

Digital Photo Workflow and Archival Backups

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“He who dies with the best Photo Album wins.” - Warren Miller

Workflow is a hot item these days. Designing your own workflow and backup system provides two main benefits related to the above quote:

- Preserves your precious archive for future use and disaster recovery
- Organizes your archive for easier retrieval

What is Workflow?

Workflow is the process you use to:

- Convert RAW Files and “ingest” all files onto your computer hard drive.
- Edit images
- Archive images
- Process for Printing, emailing, web posting or sales.
- Backup for safety and disaster recovery to external hard drives and elsewhere.

You need to ask yourself a serious question: How much do I value my Photo Collection? To do a competent job of protecting it, you may need some new hardware and software. Please understand that the principles are more important than any product mentioned. Full Disclosure: we are not paid by any resource mentioned.

Software

You will need **Photo Cataloging software** such as Adobe Lightroom (Windows or OS X), Apple Aperture (OS X only), Microsoft Expression Media (Windows or OS X), or Extensis Portfolio (Windows or OS X). Cataloging software contains a built-in RAW converter and allows non-destructive photo editing and file format conversion to JPG, TIFF, PSD or DNG formats. This **ELIMINATES** having to use the manufacturers software such as Canon DPP or Nikon Capture, and saves a step in processing. Extensis Portfolio has the capability to Catalog DVD and CDs. See their website for more detail. Cataloging software is essentially one stop shopping for Minor editing, RAW conversion and building a database for retrieval of images. Microsoft Expression Media is noteworthy because it will catalog movies, video files and almost anything you want to keep track of. Lightroom as of this writing, does not yet have the capability to display beyond still photos. Most of what follows will be based on my experience with Adobe Lightroom, Version 2.x.

These programs allow you to add keywords that aid in recalling files. Perhaps you shot a picture of a Sea Lion underwater in Mexico in October 2006. The programs allow you to name the file by date but will group the file in a search if you added the keywords Sea Lion, Mexico, Underwater. And you only have to keep the file in one place, rather than filing copies in several places and taking up hard drive space. See Peter Krough’s excellent “The DAM Book” on Digital Asset Management for more info.

To backup to an external drive, I use Apple’s Time Machine Backup Software application that is part of the OS X Leopard Upgrade. Apple owners that have upgraded to Leopard, have it for free. I have it configured to back up the photo drive once an hour. The current downside to Time Machine is that it will only do one drive at time automatically. Other drives can be done manually. Many external drive units ship with software that will perform the same tasks.

Check out the following software available for Windows backups. I have not tried any but keep in mind Argentum has a dog in the hunt for \$25.00.

<http://www.argentuma.com/backup/software/index.html>

- Windows Backup** A built-in Microsoft Windows backup utility.
- Backup MyPC** A powerful backup program from Veritas.
- Handy Backup** An automatic backup program with compression.
- WinBackup** Integrally supports backing up to CD/DVD.
- Second Copy** Copies files automatically.
- Backup Now!** Supports many CD/DVD writing devices.
- Argentum Backup** A popular backup program with templates. Small, fast & easy

Hardware

Workflow principles apply equally to Windows, Apple OS X and other operating systems. However, Apple platforms have an advantage in requiring far less system maintenance in spyware and virus updates. In addition, many valuable programs have superior versions available only on the Apple platform such as the photo browser, Adobe Bridge.

Internal Hard Drives

The promise of Digital was that “you can shoot endlessly and it doesn’t cost anything.” Lets face it, in the digital age, photographers don’t buy film anymore. We buy hard drives instead.

The reason my hard drives fill up are due primarily to adding pictures frequently. Each with increasing file sizes as the Megapixel race has not been won yet. In respect to photographers, Seth Resnick of D-65 recommends having a DEDICATED hard drive for your photo archive. This makes a lot of sense and can free up your primary hard drive for documents and applications. Hard drive performance also slows down drastically when it is over half filled.

External Hard Drives

Your objective for your photos is to ultimately follow the IT industry standard of 3-2-1:

- Three copies of each file
- Two different media
- One copy off-site.

Having a separate external Hard Drive Box Unit with user removable, “hot swappable,” drives is much more reliable than a sealed unit such as a LaCie or Maxtor. I have had two backup units fail with boards going bad just after the warranty was up. There was no chance of me mailing the units back containing my precious data. Companies such as COOLDRIVES.com make custom units that connect via firewire or USB to your computer. If a board fails in these type of units, diagnosis is much simpler. You can also remove the drives yourself before mailing and send the unit for diagnosis with no risks inherent in sending off your data. The most popular size Hard Drive Box Units are available with up to 4 drive bays. You want one external drive bay per internal drive.

You can buy the Hard Disks from a firm such as NewEgg.com. You will probably want the latest technology and currently that is a SATA drive. ATA is still around but its star is fading. Sizes vary of course but as of this writing a 1 TB (1000 GB) Seagate Barracuda drive is \$119. Buy two drives for each internal drive. One to keep in the Hard Drive Box Unit and the second to keep offsite (more on this later).

The dirty little secret: technology will keep changing. Zip drives will go the way of ...Zip Drives. For the moment, most archives are kept on Multiple Hard Drives and migrated to the next generation of BIG drives when they become available. Flash Memory is on the horizon but I bet we’ll be buying 2TB drives before the Flash prices come down to Hard Drive territory. Invest in “open standards technology,” NOT what is proprietary or sealed. See: http://en.wikipedia.org/wiki/Open_standard

It is easy to back up using a simple One-for-one drive backup. In this case, the configuration is called “JBOD” or literally “Just a bunch of disks.” RAID configurations are also possible but I like simplicity of using the JBOD setup. See the “DAM Book” for more details on RAID.

After backing up the drive(s), and CONFIRMING the backup worked by viewing the photos on the backup drive, take the first backup hard drive offsite to a safe place. That could be the bank Safe Deposit Box or a trusted friend's house where it will be kept in a suitable habitat for delicate electronics and kept from temperature & humidity extremes (not the friend's tool shed). Insert Hard Drive #2 in the drive unit and backup on a routine basis.

Update schedule for your off-site drives:

Rotate your backup hard drives on a regular basis. Take the drive in the backup unit and exchange for the one in off-site storage. Decide on a rotation schedule for your off-site drives that suits your needs and temperament such as:

- Quarterly or
- Every four months, or
- After a major re-org of your archive.

Set up your Photo Catalog / Archive

You will need to set up the following:

1. **ORIGINALS - INGEST - Named by Date:** You are aiming to have an "import folder" or a place to house the originals downloaded from your cards before you edit, process and archive the images. You can keep original RAW files here. Folder Example: 2009-1-11_Barnaget_Lighthouse
2. **MASTER ARCHIVE by SUBJECT - Categorized by subject for your processed images.** Subject categories such as Vacation, Underwater, Kids Pictures, Backyard Insects and Client #9. Place Processed images in these folders. Preferred format is DNG but you can use any format you are comfortable using like PSD for TIFF. JPEG is the least durable for long term storage as the image deteriorates every time the image is opened and saved.
3. **OPTIONAL SPECIAL PURPOSE FOLDERS for Web posting, e-mailing, printing, etc.**
These folders will contain specialized VERSIONS of your archived DNG MASTER images such as:
 - JPEGs downsized for the web,
 - Files specially formatted for Printing to 11x17, etc.

WORKFLOW PROCESS:

Import

Develop a consistent naming convention. Organize by your shooting dates in an easy sorting format such as YYYY-MM-DD and a hint of the main subjects: 2009-01-31_Bermuda or 2009-11-12_Ducks_Kids. Your software can be setup to add basic ITPC Metadata to your photos such as Copyright info, and your name and contact info. Keywording that describes your images will come later.

COOL TIP: Some Cataloging packages such as Lightroom can be set to make an automatic copy on another drive. I backup to DVD at the moment. This is a **SECOND MEDIA** as explained in the External Hard Drive section.

Edit and process images

- Select your picks, delete obvious mistakes and rate images on a 1-5 scale,
- Filter for your picks and correct White balance, Dust, crop and use levels or curves. Add Keywords and Metadata as needed.
- Edit in Photoshop as necessary and save changes. (Lightroom has an easy return feature if Photoshop was needed.)
- Export edited images as DNGs to the proper folders in your SUBJECT ARCHIVE. To assure compatibility across all platforms, use a filename with **NO SPACES**. Use underscores and hyphens instead.

- Validate that you have at least two copies of your images by going to the folders and viewing representative files so you are convinced the process is working.
- Prep images for selected uses such as web, printing etc and place in their Optional special purpose folders.
- **VERIFY** that your external backup drive is working by viewing your files on the external hard drive after the backup was scheduled to happen.
- Format the card in Camera (do not simply delete or erase the files, formatting is more secure)

If you are backing up one hard drive, you should now have at least the Original file in the Import folder, the Processed DNG in the ARCHIVE and an original backup on DVD or other internal hard drive. When your External hard drive kicks in, you should now have at least two copies of each file. When you rotate hard drives to an offsite location, you will have at least three total copies.

3-2-1. You cannot be too redundant.

DVD / CD

There is some debate as to the ongoing viability of CD and DVDs as most are not archival (<http://www.digitfaq.com/media/dvdmedia.htm>). If you choose to use DVDs buy the expensive GOLD varieties (Such as Delkin Gold) or if you only want temporary backups, use the \$25/100 spindles and **DO NOT WRITE ON THE DATA AREA** of the disc (aluminum part). Write the label on the center ring that does not contain data. I still use DVD as another media and use 4GB cards for shooting, as there is a 1:1 capacity for downloads. DVDs (non-BluRay) have a 4GB capacity.

OFFSITE OPTIONS ALTERNATE MEDIA OPTION

MOZY.com

Online, Offsite backup service. You upload your photos / data to MOZY and they keep the archive.

Initially recommended by Walt Mossberg of the Wall Street Journal, MOZY is owned by EMC, the storage folks. The service is about \$50 a year and currently has **UNLIMITED** capacity. Its speed cap may require you have the computer hooked up for three weeks depending on the size of your archive to complete a backup.

FYI: EMC also has industrial grade backup software called Retrospect that Seth Resnick's D-65 Studio uses. There are several versions that start at \$50 for the Express Version, \$120- 130 for the Professional version and it goes up from there. www.emcinsignia.com
The professional version is used by Ed Robinson of Ed Robinson's Diving Adventures <http://www.mauiscuba.com>.

Note that as of this writing, EMC has a deal with MOZY. Not sure how reliable it is. Check out:

<http://tech.kateva.org/2008/12/emc-retrospects-fake-mozy-online-backup.html> These folks were disappointed with the link.

CARBONITE.com

Heavily promoted now, available for both Win & Mac Platforms

RESOURCES MENTIONED

Digital Asset Management: The DAM Book by Peter Krough www.damuseful.com/
Aperture: www.apple.com/aperture/
Expression Media www.microsoft.com/expression/products/overview.aspx?key=media
Lightroom Workflow: The Photoshop Lightroom Workbook by Seth Resnick www.d-65.com
Lightroom: <http://www.adobe.com/products/photoshoplightroom/>
External Hard Drive Units: www.Cooldrives.com
Hard Drives: www.Newegg.com
Gold Archival Media:
www.delkin.com/products/archivalgold/index.html
Economical Offsite Storage: www.Mozy.com

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DISCLAIMER

The opinions in this white paper are based on the author's experiences, training and challenges in developing his own workflow. Prices and capacities will change over time. No guarantees or warranties are offered or implied. The author accepts no responsibility for data loss or problems resulting with unforeseeable issues caused by the implementation of any of the steps or products listed. Resources listed are what the author uses or is known to be in the marketplace and is not an endorsement.

COURSE OUTLINE

PRESERVING YOUR FILM AND DIGITAL PHOTOS: COPY, ORGANIZE FOR THE FUTURE AND RECOVER FROM DISASTER

CONVERT YOUR PHOTOS

DIGITAL CAMERA FILM, SLIDE and PHOTO SCANS

DAM DIGITAL ASSEST MANAGEMENT using Adobe Lightroom

Part 1 DOWNLOAD and ORGANIZE

The Case for DNG

PART 2 BACKUP AND DISASTER RECOVERY