



SAVING YOUR Treasures

A Website about what you can do to protect and preserve the things of importance in your life



Gerald R. Ford Conservation Center Nebraska State Historical Society

1326 S. 32nd Street, Omaha, NE 68105 (402) 595-1180, Fax: (402) 595-1178

nshs.treasures@nebraska.gov

www.nebraskahistory.org

Tips on Purchasing Equipment for a Digital Imaging Workstation

Computer:

- If your project involves scanning many items, consider purchasing a computer that will be used only for digitization.
- As much Random Access Memory (RAM) as you can afford. 512 MB minimum, 1.0 GB or more if possible.
- Fast processor (Pentium 4 processor) A fast processor helps sort through all information quickly and efficiently.
- 120 GB+ or larger hard drive for storing large image files.
- Large display monitor (19-21 inch) if you can afford it. Easier on the eyes and has room to have software toolboxes open without crowding.
- CD Rom drive.
- ISO 9660 compliant CD-ROM recorder. "ISO 9660 compliant" means the CDs burned on you machine can be read by any computer platform (PC, Mac, Unix, etc.). You will need to burn CDs to store your images or make backup copies of your online storage. *At this time DVD storage is not recommended because DVD technology is not yet standardized.*
- High speed data transfer (USB 2.0 or Firewire). Data transfer interfaces allow your computer to "talk" to your peripherals, i.e. scanners, printers, digital cameras, etc.

Scanner:

Purchase a scanner that meets Best Practices for materials you plan to scan yourself. Flatbed scanners are the most popular and are suitable for text, photographs, transparencies, slides, film, and single-sheet batching using additional accessories. What to look for:

- *Price:* Buy the best you can afford on your budget.
- *Size:* If you have many items that are larger than 8.5" x 11" consider a scanner with larger glass size.
- *Resolution:* **at least** as high as the minimum resolution in current Best Practices such as the *Western States Digital Imaging Best Practices*,
http://www.cdphheritage.org/digital/scanning/documents/WSDIBP_v1.pdf:

- *Text* - 600 Pixels Per Inch (may also be called Dots Per Inch)
- *Photographs* - 3000 to 5000 pixels across the long dimension. Small photographs and slides must be scanned at a very high resolution to be clear when enlarged. A scanner with an optical resolution of 1200 PPI can scan an 8 x 10 print at 600 PPI but not a 2 x 2 slide at the minimum required 2000 PPI.
 - Image Resolution Table, <http://libr.unl.edu:2000/scanning/index.html>, from the University of Nebraska Lincoln Libraries Electronic Text Center shows required resolutions for long dimensions of 1 to 16 inches.
 - Quick Reference from the Western States Digital Imaging Best Practices shows required spatial resolution and dimensions, bit depth, file types, compression and sample resolutions for common photograph sizes.
- *Optical resolution vs. Interpolation*: Choose scanners based on Optical resolution, not Interpolated resolution. Optical resolution is the actual resolution the scanner hardware can capture. Interpolated resolution is the resolution the scanner can yield by "guessing" what color and light values exist in the spaces that the light sensors can't see. If you see scanner specifications including the size of the array (e.g. 1600 x 3200) make sure the second number is higher than the first.
- *Bit depth*: Bit depth measures the number of colors or levels of gray available to represent the colors in the original work. Choose scanners with bit depth **at least** as high as the minimum bit depths in current Best Practices.
 - Text - 1 bit bitonal (black and white), 8 bit grayscale, 24 bit color
 - Photographs - 8 bit grayscale, 24 bit color
- *Dynamic Range*: This is not the same thing as bit depth. Beware cheaper scanners that advertise a high bit depth but may not have enough dynamic range to scan slides or negatives. Good comments on dynamic range are available in Wayne Fulton's *A Few Scanning Tips*. <http://www.scantips.com/basics14.html>.
- *Scanning speed*: Beware of scanner specifications that give you what seems like a fast speed, but say it is in "draft mode" or "preview mode." Try to find out what the speed is in a higher-quality mode.

Software:

- *Scanning Software* usually comes with scanners and digital cameras. More expensive scanners usually come with better software. The software must allow you to manually adjust file formats (e.g. TIFF, JPEG), resolution, tonal dynamic range, and color channel values. SilverFast <http://www.silverfast.com/> is one example. If you want to use SilverFast make sure the scanner can interface with it. Products Supported by SilverFast <http://www.silverfast.com/product/en.html>.
- *Editing Software* to crop, rotate, color correct, resize, and save images in proper file formats. Adobe Photoshop <http://www.adobe.com/> is the industry standard for this. Adobe Photoshop Elements is a scaled-down version of the full Photoshop with many of the same functions.

Digital Cameras:

- *Megapixels:* Megapixel range is like a scanner's DPI rating. The higher the number of megapixels, the higher-quality the image will be. Currently the norm for a good camera is 5 megapixels. However, some professional models are up to 12 megapixels.
- *File type:* Some cameras can take TIFF images, which is what you need to meet Best Practices for digital imaging projects participating in Nebraska Memories.
- *Memory:* If you are taking TIFF images the files will be large. You should also have the option of loading digital images directly onto your computer, by plugging the camera into a computer before you take pictures.
- *Bit depth:* Make sure your camera can handle the bit depth you need for your project. Many digital cameras only have the capability of 24 bits.

Useful Sites for Evaluating Equipment:

- *A Few Scanning Tips*, <http://www.scantips.com/>, by Wayne Fulton. A gold mine of practical information on scanning. Especially see the *Shopping for a Scanner and Evaluating Scanner Features* sections.
- *Creating Digital Images*, <http://www.tasi.ac.uk/advice/creating/creating.html>, from the UK's Technical Advisory Service for Images. Includes in-depth reports on scanners and digital cameras.
- *Digital Scanner Reviews*, <http://www.imaging-resource.com/SCAN1.HTM>, from Imaging Resource
- *Flatbed Scanner Review*, <http://www.flatbed-scanner-review.org/>, from the FLAAR information network. Primarily evaluates high-end scanners in terms of their ability to scan slides and negatives.
- *Imaging Resource*, <http://www.imaging-resource.com/>, digital camera information and reviews.
- *Selecting a Scanner*, <http://www.rlg.org/visguides/visguide2.html>, guide from the Digital Library Federation.
- *Western States Digital Imaging Best Practices*, http://www.cdphheritage.org/digital/scanning/documents/WSDIBP_v1.pdf, from the Collaborative Digitization Program. See Digitization Toolbox pp. 10-20 and Guidelines by Source Type pp. 31-34.

Questions?**Nebraska Library Commission**

1200 N Street, Suite 120 Lincoln, NE 68508
402/471-2045 800/307-2665 in Nebraska 402/471-2083 Fax
<http://www.nlc.state.ne.us> nebraskamemories@nlc.state.ne.us

Recommendations in this website/pdf/video are provided as a public service for guidance only. Neither inclusion nor exclusion of products or providers constitutes endorsement or lack thereof. The Gerald R. Ford Conservation Center does not assume responsibility or liability, expressed or implied, for any resulting activities involving any collections or objects.