

Preserving State Government Digital Information Minnesota Historical Society

Center for Archival Resources On Legislatures (CAROL) Resource List

The following resources address topics covered in the Center for Archival Resources on Legislatures (CAROL). Although the resources are listed under specific topics, many address multiple issues. Topics include:

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General Resources

Library of Congress. *Digital Preservation*. <http://www.digitalpreservation.gov/>

This is the current home page for the Library of Congress's National Digital Stewardship Alliance, Digital Preservation Outreach and Education program, and the National Digital Information Infrastructure and Preservation Program. It includes links to publications, tools and services, program initiatives, and other related resources that are updated as individual projects develop.

Cornell University. *Digital Preservation Management: Implementing Short-term Strategies for Long-term Problems*. ICPSR: Inter-University Consortium for Political and Social Research. 2007. http://www.dpworkshop.org/dpm-eng/eng_index.html

A resource on digital preservation that provides a general background on preservation issues. Various preservation strategies are defined, including bit-stream copying,

refreshing, back-ups, migration, replication, standards, normalization, and emulation as well as others.

Council of State Archivists. *ARC: Archives Resource Center*. June 20, 2008.

<http://www.statearchivists.org/arc/index.htm>

Resources developed by and for state archives and records programs relating to records scheduling and disposition, electronic records, and preservation, as well as other topics, are included here.

Digital Curation Centre. *Resources for Digital Curators*. May 5, 2009.

<http://www.dcc.ac.uk/resource/>

The Digital Curation Centre in the UK is a central location for scientists, researchers and scholars to learn more about digital curation and preservation. The Resource Centre provides access to information about standards, legal issues, and current research. The Digital Curation Manual provides information about appraisal and selection, preservation metadata, archival metadata, and preservation strategies as well as other related topics. A life-cycle model provides a visual interpretation of the life-cycle of a digital object.

Government Record Branch of North Carolina. *Electronic Records*. 1/25/2012.

<http://www.records.ncdcr.gov/erecords/default.htm#guide>

A resource created specifically for government records in North Carolina that provides information on electronic record best practices, data transfer guidelines (including a user guide and video tutorials for BagIt), and email, web site, and digital imaging project guidelines.

Information Management Branch. *Digital Preservation Resources Guide*. Government of Alberta. February 2005.

<https://www.rimp.gov.ab.ca/publications/pdf/DigitalPreservationResGuide.pdf>

A resource list showing the variety of digital preservation resources available online. International, European, Australian, New Zealand, Canadian, and United States sites are all included. Journals and conference type materials are also provided.

Lefurgy, Bill. *Digital Preservation Tools and Services*. Agogified: Technology, Information and Culture, Mashed and Served. 2010.

<http://agogified.com/tools-and-services>

A resource that lists some of the available digital repository services and systems, file format management utilities and references, file integrity utilities, and file transfer specifications and utilities.

National Association of State Chief Information Officers (NASCIO). *Publications: Subject List*. 2011. <http://www.nascio.org/publications/pubsSubject.cfm>

With the mission “foster government excellence through quality business practices, information management, and technology policy” NASCIO has published articles and papers on topics including accessibility, authentication, best practices, digital government, disaster recovery, records management/E-records, and more.

Preserving Access to Digital Information (PADI). *PADI: Gateway to International Digital Preservation Resources and to ICADS (IFLA-CDNL Alliance for Digital Strategies)*. National Library of Australia. <http://www.nla.gov.au/padi/index.html> (Note: At this time, this resource can only be found through a web archives.)

Resources for many topics about digital records and digital preservation. Appraisal, electronic records management, persistent identifiers, retention and disposition, risk management, and standards are a few of the topics covered.

Organizations

ARMA International.
<http://www.arma.org/>

“ARMA International is a not-for-profit professional association and the authority on managing records and information – paper and electronic.” ARMA provides education and resources on topics such as legislative and regulatory updates, standards and best practices, and technology trends.

Council of State Archivists (CoSA).
<http://www.statearchivists.org/>

An organization that defines and communicates archival and records concerns at a national level to preserve and keep documentary heritage accessible.

Digital Curation Centre.
<http://www.dcc.ac.uk/>

The Digital Curation Centre is a central location for scientists, researchers and scholars in the UK to learn more about digital curation and preservation.

Digital Preservation Coalition (DPC).

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

The Digital Preservation Coalition (DPC) is an advocate for digital preservation. DPC provides advice, advocacy, training opportunities, and resources on digital preservation topics.

National Association of State Chief Information Officers (NASCIO).

<http://www.nascio.org/aboutNASCIO/index.cfm>

“NASCIO is a nonprofit, 501(c)3 association representing state chief information officers and information technology executives and managers from the states, territories, and the District of Columbia. NASCIO’s mission is to “foster government excellence through quality business practices, information management, and technology policy”

National Conference of State Legislatures (NCSL).

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

NCSL “is a bipartisan organization that serves the legislators and staffs of the nation's 50 states, its commonwealths and territories. NCSL provides research, technical assistance and opportunities for policymakers to exchange ideas on the most pressing state issues. NCSL is an effective and respected advocate for the interests of state governments before Congress and federal agencies.”

The National Association of Legislative Information Technology (NALIT) is a network under NCSL that focuses on technology issues.

Digital Preservation

Library of Congress. *Digital Preservation*. <http://www.digitalpreservation.gov/>

This is the current home page for the Library of Congress’s National Digital Stewardship Alliance, Digital Preservation Outreach and Education program, and the National Digital Information Infrastructure and Preservation Program. It includes links to publications, tools and services, program initiatives, and other related resources that are updated as individual projects develop.

Cuff, Jim. "Digital Archiving Versus Backup: They're Not the Same". *Infostor*. Vol. 7, Issue 10. October 2003.

<http://www.infostor.com/index/articles/display/189632/articles/infostor/volume-7/issue-10/features/digital-archiving-versus-backup-theyre-not-the-same.html>

People may use back-ups as an archiving method. This article explains the differences between archiving and back-ups and why back-ups are not considered archival storage.

Information Standards Quarterly (ISQ). *Special Issue: Digital Preservation*. National Information Standards Organization. Spring 2010, Vol. 22, Issue 2.

http://www.loc.gov/standards/premis/FE_Dappert_Enders_MetadataStds_isqv22no2.pdf

A discussion of digital preservation metadata, trustworthy digital repositories, audio-visual digitization guidelines, and digital preservation education.

Lavoie, Brian and Lorcan Dempsey. "Thirteen Ways of Looking at... Digital Preservation". *D-Lib Magazine*. Vol. 10, No. 7/8. July/August 2004.

<http://www.dlib.org/dlib/july04/lavoie/07lavoie.html>

Digital preservation means many things, and this article shows the many different ways that people look at the idea of digital preservation which provides insight into the complexity of the idea of preservation. Topics include digital preservation as an ongoing activity, a set of agreed outcomes, an understood responsibility, a selection process, an economically sustainable activity, a cooperative effort, an innocuous activity, an aggregated or disaggregated service, a complement to other library services, a well-understood process, an arm's length transaction, one of many options, and as a public good.

Library of Congress. *Meeting the Challenge*. Digital Preservation.

<http://www.digitalpreservation.gov/series/challenge/index.html>

Information, resources, and projects related to digital preservation from the Library of Congress. Some topics of interest include: content transfer, digital formats sustainability, and digitization guidelines.

National Library of Australia. *Guidelines for the Preservation of Digital Heritage*. United Nations Educational, Scientific and Cultural Organization. March 2003.

<http://unesdoc.unesco.org/images/0013/001300/130071e.pdf>

Broad guidelines for preservation activities. Includes information on appraisal, security issues, and collaborations.

Northeast Document Conservation Center (NEDCC). *Digital Preservation Readiness Webliography*. Preservation Leaflets. 2007.

<http://www.nedcc.org/resources/leaflets/6Reformatting/08DigitalPreservationReadiness.php>

A list of resources on digital preservation covering general preservation topics, cost and business models, selection decisions, metadata, standards, copyright, and sample plans and policies.

Northeast Document Conservation Center (NEDCC). *Preservation Toolkits: Stewardship of Digital Assets*. Northeast Document Conservation Center. 2007-2008.

<http://www.nedcc.org/resources/sodatools.php>

Information for a two-day workshop about preserving digital collections. Worksheets from the workshop, a questionnaire and preservation plan template, found here can be used to assess your collections and develop a preservation plan. Information on collaborative preservation modes, links to online digital preservation policies, standards and guidelines, self-assessment programs, policy development, repository infrastructures, tools and services, resources, newsletter, blogs and list-serves can also be found here.

Appraisal, Needs Assessment and Record Inventory Resources

Arizona History and Archives Division. *Appraisal Criteria for Archival Records*. Arizona State Library, Archives and Public Records. http://www.lib.az.us/archives/appraisal_criteria.cfm

These guidelines explain how the Arizona State Archives appraises records. Record values are defined, the relationships between records is discussed, and the format and condition of the records are a few of the criteria used.

Beagrie, Neil and Brett Scillitoe. *The Handbook*. [online version] The Digital Preservation Coalition. Updated December 2008. <http://www.dpconline.org/advice/preservationhandbook>

This handbook covers many aspects of digital records including preservation. The section on preservation provides a strategic overview of digital preservation and covers preservation issues of digital files including technological, organizational, and legal issues. A decision-making tree addresses the selection of digital materials for long-term retention based on rights and responsibilities, technical issues, documentation and metadata and overall cost.

Minnesota State Archives. *How to Conduct a Records Inventory*. Minnesota Historical Society. June 10, 2004.

http://www.mnhs.org/preserve/records/docs_pdfs/dhs_general/ConductInventory.pdf

Guidelines for planning and conducting a records inventory including ideas on how to organize the records during the inventory process.

New York State Archives. *Archival Needs Assessment Guide and Template*. March 2001.

http://www.archives.nysed.gov/a/records/mr_pub59_accessible.html

Background information on what a needs assessment is for and what is addressed during a needs assessment. Resources for more information can be found under each topic. The template helps to organize your own needs assessment.

Records Management

Library of Virginia. *Virginia Public Records Management Manual*. September 2010.

<http://www.lva.virginia.gov/agencies/records/manuals/vprmm.pdf>

Public records manual that covers the basics of a records management program, file management, disaster planning, records retention and disposition schedules, records surveys, electronic records, reformatting records, records destruction, records preservation, guidelines for records storage facilities, and state record center, archival, and microfilm transfers

New York State Archives. *Managing Records*.

<http://www.archives.nysed.gov/a/records/index.shtml>

Information on records management program including the following topics: starting a program, identifying records, retention and disposition of records, accessing records, storage and preservation, and how to assess, organize, and preserve electronic records.

RUBERIC. *RUBERIC Toolkit: Action Plans for Digital Preservation Management*. 2007.

http://rubric.edu.au/packages/RUBRIC_Toolkit/docs/Digital_Preservation_Management.htm

This toolkit was developed as part of the RUBERIC Project “It captures the investigations, processes and experiences surrounding the implementation of an institutional repository (IR) as experienced by the collaboration of the eight Australian and New Zealand Universities participating in the project.”

Standards and Formats Recommendations and Guidelines

ARMA International. *ANSI/ARMA 16-2007: The Digital Records Conversion Process: Program Planning, Requirements, Procedures*. March 1, 2007.

<http://www.arma.org/standards/DigitalConversion.cfm>

ANSI standard that provides the requirements needed to ensure that electronic documents “remain authentic and trustworthy as they are converted from one digital recordkeeping system to another”. The two-part standard addresses program planning, recordkeeping issues and the actual conversion process.

Higgins, Sarah. *ISO 15489: Information and Documentation – Records Management*. Digital Curation Centre. July 13, 2007. <http://www.dcc.ac.uk/resources/briefing-papers/standards-watch-papers/iso-15489>

A summary of the ISO 15489 records management standard that including characteristics of a good records management system, and overarching records management concepts. Additional resources about ISO 15489 are also included.

International Organization for Standardization. *ISO 15489-1:2001*. 2001.

http://www.iso.org/iso/catalogue_detail?csnumber=31908

Link to the purchase page for the ISO standard 15489-1.

Government Record Branch of North Carolina. *Electronic Records*. 1/25/2012.

<http://www.records.ncdcr.gov/erecords/default.htm#guide>

A resource created specifically for government records in North Carolina that includes guidelines for data transfer processes, including a user guide and video tutorials for BagIt.

Library of Congress. *From There to Here, from Here to There, Digital Content is Everywhere!* The Signal, Digital Preservation Blog. January 3, 2012.

<http://blogs.loc.gov/digitalpreservation/2012/01/from-there-to-here-from-here-to-there-digital-content-is-everywhere/>

This post includes a description of BagIt and how it is used. Links point to the BagIt specification and other resources including a video on BagIt.

Library of Congress. *Setting Standards (Open Office XML and PDF/A)*.

http://www.digitalpreservation.gov/series/challenge/formats_challenge.html

Development of and discussion on how using standards assists to long-term preservation and access.

NISO Framework Advisory Group. *A Framework of Guidance for Building Good Digital Collections 3rd Edition*. NISO Press. December 2007. <http://framework.niso.org/>

Defines seven principles that define a good collection, six that define a good digital object, and six for metadata. Many of these principles address preservation and accessibility of digital objects. These principles can assist you with accessing how well your collection adheres to best practices. References to other resources are also provided under each principle as appropriate.

North Carolina Archives and Records. *Recommended Data Formats for Long-Term Access Purposes in the NC Archives and Records (NCAR) Digital Archives*. March 2007. http://www.records.ncdcr.gov/erecords/FileFormatTable-Access-March_2007.pdf

List of preferred formats for providing long-term access to digital materials based on multiple sustainability factors for North Carolina.

Presto Centre. *Home Page*. 2011-2012. <http://www.prestocentre.org/about-us>

The Presto Centre is an organization that addresses issues of long-term digital preservation of audio-video materials.

Schreibman, Susan ed. *Best Practice Guidelines for Digital Collections at University of Maryland Libraries*. Office of Digital Collections and Research. University of Maryland, College Park. May 4, 2007. http://www.lib.umd.edu/dcr/publications/best_practice.pdf

University of Maryland's digital collections best practice guidelines cover the following topics: digital masters, copyrights and permissions, metadata, project life cycle, user-centered design, web authoring guidelines, image collections, text collections, and digital audio and video files. Appendices provide charts, checklists, and examples to assist with digital collection management.

W3C. *Standards Home Page*. 2012. <http://www.w3.org/standards/>

“W3C develops technical specifications and guidelines through a process designed to maximize consensus about the content of a technical report, to ensure high technical and editorial quality, and to earn endorsement by W3C and the broader community.” Topics

include web design and applications, web architecture, the semantic web, XML technology, web services, and compatibility issues on different browsers and devices.

Wright, Richard. *Preservation Guide*. PrestoSpace and BBC. 2009.
<http://wiki.prestospace.org/>

Preservation planning guide for audio visual materials. The sections on developing a collection strategy, developing a preservation strategy, and making a preservation plan and budget include useful information.

Metadata

Dublin Core Metadata Initiative. *Home Page*. <http://dublincore.org/>

Dublin Core is an ISO/ANSI standard and internationally recognized as a set of standard core metadata elements whose simplicity leads to great flexibility while at the same time facilitating access.

Lavoie, Brian and Richard Gartner. *Preservation Metadata*. Digital Preservation Coalition Technology Watch Report. September 2005. <http://www.dpconline.org/docs/reports/dpctw05-01.pdf>

Discusses the history and importance of preservation metadata. Elements of preservation metadata are defined and explained as well as the development of a preservation metadata schema. Discusses how the Open Archival Information System (OAIS), PREservation Metadata: Implementation Strategies (PREMIS), and the Metadata Encoding and Transmission Standard (METS) relate to each other and the development of preservation metadata.

Library of Congress. PREMIS: Preservation Metadata Maintenance Activity. February 6, 2012.
<http://www.loc.gov/standards/premis/>

The home page for PREMIS, a preservation metadata standard, which includes data dictionaries, schemas, and tutorials.

Minnesota Historical Society. *Minnesota Recordkeeping Metadata Standard (IRM 20)*. May 29, 2001. <http://www.mnhs.org/preserve/records/metadastandard.html>

The Minnesota Recordkeeping Metadata Standard was developed to facilitate records management by government entities at any level of government and is comprised of

twenty elements, ten of which are required. It shares many of its elements with other metadata standards, such as the Dublin Core and the Minnesota Geographic Metadata Guidelines set, but goes further to address such issues as access restrictions, data practices, and records management.

Open Data

Sunlight Foundation. Home Page. <http://sunlightfoundation.com/>

“The Sunlight Foundation is a non-profit, nonpartisan organization that uses the power of the Internet to catalyze greater government openness and transparency, and provides new tools and resources for media and citizens, alike.” The home page links to blog entries, and projects related to open government and transparency.

Tetherless World Constellation. *Linking Open Government Data*. 2011. <http://logd.tw.rpi.edu/>

A collection of data sets and mashups examples using open data.

W3C. Publishing Open Government Data. W3C Working Draft. September 8, 2009. <http://www.w3.org/TR/gov-data/>

“To help governments open and share their data, the W3C eGov Interest Group has developed the following guidelines. These straightforward steps emphasize standards and methodologies to encourage publication of government data, allowing the public to use

Storage

Brown, Adrian. *Selecting Storage Media for Long-Term Preservation*. The National Archives. June 19, 2003. <http://www.nationalarchives.gov.uk/documents/selecting-storage-media.pdf>

Ranking storage media with the selection criteria (longevity, capacity, viability, obsolescence, cost, and susceptibility) can assist with selecting appropriate storage media format for your records.

Cost Factors

Center for Technology in Government. *Open Government Portfolio Public Value Assessment Tool*. April 15, 2011. <http://www.ctg.albany.edu/publications/online/pvat/>

The Open Government Tool allows users to assess the public value of open government initiatives. The results can be used to support business cases or other uses.

Currall, James and Peter McKinney. *Investing in Value: A Perspective on Digital Preservation*. D-Lib Magazine. Volume 12, Number 4. April 2006.
<http://www.dlib.org/dlib/april06/mckinney/04mckinney.html>

An article discussing how the ‘value’ of digital material can be used as a model on which digital preservation investments can be made.

Kejse, Ulla Bogvad et. al. Cost Model for Digital Preservation: Cost of Digital Migration. *The International Journal of Digital Curation*. Issue 1, Volume 6, 2011.
<http://www.ijdc.net/index.php/ijdc/article/download/177/246> (pdf download)

The abstract of this paper states “The overall objective of the project was to increase cost effectiveness of digital preservation activities and to provide a basis for comparing and estimating future cost requirements for digital preservation. In this study we describe an activity-based costing methodology for digital preservation based on the Open Archive Information System (OAIS) Reference Model. Within this framework, which we denote the Cost Model for Digital Preservation (CMDP), the focus is on costing the functional entity Preservation Planning from the OAIS and digital migration activities. In order to estimate these costs we have identified cost-critical activities by analyzing the functions in the OAIS model and the flows between them.”

Lavoie, Brian. *The Incentives to Preserve Digital Materials: Roles, Scenarios, and Economic Decision-Making*. April 2003. <http://www.oclc.org/research/projects/digipres/incentives-dp.pdf>

Discusses how economic factors can drive preservation activities. Models of preservation activities and the key roles in the preservation of digital materials are discussed.

Lifeshareproject Blog. *Physical Conservation vs Digital Preservation – a cost comparison*. February 2, 2011.
<http://lifeshareproject.wordpress.com/2011/02/02/physical-conservation-vs-digital-preservation-a-cost-comparison/>

Comparison between preserving digital and analog formats.

Risk Assessment

Baker, Mary et al. *A Fresh Look at the Reliability of Long-term Digital Storage*. August 2005. <http://www.lockss.org/locksswiki/files/Eurosyst2006.pdf>

Threats to long-term storage of digital information.

Center for Technology in Government. *II. Identifying the Risks and Benefits of Moving from Paper to Electronic Transactions*. University at Albany, State University of New York. 2009. http://www.ctg.albany.edu/publications/reports/proper_systems?chapter=3

Explains the various types of risks when working with electronic records. There are risks to the system, risk to the transactions, and risk to the records. Chapter 3 assists with identifying record value and business requirements; Chapter 4 provides information on managing the unavoidable risks of electronic records, such as how to maintain reliability, authenticity, and accessibility. Chapter 4 also addresses how to preserve or prepare records for migration or disposition.

Digital Curation Centre and DigitalPreservationEurope. *DRAMBORA: Digital Repository Audit Method Based on Risk Assessment*. February 1, 2008. <http://www.repositoryaudit.eu/>

An interactive toolkit to be used to audit digital repositories. Answers to questions allow repositories to identify strengths and weaknesses which can be used to identify areas of risk. Risk management techniques assist users in developing better practices to reduce risk in each area.

Lawrence, Gregory W. et al. *Risk Management of Digital Information: A File Format Investigation*. Council on Library and Information Resources. June 2000. <http://www.clir.org/pubs/reports/pub93/contents.html>

This report discusses both emulation and migration, with more details on the migration process. A risk management chart shows associated risks with the file formats and conversion process when using migration. States the importance of accessing risk, and explains how to complete a risk assessment for your own collection.

Preservation Plan/Policy Guidelines and Examples

Beagrie, Charles et. al. *Digital Preservation Policy Study: Part 1: Final Report October 2008*. 2008. http://www.jisc.ac.uk/media/documents/programmes/preservation/jiscpolicy_p1finalreport.pdf

This study looked at digital preservation strategies and created a framework for digital preservation policy and procedures. Links are provided to other strategies in the UK.

Gray, Stephen. *Establishing a Digital Preservation Policy*. JISC Digital Media. January 29, 2009. <http://www.jiscdigitalmedia.ac.uk/crossmedia/advice/establishing-a-digital-preservation-policy/>

A high-level overview and brief description of the individual components of a digital preservation policy are included in this article.

Kentucky Department for Libraries and Archives. *Preservation Checklist for Government Officials*. Commonwealth of Kentucky. March 7, 2005. <http://kdla.ky.gov/archivists/preservation/Pages/preservationchecklistgovofficials.aspx>

A checklist of preservation guidelines for many key factors in preservation planning. The security, storage media, and disaster planning for electronic records are specifically addressed. Other guidelines address environmental controls, and storage, handling and security concerns.

Lyrasis. *Preservation: Contents of a Digital Preservation Policy*. <http://www.lyrasis.org/Products-and-Services/Digital-and-Preservation-Services/Resources-and-Publications/Contents-of-a-Digital-Preservation-Policy.aspx>

Leaflet that defines the major components of a digital preservation policy, separated by the body of the plan and the appendices.

Northeast Document Conservation Center. *Preservation 101: Chapter 8 – Building a Preservation Program*. 2006. http://oclc.preservation101.org/session8/prac_prep-writing.asp

Information on developing a preservation program including how to assess your needs, setting preservation priorities, organizing a planning team, writing a preservation plan, and maintaining the preservation plan. Sample documents are provided in many sections including a checklist for writing a preservation plan.

Rieger, Oya. *Cornell University Library Digital Preservation Policy Framework*. December 2004. <http://hdl.handle.net/1813/11230>

Digital preservation policy framework for Cornell University's Library.

McGovern, Nancy. *ICPSR Digital Preservation Policy Framework*. Inter-University Consortium for Political and Social Research (ICPSR). June 20, 2007.

<http://www.icpsr.umich.edu/icpsrweb/ICPSR/curation/preservation/policies/dpp-framework.jsp>

An example of a preservation policy from the University of Michigan that revolves around social science data. Includes information on the policy's purpose, a compliance statement, administrative responsibility, organizational viability, financial sustainability, technological and procedural suitability, system security, and procedural accountability.

Montana State Historic Preservation Office. *The Montana Historic Preservation Plan 2008-2012*. Montana Historical Society. December 2007.

<http://montanahistoricalsociety.org/shpo/surveyplanning/HistPresPlan.asp>

An example of a recent preservation plan.