

Digitization Standards for DigitalCommons@Linfield

In order to maintain consistency in the quality artifacts available in DigitalCommons@Linfield, we have developed the following guidelines to aid in content preparation. These guidelines explain the minimum requirements for digitization standards, as well as recommended and acceptable file types. Whenever possible, all newly acquired materials should adhere to these minimum requirements, although higher standards may be desirable for some materials. This document is not intended to address all technical issues related to digitization. We work closely with the Director of [Educational Technology and Curricular Innovation](#), who can provide instructions and training on a variety of digitization tasks.

Our standards are based on our need to balance the quality of the digital objects in DigitalCommons@Linfield with user accessibility. For that reason, we require two versions of digital files: one that is an archival quality master file, and one that is an access copy intended for web delivery. These standards represent our current needs and are subject to change, given the future needs of the repository and our users. If you need assistance converting your content from one file to another, please contact the [DigitalCommons Coordinator](#).

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Standards - Text/Images

Documents (typed or handwritten): Any documents, whether typed or handwritten, that are not born-digital will need to be scanned. If OCR (optical character recognition) is desired to allow for full-text searching, then the document should be scanned and saved as a PDF. If OCR is not desired, the document can be scanned and saved as a JPEG. For handwritten documents, if OCR is used when creating the PDF, the text will be treated as an image (which means that full-text searching will not be possible). We recommend scanning handwritten documents in grayscale or color. If needed, backing paper may be used to enhance scan quality; refer to NARA's Technical Guidelines for Digitizing Archival Materials for Electronic Access (p. 42) for additional details, available at <http://www.archives.gov/preservation/technical/guidelines.pdf>.

WEB DELIVERY	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)	Spatial (Capture) Resolution	Compression Level	Bit Depth
Text (scanned)	PDF/A JPEG	PDF PNG RTF docx (Microsoft Word)	JPEG: 640x480 to 800x600 PNG: 640x480 to 800x600	PDF/A: 300 pixels per inch JPEG: 72 pixels per inch	PDF/A: minimal JPEG: medium	8-bit grayscale (for black and white only) 24-bit color
Text (born digital) Top	PDF/A	PDF RTF docx (Microsoft Word)				
ARCHIVAL MASTERS	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)	Spatial (Capture) Resolution	Compression Level	Bit Depth
Text (scanned)	TIFF	none	4000x2500 to 6000x4000	600 pixels per inch	lossless	8-bit grayscale 24-bit color
Text (born digital) Top	XML+DTD (i.e. TEI) RTF ASCII/Unicode (TXT), using an editor that does not save to a proprietary format					

Photographs (prints): If the back side of the photograph contains markings or writing, scan both sides. Make sure that the file name clearly indicates whether a file is the front side or the back side. See [file naming](#) in this document for additional information.

WEB DELIVERY	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)	Spatial (Capture) Resolution	Compression Level	Bit Depth
Photographs (prints) Top	JPEG	BMP GIF JPEG2000 PNG	640x480	72 pixels per inch	JPEG: medium	8-bit grayscale 24-bit color
ARCHIVAL MASTERS	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)	Spatial (Capture) Resolution	Compression Level	Bit Depth
Photographs (prints) Top	TIFF	none	4000x2500 to 6000x4000, excluding borders and mounts	600 pixels per inch	lossless	8-bit grayscale 24-bit color

Photographs (negatives or slides): For more detailed information about specifications for digitizing transmissive originals (film, negatives, and slides), refer to the California Digital Library's Guidelines for Digital Images (pp. 6-8), available at http://www.cdlib.org/gateways/docs/cdl_dffr.pdf.

WEB DELIVERY	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)	Spatial (Capture) Resolution	Compression Level	Bit Depth
Photographs (prints) Top	JPEG	JPEG2000	800x600	150 pixels per inch	JPEG: medium	8-bit grayscale 24-bit color
ARCHIVAL MASTERS	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)	Spatial (Capture) Resolution	Compression Level	Bit Depth
Photographs (prints) Top	TIFF	none	4000 pixels across the long dimension of the image area, excluding borders and mounts	3200 pixels per inch	lossless	8-bit grayscale 24-bit color

Large format posters or maps: Items larger than 17 by 24 inches should be digitized according to these specifications.

WEB DELIVERY	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)	Spatial (Capture) Resolution	Compression Level	Bit Depth
Photographs (prints) Top	JPEG	BMP GIF JPEG2000 PNG	1078 pixels across the longest side	150 pixels per inch	JPEG: medium	8-bit grayscale 24-bit color
ARCHIVAL MASTERS	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)	Spatial (Capture) Resolution	Compression Level	Bit Depth
Photographs (prints) Top	TIFF	none	6000-8000 pixels across the longest side	600 pixels per inch (300-400 pixels per inch for larger items)	lossless	8-bit grayscale 24-bit color

Standards – Multimedia

Audio: Audio settings will vary based on the file type. To reduce file size further, you may use mono rather than stereo tracks.

WEB DELIVERY	Recommended Format(s)	Other Acceptable Format(s)	Bit Depth	Sample Rate
Audio (voice)	MP3	AIFF M4A WAV WMA	28-128 Kbps	11 KHz
Audio (music) Top	MP3	AIFF M4A WAV WMA	128-224 Kbps	22-44.1 KHz
ARCHIVAL MASTERS	Recommended Format(s)	Other Acceptable Format(s)	Bit Depth	Sample Rate
Audio (voice)	AIFF WAV	none	8-16-bit mono	22 KHz
Audio (music) Top	AIFF WAV	none	16-24-bit stereo	44.1-48 KHz

Video: Pixel size should generally be kept between 160x120 and 320x240, although higher sizes are acceptable (640x480 to 720x480).

WEB DELIVERY	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)
Video Top	H.264	MOV MPEG-1 MPEG-4	160x120 to 320x240
ARCHIVAL MASTERS	Recommended Format(s)	Other Acceptable Format(s)	Spatial Dimensions (pixels)
Video Top	raw video file MPEG-2 DVD-quality video file	none	720x480 or higher

Additional Considerations

Image Adjustment: Images should be rotated as needed post-scanning for ease of viewing. Depending on the project, cropping, color and contrast adjustments, sharpening, and other post-scanning adjustments may also be necessary. The [Faculty Development Lab](#) provides assistance with digital image editing.

Watermarks: Visible watermarks are not recommended for archival masters or web delivery access copies. We recommend using electronic or "invisible" watermarks to provide proprietary rights information as an alternative means to protect digital intellectual property. Rights information can also be provided through administrative metadata as part of an item's record (refer to the rights section of the [Metadata Entry Guidelines](#) for DigitalCommons@Linfield).

File Naming: File names should be unique, consistently structured, and should use numbers and/or lowercase letters. Use underscores rather than spaces in file names, or use [CamelCase](#). Do not use symbols in file names. If using a numerical scheme, use leading zeros for ease of sorting, and take into account the maximum number of items to be scanned so that you use an appropriate number of digits.

Examples:

pumpkin_patch_back.jpg
0004_2010_Smith.jpg