

# Storing and Editing Digital Photos

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## Analog vs Digital

- Clocks are a good way to understand the differences between analog and digital information.



analog



digital

- Data in modern devices is stored in digital form, as a collection of 1's & 0's.
- Analog data degrades over “generations” of copies.



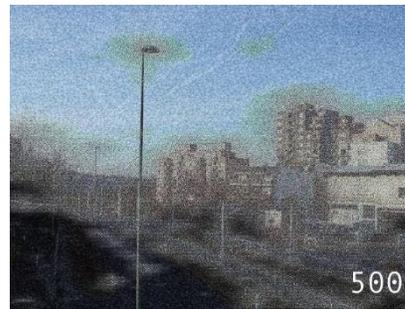
vs



- Digital data is less susceptible to degradation due to copies.
- An exception to this is when the data is stored in a “lossy” compressed format.



vs



## Lossy compression

- Some common, lossy compression formats:
  - mpeg, mpeg2, mp3, mp4 – Audio and video
  - jpg and gif – Images
- Most modern, digital cameras use jpg by default.

- Rule of thumb: When editing jpeg photos, avoid multiple editing sessions on the same photo file.
  - Instead, go back to the original photo, if you can.

### **Taking digital photos**

- This is not the topic of today's session.
- I suggest you visit the website Glade Presnal shared with us (<http://www.jasonrichclasses.com>) and view these two presentations:
  - "Take & Share Awesome Photos Using Your iPhone or iPad"
  - "Showcase and Share Your Vacation Photos"

### **Converting analog photos to digital**

- A flatbed scanner is the best way to digitize your photos.
  - Many "consumer-grade" scanners available today will be good enough for most needs. Most of these will scan at pixel densities of 300 – 2400 dpi (dots-per-inch)
  - For higher-resolution needs there also are *photo scanners*, which have a much higher dpi capability. For example, the [Epson Perfection V550 Photo Scanner](#) (\$170 on Amazon.com) is a highly-rated product that can scan at 6400 dpi
- Rules of thumb for scanning:
  - The higher the dpi, the more space the storage the photo will take. (But storage is cheap and getting cheaper by the day.)
  - It is better to scan at a higher dpi and then scale the photo down to a smaller size for printing than to scan at a lower dpi and then scale the photo up.
  - When uploading photos for printing, your printing company may have suggestions on resolutions for particular print sizes.

## **Printing your photos**

- Rule of thumb: Upload your photos and have them printed on photo paper (for example, with Wal-Mart) rather than printing them on your home printer.
  - If you use plain paper on your home printer, the quality of the paper and image will be lower than a commercial print.
  - Whether you use plain paper or photo paper at home, the cost of paper + ink will be (significantly) higher than for a commercial print.
- Check with your photo printing company to learn the suggested resolutions for particular sizes of prints.
- For example, Wal-Mart suggests these minimum image resolutions:
  - 4 x 6: 540 x 360 pixels
  - 5 x 7: 546 x 390 pixels
  - 8 x 10: 960 x 780 pixels

## **Multi-Scan**

- *Multi-scan* is the term used to describe scanning multiple photos at one time.
  - Many of today's scanners come with this capability built into the included software.
  - Multiple photos (perhaps of differing sizes) can be scanned in one take.
  - One photo file will be created for each photo, cropped to its edges.
  - There are a number of commercial products can split photos out of a scanned image, if your scanner software cannot do so.
  - *Gimp* (free) also has a plug-in available for splitting photos from a scan.

## **Digitizing slides**

- Most photo scanners digitize not just photos, but also negatives and slides.
  - Digital photos can be created from negatives.
  - There are trays included with or available for photo scanners that align slides and allow you to scan several at a time.

- For folks with hundreds or thousands of slides, there are scanners with manual or automatic slide feeders built in.
  - Many of these are dedicated devices, only usable for slides.
  - Google “35mm slide scanner”.
- Rule of thumb: After scanning the slides, examine them to see if you need to rescan after cleaning the slide.

### **Storage needs for digital photos**

- Most cameras today store their images on removable, SD or micro-SD memory cards.
  - Older devices or some smartphones may not have removable memory.
  - Whether the device has removable memory or not, you almost certainly can connect the camera to your computer via USB or wireless.
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- Current capacities for Micro-SD card include:
  - 8GB (about \$6),
  - 16GB (about \$12)
  - 32 GB (about \$20)
  - 64 GB (about \$30)
  - 128GB (about \$70)
  - 256GB (about \$90)
- Your camera may not work with the larger sizes; check your user’s manual for limitations.
- A typical 10-megapixel (about 10,000,000 dots) photo stored in jpg format ranges from 10MB to 18MB in size.

- So, about how many 10-megapixel photos will fit on a micro-SD card (worst case)?
  - 8GB – 455
  - 16GB – 910
  - 32 GB – 1,820
  - 64 GB – 3,640
  - 128GB – 7,280
  - 256GB – 14,560

### **Safely storing your photos**

- If you *DropBox*, you can install its app on your Apple, Android, or Windows phone or tablet, and then enable the *Camera Upload* feature.
  - This feature automatically uploads photos from your device to your DropBox account immediately after the photos are taken.
  - The photos are stored (by default) in a DropBox folder named *Camera Uploads*.
- Use caution with the Camera Uploads feature!
- If your device is connected to DropBox via your carrier’s cellular network, you may exceed your monthly data plan.
  - Thus, you may want to synch your photos manually, once you have access to a wireless network.
- If you upload your photos to your computer, there are many options for safely storing them.
  - Keep them on your hard drive or SSD. (Not safe!)
  - Burn to CDR/DVDR/BDR.
  - Store on a flash (thumb) drive – 64GB for about \$30.
  - Store on an external drive – 2TB Western Digital drive for about \$90 – about 116,500 10-megapixel images.
- Whichever you choose, you should keep an “off-premises” copy.

- Arguably, the safest storage solution for your digital photos is “the Cloud”.
  - A backup service, such as Carbonite or Mozy – monthly fees.
  - Free backup services, such as iCloud, Google Drive, Microsoft OneDrive, Flickr, Picasa, etc. – data mining may occur, plus they may share your information with 3<sup>rd</sup> party advertisers. Read the fine print if concerned.

### **Editing your photos**

- One of the advantages of digital photography is that the files can be edited easily. Some of the more common edits include:
  - Cropping
  - Red-eye removal
  - Repair of rips or creases
  - B&W, color, and sepia toning
  - Rotation or reversal
  - Insertion or removal of people
  - Scaling
  - Captioning
- There are many good software tools for editing photos. These include:
  - Adobe Photoshop, and other Adobe products.
  - The Gimp (freeware).
- There are lots of tutorials for these on the Web, especially on YouTube.
- Rule of thumb: Always keep the original file in addition to any edited versions of the file.
  - That way, if you later need to make further or completely different modifications to the photo, you can start with the original.
  - Remember: multiple edit sessions on the same photo file can result in image degradation!
  - Storage is cheap.

## Captioning your photos

- Many times, our photos have descriptions written on the back. How do we keep (or add) such descriptions to our digital photos?
  - Name the file with the description – Not such a good idea; for example, “*The two older boys come in from feeding the chickens on the family farm in Arkansas on a rainy, April 1978 day.jpg*” probably is not desirable.
- Another way to capture this information is to use Photoshop or Gimp to permanently affix it to the face of the photo.
  - Even though the “canvas size” of the photo could be expanded to make room for the text, this probably is not always the best choice, since it permanently affects the visual data of the photo.
- Another solution is to scan the back of the photo or type the description of the file.
  - The two files need to be named such that they easily can be associated.
- Services such as Flickr and Picasa, and many phone or tablet camera apps permit you to store captions along with the files.
  - These may be stored alongside, but in separate files from the photos.
  - Capturing the descriptions at a later date (for moving to a different device type) could be tricky.
  - An example would be [SnapSifter](#), a free app for the iPhone.
- The *IPTC (International Press Telecom Council)* has set standards for storing *metadata* with pictures.
  - *Metadata* means “data about data”, and photo descriptions would be a type of metadata.
- If you store descriptions with your using a program that follows the IPTC standards, the descriptions will be stored in the same file as the photo, itself.
  - But, to see or edit the description, you will have to use a program that can open these files.

- Some IPTC-compliant programs are:
  - Google Picasa (free)
  - Apple iPhoto (free with a new Mac)
  - Adobe Photoshop Lightroom
  - Apple Aperture

### **Sharing your photos**

- Again, not really the topic du jour.
- Flickr, Picasa, Snapchat, etc. can be used to upload and share files.
- Rule of thumb: Generally – and specifically with large-megapixel photos – sharing is better than emailing!

### **Creating photo collages**

- This can be an interesting way to share several, related photos at once.
- Many products can do this, including Microsoft Publisher, Apple iPhoto, and Adobe Collage.