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Preservation Standards (& Specifications) (&& Best Practices)

Discoverable, Available, Accessible: Preserving Digital Content
NISO Webinar

By Amy Kirchhoff
Archive Service Product Manager, Portico, JSTOR

September 14, 2011

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Portico, JSTOR

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Portico - Third Party Preservation

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Portico is among the largest community-supported digital archives in the world.

Working with libraries, publishers, and funders, we preserve e-journals, e-books, and other electronic scholarly content to ensure researchers and students will have access to it in the future.

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Portico – Preserved Content

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Preserved Content

»	E-journal titles	9,190
»	E-book titles	12,733
»	D-collections	12
»	E-journal files	223,993,405
»	E-book files	869,888
»	D-collection files	83,178,138
»	Total Archive	308,729,560

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Standards are Great: Everyone Should Have One!

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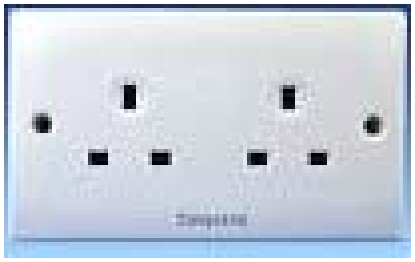

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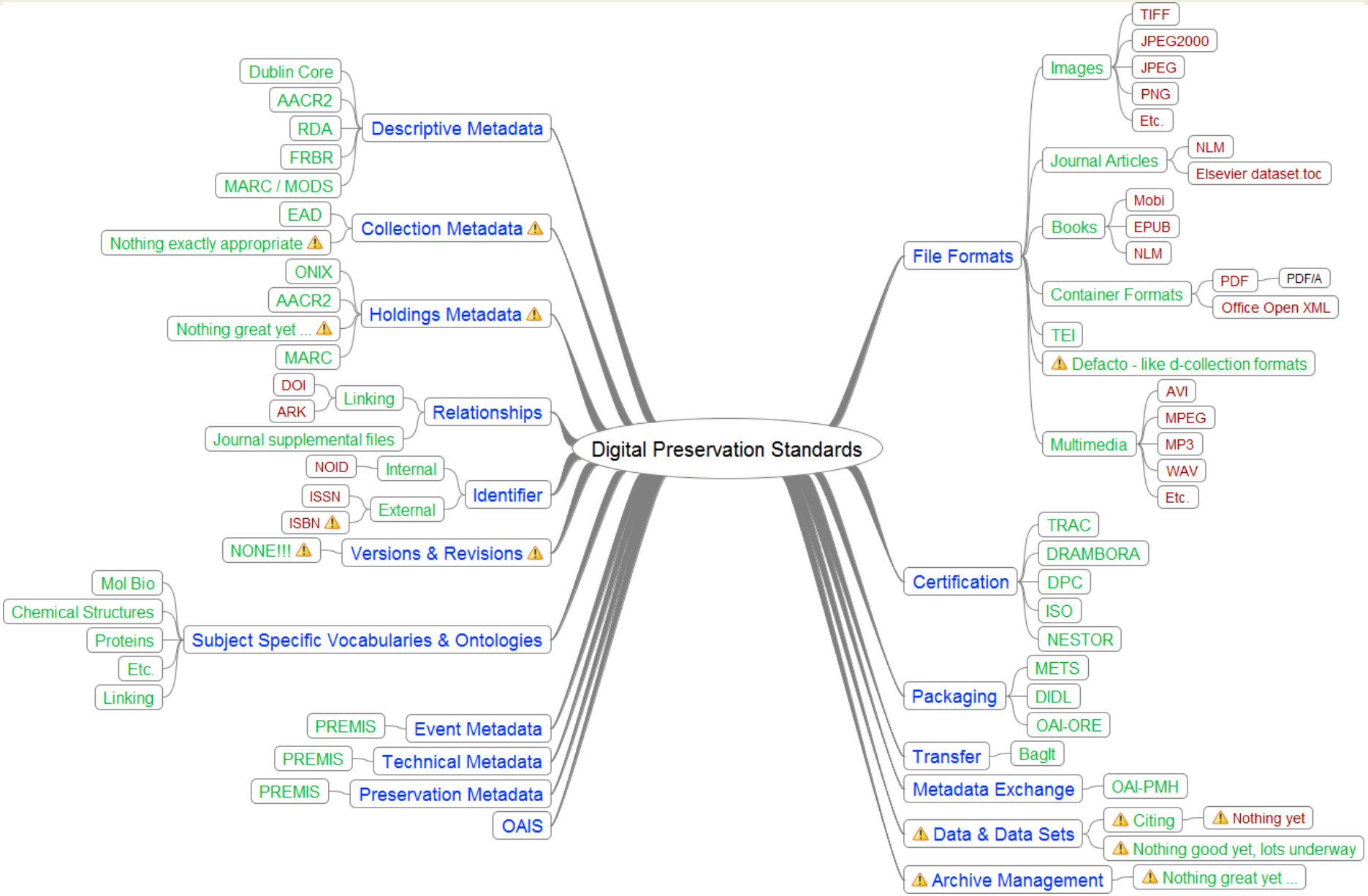
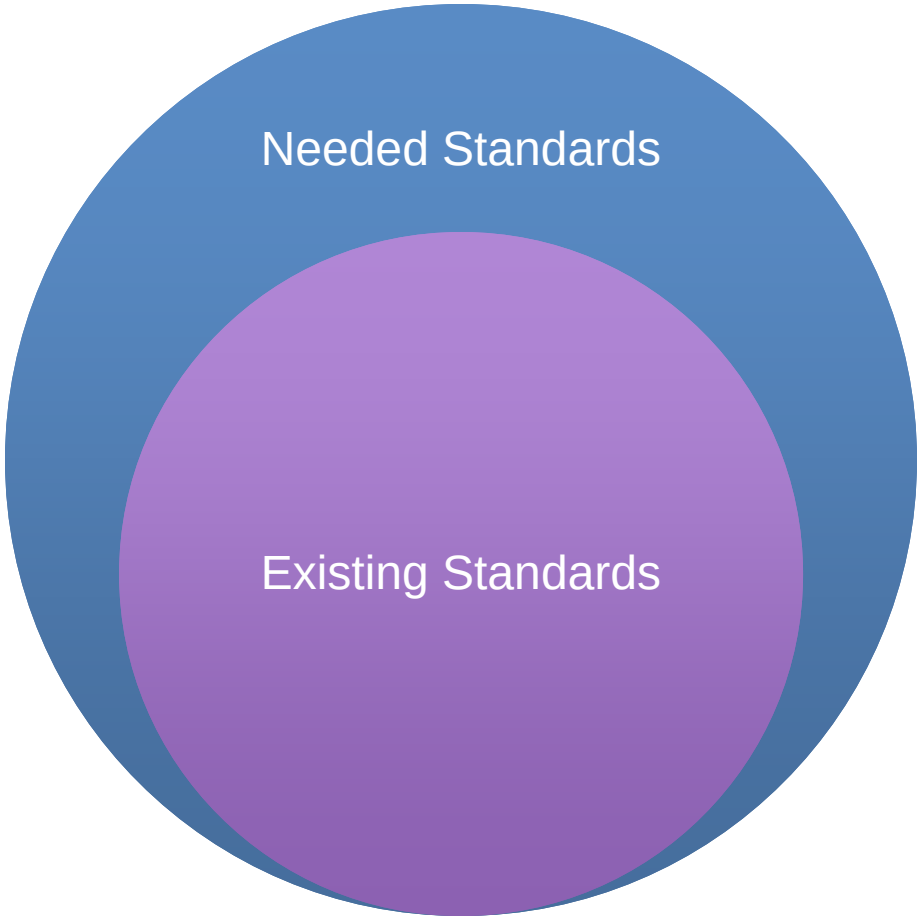
20 Minutes on Standards


Digital Preservation Standards
Descriptive Metadata
Dublin Core
AACR2
RDA
FRBR
MARC / MODS
Collection Metadata
EAD
Nothing exactly appropriate
Holdings Metadata
ONIX
AACR2
Nothing great yet ...
MARC
Relationships
Linking
DOI
ARK
Journal supplemental files
Identifier
Internal
NOID
External
ISSN
ISBN
Versions & Revisions
NONE!!!
Subject Specific Vocabularies & Ontologies
Mol Bio
Chemical Structures
Proteins
Etc.
Linking
Event Metadata
PREMIS
Technical Metadata
PREMIS
Preservation Metadata
PREMIS
OAIS
File Formats
Images
TIFF
JPEG2000
JPEG
PNG
Etc.
Journal Articles
NLM
Elsevier dataset.toc
Books
Mobi
EPUB
NLM
Container Formats
PDF
PDF/A
Office Open XML
TEI
Defacto - like d-collection formats
Multimedia
AVI
MPEG
MP3
WAV
Etc.
Certification
TRAC
DRAMBORA
DPC
ISO
NESTOR
Packaging
METS
DIDL
OAI-ORE
Transfer
BagIt
Metadata Exchange
OAI-PMH
Data & Data Sets
Citing
Nothing yet
Nothing good yet, lots underway
Archive Management
Nothing great yet ...



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Standards Portico Uses

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Context: Digital Preseravtion

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Digital preservation is the series of management policies and activities necessary to ensure the enduring usability, authenticity, discoverability, and accessibility of content over the very long-term. The key goals of digital preservation include:

Usability	Authenticity	Discoverability	Accessibility
• the intellectual content of the item must remain usable via the delivery mechanism of current technology	• the provenance of the content must be proven and the content an authentic replica of the original	• the content must have logical bibliographic metadata so that it can be found by end users through time	• the content must be available for use to the appropriate community

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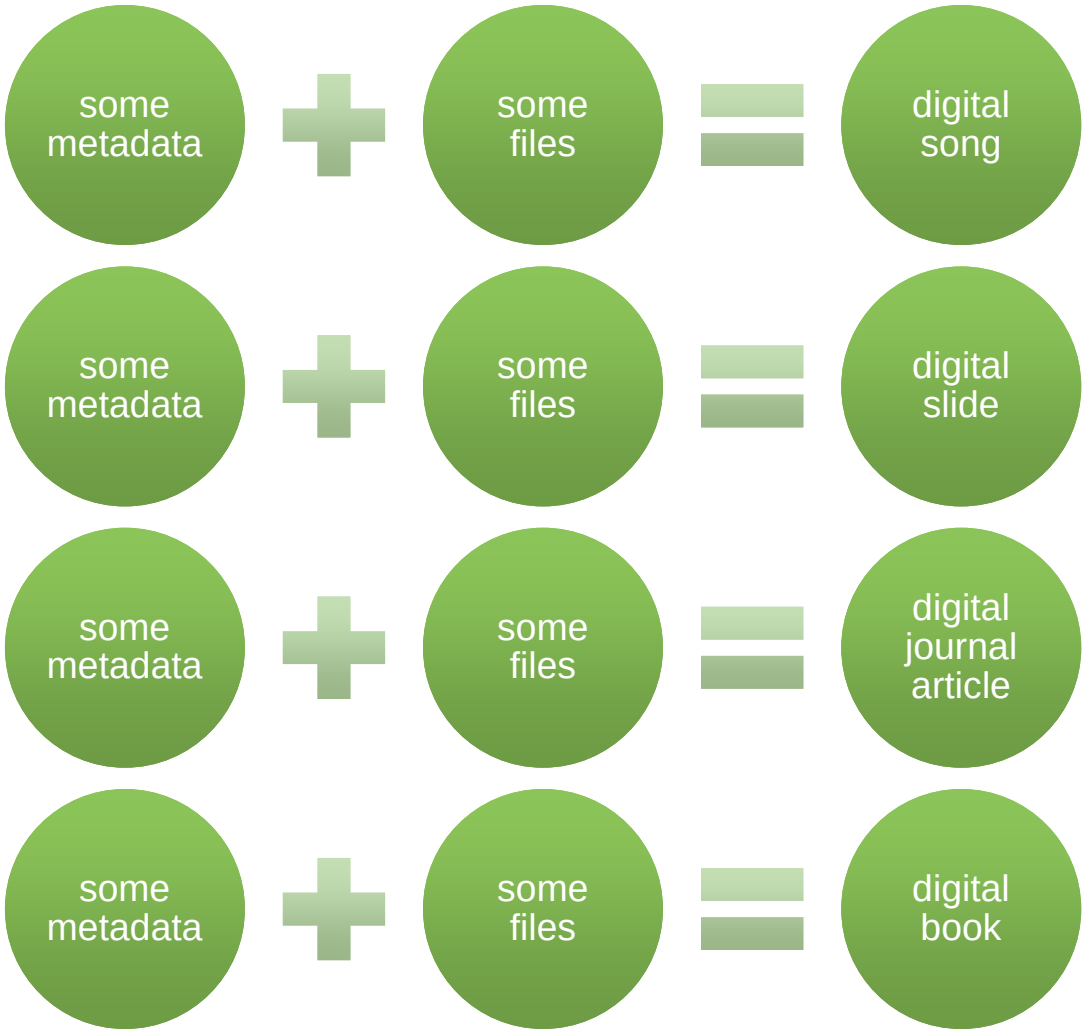
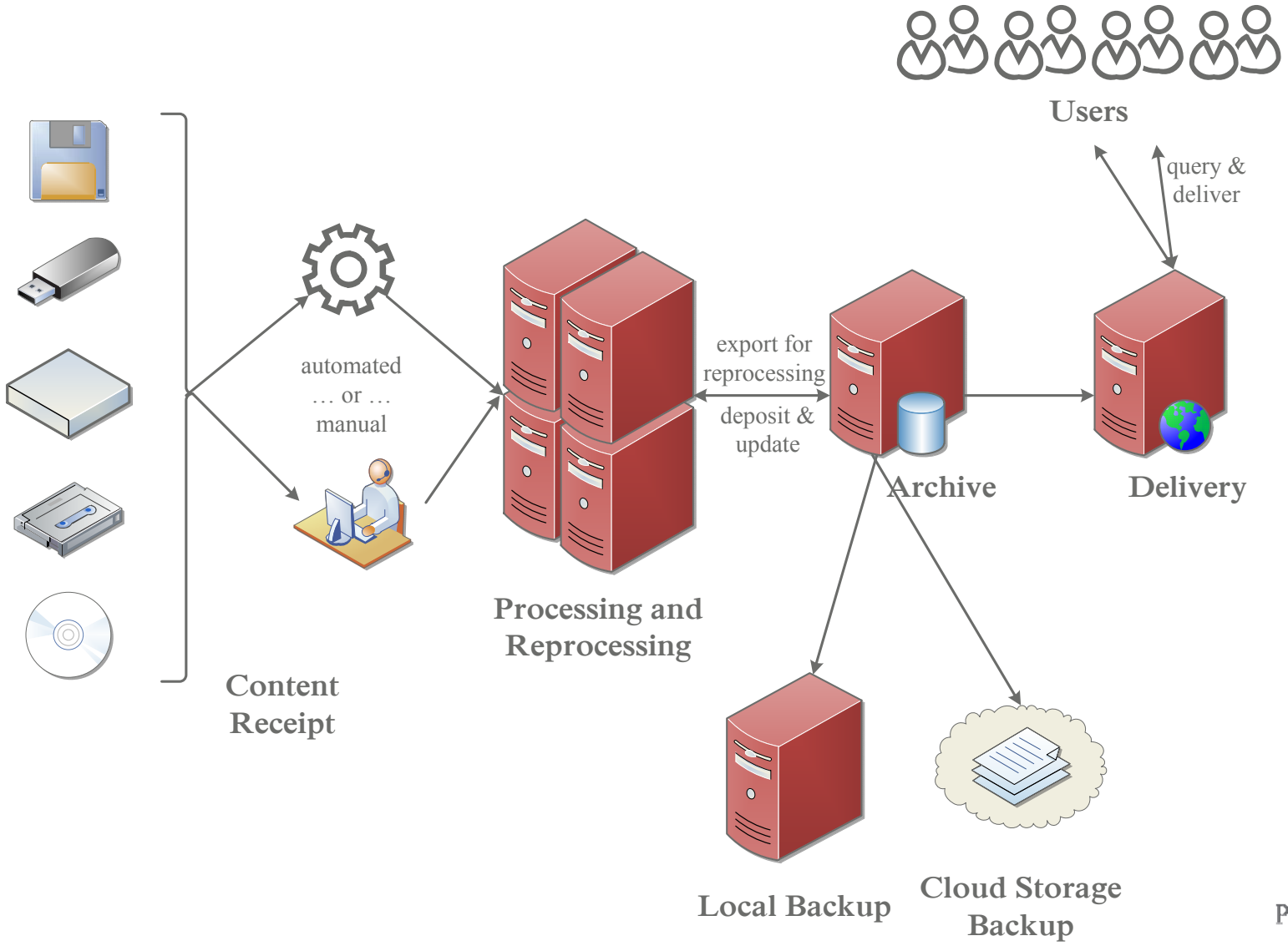
Context: Content



Context: Preservation Activities



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Standards & Specifications

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Digital Preservation Framework	• OAIS
Certification	• TRAC/CRL • DRAMBORA
Transfer	• BagIt
Metadata Containers (Packaging)	• METS • DIDL
Preservation Metadata	• PREMIS
Technical Metadata	• PREMIS
Format Type Specific Technical Metadata	• MIX
Descriptive Metadata	• Dublin Core
File Formats	• TIFF • PDF/A • NLM
Identifiers	• NOID and ARK

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Identifiers	• ARK

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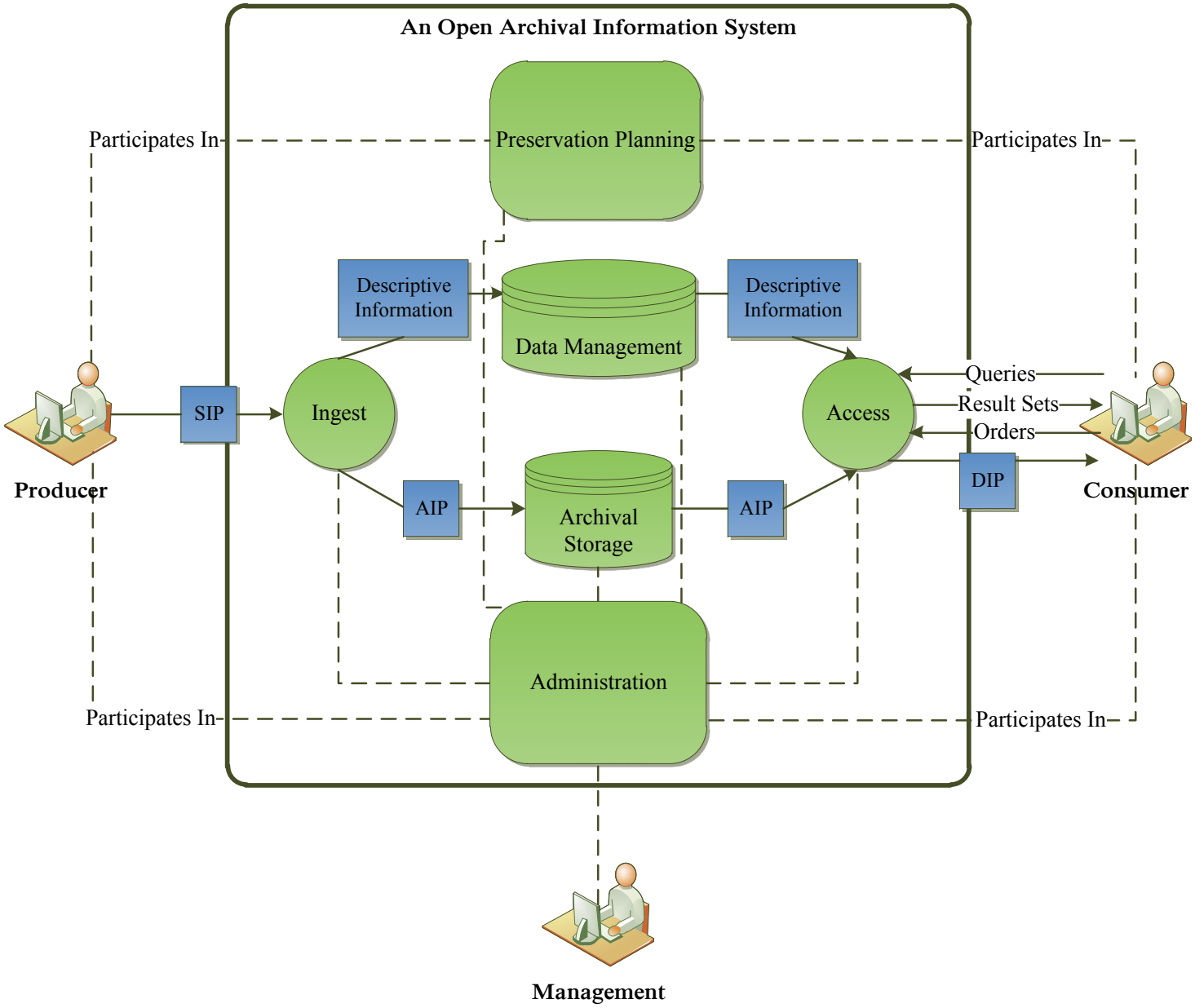
Standards & Specifications: Framework



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Standards & Specifications: Certification

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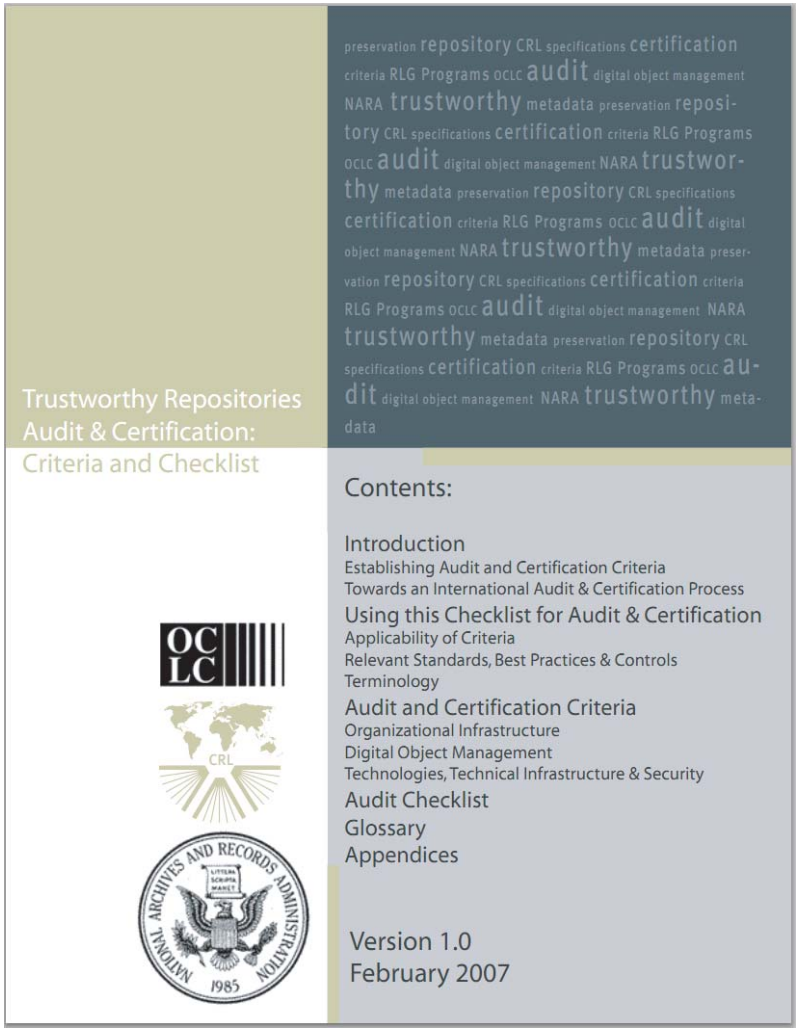

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Standards & Specifications: Transfer

Network Working Group
Internet-Draft
Expires: October 17, 2011

A. Boyko
J. Kunze
California Digital Library
J. Littman
L. Madden
Library of Congress
B. Vargas
April 15, 2011

The BagIt File Packaging Format (V0.97)
http://www.ietf.org/internet-drafts/draft-kunze-bagit-06.txt

Abstract

This document specifies BagIt, a hierarchical file packaging format for storage and transfer of arbitrary digital content. A "bag" has just enough structure to enclose descriptive "tags" and a "payload" but does not require knowledge of the payload's internal semantics. This BagIt format should be suitable for disk-based or network-based storage and transfer.

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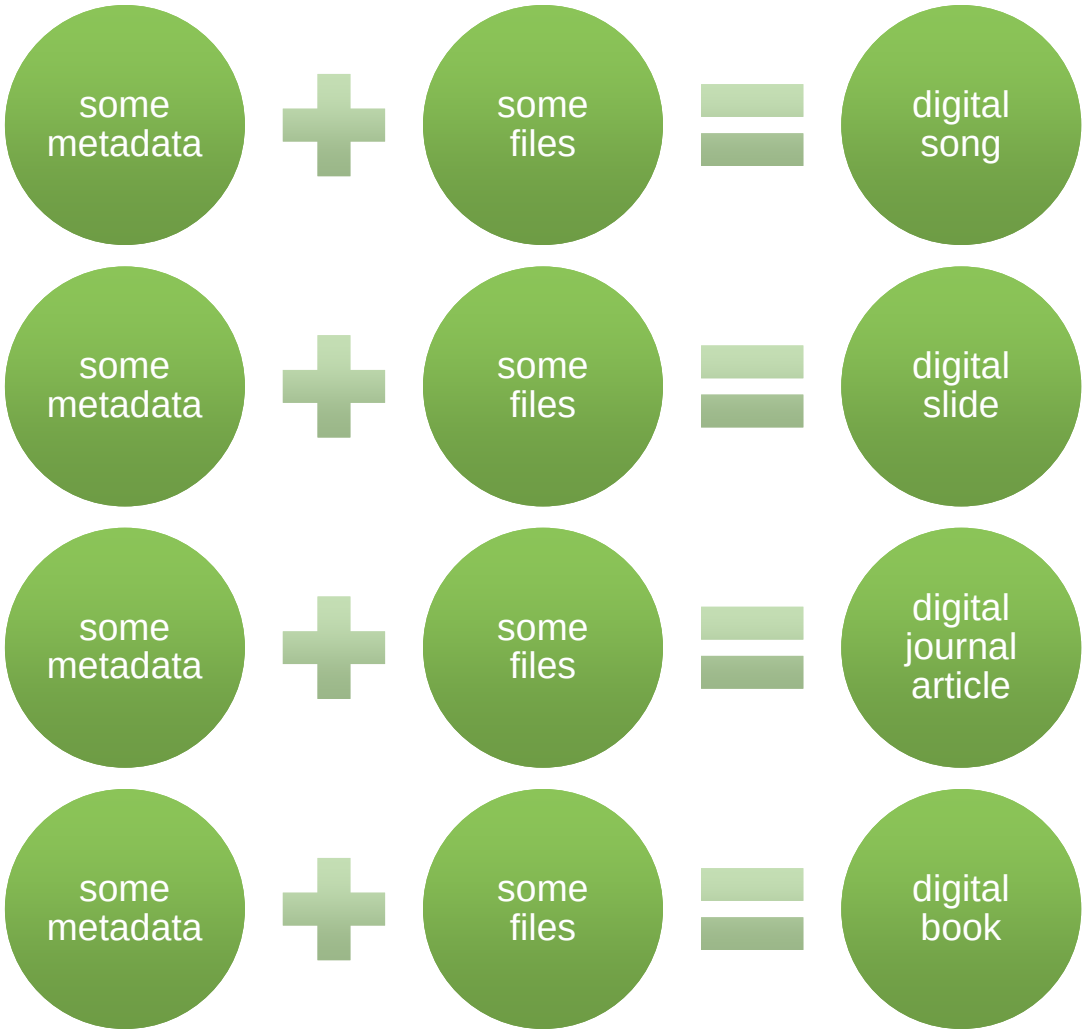
some metadata
some files
digital song
some metadata
some files
digital slide
some metadata
some files
digital journal article
some metadata
some files
digital book

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- The intellectual unit represented by this metadata file is a digitized book.
- It was scanned by Joe on this date.
- It was ingested into the repository on this other date.
- Jane Smith granted us preservation rights to it on this other date.

...

Preservation and Packaging Metadata File

- These TIF files are page images.
- The TIF file named XYZ is page 1. It is a valid TIF and has a checksum of 123456.
- The TIF file named ABC is page 2. It is not a valid TIF and has a checksum of 78910.

...

- These JPG files are figures.
- The JPG file named MNO is the 2nd figure on page 2. It is a valid JPG and has a checksum of 234567.

...

- This PDF file contains page images.
- The page images are built from TIF files XYZ, ABC, etc. and JPG figure graphics MNO, etc.

...

- This MARC file is the bibliographic record for the book.

...

- This XML file contains the full-text of the book.
- It uses the QRS DTD.
- It is named JKL and has a checksum of 555555.

...

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Standards & Specifications: Packaging

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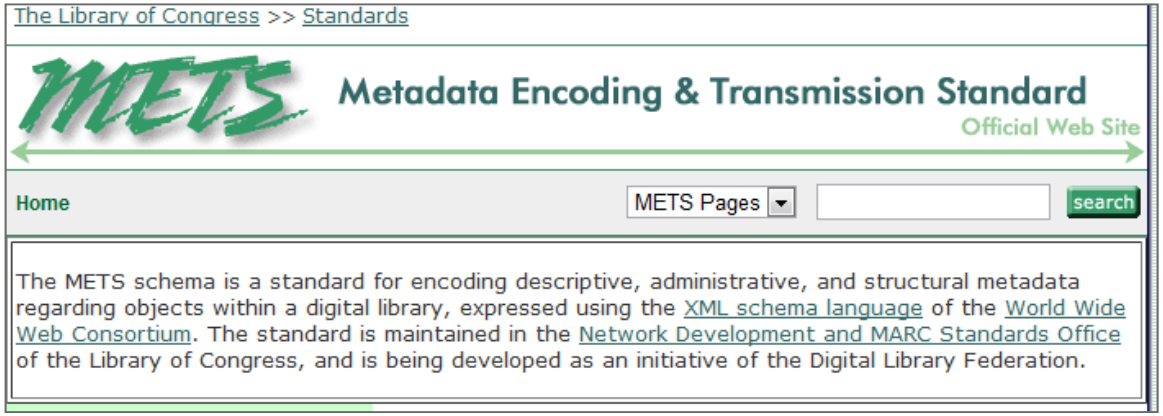

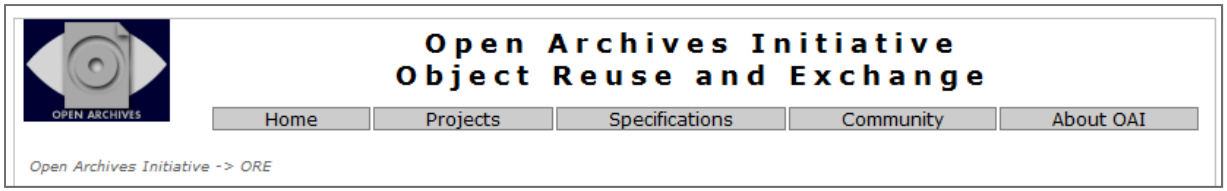

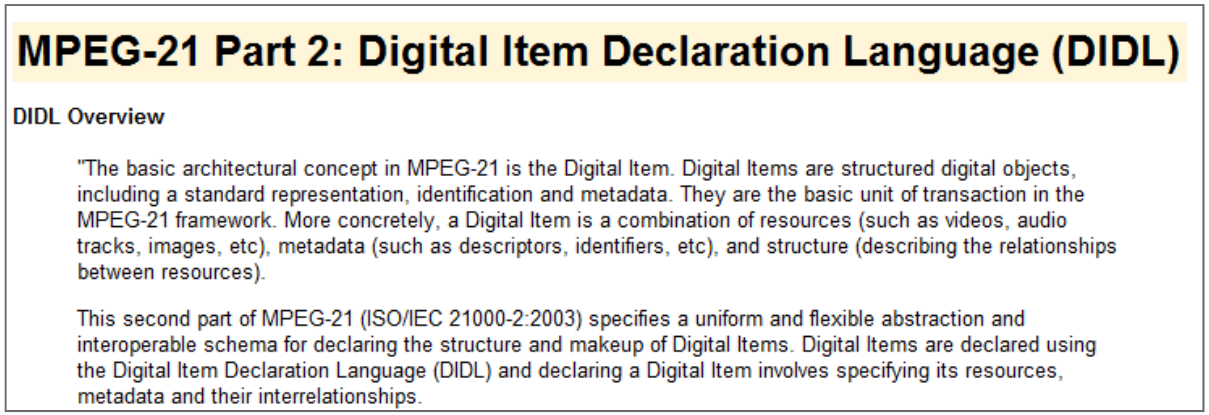

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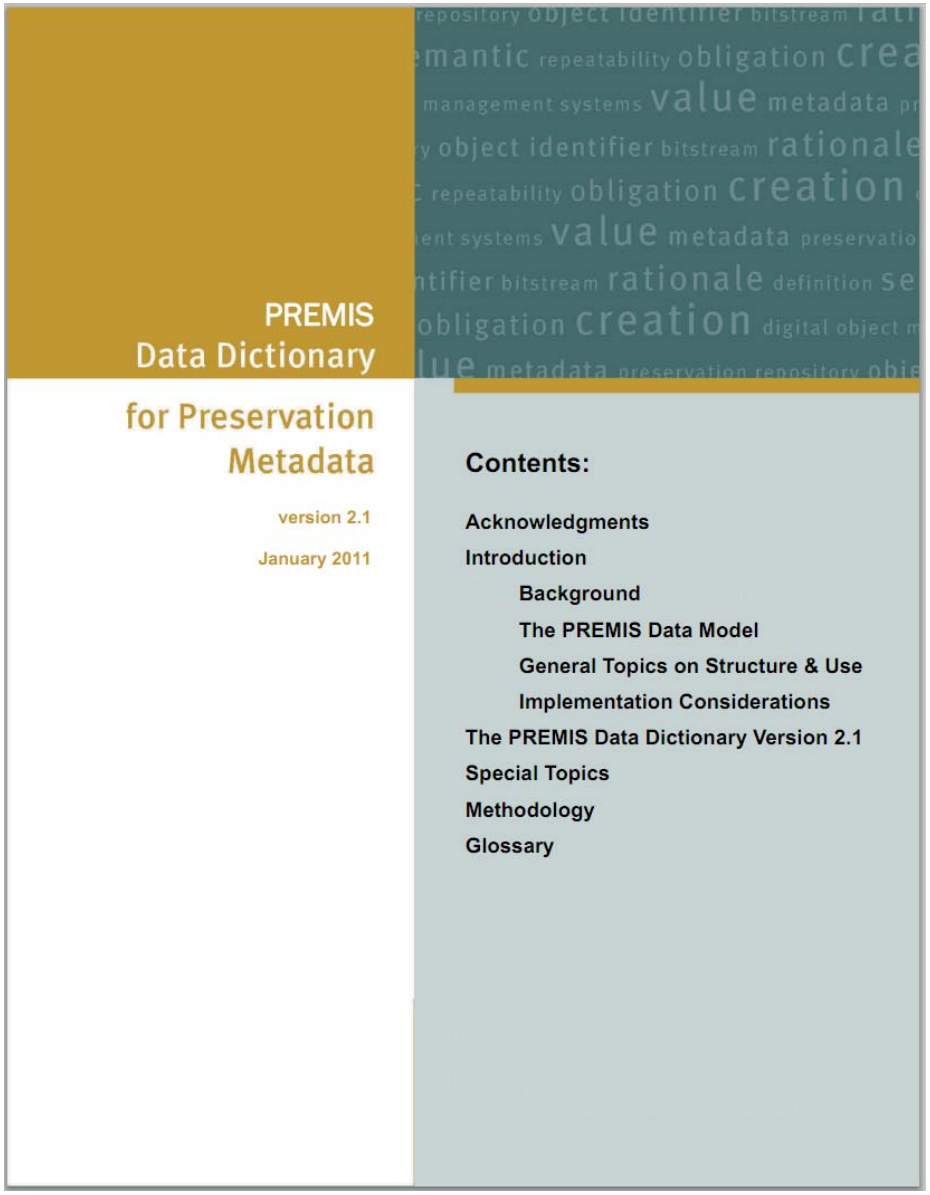
Standards & Specifications: Preservation Metadata



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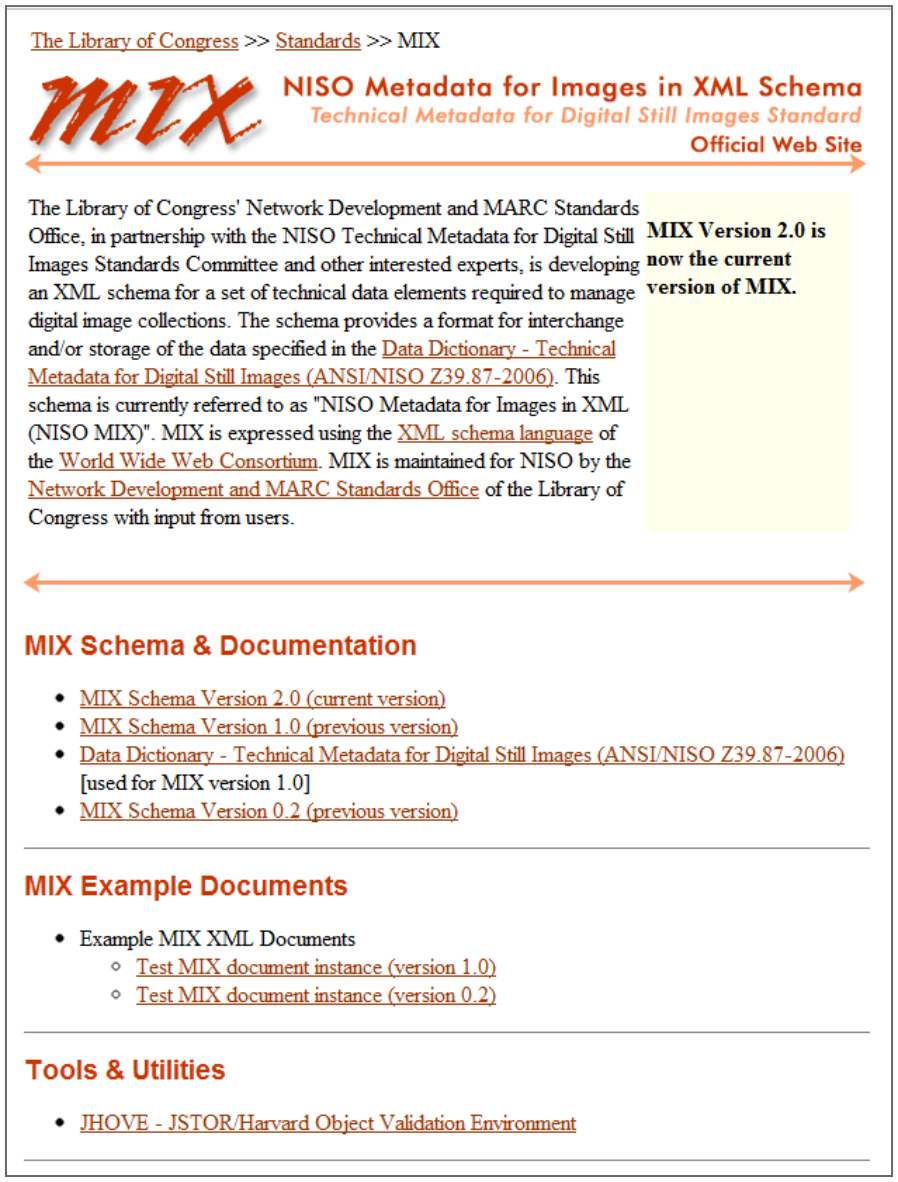
Standards & Specifications: Format Tech MD



The Library of Congress >> Standards >> MIX

MIX

NISO Metadata for Images in XML Schema

Technical Metadata for Digital Still Images Standard

Official Web Site

The Library of Congress' Network Development and MARC Standards Office, in partnership with the NISO Technical Metadata for Digital Still Images Standards Committee and other interested experts, is developing an XML schema for a set of technical data elements required to manage digital image collections. The schema provides a format for interchange and/or storage of the data specified in the Data Dictionary - Technical Metadata for Digital Still Images (ANSI/NISO Z39.87-2006). This schema is currently referred to as "NISO Metadata for Images in XML (NISO MIX)". MIX is expressed using the XML schema language of the World Wide Web Consortium. MIX is maintained for NISO by the Network Development and MARC Standards Office of the Library of Congress with input from users.

MIX Version 2.0 is now the current version of MIX.

MIX Schema & Documentation

- MIX Schema Version 2.0 (current version)
- MIX Schema Version 1.0 (previous version)
- Data Dictionary - Technical Metadata for Digital Still Images (ANSI/NISO Z39.87-2006) [used for MIX version 1.0]
- MIX Schema Version 0.2 (previous version)

MIX Example Documents

- Example MIX XML Documents
  - Test MIX document instance (version 1.0)
  - Test MIX document instance (version 0.2)

Tools & Utilities

- JHOVE - JSTOR/Harvard Object Validation Environment

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Standards & Specifications: Descriptive MD

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Dublin Core® Metadata Initiative
Making it easier to find information.

Home | Metadata Basics | DCMI Specifications | Community and Events | About Us

Enter keyword Search

Dublin Core Metadata Element Set, Version 1.1

Identifier: http://dublincore.org/documents/2010/10/11/dces/
Replaces: http://dublincore.org/documents/2008/01/14/dces/
Latest version: http://dublincore.org/documents/dces/
Date Issued: 2010-10-11
Status of document: This is a DCMI Recommendation.
Description of document: This document provides ready reference for the Dublin Core Metadata Element Set, Version 1.1. For more detailed documentation and links to historical versioning information, see the document "DCMI Metadata Terms".

Introduction

The Dublin Core Metadata Element Set is a vocabulary of fifteen properties for use in resource description. The name "Dublin" is due to its origin at a 1995 invitational workshop in Dublin, Ohio; "core" because its elements are broad and generic, usable for describing a wide range of resources.

The fifteen element "Dublin Core" described in this standard is part of a larger set of metadata vocabularies and technical specifications maintained by the Dublin Core Metadata Initiative (DCMI). The full set of vocabularies, DCMI Metadata Terms [DCMI-TERMS], also includes sets of resource classes (including the DCMI Type Vocabulary [DCMI-TYPE]), vocabulary encoding schemes, and syntax encoding schemes. The terms in DCMI vocabularies are intended to be used in combination with terms from other, compatible vocabularies in the context of application profiles and on the basis of the DCMI Abstract Model [DCAM].

All changes made to terms of the Dublin Core Metadata Element Set since 2001 have been reviewed by a DCMI Usage Board in the context of a DCMI Namespace Policy [DCMI-NAMESPACE]. The namespace policy describes how DCMI terms are assigned Uniform Resource Identifiers (URIs) and sets limits on the range of editorial changes that may allowably be made to the labels, definitions, and usage comments associated with existing DCMI terms.

This document, an excerpt from the more comprehensive document "DCMI Metadata Terms" [DCTERMS] provides an abbreviated reference version of the fifteen element descriptions that have been formally endorsed in the following standards:

- ISO Standard 15836:2009 of February 2009 [ISO15836]
- ANSI/NISO Standard Z39.85-2007 of May 2007 [NISOZ3985]
- IETF RFC 5013 of August 2007 [RFC5013]

Since 1998, when these fifteen elements entered into a standardization track, notions of best practice in the Semantic Web have evolved to include the assignment of formal domains and ranges in addition to definitions in natural language. Domains and ranges specify what kind of described resources and value resources are associated with a given property. Domains and ranges express the meanings implicit in natural-language definitions in an explicit form that is usable for the automatic processing of logical inferences. When a given property is encountered, an inferencing application may use information about the domains and ranges assigned to a property in order to make inferences about the resources described thereby.

Since January 2008, therefore, DCMI includes formal domains and ranges in the definitions of its properties. So as not to affect the conformance of existing implementations of "simple Dublin Core" in RDF, domains and ranges have not been specified for the fifteen properties of the dc: namespace (http://purl.org/dc/elements/1.1/). Rather, fifteen new properties with "names" identical to those of the Dublin Core Metadata Element Set Version 1.1 have been created in the dcterms: namespace (http://purl.org/dc/terms/). These fifteen new properties have been defined as subproperties of the corresponding properties of DCMES Version 1.1 and assigned domains and ranges as specified in the more comprehensive document "DCMI Metadata Terms" [DCTERMS].

Implementers may freely choose to use these fifteen properties either in their legacy dc: variant (e.g., http://purl.org/dc/elements/1.1/creator) or in the dcterms: variant (e.g., http://purl.org/dc/terms/creator) depending on application requirements. The RDF schemas of the DCMI namespaces describe the subproperty relation of dcterms:creator to dc:creator for use by Semantic Web-aware applications. Over time, however, implementers are encouraged to use the semantically more precise dcterms: properties, as they more fully follow emerging notions of best practice for machine-processable metadata.

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

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Identifiers	• ARK

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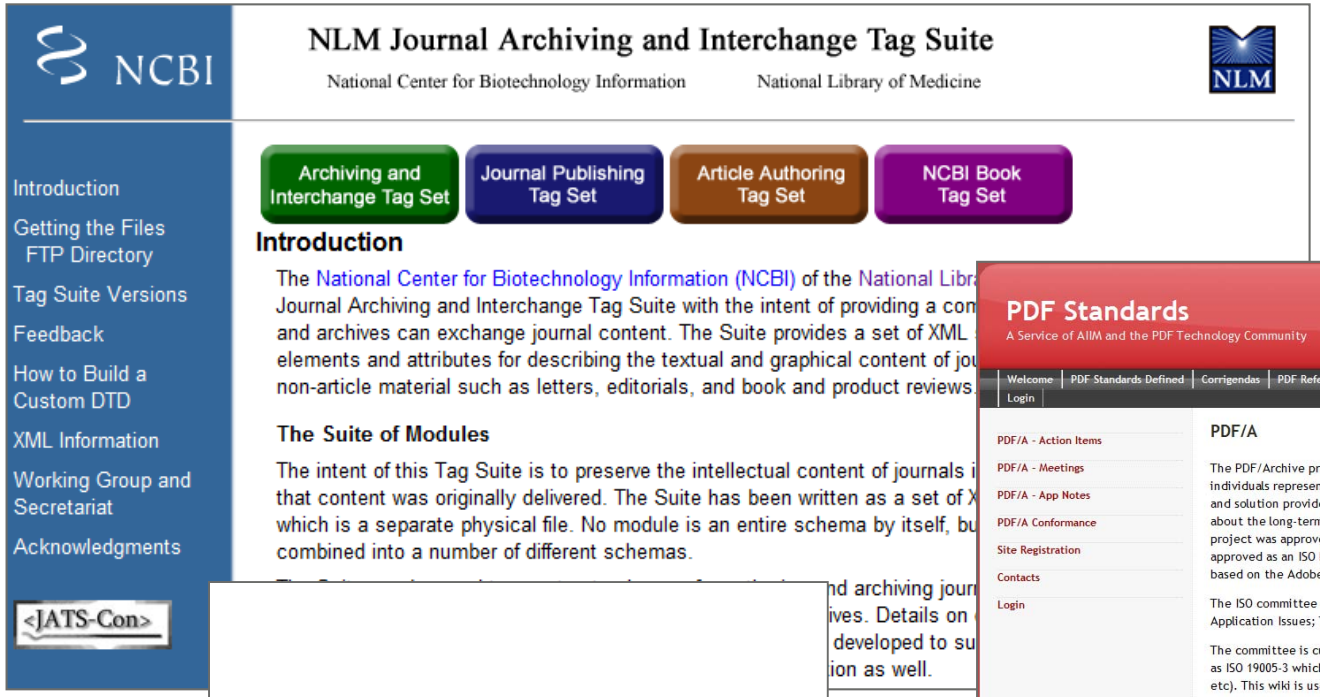
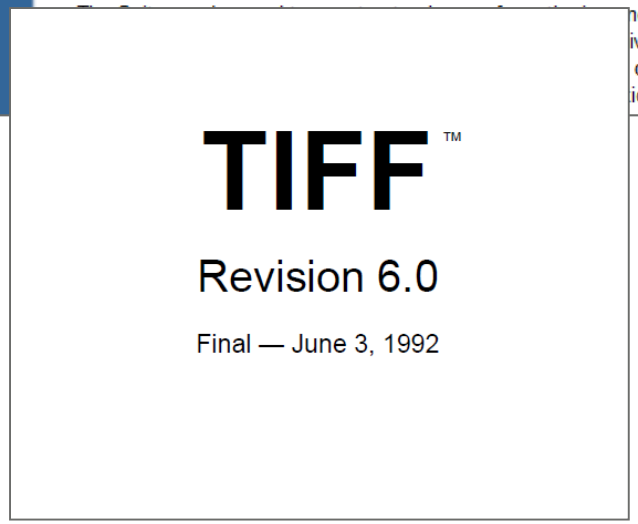
Standards & Specifications: File Formats





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Standards & Specifications: Identifiers

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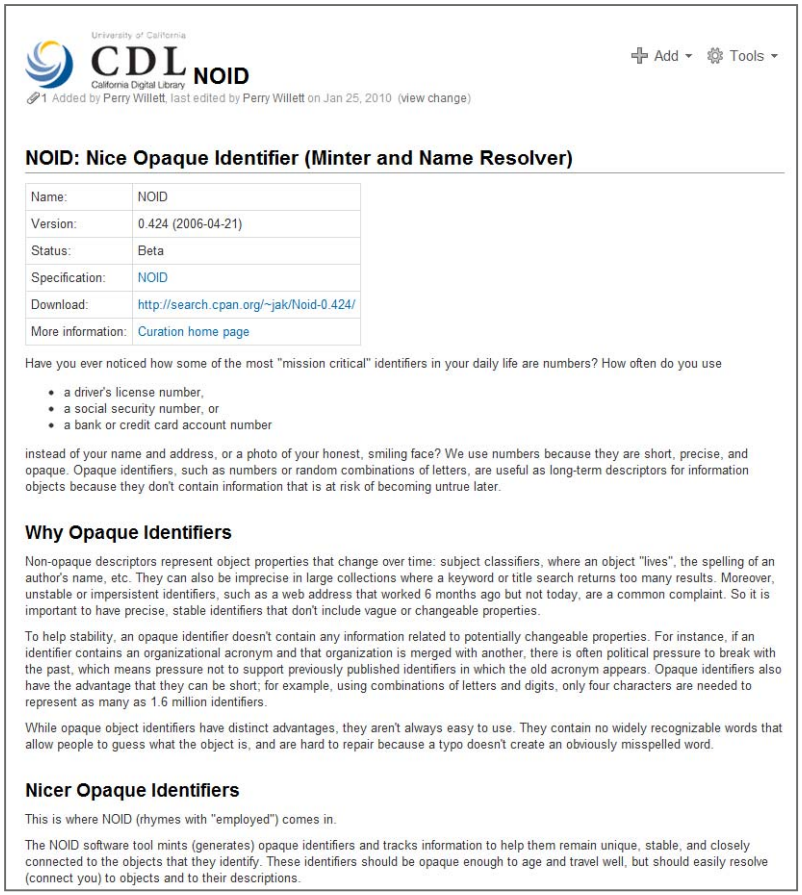

University of California
CDL California Digital Library **NOID**

Add Tools

1 Added by Perry Willett, last edited by Perry Willett on Jan 25, 2010 (view change)

NOID: Nice Opaque Identifier (Minter and Name Resolver)

Name:	NOID
Version:	0.424 (2006-04-21)
Status:	Beta
Specification:	NOID
Download:	http://search.cpan.org/~jak/Noid-0.424/
More information:	Curation home page

Have you ever noticed how some of the most "mission critical" identifiers in your daily life are numbers? How often do you use

- a driver's license number,
- a social security number, or
- a bank or credit card account number

instead of your name and address, or a photo of your honest, smiling face? We use numbers because they are short, precise, and opaque. Opaque identifiers, such as numbers or random combinations of letters, are useful as long-term descriptors for information objects because they don't contain information that is at risk of becoming untrue later.

Why Opaque Identifiers

Non-opaque descriptors represent object properties that change over time: subject classifiers, where an object "lives", the spelling of an author's name, etc. They can also be imprecise in large collections where a keyword or title search returns too many results. Moreover, unstable or impersistent identifiers, such as a web address that worked 6 months ago but not today, are a common complaint. So it is important to have precise, stable identifiers that don't include vague or changeable properties.

To help stability, an opaque identifier doesn't contain any information related to potentially changeable properties. For instance, if an identifier contains an organizational acronym and that organization is merged with another, there is often political pressure to break with the past, which means pressure not to support previously published identifiers in which the old acronym appears. Opaque identifiers also have the advantage that they can be short; for example, using combinations of letters and digits, only four characters are needed to represent as many as 1.6 million identifiers.

While opaque object identifiers have distinct advantages, they aren't always easy to use. They contain no widely recognizable words that allow people to guess what the object is, and are hard to repair because a typo doesn't create an obviously misspelled word.

Nicer Opaque Identifiers

This is where NOID (rhymes with "employed") comes in.

The NOID software tool mints (generates) opaque identifiers and tracks information to help them remain unique, stable, and closely connected to the objects that they identify. These identifiers should be opaque enough to age and travel well, but should easily resolve (connect you) to objects and to their descriptions.

University of California
CDL California Digital Library **ARK**

Add Tools

3 Added by Perry Willett, last edited by Perry Willett on Aug 09, 2010 (view change)

ARK: Archival Resource Key

Name:	ARK
Version:	2008-05-22
Status:	Beta
Specification:	The ARK Identifier Scheme: PDF TXT
Additional Information:	• Towards Electronic Persistence Using ARK Identifiers (July 2003) • Curation home page

Abstract

An ARK is a URL created to allow persistent, long-term access to information objects. ARKs can identify objects of any type: digital documents, databases, images, software, and websites, as well as physical objects (books, bones, statues, etc.) and even intangible objects (chemicals, diseases, vocabulary terms, performances).

ARKs support persistent identification, which is necessary and useful because both the protocols used to access objects (such as http and ftp) and the sites that host the objects are subject to change. An ARK contains parts that are impervious to such changes and parts that are flexible enough to support technological changes/improvements. The idea is to create a stable "name" or reference that can be permanently associated with that specific object.

ARK Anatomy

NAANs: Name Assigning Authority Numbers

Generating ARKs

ARKs in Action

CDL Name Assignment and Support Policy Statements

Related Specifications

- N2T: Name-to-Thing
- NOID: (Nice Opaque Identifier) Minting and Binding Tool

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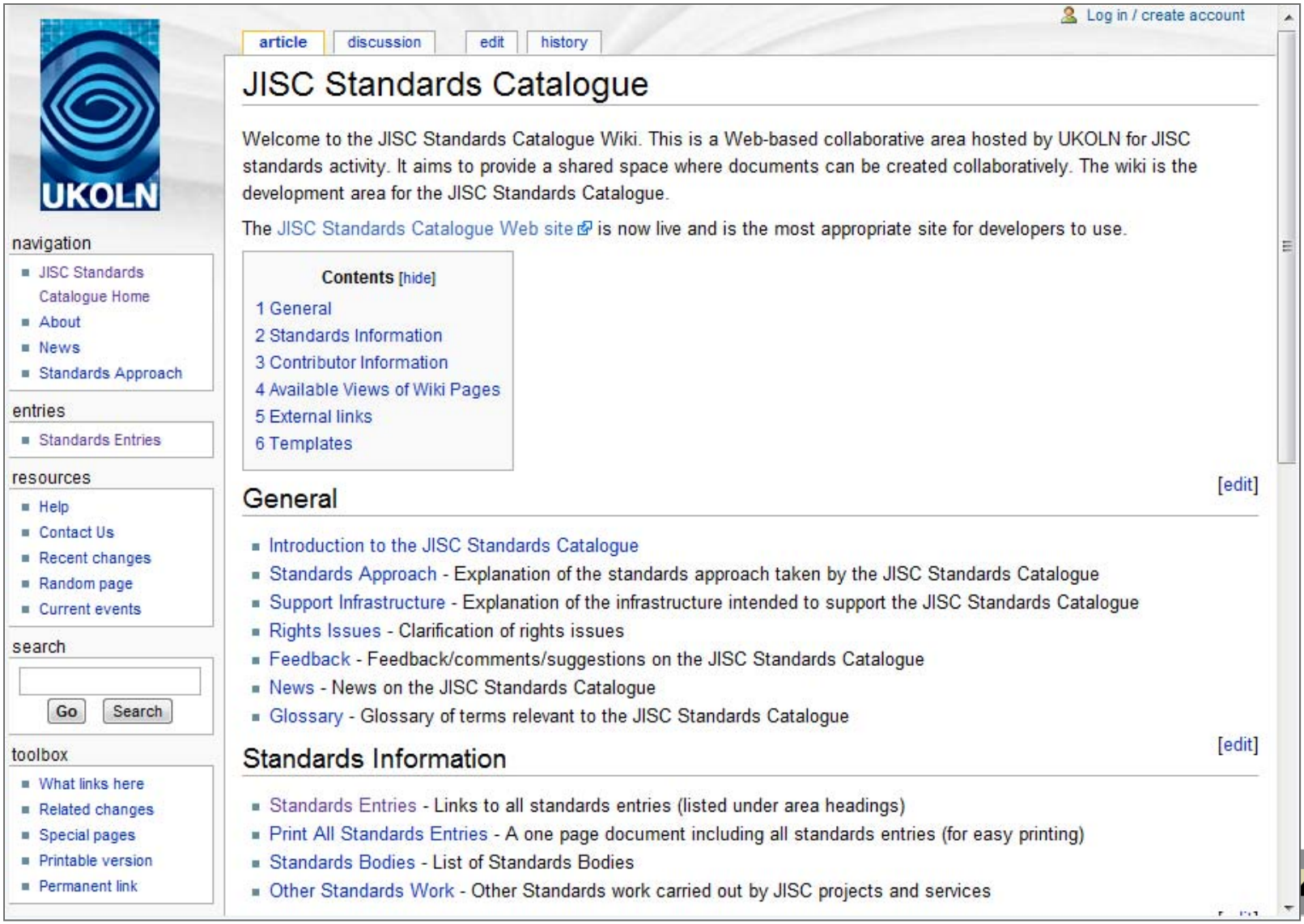
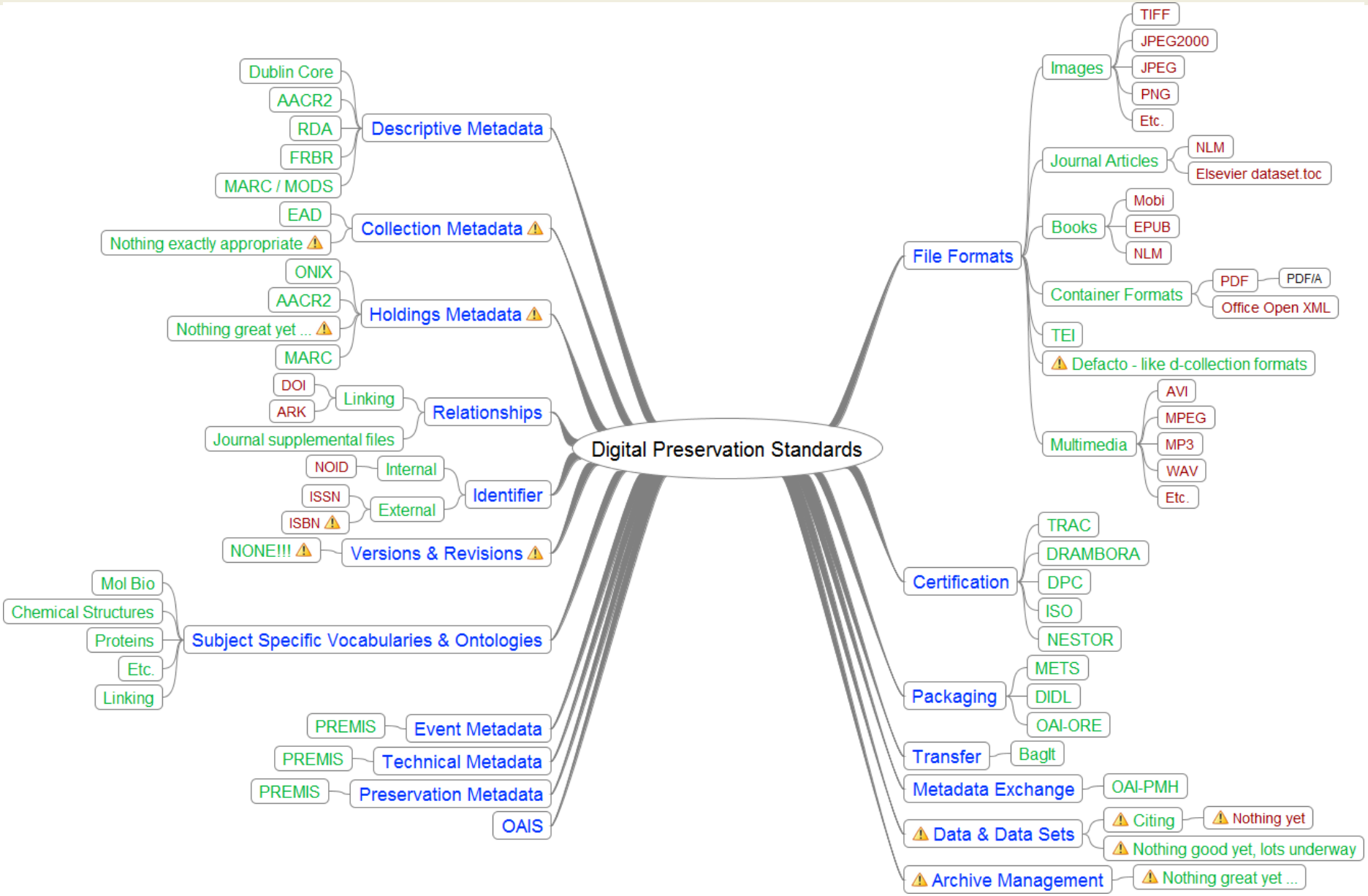
Resources


Log in / create account
article
discussion
edit
history
UKOLN
navigation
JISC Standards Catalogue Home
About
News
Standards Approach
entries
Standards Entries
resources
Help
Contact Us
Recent changes
Random page
Current events
search
Go
Search
toolbox
What links here
Related changes
Special pages
Printable version
Permanent link
JISC Standards Catalogue
Welcome to the JISC Standards Catalogue Wiki. This is a Web-based collaborative area hosted by UKOLN for JISC standards activity. It aims to provide a shared space where documents can be created collaboratively. The wiki is the development area for the JISC Standards Catalogue.
The JISC Standards Catalogue Web site is now live and is the most appropriate site for developers to use.
Contents [hide]
1 General
2 Standards Information
3 Contributor Information
4 Available Views of Wiki Pages
5 External links
6 Templates
General
[edit]
Introduction to the JISC Standards Catalogue
Standards Approach - Explanation of the standards approach taken by the JISC Standards Catalogue
Support Infrastructure - Explanation of the infrastructure intended to support the JISC Standards Catalogue
Rights Issues - Clarification of rights issues
Feedback - Feedback/comments/suggestions on the JISC Standards Catalogue
News - News on the JISC Standards Catalogue
Glossary - Glossary of terms relevant to the JISC Standards Catalogue
Standards Information
[edit]
Standards Entries - Links to all standards entries (listed under area headings)
Print All Standards Entries - A one page document including all standards entries (for easy printing)
Standards Bodies - List of Standards Bodies
Other Standards Work - Other Standards work carried out by JISC projects and services


Digital Preservation Standards
Descriptive Metadata
Dublin Core
AACR2
RDA
FRBR
MARC / MODS
Collection Metadata
EAD
Nothing exactly appropriate
Holdings Metadata
ONIX
AACR2
Nothing great yet ...
MARC
Relationships
Linking
DOI
ARK
Journal supplemental files
Identifier
Internal
NOID
External
ISSN
ISBN
Versions & Revisions
NONE!!!
Subject Specific Vocabularies & Ontologies
Mol Bio
Chemical Structures
Proteins
Etc.
Linking
Event Metadata
PREMIS
Technical Metadata
PREMIS
Preservation Metadata
PREMIS
OAIS
File Formats
Images
TIFF
JPEG2000
JPEG
PNG
Etc.
Journal Articles
NLM
Elsevier dataset.toc
Books
Mobi
EPUB
NLM
Container Formats
PDF
PDF/A
Office Open XML
TEI
Defacto - like d-collection formats
Multimedia
AVI
MPEG
MP3
WAV
Etc.
Certification
TRAC
DRAMBORA
DPC
ISO
NESTOR
Packaging
METS
DIDL
OAI-ORE
Transfer
BagIt
Metadata Exchange
OAI-PMH
Data & Data Sets
Citing
Nothing yet
Nothing good yet, lots underway
Archive Management
Nothing great yet ...

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THANK YOU.

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