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# Digital Archiving Best Practices

Digitizing images

Purchasing a scanner

- Three basic types of scanner
    1. Photo scanners: for scanning old photos and documents for home or personal use
    2. Film & negative scanners: for scanning film or negatives for archival
    3. Document scanners: for scanning large batches of documents or photos
- Most consumer grade scanners are fine for achieving best practices. Epson is an excellent brand, Canon LIDE 110 is a good (and cheap) option
- USB powered scanners are convenient because they do not need to be plugged in
- For very large jobs, consider purchasing a top-loading scanner
- Consider the maximum resolution of the scanner when purchasing (DPI & Maximum Resolution)
- Scanning apps for smartphones: Cam Scanner (iphone/android); Pic Scanner (iphone); CMC Scanner (android)

Tips for scanning images

- Use blow dryer, a can of pressurized air, and/or an anti-static brush to dust off images prior to scanning
- Image resolution: DPI refers to "dots per inch" (also referred to as PPI or "pixels per inch.") The higher the DPI of a scanned image, the greater the resolution (detail) and the larger the file. Scan at 300 or higher dpi.

72 DPI PRINTED IMAGE   300 DPI PRINTED IMAGE

600DPI   1200DPI
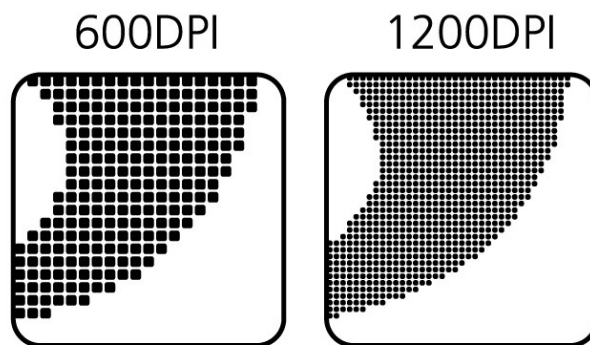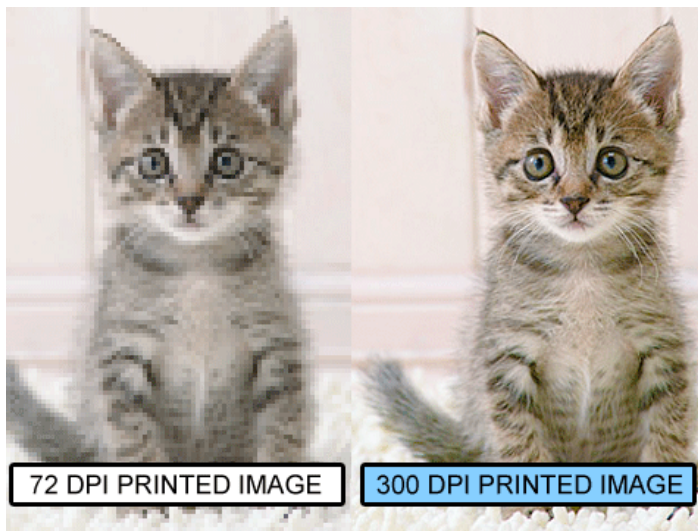
- Image size: digitize pictures to 3000-4000 pixels on the longest side of the image—the more pixels, the greater the file resolution, the nicer the picture
- Image format
    1. TIFF (uncompressed image format): this format takes longer to scan and tends to be a very large file. TIFF is a good format for Master images.
    2. JPEG (compressed image format): this format is quicker to scan and is a smaller size. JPEG is good for archival if the DPI and image resolution are large.

- Bit depth of scan: bit depth refers to the number of colors the scanner can detect—the larger the bit depth, the greater the number of colors.
    1. Scan 24 or 48 bits in the color mode for color photos
    2. Scan 16 bits in grey scale mode for black and white photos
- Master images: depending on the subject of an image, you may want to create multiple "Master" images of the same photo. For example:

In the scanning software included with your scanner, use the marquee selection tool to select a portion of the photo you would like to scan.

- Correcting fading/color balance: images tend to fade and lose their color with age. Correct fading and color balance either with the scanning software itself, or in a photo editing program after scanning. For example:

Digitizing audio and video

Digitizing older, tape-based media (cassette tapes, VHS tapes, records, Betamax, 16mm etc.) is relatively easy with the right equipment that can transfer the media to your computer.

Analog to digital converters

Example audio capture device: iMic audio interface
- Connect the iMic to your usb port on your computer
- Connect your analog audio device with a stereo 1/8th inch cable to the "IN" input on the iMic
- With an audio recording software (such as Quicktime, Garageband or Audacity), confirm there is an audio signal by pushing play on the analog device
- Push record on the recording software

- Save as .WAV or .AIFF file format
- Bit rate: 320 kbps (kilobits per second). Bit rate is similar to DPI/PPI, the higher the bit rate, the nicer the audio, and the larger the file size
- Sample rate: either 44.1 mHz (CD quality) or 49 mHz (DVD quality)

iMic, Griffin Technologies, ~$39.99 on Amazon
https://store.griffintechnology.com/imic

Example video capture device: Diamond VC500 video interface
- Connect the Diamond VC500 video interface to your usb port on your computer
- Connect your analog video device with an RCA cable or SVideo cable to the inputs on the ION Video 2 converter
- Open a capture window on a video recording software (such as Quicktime, iMovie, Windows Movie Maker or VideoPad)
- Confirm there is a video/audio signal by pushing play on the analog device
- Push record on the recording software
- Screen resolution: auto (if available) or 640:480
- Save as .mp4 or .mov
- Video codec: h.264 (if available)

- Video bit rate: 5000-8000 kbps (kilo bits per second). This is similar to the audio bit rate mentioned above.
- Audio bit rate: 320 kbps

Diamond VC500 video interface (for Mac or PC) ~$30 on Amazon
http://www.diamondmm.com/vc500-diamond-one-touch-video-capture-edit-stream.html

Organizing and managing digital media

Organizing digital media
- Come up with a folder and file naming convention that makes sense to you and that you can stick with. For example, for every digitizing project you might use the following conventions:
    1. Folder name: PROJECT_DATE
    2. Sub-folder name(s): IMAGES, VIDEO, AUDIO
    3. Media names: NAME_1.jpg; NAME_2.jpg; NAME_3.mp4 etc.
- Find a free software utility that can automate file naming
    1. Bulk Rename Utility http://www.bulkrenameutility.co.uk/
    2. Advanced Renamer http://www.advancedrenamer.com/
    3. Rename Master http://www.rename-master.en.softonic.com/

Storing digital media

Hard drives
- Do not keep all of your media on your computer's hard drive. It's a good idea to have your archived media in at least two different locations.
- 1-2 TB (terabyte) portable hard drives are now inexpensive and USB powered

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- Hard drive types:
    1. Small sized (1-2TB), portable, USB powered: ~$70 (1TB)-$150 (2TB)
    2. Medium sized (3-4TB), desktop/portable, AC powered: $150 (3TB)-$300 (4TB)
    3. Large sized (4+ TB), desktop, AC power: $300-$800

Writeable CD/DVDs
- This is a convenient storage option, however due to the limited capacity (~4-8gb) and relatively short lifespan (~)10 years, it's not the most effective storage solution.
- DVD-R & CD-R: label with felt tip markers or printable labels, store in an upright CD/DVD book in jewel cases for longevity

Cloud storage
- Storing your digital media online is a convenient and cost-effective option. Here are some popular cloud storage options:
    1. Dropbox: access your files online and locally through a public dropbox folder https://www.dropbox.com/
    2. Google Drive: 15 gb of storage for free, easy and intuitive interface https://drive.google.com/
    3. Apple iCloud: 5 gb of free storage, easily syncs to apple devices (iphone, ipad, ipod etc.) https://www.icloud.com/
    4. SkyDrive: 7 gb of free storage, syncs with Microsoft Office applications https://skydrive.live.com/
    5. Crashplan: free, or ~$4/month for unlimited online storage for windows, mac or linux https://www.code42.com/store/

MOVIE MAKER TUTORIAL

Movie Maker interface
1. Importing videos and photos
- Import video & images by clicking on "Add Videos and Photos" button at the top left of the window. Video and images will appear in the timeline.
- To review, click on the clip in the timeline and press the Play button, it should start playing.
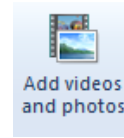
2. Adding titles
- Click the "Title" "Caption" or "Credits" button
- Enter the text to appear
- Make changes to text in the format options under the "Text Tools" option
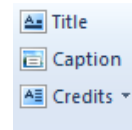
3. Dragging clips to different locations in timeline & Lengthening/shortening clips
- Click and drag a clip from one position to another position in the timeline
- Make changes to clip length by clicking on the "Video Tools" button
- To delete a clip, click on the individual clip and press the "Delete" button on your keyboard

4. Adjusting audio volume in clips
- Adjust the volume by clicking on the "Project" file and choose "Emphasize Video" or "Emphasize Music"
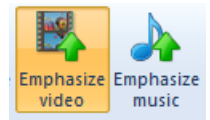
5. Adding audio/music to timeline
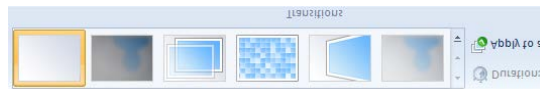- Click the "Add music" button and choose "Add music"
- Find the audio file and click "open

6. Animating images
- Click on the image, click the "Visual Effects" tab
- Select any effect by clicking on it

7. Adding transitions to clips
- Click the "Animations" tab
- Select the transition by clicking on individual clip or between clips
- Select on click on a transition
- Adjust the duration of the transition by clicking on the drop down menu
And select duration time
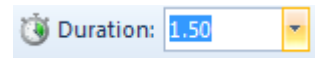
8. Exporting the project
- Click "Save Movie" at the top right and scroll down the drop down menu
- Select "Recommended for this project"
- Name your file and select destination to save your project
- Click "save"

Clip Effects: a list of video effects to add to your video/image/audio clips
Video and Tools: make changes to individual audio and video clips
Thumbnail view: view your media as a list or as small thumbnail images
Sequence preview window: preview the clips you added to the timeline (space to start/stop)
Playback controls: play, step back (frame), step forward (frame)
Sequence: video and audio tracks—add clips, edit, and assemble your piece
Video tracks: add video clips, images, transitions, and effects
Audio tracks: add audio clips (narration, music), and effects to the project
Zoom in/out: zoom in or out of the sequence (+/- on number pad to zoom in/out)

Keyboard shortcuts
Space bar: start and stop the playhead in sequence
Ctrl + space: start and stop the playhead in the selected clip preview window
Ctrl+N: Create a new project
Ctrl+O: Open an existing project
Ctrl+S: Save a project
F12: Save a project with a new name
Ctrl+P: Publish a movie
Ctrl+R: Import video from a digital video camera
Ctrl+Z: Undo the last action
Ctrl+Y: Redo the last action undone
Ctrl+X: Cut
Ctrl+C: Copy
Ctrl+V: Paste
Ctrl+A: select all clips in the sequence
Ctrl+Delete: Clear the storyboard/timeline
+: Expand the Video track when it is selected in the timeline
-: Collapse the Video track when it is selected in the timeline
K: Play or pause clips
L: Toggle Forward
J: Toggle Backward
CTRL+Q: Rewind and go to the beginning of the storyboard/timeline