

Storing & Organizing Your Digital Photos

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Digital Image Sources

- Digital camera
- Scanned print or document
- Scanned slide or negative
- By email, downloaded from the web

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File Compression

A 10 MP DSLR image contains 45 MB of data!

- Image needs compression to reduce the file size
- Two types of compression:
 - **Lossy** – many pixels tossed away every time the file is saved.
 - **Lossless** – all pixels retained when saved.

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Saved File Formats

– JPEG (from camera or image editor)

- **Lossy compression**
- Repeated saving during editing deteriorates the image.
- Camera independent – standards exist
- **Smallest file size**
 - ~3.3 MBytes for a 10 MPixel camera

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Saved File Formats

– RAW (from DSLR camera)

- **Lossless compression**
- **Use this if your camera offers it!**
- Camera dependent – no standards
- **Larger file size than JPEG**
 - ~8.6 MBytes for a 10 MPixel camera

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Saved File Formats

– DNG (“Digital Negative”)

- **Lossless compression**
- Open standard for RAW files from Adobe
- **Preferred by the US Library of Congress for archival images**
- Native to 4 (small) camera brands
- Camera independent
- File size similar to RAW

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Saved File Formats

– TIFF (from scanner or image editor)

- **Lossy or lossless or no compression**
- “Universal format” for applications
- Used for magazine printing
- Camera independent
- **File size larger than RAW, much larger if not compressed.**

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Saved File Formats

– PSD (from Photoshop Editor)

- **Lossless compression**
- **Saves layers & channels for re-editing**
- Adobe proprietary
- **File size similar to compressed TIFF**

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Storing Digital Images

- Do not repeatedly save a file as **JPEG**
 - Image quality becomes worse after each save
- Best - save with a lossless file format
 - **TIFF**
 - **PSD**
 - **DNG**
- Result:
 - Image quality maintained 😊
 - larger storage system required ☹️

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Storage Considerations

- Flexibility and reliability
- Device-independent e.g. Mac vs. PC
- Future-resistant e.g. remember floppy disks?
- Redundancy – maintain images in **at least 2 places**, e.g.-
 - Camera card and Hard Drive (temporarily)
 - 2 Hard Drives
 - Hard Drive & DVD
 - Keep extra copies of very important images, preferably in a safe or off-site

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Storage Media Options

- Hard Drives
 - Available up to 2,000 GB (2 TB)
 - Can be damaged by virus, so update your anti-virus program *at least weekly*
 - Internal: Convenient, fast, not very portable, requires installation
 - External: Convenient, fast, portable, no installation required

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Storage Media Options

- Removable Optical Media (CD / DVD)
 - Damage from light or air pollution
 - Damage from magic markers or sticky labels
 - Label with Printer, special Sharpie, LightScribe
 - Convenient, slower, but very portable
 - May require large quantity of this media type
 - Use only CD-R or DVD+R
 - Avoid using CD-RW, DVD-RW (unreliable) or DVD-R (poor error tolerance)

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Storage Media Costs

Media Type	GB	\$/TB	Years
Internal HDD	2,000	40!	3-10
External HDD	2,000	60	3-10
Archival* DVD	4.7	95	50-100
Blu-Ray Disc	25	105	>100
Archival* CD	0.7	360	50-100
Flash Drive	16	1,250	<10

* Taiyo Yuden from SuperMediaStore.com

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Organizing Your Stored Digital Photos

-Image Management

-or-

Where the heck is that photo?

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Things I Know

"I keep six honest serving-men
(They taught me all I knew);
Their names are **What** and **Why** and **When**
And **How** and **Where** and **Who**."

-Rudyard Kipling

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Things I Know

Of the 6 **Ws**, only 1 is unique:

WHEN

What, Why, How, Where & Who
can all happen again

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So, Store By **When** It Was Taken

- Use date as folder name: **yyyy.mm.dd**
 - e.g. \\Photos\2009.05.12\IMG_4681.CR2
 - Directories sort into order photos were taken
 - Can have sub-directories by subject if needed

→ Start using this method now, sort older images as time permits.

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How Do I Find That Photo?

- Use Image Management Software
 - Stores info about each photo in a database and/or as part of the image file
 - When, What, Why, How, Where, Who
 - User defined categories & tags
 - Search for all images with specified categories or tags

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Exif Data

- “Exchangeable Image File format”
- Part of every camera image file (image metadata)
- Date & Time taken (assuming you set your camera clock)
- Camera settings, e.g. exposure, orientation, camera & lens info., etc.
- **Space to add user info**, e.g. photographer, title, subject, tags
- **Thumbnail picture** (as shown on the camera display after taking the photo)

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Image Management Software

- Required Features
 - Works with **your** camera image files
 - Preserves Exif data from the camera
 - Displays thumbnails of photos
 - Can add image descriptions, tags, keywords, categories, stars, etc.
 - Can do batch tagging, e.g. all same subject
 - Can group photos in virtual albums
 - Can search on any combination of tags, Exif data, descriptions, etc.

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Image Management Software

- Desirable Features
 - Works with your **future** camera formats, like RAW & DNG
 - No limitation to size & # of images managed
 - Stores tags in the Exif data if possible
 - Export data to another program
 - Move image files around w/o losing tags
 - Easy photo & database backups
 - Limit where program searches for photos
 - Good online help & tutorials

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Image Management Software

- Optional Features
 - Basic editing – crop, color, contrast
 - Export photo to email or web
 - Share via. web albums
 - Geotag via. GPS or map
 - Face recognition!
 - Whatever else is important to you

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Image Management Software

- Research to determine applicability for you
- Test-drive products (use free trials)
- Many top-rated products to choose from:
 - Free: Picasa (Windows/Mac/Linux), DigibookShelf, Studio Line PhotoBasic, Album Burger, MAGIX Photo Manager, Flicker (Web), IdImager, Faststone Image Viewer, Windows Live Photo Gallery, JetPhoto Studio, PicaJet (Windows), Zoner Photo Studio, ...
 - Cost: ACDSsee Photo Manager (Windows), Adobe Lightroom, Adobe Bridge, Photoshop Elements Organizer, Filemaker Pro, Extensis Portfolio, InView/Stockview, FotoBiz, Imatch, iPhoto (Mac), Aperture (Mac), Thumbsplus, Compucic, FotoAlbum Pro, MS Expression Media, Shoebox (Mac), Ulead Photo Explorer, Corel Photo Album, CompuPic, PicaJet, Smart Pix Manager, FotoFinish, ...

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Image Management Software

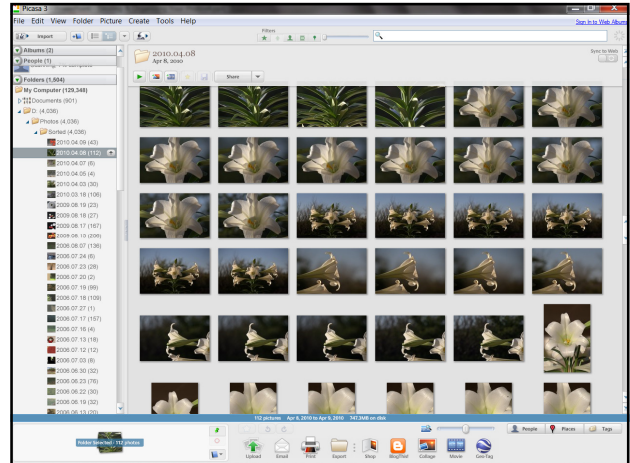
- Some top contenders:
 - Adobe Lightroom (\$300, excellent)
 - Adobe Bridge (comes with Photoshop)
 - ACDSsee Photo Manager (\$50) acdsee.com
 - Photoshop Elements Organizer adobe.com
 - Picasa (free) picasa.google.com
 - Zoner Photo Studio (free) zoner.com

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Example--Picasa 3

- From: picasa.google.com
 - Windows/Mac/Linux versions
 - Easy export or upload to web
 - Collaborative shared web albums
 - “Name Tags” using face recognition
 - Geotag using Google maps
 - Simple, non-destructive editor
 - RAW support using camera mfg. plugin
- Install carefully to avoid bloatware

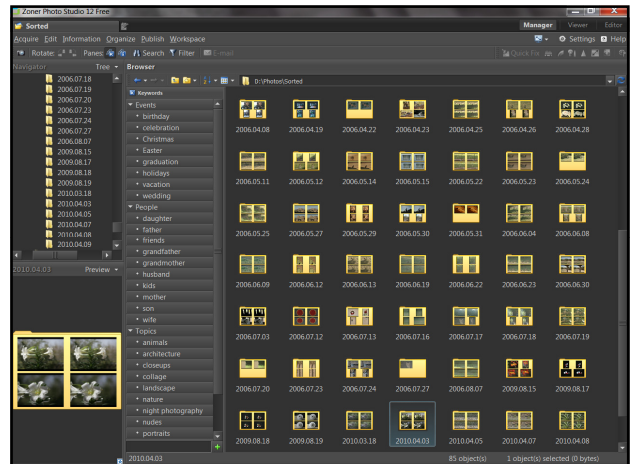
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Example-- Zoner Photo Studio 12

- From: zoner.com
 - Displays RAW thumbnails without a plugin
 - Very fast file browsing
 - Intuitive interface
 - Pre-defined list of tags
 - Easy export or upload to web
 - Geotag using Google maps
 - Simple editor
- Upgrade to “Home / Pro” for \$50 / \$100

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Summary

- Avoid repetitive saving as JPEG
- Always keep images in >1 place
- No one product is perfect for everything
- When you choose unsuitable software -
 - Migration to other software is often difficult or impossible.
 - Too much time and work invested to walk away?
- So, use the best product for each task

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