computer.

The lowest hardware cost technique is to use two existing drives and select the boot operation system through a minor change in the BIOS. This circumvents the need to purchase additional software or drive bays with removable drive chassis.

Follow these procedures. Remove every hard disk drive, except for the target hard disk drive. Set the jumpers on the hard disk drive to master. Create the primary and extended partitions as desired. Install your operating system of choice on the primary partition and format the logical drives as needed. Test this configuration to your satisfaction.

Repeat this procedure for the second target drive. You can install any operating system you choose on the second drive.

Change the jumpers on both hard disk drives to the cable select setting. The jumper settings are printed on most newer hard disk drives. Install both of these hard disk drives on the same ribbon cable on the primary port (usually labeled "port 0") of the motherboard.

You can now change the hard disk drive to boot from by selecting the appropriate drive from the BIOS (CMOS setup). In the AwardBIOS Setup Utility, select the "Boot" menu. Under the "IDE

Hard Disk" item, select the desired hard disk drive as the onscreen instructions indicate. For example, I have a Seagate drive indicated by "[ST380021A]" next to the "IDE Hard Disk" text. The secondary drive might be indicated by something like "[MX548075A]." To boot from this device, change the setting to "IDE Hard Disk [MX548075A]."

Using the cable select feature of the ATA hard disk drive to change boot devices may not be the fastest way to change between operating systems. However, if you want a very inexpensive hardware solution, it does not get any better than this.

I left out some minor installation details. If you have further questions and do not think that you can get this to work, then you probably cannot. Any questions about using this cable select technique will be answered with instructions to read this article. There are too many variables involved in this type of system configuration to attempt to provide useful answers. However, any further information about this little documented feature will be used to update this page.

Performance

A hard disk drive transfers data faster from the outer tracks than the inner tracks. The outer tracks are longer and contain more data. As a result, for each revolution, outer tracks transfer more data. The outer tracks are filled first.

Sooner or later, you'll fill up your hard disk drive. It seems to have gotten slower and slower. It has! The inner tracks on a hard disk drive may transfer data about half as fast as the outer tracks!

One way to minimize this effect is to create several logical drives (on a physical disk) and use the second one (ex. - drive D:). Now you can put all of the other junk files on the inner tracks of drive E:, F:, G:, etc. Drive D: remains towards the outer tracks and your important data is faster.

When you buy a hard disk drive, look for the sustained transfer rate (data transfer rate). Of any single specification, this one will give you the best indication of a hard disk drives performance. Average access time is also important for random access applications (such as databases).

(Continued on page 9)

Backing Up Your Hard Drive

by Gene Barlow, User Group Relations

Your computer hard drive is very important: Your hard drive is the heart of your computer system. It contains your Windows operating system, which is the master control program of your computer. It also contains all of your application programs that help you do productive things with your computer. But, most importantly, it contains all the data files that you create using your application programs. These data files are the most valuable part of your computer and the hardest to replace if something should happen to your hard drive.

Yes, your hard drive will fail on you someday: Your hard drive is a mechanical device that spins constantly and is certain to wear out. The life of a hard drive is only 2-3 years. If you are lucky, your drive may last you 4 or 5 years, but it could go out in just 6 months. It is not a question of if your hard drive will fail, but it's a question of when it will fail. All you can do is to be ready when it does fail by having a copy of all of the files on your hard drive saved away from your computer. Then you can replace the failed drive with an empty new drive and put all of the files on the new hard drive. This lets you be back up and running in a matter of minutes instead of days or weeks rebuilding your drive. This process is called backing up and restoring your hard drive and is the topic of this article.

What files should you backup: One of the first decisions you must make is what files need to be backed up to adequately protect you. I consider your data files as the most important ones to backup. Your data files are those files that you create using your application programs. If you use Quicken, then the data file that needs to be backed up contains all of your financial records entered into Quicken. If you research your genealogy, then the database of your ancestors that you've collected for years is the important data file that must be backed up. If you correspond extensively using E-mail, then the folders of your E-mail correspondence needs to be backed up. You should plan on backing up your data files at least daily.

The second most important thing to backup is your entire hard drive and all of the files on it. This includes your Windows operating system as well as all of your application programs. By backing up the entire hard drive, you will not have to rebuild your system from scratch, but will

be able to quickly get your system back up and running again. Some would suggest that you really don't need to backup your operating system and application programs because you can always reload them from the CDs they came on. While this is mostly true, you need to consider how much time this will take you to reinstall the operating system and all of the applications you own. Then, how long will it take you to download all of the software patches and add-ons that you have added to your system. Finally, how long will it take you to enter all of the special settings that you must do to have your system work exactly as you like it to. To this lengthy time, consider how you can recover the many programs and files for which you do not have a CD. I think when you consider all of these factors, you'll agree that having a backup of your entire hard drive is a wise investment of your time. You should plan on backing up your entire hard drive on a monthly basis.

What media is best for backup: The next question you need to consider is what is the best media to backup your files from your hard drive. A few years ago, tape backup systems were the most popular backup media. The only problem with these tape systems was that they were very slow. Backing up a 1-2GB hard drive in a couple of hours was reasonable, but backing up today's 40GB hard drives to tape would take too long. You would not do it often enough to be usable. The next popular backup media to come along were the removable disk cartridge drives. These were much faster than tape, but the cartridges tended to be expensive. For example, a 40GB hard drive would need 10-20 Jazz (2GB) cartridges to backup the entire drive. At \$100 each, you would need to invest over \$2,000 in cartridges to backup your entire drive. Writing to blank CDs promises to be one of the best backup media today, but even the fastest drives are slow and it takes many blank CDs to backup a large hard drive.

So, what is the best media to backup a 40GB hard drive today? Another 40GB hard drive! Hard drives are much faster than tape and are even faster than the disk cartridge systems. You can backup an entire 40GB hard drive in less than an hour or so. Since it is fast, you'll tend to backup your system more often and this means better

(Continued on page 6)

Backing Up Your Hard Drive (Continued)

protection for you. Hard drives are also very inexpensive to purchase. If you watch prices carefully, you can get a 40GB hard drive for \$99 or less. I would plan on having an extra hard drive for backup purposes for each hard drive that you save data on.

What type of backup software is available: There are two very different backup utilities on the market today -- File backup utilities and Partition backup utilities. File backup utilities are by far the most common. These utilities backup individual files one at a time. They can also be used to restore individual files to your hard drive. A good feature of File backup utilities is that they can select individual files from all parts of your hard drive. This is great for picking and choosing your important data files to backup. On the other hand, File backup utilities tend to be quite slow in backing up your entire hard drive and you would need to make many extra steps in rebuilding your hard drive partitions in case of a total failure. That is where Partition backup utilities have the advantage. Partition backup utilities backup entire partitions and all the files contained in them. Some of these Partition backup utilities work at the lowest hardware level and are very fast. Restoring a partition to an empty hard drive using a partition backup utility will create and format partitions as it restores the partition file.

PowerQuest Corporation has an excellent backup software package that contains both a File backup utility and a Partition backup utility combined in one product. This product is called Drive Image and has a list price of \$69.95. The File backup utility in this product is called DataKeeper and is designed to backup your individual data files on a frequent basis. The Partition backup utility in the product is called Drive Image and is designed to backup your entire hard drive every month or so. Let's take a look at how these two utilities can be used to backup your system.

Backing up your important Data files: As mentioned earlier, the data files on your system are the most important files on your computer. They are also the hardest to replace if something should happen to your hard drive. Backing up your data files should be your first objective in establishing a good backup plan for your system. Data files change daily and need to be backed up on a daily basis.

Using PowerQuest's DataKeeper utility, you can select all of your important data files from various part of your hard drive. If you have spent a little preparation in organizing your hard drive, you may already have all of your data files collected together in the same partition. This makes it easier to identify and backup these important data files. DataKeeper will let you backup all of your data files or backup only those that have changed since the last backup. You can also compress the backup files to about half their original size when you save them to conserve space. You can backup an individual file up to 99 times without replacing an earlier backup copy of that file. This gives you the ability to keep multiple backup versions of a data file as it is being developed. If you need to see the file, as it was several versions ago, you can do so with DataKeeper. It will backup these files to any device having a standard drive letter, such as a special backup partition on a hard drive or a removable cartridge drive. If you create your data file backups on a hard drive, try to place them on another hard drive than the one the original data files are stored on. Also, you should copy these backup files to a blank CD every month so that you will have some removable media that you can store away from your computer.

One of the best features of DataKeeper is its ability to monitor the import data files that you select and to automatically backup a file as soon as it is changes. Using this monitoring approach, you never have to think about backing up your data files since this is done for you automatically. It also assures that you have a backup of these important files that is current to the last minute or so. This is a powerful feature of DataKeeper and one that I would highly recommend using.

Backing up your entire hard drive: The second most important part of your backup plan is to backup your entire hard drive at least once a month. Having this backup in place will protect you from a major failure of your entire hard drive. Using PowerQuest's Drive Image to backup your entire hard drive you have two approaches to select from. Let's look at each of these approaches separately.

The first full-drive backup approach is to use Drive Image to copy all of the partitions from your main hard drive to a backup hard drive. Both

(Continued on page 7)

Backing Up Your Hard Drive (Continued)

hard drives must be installed on the same computer system to do this approach. Using Drive Image's Disk-to-Disk Copying facility, you copy the partitions from your main drive to the backup drive, one at a time. When Drive Image copies a partition, it creates a new partition on the backup drive, so the drive can be empty of partitions before you start the process. Also, copying a partition copies not only the partition, but also all of the hidden files, system files, and other files contained in the partition to the backup hard drive. So, when you finish copying all of the partitions from your main drive to the backup drive, you have an exact duplicate of your main drive that could be used if your main drive failed.

After copying all of the partitions to your backup hard drive, you need to disconnect the backup drive and remove it from your computer system. You should store the drive away from your computer, so that if anything happens to your computer, your backup drive will not be affected, too. Once a month, you'll need to retrieve this backup hard drive and insert and connect it back into your computer and repeat the backing up of all of your partitions, then remove it again from your computer. If something should happen to your main hard drive, simply get your backup hard drive and replace your main hard drive with the backup drive, setting it as a master drive, and you should be able to immediately start your computer and have it run. To simplify the frequent removal and replacement of your backup hard drive, you can purchase a hard drive rack mounting system from your computer store for about \$25 that will let you remove and insert the drive without removing the covers of your computer.

The second full-drive backup approach is to use Drive Image to cross backup one hard drive to another. With this approach, you install and leave both hard drives in your computer all the time. For this approach to work, you'll need to setup a large backup partition at the end of each of the two hard drives. PowerQuest's PartitionMagic utility is the best way to create these backup partitions on your hard drives. Once the two drives are in place with a large backup partition on each of them, you can use Drive Image to create condensed image files of entire partitions and store them on the backup partition of the other hard drive.

To make this a little easier to understand, let's look at a simple example. You have two hard drives and the following partitions on each of the two hard drives:

Drive 1:

C: partition (Contains your Operating System)
D: partition (A backup partition)

Drive 2:

E: partition (Contains your Application Programs)
F: partition (Contains your Data Files)
G: partition (A backup partition)

Using Drive Image, create an image files of your entire C: partition and all of its contents on your G: backup partition. Then, using Drive Image, create an image file of your E: and F: partitions on your D: backup partition. These image files represent the entire partition and all of their active content. These image files can be condensed by 40-50% to save room on your backup partition. Notice that we save the images from one hard drive to the other hard drive's backup partition and visa-versa. Hence, we call this the cross backup approach.

Once a month, you'd repeat this cross backup approach from one drive to the other until you fill up the backup partition. Then you'd delete the oldest image file to make room for the new image file to be stored in your backup partition. If either of your hard drives should fail on you, all you have to do is to remove the failed drive and place an empty new drive in its place. Then using Drive Image, you find the latest condensed image of the partitions on the failed drive on the other drive's backup partition and restore that image to recreate the partitions and all of their content on the empty drive. This lets you be back up and running your computer in a matter of minutes instead of days or weeks rebuilding your system. If the drive that failed was your first drive containing your operating system, that is no problem. You can boot Drive Image from a DOS diskette and quickly rebuild your operating system partitions from the second drive's backup partition.

What if both hard drives fail together: While it is rare, it is possible for both of your hard drives to fail at the same time, thus leaving you without either of your backup partitions to use to rebuild the other hard drive. For example, your computer

(Continued on page 9)

Computing Factoids

by Steve Bass, Pasadena IBM Users Group

Hard Drive Repair Conundrum

A PIBMUG member was struggling with a faulty hard drive. An Ontrack product manager provided an answer.

Question:

I have a question about getting rid of data on a hard disk. I have read articles about reformatting and assorted software that gets rid of your data. However, I had a hard disk crash and must return the old disk to the system vendor in order to have my credit card credited for the cost of the new one they sent me (under warranty).

I do not want them or the OEM to be able to recover that data. With the disk not working, how do I get rid of the data? If I hold magnets around it, will that work? Should I drop it in a boiling pot of chicken soup? Your advice would be appreciated.

Smart-ass Answer:

Chicken soup may work provided you remove all the fat, chicken feet, and carrots (strangely enough, celery and onions can stay).

More realistically, I have to admit I'm stumped. Lemme call in some experts from Ontrack, the hard drive recovery company. Mark? Any ideas? –Steve

Ontrack's Response:

The magnet idea isn't going to work unless you've got some incredibly strong magnets laying around. A degaussing unit strong enough to erase the platters of a hard drive would generate a field that would damage other magnetic media within several yards. Also it would erase the servo-patterns on the drive used to control the movement of the read/write head, so it would certainly ruin the drive.

We've requested ideas from the real experts, our clean room technicians.

They had a few solutions, but nothing simple. You could see if an authorized shop (like a disk recovery shop who has authority to break a drive seal without voiding the warranty) would take on a special job (for a fee) to open the drive and degauss the platters.

You could request to review the warranty policy from your HDD manufacturer and see if they have a policy for protecting data that may be on a warranty returned drive.

Trust the HDD manufacturer to destroy the platters as part of the end-of-life of a returned drive. --Mark

Better Backups

After using tapes and zip drives for back ups, I finally decided to just back up to another hard drive. To simplify the process, I installed two mobile mounts and connected the IDE cables so that the upper mount or drawer is an IDE1 master and the lower drawer is an IDE2 Master. I purchased two drives of the same capacity. Both are jumpered as masters. The original is in the upper drawer, and the backup will be placed in the lower drawer.

I use "Drive Copy" which with installation generates a 3.5" floppy "Drive Copy" boot disk. The boot disk is used to start the copy process. Make certain that your 2 hard drives are labeled such that you will copy from the original to the backup, and not from the backup to the original.

Remove the backup and set it aside for that sad day when the original fails or is infected with a virus. The reason that I like this approach is that if the original drive fails, I can just power down and remove it from the drawer and insert and boot the backup, which is already jumpered as a master drive, and you are immediately up and running. Whereas if you were using a tape you have the problem of trying to salvage the original from the tape, hoping that it works. The same is true of Zip disks.

I will usually start the backup when I go to bed and it is done in the morning. The cost of a 2nd hard drive is probably cheaper than a tape drive or Zip drive and the cost of the tapes and zip disks just add even more cost. --Clifford Ford (kb6ia@earthlink.net)

Steve Bass is a Contributing Editor with PC World and runs the Pasadena IBM Users Group. He's also a founding member of the Association of PC User Groups (APCUG). Check PC World's current edition at <http://www.pcworld.com/resource/toc/index.asp> and sign up for the Steve Bass online newsletter at http://www.pcworld.com/bass_letter.

Hard Disk Drive Optimization (Continued)

Safety First

Do not mix the data that you create and cherish with installed program files! Create several logical drives and store the valuable things on a separate drive. Now it is easy to identify all of your important data. It is anything on drive D:!

Going one-step further, I create a subdirectory (folder) called C:\Herbert Wong, Jr. (you might call your folder something else) that contains other folders of the supremely important data (. \telephone numbers, .\finances, etc.). Another folder (D:\ASUSP3V4X-SystemInstallationFiles) might contain every driver and document file needed to reinstall that computer.

Now I know where to find everything easily. I can easily determine if it will fit on a CD-R. And, on those many occasions over the years, when Windows self destructs, I can confidently format and reinstall on drive C: without fear of losing anything of much importance.

Relocate your MY DOCUMENTS and Favorites folders to another drive (ex. – E:\MY DOCUMENTS). Then you will not even lose those files during an emergency.

The best way to back up a hard disk drive is to use another hard disk drive as the storage medium. The price of tape backup drives and blank tapes is much too great to be effective in a home environment. CD-R/RW and DVD-R/RW drives and media are also too expensive.

Conclusion

Hard disk drives are larger, less expensive, and more reliable than ever before. With a little planning and a lot of maintenance, a new hard disk drive will well for years.

This article first appeared in the North Orange County Computer Club's (<http://www.noccc.org/>) Orange Bytes newsmagazine for May 2002.

Backing Up Your Hard Drive (Continued)

could be burned in a fire or taken by a thief. In these cases, you'd loose not only your main drive, but your backup images as well. So, you need to make some special provisions to guard against these situations. I'd recommend that every 3 months, after you have backed up your partitions using the cross backup approach, you use Drive Image's ImageExplorer to split your condensed image file into multiple segments that will fit on blank CDs. Drive Image will burn these image segments on multiple CDs for you or you can use the CD burning utility that came with your CD-R/RW drive. While this may take a while to do, it will give you an inexpensive removable backup of your entire hard drive that you can store away from your computer. I would repeat this process of creating backup CDs of your entire hard drive every 3 months or so.

Summary: If you follow the suggestions in this article, then you will have a comprehensive backup plan that will protect both your important data files as well as your entire hard drive. You must make sure that you follow the time intervals suggested so that your backups are current enough to be usable. PowerQuest's Drive Image product, a second hard drive, and a CD-R/RW

drive are all the software and hardware you need to run this backup plan. A second hard drive and a CD-R/RW drive can both be purchased for about \$100 each. Faster models are available for only a few dollar more. User group members can purchase Drive Image at the user group price of \$35 by accessing a secure web order form at www.ugr.com/order/. You will need to enter the name of your user group and the special code UGNL02. I wish you success in setting up your backup plan.

This article has been provided by Gene Barlow of User Group Relations, which represents PowerQuest to the computer user group community.

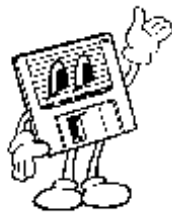
Gene Barlow
User Group Relations
P O Box 275
Orem UT 84059-0275
Telephone: (801) 796-7370
E-mail: barlow@ugr.com
Website: <http://www.ugr.com/>



Brian Powell
Tri-County Computer Club
669 W. Main St.
Dalton OH 44618-9475

Visit us
online at

tricitycc.org



Mr. Disk's Website of the Month:

Microsoft Design Gallery Live
<http://dgl.microsoft.com/>

For users in need of a clipart for their documents and presentations, one of the greatest sites on the Internet is, without a doubt, Microsoft Design Gallery Live. This site provides a large selection of high-quality clipart, photographs, sound clips, and video clips that can be easily searched and inserted into most types of documents.

In order to use Design Gallery Live, Microsoft requires a license for one of a group of Microsoft programs. A number of programs qualify.



To use the Design Gallery Live, head to <http://dgl.microsoft.com/> and search for the type of objects you would like. You will then be presented with your search results.

Once you find objects you like, there are two ways to incorporate them into your document. The preferred method is to use the site's tools to download the items to the Office Clip Art Gallery and then to add the items through the Clip Art tool in the individual programs. The other option is to cut and paste the items directly into your file.