



Digital Preservation Workflow Curriculum Development

Workshop Curriculum

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Introduction

The purpose of this workshop is to provide attendees with:

- A. An understanding of the goals, processes, and responsibilities involved in the creation of a digital preservation program
- B. Problem-solving and decision-making skills to enable ongoing, collaborative digital preservation throughout technological, organizational, and content changes

The functions of digital asset management and preservation live in a collaborative and ever changing continuum. New technologies, staff changes, and different content streams are inevitable. Within this context, ensuring that valuable digital content is maintained in a managed preservation environment is essential. Data stored outside of a preservation-specific environment is often unmonitored, misplaced, or poorly tracked, all of which leaves it at a high risk of loss through dissociation, obsolescence, or simple neglect. Although it is the mission of many organizations to ensure that data is cared for, competing priorities often make this a challenge: acquiring new collections, providing access in new and innovative ways, digitization, etc., often seems to take precedence. Furthermore, logistical, technological, and workflow challenges can often make operationalizing digital preservation seem like a monumental task.

This workshop will equip participants with a set of skills and knowledge that will enable them to enact **programmatically digital preservation** within their organization. It is focused on equipping organizations with the capability to implement and manage a digital preservation program. The workshop modules present the requirements of a digital preservation ecosystem from two parallel viewpoints: 1) governance and program management, including the creation of a unified strategy and the need for cross-organizational coordination, balancing the competing priorities of innovation and maintenance, and 2) asset management, including the selection and submission of content to a managed preservation environment, and ongoing post-submission responsibilities.

From a workflow perspective, the workshop will start from the point of selection for preservation, and work toward the goal of long-term preservation of data within a preservation or managed storage service (whether internal to the organization, or an external service). It will approach digital preservation as a set of tasks that are shared amongst stakeholders, who work together to achieve long-term access. By looking at how the tasks, functions, and roles involved in digital preservation interact and share ownership, this workshop will help attendees work toward a plan for making digital preservation an underlying, operational function of an organization.

The workshop will answer both “why” and “how” questions:

- How do you build cross-departmental workflows?
- How does selection happen in the digital preservation environment?
- How does submission and ingest happen?
- Why do planning and policies matter?
- Why inventory your collections?

- How do you plan for change?
- How do you articulate resource needs to administration?
- How do you assess a long-term preservation storage solution / service?
- What is the responsibility of the collection manager vs the preservation environment?
- How do you know if you are “doing it right”?
- How do you determine what is “good enough”?

What this workshop is not:

- An introduction to digital preservation and the OAIS model
- An overview of a complete set of preservation functions
- An introduction to metadata that is preservation focused
- Intended for beginners
- A replacement for any existing workshops
- Intended for the professional development of individuals only — the aim of the workshop is to equip representatives of *organizations* with the capacity to implement preservation programs

Learning objectives

After the workshop, attendees should be able to:

- Articulate digital preservation governance and resource needs to high-level decision makers
- Collaborate with partners across the organization to ensure assets are managed throughout their lifecycle
- Articulate the need for a digital preservation program that balances competing priorities of innovation and maintenance
- Prepare and maintain an inventory of digital assets throughout the preservation lifecycle
- Implement basic digital preservation submission and ingest processes to aid in building local workflows
- Identify tools that will support local digital preservation processes
- Articulate a clear plan for getting valuable digital resources into a managed preservation environment on an ongoing basis
- Identify necessary stakeholders and roles in a digital preservation program, and map these to organizational contexts
- Identify roadblocks to digital preservation and approaches for resolving them
- Understand and communicate with service providers about SLA terms
- Understand and negotiate for SLA terms

Audience

Demographic

At least two people from each institution should attend the workshop. This includes an individual directly responsible for digital preservation decisionmaking, as well as one collection manager/digital archivist responsible for acquisition and collection-based decision making. Because selection and preparation for long-term preservation requires decisions that ultimately affect staff outside of the digital preservation unit (especially those with “ownership” over collections), communicating what is involved, how it is performed, and why certain actions are taken is key to ensuring that collections receive the care and handling they need.

Level

The workshop is presented at an **intermediate level**, recognizing that some attendees will have a better foundation than others (e.g., digital preservation managers vs. collection managers).

Capacity

24-30 attendees max.

Preparation

The level of knowledge expected for participants will differ depending on the attendee’s role in their organization. Those with less experience with digital preservation will be required to do more up-front preparation than those with more practical knowledge.

Prerequisites for digital preservation staff

Assumed previous training and baseline working knowledge of digital preservation.

- Review *Digital Preservation Management Tutorial* (http://www.dpworkshop.org/dpm-eng/eng_index.html)
- Review *OAIS Introductory Guide (2nd Edition)* (http://www.dpconline.org/component/docman/doc_download/1359-dpctw14-02)
- Review *ISO 16363: Audit and Certification of Trustworthy Digital Repositories* (<https://public.ccsds.org/pubs/652x0m1.pdf>)

Preparation methods for non-digital preservation staff

No assumed previous training or baseline working knowledge of digital preservation.

- Complete *Digital Preservation Management Tutorial* (http://www.dpworkshop.org/dpm-eng/eng_index.html)
- Read *OAIS Introductory Guide (2nd Edition)* (http://www.dpconline.org/component/docman/doc_download/1359-dpctw14-02)
- Read [something high-level about ISO 16363]
- View *Introduction to Digital Preservation* by Danielle Mericle (<http://sustainableheritagenetwork.org/digital-heritage/introduction-digital-preservation>)

Timeframe

It is suggested that this workshop take place over two full days, with each module taking about two hours. However, instructors may decide to modify the curriculum in order to fit different time frames, and/or adapt to participants' needs. Suggested timing of each lesson is provided in the module details below, however actual times will be dependent on each presenters approach to teaching the workshop.

Modules

Summaries of each module are provided below. Detailed modules in slide form are available in the appendices. Module lessons and exercises are intended to provide instructors with a starting point for developing tailored workshops.

Module 1 — Enabling Programmatic Digital Preservation

Overview

This module provides an overview of the workshop contents and approach. It begins with a discussion of the goal of the workshop — providing participants with the capacity to ensure valuable content is stored in a managed environment over the long-term, and enact digital preservation programs at their organizations — and provides an opportunity for participants to discuss what this might look like within different organizational contexts. Participants will look at the factors involved in operationalizing a digital preservation program, and the pathway that content travels along as it nears a long-term storage environment. This module introduces the problem-solving and decision-making framework that will run throughout all subsequent modules.

Goals

Upon completion of this module, participants should be able to:

- Articulate the characteristics of a digital preservation project vs program
- Identify the stakeholders within their organizations that must participate in the preservation process and define their roles and responsibilities

- Understand how to identify digital preservation roadblocks, assess their causes, and determine an approach for their resolution
- Create a roadmap toward the implementation of programmatic digital preservation

Resources

- Whiteboard or flip chart
- Markers
- Handouts:
 - Problem-solving and decision-making worksheet

Lessons

Lesson 1: Envisioning the end goal

Suggested Time: 30 min

Format: Lecture & Discussion Exercise

Topics:

- Goals of the workshop
- Structure of the workshop
- Characteristics of programmatic digital preservation

Exercise: Pros and cons of different preservation scenarios

Lesson 2: The road to programmatic DP

Suggested Time: 30 min

Format: Lecture

Topics:

- Goals and actions of each step on the journey

Exercise: Roles and responsibilities in a digital preservation program

Lesson 3: Recognizing obstacles to programmatic digital preservation

Suggested Time: 30 min

Format: Lecture & Poll/Discussion

Topics:

- Common challenges to operationalizing digital preservation
- Getting to root causes

Exercises:

- Live poll/survey
 - Asking 5 Whys
-

Lesson 4: Overcoming obstacles and roadmapping toward a digital preservation program

Suggested Time: 30 min

Format: Lecture

Topics:

- Approaches for resolving challenges
- Creating a vision
- Identifying challenges
- Agreeing on a course of action
- Creating a roadmap
- Seeing it through

Module 2 — Selection

Overview

This module introduces the concept of selection for digital preservation and how understanding an organization's collections landscape can help with planning, selection, and prioritization of digital content for preservation. Lectures will discuss planning, and offer criteria and introduce tools to track and document collections and evaluate their readiness to prioritize submission to a digital preservation service. Participants will consider factors such as legal status, "done-ness" (when is an asset ready to be preserved?), and roles and responsibilities for decision making. They will be asked to look at how the sources of content (whether from digitization or born-digital) affect decision making, and will apply what they have learned through discussions and a case study on evaluation.

Goals

Upon completion of this module, participants should be able to:

- Understand the criteria for prioritizing digital collections for submission to a preservation storage service
- Understand the roles and responsibilities of stakeholders throughout the organization for evaluation and decision making
- Develop an inventory tool for tracking digital collections across an organization
- Develop a checklist for determining what is "good enough" for submission to a preservation environment

Resources

- Post-It Notes
- Sharpies
- Internet access
- Shared Google doc
- Handouts:
 - Sample inventory (Lesson 2)
 - Case studies (Lesson 2)

Lessons

Lesson 1: Identifying digital collections

Suggested Time: 30 min

Format: Lecture & Exercise

Topics

- Understanding the scope of our collections

Exercise

- Understanding the digital collections ecosystem

Lesson 2: Documenting digital collections

Suggested Time: 30 min

Format: Lecture & Exercises

Topics

- Introduction to a digital collections inventory
- Information and fields an inventory might contain
- Building the inventory

Exercises

- How are we documenting and tracking digital collections today?
 - Building a digital collections inventory
-

Lesson 3: Assessing digital collections

Suggested Time: 50 min

Format: Lecture & Exercises

Topics

- Selection for digital preservation
- Goal of digital preservation
- Assessment criteria
- Defining “done-ness”
- Copyright, fair use, and digital preservation
- Prioritization and scoring metrics

Exercise

- Case Study: Digital collections tracking, assessment, and prioritization
-

Lesson 4: Creating a program

Suggested Time: 10 min

Format: Group discussion

For discussion

- What decision points need to be identified to create a programmatic approach to each of the lessons in this module (planning, documenting, assessing)? For example:
 - What resources are required?
 - What information is necessary?

- Who is responsible?
- What is required on an ongoing basis in order for selection, documentation, and assessment to become sustainable?
- What resources would help?
 - Tools
 - Skills

Useful References

Besser, Howard. Copyright and Digital Preservation. NYU course, 2005.

<https://www.nyu.edu/tisch/preservation/program/05spring/digital-copyright.html>

Campbell v. Acuff-Rose Music 510 U.S. 569 (1994).

https://www.law.cornell.edu/copyright/cases/510_US_569.htm

Can I Use That? Fair Use in Everyday Life. University of Minnesota Libraries.

https://netfiles.umn.edu/users/nasims/Share/FairUseforFacultyRev10_2011.pdf

de Jong, Annemieke. Digital Preservation Sound and Vision: Policy, Standards and Procedures. Netherlands Institute for Sound and Vision, 2016. <http://publications.beeldengeluid.nl/pub/388>

Hirtle, Peter. Digital preservation and copyright. Copyright & Fair Use, Stanford University Libraries, 2003. http://fairuse.stanford.edu/2003/11/10/digital_preservation_and_copyr/

Oakley, Robert. Copyright and Preservation: A Serious Problem in Need of a Thoughtful Solution. Washington, D.C.: Council on Library and Information Resources, September 1990.

<http://www.clir.org/pubs/abstract/pub11.html>

Module 3 — Preparing for Submission

Overview

This module focuses on preparing content for submission to a long-term storage service, whether in-house or external to the organization. It will emphasize requisite tasks such as understanding and conforming to submission requirements, local file management prior to submission, and tracking asset status. This module will explore common challenges encountered during this stage in the workflow, such as determining how and when to capture metadata, deciding what is “good enough” to submit, dealing with different content sources (e.g., born-digital vs. digitized), and work through ways of resolving these. A case study will be used to provide participants with experience creating a plan for this stage. A hands-on exercise creating a preservation package according to the specifications of a long-term storage service will expose participants to common tools and approaches for compliance with requirements. It will conclude with a discussion of how the processes reviewed during this module can be implemented in a program that will support all organizational content regardless of type, source, or owner.

Goals

Upon completion of this module, participants should be able to:

- Understand the requirements of a digital preservation service and how to interpret them to local context
- Understand strategies for preparing content for submission that considers different content sources (e.g., born-digital vs. digitized) and identifies the stakeholders and resources required
- Understand BagIt and how to create bags
- Identify roadblocks at this stage, and identify practical solutions for overcoming them and moving forward
- Identify criteria for implementing submission preparation into a digital preservation program that is flexible enough to accommodate all content of value to the organization

Resources

- Computers with [Exactly](#) installed
- Sample datasets for creating bags
- Handouts:
 - Sample submission requirements from storage services, e.g., APTTrust, MetaArchive, Chronopolis

Lessons

Lesson 1: SIPs

Suggested Time: 40 min

Format: Lecture

Topics:

- Brief introduction to OAIS functional model and information model
 - SIP definition
 - SIP requirements
 - SIP classes and examples
 - “Good enough” SIPs
 - Determining internal SIP requirements
-

Lesson 2: SIP creation

Suggested Time: 40 min

Format: Lecture & Exercise

Topics:

- What does a SIP look like?
- Sample SIPs
- Introduction to Bags and BagIt
- Interim local storage management
- Inventory tracking

Exercises:

- Understanding 3rd party submission requirements
 - Creating SIPs according to requirements (hands on)
-

Lesson 3: Managing SIP creation

Suggested Time: 30 min

Format: Case Study Exercise

Exercise: Case Study Problem Solving

Lesson 4: Creating a program

Suggested Time: 10 min

Format: Group Discussion

For discussion:

- What are the decisions points that need to be identified in order to create a programmatic approach to SIP creation? For example:
 - What metadata is required?
 - What files are required

- Who is responsible for creating SIPs?
- What is required on an ongoing basis in order for SIP creation to become sustainable?
- What resources would help?
 - Tools
 - Skills

Module 4 — Submission & Ingest

Overview

This module introduces the concept of transferring submission packages to preservation environments. It underscores the importance of logging transfer, upload, and verification events during ingest for the establishment (or continuation) of an audit trail that will track digital assets throughout their life in the preservation environment. Lecture will provide an overview of best practices for submission and the capture of information produced by the related events. Participants will gain experience with tools that support package transfer and will upload submission packages into a local environment and a cloud or preservation service.

Goals

- Understand best practices for the ingest of submission information packages (SIPs) to a preservation environment (either locally hosted, in the cloud, or through a preservation service)
- Understand the information to capture from submission events to maintain auditable logs
- Gain experience ingesting submission packages to preservation environments

Resources

- Post-It Notes
- Sharpies
- Access to a preservation service (e.g., Archivematica, APTTrust, DuraCloud, DPN) installed
- Sample datasets (either bagged or not, depending on requirements of service)

Lessons

Lesson 1: Submission & ingest

Suggested Time: 30 min

Format: Lecture

Topics

- Defining the language of ingest
- What happens during ingest?
- What is a preservation environment?
- Preservation events
- Ingest events
- Automating ingest

Lesson 2: Documenting ingest

Suggested Time: 30 min

Format: Lecture & Exercise

Topics

- Why document ingest?
- What should be captured during ingest?
- How should information be captured?
- PREMIS data dictionary

Exercise

- Tracking events in an inventory
-

Lesson 3: Ingest exercise

Suggested Time: 45 min

Format: Hands-on exercise or demo

Exercise

- Ingesting files into a preservation system
-

Lesson 4: Creating a program

Suggested Time: 15 min

Format: Group discussion

For discussion

- What decisions points need to be identified in order to create a programmatic approach to submitting content to a preservation environment? For example:
 - What resources are required?
 - What information is necessary?
 - Who is responsible?
- What is required on an ongoing basis in order for submission to become systematic and sustainable?
- What resources would help?
 - Tools
 - Skills

Useful References

Appendix A. Tables of File Formats. National Archives and Records Administration.
<https://www.archives.gov/records-mgmt/policy/transfer-guidance-tables.html>

Caplan, Priscilla. Understanding PREMIS. The Library of Congress, 2009.
<https://www.loc.gov/standards/premis/understanding-premis.pdf>

ngest. *Guidelines on the Production and Preservation of Digital Audio Objects* (web edition),
International Association of Sound and Audiovisual Archives. [http://www.iasa-
web.org/tc04/ingest](http://www.iasa-web.org/tc04/ingest)

Module 5 — Post-Submission

Overview

This module examines the relationship of the content holders to the preservation service on an ongoing basis following the submission of content. Regardless of whether the preservation environment is internal to the organization, an external service providing organization, or a collaborative consortium, ongoing preservation is a shared responsibility. This module will lay out the various roles, responsibilities, and tasks, and the service framework that will support the establishment of a sustainable preservation program.

Goals

Upon completion of this module, participants should be able to:

- Articulate the ongoing responsibilities of the submitting organization
- Articulate the ongoing responsibilities of the preservation service
- Interpret and negotiate a service level agreement
- Create a program for sustainable preservation within their organization that clearly defines the roles and responsibilities of all parties.
- Identify criteria for managing preservation responsibilities in collaboration with a service in a programmatic manner

Resources

- Large whiteboard or sticky flipchart paper that can be attached to the wall
- Post-its (1/2 pack per participant)
- Sharpies
- Handouts:
 - Sample SLAs

Lessons

Lesson 1: We have submitted our content, can we go home now?

Suggested Time: 30 min

Format: Lecture & Exercise

Topics:

- Ongoing responsibilities of the submitter vs preservation service
- Factors contributing to the breakdown of responsibilities
- Common responsibilities for each role
- Concerns of the submitting organization vs the preservation service

Exercise: Comparing responsibilities in different scenarios

Lesson 2: Service Level Agreements

Suggested Time: 45 min

Format: Lecture & Exercise

Topics:

- Service Level Agreements
- Definition of SLA
- Contents of SLAs
- Determining what should go into an SLA
- Negotiating an SLA

Exercise: Reviewing SLAs

Lesson 3: Determining roles and responsibilities

Suggested Time: 30 min

Format: Case Study Exercise

Exercise: Case Study Problem Solving

Lesson 4: Creating a program

Suggested Time: 15 min

Format: Group Discussion

For discussion:

- What are the decisions points that need to be identified in order to create a programmatic approach to ongoing preservation management? For example:
 - What are our organization's responsibilities post-submission?
- What is required on an ongoing basis in order for preservation management to become sustainable?
- What resources would help?
 - Tools
 - Skills

Useful References

Stephen Phillips, "Service Level Agreements for Preservation Services," PrestoCentre, 2010.
https://www.prestocentre.org/system/files/library/resource/service_level_agreements_v1.5.pdf

DPN Service Level Agreement, 2016. <http://dpn.org/dpn-admin/resources/dpnservicelevelagreement.pdf>

Module 6 — Sustainability

Overview

This module introduces some of the standards and best practices for digital preservation program assessment, tools and activities for performing assessments, and developing a business case for digital preservation. Finally, the module provides practical next steps for applying knowledge gained through the workshop.

Goals

Upon completion of this module, participants should be able to:

- Understand how to build a sustainable digital preservation program
- Understand business cases and how to create one
- Develop goals for next steps after workshop ends

Resources

- Sample business case
- Goal setting template

Lessons

Lesson 1: Building a sustainable program

Suggested Time: 30 min

Format: Lecture

Topic

- Digital preservation as a program
- From projects to program
- Economic sustainability
- Challenges to program strategies

Lesson 2: A business case for digital preservation

Suggested Time: 45 min

Format: Lecture & Exercise

Topic

- What is a “business case”?
- Planning, preparing, and presenting a business case

Exercise

- Developing a business case

Lesson 3: Creating a program and goal setting

Suggested Time: 45 min

Format: Exercises

For discussion (15 minutes)

- What are the key considerations for moving from a project to a digital preservation program? For example:
 - What resource requirements?
 - What organizational requirements?
 - What communications requirements?
 - What technology requirements?
- What is required on an ongoing basis in order for a program to be sustainable?
- How do we ensure that workflows can become systematic?

Hands on and discussion (30 minutes)

- Goal setting

Useful References

Anne R. Kenney & Nancy Y. McGovern. The Five Organizational Stages of Digital Preservation. From *Digital Libraries: A Vision for the 21st Century: A Festschrift in Honor of Wendy Lougee on the Occasion of her Departure from the University of Michigan*.

<http://quod.lib.umich.edu/cgi/t/text/text-idx?c=spobooks;idno=bbv9812.0001.001;rgn=div1;view=text;cc=spobooks;node=bbv9812.0001.001:11>.

Digital preservation business case. Minnesota Historical Society.

http://www.mnhs.org/preserve/records/legislativerecords/docs_pdfs/DigitalPreservationBusinessCaseInformationCRK10_5_2011.pdf.

Step-by-step guide to building a business case. DPC.

[http://wiki.dpconline.org/index.php?title=Step by step guide to building a business case](http://wiki.dpconline.org/index.php?title=Step_by_step_guide_to_building_a_business_case).

Sustainable Economics for a Digital Planet: Ensuring Long-Term Access to Digital Information. Blue Ribbon Task Force on Sustainable Digital Preservation and Access, February 2010.

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