Miceli Photography Educational Series

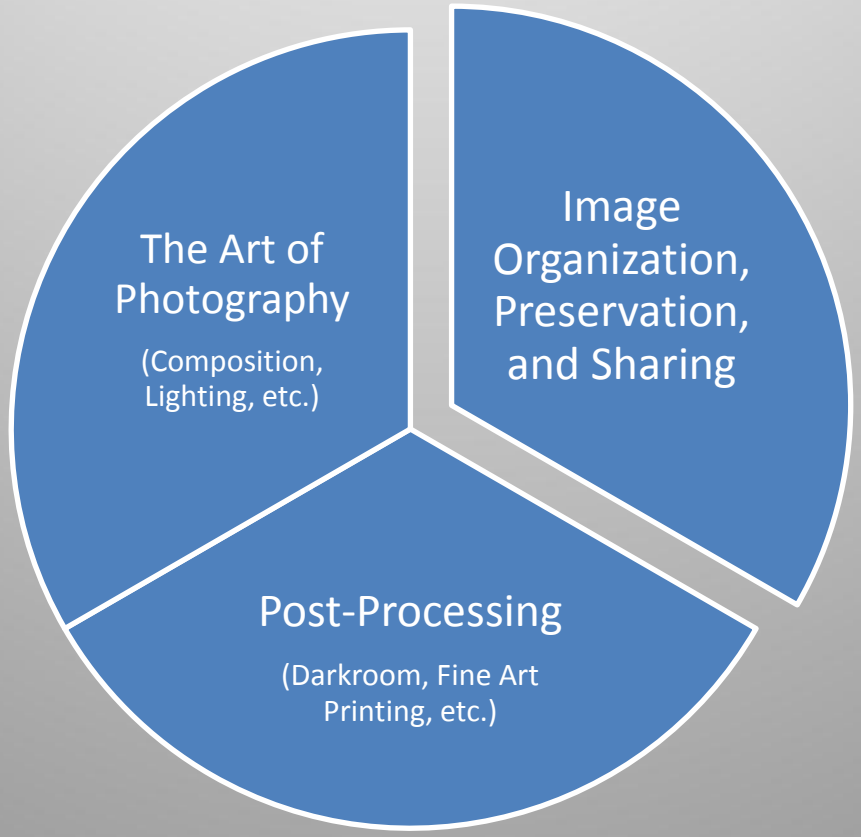
Image Organization, Digital Workflow, and Preservation

.aka Organizing and Preserving your Family Photography Collection

Arthur P. Miceli

January 8th, 2015

High Level Overview



Agenda

Introduction	5 minutes
Part 1 - Image Organization, Metadata, and Digital Workflow	35 minutes
Part 2 – Backup/Restore and Disaster Recovery	20 minutes
Part 3 – Cloud and Social Networking	15 minutes
Q&A	15 minutes

Part 1
Image Organization, Metadata, and Digital Workflow

Approach and Process

- No single “right” approach; but do have an approach and process you follow.
- Avoid the shoebox syndrome (whether film or digital).
- Your specific approach will depend on a number of factors:
  - Personal: e.g. to preserve as a family legacy
  - Professional: e.g. stock or wedding photography
  - The constraint is time available and your degree of commitment relative to life’s other demands.

Scope

- My personal photography collection is comprised of:
  - 35mm prints and associated negatives (600+ rolls; 20,000 pictures)
  - 35mm slides (200+ rolls; 7000 slides)
  - Home movies: Super 8mm sound and 8mm silent movie film (5,000 feet)
  - Home videos: VHS-C (160 tapes; 80+ hours)
  - Digital images and video files (115,000+; 1.4TB)
    - Shot with digital camera: 95K (85,000 + 15,000 derivitives)
    - Scanned images – e.g. old family photographs (5,000)
    - Various additional image groups (10,000)

Main Components

Three main components to my photography collection:

1. All the media themselves (the film, slides, videos, digital files, etc.)

2. Photo reference logs (i.e. diary of all of the above, taken to date). All contained in a single PC folder heirarchy.

3. Future - “Guidebook to the Miceli Photography Collection” (i.e. a “brain dump” of all of this; a work in progress)

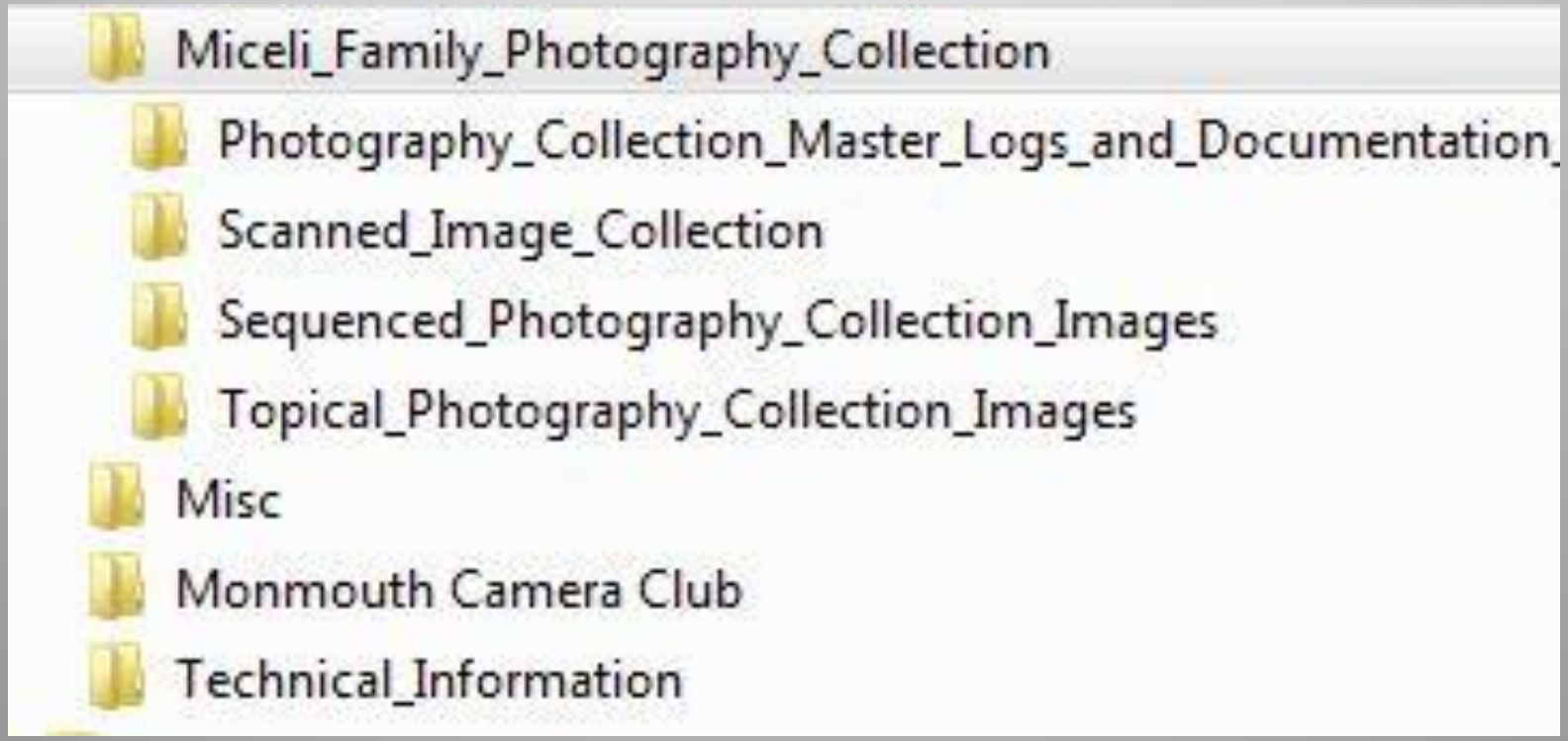
Physical Media Storage

- Prints stored in their original film wallets in archival cartons. Cartons in turn are stored in plastic bins.
- Prints and their negatives are stored separately.
- Slides: some are in Kodak trays, with most being in their original small boxes. Noteworthy and competition quality slides are stored in archival slide pages.

- Long term goal of digitizing entire collection. Would enable easy replication of the entire collection and mitigate risk of total loss.

- Progress to date includes:
  - 100% of my parent's photo collection has been flatbed scanned.
  - My Uncle Arthur's war letters have been camera scanned.
  - All 160 VHS-C tapes have been converted to DVD and in turn ISO images. (Are thus "Live and Local" on my hard drive)
  - All Super 8mm silent and sound movies have been converted to DVD and in turn ISO images. (Are thus "Live and Local" on my hardrive.)

Digital Image Organization



Digital Image Organization
Sequenced Images Folder Heirarchy

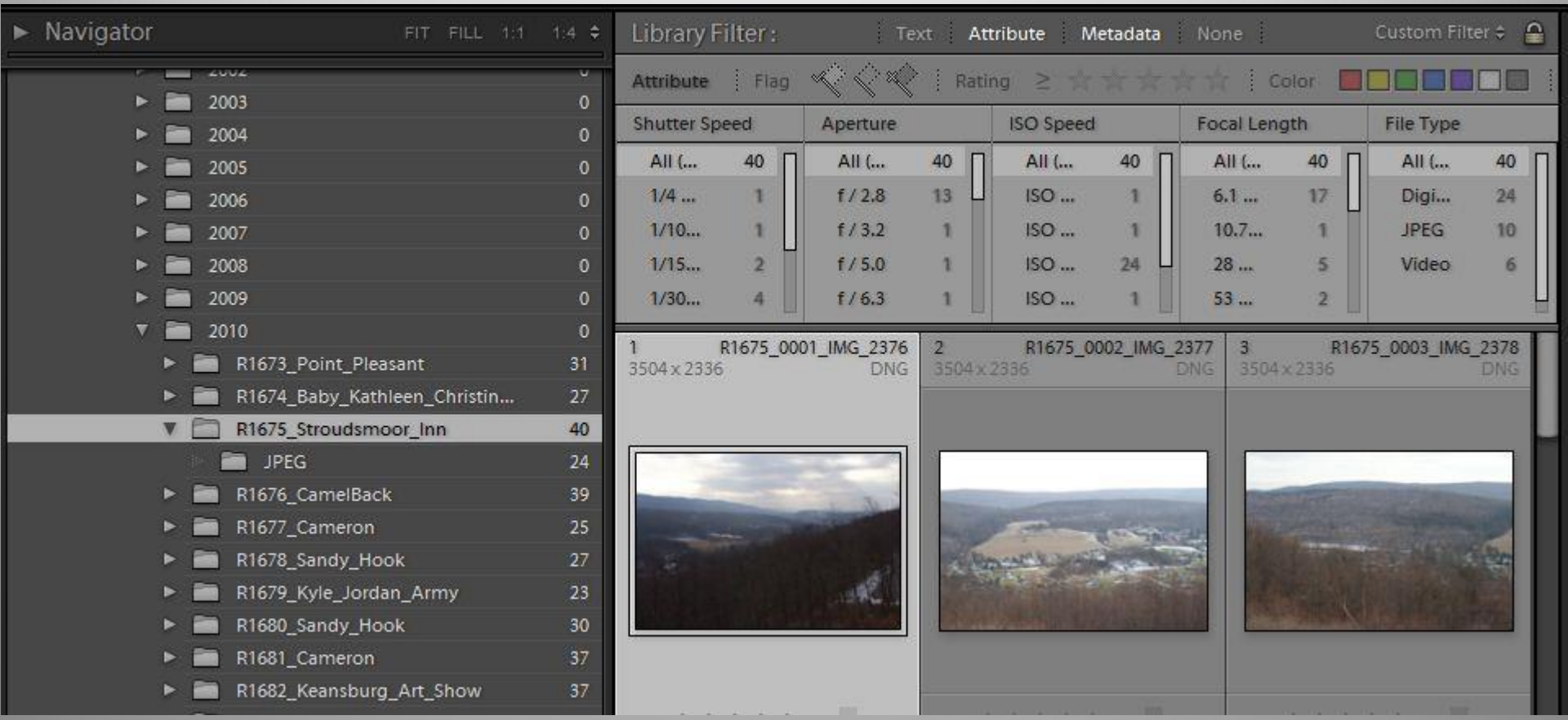


Image MetaData

- What is Metadata? Metadata refers to information about the image. I.e. the “data” is the image itself and the “meta”data is information regarding that image.

- Types of Metadata?
  - Embedded (resides within the image file itself)
    - EXIF: Image parameters automatically populated by your camera at the time of capture. Includes things like date/time taken, shutter speed, f-stop, lens used, focal length, etc. May also include camera make, serial number, and your name.
    - IPTC: variety of fields available for your use. Includes such things as your identify and contact information, copyright and usage rights, description, keywords, etc.
  - External: Image information such as ratings, keywords, virtual collections, etc typically stored by a cataloging application in it’s own database.


Lightroom 3 Catalog-2 - Adobe Photoshop Lightroom - Library
File Edit Library Photo Metadata View Window Help
Miceli Photography
Library | Develop | Slideshow | Print | Web
Library Filter : Text Attribute Metadata None Custom Filter
Attribute Flag Rating Color Kind
Shutter Speed
All (3 Shutter Speeds) 27
1/640 sec 2
1/1600 sec 3
1/2000 sec 22
Aperture
All (6 Apertures) 27
f / 3.5 2
f / 4.0 3
f / 4.5 10
f / 5.0 6
f / 5.6 5
f / 11 1
ISO Speed
All (4 ISO Speeds) 27
ISO 80 4
ISO 125 1
ISO 200 21
Unknown ISO Speed 1
Focal Length
All (10 Focal Lengt... 27
6.1 mm 3
7.41 mm 1
8.11 mm 4
10.775 mm 1
12.074 mm 2
13.761 mm 5
15.673 mm 2
21.461 mm 5
24.978 mm 1
30.5 mm 3
File Type
All (3 File Types) 27
Digital Negative (D... 2
JPEG 24
Video 1
Histogram
Title
Caption R1697: Barbara and I spent the day at Ocean Grove and Asbury Park. A nice enjoyable day together. Includes one video.
EXIF
Dimensions 3648 x 2736
Exposure 1/2000 sec at ƒ / 4.5
Exposure Bias 0 EV
Flash Did not fire
Metering Mode Pattern
ISO Speed Rating ISO 200
Focal Length 6.1 mm
Lens 6.1-30.5 mm
Date Time Original 3/21/2010 11:20:2...
Date Time Digitized 3/21/2010 11:20:20 AM
Date Time 4/19/2010 10:35:07 PM
Make Canon
Model Canon PowerShot G11
Artist Arthur P. Miceli
Contact
Creator Arthur P. Miceli
Job Title President - Miceli Photography
Address 122 Morningside Avenue
City Middletown
State / Province New Jersey
Postal Code 07748
Country U.S.A.
Phone 908-902-4151
E-Mail arthurmiceliphotography@gmail.com; arthurmiceli@gmail.com
Website http://www.miceli-photography.com
IPTC
Headline
IPTC Subject Code
Description Writer
Category
Other Categories
01:33
Sort: Capture Time
Thumbnails
Sync Metadata
Sync Settings

“Ingest and Organize” Workflow Steps

1. Ingest images from the memory card into a folder named yyyyymmdd.
   (Recommend the process automatically perform DNG conversion and apply your standard IPTC metadata. If possible, employ a secondary backup.)

2. (Optional) Assign ratings and color labels here.

3. Do deletions here.

4. Then enter into the Description field the Roll number and descriptive information pertaining to all the images.

5. (Optional) Then iteratively select images as appropriate and add additional description metadata.

6. (Optional) Do keywording here.

7. Batch Rename:
   a) First, confirm sort order of images is date/time captured.
   b) Select all *image and video* files (only). (Don’t rename Thumbs, ZbThumbnail, Bridge cache files, etc.
   c) Perform Batch Rename using a predefined template; specifying your next sequence #.

8. If Lightroom: Write the metadata changes (from it’s catalog) to the actual files on disk.
   Menu: “Metadata→Save Metadata to Files” (Shortcut CTRL-S)

9. Create JPG copies from the raw files, if any.
   – Lightroom: Perform an “Export” to JPG.
     (All metadata and filenames are inherited from their DNG parent.)
   – Adobe Bridge: Use the Photoshop “Image Processor” automation .

10. Rename the parent directory containing the images to the Roll#. For example: “R1234_label”.

Ingestion using Lightroom "Import"

Step #1

The Challenge of Ubiquitous Photography

- Many more image capture devices
- Increasing frequency of image capture (e.g. now on a daily basis.)
- Primary drivers are high quality phone/tablet camera features and social networking.

Starting from Scratch?

Analog(Film):

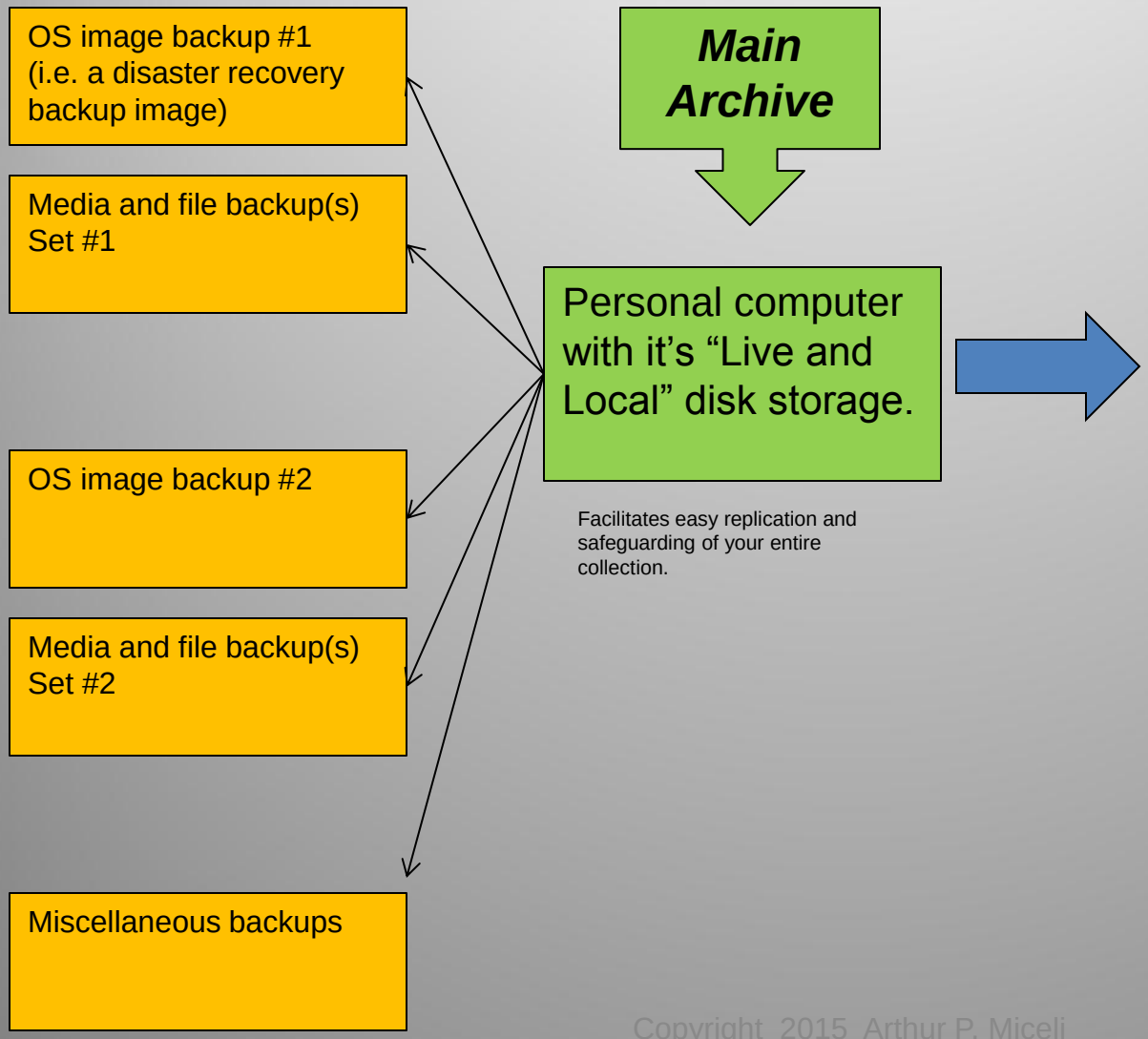
1. Gather all media
2. Put in date order.
3. Number sequentially
4. Create diary entry for each roll.

Digital:

1. Leverage a software program such as Lightroom to import your images(from existing CDROMs, DVDROMs, and/or folders)
2. Have it automatically output and consolidate to YYYYMMDD folders.
3. Create virtual collections (Birthdays, vacations, etc.)
4. Perform batch renaming, update metadata, keywording, etc.

Part 2
Backup/Restore and Disaster Recovery

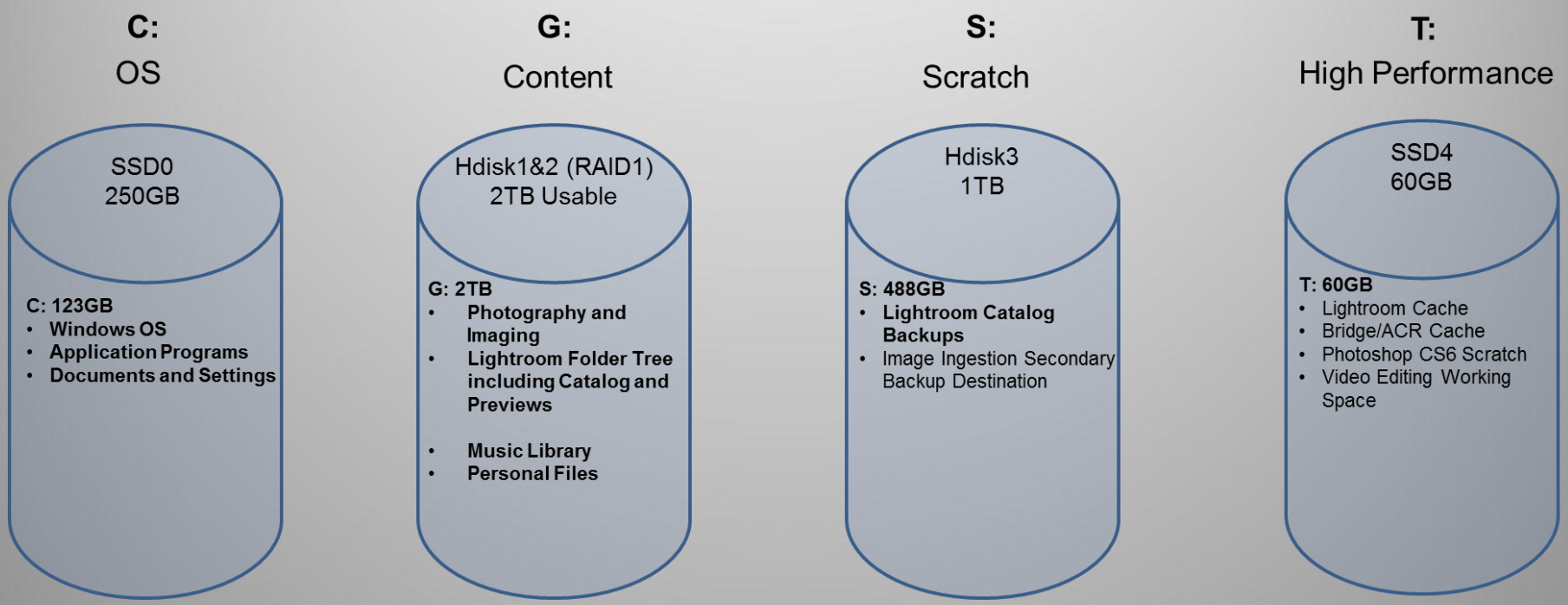
Digital Archive
High Level Conceptual View



Viewing and Output Options

- Browse and view on your desktop PC or laptop
- Make prints and enlargements
- Share via email
- Social networking sites
- Online photo galleries
- Personal website
- Google Earth
- Personal media players
- Smartphones
- Tablets
- View on your television
- Digital photo frames
- Create elaborate slideshows.
- Future, yet to be imagined uses.

Digital Archive
PC Hardware Resiliency



Digital Archive
Disk Backup Strategy and DR

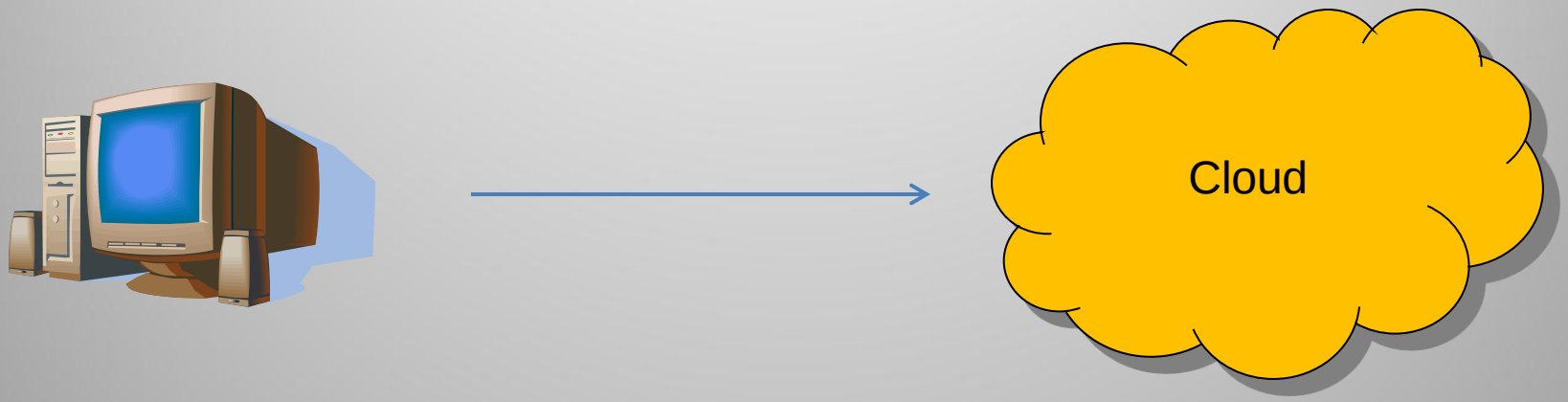
Backup Steps:

A. Execute Lightroom Catalog backup.
B. Execute Novabackup Jobs
    1. Backup Miceli Photography Personal
    2. Backup Miceli Photography Business
    3. Backup Lightroom environment
    4. Backup Family Videos (i.e. the 300GB of ISO files)
    5. Backup Music
    6. Backup Personal Files
    7. Perform DR Backup of OS “C” drive and create companion boot DVD.

- Specify Verification of backup.
- Specify Detailed backup logging. (Retain logs forever.)
- Maintain a written record of your backups. (Excel spreadsheet)
- Utilize multiple sets of external backup drives in conjunction with offsite storage.

- Risk of data required for a restore “rolling off” of the backups.
  Consider a periodic “archival” backup. (Yearly perhaps)

Use Case #1: Cloud Backup
PC Backup to Cloud

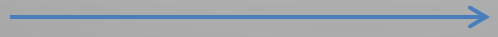


Considerations

- Use Encryption
- Should not be your primary or sole backup strategy
- No guarantee cloud provider will be in business over the longterm.
- May not scale due to bandwidth limitations
  (e.g. 1TB @ 25 mbs(megabits per second) == 320,000 seconds == 89 hours

Use Case #2: Cloud Backup
Cellphone Temporary Backup to Cloud

Verizon Cloud



Apple iCloud

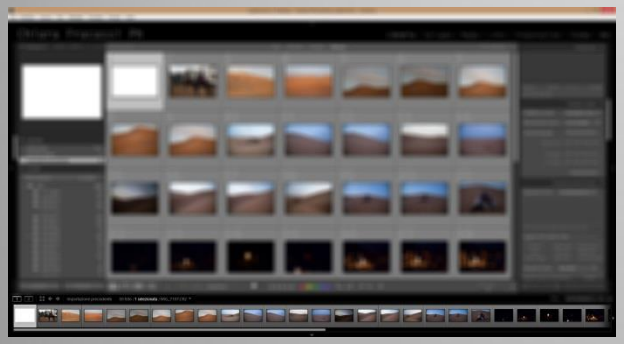
Collection Integrity, Quality Assurance, and Periodic Auditing

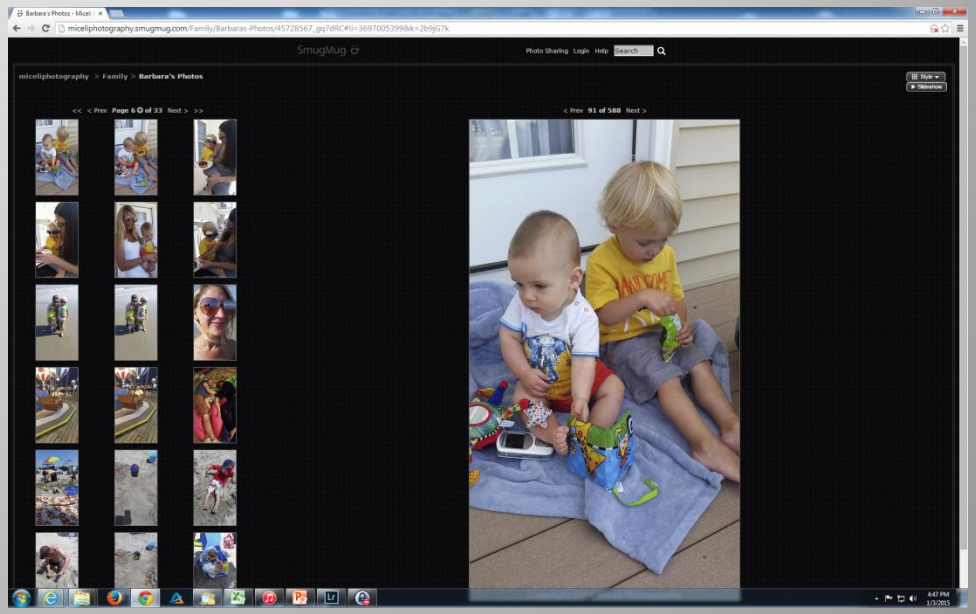
Best Practices

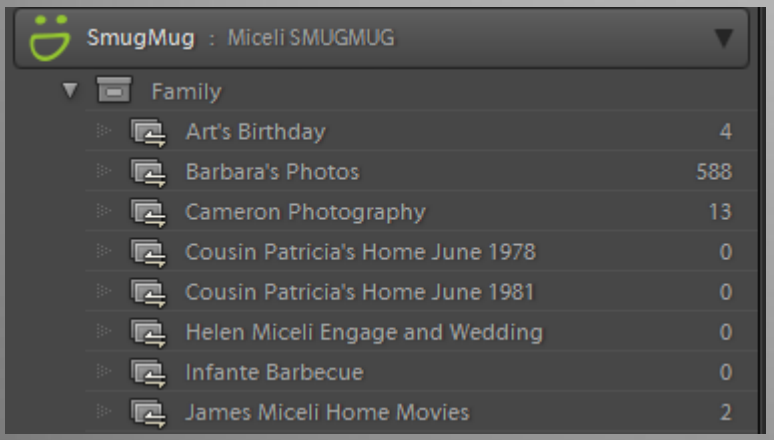
- Develop a written audit process and checklist
- Audit every 5 years or sooner. Objective is to renew your confidence that the integrity of your photo collection has been maintained.
- Specify detailed Backup logs and retain the log files indefinitely.
- Optical backups have become increasingly impractical.
  When upgrading to a larger disk drive; consider saving (don't reuse) the old drive(s) indefinitely.
- At Year's End: I use EXIFTOOLS to export that year's image metadata to my "diary" folder. These are retained indefinitely.

Part 3
Cloud and Social Networking

Use Case #1:
Sharing via SMUGMUG



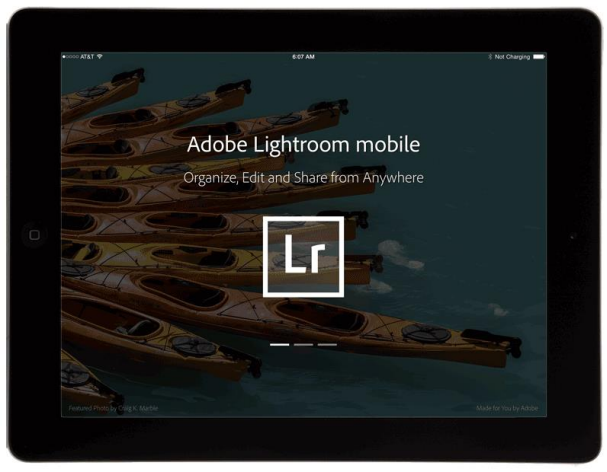




Considerations

- Control
- Copyright
- Strip Metadata

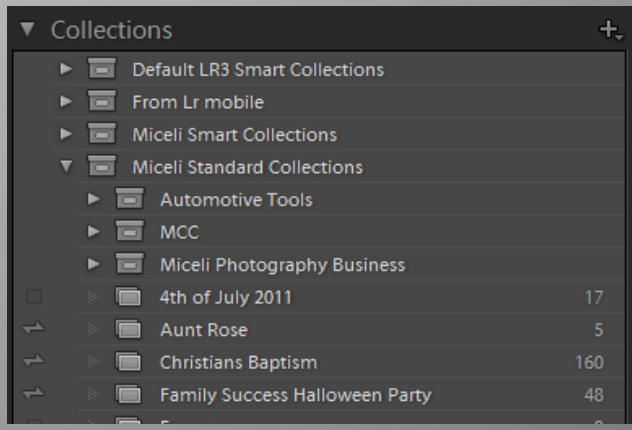
Use Case #2:
Lightroom Mobile Integration via the Adobe Cloud



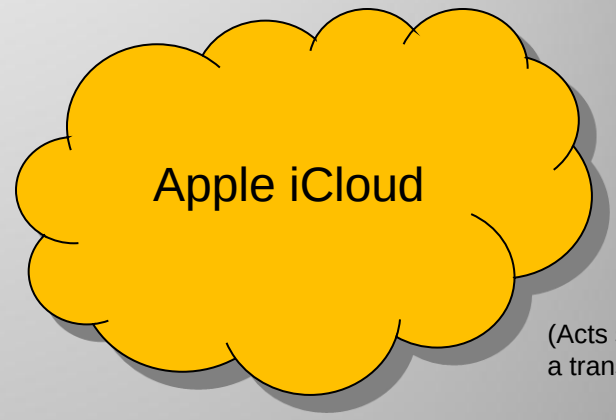
(Acts solely as a transit point.)

Main Archive

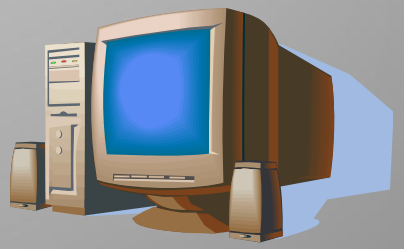
Lightroom on my personal computer

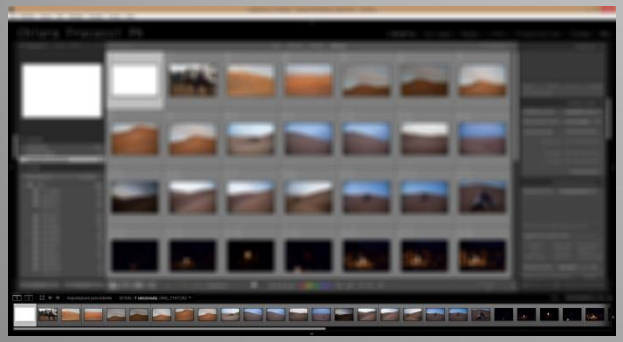


Use Case #3:
End to End Integration
via Apple iCloud



(Acts solely as
a transit point.)





Resources

Digital Photography Best Practices and Workflow Handbook by Patricia Russotti and Richard Anderson (Focal Press) **http://dpbestflow.org**
The DAM Book – Digital Asset Management for Photographers by Peter Krogh (O'Reilly) **http://www.thedambook.com**
The Adobe Photoshop Lightroom 5 Book by Martin Evening (Adobe Press)
Adobe DNG information and standalone DNG Converter: http://www.adobe.com/products/dng
The Lightroom FAQ Book
NovaBackup Software: http://www.novastor.com
ExifTools: http://www.sno.phy.queensu.ca/~phil/exiftool/ A command line driven program which allows advanced management of image metadata fields.
8mm, Super 8mm (silent and sound), VHS to DVD Conversion by David Seltzer Productions: http://www.bestfilmtransfer.com Telephone: 866-DVD-2523
University Products: http://www.universityproducts.com Light Impressions: http://www.lightimpressionsdirect.com
Arthur Miceli: www.miceli-photography.com; arthurmiceliphotography@gmail.com; Cell: 908-902-4151

Thank you!

Appendix

Roll #1 Kodak Plus X B+W Prints.
125 ASA - 20 exposures F+BW FD50-1.8
Lens hood not used.

Frame#					
1	1/125	f16	∞ (70 ft) L→R	White Ford Maverick	40 MPH	Camera Steel.
2	1/125	f16	∞ (70 ft) L→R	Green Amc Matador	50 MPH	Camera panning.
3	1/250	f11	∞ (70 ft) L→R	1970 Tempest Pont.	50 MPH	Camera Still.
4	1/250	f11	∞ (70 ft) L→R	1966 White Buick	50 MPH	Camera Pans.
5	1/500	f8	∞ (70 ft) L→R	Blue + White Tilt Tandem Tractor	50 MPH	Camera Still.
6	1/500	f8	∞ (70 ft) L→R	Tilt Single Axle Tracto	50 MPH	Camera Pans.
7	1/1000	f5.6	∞ (70 ft) L→R	67 Mercury Pont Tempest	50 MPH	Camera Still.
8	1/1000	f5.6	∞ (70 ft) L→R	Tandem Tilt Tractor	50 MPH	Camera Pan.

Note: Frames 1 through 8 (8 ea) taken 1-23-75 12 Noon
Bright Sunny Day. Light Meter Scale # 140 Converted
from Camera CDS Cell. Sun was located off to the
front right of the Camera (1-8 incl). No lens hood
used.

Scene not printed by processor. Butt Camera out of.

(9)	1/250	f11-5.6	∞ (1/8 mile)	Bird - Flying Mdiately Fnt. Camera still. Sun high in sky behind me.
10	1/60	f2.8	7 ft	Faces Face. Light (Sun) coming towards Camera from window. 1/3 of face visible slightly darker than 1/3. CDS set at full Center coverage of face.
11	1/60	f2.8 1/2 f4	6 ft	Maryann. Light is behind me from window
12	1/60	f8	.75 meters	Maryann - Facial Close up - Light behind me.
13	1/1000	f1.8	.80 meters	" " " " " "

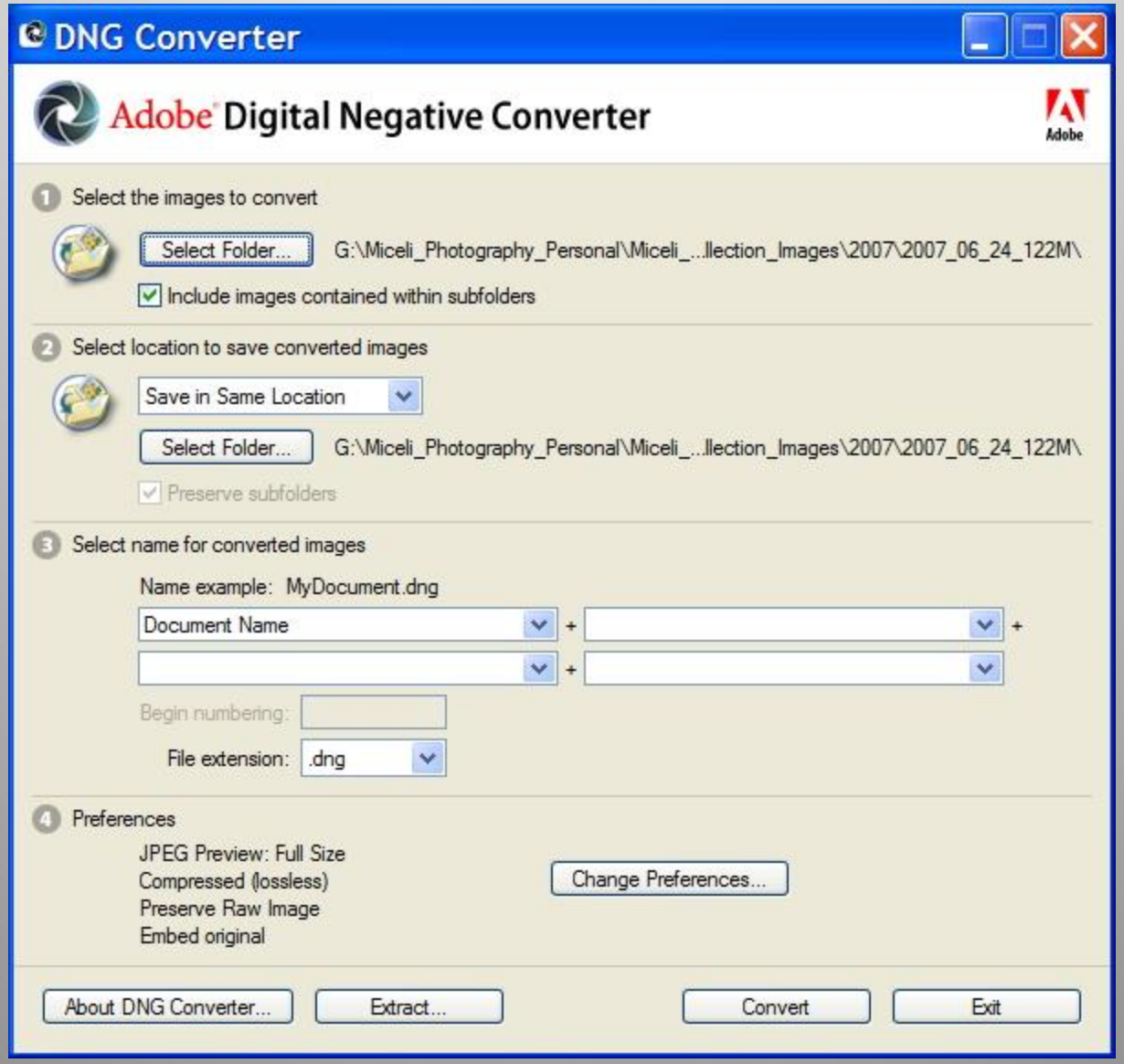
Frames 14-20 incl 1-24-75 12 noon Bright & Sunny
Lens Hood Used. Vehicle speeds 35-45 m.p.h.

14	1/60	f16

Sunlight got slightly dimmer during shots 15-20 incl, had to stop down f11.

15	1/125	f8
16	1/250 ~~1/500~~	f4 5.6
17	1/500	f4
18	1/500	f4
19	1/1000	f2.8
20	1/1000	f2.8

DNG Conversion of Existing RAW Files



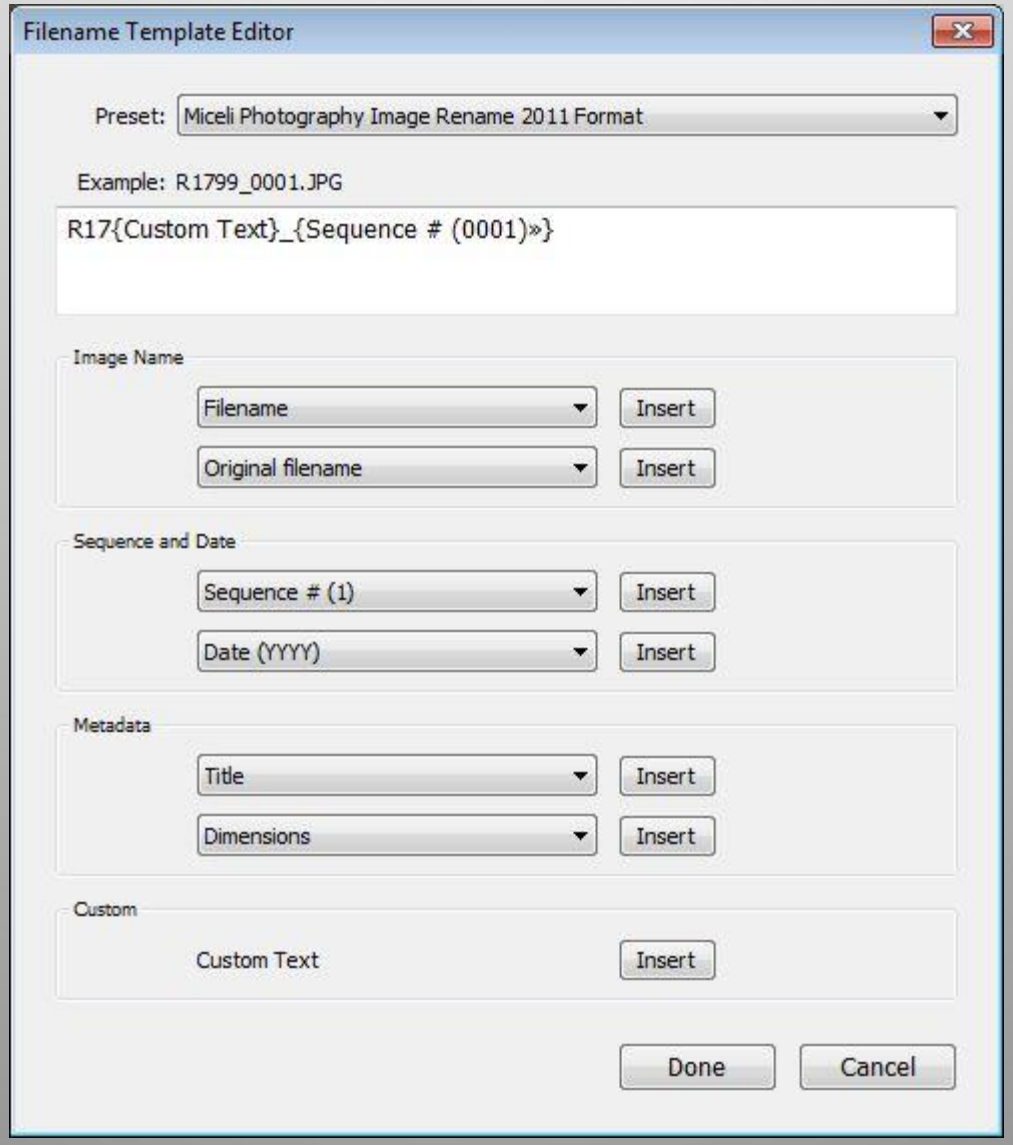
GPS

- Enables the recording the exact location and date/time at which you took your image(s). Also records additional information such as altitude, etc.
- Quality brands include Garmin, Magellan, and Tom Tom.
- I own the Garmin 76CS handheld model along with the companion MapSelect software for the United States.
- Other capabilities useful to a nature photographer include calculation of sunrise/sunset times and tide tables.
- Do sync your cameras' clock with that of the GPS beforehand.
- Native GPS support is now available in a number of camera models.
- For selected photo shoots (for example, all day hikes, vacations to Arizona and Cape Cod) I export and store the GPS information with my images.
- Can be manually or automatically correlated later into the image metadata by programs such as RoboGeo and even Lightroom itself.
- The GPS information can also be used in conjunction with Garmin's MapSelect maps, Google Earth, and/or social networking sites.

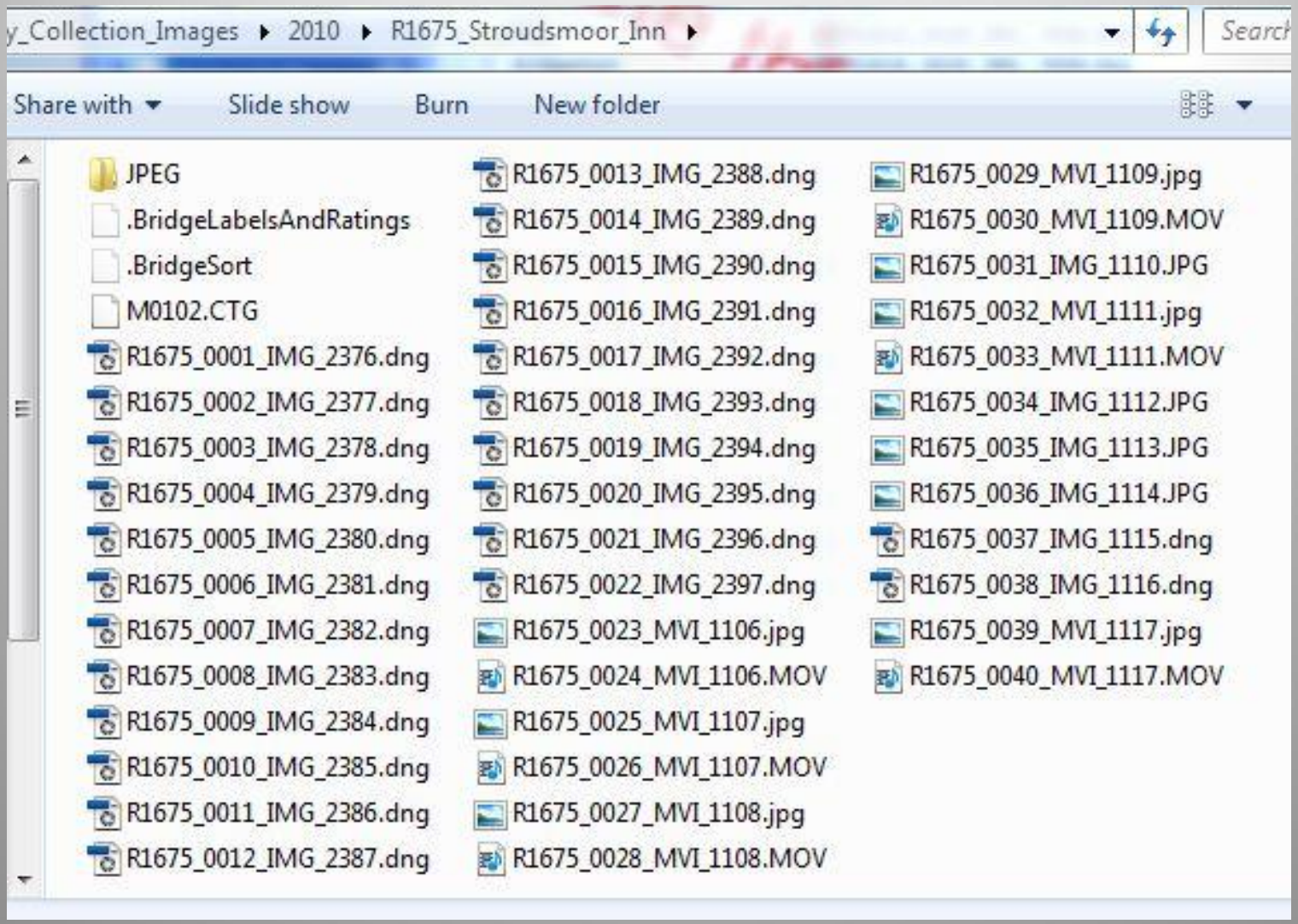
RAW Capture

- Key consideration: The cost of flash memory cards and more importantly hard drive storage is not a significant concern due to cost per GB dropping faster than storage growth.
- **With RAW, you can have your cake and eat it. I.e. you can shoot RAW only and still easily obtain JPG, TIF, and/or PSD files if you so choose.**
- RAW contains all of the image data captured by the camera's sensor.
- Enables you greater flexibility in post-processing.
- Enables the color balance(daylight, tungsten, custom, etc.), colorspace(sRGB, Adobe RGB, etc), file format, and bit depth to be selected after the time of capture.
- RAW provides several stops greater exposure latitude potential.
- **As a practical matter, I shoot JPG for action and casual photography; RAW for serious and professional photography.**
- I rarely shoot RAW+JPG in camera. It is an unnecessary waste of memory card capacity, lengthens camera burst processing times, and image transfer time to your PC.
- **In my workflow, I convert all my RAW files to the Adobe DNG file format.**
  - Helps protect against raw file format obsolecsense.
  - DNG eliminates need for XMP sidecar files.
  - Downside: not recognized by Canon's DPP program.
- For precise color balance, I recommend use of a white balance reference card such as the WhiBal card (www.rawworkflow.com), Photovision Digital Reference Card, and/or Gretag MacBeth ColorChecker.(or Passport).

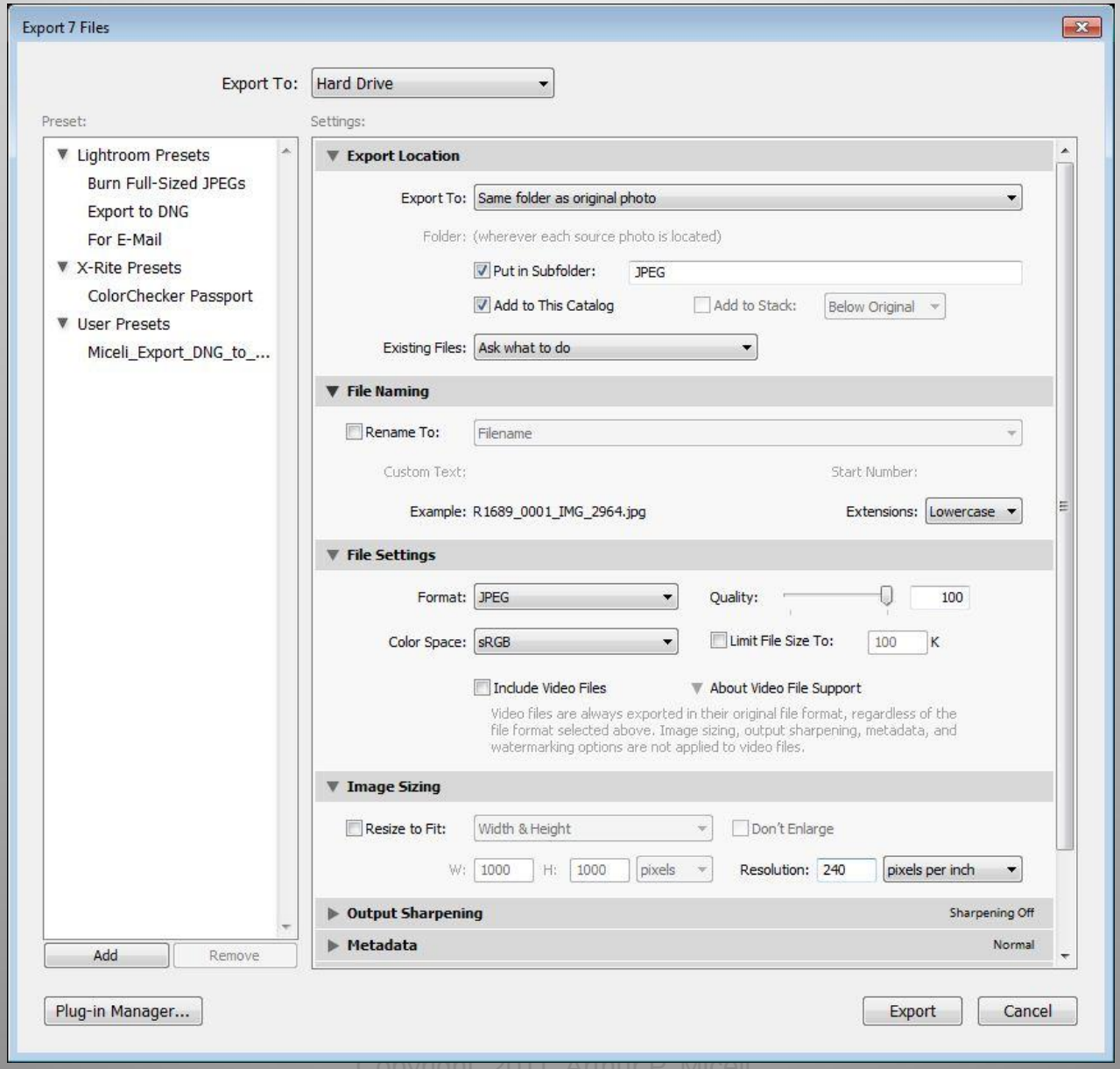
Batch Rename using Lightroom



Typical Results of Batch Rename



Lightroom Export (to JPG)



Lightroom XML Data Flow

XML instructions

Lightroom Catalog

Your images' metadata and preview (only!) are automatically updated here in realtime

"Write Metadata to Files"

Your RAW image files

(Only metadata is ever changed.)

"Export"

JPG or TIFF image files

(Pixels are changed.)