Caring for Digital Materials Webinar 3:
Describe it so you can find it: Metadata,
finding aids, and digital asset management

Instructor: Danielle Cunniff Plumer

Caring for Digital Materials

Describe it so you can find it:
Metadata, finding aids, and
digital asset management

Danielle Cunniff Plumer
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Series Goals

1. Participants will have a better understanding of the inherent fragility of digital objects
2. Participants will acquire information to help them select preservation formats, metadata, and backup systems for digital objects
3. Participants will be able to identify one or more actions that can be taken to improve their institution's digital preservation efforts

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Sessions

Overview of digital preservation	Lauren Goodley	Tues., April 2, 2013 2:00 – 3:30 EDT
Convert it to preserve it: Digitization and file conversion	Jacob Nadal	Thurs., April 4, 2013 2:00 – 3:30 EDT
Describe it so you can find it: Metadata, finding aids, and asset management	Danielle Plumer	Tues., April 9, 2013 2:00 – 3:30 EDT
Practice safe archiving: Backups, copies, and what can go wrong	Jefferson Bailey	Weds., April 10, 2013 2:00 – 3:30 EDT
Partner to preserve: Digital preservation networks and collaboration	Liz Bishoff and Tom Clareson	Mon., April 15, 2013 2:00 – 3:30 EDT

We are here:

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Session Outline

- Introduction to Metadata
- Types of Metadata
  - Collections Inventories and Finding Aids
  - Descriptive Metadata
- Administrative Metadata
  - Identifiers
  - Technical Metadata
  - Preservation Metadata - PREMIS
- Metadata Quality

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Metadata

- "Metadata is structured information that describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource."
- Key Concepts:
  - Structured information
  - Ease of use
  - Formal standards

Source:
NISO. (2004) *Understanding Metadata*.
Bethesda, MD: NISO Press, p.1

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Metadata Myth

- History museums don't have "metadata," because objects don't have titles. Metadata is for art museums and libraries.

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Dublin Core Elements

15 Elements in Simple Dublin Core

Title	Description	Identifier
Creator	Subject	Language
Contributor	Coverage	Type
Publisher	Source	Format
Date	Relation	Rights

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PastPerfect to Dublin Core

Photograph Record

Print   Email Page   Send Feedback

Zoom All Images

Catalog Number	zoog-go.PC243
Object Name	Postcard
Description	The residence of Dr. C. E. Mays.
Date	circa 1890
Photographer	Ragsdale, M. C.
Collection	Randy Cave Collection
Person	Mays, C. E.
Subject	Homes
Image	Residence of Dr. C. E. Mays reverse

Dublin Core Elements
- Title
- Creator
- Date
- Contributor
- Description
- Language
- Subject
- Publisher
- Identifier
- Relation
- Rights
- Format
- Source
- Coverage
- Type

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PastPerfect to Dublin Core

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Dublin Core Elements
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- Source
- Coverage
- Type

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Metadata Guidance

- *A good object has associated metadata.*
  - A good object will have **descriptive** and **administrative** metadata, and compound objects will have **structural** metadata to document the relationships between components of the object and ensure proper presentation and use of the components.

Source:
NISO. (2007). "Objects Principle 6" in *A Framework of Guidance for Building Good Digital Collections*. Bethesda, MD: NISO Press.

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Types of Metadata

- Descriptive
- Structural
- Administrative
  - Technical
  - Rights Management
  - Preservation

Source:
NISO. (2004) *Understanding Metadata*. Bethesda, MD: NISO Press, p.1

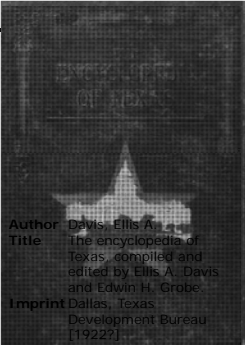Tuesday, April 9, 2013 — Slide 11 of 69

Functions of Metadata

- Discover resources
- Manage documents
- Control intellectual property rights
- Identify versions
- Certify authenticity
- Indicate status
- Mark content structure
- Situate geospatially
- Describe processes
- Others?

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Using Metadata

- Description
  - To (more or less) uniquely identify an item
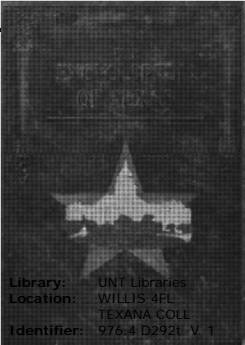 - To identify the parts of an item and their relationship to the whole

Author Davis, Ellis A.
Title The encyclopedia of Texas, compiled and edited by Ellis A. Davis and Edwin H. Grobe.
Imprint Dallas, Texas Development Bureau [1922?]

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Using Metadata

- Location
  - To show where to find the item
    - Call number
    - Archival container
    - Storage unit
    - Uniform Resource Indicator

Library: UNT Libraries
Location: WILLIS 4FL TEXANA COLL
Identifier: 976.4 D292L V. 1

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Using Metadata

- Condition
  - To document the condition of an item at a given time
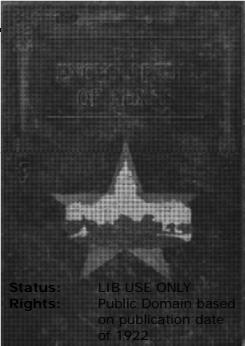 - To record any actions taken with respect to the item's condition

Binding: Full-Leather
Book Condition: Fair
Jacket Condition: No Jacket

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Using Metadata

- Use
  - To explain conditions of use for an item
    - Based on condition
    - Based on rights

Status: LIB USE ONLY
Rights: Public Domain based on publication date of 1922

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Digital is Different

- Does the metadata describe the **physical** item or the **digital** item, or both?
  - Physical item
    - Metadata as "surrogate" for the physical item
    - Metadata for inventory of and access to the physical item
    - Metadata aggregated for use in "union catalogs"
  - Digital item
    - Metadata as a component of the digital object itself
    - Metadata used as a way of pointing to the digital object from metadata aggregations

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Metadata and Digital Objects

- Metadata can be:
  - *In* the digital object
    - File headers, e.g., TIFF, EXIF; EAD, TEI headers, Broadcast WAV
  - *Near* the digital object
    - Same directory, hard drive, network, asset management system
  - *Far from* the digital object
    - On another network, in another state, in another country

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NISO's Metadata Principles

A Framework of Guidance for Building Good Digital Collections, 3rd Ed. http://framework.niso.org/

1. Good metadata conforms to **community standards** in a way that is appropriate to the materials in the collection, users of the collection, and current and potential future uses of the collection.

2. Good metadata supports **interoperability**.

3. Good metadata uses **authority control** and **content standards** to describe objects and collocate related objects

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NISO's Metadata Principles

4. Good metadata includes a clear statement of the **conditions and terms of use** for the digital object.

5. Good metadata supports the **long-term curation and preservation** of objects in collections.

6. Good metadata records are objects themselves and therefore should have the qualities of good objects, including authority, authenticity, archivability, persistence, and unique identification.

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Questions?

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Collections Inventories

- A list of items in your collection
- Can be a Word document, an Excel file, or a database (collections management software)
- Includes information about the items
  - Name
  - Location
  - Dates
  - Rights

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Collections Inventory (Example 1)

Fields: http://bit.ly/10wb6LO

- Collection Title
- Collection Number
- Series
- Description
- Fuller description
- Box_Folder
- Item_level description
- Information on content
- Date
- Rights
- Physical check

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Collections Inventory (Example 2)

Fields: http://library.amnh.org/f/Boxed_slide.pdf

- Box #
  - 099: Local Call Number
- Photographer
  - 1xx: Creator
  - 1xx: Authorized Heading?
  - 245: Collection Title
  - 245 $f/g: Collection Date
- Subject
  - 520: Summary Notes (Description)
  - 545: Biographical/Historical Note
- Extent
  - 300: Physical Description
  - 340a: Physical Medium
- Note

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Finding Aids

- A guide to a single collection
- Includes information about the collection and its creator(s)
- Includes information about access to and use of the collection
- May include a list of contents
  - Organized by:
    - Series > Subseries > Box > Folder > Item

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Finding Aid Example

http://archives.library.illinois.edu/archon/index.php?p=collections/findingaid&id=2114&q=&rootcontentid=86569#id86569

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Encoded Archival Description

- XML schema or DTD that encodes the parts of a finding aid
- Finding aid can then be converted to HTML for online display
- Software to produce:
  - XML Editor (XMetal, Oxygen)
  - Archon
  - Archivist's Toolkit } ArchivesSpace
  - Excel (see http://orbiscascade.org/index/northwest-digital-archives-tools for instructions)

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Library Catalogs

- Not just for books!
- Descriptive metadata (bibliographic)
- Include holdings and location information, item status, and more
- May include links to electronic materials and thumbnail images
- Increasingly tied to systems for managing access privileges

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Poll: Your existing tools

- What do you already use for some or all of your *digital* collections?
  - Collections Inventory
    - Excel, Word, Access or other database
  - Finding Aid
    - Word, EAD, or XML
  - Dedicated collection management software
    - Library catalog, PastPerfect, Archon/AT, etc.
  - Digital collections not currently included in collections plan

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Questions?

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Descriptive metadata

- Most standardized and well understood type of metadata
- Different descriptive metadata standards for different needs and communities
- The actual information contained in the descriptive metadata should be developed according to community **content standards**

What is a Content Standard?

- Describes the **types** of data to be recorded in describing an entity
  - Title
  - Creator
  - Edition or version
  - Publication
  - Identifier
  - Terms of availability
- May provide information on where to find the data and how to format it

Common Content Standards

- **AACR2** (Anglo-American Cataloging Rules)
  - Content standard for traditional library cataloging
  - Closely tied to MARC schema/syntax
- **RDA** (Resource Description and Access)
  - Successor to AACR2
  - Aspires to be independent of a particular syntax
- **DACS** (Describing Archives: a Content Standard)
  - Used in archives
  - Relies on AACR2 in many areas
- **CCO** (Cataloging Cultural Objects)
  - Newer standard developed by visual arts and cultural heritage community

Descriptive Metadata Schemas

- **Dublin Core**
  - Simple set of elements
  - Designed for digital objects
- **IPTC Core**
  - Used in digital photographs
- **MARC**
  - Used in library catalogs
  - Closely tied to AACR2 content standard
- **MODS**
  - XML schema for bibliographic-type data
- **PBCore**
  - Extends Dublin Core to add elements for audiovisual assets, including technical metadata

Dublin Core Elements

Descriptive Metadata Elements

Title	Description	Identifier
Creator	**Subject**	Language
Contributor	**Coverage**	Type
Publisher	Source	Format
Date	Relation	Rights

Poll: Metadata Elements

- Which descriptive metadata elements does your institution regularly collect? Check all that apply.
  - Identifier
  - Title
  - Creator/Author
  - Date
  - Description
  - Subject
  - We don't collect any metadata

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Questions?

Structural metadata

- Supports the intended presentation and use and navigation of an object
- Binds the parts together; expresses relationships between parts of a multipart object
- Examples of structural metadata needs:
  - Books, newspapers (multi-page documents)
  - Items with multiple "views" (front, back, etc.)
- Types: PDF, METS, "compound objects"

Structural Metadata in XML

```xml
<?xml version="1.0" encoding="UTF-8"?>
<mets:structMap TYPE="physical">
    <mets:div TYPE="book" LABEL="Martial Epigrams II" DMDID="DMD1">
        <mets:div TYPE="page" LABEL="Blank page">
            <mets:fptr FILEID="epi01m"/>
            <mets:fptr FILEID="epi01r"/>
            <mets:fptr FILEID="epi01t"/>
        </mets:div>
        <mets:div TYPE="page" LABEL="Page i: Half title page">
            <mets:fptr FILEID="epi02m"/>
            <mets:fptr FILEID="epi02r"/>
            <mets:fptr FILEID="epi02t"/>
        </mets:div>
        <mets:div TYPE="page" LABEL="Page ii: Blank page">
            <mets:fptr FILEID="epi03m"/>
            <mets:fptr FILEID="epi03r"/>
            <mets:fptr FILEID="epi03t"/>
        </mets:div>
        ...
    </mets:div>
    </mets:structMap>
</mets:mets>
```

Administrative metadata

- Provides information to help manage a resource
  - **Preservation** metadata
    - Content, fixity, provenance, context
    - Information about actions on an object
  - **Technical** metadata
    - Format, extent
    - Object creation information (EXIF)
  - **Rights** metadata
    - Access rights and restrictions
    - Preservation rights and restrictions

Dublin Core Element Set

Administrative Metadata Elements

Title	Description	**Identifier**
Creator	Subject	**Language**
Contributor	Coverage	**Type**
Publisher	**Source**	Format
Date	**Relation**	**Rights**

Identifier: Best Practice

- *A good object will be named with a persistent, globally unique identifier that can be resolved to the current address of the object.*
  - Good identifiers will at minimum be **locally unique**, so that resources within the digital collection or repository can be unambiguously distinguished from each other.
  - Global uniqueness can then be achieved through the addition of a **globally unique prefix** element, such as a code representing the organization.

Source:
NISO. (2007). "Objects Principle 4" in *A Framework of Guidance for Building Good Digital Collections*. Bethesda, MD: NISO Press.

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Uses of Identifiers

- The description of a digital object must be specific enough to distinguish it from similar objects
  - Unique identifiers make this easier
- The link between a digital object and its metadata must exist and be maintained over the entire lifespan of the object
  - Persistent identifiers are essential

Common Identifiers

- Accession Number
  - Institution-specific
- Control Number
  - Database ID
- UUID: Universally Unique Identifier
  - Variants include checksums (MD5, SHA-1)
- URI: Uniform Resource Identifier
  - URL: Uniform Resource Locator
    - Resolves to an Internet location
    - Desirable characteristics: static, persistent
  - URN: Uniform Resource Name
    - Location-independent
    - Examples: ISBN, ISSN, IETF, etc.

Identifiers and Object Names

- Use only alpha-numeric characters for both files and folders
  - Exceptions are dashes (-) and underscores (_)
- Do not use special characters
  - Examples include: / > < + =^ | \{ } [ ] #
    these characters are used by the operating system
- Use a three character file extension (i.e. ".tif" ".pdf", etc.)
  - See http://www.openwith.org/ for common file extensions and the programs used to open them
- Do not use spaces in file/folder names – use dashes or underscores instead
  - Note: store full path information along with file name

ALCTS *PARS Minimum Digitization Capture Recommendations*, June 2012 (draft)

Checksums as Identifiers

- Checksum: an identifier computed algorithmically from the contents of a digital file
  - Data Fixity Check: take a "snapshot" of the contents of a digital file
  - File Integrity validation: re-calculate the checksum periodically and compare it to the original
  - Video tutorial: http://digitalomnium.com/simple-act-of-digital-preservation-the-checksum/

Technical Metadata

- Information about the *digital* object
- Often automatically created when the object is created; embedded in object header
- Exif
  - Date/time
  - Camera
  - Camera Settings

Technical Metadata Dictionary

- NISO Z39.87 Data Dictionary – *Technical Metadata for Digital Still Images* (2006)
  - http://www.niso.org/apps/group_public/download.php/6502/

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Controlled Vocabularies

- Format
  - Note: Not always the same as the file extension
  - Use MIME types:
    http://www.iana.org/assignments/media-types/
- Language
  - Use RFC 4646
    http://www.ietf.org/rfc/rfc4646.txt
- Type
  - Use Dublin Core Type vocabulary
    http://dublincore.org/documents/dcmi-terms/#H7
- Date
  - Use a defined standard such as ISO 8601
    See http://www.loc.gov/standards/datetime/
    for a draft of the Extended Time/Date Format in development
    at the Library of Congress

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Saving Technical Metadata

- Save metadata in digital object headers
  - Microsoft Windows: Properties > Details
  - BWF MetaEdit: Broadcast WAVE metadata editor
    http://bwfmetaedit.sourceforge.net/
  - Image Editing Software (Adobe Bridge, Aperture)
- Extract metadata from headers
  - JHOVE
    http://hul.harvard.edu/jhove/distribution.html
  - New Zealand Metadata Extractor
    http://meta-extractor.sourceforge.net/
- Save metadata as text (XML) files with digital objects
  - XMP metadata "sidecars"

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Embedded Metadata

- Federal Agencies Digitization Guidelines Initiative (FADGI) Recommendations
  - Minimal Descriptive Embedded Metadata in Digital Still Images
    http://www.digitizationguidelines.gov/guidelines/digitize-core_embedded_metadata.html
  - Embedded Metadata in Broadcast WAVE Files
    http://www.digitizationguidelines.gov/guidelines/digitize-embedding.html
  - Embedded Metadata in TIFF Images
    http://www.digitizationguidelines.gov/guidelines/digitize-tiff.html

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Editing Metadata
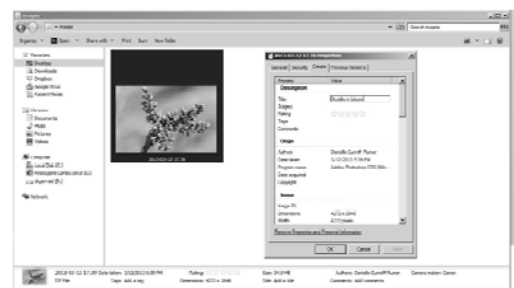
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Questions?

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Preservation metadata

- **Provenance:**
  - Who has had custody/ownership of the digital object?
- **Authenticity**:
  - Is the digital object what it purports to be?
- **Preservation Activity:**
  - What has been done to preserve it?
- **Technical Environment:**
  - What is needed to render and use it?
- **Rights Management:**
  - What intellectual property restrictions must be observed?

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PREMIS Data Dictionary

- March 2008:
  *Data Dictionary for
  Preservation Metadata:
  Final Report of the PREMIS
  Working Group*
- 224-page report includes:
  - Background
  - PREMIS Data Dictionary 2.0

http://www.loc.gov/standards/premis/v2/premis-2-0.pdf

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PREMIS Scope

- Preservation metadata
  - Descriptive metadata is out of scope
- Technical metadata applying to all or
  almost all format types
  - Format-specific metadata is out of scope
- Rights information for preservation actions,
  not for access

Resource:
Caplan, Priscilla. *Understanding PREMIS.* Washington, DC:
Library of Congress, 2009.
http://www.loc.gov/standards/premis/understanding-premis.pdf

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What PREMIS Is

- A common data model for thinking
  about preservation metadata
- A set of terms with definitions to help
  ensure consistency across
  implementations
- A framework of guidance for
  local implementations
- A standard for exchanging information
  packages between repositories

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What PREMIS Is Not

- An out-of-the-box preservation solution
  - PREMIS data must be instantiated as custom
    metadata elements in a specific repository
  - Each use of PREMIS should be documented in an
    application profile
- A complete preservation solution
  - PREMIS provides preservation metadata only
  - Does not assist in the lifecycle management of objects
    themselves, particularly outside of a specific repository
- A complete rights management solution
  - PREMIS rights management is limited to permissions
    regarding actions taken within a specific repository

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PREMIS Entities

- Object
  - Object ID
  - Preservation level
  - Object characteristics (format, size, etc.)
  - Storage
  - Environment
  - Digital signatures
  - Relationships
  - Linking identifiers

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PREMIS Entities

- Event
  - Event ID
  - Event type
  - Event date/time
  - Event outcomes
  - Linking identifiers
- Agent
  - Agent ID
  - Agent name
- Rights
  - Rights statement
  - Granting agent
  - Permission granted

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Rights metadata

- Rights information is not well understood
  - Different laws in different jurisdictions
  - Machine actionable vs. human understandable
- Rights take different forms
  - legal statutes, e.g. copyright, privacy
  - contractual rights, e.g. licenses
- Different institutions have different rights
  - Libraries and archives have "preservation exemption" in U.S. copyright law that museums do not have

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Copyright Resources

- Hirtle, Peter B, Emily Hudson, and Andrew T. Kenyon. *Copyright and Cultural Institutions: Guidelines for Digitization for U.S. Libraries, Archives, and Museums.* Ithaca, N.Y: Cornell University Library, 2009. http://ecommons.cornell.edu/bitstream/1813/14142/2/Hirtle-Copyright_final_RGB_lowres-cover1.pdf
- Society of American Archivists. *Orphan Works: Statement of Best Practices.* Chicago: SAA, 2009. http://www.archivists.org/standards/OWBP-V4.pdf
- Copyright tools:
  - Copyright slider: http://librarycopyright.net/resources/digitalslider/
  - Section 108 (Preservation Exemption) Spinner: http://www.librarycopyright.net/resources/spinner/
  - Fair Use Evaluator: http://librarycopyright.net/resources/fairuse/

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Rights schemas

- PREMIS Rights
  - Focused on rights for preservation rather than access
  - Revision of PREMIS data dictionary expanded this area
  - Allows for extensibility, i.e. inserting another rights schema
- Creative Commons
  - Allows creators to choose a license for their work
  - Simple rights statements that fit a lot of situations
  - CC0 – public domain
  - http://creativecommons.org/

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Poll: Preservation Metadata

- Select the preservation metadata elements that you currently use or plan to use to assist with digital preservation:
  - Format
  - Type
  - Checksums
  - Rights
  - PREMIS Events
  - Provenance
  - Other
  - N/A

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Questions?

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Metadata Quality

- Completeness
- Accuracy
- Provenance
- Conformance to expectations
- Logical consistency and coherence
- Timeliness (Currency and Lag)
- Accessibility

Thomas R. Bruce and Diane I. Hillman, "The Continuum of Metadata Quality: Defining, Expressing, Exploiting." In *Metadata in Practice*, ALA Editions, 2004.

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Improving Metadata Quality

- Documentation
  - Basic standards, best practice guidelines, examples
  - Exposure and maintenance of local and community vocabularies
  - Application Profiles
  - Training materials, tools, methodologies

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Metadata Quality Tools

- OpenRefine
  http://openrefine.org/
  - Formerly Google Refine
- Free Your Metadata
  http://freeyourmetadata.org/
  - Clean up
  - Reconcile
  - Entity Extraction
- Phillips, Mark. "Metadata Analysis at the Command-Line." *Code4Lib Journal*, 19(2013-01-15). Available at http://journal.code4lib.org/articles/7818

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Contact Me

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