



Consortium of Academic and  
Research Libraries in Illinois

## Digitization Resources

\*THIS IS NOT A COMPLETE LIST. Inclusion here does not indicate endorsement by CARLI of any particular guidelines or best practices.

### CONTACT INFORMATION:

Consortium of Academic and Research Libraries in Illinois (CARLI)  
501 East Daniel St., Suite 228  
Champaign, IL 61820-6211  
Contact CARLI by e-mail: [support@carli.illinois.edu](mailto:support@carli.illinois.edu)  
Phone: 217-244-7593; Toll-free in Illinois: 866-904-5843  
Web: <http://www.carli.illinois.edu>

**CARLI Digital Collections:** <http://collections.carli.illinois.edu/>

**CARLI Digital Collections – Collections Development Policy:**  
<http://www.carli.illinois.edu/mem-prod/contentdm/colldevpolicy.pdf>

**CARLI CONTENTdm FAQ:**  
<http://www.carli.illinois.edu/mem-prod/contentdm/contentdm-faq.html>

## Listservs, Newsletters, More

### LISTSERVS

CARLI Digital Collections Interest Group:

\* CARLI-specific listserv for those interested in digital collections

CARLI CARLI Images Interest Group

\* CARLI-specific images listserv

CARLI Metadata Interest Group

\* CARLI-specific listserv for metadata

**JOIN CARLI MAILING LISTS:** <http://carli.illinois.edu/maillists.html>

IMAGELIB listserv

<http://listserv.arizona.edu/archives/imagelib.html>

You can browse the archives of this digital imaging listserv or subscribe to the list. A very helpful listserv to be on for those involved in digital imaging projects.

DIGISTATES listserv

<http://lists.mdch.org/bin/listinfo/digistates>

An on-line discussion list for people working on statewide projects to digitize cultural heritage materials.

### **Newsletters and More**

Current Cites

<http://lists.webjunction.org/currentcites/>

“An annotated bibliography of selected articles, books, and digital documents on information technology” Join the mailing list to have new issues automatically sent to you.

DigiNews

<http://www.rlg.org/preserv/diginews/> .

This bimonthly newsletter focused on issues related to digital initiatives.

digitizationblog

<http://digitizationblog.interoperating.info/>

Digitization blog by Mark Jordan, Head of Library Systems at Simon Fraser University

Digitization 101

<http://hurstassociates.blogspot.com/>

A digitization blog by Jill Hurst-Wahl, owner of Hurst Associates and instructor at Syracuse University's School of Information Studies

D-Lib Magazine

<http://www.dlib.org/>

The primary focus of this monthly online magazine is digital library research and development

\*\*\*Software-specific bulletin boards and listservs are always a great way to find out information and ask questions of other users.

## **General Digitization Information, Tutorials, and Guides**

CLIR (Council on Library and Information Resources) Publications, main page for accessing all of CLIR's reports, *CLIR Issues*, and more. CLIR Reports range in topics, but there is a special subsection for “Strategies and Tools for the Digital Library” as well as a section for practitioners.

<http://www.clir.org/pubs/pubs.html>

A Framework of Guidance for Building Good Digital Collections, NISO and IMLS

<http://www.niso.org/framework/Framework2.html>

Collaborative Digitization Program's (CDP) Digital Toolbox

<http://www.cdpheritage.org/digital/index.cfm>

CDP's “Questions to Ask before Starting a Digitization Project”

<http://www.cdpheritage.org/digital/projectManagement/index.cfm>

Digitization resources, Harvard University Library

<http://preserve.harvard.edu/resources/digital.html>

Koelling, Jill Marie. *Digital Imaging: A Practical Approach*. American Association for State and Local History book series. 2004.

Hughes, Lorna M. *Digitizing Collections: Strategic issues for the information manager*. Facet Publishing. 2004. ISBN: 1-85604-466-1

Illinois State Library Digital Imaging Program

[http://www.cyberdriveillinois.com/departments/library/who\\_we\\_are/bestpractices.html](http://www.cyberdriveillinois.com/departments/library/who_we_are/bestpractices.html)

Indiana Digital Library digitization guidelines for LSTA grants.

<http://www.statelib.lib.in.us/www/isl/diglibin/>

Guidelines for Digital Images, CDL (California Digital Library)

[http://www.cdlib.org/inside/diglib/guidelines/bpgimages/cdl\\_gdi\\_v2.pdf](http://www.cdlib.org/inside/diglib/guidelines/bpgimages/cdl_gdi_v2.pdf)

Guidelines for Digitization, North Carolina ECHO project

<http://www.ncecho.org/Guide/toc.htm>

*Handbook for Digital Projects: A Management Tool for Preservation and Access*. Maxine K Sitts, editor. 1<sup>st</sup> ed. Andover, Mass. : Northeast Document Conservation Center. 2000. ISBN: 0-9634685-4-5. Online version available at: <http://www.nedcc.org/oldnedccsite/digital/tofc.htm>

Boss, Richard W. "Imaging for Libraries and Information Centers" in *Library Technology Reports*. Chicago : American Library Association. Jan/Feb2001, Vol. 37 Issue 1. ISSN: 00242586.

Kenney, Anne R. and Oya Y. Rieger. *Moving Theory Into Practice: Digital Imaging for Libraries and Archives*. Mountain View, CA : Research Libraries Group. 2000. ISBN: 0-9700225-0-6

Moving Theory into Practice, Cornell University

<http://www.library.cornell.edu/preservation/tutorial/>

Tutorial related to the *Moving Theory into Practice: Digital Imaging for Libraries and Archives* book.

NINCH (The National Initiative for a Networked Cultural Heritage)

Including their "Guide to Good Practice"

<http://www.ninch.org/>

OCLC Digitization Topics and Trends

<http://www.oclc.org/community/topics/digitization/default.htm>

Jordan, Mark. *Putting Content Online: A Practical Guide for Libraries*. Information Professional Series. 2006. ISBN: 184334176X

TASI (Technical Advisory Service for Images)

<http://www.tasi.ac.uk/index.html>

\*the "Advice" tab is very useful

Technical Guidelines for Digitizing Archival Materials for Electronic Access:  
Creation of Production Master Files - Raster Images, National Archive  
<http://www.archives.gov/research/arc/digitizing-archival-materials.html>

Visual Resources Association  
<http://www.vraweb.org>

An organization of image media professionals. The “resources” link has a wealth of information available on everything from collection development to copyright.

Washing State Library Digital Best Practices  
<http://digitalwa.statelib.wa.gov/newsite/best.htm>

Western States Digital Imaging Best Practices  
[www.cdphheritage.org/digital/scanning/documents/WSDIBP\\_v1.pdf](http://www.cdphheritage.org/digital/scanning/documents/WSDIBP_v1.pdf)  
Highly recommended (is also linked to from the Collaborative Digitization Program’s site)

## Scanning help

A Few Scanning Tips by Wayne Fulton  
<http://www.scantips.com/>  
Includes sections on scanning basics, moiré patterns, dpi, and more

Berkley Digital Library SunSITE’s Digitizing Images and Text  
<http://sunsite.berkeley.edu/Imaging/>

Digital Dog  
<http://www.digitaldog.net/>  
Includes articles, tips, FAQs, and other resources related to digital imaging and scanning.

## Scanner and Digital Camera Information and Reviews

Digital Photography.org  
<http://www.digital-photography.org>  
Reviews of digital cameras and related equipment and also provides digital photography resources.

Digital Photography Review  
<http://www.dpreview.com>

Flatbed Scanner Review  
<http://www.flatbed-scanner-review.org/>

The Imaging Resource  
<http://www.imaging-resource.com/>

## Storage Media

Care and Handling Guide for the Preservation of CDs and DVDs, by Fred R. Byers (CLIR and NIST)  
<http://www.clir.org/PUBS/reports/pub121/contents.html>

## OCR – Optical Character Recognition

Nathan E. Brener, S.S. Iyengar, O.S. Pinykh, “A conclusive methodology for rating OCR performance” in *Journal of the American Society for Information Science and Technology*. Vol. 56, no. 12 (2005)

“The Basics of OCR” from Barbara Krasnoff on About.com  
[http://printscan.about.com/cs/scanners/a/about\\_ocr.htm](http://printscan.about.com/cs/scanners/a/about_ocr.htm)

Measuring Search Retrieval Accuracy of Uncorrected OCR: Findings from the Harvard-Radcliffe Online Historical Reference Shelf Digitization Project, Harvard University Library LDI Project Team.  
[http://preserve.harvard.edu/resources/ocr\\_report.pdf](http://preserve.harvard.edu/resources/ocr_report.pdf)

Optical Character Recognition: Some Sample Scans, Electronic Text Center at the University of Virginia Library  
<http://courses.cs.vt.edu/csonline/AI/Lessons/VisualProcessing/OCRscans.html>

## Copyright

“Acquiring Copyright Permission to Digitize and Provide Open Access to Books” by Denise Troll Covey. Published by the CLIR and DLF (Digital Library Federation).  
<http://www.clir.org/PUBS/abstract/pub134abst.html>

Copyright and Intellectual Property, ARL (Association of Research Libraries)  
<http://www.arl.org/info/frn/copy/copytoc.html>

Checklist for Fair Use by the Copyright Management Center, IUPUI  
<http://www.copyright.iupui.edu/checklist.htm>

Copyright & Fair Use, Stanford University Libraries  
[http://fairuse.stanford.edu/Copyright\\_and\\_Fair\\_Use\\_Overview/index.html](http://fairuse.stanford.edu/Copyright_and_Fair_Use_Overview/index.html)

Copyright and Libraries, Library Law.com  
[http://www.librarylaw.com/Copyright\\_and\\_Libraries.html](http://www.librarylaw.com/Copyright_and_Libraries.html)

Copyright Term and the Public Domain in the United States by Peter B. Hirtle  
[http://www.copyright.cornell.edu/training/Hirtle\\_Public\\_Domain.htm](http://www.copyright.cornell.edu/training/Hirtle_Public_Domain.htm)

Copyright Crash Course, University of Texas  
<http://www.utsystem.edu/OGC/IntellectualProperty/cprtindx.htm>

Library Digitization Projects and Copyright by Mary Minnow  
<http://www.llrx.com/features/digitization.htm>

Locating U.S. Copyright Holders, University of Texas Harry Ransom Humanities Research Center  
<http://tyler.hrc.utexas.edu/us.cfm>

United States Copyright Office  
<http://www.copyright.gov/>

## Digital Object Management Systems (DOMS)

### **Common vendor-supplied and open-source DOMS**

CONTENTdm: <http://www.oclc.org/contentdm/default.htm> and <http://www.contentdm.com>

Digitool by Ex Libris: <http://www.exlibrisgroup.com/digitool.htm>

DSpace: <http://www.dspace.org/>

Fedora: <http://www.fedora.info/>

Greenstone: <http://www.greenstone.org/cgi-bin/library>

Insight by Luna Imaging: <http://www.lunaimaging.com/insight/index.html>

## Metadata

### **Some Common Metadata Schemes and Further Readings**

CDWA Lite (Categories for the Description of Works of Art):

[http://www.getty.edu/research/conducting\\_research/standards/cdwa/index.html](http://www.getty.edu/research/conducting_research/standards/cdwa/index.html)

Dublin Core: <http://dublincore.org/>

EAD (Encoded Archival Description): <http://www.loc.gov/ead/>

MODS (Metadata Object Description Schema): <http://www.loc.gov/standards/mods/>

TEI (Text Encoding Initiative): <http://www.tei-c.org/>

VRA Core (Visual Resources Association): <http://vraweb.org/projects/vracore4/index.html>

CCO (Cataloguing Cultural Objects): <http://vraweb.org/ccoweb/cco/index.html>

\*Used in conjunction with VRA Core

PREMIS (PREservation Metadata Implementation Strategies):

<http://www.loc.gov/standards/premis/index.html>

\*A core set of metadata for digital preservation

MODS Implementation Guidelines for Cultural Heritage Materials, DLF

[http://www.diglib.org/aquifer/DLF\\_MODS\\_ImpGuidelines\\_ver4.pdf](http://www.diglib.org/aquifer/DLF_MODS_ImpGuidelines_ver4.pdf).

If you are interested in using the MODS scheme, this document represents explicit guidelines for how to implement it specifically for sharing records.

## **General Information Resources on Metadata**

Caplan, Priscilla. *Metadata Fundamentals for All Librarians*. Chicago: ALA Editions, 2003.  
A good introduction on metadata issues and formats.

Collaborative Digitization Program's (CDP) metadata resources from the Digital Toolbox  
<http://www.cdpheritage.org/digital/index.cfm> (click on Metadata on the left side of the page)

CDP Metadata Working Group's Dublin Core Metadata Best Practices guide  
<http://www.cdpheritage.org/cdp/documents/CDPDCMBP.pdf>

Introduction to Metadata: Pathways to Digital Information, Getty Research Institute  
[http://www.getty.edu/research/conducting\\_research/standards/intrometadata/index.html](http://www.getty.edu/research/conducting_research/standards/intrometadata/index.html)

Metadata Reference Guide by the Metadata Advisory Group of MIT Libraries  
<http://libraries.mit.edu/guides/subjects/metadata/index.html>

NSDL Metadata Primer, National Science Digital Library  
<http://metamanagement.comm.nsdlib.org/outline.html>

Although intended for contributors to the NSDL, several of the sections include very good general information and best practices

Open Archives Initiative  
<http://www.openarchives.org/>

Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH)  
<http://www.openarchives.org/pmh/>

*Descriptive Metadata Guidelines for RLG Cultural Materials*, Research Libraries Group  
[http://www.rlg.org/en/pdfs/RLG\\_desc\\_metadata.pdf](http://www.rlg.org/en/pdfs/RLG_desc_metadata.pdf)

Guidelines for institutions interested in contributing to RLG's Cultural Materials database, but very useful for any institution with cultural heritage materials.

UKOLN's Metadata page  
<http://www.ukoln.ac.uk/metadata/>

Cataloging Cultural Objects, Visual Resources Association  
<http://www.vraweb.org/ccoweb/cco/index.html>

## **Controlled Vocabularies**

Getty Research Institute Vocabulary Databases  
<http://www.getty.edu/research/tools/vocabulary/>

Library of Congress Authority Files  
<http://authorities.loc.gov/>

## **Metadata Crosswalks**

Bibliography of Metadata Crosswalks by Marcia Lei Zeng

<http://www.slis.kent.edu/~mzeng/metadata/crosswalks.htm>

Mapping between Metadata Formats, by Michael Day of UKOLN

<http://www.ukoln.ac.uk/metadata/interoperability/>

Metadata Crosswalk Repository, OCLC

<http://www.oclc.org/research/researchworks/schematrans/default.htm>

“Metadata Standards Crosswalks” in Introduction to Metadata: Pathways to Digital Information, Getty Research Institute

[http://www.getty.edu/research/conducting\\_research/standards/intrometadata/crosswalks.html](http://www.getty.edu/research/conducting_research/standards/intrometadata/crosswalks.html)

Metadata Mappings (Crosswalks) guide by Metadata Advisory Group of MIT Libraries

<http://libraries.mit.edu/guides/subjects/metadata/mappings.html>

MARC Mappings section of MARC 21 Format page, Library of Congress

<http://www.loc.gov/marc/marcdocz.html>

## **Shareable Metadata Resources**

“Moving Towards Shareable Metadata” by Sarah Shreeves, Jenn Riley, and Liz Milewicz in *First Monday* (Issue 11, Number 8, 7 August 2006)

[http://www.firstmonday.org/issues/issue11\\_8/shreeves/index.html](http://www.firstmonday.org/issues/issue11_8/shreeves/index.html)

A good starting point for learning about shareable metadata

Best Practices for Shareable Metadata, DLF & NSDL

<http://oai-best.comm.nsd.org/cgi-bin/wiki.pl?PublicTOC>

A community based effort to define best practices for shareable metadata. Currently in draft version.

## **File Formats**

Digital Image File Types Explained by Dr. Rick Matthews, Dept. of Physics, Wake Forest University

<http://www.wfu.edu/~matthews/misc/graphics/formats/formats.html>

“Every File Extension in the World”

<http://whatis.techtarget.com/file-extension-list-A/0,289933,sid9,00.html>

File Formats Page from A Few Scanning Tips

<http://www.scantips.com/basics09.html>

Sustainability of Digital Formats (from the Library of Congress NDIIPP project)

<http://www.digitalpreservation.gov/formats/index.shtml>

## **Common Image File Formats for Digital Projects**

**GIF** (Graphics Interchange Format) – .gif

\* Web Style Guide information on the GIF file format

<http://webstyleguide.com/graphics/gifs.html>

\* Wikipedia entry for GIF

<http://en.wikipedia.org/wiki/Gif>

**JPEG** (Joint Photographic Experts Group) – .jpg or .jpeg

\* JPEG Standard Homepage

<http://www.jpeg.org/jpeg/index.html>

\* Wikipedia entry for JPEG

<http://en.wikipedia.org/wiki/JPEG>

**JPEG2000** (Joint Photographic Experts Group 2000) – .jp2 or .jpx

\* JPEG 2000 Standard Homepage

<http://www.jpeg.org/jpeg2000/index.html>

\* An Introduction to the JPEG200 Image Compression Standard by Scott Milijour

[http://www.gvsu.edu/math/wavelets/student\\_work/Miljour/](http://www.gvsu.edu/math/wavelets/student_work/Miljour/)

\* The JPEG200 Source sponsored by Lura Tech

<http://www.jpeg2000info.com/>

\* Wikipedia entry for JPEG2000

<http://en.wikipedia.org/wiki/JPEG>

**PDF** (Portable Document Format) – .pdf

\* Adobe PDF page

<http://www.adobe.com/products/acrobat/adobepdf.html>

\*Planet PDF – the home of PDF user community

<http://www.planetpdf.com/>

\*PDF/A Competence Center

<http://www.pdfa.org/doku.php>

\* Wikipedia entry for PDF

[http://en.wikipedia.org/wiki/Portable\\_Document\\_Format](http://en.wikipedia.org/wiki/Portable_Document_Format)

**PNG** (Portable Network Graphics) – .png

\* W3C PNG page

<http://www.w3.org/Graphics/PNG/>

\* Official PNG homepage

<http://www.libpng.org/pub/png/>

\* Wikipedia entry for PNG  
<http://en.wikipedia.org/wiki/PNG>

**TIFF** (Tagged Image File Format) – .tif or .tiff

\* TIFF information by Adobe Systems  
<http://partners.adobe.com/public/developer/tiff/index.html>

\* Wikipedia entry for TIFF  
[http://en.wikipedia.org/wiki/Tagged\\_Image\\_File\\_Format](http://en.wikipedia.org/wiki/Tagged_Image_File_Format)

**RAW** File Formats Information

\* Understanding RAW File Formats by Photoxels  
[http://www.photoxels.com/tutorial\\_raw.html](http://www.photoxels.com/tutorial_raw.html)

\* OpenRAW  
<http://www.openraw.org/>

\* RAW information by Vincent Bockeaert from Digital Photography Review  
[http://www.dpreview.com/learn/?/Glossary/Digital\\_Imaging/RAW\\_01.htm](http://www.dpreview.com/learn/?/Glossary/Digital_Imaging/RAW_01.htm)

\* Wikipedia entry for raw image format  
[http://en.wikipedia.org/wiki/RAW\\_image\\_format](http://en.wikipedia.org/wiki/RAW_image_format)

### **Common Audio File Formats for Digital Projects**

**AAC** (MPEG-2 [Moving Picture Experts Group] Advanced Audio Coding) – .aac, .m4a, or .mp4

\* AAC Audio from the Apple website  
<http://www.apple.com/quicktime/technologies/aac/>

\* MPEG-2 (AAC) information page from mpeg.org  
<http://www.mpeg.org/MPEG/aac.html#overview>

\* Wikipedia entry for AAC  
[http://en.wikipedia.org/wiki/Advanced\\_Audio\\_Coding](http://en.wikipedia.org/wiki/Advanced_Audio_Coding)

**AIFF** (Audio Interchange File Format) – .aif or .aiff

\* AIFF and AIFF-C audio file format specification by P. Kabal, TSP Lab, McGill University  
<http://www-mmsp.ece.mcgill.ca/Documents/AudioFormats/AIFF/AIFF.html>

\* Wikipedia entry for AIFF  
<http://en.wikipedia.org/wiki/AIFF>

**MP3** (MPEG-1 [Moving Picture Experts Group] Audio Layer 3) – .mp3

\* Mp3'Tech  
<http://www.mp3-tech.org/>

\* MPEG Audio Resources and Software  
<http://www.mpeg.org/MPEG/audio.html>

\* Wikipedia entry for MP3  
<http://en.wikipedia.org/wiki/MP3>

**Ogg Vorbis** (or Vorbis) – .ogg

\* Official Ogg Vorbis website  
<http://www.vorbis.com/>

\* Wikipedia entry for Vorbis  
<http://en.wikipedia.org/wiki/Vorbis>

**WAV** (Waveform Audio Format) – .wav

\* WAV File Format information from The Sonic Spot  
<http://www.sonicspot.com/guide/wavefiles.html>

\* WAVE PCM soundfile format  
<http://ccrma.stanford.edu/courses/422/projects/WaveFormat/>

\* Wikipedia entry for WAV  
<http://en.wikipedia.org/wiki/WAV>

**Common Video File Formats for Digital Projects**

**AVI** (Audio Video Interleave) – .avi

\* AVI Graphics Format Overview  
<http://www.faqs.org/faqs/graphics/avi-faq/>

\* Understanding Compression in AVI from deskshare.com  
[http://www.deskshare.com/Resources/articles/dmc\\_Compression\\_AVI.aspx](http://www.deskshare.com/Resources/articles/dmc_Compression_AVI.aspx)

\* Wikipedia entry for AVI  
[http://en.wikipedia.org/wiki/Audio\\_Video\\_Interleave](http://en.wikipedia.org/wiki/Audio_Video_Interleave)

**MPEG** (Moving Picture Experts Group)

\* The MPEG homepage  
<http://www.chiariglione.org/mpeg/>

\* MPEG Pointers and Resources  
<http://www.mpeg.org/MPEG/index.html>

\* Wikipedia entry for MPEG  
<http://en.wikipedia.org/wiki/MPEG>