

Digital Conversion – Documents and Guidelines

A Bibliographic Reference

(Updated August 28, 2009)

The following list was compiled as a service to those wanting information regarding current digital imaging guidelines and best practices developed and employed by various agencies and institutions in the U.S. and abroad. Inclusion on this list does not represent any form of recommendation or endorsement by the Federal Government Agencies participating in the Federal Digitization Guidelines Working Group. The list is limited to guidelines developed after the year 2000, since it is intended to describe current rather than historical practices.

While the list was current and accurate at the time of compilation, users should consult the official site of the source institution to confirm that they are viewing the latest version of the cited documentation.

(See also: “A Resource List for Standards Related to Digital Imaging of Print, Graphic, and Pictorial Materials” at:

<http://www.digitizationguidelines.gov/stillimages/digstandards.html>)

Suggestions for additions or modifications can be submitted through the “comments” link at:

<http://www.digitizationguidelines.gov/stillimages/resources.html>

Government Institutions – U.S. (Federal)

Government Printing Office (GPO)

FDsys Operational Specification for Converted Content (Version 3.3). February, 2006

http://www.fdlp.gov/home/repository/doc_download/821-gpos-digitization-specification-33-final

Digitization Specifications and Operating Procedures for Archiving Materials: Creation of Preservation Master Files For the following content types – Textual, Graphic Illustrations / Artwork, Originals, and Photographs. Specifications and metrics for converted content – a functional solution of the Future Digital System (FDsys).

Library of Congress

The Library of Congress Technical Standards for Digital Conversion of Text and Graphic Materials. December, 2006

<http://memory.loc.gov/ammem/about/techStandards.pdf>

“The Library is currently revising a series of standards and best practices to guide the Library's digital conversion efforts. These documents detail the current digitization standards followed by the Library.”

National Digital Newspaper Program (NDNP)

PDF Specification, 2008

<http://www.loc.gov/ndnp/pdf/PDFSpecs.pdf>

TIFF Specification, 2008

<http://www.loc.gov/ndnp/pdf/TIFFSpecs.pdf>

JPEG2000 Specification, 2008

<http://www.loc.gov/ndnp/pdf/JPEG2kSpecs.pdf>

Sustainability of Digital Formats - Planning for Library of Congress Collections

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

National Agricultural Library (NAL)

Scanning Specifications. November 6, 2008

<http://desearch.nal.usda.gov/cgi-bin/dexpldcgi?qry1733376408;1>

An overview of scanning specifications used for digitizing projects at NAL, presented in table format.

National Archive and Records Administration (NARA)

Technical Guidelines for Digitizing Archival Materials for Electronic Access: Creation of Production Master Files – Raster Images. June, 2004

<http://www.archives.gov/preservation/technical/guidelines.pdf>

Based on the procedures used by the Digital Imaging Lab of NARA's Special Media Preservation Laboratory, this document defines approaches for creating digital surrogates for access and reproduction purposes. The topics covered include digital image capture,

minimum metadata, file formats (naming and storage), and quality control. The intended audience includes those involved in the planning and managing of digitization projects, as well as those actually doing the scanning and image capture.

National Library of Medicine (NLM)

The Back Issue Digitization Project. February 29, 2008

URL: <http://www.pubmedcentral.nih.gov/about/scanning.html> (or, should it be this: <http://www.pubmedcentral.nih.gov/pmc/doc/pmc-scan-spec.pdf>)

“The purpose of this publication is to document all requirements for image capture, article identification, and citation creation for the materials scanned as part of the PubMed Central Back Issue Scanning Project. It is subject to change, and may specify requirements that are only pertinent to records created for NLM’s PubMed Central database.”

Smithsonian Institution

Digitization Standards for Images. May, 2004.

http://siarchives.si.edu/records/electronic_records/records_erecords_digitization_images.html

“These standards reflect SIA requirements for digitization of images. These standards reflect available best practices applied in the context of SI Archives resource constraints at a specific point in time.”

National Anthropological Archives

Digital Imaging Standards. August, 2008

http://voom.si.edu/anthro/imaging_standards.htm

"The NAA's imaging standards were developed to meet the archives' needs at a particular point in time and reflect its staffing and funding opportunities. Although these standards have served us well, other imaging programs may require different solutions."

Government Institutions – U.S. (State and Local)

New York State Archives

Imaging Production Guidelines. 2006

http://www.archives.nysed.gov/a/records/mr_erecords_imgguides.pdf

“These guidelines list the minimal standards for producing and inspecting digital images of records. Where applicable, these guidelines follow national digital imaging standards and industry practices.”

Washington State Library

Washington State Library Digital Best Practices

<http://digitalwa.statelib.wa.gov/newsite/techindex.htm>

“The papers are intended to provide a basic introduction to the technical issues in digitization and to offer suggestions for planning your digitization project. The papers focus on issues to consider such as how to select tools and learn techniques for scanning, quality control/standards, file format/size/naming, file storage, and delivery of scanned objects via the web.”

Government Institutions - Foreign

Archives New Zealand

Digitisation Standard – January, 2007

<http://continuum.archives.govt.nz/files/file/standards/s6/index.html>

“This standard sets out requirements for digitization processes for public offices and local authorities to support the requirements of the Electronic Transactions Act 2002 and Public Records Act 2005. “

The Canadian Heritage Information Network (CHIN)

Creating and Managing Digital Content. December 10, 2008

http://www.chin.gc.ca/English/Digital_Content/index.html

The Digitization section contains a digitization tutorial and case studies of digitization projects at CHIN. It also contains “Digitization Standards for the CMCC: Scan and Artifact Photography” containing specifications used for text documents, photographic documents, and artifact photography.

Library and Archives of Canada

Technical Guidelines for Digitizing Archival/Library Collection Materials for Electronic Access: Creation of Production Master Files – Raster Images. September 28, 2005

<http://www.collectioncanada.ca/obj/012033/f2/012033-500-e.pdf>

Section Two of the Guidelines, “Digitization of Documentary Heritage,” includes an overview of production processes and standards for a variety of holdings and formats within the Library and Archives of Canada.

National Library of Australia (NLA)

The following are all contained in the “Digitisation” section of the National Library of Australia web site:

Digital Capture and Image Creation. March 31, 2008

<http://www.nla.gov.au/digital/capture.html>

This is an overview of guidelines covering digital capture standards, digital capture equipment, digital capture software, and guidelines for the selection of the digital capture device.

Images for Web Delivery. ,June 29, 2007

<http://www.nla.gov.au/digital/delivery.html>

This section contains an overview of the derivatives produced from the TIFF masters (unless otherwise specified) for convenient web delivery.

Metadata for Images Created by the National Library of Australia. March 25, 2004

http://www.nla.gov.au/digital/image_meta.html

“This information relates only to the metadata which applies to images. Metadata elements are not included for other formats, such as sound recordings and moving images, nor elements that are used to describe finding aids and descriptions of particular projects.”

Persistent Identifier scheme for digital collections at the National Library of Australia.

April 7, 2008

<http://www.nla.gov.au/initiatives/nlapi.html>

Contains the schema used for constructing the persistent identifiers, mostly in table format, with a description of the storage file system.

National Library of the Netherlands (Koninklijke Bibliotheek – KB)

Guidelines and procedures for the execution of projects for Memory of the Netherlands.

(Note Appendix 9, p.64, “Digitization Specifications for Various Material Types”).

December, 2003

<http://www.kb.nl/coop/geheugen/extra/downloads/Richtlijnen%20en%20procedures%20%204.0%20english.pdf>

Appendix Nine of this document provides specifications in table format, to serve as guidelines for the digitization of still images, moving images and audio.

Queensland Government:

State Archives

Guideline for the Digitisation of Paper Records. April 2, 2006

<http://www.archives.qld.gov.au/publications/digitisation/digiguide.pdf>

“This guideline provides digitisation recommendations that are broad enough to apply to the majority of paper records applicable to most public authorities.”

State Library of Queensland

Picture Queensland Image Digitisation Manual. 2007

http://www.slq.qld.gov.au/_data/assets/pdf_file/0006/63879/SLQ_PQ_image_digitisation_manual_-_complete.pdf

“The manual provides information on the key aspects of planning and conducting a digitisation project. The procedures listed in the manual are based upon State Library’s digitisation standards and guidelines, which conform to established industry best practice.”

UK Arts and Humanities Data Service

Preservation Handbook Bitmap (Raster) Images. July 11, 2005

http://www.ahds.ac.uk/preservation/Bitmap-preservation-handbook_d6.pdf

“This handbook provides an overview of issues concerning the creation and long-term preservation of digital still images. It will provide an overview of the nature of digital still images; guidelines on best practice in the creation of digital still images; information on avoiding common pitfalls; and an understanding of how the AHDS will preserve the resulting digital objects.”

Digital Images Archiving Study. March, 2006

http://www.jisc.ac.uk/uploaded_documents/FinaldraftImagesArchivingStudy.pdf

“The report focuses on a number of practical issues related to the preservation of images. First among these is the nature of digital images themselves – their content, format, size, metadata requirements, and potential preservation methods to ensure long term access

and use. The report also addresses user community requirements, both for those creating digital images and for subsequent users of digital images. “

Guides to Good Practice: Creating and Documenting Electronic Texts. March 31, 2008

<http://ota.oucs.ox.ac.uk/documents/creating/cdet/index.html>

“The aim of this *Guide* is to take users through the basic steps involved in creating and documenting an electronic text or similar digital resource.”

Creating Digital Resources for the Visual Arts: Standards and Good Practice.

http://vads.ahds.ac.uk/guides/creating_guide/contents.html

“ The aim of this guide is to provide information and practical guidance concerning the issues involved in creating and developing digital resources, and, introduce the possibilities offered by the creation of digital resources in the visual arts. “

Academic – U.S.

California Digital Library (CDL)

CDL Guidelines for Digital Images [Version 2.0]. September, 2008

PDF: http://www.cdlib.org/inside/diglib/guidelines/bpgimages/cdl_gdi_v2.pdf

HTML: <http://www.cdlib.org/inside/diglib/guidelines/bpgimages/>

“This document provides specifications for all *new* digital image files prepared by producers for submission to the CDL. Digital images prepared according to these guidelines meet the criteria for CDL's [Enhanced Service Level](#).”

CDL Guidelines for Digital Objects [Version 2.0]. September, 2007

PDF: <http://www.cdlib.org/inside/diglib/guidelines/GDO.pdf>

HTML: <http://www.cdlib.org/inside/diglib/guidelines/>

“The CDL Guidelines for Digital Objects provides specifications for all *new* digital objects prepared by institutions for submission to CDL for access and preservation services. They are not intended to cover all of the administrative, operational, and technical issues surrounding the creation of digital object collections.”

Cornell University

Establishing a Central Depository for Preserving Digital Image Collections. March, 2001

<http://www.library.cornell.edu/imls/image%20deposit%20guidelines.pdf>

“This document presents recommendations from the Digital Preservation Policy Working Group, which was charged with developing a prospective strategy for managing Cornell’s digital image assets over time.”

Moving Theory into Practice, Digital Imaging Tutorial. February 20, 2003

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

“This tutorial offers base-level information on the use of digital imaging to convert and make accessible cultural heritage materials. It also introduces some concepts advocated by Cornell University Library, in particular the value of benchmarking requirements before undertaking a digital initiative. You will find here up-to-date technical information, formulas, and reality checks, designed to test your level of understanding.”

Harvard University Library

Digital Projects Guide, “Digitizing” Chapter. May 14, 2008

http://hul.harvard.edu/ois/digproj/projguide_tab4.html

“This guide outlines the key considerations for well-planned digital library projects and provides links to pertinent web-accessible resources. The guide includes information that is specific to projects at Harvard University as well as more generalized information.”

Rochester Institute of Technology

Direct Digital Capture of Cultural Heritage –

Benchmarking American Museum Practices and Defining Future Needs. 2005

http://www.cis.rit.edu/museumSurvey/documents/Benchmark_Final_Report_Web.pdf

This report details the results of a survey on imaging quality throughout museums in the U.S. It covers imaging workflow, equipment used, image editing, color management, and file maintenance.

Penn State University (PSU)

Penn State University Libraries Digitization Best Practices. November 11, 2008

<http://www.libraries.psu.edu/psul/digipres/bestpractices.html>

Using the recommendations from the Digital Library Federation as a comparison, this page outlines PSU’s specifications for document imaging.

University of Florida

PALMM Guidelines and Procedures – Digitization. (2009)

<http://fclaweb.fcla.edu/node/590/>

Included within the general PALMM archives procedures, the digitization section contains links to recommended procedures for master and derivative images. PALMM (Publication of Archival, Library & Museum Materials) is a program of the libraries of the Florida Board of Education's Division of Colleges and Universities (DCU) designed to provide support to individual and cooperative digital library initiatives.

University of Georgia/ Digital Library of Georgia

Digitization Guide. July, 2001

<http://dlg.galileo.usg.edu/guide.html>

“This guide is designed to give an overview of the digitization process for historical documents such as manuscripts, photographs, books, printed materials, and other flat paper items. It is intended to cover the basics of digitization projects in a concise manner. Links to more in-depth information are found throughout the guide, and a list of resources appears at the end.”

University of Illinois

Guidelines for Digital Imaging Projects. December 6, 2001

<http://images.library.uiuc.edu/resources/digitalguidev3.pdf>

“In addition to broad information about the digitization process, this document also includes specific guidelines addressing the following areas: Getting Started with Digital Imaging Projects, Minimum Quality Requirements for Digital Images, Metadata Standards, Long-term Maintenance of Digital Files.”

University of Maryland

Best Practice Guidelines for Digital Collections at University of Maryland Libraries.

May 4, 2007

http://www.lib.umd.edu/dcr/publications/best_practice.pdf

A set of guidelines developed to cover the range of issues involved in producing digital collections, with a chapter devoted to images.

Digital Imaging Primer. August 2, 2007

<http://www.lib.umd.edu/dcr/publications/DigitalImagingPrimer.pdf>

“This document will explore the basic properties of digital image files and how they affect the overall quality of digital images. These policies are intended to set a standard for the minimum acceptable quality of images kept by the University of Maryland Libraries as digital preservation masters.”

The Library in Bits and Bytes. September 29, 2005

<http://www.lib.umd.edu/dcr/events/symposium/epubs.html>

This is a collection of presentations given at “The Library in Bits and Bytes: Digital Library Symposium”, held at the University of Maryland on 29 September 2005. Includes an article entitled “Common Imaging Problems.”.

University of Michigan

Digital Conversion Unit.

<http://www.lib.umich.edu/digital-library-production-service-dlps/digital-conversion-unit>

This guide describes the primary digitization methods including standard treatment, client responsibilities, and deliverables, for text scanning, OCR, imaging, text encoding, digitization specifications, and digitization rates.

From the Making of America (MOA) project. January, 2002

http://www.hti.umich.edu/m/moagr/moa_conversion.html

A short overview of the MOA conversion process.

University of Oregon Libraries

Metadata Best Practices for Digital Collections: Local Policies and Documentation for Digital Collections.

<http://libweb.uoregon.edu/catdept/meta/metahome.html>

This page contains all the procedures documents (to include scanning) used for digital collections at University of Oregon Libraries.

University of Southern Mississippi Libraries

Civil Rights in Mississippi Digital Archive

Guidelines for Digitization. December 19, 2003

<http://www.lib.usm.edu/legacy/spcol/crda/guidelines/index.html>

“The University of Southern Mississippi Libraries Digital Program has developed written procedural manuals, production record forms, workflow charts, and spreadsheets for tracking production statistics. Due to recent requests from those planning to implement their own digital programs, we present many of the materials here for anyone who may be interested.”

University of Virginia (UVA)

Archival Digital Image Creation. January 17, 2005

<http://etext.lib.virginia.edu/standards/imaging/>

Scanning guidelines for archival (as opposed to preservation) imaging. Used for projects at the Electronic Text Center at the University of Virginia.

Community Digitization Guidelines

http://www.lib.virginia.edu/digital/reports/uva_digitization_guidelines.html

“This document offers guidance and minimum recommendations that are in line with the UVa Library's current practice for faculty who are planning digitization projects.”

Community Digitization Guidelines. June 2, 2008

http://lib.virginia.edu/digital/reports/uva_digitization_guidelines.html

This document offers guidance and minimum recommendations from the UVA Library's current practice for faculty who are planning digitization projects. Included are tables outlining specifications for digitization of images, electronic texts, audio, video and spatial data.

Academic – Foreign

Oxford University

Scanning Prices for Digital Projects of the Oxford Digital Library. March, 2003

<http://www.odl.ox.ac.uk/papers/odlprice.pdf>

A table that includes the scanning specifications used by Oxford University Libraries Imaging Service.

Scoping the Future of the University of Oxford's Digital Library Collections – Appendix E. September, 1999

<http://www.bodley.ox.ac.uk/scoping/report.html>

“The report aims to meet the main objective of identifying the areas for further investment and funding for Oxford to fulfill its potential in the area of digitization. It defines where Oxford currently stands in terms of digital library activity, where it should be aiming for in the long term, and how it plans to get there.”

Organizations – Non-Profit

Bibliographical Center for Research / Collaborative Digitization Program (BCR CDP)
BCRs CDP Digital Imaging Best Practices . June, 2008

<http://www.bcr.org/cdp/best/digital-imaging-bp.pdf>

This revised document is based on the “Western States Digital Imaging Best Practices Guide” published in 2003. It is intended to serve as a guide for practitioners in cultural heritage institutions that seek to create images from physical objects.

Digital Library Federation (DLF)

Benchmark for Faithful Digital Reproductions of Monographs and Serials.
December, 2002

<http://www.diglib.org/standards/bmarkfin.pdf>

“This benchmark has been prepared and endorsed by the DLF to document the minimum characteristics of digital reproductions — regardless of whether or not they are registered in the DLF or other registries — required to ensure usability, persistence and interoperability.”

Guides to Quality in Visual Resource Imaging. July 2000

<http://www.diglib.org/pubs/df091/>

“The guides are written for those who have already decided what they will digitize and what purposes the digital images will serve. After the often-complex matters of selection have been settled, these guides address the steps to successfully create and store high-quality digital masters and derivatives. They include project planning, scanner selection, imaging system set-up, and the resulting digital masters.”

OCLC/ Research Library Group (RLG)

Preparing Digital Surrogates for RLG Cultural Materials. 2008

www.OCLC.org/programs/ourwork/past/culturalmaterials/surrogates.htm

This is a list of recommendations with some basic specifications for digitizing images, text, pictorial materials, audio, video, and complex digital objects.

RLG Guidelines for Creating a Request for Proposal for Digital Imaging Services. May, 1998

<http://www.oclc.org/programs/ourwork/past/digimgtools/RFPGuidelines.pdf>

“Cornell University Library, Department of Preservation and Conservation prepared these guidelines on behalf of RLG to assist the member institutions in developing their own Requests for Proposal (RFP) for digital imaging services. These guidelines do not represent a model RFP, but rather a framework for creating an RFP, such as the sample one prepared by Cornell for an upcoming text digitization project.”

Automatic Exposure: Capturing Technical Metadata for Digital Still Images. 2004
http://www.oclc.org/programs/ourwork/past/automaticexposure/ae_whitepaper_2003.pdf

This report covers the technical metadata issues faced by scanning manufacturers, issues raised by NISO Z39.87: “Technical Metadata for Digital Still Images,” and a look at the tools for harvesting technical metadata.

National Information Standards Organization (NISO)

A Framework of Guidance for Building Good Digital Collections, Third Edition.
December, 2007.

<http://www.niso.org/publications/rp/framework3.pdf>

This document provides an overview of major components, identifies resources and practices, and encourages participation in the ongoing development of best practices for digital collection building. It is intended for both cultural heritage organizations and funding organizations

National Initiative for a Networked Cultural Heritage (NINCH)

The NINCH Guide to Good Practice in the Digital Representation and Management of Cultural Heritage Materials. October, 2002

<http://www.nyu.edu/its/humanities/ninchguide/index.html>

Based on a survey of cultural heritage institutions, this Guide covers the entire process of digitizing cultural heritage materials, from planning and selection through the creation of digital content, to preservation and sustained access. Included in this is a chapter entitled “Capture and Management of Images.”

Technical Advisory Service for Images (TASI)

Creating Digital Images. (2002-2008)

<http://www.tasi.ac.uk/advice/creating/creating.html>

One of a series of “Advice” documents on digital images, this section covers the following subjects: “File Formats and Compression,” “Basic Guidelines for Image Capture,” “Scanners,” “Colour Management in Practice” and others.

Universal Photographic Digital Imaging Guidelines (UPDIG) Working Group

The Universal Photographic Digital Imaging Guidelines. Version 4.0 September 22, 2008

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

“The UPDIG guidelines aim to clarify issues affecting accurate reproduction and management of digital images. These guidelines were created to establish photographic standards and practices for photographers, designers, printers, and image distributors. The guidelines cover Digital Asset Management, Color Profiling, Metadata, and Photography Workflow.”