



Welcome to

Strategies for Preserving Electronic Records, Part 2: Managing Digital Content



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<https://www.tsl.state.tx.us/landing/records-mgt.html>

Course Credit



- ✓ To obtain a certificate of completion:
 1. Go to the online course: <http://bit.ly/DigPresTwo>
 2. Create an account or log in.
 3. **Click the "Enroll me in this course" link!!!**
 4. Score a 70% or better on the 5-question quiz.
 5. Save or print your certificate.

HELP: Email us at slrminfo@tsl.state.tx.us

- ✓ An archived recording and all supplemental materials will be available at the link above (<http://bit.ly/DigPresTwo>)

Part 1 Recap

- ✓ Fragility of digital information
- ✓ Why is digital preservation important?
- ✓ Storage choices
- ✓ File format choices

Archived recording: <http://bit.ly/DigPresOne>

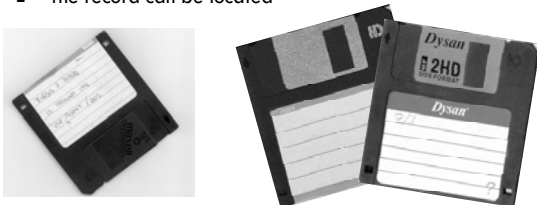
Agenda

1. Digital Preservation Goals
2. Digital Preservation Methods
3. Where to begin?
 - Taking some first steps
 - Defining your program's scope
 - Identifying your most critical needs
 - Making a business case
4. Sources of Further Training

Digital Preservation Goals

Goal 1: Availability

- Availability
 - The record is kept for its full retention period
 - The record can be located



More likely to be preserved *Less likely to be preserved*

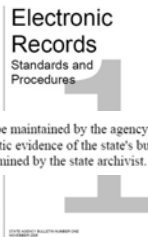
Goal 2: Usability

- Usability
 - The record can be accessed
 - The record can be read
 - The record is complete



Goal 3: Authenticity

- Authenticity
 - The record is what it purports to be



(b) An electronic state record that is an archival record must be maintained by the agency through hardware and software migrations and upgrades as authentic evidence of the state's business in accessible and searchable form, except as otherwise determined by the state archivist.

Goal 4: Functionality?

- Functionality?



Recap

- Goals of Digital Preservation:
 1. Accessibility
 2. Usability
 3. Authenticity
 4. Functionality?

Digital Preservation Methods

Methods

1. Computer Museum
2. Emulation
3. Recopying
4. Media Migration
5. Normalization
6. Microfilm
7. Print to Paper

Method 1: Computer Museum

- Preserve the computing environment in which the records were created:
 - Hardware
 - Software
 - Operating systems
 - Disk drives



Lori Emerson, Director, Media Archaeology Lab, University of Colorado at Boulder, using an Apple Lisa (left); lab storage (right). From The Signal, <http://1.usa.gov/VyzQNg>

Method 1: Computer Museum

Benefits

- Source document untouched: lower risk of data loss
- No up-front costs if simply retaining old hardware/software
- For obsolete, proprietary, homegrown software: might be best (only) option

Challenges

- Technical expertise needed
- Potentially costly to service old equipment / pay programmer

Method 2: Emulation

- Keep data in its original format
- Run obsolete programs on existing platforms through special emulation programs



Microsoft Windows 3.1 running in DOSBox, on Windows XP. Image: Wikipedia

Method 2: Emulation

Benefits

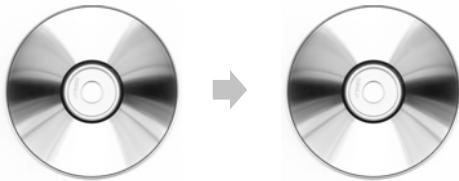
- Source document untouched: lower risk of data loss

Challenges

- Scarcity (or nonexistence) of emulator
- Technical expertise required
- Software does not run as efficiently in emulator as in native environment

Method 3: Recopying

- Copy the data to new media periodically
Same medium, from (e.g.) an old CD to a new CD
Also called "Refreshing"



Method 3: Recopying

Benefits

- Source document untouched: lower risk of data loss
- Relatively low-cost
- Relatively easy

Challenges

- Still not as safe as regularly-backed-up network storage
- Small risk of data loss in recopying process
- Doesn't protect against storage media obsolescence issues
- Doesn't protect against file format obsolescence

Method 3: Recopying

Local Governments

- **Optical** (CDs/DVDs): At least every 10 years
- **Magnetic**: At least every 3 years
- **Floppy**: Not allowable for permanent records

Reference: Bulletin B
<http://bit.ly/BulletinB>

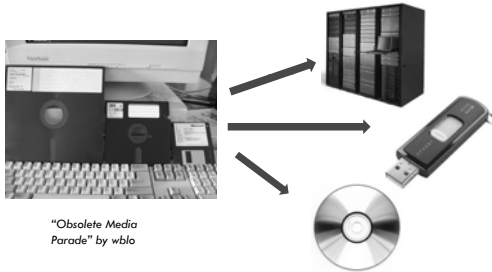
State Agencies

- **Any electronic storage medium except floppies**: "Must establish a schedule to make sure that no information is lost."
- **Floppy**: At least once a year.

Reference: Bulletin 1
<http://bit.ly/BulletinOne>

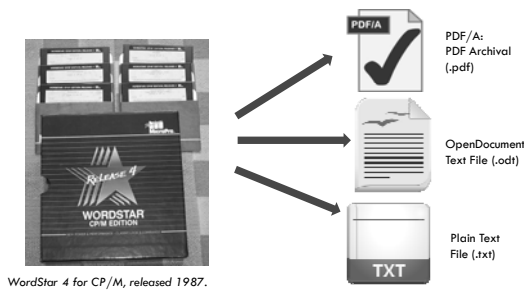
Method 4: Media Migration

- Move data off of obsolete storage media



Method 5: Normalization

- Convert data into Preservation (File) Formats



Method 6: Microfilming

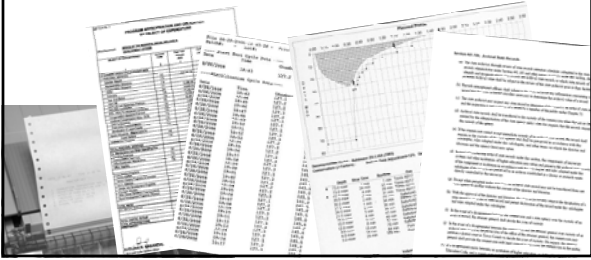
- Create a microfilm copy
- “Isn’t that a little... ‘old school’?”
 - Life expectancy of 500 years when stored properly.Rules for storing original microfilm:
 - State: See Bulletin 2, §6.26, <http://bit.ly/Bulletin2>
 - Local: See Bulletin A, §7.26, <http://bit.ly/BulletinA>
- Digital Archiving services at TSLAC:
 - <https://www.tsl.state.tx.us/landing/imaging-micro.html>

Microfilming: Pros & Cons

Benefits	Challenges
<ul style="list-style-type: none">□ Life expectancy of 500 years in proper storage conditions□ Creates unalterable, authoritative copy□ Protects against technology change□ Can be scanned back into digital format□ Space-saver	<ul style="list-style-type: none">□ Slow retrieval time: not for frequently-used documents□ Can degrade if not stored properly

Method 7: Printing to paper

- Print it out.
 - Alkaline paper recommended



Paper: Pros & Cons

Benefits	Challenges
<ul style="list-style-type: none">□ Life expectancy of 1,000+ years in proper storage conditions□ Protects against technology change□ Printing rarely requires technological expertise□ Can be scanned back into digital format	<ul style="list-style-type: none">□ Takes up physical space□ Not as searchable as electronic documents□ Potential loss of metadata□ Potential loss of functionality

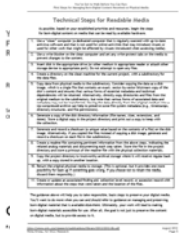


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First Steps

Start Small

- Read “You’ve Got to Walk Before You Can Run” (3 pages)
 - 11-step checklist of what to do with any content that can be read by available hardware
 - Includes steps for taking in materials, making copies, and creating important metadata and finding aids




Erway, Ricky. “You’ve Got to Walk Before You Can Run: First Steps for Managing Born-Digital Content Received on Physical Media.” OCLC Research, 2012. <http://bit.ly/VKQzn9>

Defining Scope: File Formats

- Not just preservation, but access
- What file formats can/will the custodian of the records agree to preserve in perpetuity?
 - All formats?
 - A limited number of formats?
 - Only “preservation formats”?
- What if the record creator cannot/will not convert records to accepted formats?

Defining Scope: File Formats



Policy FAQ Elements:

- What formats does NARA accept?
- Why don't they accept all electronic formats?
- If they aren't in these formats, would NARA just have them be lost?
- NARA's responsibilities
- Agencies' responsibilities

National Archives File Format Policy FAQs:
<http://1.usa.gov/U119YE>

Defining Scope: Media

- Acceptable media for transfer
 - Any medium, even an obsolete one?
 - Email attachment?
 - FTP?
 - Flash drive?
- What if the record creator cannot/will not get the data off of the storage device?

NDSA Levels




National Digital Stewardship Alliance (NDSA) Levels of Digital Preservation
(posted on The Signal): <http://1.usa.gov/VJ1ADV>

Conduct a Needs Assessment

- First step in developing a preservation plan
- Questions to ask:
 - How valuable is the information?
 - What are the retention requirements?
 - Do the records need to be kept in electronic format?
 - What staff expertise is required?

Conduct a Needs Assessment

- The Digital Preservation Capability Maturity Model (DPCMM)
 - What are the specific elements of a “trustworthy digital repository”?
 - Is your organization prepared to preserve electronic records?



<http://bit.ly/SKXoG8>

Using the DPCMM

2. Digital Preservation Strategy

The organization or unit charged with the preservation of long-term and permanent electronic records must proactively address the risks associated with technology obsolescence. More specifically, the DPCMM includes unit-level requirements related to storage devices, storage media, and file formats. Left unchecked, the obsolescence of storage devices and media eventually will render the bit streams of digital records unusable. The inevitable obsolescence of file formats, especially native, proprietary ones, means that over time software applications will not be able to render bit streams into understandable and usable digital records.

The generally accepted strategy to mitigate the obsolescence of storage devices/media through planned periodic renewal, which over time ensure that “bit streams” can be used by current technologies. The generally accepted strategy for mitigation of the format obsolescence is reliance by the digital repository on interoperable, open standard technology neutral formats.

Level	Capability Description
0	A formal strategy to address technology obsolescence does not exist.
1	A strategy to mitigate technology obsolescence consists of accepting electronic records in their native format with the expectation that new software will become available to support these formats. During this interim period viewer technologies will be relied on to render usable and understandable electronic records.
2	Electronic records in interoperable “preservation-ready” file formats and transformation of one native file format to an interoperable open standard file format are supported. Changes in obsolescence technologies that may impact electronic records collections and the archival repository are proactively and systematically monitored.
3	Selected native file formats are transformed to preferred/supported preservation file formats in the digital repository. Periodic provisioning units are selected to use preservation-ready file formats for permanent or indefinite long-term (e.g. case files, infrastructure files) electronic records in their custody.
4	All electronic records in native formats in the digital repository are transformed to available interoperable open standard technology neutral file formats.

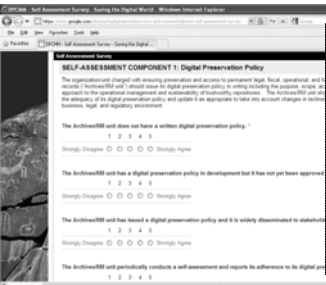
<http://bit.ly/SKXoG8>

0 points for: “A formal strategy to address technology obsolescence does not exist.”

4 points for: “All electronic records in native formats in the digital repository are transformed to available interoperable open standard technology neutral file formats.”

Self-Assessment Survey

- DPCMM self-assessment survey: <http://bit.ly/VMpSiZ>




Sample statement:

“The Archives/RM unit encourages records producers to retain records of long-term value in preservation-ready file formats.”

Make a Business Case

- Minnesota Guidelines:
 - Elements of a business case
 - Key issues to consider (showing value)
 - Examples



Minnesota Electronic Records Management Guidelines – Business Case for Digital Preservation
<http://bit.ly/UwaDRK>

Training Opportunities

Preventing a Digital Dark Age

- Five-part (free!) webinar series in April 2013:
 - 4/2: Overview of digital preservation
 - 4/4: Digitization and file conversion
 - 4/9: Metadata, finding aids, and digital asset management
 - 4/10: Backups, copies, and what can go wrong
 - 4/15: Digital preservation networks and collaboration

<http://www.connectingtocollections.org/courses/caring-for-digital-materials/>

SAA's DAS Program

- Society of American Archivists – Digital Archives Specialist Program
<http://www2.archivists.org/prof-education/das>
 - Beginner's Guide to Metadata
 - Standards for Digital Archives
 - Appraisal of Electronic Records
 - Digital Forensics for Archivists
 - Arrangement & Description of Electronic Records
- Must pay for classes/exams, but receive Digital Archives Specialist certificate upon completion

Digital Preservation Tutorial

- Digital Preservation Management: Implementing Short-term Strategies for Long-term Problems (free online tutorial – hosted by MIT Libraries):
 - Setting the stage
 - Obsolescence & physical threats
 - Foundations
 - Challenges
 - Program elements



http://www.dpworkshop.org/dpm-eng/eng_index.html

Conclusion

Conclusion

- ✓ No single “correct” method
- ✓ Choose a method that meets your goals (availability, usability, authenticity, and sometimes functionality)
- ✓ Identify needs
- ✓ Take small steps
- ✓ Get further training – subscribe to *The Texas Record* (www.tsl.state.tx.us/slrn/blog)

Thank you for attending!

- Take the 5-question quiz to receive a Certificate of Completion: <http://bit.ly/DigPresTwo>
- Questions for Angela: aossar@tsl.state.tx.us or (512) 463-6623.
- To exit
 - Unhide the Control Panel (click the red arrow key)
 - File / Exit – Leave Webinar
 - Please answer exit survey that will pop up! ☺ The survey will not pop up until you leave the webinar.



Preserving Electronic Records, Part 2: Managing Digital Content

Links Used in this Webinar

<i>Slide</i>	<i>Citation/Link</i>
Title Slide	State and Local Records Management Division home page: https://www.tsl.state.tx.us/landing/records-mgt.html
Course Credit	Preserving Electronic Records Part 2: Online Course Page (where to go for the quiz, certificate, handouts, and an archived recording): http://bit.ly/DigPresTwo
Part 1 Recap	Preserving Electronic Records Part 1: Online Course Page: http://bit.ly/DigPresOne
Computer Museum	The Media Archaeology Lab at the University of Colorado at Boulder - http://1.usa.gov/VnzONa . From an article on <i>The Signal</i> , http://blogs.loc.gov/digitalpreservation/
Recopying	Bulletin B, Electronic Records Standards and Procedures for Local Governments: https://www.tsl.state.tx.us/slr/recordspubs/lgbullb.html Bulletin 1, Electronic Records Standards and Procedures for State Agencies: https://www.tsl.state.tx.us/slr/recordspubs/stbull01.html
Microfilming	Bulletin A, Microfilming Standards and Procedures for Local Governments: http://bit.ly/BulletinA Bulletin 2, Microfilming Standards and Procedures for State Agencies: http://bit.ly/Bulletin2 Digital Archiving Services at TSLAC: https://www.tsl.state.tx.us/landing/imaging-micro.html
Start Small	Erway, Ricky. "You've Got to Walk Before You Can Run: First Steps for Managing Born-Digital Content Received on Physical Media." OCLC Research, 2012. http://bit.ly/VKQzn9
Defining Scope: File Formats	FAQs in Response to the What's and Why's of Electronic Records NARA (National Archives and Records Administration) Accepts. http://1.usa.gov/U19YE
NDSA Levels	National Digital Stewardship Alliance (NDSA) Levels of Digital Preservation - http://1.usa.gov/WJlADV . From an article on <i>The Signal</i> , http://blogs.loc.gov/digitalpreservation/
Needs Assessment	Digital Preservation Capability Maturity Model (DPCMM) http://bit.ly/SKXoG8 DPCMM self-assessment survey: http://bit.ly/VMpSi7
Business Case	Electronic Records Management Guidelines – Business Case (Minnesota Historical Society): http://www.mnhs.org/preserve/records/electronicrecords/erbusinesscaseres.html
Preventing a Digital Dark Age	"Caring for Digital Materials: Preventing a Digital Dark Age." Being offered by connecting to Collections, a partnership of the Institute of Museum and Library Services, Heritage Preservation, and the American Association of State and Local History. http://www.connectingtocollections.org/courses/caring-for-digital-materials/
SAA's DAS Program	Society of American Archivists – Digital Archives Specialist Program http://www2.archivists.org/prof-education/das
Digital Preservation Tutorial	Digital Preservation Management: Implementing Short-term Strategies for Long-term Problems (free online tutorial – hosted by MIT Libraries): http://www.dpworkshop.org/dpm-eng/eng_index.html
Conclusion	The Texas Record blog: www.tsl.state.tx.us/slr/blog