Photography

Whoa! Back Up There!!

August 20, 2018 | Charles T. Low, Photographer

Digital Data Protection - and yours matters!

I'm talking about *keeping track of your digital data*.

I'm not speaking about anything strictly photographic, such as backing up further from your subject, although in general terms that's a good idea, as posted <u>here</u> recently.

One of the first data-loss stories I heard was from a friend who had somehow stored a whole year of photographs on a memory card in a digital camera, when such devices were a recent invention. (Memory cards were small then, but so were digital files!) His child pressed a button, and pow: all the photographs gone.

At that time I did not know that there are ways to recover the photos. (Don't do the slightest thing with the card in the meantime!) Neither did he, apparently. I have since had the misfortune to lose digital files and the bonus of being able to recover many of them.

More on that some other time if you wish, should you have the need. An Internet search engine is your friend when this happens.

And if you do enough with digital files, then your fingers or your brain will fumble or stumble some day - that's called a stfumble - and you will have the need.

This is in some ways worse (and in other ways not!) than losing all of your photographs in a house-fire, because very few of us will have a house burn down. We will all however have our computers eventually crash. It's not a matter of "if", but of "when", because these things are machines and they will eventually break. When they do, sometimes a professional can get your data back for you (for a price), and sometimes they cannot.

Speaking of house-fires, some clever people in the days of film kept all of their negatives at a relative's house, and perhaps some of their Kodachrome slides. Concepts of data-preservation are most certainly not brand spanking new with the digital age.

On a much smaller scale, I had a camera memory card simply fall apart in my hands, not long ago. Fortunately, it happened just as I had finished uploading the files to my computer. The thing actually crumbled. It had, granted, seen a lot of use.

Something like that is going to happen.

That leads to my topic: how can you protect your image files - or any important computer files, for that matter?

What I Do

There are many approaches to data-preservation, but the most basic wisdom is a phrase I learned not long ago from a professional archivist: LOCKSS - "lots of copies keeps stuff safe". (Thanks, J!)

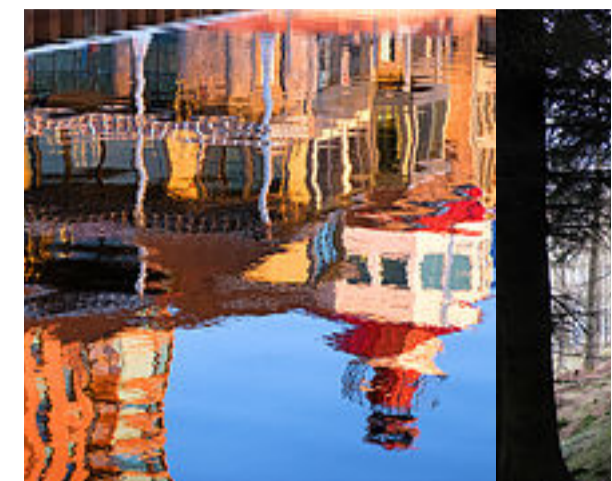On the ground, I am currently implementing this thusly:

- **1a/ real-time hourly back-up**
- **1b/ real-time daily back-up**
- **2a/ occasional interval archiving of large image files**
- **2b/ annual archiving of everything else**

Four steps. In fact, look at it as two steps, each with ... two steps. Break it down like that, and you can see how simple it can be.

Step 1 - real-time back-ups

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Archive

For me this is very simple, because when I switched to a Mac computer, I found Time Machine built into the operating system. Plug an external hard drive (the bigger the better - I'm using 2 terabytes currently) into a USB port, and a message pops up asking if you would like to use this for Time Machine. I said yes!

Time Machine finds any files which are new or changed, and copies them to the external back-up drive. It does this hourly. You can customize it a bit if you like, to ignore certain parts of your computer - another topic - but essentially, you're done, and it's working.

The very first time such a back-up runs, it will of course copy your entire internal hard drive, which will likely take many hours, during which your computer will work slowly. So start that initial back-up some time when you don't need access to your computer for quite a while. After that, it only copies new/changed files, so is much faster, and generally operates in the background invisibly.

Subsequently, Time Machine does more sophisticated things with which we need not concern ourselves, such as consolidating hourly back-ups into daily back-ups, and then daily back-ups into weekly. This uses disk space more efficiently, but it happens all by itself, in the background, and you don't even have to know about it.

If you lose a file, you can go into Time Machine fairly easily and get the file back, and you can even decide how old a version of the file you want.

When your computer's whole internal hard-drive goes down, Apple has provided a semi-automated method whereby the new hard-drive is reconstituted from the Time Machine back-up. Brilliant. Extremely helpful.

(I found out the hard way not to use Time Machine with a *network*-drive, connected for example to another computer - use a drive connected directly to *your* computer; I got away with it, but just barely.)

To the left, behind my computer, are two external hard drives, each 2 TB; a blue one and a black one. Also in the lower right is a USB hub, which usually counts as being "directly connected" to your computer. (Ignore the old iPhone 5.)

If you're like most normal people, using a Windows computer, then I can't help you as specifically, but I do know that similar functionality exists. If you're totally lost and don't know how to get started, then go into a computer store and they will help you.

If you live in Brockville, then there are many good outfits, but two I know are:

- OnServe (I know the people personally);
- Compu-Silv (I know the people professionally).

Getting that going may sound like a lot, but honestly it took me two minutes, the first time. Plug it in and say "yes" to Time Machine. But if you need to, call a geek-friend (and if you don't have one, then get one! [what weren't you thinking?!?]).

Because of a near-miss I had with a single back-up drive, I installed a second. (The external drives will also die one day, often quite suddenly, and it would be very bad luck if that happened on the same day when your computer crumped ...) It cost money, and some time doing research: I asked around, both in person and on Internet forums, and I read Internet articles. The second back-up uses separate commercial software, and also a different, separate external drive, also directly connected to my computer with a USB port, and runs only once each night. The software requires a bit more hands-on maintenance once in a while.

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The software is called Carbon Copy Cloner. There are many other worthy alternatives.

So, we've got back-ups happening. Great!

But there is a catch.

I don't know exactly how it works with Windows, but regardless, eventually you're going to run out of room on the external hard drive. A file which has changed a dozen times will have a dozen copies on the back-up disk, so it will grow faster than your computer's internal hard drive. So ...

... t*he back-up software deletes old back-ups*.

You should still have all of your files - just not really old *versions*. This can matter if, for example, you're looking for an old email address, but less likely with image files. Unless ...

... *you yourself delete files from your computer's internal hard drive*, which you may have legitimate reasons for doing from time to time. Then they will eventually delete from the back-up too.

There's also the problem of a lightning strike or other disaster - or ransom-ware(!) - which could affect your computer with its internal hard-drive and all of your external hard-drives simultaneously, surge-protecting power-bars notwithstanding (perhaps they work very well - I would only know when they didn't - and they come in different levels of quality).

There is a way around those limitations of back-up drives. It's called archiving.

Step 2 - dusty old archives

Back-ups are very well-worth doing, I think is the conventional wisdom, and give the easiest and fastest access to recent digital files which may have inadvertently disappeared.

Still, they ultimately self-delete, and this includes older versions of files and it includes files which you delete from your computer.

In comes **archiving**. I call it archiving when I keep a permanent copy of something somewhere other than on my computer's active, internal hard-drive.

I don't know about you, but with a 1 terabyte internal hard drive (my first computer only had 42 MB!), my photos end up taking up too much space. They have to go - but they cannot go.

It depends of course how much you wish to keep, and that's up to you. I keep all of my out-of-camera JPEGs, for example, which is not necessary, but faster than selectively preserving the few I work with. (I keep only Raw and Photoshop files which I have worked on - the rest I do permanently delete. That's just me.)

All of these original, unedited image files I must eventually remove from my computer's internal hard drive.

So, I move them onto external storage disks. These used to be 1.4 MB floppy disks (dating myself!), gradually over the decades using larger disks (anyone remember Zip drives?), then CDs, then DVDs, and now Blu-rays. CDs, DVDs, and Blu-rays are all called optical disks, because they are read by light.

Note that by "CD" (650 MB) you might think "music, and by "DVD" (7.4 GB) and "Blu-ray" (25 GB) you may think "movie". But they're just storage disks, and can hold computer files of any description. They all look about the same to the naked eye, but are not. Sometimes they can hold more than I have listed, by being "double-layer" or something, but your burner needs to be able to do that and they are more than twice the price of "single-layer", so I don't bother.

I might generate fifteen, even twenty, blu-rays a year, but I'm a bit of an extreme case.

First off, I bought a Blu-Ray burner, and ended up with one which doesn't seem to be in production any longer. I've had the device for about two years now, and for under $100, if it breaks anytime soon, I will have had my money's worth out of it. But it's working fine.

The lovely thing about it is that I plugged in the USB connector, and it worked; no software to install, nothing to configure. YMMV - no recent experience with Windows.

Secondly, I buy the blank Blu-ray disks from newegg. The old advice used to be not to buy cheap, and I still look for brand names - and then price-compare. The last time I looked locally (because: shop local!), no one carried them in Brockville.

Thirdly, I have to organize my thoughts. I will find folders ("directories" of computer files) which I don't think that I will need anymore but which I don't want to lose, and group them together in such a way that they use most of a 25 GB optical disk.

I burn them to the blu-ray disk, and Apple makes that easy. I label it, keep a record of the activity in an archive log I keep (of course!), and write on it, "Copy 1/2". Then I burn another exact copy, "2/2", and the second copy will work its way out of the office and to another location of my choosing, so hopefully whatever hypothetical badness might happen here won't happen there.

I understand that I am supposed to keep the archive disks in a cool, low-humidity place, because they will spontaneously degenerate and are not indefinitely archival. So far I have had next to no trouble, but so much for the initial "permanent and indestructible" hype which accompanied the arrival of CDs.

Personally, I do two types of archiving:

- **episodic;**
- **annual.**

Most people probably won't want to or need to get into that level of detail, but hey! That's just me.

So, I just did one today as I was composing this blog, about 20 GB of photo-files to Blu-ray, two copies, then deleted from my computer's internal hard drive. That's "episodic".

The annual ones are a bit more work and arithmetic, but I have found a way using Terminal on a Mac - and I know from a previous life that there is a way using Command and XCOPY on a Windows computer (looks like DOS, and if you don't know what DOS is then don't worry about it) - a way which finds only files which are new or have changed since a specified date.

For example, if I do my annual archive on January 1st ...
 ... *and I highly recommend this as a most engaging activity with which to start your New Year* ...
... then I might set the date for Dec. 31, a year and one day earlier, to include just a little overlap.

Or, some of my files I simply file into folders by date, so that makes them easy to find.

After burning many sets of almost-25-GB folders to many Blu-rays (again, two copies of each), I have the option of deleting old files on my computer - "old" meaning prior to the date I set in Terminal or Command, or else my back-up procedures might lose them, as described above - knowing that all of my data should have been archived somewhere at some time in the past.

Burning a full Blu-ray disk can take close to an hour. I start one going, then shovel the driveway, then start another, then have lunch, etc. I find it better not to disturb the computer when it's burning a disk. There are few burn-failures, but they do occur, and seem more likely if I'm multi-tasking the computer.

I delete many image files - photographs - but generally not ones which I have edited. My personal edited-files folder, as of this minute, holds close to 11,000 photographs (categorized, sub-folders), but occupies only 5.7 GB of disk space - quite tolerable on a 1 TB internal drive. That includes almost every digital image file I have created since 1998. Unless for some other purpose than computer-monitor display, I shrink all of the image files which I edit to somewhere around 1,000 pixels on the longer side, and a typical file recently will be only about 1.5 MB.

The higher-resolution JPEG, as it comes out of the camera on the memory card, uses many more pixels and is often close to 10 MB in size.

So it's the unedited, out-of-camera files which are memory hogs. That includes JPEGs, raw files (I have my cameras set to record both), and other such as Photoshop files (often around 100-150 MB each). My 2018 "sources" folder right now registers at 114 GB, and that does make a dint in my hard-drive capacity, and will have to be off-loaded some day. That's five blu-ray disks for 2018, and it's only August.

And that's only my personal photos, not counting my commercial work.

Movie files of course are much larger, but I don't generate the volumes of those which I do for still pictures.

I only archive data, by the way, my stuff, not the workings of the operating system. I can get an OS back anytime if I really need it, albeit with the possible loss of some cash. "Data" means things which I have made or downloaded, and includes image files, documents, movies, music ... all sorts of things.

Recently I searched for and found an old family movie on an archive CD from 2005. That isn't required very often, because, as I said earlier, if I had thought that I would need it, I wouldn't have deleted it from my computer in the first place.

Head in the Cloud

There are other data-preservation tactics. If you for example have an IT department, then they may have more elegant approaches. (Or they may not!)

But for the typical small-business, another obvious house-fire data-preservation method is the "cloud", storing your files - or copies of your files - somewhere on another computer far away. You can get quite a bit of disk-space for free (15 GB on Google currently), and beyond that you will have to rent it.

Whoever is running these clouds - and where they are and how they work doesn't make the slightest difference to you, although you should obtain reasonable assurances of data-privacy - should be keeping their own back-ups, or at least have robust data-redundancy of their own by whatever methods they might use.

You could use the cloud for your own back-ups or for your archives, instead of or in addition to external hard drives attached to your computer.

My problem is bandwidth. I would have a lot of data to send at regular intervals, and I for sure would get overage charges. Plus, if you think that sending data over even a high-speed USB connection is slow, then the Internet is probably slower (although that is changing). So even if you have unlimited bandwidth, you could tie your computer up for several hours doing simple transfers.

I wonder how out of date I am with that kind of thinking. Somebody tell me!

Small business

Speaking of small business, then maintaining your data could be your life-blood, unlike personal data, integrally important though that is to us too. Imagine for example a photographer contacted by a bride whose wedding photos had been destroyed, and she wants them replaced. You do not want to have to say to her, "Ya ... I lost 'em too!"

Tablets

You'll notice that I haven't mentioned tablets like the iPad or the Samsung Galaxy (and there are a host of others). I myself do not know a way to do back-ups and archives without a more conventional computer. I'm not saying impossible ... I just don't know how.

I upload photos and movies from my iPhone using a program included in the Mac OS called Image Capture, which provides the individual image files, which iTunes for example does not. Then I back-up and eventually archive these files as detailed above.

Just back *up* from the computer ...

So, is your (digital) data important to you? I'm thinking about photography, but it could be anything.

Back-ups are often step #1, and I hope that I have illustrated how and why, as step #2, I also archive.

I understand why so few of us deal with this - it's so invisible, and the process so ... geeky. My strong personal impression is that precious few of us do any kind of back-ups or archives at all.

But the day will come when you will wish you had. (Cheers!)

While you're here:

Remember that I make photographs and that I sell photographs.

Almost everything which you see on this web site is for sale. Prices at the time of writing, for example, for an 11x14" fine-art print with a generous white border would start at about $50, and you can go up or down from there. Check the <u>rates</u> page. More importantly, check out my <u>gallery</u>.

Book a portrait-sitting - the right frequency with which to commission formal <u>portraits</u> is a bit more often.

Remember also to leave a comment, or to <u>contact</u> me. Note that on the main <u>blog</u> page you can sign up for new-blog notifications. I am very careful and respectful with your privacy.

Thank you so much for reading.

Charles T. Low
Photographer

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