

Backup: Your Most Important Task

Introduction

Everyone who uses a computer to save or store files will at some time or another experience that heart stopping moment when they realize their files are lost.



Don't let those files be lost forever. It's plain and simple: if you use a computer, you need to backup your data. It's not a question of whether you should, but rather how you should...

Why Backup?

Every day individuals, businesses, and organizations lose their precious files due to a drive failure, inadvertent deletion, or other unwanted action or event. The result is a great deal of stress, anxiety, and in the case of businesses, lost revenue.

The computer hard drive that stores all your data has moving parts, and in time your hard drive will wear out and fail. It's just a matter of when. You need to keep a copy of all your important data somewhere else.



Apart from hard drive failure, there are many other likely scenarios that may result in the loss of your valuable files like power failures and spikes, or system and file corruption due to viruses, worms, or other malicious attacks.

Types of Backup

- **Single file**

This type of backup creates a single file of all the files selected for backing up. This is the most common format for Backup Programs. Typically these programs offer the following options:

- ♦ Compression – allows the files to be compressed which can save space on the backup media – but also slows down the process
- ♦ Encryption – allows a password to be set so that files can only be restored if the password is known

In most cases, it is necessary to use the same program that created the backup to restore the files

A zip file is a typical example of a single file copy or backup of multiple files and folders.

- **Exact or duplicate copy**
This type of backup makes a duplicate or exact copy of all your files and folders, so that opening the backup folder will look exactly like opening the original folder. Any file manager (e.g. Windows Explorer) can be used to restore a file from the backup.
- **Backup methods**
 - ♦ Full - A backup of all (selected) files on the system. Can take a long time if you have a lot of files.
 - ♦ Differential - A cumulative backup of all changes made since the last full backup. The advantage to this is the quicker recovery time, requiring only a full backup and the latest differential backup to restore the system. The disadvantage is that for each day elapsed since the last full backup, more data needs to be backed up, especially if a majority of the data has been changed.
 - ♦ Incremental - A backup that only contains the files that have changed since the most recent backup (either full or incremental). The advantage of this is quicker backup times, as only changed files need to be saved. The disadvantage is longer recovery times, as the latest full backup, and all incremental backups up to the date of data loss need to be restored.

These methods work differently depending on the type of backup chosen. A single file backup will produce a single file for each method. For example, a Full BU on Monday produces a file containing all the backed up documents. An Incremental BU on Tues, Wed, Thurs & Fri will each produce a single file of just the changed (for that day) documents.

The Duplicate method maintains an exact copy of all your original documents, but only updates the documents that have changed.

Synchronization

A backup maintains a second copy of your files. A backup doesn't change the original files. If you accidentally delete a file, or make changes you don't want, etc. then you can restore the original file from the backup.

When synchronizing however, you are copying files between two computers. Perhaps you've got a desktop computer and a notebook computer and have copies of the same files on both computers. You may be changing those files either on your desktop or notebook depending on the situation. With synchronization, files are copied from one to the other based on when they were last changed. Files may also be deleted, e.g. you delete a file on your notebook and so want the same file on your desktop to be deleted.

Where to make your backups

There are many different types of media that you may choose to backup onto, and each has their own advantages and disadvantages. The first thing you'll have to work out is what suits your particular circumstance.



It's generally a good idea to choose media that allows you to backup all the data you wish to without having to 'span' the backup. For example, you may need many CDs to backup all your information. The problem with this kind of backup is that it requires your intervention to replace the new media as each disk is required. It also requires a "single file" type of backup. A backup that can automatically run without your intervention will save you a great deal of

time over the long run. An external USB hard drive for example, can plug straight into a computer and provide an instant large capacity space for your backups.

Most people consider backing up to CDR/W or DVDR/W, however these mediums are less stable over longer periods of time and very unreliable. For pure convenience there's nothing easier than making relatively small capacity backups to a USB memory stick that you can easily plug in, and then transfer to another location.

Whatever you choose make sure your chosen media is easy to use, requires as little intervention as possible, and can easily be scheduled.

How Often Should You Make a Backup of Your Files?



If you work on your documents each day, you need to backup at least once a day. If you accidentally delete a file, or a program crashes while you're working on a document, you need to be in a position where you can recover that file from your backup copy, so you may well want to run the backup program in the background. The more impressive backup programs can also copy open and locked files so that a backup can be made even when you're working on a document.

For most people, backing up once a day works well. Later, I will show how to implement a strategy of just leaving the computer in standby, having the computer "wake up" do a backup and then shut down the computer.

Where to Keep your Backups

You might want store a copy of all your important files in a different location to where your computer is situated. It's not a great deal of use having the copy of your files on your external hard drive which is constantly plugged into your computer. A thief won't leave your additional drive for you to recover your lost files, a fire or flood won't distinguish between your computer and your external drive. A reasonable strategy might be to make a second backup once a week or month to keep somewhere safe.

What Data Should Be Backed Up?

If you keep all your documents in "My Documents" then backing up this folder is the first priority. For Windows Vista users, Photos, Music and Videos are no longer part of Documents and will need to be also backed up.

If you use an email client like Outlook Express, Outlook or Windows Mail (Vista) you will also want to back up these files

I also like to backup my desktop and my favorites.

If you create a single file backup, it's also important to backup the program used for the backup procedure itself. You'll also need to save the serial number for this program and others in a secure yet memorable location so you can restore your backup to the original location at a later date should you need to.

Disk Imaging

To make an exact copy of your hard drive, including the Windows operating system, you must use 'disk imaging' software. Disk imaging copies the entire disk (the parts that are used) bit-by-bit. This results in a copy that will take up a lot of disk space, and take much longer to copy.

Disk imaging isn't generally the best answer to backing up for a number of reasons.

People who use disk imaging normally use file backup programs as well. For example, they take a snapshot of their hard disk using the disk imaging software, e. g. every, month, or at ad-hoc times, but use the file backup program to make regular backups of their important files, e. g. scheduled every day. When doing a restore they first restore the disk image then restore their files using the file backup program.

Backup programs

Some versions of Windows XP come with a backup program. However it is not very flexible. Windows Vista also comes with a much better backup utility. Will demo this later for those with Vista. There are many programs available both freeware and for purchase. Most CD/DVD software (like Nero or Roxio) also come with backup utilities.

As I like to backup every day, unattended and to be able to restore easily. I use a program called SyncBack, that comes in both a freeware and for purchase versions. Today, we'll be using the freeware version. I will not be showing how to back up to CD/DVD as this doesn't meet my criteria.

SyncBack is a product of 2BrightSparks who have a comprehensive website at www.2brightsparks.com I've included the help part of their website on your CD. Also on the CD is both the freeware program and the for purchase version (can try free for 15days)

Installing the program

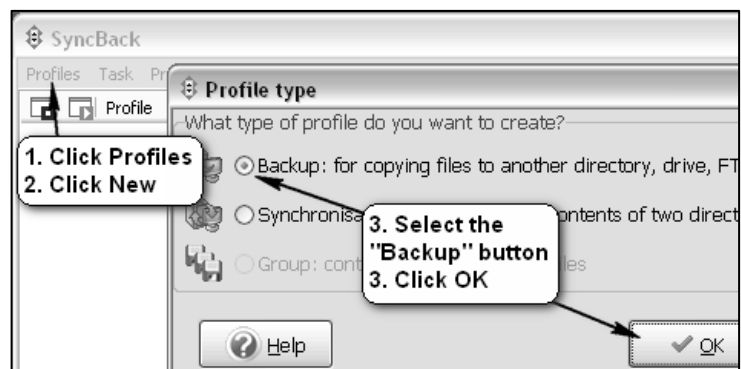
1. Put CD in computer, open My Computer and *double-click* the CD,
2. *Double-click* the "SyncBack Freeware" folder and *double-click* SyncBack_Setup.exe and just follow the instructions.

Documentation

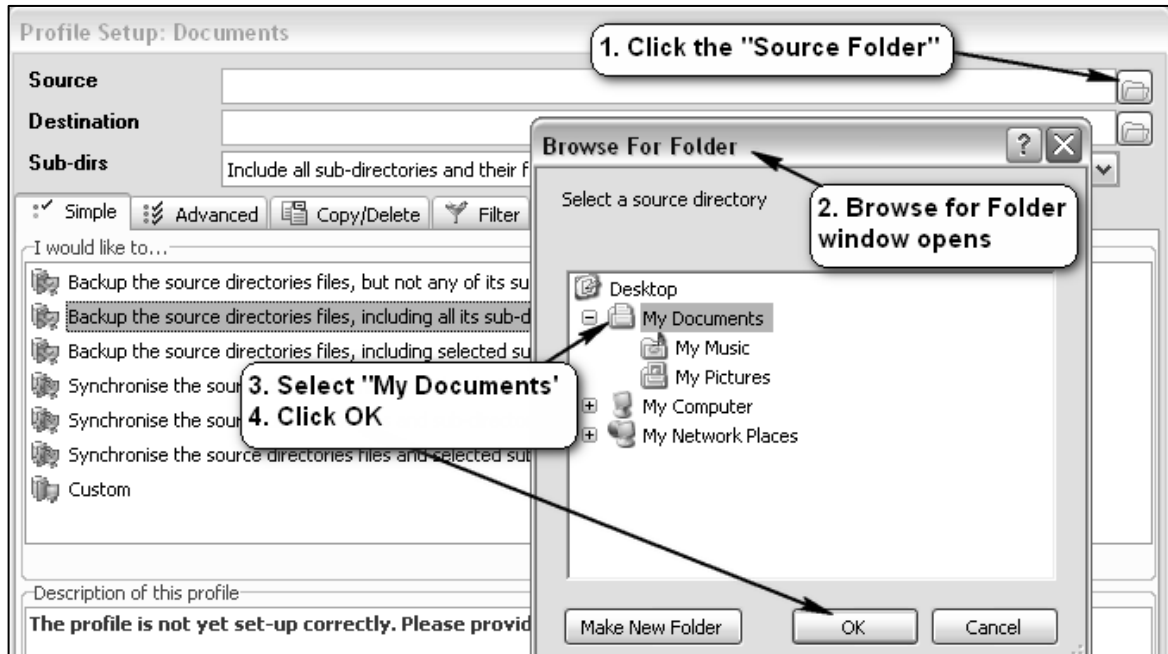
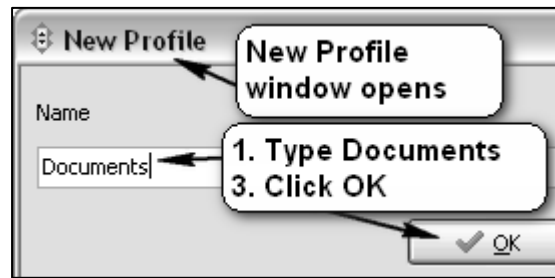
- Open SyncBack. As we have no profiles yet – asked to create – *click cancel*
- *Click Help* and *help* again. *Select* Basic Operation and Creating a profile. This help menu is very extensive.
- Go back to the CD, *double-click* "**Help_and_Tutorials.html**". Review tutorials and e-books.
- Please use the above resources as your documentation.

Create 1st Backup profile (profile =job or task) - Windows XP

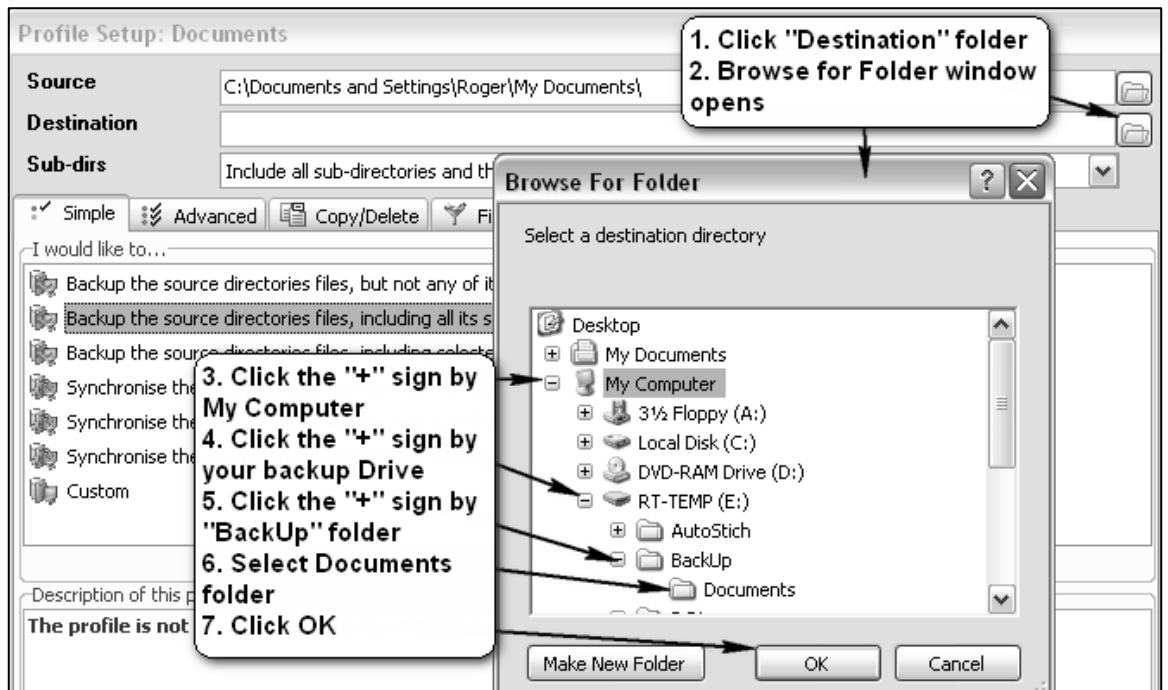
1. If you have an external hard drive or USB flash drive, plug it in now
2. Open My Computer and check the drive letter for the USB drive (see appendix for giving a name to your USB drive). (those that don't have a USB drive – we will use another drive in the center's computers – the F: (Image) drive.
3. First, we'll make the folders where we will keep our Backups. In My Computer, *double-click* the **Drive** that will be used for your backups.
4. *Create a new folder* called **BackUp** and then *create a new subfolder* called **Documents**.
5. *Open SyncBack*. As we have no profiles yet – asked to create – *click cancel*
6. *Click Profile>New*, *select Backup* (the default), and *click OK*



7. Name this profile **Documents**.
8. In the Simple tab, leave the default **"Backup source directories files, including all the sub-directories"**
9. *Click the folder icon at right end of **Source Box**, and in the Browse For Folders window, select **My Documents**. Click **OK***



10. *Click the folder icon at right end of **Destination Box**. Select **My Computer**>the drive letter of your Backup Drive (external USB drive - F: if you didn't bring one), then select the folder **BackUp**, then **Documents** (created in step 4 above). Click **OK***



11. Click **OK** again to complete the profile. If you want to run a simulation, *click Yes*. Lets do that!
12. A list of files to be copied appears – *click Continue simulation*

Run the Back Up Profile

1. In the SyncBack main window, *select* the **Documents** profile and *click Run*. A list of all the files that will be backed up appears.
2. *Click Continue Run* to complete the back up
3. When completed, the main window indicates date and time of last run and the result.

Change a file.

- Open **My Documents** and *select* any **Word document** (has a .doc or .rtf extension)
- Delete a line and then close Word and *click Yes* to **Save** the change

Re-run the back up

- Follow instructions above to run the Documents backup
- Notice only the one changed file appears and the backup was very fast

That's it, we have done a backup of all files and folders in **My Documents**

That's it! To backup ALL your documents and photos, etc. all you need to do is open SyncBack and run the "Documents" profile (or job).

Other options (these are optional)

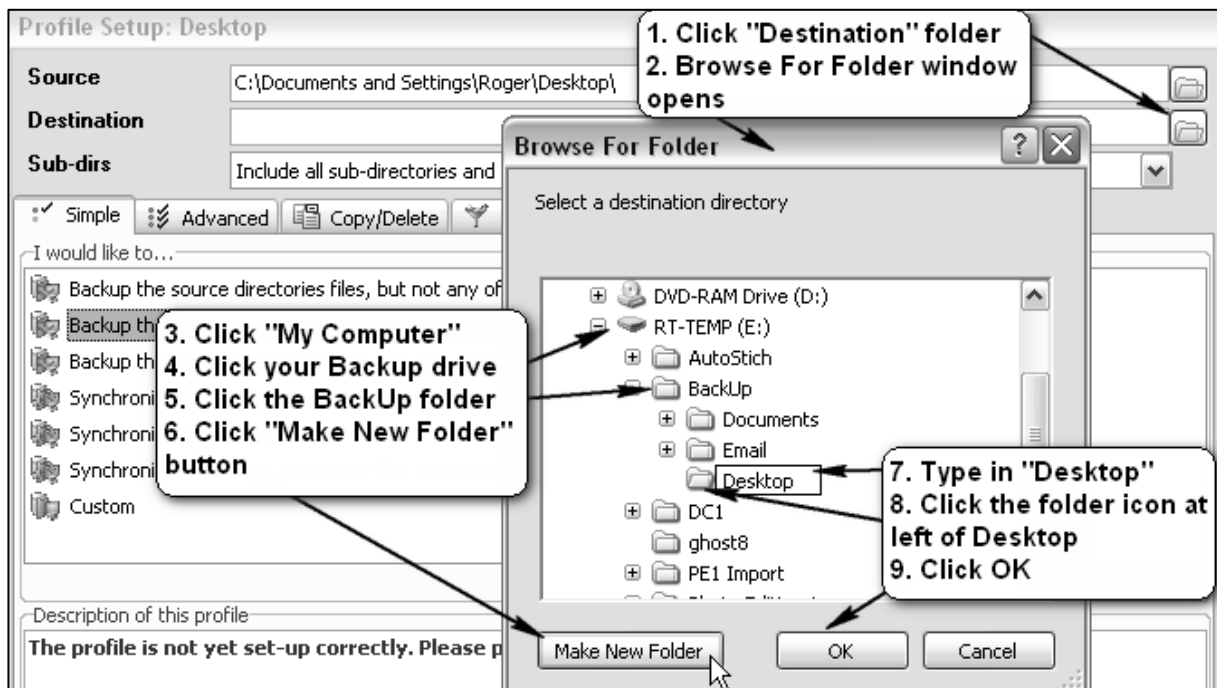
- Open **SyncBack** and *select* our **Documents** profile and *click Modify*
- *Click Advanced* tab – review last section “**What to do if file is in destination but not in the source**” Consider selecting delete from destination. Paid version allows to set #days before deleting.
- *Click Filter* tab. We'll Add to Files **NOT to Copy** “thumbs.db” and “desktop.ini” as these are system files not needed. Notice, if we only wanted to back up our photos, we could add in files to copy “*.jpg” and only files with the jpg extension would be backed up.
- At the bottom is the **Expert button**.
 - ♦ Go to Auto-close tab. This will close any open application before making the back up. For instance, Outlook files cannot be backed up if Outlook is open. If you're going to run in background during normal working time – don't add anything. I run my backups late evening – So add Word, Outlook to close.
 - ♦ Go to Programs tab. Can run a program before or after the profile runs. If time will show how to run a small batch file that shuts down computer after backup

Create other profiles

Desktop

Often leave stuff on desktop – so good to back up

- As creating first profile, except name it Desktop. For the Source (folder to backup) *select Desktop*.
- For the Destination (where backups are kept), *select backup drive>BackUp* and *create a new folder* called **Desktop** using the **New Folder** Button create a folder in the backup drive called **Desktop** (see following graphic)

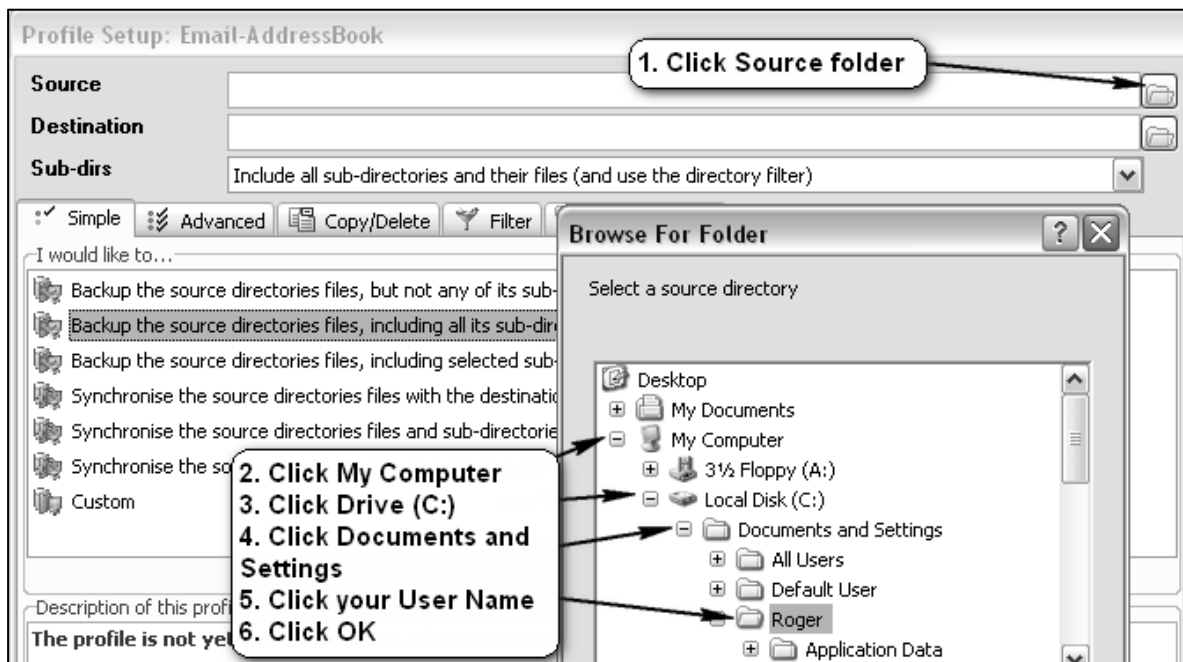


E-mail

We could create a new profile using the full path, as we have done previously, but using the correct path for Outlook, Outlook Express and your Address book. However, these files are hidden, so you would need to follow the instructions in the **Appendix** to find them – both using the paths given and following the **Note** to be able to see hidden files and folders.

Instead we will setup one profile to gather up all this information

1. Create a new profile named **Email**
2. Select the source as **C:\Documents and Settings\USER** - in this class "User" is Student (and Roger in the graphic below)



3. Create a new folder in our backup drive – called **Email**

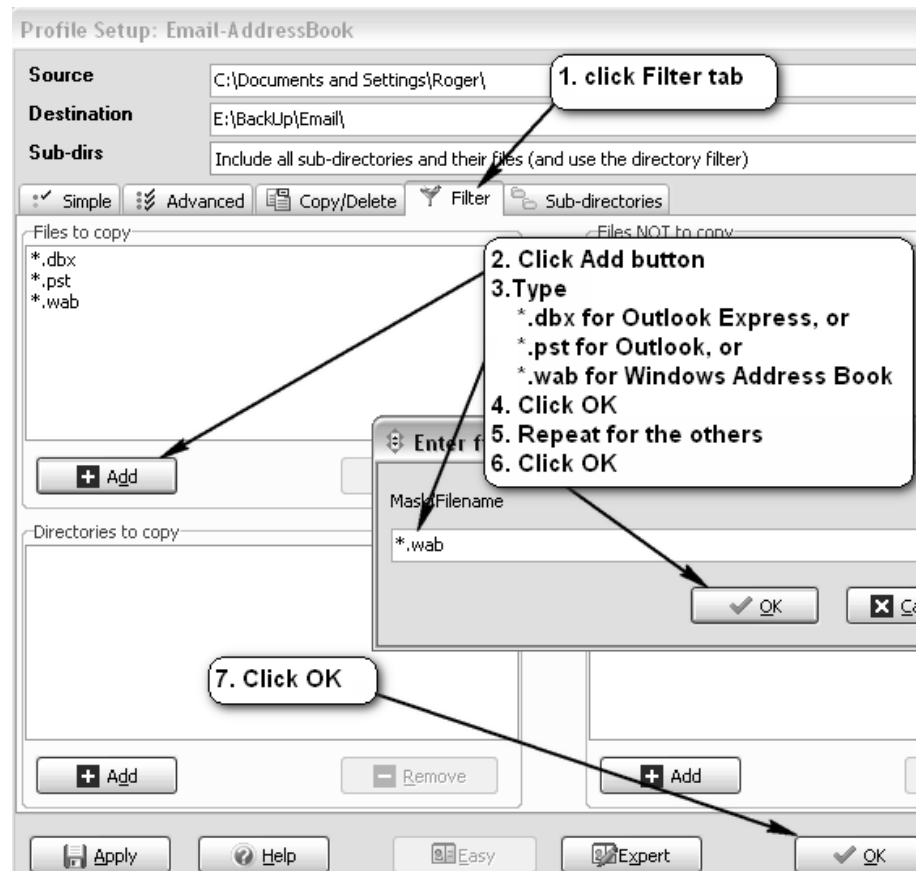
4. In the **Filter** tab, add the following file types - ***.pst, *.dbx, *.wab**

All Outlook data is stored in .pst files,
All Outlook Express data is stored in .dbx files

The address book is a .wab file.

These will be the only files found and copied.

See appendix at the end for the complete paths for common application settings



Running all profiles at once

Typically we will want to run all these profiles together. To do this we create a Group Profile.

1. Create a New Profile, but this time *select* **“Group”** and name it **My Normal Backup**
2. In the new window that opens, *click* the **double arrow pointing to the right** to *select* all the **profiles** we’ve created, into this group.
3. Other options. Don’t run in parallel. To set a profile hot key, *click* in the box and *select* your hot key (e.g. ctrl+F10)
4. Click **OK**
5. *Click* **No** for simulation

Preferences

- *Click* on preferences and *select* any changes – eg “Skip Differences Window” and “Show Groups Only”

Now run our Group profile “My Normal Backup” to do a complete backup of all our key files

To restore a file(s)

Method 1

Open My Computer, *double-click* the drive you backed up to, and there are all your backed up folders and files. These can be copied back to their original location – if necessary.

Method 2

This is the easy way using the Restore function of SyncBack. This reverses the Source and Destination folders.

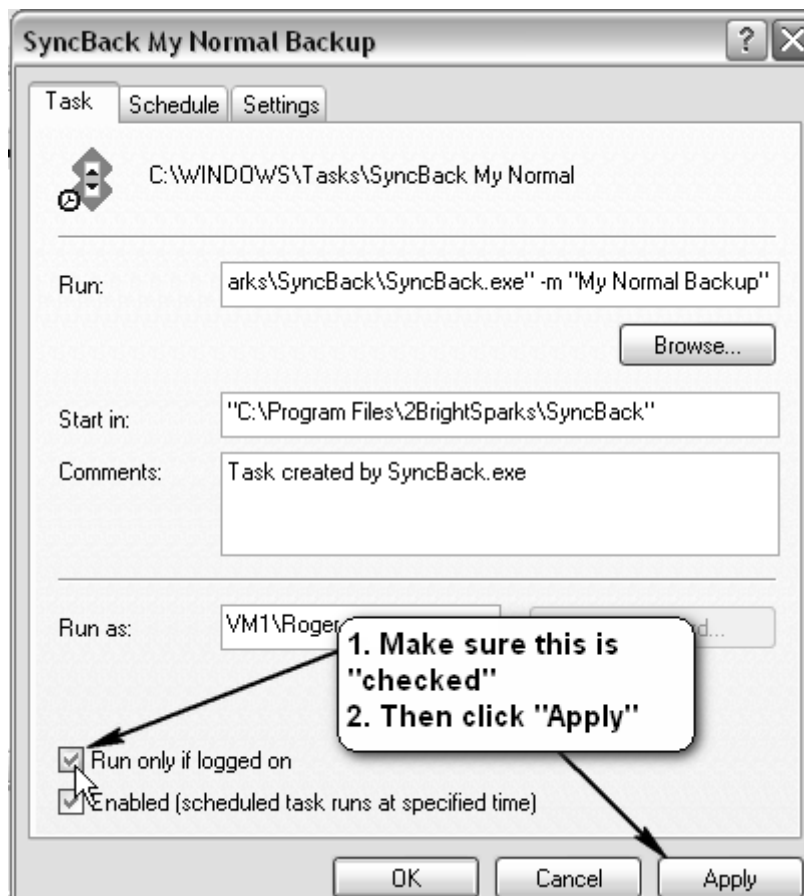
- Open SyncBack and *select* the profile you wish to restore
- *Click* the restore button and follow instructions!



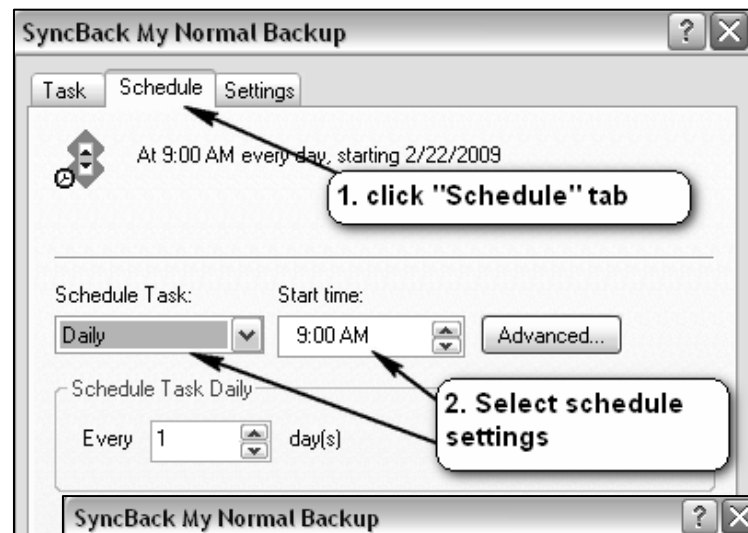
Scheduling Backups

It's very easy to have your important files backed up without you having to remember to do so. The backup can be done automatically, every day, while you sleep. It can be done while you're on holiday or out of the office. Computers are designed to help automate tasks, so let your computer and software automate your backups.

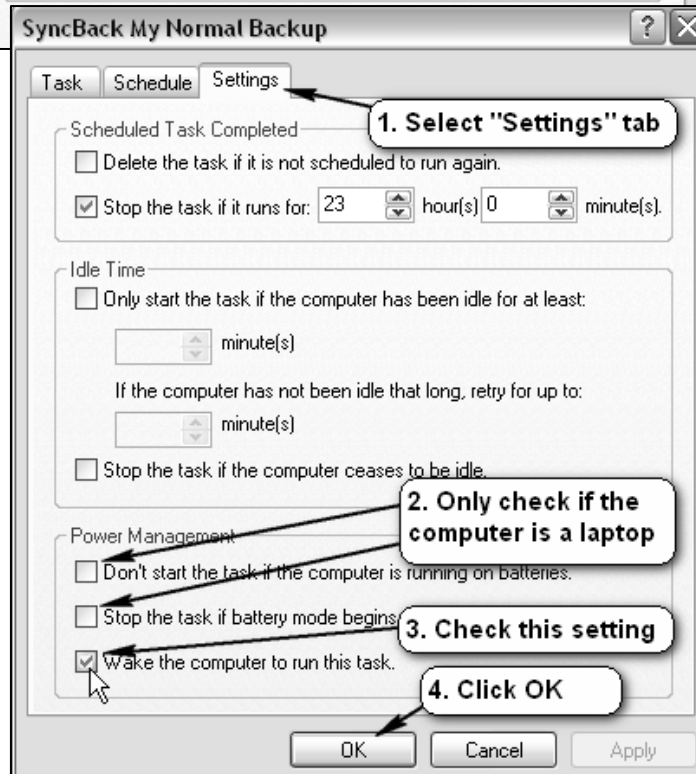
1. *Select* the profile to schedule – in this case “**My Normal Backup**” and *click* the **Schedule** button. *Select Yes* in the next box
2. In the password restriction box, *click OK*
3. **Important** - in the Schedule Task window, make sure the Task tab is selected. Now *check* the “**Run only if logged on**” check box and *click Apply*.



4. Now *click* the **Schedule** tab and *select* whether daily, weekly, etc, the days (if necessary) and the time. Remember, the computer must be on (but can be in standby/sleep mode) and the backup drive connected at this time.



5. In the Settings tab, make sure the "Wake Computer check mark has been checked. (To test, go back to Schedule and set the time to 2 minutes from now – *click OK* twice and **Exit** on SyncBack. When time has past, open SyncBack and look at result)



A possible strategy

This is how I set up my backups. I put my computer into standby (extremely low power use) when I've finished using the computer for the day. I have my backups scheduled to start at 10:30pm (as I rarely use the computer at this time) – and as I set the scheduled tasks to bring the computer out of standby – the computer wakes up and completes the backups. When they've finished, I have the last Profile shutdown the computer completely.

To do this:

- Copy the file "**shutdown.bat**" from the Shutdown folder on the CD to your **C: Drive**
- Open SyncBack. *Select* the **last profile** and *click* **Modify**
- *Click* the **Expert** button
- *Click* the **Programs** tab and *click* the **folder icon** at the right of the "**Run after Profile**" box
- In the "**Look in**" drop down, *select* **C: drive**, then scroll down and *select* **Shutdown.bat** and *click* **OK**

We will leave testing this as the last thing we do – as it closes the computer and because of our special program DeepFreeze, SynvBack will be removed!

Using Windows Vista

Vista's built in program

Vista comes with it's own Backup program. Backups can only be made to CD/DVD or another hard drive. - it will not backup to a Flash Drive. All the backed up files and folders are saved as a single "Zip" file and backup strategy is incremental. A Full Backup has to be made manually, when required. Hence, when a restore is performed, it's necessary to know which of the backups is your last Full backup, so this can be restored, and then all subsequent incremental backups must also be restored.

However, it is extremely easy to set up and use.

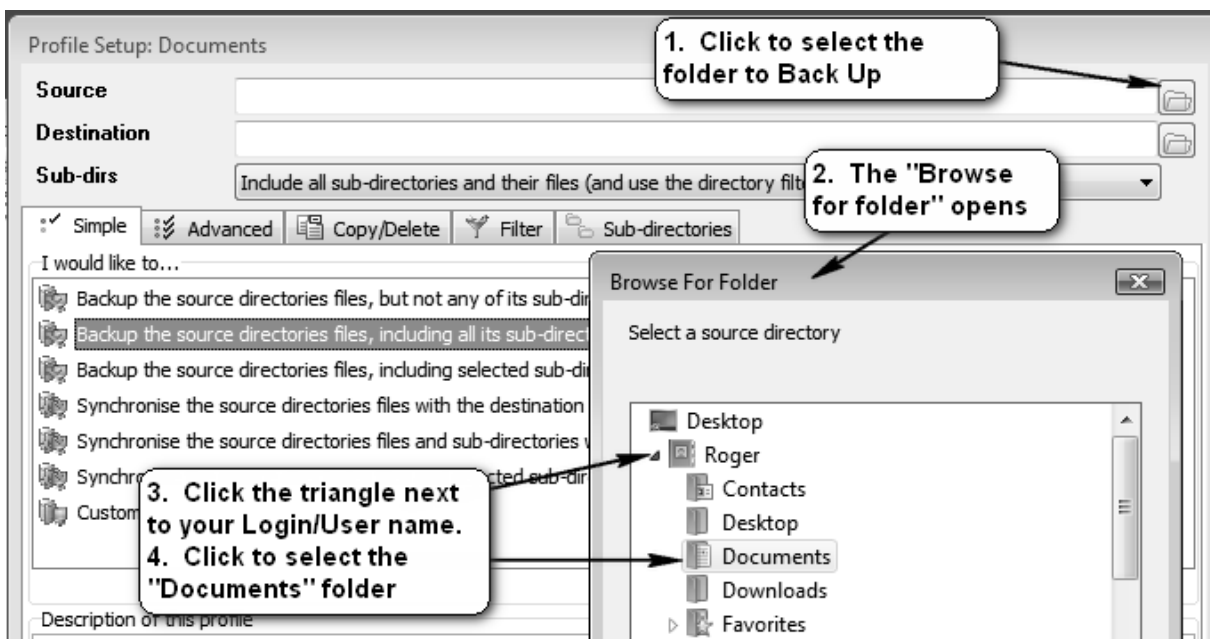
1. Make sure your external hard drive is plugged in to your computer
2. Open **Control Panel** and *double-click* **Backup and Restore Center**
3. *Click* **Back up files** and in the next window, make sure your external hard drive is selected for where you want to save your backups. *Click* **Next**
4. In this window, *select* the type of files to back up. Leaving all checked is normal. *Click* **Next**
5. Now you can *select* a **schedule**. At the time chosen to do the back up, the computer will need to be on and the external drive connected.

Now a Full back up will be performed and incremental backups made at the scheduled times
To force a Full back up again, follow steps 1 & 2. Then *click* **Change settings** and then *click* **Change back up settings** and keep *clicking* **Next**.

Using Syncback

The procedure for using Syncback in Vista is exactly the same as described for Windows XP. The only difference comes when selecting the folders to backup. So follow all instructions given for Windows XP, except step 9 on P5, and replace with:

- *Click* the **folder icon** at right end of **Source Box**, and in the Browse For Folders window, *select* **Your UserName**, then **Documents**. *Click* **OK**



Appendix

Assign a name to a USB drive.

- Open My Computer
- Connect USB drive (either a USB flash drive or external USB hard drive)
- Watch the My Computer window and the USB drive just connected will appear (may need to wait a few moments). Right *click* this drive and *select* “rename”
- Rename the drive to what you want – for example, “BU Drive” and press the Enter key
- Now, this USB Drive can always be identified in My Computer or in SyncBack, by looking for the name you gave it in the previous step.

Finding Your Files

Here are some directions of a few places you can check for the location of your important files are stored. Note that systems may have been set up differently and you may need to take a little time to find the location of particular files on your computer. If you experience difficulties use the Windows search tool available by going to **Start > Search**.

For the average user there are two main locations from which you will probably backup files: **My Documents** which will most likely contain your day to day files like Word files etc., and **Your User Profile** which stores application specific settings and files.

The Path to Your User Profile

C:\Documents and Settings\USER

USER is the name you logged in as. This can be found by *clicking Start* and the **User** will be displayed at the top of the box. Typical Users are Your Name, Authorized User, Owner.

Note: To see some of these folders, it is necessary to be able to view hidden files and folders. To change this setting, open My Documents and on the toolbar, *click Tools>Folder Options*, then *click* the **View** tab and *click* the **radio button for “Show hidden files and folders”**

Common paths

Desktop: C:\Documents and Settings\USER\desktop

Favorites: C:\Documents and Settings\USER\Favorites

Outlook Express: C:\Documents and Settings\USER\Local Settings\Application Data\Identities

Outlook: C:\Documents and Settings\USER\Local Settings\Application Data\Microsoft\Outlook

Address book: C:\Documents and Settings\ USER \Application Data\Microsoft\Address Book

Templates and Stationary: C:\Documents and Settings\USER\Application Data\Microsoft

Further info

- **Outlook Personal Folders Files (.pst)** The Personal Folder file (.pst / PST) is the place where Outlook stores its data (when you're using Outlook without Microsoft® Exchange Server).

Each Personal Folder file contains all of your Outlook folders, including the In box,

Calendar, and Contacts. You may have a single .pst file (usually called **Internet Folders** or **Personal Folders** in your Folder List), and you may also have an additional .pst file that you use to archive messages (named **Archive Folders**). By backing up these PST files you will be backing up all your Outlook information.

You can find the location of the main PST file by right-*clicking* on the **Outlook Today** icon found in your Outlook shortcuts, or the **Outlook Today** icon found in your folder list and then left-*clicking* **Properties**. Once the Properties dialog box is displayed, *click* the **Advanced** button.

The Path... shown indicates where your Personal Folder file can be found. An example path follows:

C:\Documents and Settings\USER\Local Settings\Application Data\Microsoft\Outlook\Outlook.pst

- **Outlook Express** Go to the Outlook Express menu and *select* **Tools > Options > Maintenance** then *click* the **Store Folder** button. You'll see a dialog with the name of the directory that has your mail files. If you look in that directory you'll find files named after your mail folders and news groups. They all have a **.DBX** suffix. All your Outlook Express messages are kept in these database files. If you make copies of these files regularly, you'll have a safe backup of your OE mail.
- **Mozilla Firefox** All bookmarks are stored in a file called bookmarks.html and is stored in the profile folder, a typical example being: **Documents and Settings\All Users\[Log-in Name]\Application Data\Mozilla\Profiles**

Notes