

How To Backup Data From Your Workstation

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Options and Methods

One of the most important data management functions you need to perform regularly is the backing up of your unique data. It is imperative that you develop a scheduled method that works for you and allows you to efficiently backup your information. The programs and software applications that reside on your computer are available for reloading (via application CD, disks or network installation from the Application Launcher) if your machine fails. But the unique information that you create must be preserved so you can restore it to your computer if you indeed have a hardware failure.

Important Note: Once your data has been backed up, remember to apply the same security precautions to the back up (physical security, encryption as needed- if so back up encryption key, etc) as you do for any other type of data – electronic or hard copy.

Data loss and hardware problems are a matter of "when" and not "if".

Computers are simply machines that will eventually fail and the hard drive of your computer is the hardest working component in your machine. You can expect it to fail first. You can utilize preventive maintenance practices, such as regularly defragmenting and scanning your hard drives which will extend the life of your hard drive and give you better performance from the computer. Performing these routine maintenance chores regularly will also alert you to a hard drive failure should the drive begin to fail slowly and provide you a chance to back off that critical data before the crash happens.

A good plan is to schedule the same time each week or month to back your data up, run a full scan and repair of files followed by a full defragmentation of the hard drives.

If you create heavy volumes of critical data, then back your files up more frequently. Many of these chores can be programmed to run automatically as well. It is also a very good idea to have several types of backup media in case your primary method fails. For example, if you back all your data up on floppy disks and the disks fail, you will lose that data. Combine methods such as utilizing an iomega drive and disks or write your data down onto a CD (often referred to as "burning" a CD) and also copy to floppy disks. This gives you another way back to your unique data should your primary method fail.

Make your back up process easy by practicing good file folder organization.

If you create sub folders under your **My Documents** folder, then you only need to point your backup device to the **My Documents** folder and instruct it to copy that folder. If you put data in folders scattered all over your hard drive, this will greatly increase the time and trouble it takes to back your data up and you will be less inclined to do so. So get into good habits from the beginning and make this important chore easy to manage.

An important part of your plan is keeping your data backups in one or more locations. This way, if the building that your workstation lives in burns down or is destroyed, you have your data backups safely stored in a completely separate location. Take a set of data backups home with you and store in an appropriate location there.

How To Backup Data From Your Workstation

Remember, it is YOUR responsibility to know where your data is stored and to back this data up.

Data Types and What to Back Up

When disaster strikes and your workstation needs to be rebuilt, you should have the licensed copies (CD-ROMs, floppy disks) of the applications and programs that you run. Or you may have installed some of your software over the network via the Application Explorer.

Reinstalling these applications will put the programs back on to your workstation but you must have copies of the unique data and files that you created in these programs.

You should never copy the entire contents of your hard drive. This is a complete waste of space and time. Programs must be reinstalled to the hard drive, not just simply copied from one to the other.

For example, if you are a Microsoft Office user, you do not need to make copies of all the files in the MSOffice folders on your hard drive. These are the installed program files.

You only need to make copies of the data you created in MSOffice, in the applications of Word, Excel, Access and Power Point. These would be files with program extensions of .doc (Word), .xls (Excel), .mdb and .ldb (Access) and .ppt (Power Point).

If you are organizing your files, as mentioned above, in your My Documents folder, you would be saving the files you created in these applications in the My Documents folder. Once your MS Office programs have been reloaded onto the rebuilt workstation, you can open the files you created in these applications.

The following table demonstrates the file extensions associated with the more popular applications.

Program/Application	Application Extension	Example
MSOffice - Excel	.xls	2000Budget.xls
MSOffice - Word	.doc	LibraryList.doc
MSOffice - Access	.mdb and .ldb	NewCars.mdb & NewCars.ldb
MSOffice - Power Point	.ppt	BudgetPres.ppt
WordPerfect	.wpd (or .wp in older versions)	JonesResume.wpd
Adobe Acrobat	.pdf	TrainingDemo.pdf
Web Pages - General	.htm or .html	DeptHomePage.htm
Winzip	.zip	Savearchive.zip
Filemaker Pro	.fp5, .fp3, .fm	Plants.fp5
Visio	.vsd	PlantMap.vsd
Paint Shop Pro	.psp	HouseGraphic.psp
Microsoft Publisher	.pub	MyNewsletter.pub

How To Backup Data From Your Workstation

Microsoft Project	.mpp	HRPlan.mpp
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The following three web sites are comprehensive resources relating to applications, their file extensions and format issues.

http://www.webopedia.com/quick_ref/fileextensions.html

<http://stack.com/>

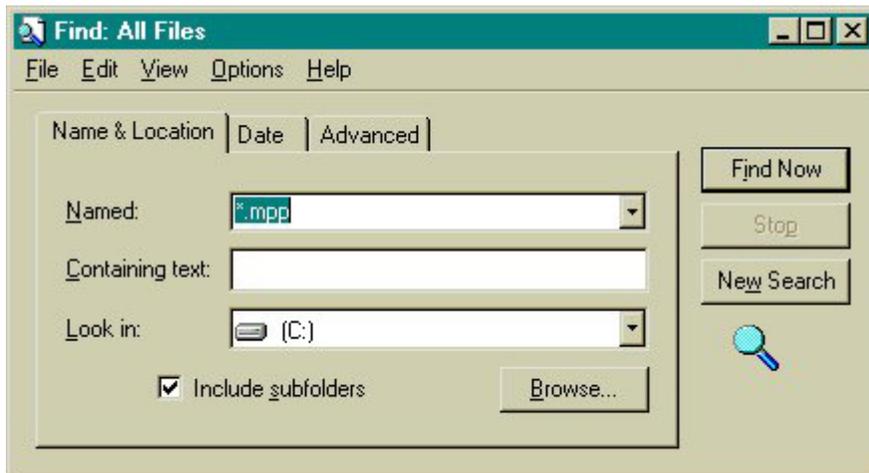
<http://www0.delphi.com/navnet/faq/extguide.html>

It is important to know the file extensions for the programs and applications you run on your workstation, especially if they are unusual or highly specialized programs. When it comes time to find the data files, you can simply do a search on the file extension to return a list of files that match.

For example, if you need to find the Microsoft Project files that are scattered around the hard drive, do a search for all files with the .mpp extension.

Go to Start then **Find**, then **Files or Folder**.

Set your search up as shown in the following screenshot:



This Find is going to look for files of all names (*.), with the program extension of .mpp (for Project files) in the C: drive. The asterisk (*) is the wild card character, which designates a search for files of any name. A list of such files will be returned in the bottom screen once the search completes.

Other Useful Files to Backup

Browser Bookmarks/Favorites

If you are interested in preserving your Internet browser bookmarks, be sure to back these up as well. Many users have highly organized and extensive web bookmark archives they would hate to lose.

How To Backup Data From Your Workstation

Netscape Navigator

Using Windows Explorer, locate and make copies of the following folder during your backup process (or locate the folder where you installed Netscape Navigator files):

C:\Program Files\Netscape\Users*(your profile name)*

Make a copy of the profile folder EXCEPT for the Cache file. This profile folder contains your specific Netscape user information, including address books, bookmarks and history files.

After reinstalling Netscape on your new workstation, copy this profile folder into the same location as above, placing your profile under the Users folder. When you start the program for the first time, Netscape's User Profile Manager will prompt you to create a new profile. Begin the process and give the new profile the same name as your backup file. Netscape will then report the profile already exists and if you want to use that data. Select **Yes** and you have restored your browser to its previous state.

Microsoft Internet Explorer

In Windows Explorer, you need to locate and make copies of the following folder during your backup process (or locate the folder where you installed Internet Explorer files).

Open Internet Explorer and go to File, Import/Export. Choose Export Favorites to a file. Store this file in a safe location. Depending on the version of the browser and the operating system, the file location could be:

C:\Windows\Favorites

This folder contains similar information and can be imported/exported back into MS Internet Explorer or even into Netscape. After reinstalling the browser, select **File, Import/Export** and use the wizard to reinstall your Favorites folder. Simply copy your backup Favorites folder into the same file location on your new workstation and then point to that folder while using the wizard. Internet Explorer will also import your bookmarks from Netscape Navigator if you use both browsers or want to switch to Internet Explorer but keep your Netscape bookmarks.

Microsoft Outlook Files

If you use MS Outlook and have created personal folders, contacts, address books, calendars, etc. you will want to back this data up as well. Do a file search on your hard drive for files with the extensions of .pab and .pst. These are the files you want to copy and import back into your Outlook client.

You can also set up an Auto Archive from within Outlook to automatically back these files up to your network drive space (see Storing Data on Your Network Drive section below). From the main menu in Outlook, select **Tools, Options** then select the **Other** tab. From the **Auto Archive** section, select your options (be sure and select subfolders for archiving if you have created them) and then choose **Browse**. Browse to your network drive location and point the automated archive to that folder.

You can also select your folders with a right-click, and then choose **Properties**. Select **Auto Archive** and choose the save settings there. For example, if you have a large number of tasks in

How To Backup Data From Your Workstation

your Outlook client, right-click the Tasks folder, select Properties and choose the Auto Archive settings from there.

Be sure you are successfully logged onto the network before archiving.

Other Mail Client Files

If you have a variety of mail clients and you have created local folders on your hard drive and are storing files there, you will need to make backups of these as well if the data is important to you. Contact Client Services if you are unsure where or how to find local folders under our various mail clients.

Remember, the majority of mail stays on the university mail server, which is backed up. You do not need to make backup copies of your inbox mail or other mail, which remains on the servers. But if your data is in your mail client under a folder that is named "Local Folders" then assume it is stored on the hard drive of your machine and make a backup copy of the data.

Once you log onto your appropriate mail service, these folders come down from the server and are always available. Unless you have a need to store massive amounts of mail, it is wise to leave your folders on the mail server and keep the files to a minimum. If you bring mail off the servers and onto your hard drive into local folders, you will need to back them up.

Methods of Backing Up Data

The following list describes the options you can choose to back up your personal data. Each method will be described in brief detail.

- ✓ [Storing Data on Your Network Drive](#)
- ✓ [Using Floppy Disks to Store Data](#)
- ✓ [Storing Data on a CD](#)
- ✓ [Using Iomega Zip, Ditto or Jaz Drives](#)

Storing Data on Your Network Drive

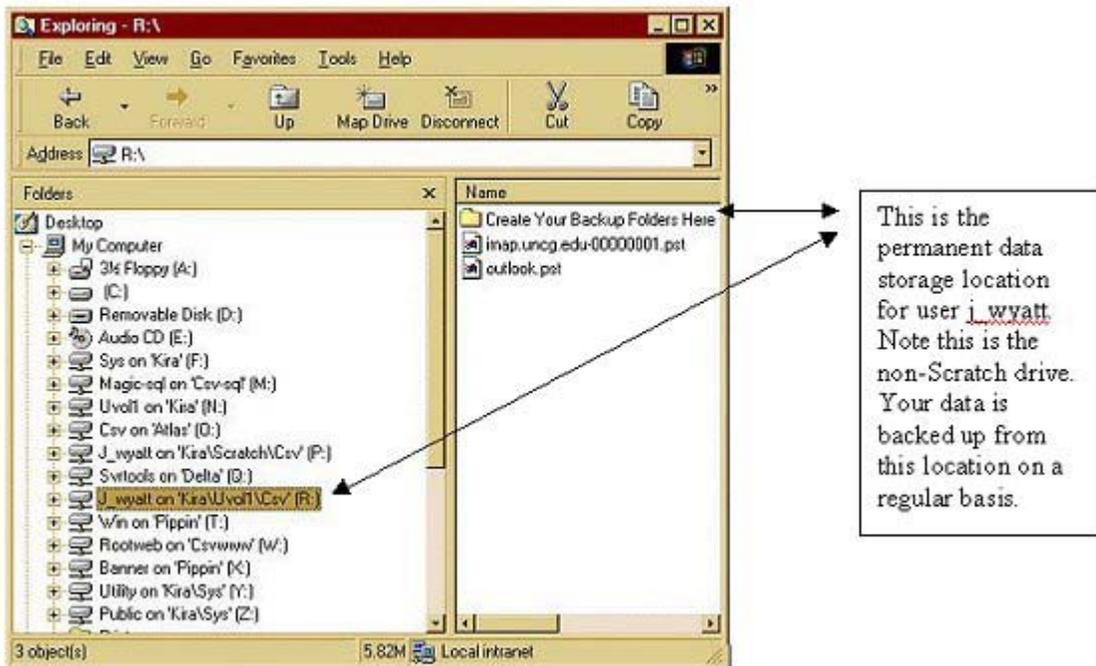
Each user on the network is assigned a share space for the purposes of backing up data. You will find this data location by using your Windows Explorer. The data on these network drives are backed up from the server so the information can be retrieved.

Select **Start** then **Programs** then choose **Windows Explorer**

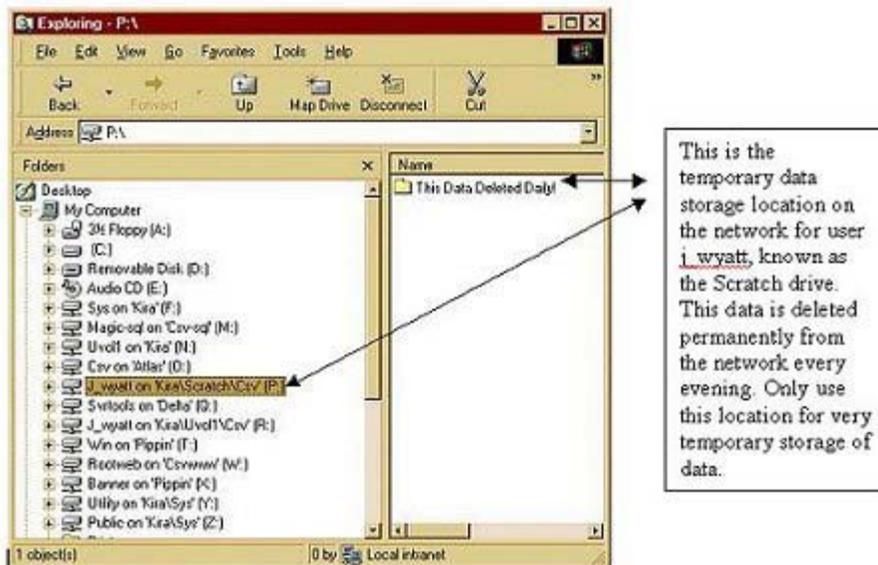
With your Windows Explorer expanded, note the left hand pane which shows you which drives are connected to what locations. If you look below your local drives (physical drives in your workstation such as C, D and E) to the drives with a mapped location of F: or lower, you will see the network drives your workstation is attached to.

Look at the two following screen shots to determine your proper network storage drive locations.

How To Backup Data From Your Workstation



In this next screen shot, note that this mapped network location refers to a "scratch" drive. This "scratch" drive is deleted every day and should NOT be used for permanent storage. Only put files here briefly while managing them, otherwise you will lose all this data when the scratch volumes are deleted from the network every evening.



Remember that your personal storage space on the network is NOT unlimited so be prudent when saving your files. The size of the space is set by your departmental network drive space quotas. If you have massive graphics files, databases and other large storage needs, see if you have additional departmental network space available or invest in an external or internal storage drive. If your department wants to increase its file space size on the network, contact Client Services to discuss the options available.

How To Backup Data From Your Workstation

By utilizing a well-organized back-up plan and saving only the very unique data you cannot replace, you can make wise use of your network storage space.

Using Floppy Disks to Store Data

You can use floppy disks to store data but be aware this type of media is the most perishable. Use floppy disk storage for temporary file storage or until you can transfer your unique data to a more secure and permanent media. Use high quality floppy disks and be sure to test them from time to time for virus infection. You are also limited to 1.44 mgs of space on each disk unless you use a data compression utility, such as Winzip, to compress the data down into "archives". Using floppy disks to store your data will be the most cumbersome and time-consuming because of the size and transfer constraints mentioned above. But if your computer is failing or you need a quick backup copy of small data sets, then nothing beats the portability of floppy disks. This is especially true if you are unable to get your computer logged onto the network to save data on your network share space or your computer is unable to use an external drive.

Floppy disks are very susceptible to heat and damage and should not be trusted for long-term data storage. Do not store your floppy disks close to printers, monitors or any other hardware that produces electromagnetic waves as this will result in damaged media and/or data.

New floppy disk technologies are being developed currently that will increase storage capacities and durability and we should see some of these new products move into the market in the near future.

Storing Data on CD

A great way to safely and easily store data today involves the use of CD ROM technologies to copy and archive information directly onto blank CDs. Originally, CD ROM standards were developed as read-only medium. With the dramatic increase in mechanical and optical technologies, new CD formats have made it possible to record data to CDs. Currently, one option is using the CD-R media, which is a format that allows you to only write once to the blank CD. A newer format available is the CD-RW. This CD format allows for repeated use of a blank CD after appropriate formatting or "erasing" between uses. The latest technologies on the market are the DVD drives. But for purposes of our discussion here we will focus on the previous two formats, CD-W and CD-RW. You must have the proper type of CD-ROM device and its associated software to write, format and record blank CDs.

Check out the two following links for all the information on these formats and technologies you could possibly use. These are terrific, easy to read and understand sites about the differences and requirements of this media.

<http://www.resource.simplenet.com>

<http://www.fadden.com/cdrfaq>

Assuming that you have the proper hardware and software available to create data CDs, let's briefly describe the variables you should consider. There is considerable controversy about which media type lasts longer. The rewritable CDs are estimated to maintain data integrity for 1000 cycles. Of course, depending on the care the CD has had, this could be more or less but the erasing and re-writing will eventually take its toll. If you plan to use CD-RW media, be sure you understand the formatting and reading requirements of its use. Not all CD-ROM drives can read

How To Backup Data From Your Workstation

the format once you have created the CDs. If your workstation is the only one who will need to read the backup CD created with this format, you should be covered. But if you are creating a backup CD that may need to be read by other computers, especially ones with older CD-ROM drives, then be sure you understand the formatting implications and choices before proceeding. Be sure to test the access to the data on the CD-RW media once you have created the backup. Check your backup drive support information or the above-mentioned websites to get answers to your questions.

The CD-R, or "write-once" media, can also have its life shortened by exposure to heat and scratching as well. But since it does not suffer the rigors of erasing and reformatting, some feel it is the better choice for archival data storage. But this is a moot point for our purposes here, as we are not concerned about our data lasting 100 to 200 years! The fact of the matter is, the CD devices themselves will evolve and change constantly and therefore the CDs themselves will be unreadable as they will ultimately be in "old formats" the newer devices cannot read. Let's pick the standard CD-R and talk about backing up our unique data on the hard drive.

We will assume that we are backing data off of a Dell workstation with the Adaptec CD ROM burner and software correctly installed. Adaptec software is an industry standard utilized with a wide variety of CD ROM devices and is the supported hardware standard.

Check out the Adaptec site for your detailed questions about its usage. <http://www.adaptec.com>

The data capacity of a blank CD is currently 650 mgs. Check the size of your **My Documents** folder (assuming all your data to be backed up in this folder) to be sure it does not exceed 650 mgs. The Windows Explorer view will show you file sizes at the bottom of the Explorer pane or you can right-click the **My Documents** folder, select Properties and check the file size that way. If your data is more than 650 mgs in size, then plan to break down your CD copies into data segments of slightly less than this size. Leave additional space for the table of contents and formatting requirements of the CD.

Be sure and close all other applications and programs that you are running before beginning the "burn".

This will help ensure that the data flow to the CD will not be disrupted. This is the primary cause of many unsuccessful copy attempts. The other major problems are generally caused by incorrectly installed CD recording software or problems with the hardware device itself. Many of these issues can be resolved by visiting the Adaptec and other sites mentioned above for troubleshooting information. So minimize the data flow errors by NOT using the workstation during the recording process.

Once the CD has finished "burning" and self-ejects, you will get a message from the software telling you if the CD is successfully completed or if there were errors.

In order for your files to be copied onto a CD, they are necessarily converted to "Read-Only" once they are on the CD. When you want to restore and use these files, copy them back onto your workstation from the CD. Then open Windows Explorer (Start, Programs, Windows Explorer). Right-click the file and select Properties. Uncheck the "Read Only" attribute and choose OK or Apply. You can select multiple files at one time or entire folders to change this attribute.

How To Backup Data From Your Workstation

Be sure and take a moment and test your back-up CD on your workstation as well as least one another to make sure the data is readable and retrieval is possible.

Always test the data on your backup by reading, restoring and accessing a file to make sure the data is truly usable.

Using Iomega Zip, Ditto or Jaz Drives

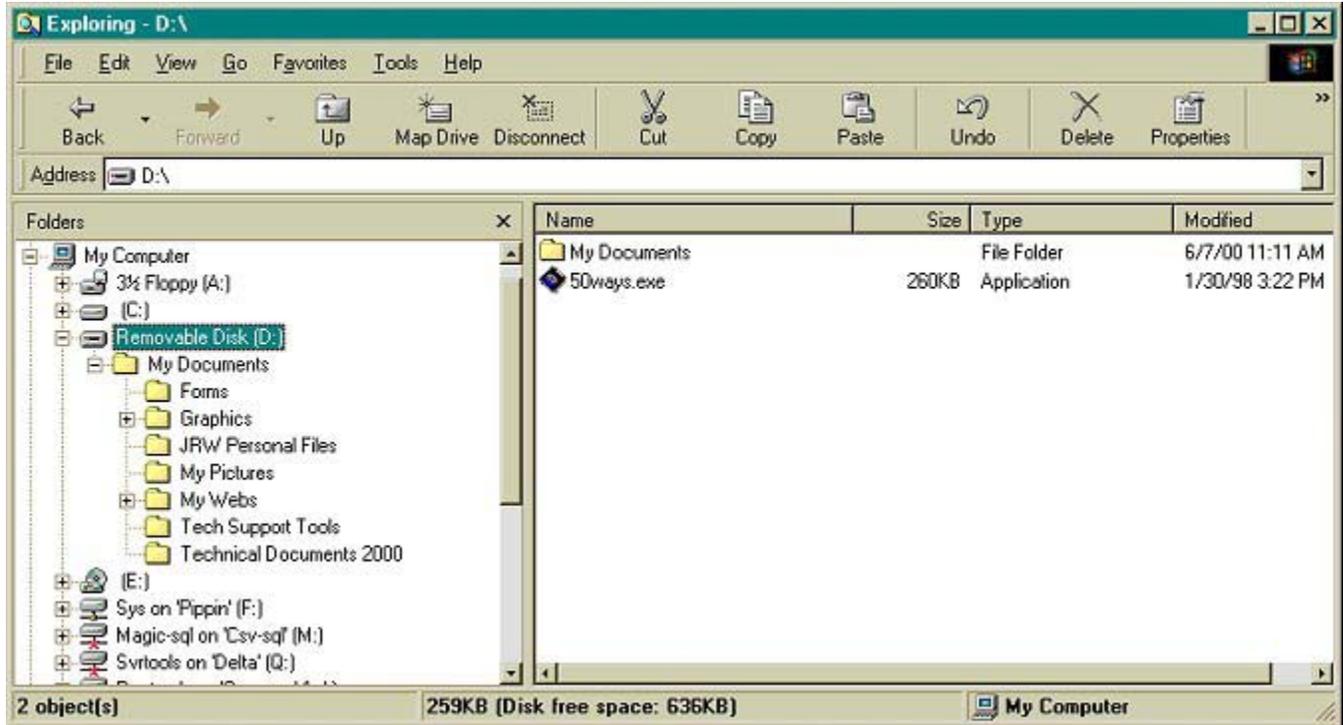


One of the most convenient and surefire way these days to safely store and manage your data is via an internal/external data drive. There have been other models and types but the industry standard today is the Iomega line of drives. Since many workstations now have these devices already installed upon purchase, we will focus on this media for purposes of this discussion. When purchasing new workstations, you will note that this storage option is highly recommended and should be considered standard for all computers. Iomega makes external drives for the Macintosh platform as well as just about any other application or function you can imagine.

If you already own a workstation that does not have an internal storage drive, then you can purchase these drives to use externally to an existing system. Check out [the Iomega web site](#) to review the many options and devices available today. Another great function of the Iomega drives is the ability to create sets of emergency recovery boot disks and Zip drives that can recover your complete operating system in the event of a system or virus related crash. These are managed in conjunction with the Norton line of anti virus and hardware management software tools. Another great safety net in times of cyber-crisis and well worth the minimum time it takes to create these emergency recovery sets of disks.

We will assume that you have a correctly installed and functioning Zip/Jaz/Ditto drive on your workstation. What makes this backup method so efficient and effective is its use of the Windows Explorer view to manage the data on the external disks. When you pop in a blank Zip disk and open Windows Explorer, you manage your data to and from the backup disk as you would work with files directly on your hard drive. Check out the following screenshot which demonstrates a "manual" backup, i.e. files simply copied from the hard drive directly to the Zip drive from within Explorer.

How To Backup Data From Your Workstation



This screenshot demonstrates how the activated drive looks within the Explorer view. Note this internal Zip drive appears as the Removable Disk (D:) drive. The contents of the Zip disk, the properly backed up My Documents folder and its contents, appear in a normal file view. You can check the file sizes, dates, associated applications, etc. that allow you to copy and re-copy the contents into the same Zip drive while checking version dates, etc. This is very convenient when you are managing repeated backups and need to know what the most recent versions, etc. are of your files and folders.

Another option you have available for easy backups is provided by the software that is packaged by Iomega with the drive devices. This software will walk you through a completely automated back-up process which can actually be scheduled at appropriate intervals and pointed at specific data directories. If you have followed good data management practices, as discussed above and are storing data in the same folders, then this provides a quick and painless back-up. For example, if you are managing all of your unique data in your My Documents folder, you can schedule a monthly backup of this particular folder at a particular time on a particular day. If you need to do any additional backup jobs, you can always do a manual one or schedule another one via the Iomega software.

Summary

It has been suggested that until one loses all their data, they will not appreciate or perform good data management and backup practices. Save yourself from this terrible experience by committing the time to plan and prepare for the data disaster that will come. There is not much a technical support person can do when the inevitable failure occurs other than holding the tissue box for the unlucky user. Technicians replace many hard drives each week and it is one of the biggest areas of repair work we perform. At the very least, the chances are high that your hard

How To Backup Data From Your Workstation

drive will have to be reformatted (destroying all data on the drive) during the process of analysis, diagnosis and repair of your hardware problem.

When you think about the time, creativity and energy that your work took to develop and the potential for this to be destroyed in seconds as a probable event, then.....you do the math! Save yourself and your data by good data management practices TODAY.

It is not a matter of "if"; it is only a matter of "when". Your workstation or its hard drive (or other component) WILL fail or accidental erasure of your unique data WILL occur.