

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

Discoverable, Available, Accessible: Preserving Digital Content NISO Webinar

By Amy Kirchhoff
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Portico - Third Party Preservation





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

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



Portico – Preserved Content





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



Standards are Great: Everyone Should Have One! I T H A K A





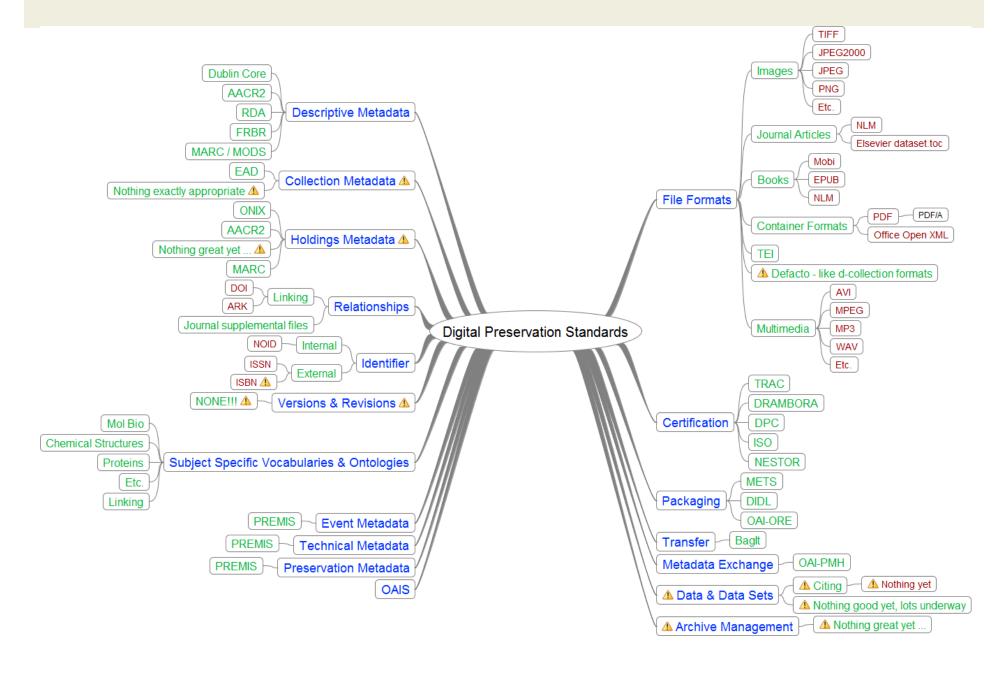


20 Minutes on Standards

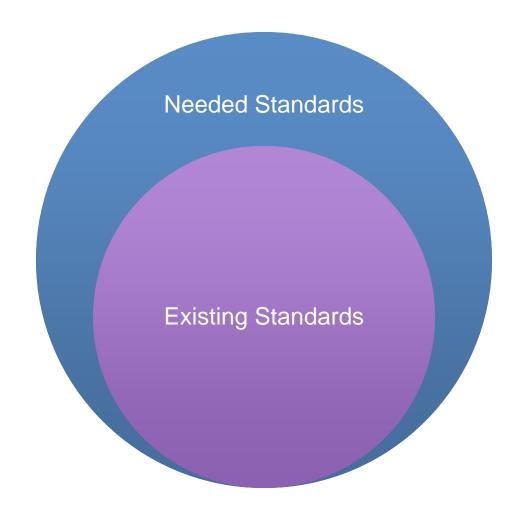


ITHAKA

JSTOR | PORTICO | ITHAKAS+R











Standards Portico Uses



Context: Digital Preseravtion



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

 the intellectual content of the item must remain usable via the delivery mechanism of current technology

Authenticity

 the provenance of the content must be proven and the content an authentic replica of the original

Discoverability

 the content must have logical bibliographic metadata so that it can be found by end users through time

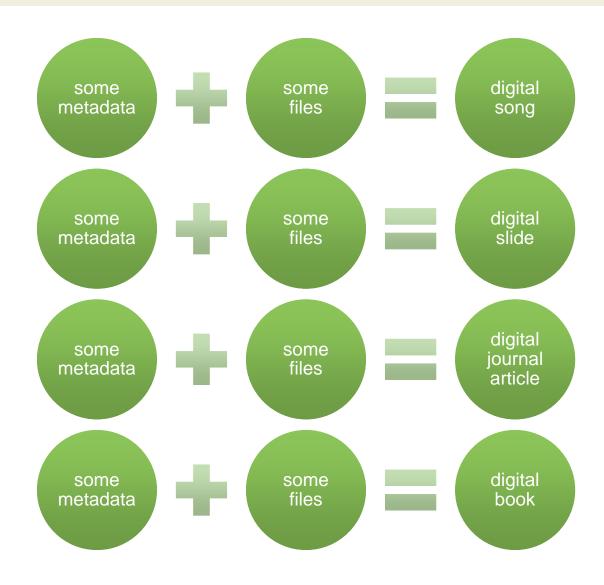
Accessibility

 the content must be available for use to the appropriate community



Context: Content

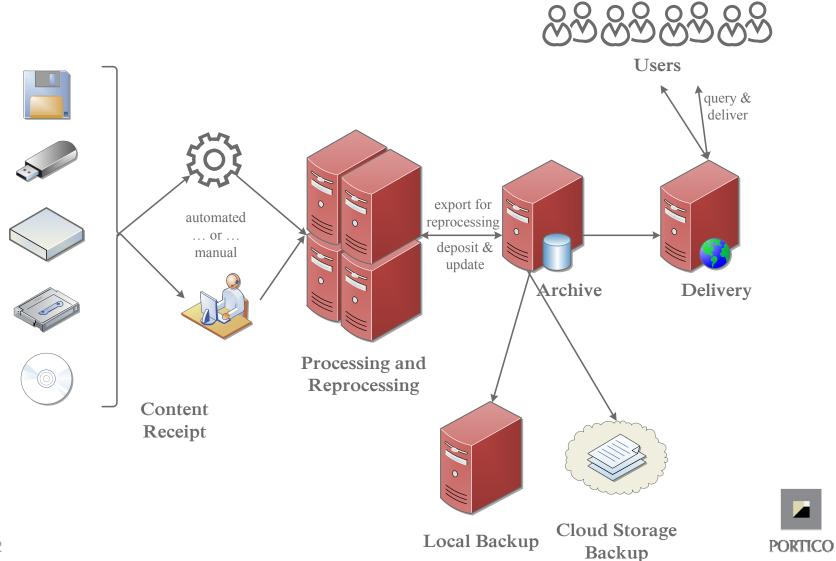




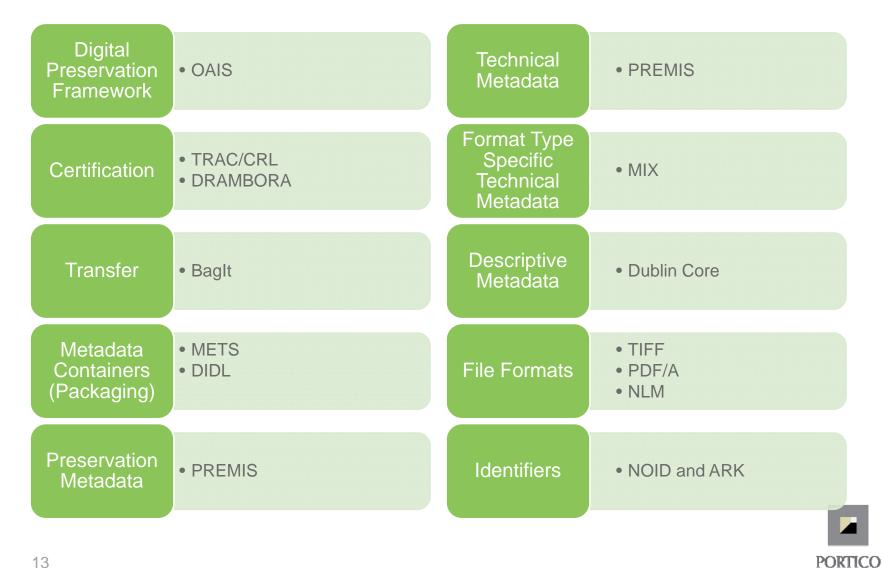


Context: Preservation Activities

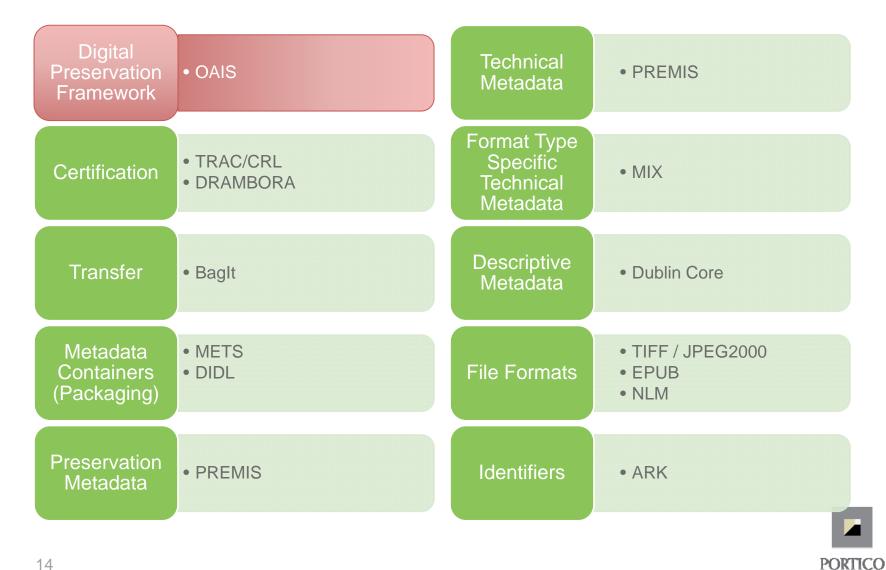






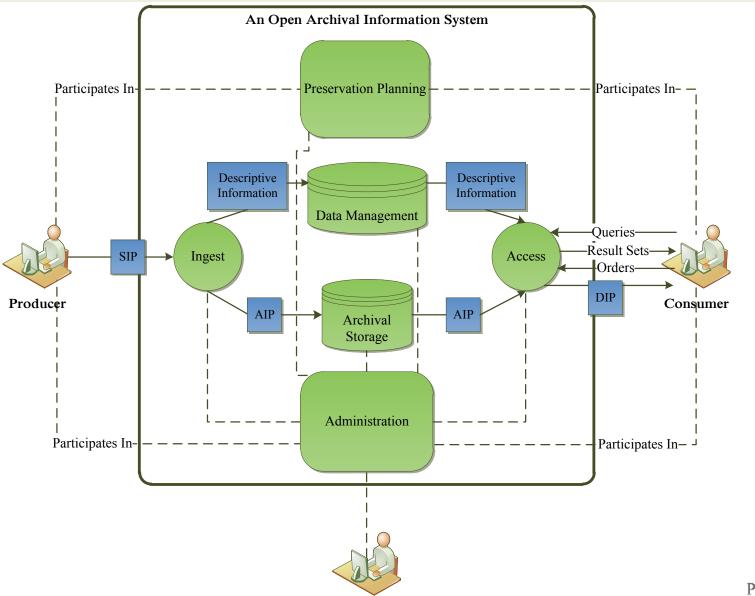






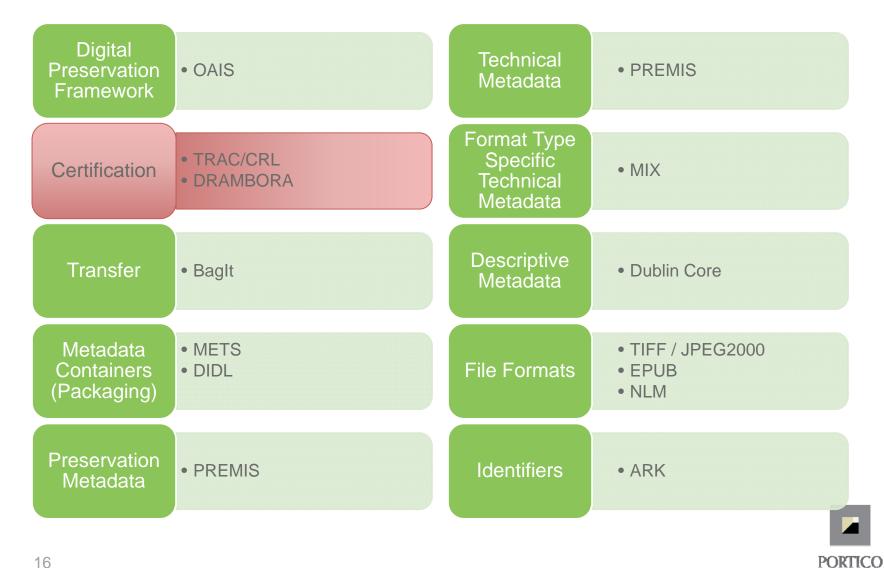
Standards & Specifications: Framework





Management





Standards & Specifications: Certification



preservation repository CRL specifications certification criteria RLG Programs octc audit digital object management NARA trustworthy metadata preservation repository CRL specifications certification criteria RLG Programs octc audit digital object management NARA trustworthy metadata preservation repository CRL specifications certification criteria RLG Programs octc audit digital object management NARA trustworthy metadata preservation repository CRL specification criteria RLG Programs octc audit digital object management NARA trustworthy metadata preservation repository CRL specifications certification criteria RLG Programs octc audit digital object management NARA trustworthy metadata preservation repository CRL specifications certification criteria RLG Programs octc audit digital object management NARA trustworthy metadata

Trustworthy Repositories Audit & Certification:



Introduction

Establishing Audit and Certification Criteria
Towards an International Audit & Certification Process
Using this Checklist for Audit & Certification
Applicability of Criteria
Relevant Standards, Best Practices & Controls
Terminology

Audit and Certification Criteria
Organizational Infrastructure

Digital Object Management
Technologies, Technical Infrastructure & Security

Audit Checklist

Glossary Appendices

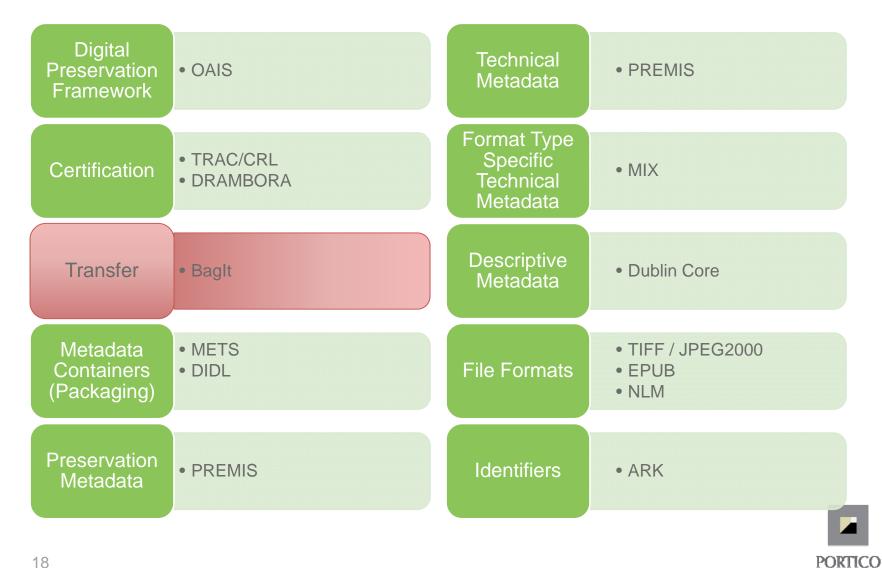
Version 1.0 February 2007





PORTICO PORTICO





Standards & Specifications: Transfer



[Docs] [txt|pdf] [Tracker] [Email] [Diff1] [Diff2] [Nits]

Versions: 00 01 02 03 04 05 06

Network Working Group Internet-Draft

Expires: October 17, 2011

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

A. Bovko

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.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of $\underline{BCP\ 78}$ and $\underline{BCP\ 79}.$

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at http://datatracker.ietf.org/drafts/current/.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on October 17, 2011.

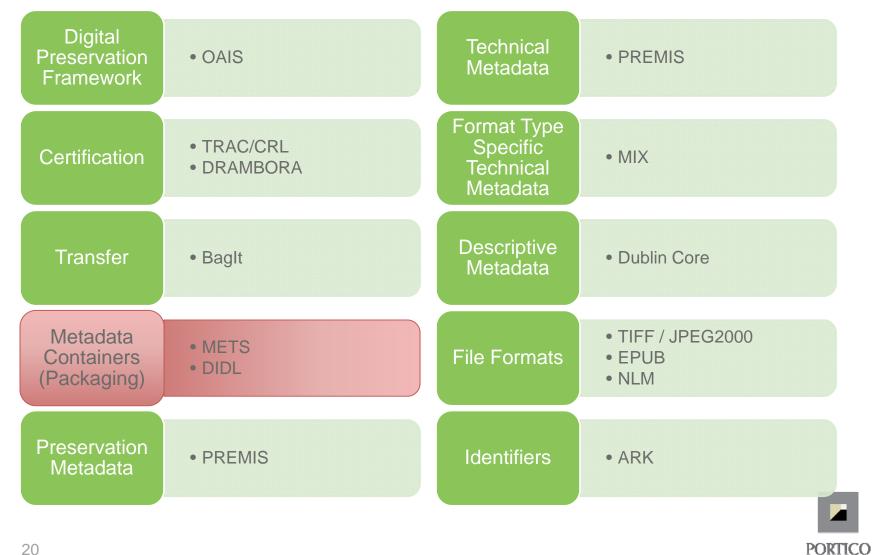
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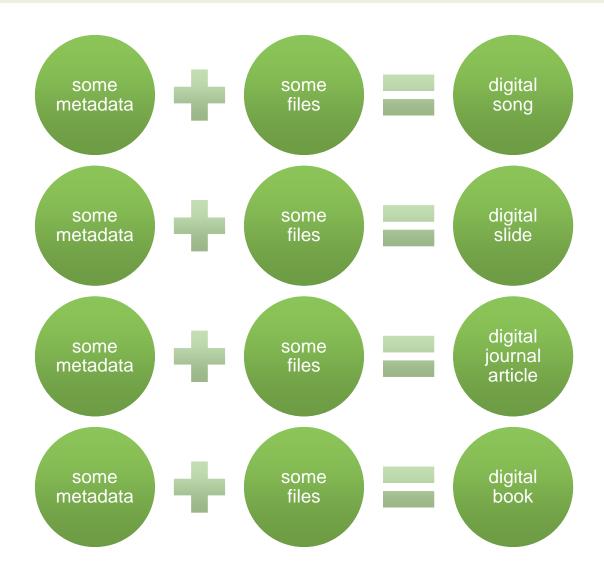
This document is subject to BCP-78 and the IETF Trust's Legal Provisions Relating to IETF Documents (http://trustee.ietf.org/license-info) in effect on the date of







I T H A K A





- 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.

...

• 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. The company of the co

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.

5555.

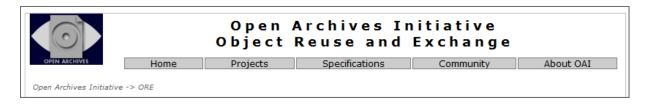


Preservation and Packaging Metadata File

Standards & Specifications: Packaging



The Library of Congress >> St	<u>andards</u>
METS	Metadata Encoding & Transmission Standard Official Web Site
Home	METS Pages ▼ search
regarding objects within a di <u>Web Consortium</u> . The standa	dard for encoding descriptive, administrative, and structural metadata gital library, expressed using the <u>XML schema language</u> of the <u>World Wide</u> and is maintained in the <u>Network Development and MARC Standards Office</u> and is being developed as an initiative of the Digital Library Federation.



MPEG-21 Part 2: Digital Item Declaration Language (DIDL)

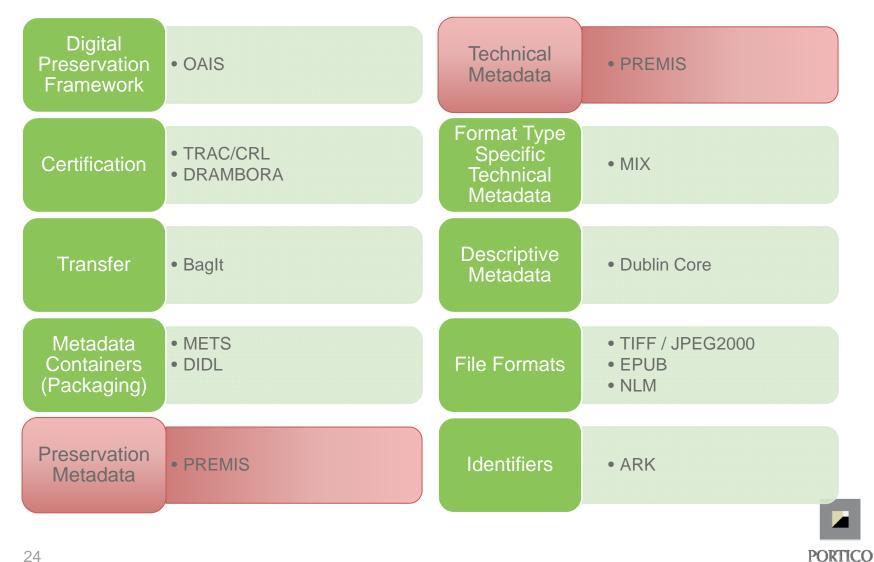
DIDL Overview

"The basic architectural concept in MPEG-21 is the Digital Item. Digital Items are structured digital objects, including a standard representation, identification and metadata. They are the basic unit of transaction in the MPEG-21 framework. More concretely, a Digital Item is a combination of resources (such as videos, audio tracks, images, etc), metadata (such as descriptors, identifiers, etc), and structure (describing the relationships between resources).

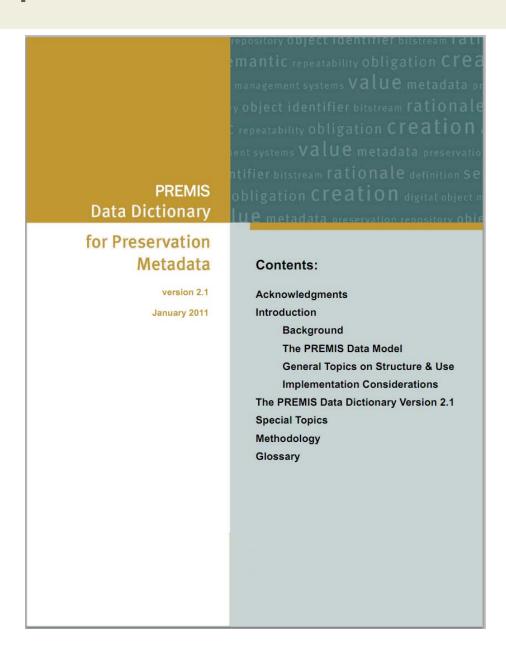
This second part of MPEG-21 (ISO/IEC 21000-2:2003) specifies a uniform and flexible abstraction and interoperable schema for declaring the structure and makeup of Digital Items. Digital Items are declared using the Digital Item Declaration Language (DIDL) and declaring a Digital Item involves specifying its resources, metadata and their interrelationships.





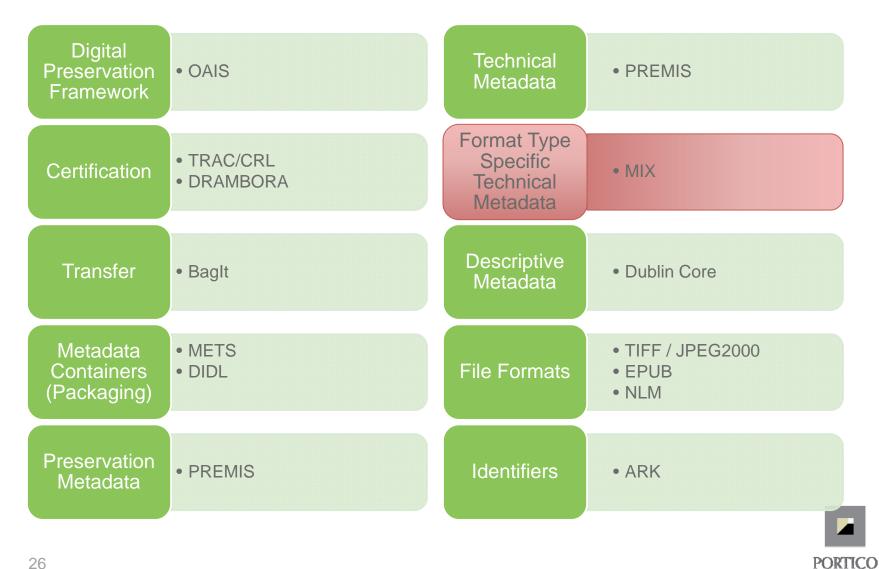


Standards & Specifications: Preservation Metadata T H A K A









Standards & Specifications: Format Tech MD | T H A K A | JETOR | PORTICO | ITHAKA 548



The Library of Congress >> Standards >> 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 MIX Version 2.0 is Images Standards Committee and other interested experts, is developing now the current an XML schema for a set of technical data elements required to manage version of MIX. 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 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

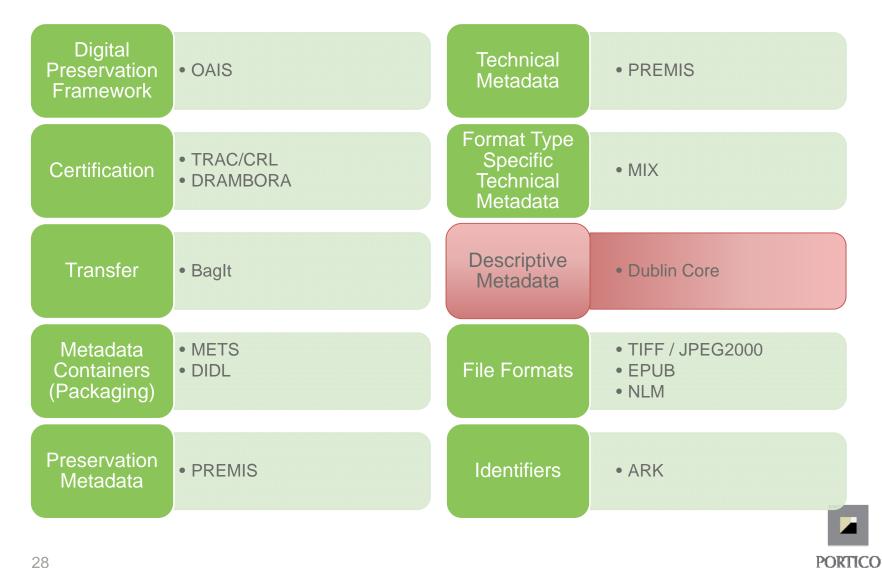
- Example MIX XML Documents
 - Test MIX document instance (version 1.0)
 - Test MIX document instance (version 0.2)

Tools & Utilities

JHOVE - JSTOR/Harvard Object Validation Environment







Standards & Specifications: Descriptive MD





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 [DCMI].

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.

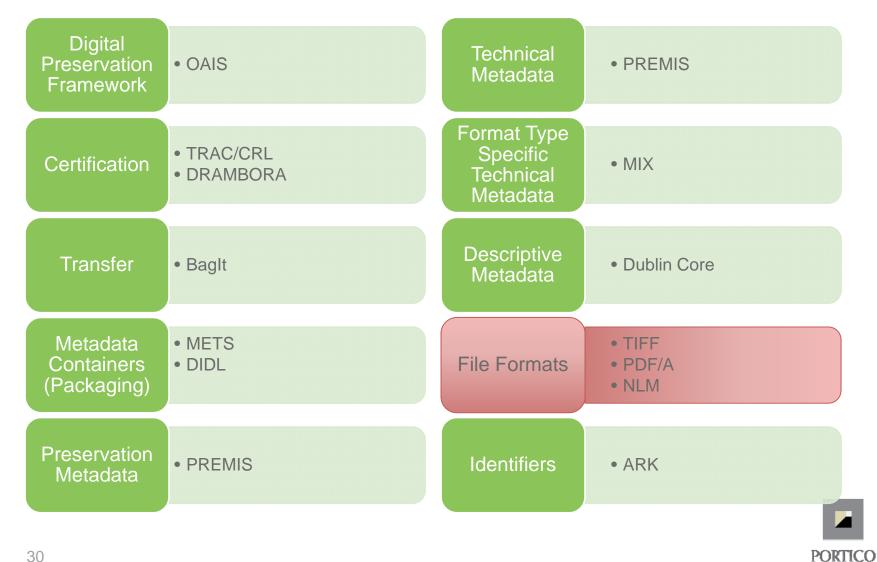
Since January 2008, therefore, DCMI includes formal domains and ranges in the definitions of its properties. So as not to affect the conformance of existing implementations of 'simple Dublin Core' in RDF, domains and ranges have not been specified for the fifteen properties of the dc: namespace (http://punl.org/dc/elements/1.1/). 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/etems/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







Standards & Specifications: File Formats





- -

Tag Suite Versions

Feedback

How to Build a Custom DTD

XML Information

Working Group and Secretariat

Acknowledgments



The National Center for Biotechnology Information (NCBI) of the National Libra Journal Archiving and Interchange Tag Suite with the intent of providing a con and archives can exchange journal content. The Suite provides a set of XML elements and attributes for describing the textual and graphical content of journal content of journal content and product reviews.

The Suite of Modules

The intent of this Tag Suite is to preserve the intellectual content of journals i that content was originally delivered. The Suite has been written as a set of X which is a separate physical file. No module is an entire schema by itself, bu combined into a number of different schemas.

nd archiving joun ives. Details on o developed to su ion as well.

TIFF"

Revision 6.0

Final — June 3, 1992

PDF Standards

Service of AIIM and the PDF Technology Community

Welcome | PDF Standards Defined | Corrigendas | PDF Reference | PDF/A | PDF/E | PDF/UA | PDF/VT | PDF/X | Other Work | AllM | Contacts | Login |

PDF/A - Action Items PDF/A - Meetings PDF/A - App Notes PDF/A - App Notes PDF/A Conformance Site Registration Contacts Login

PDF/A

The PDF/Archive project was initiated in October 2002 when a group of individuals representing the end user, archival, records management and solution providers communities met to discuss a similar concern about the long-term preservation of electronic documents. The PDF/A



project was approved by the AIIM Standards Board in October 2002. In August 2003, the project work was approved as an ISO New Work Item. <u>ISO 19005-1</u>, was published by ISO in September 2005. This standard is based on the Adobe *PDF Reference 1.4*. The U.S. effort is jointly managed by AIIM and NPES.

The ISO committee consists of representatives from ISO TC 171 SC2, Document Management Applications, Application Issues; TC 130, Graphics Technology; TC 46, SC11; and TC42, Photography.

The committee is currently working on ISO 19005-2 which will be based upon <u>ISO 32000-1</u> (ISO PDF) as well as ISO 19005-3 which will address electronic documents containing dynamic media (movies, sounds, 3D, etc). This wild is used to manage the committee's work.

PDF/A Embedded File Discussion

During the PDF working group meetings in Hamburg, the discussion of embedded files in PDF/A files came up. This also included the embedding of XML in a PDF/A file. To prepare for the upcoming ISO meetings, we would like to have a wiki based discussion on embedded files. One opinion on this topic has been posted at <u>PDFA Embedded</u>. Please post comments to this page.

PDF/A Links

AIIM's PDF/A page.

NPES's PDF/A page.

The PDF/A Competence Center

Wikipedia's PDF/A page

Guidance on the Use of PDF/A

US National Archives FAQ's regarding PDF/A.

US National Archives transfer instructions regarding PDF/A.

US Federal Government Guidance on Sustainable Formats

US National Archives FAQs regarding sustainable formats.

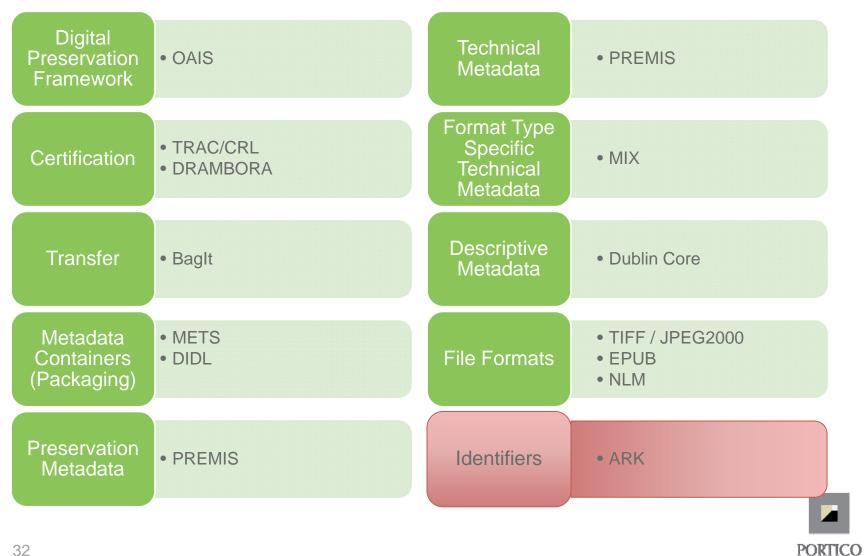
 ${\sf US\ Library\ of\ Congress}, \underline{{\sf Sustainability\ of\ Digital\ Formats}}. \underline{{\sf http://www.digitalpreservation.gov}}$

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Standards & Specifications: Identifiers





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.

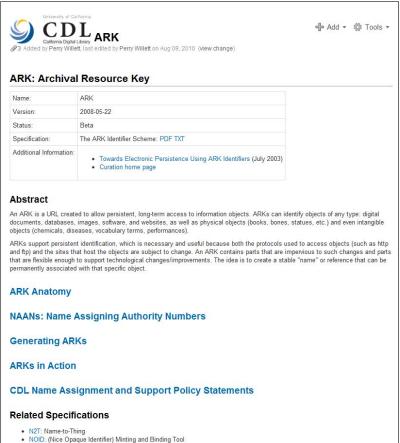
To help stability, an opaque identifier doesn't contain any information related to potentially changeable properties. For instance, if an identifier contains an organizational acronym and that organization is merged with another, there is often political pressure to break with the past, which means pressure 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

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.

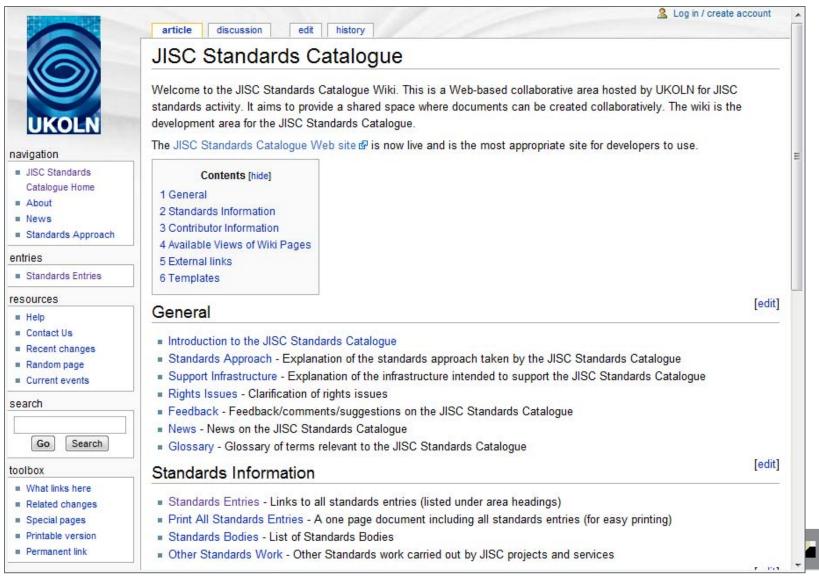
The NOID software tool mints (generates) opaque identifiers and tracks information to help them remain unique, stable, and closely connected to the objects that they identify. These identifiers should be opaque enough to age and travel well, but should easily resolve (connect you) to objects and to their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





Resources

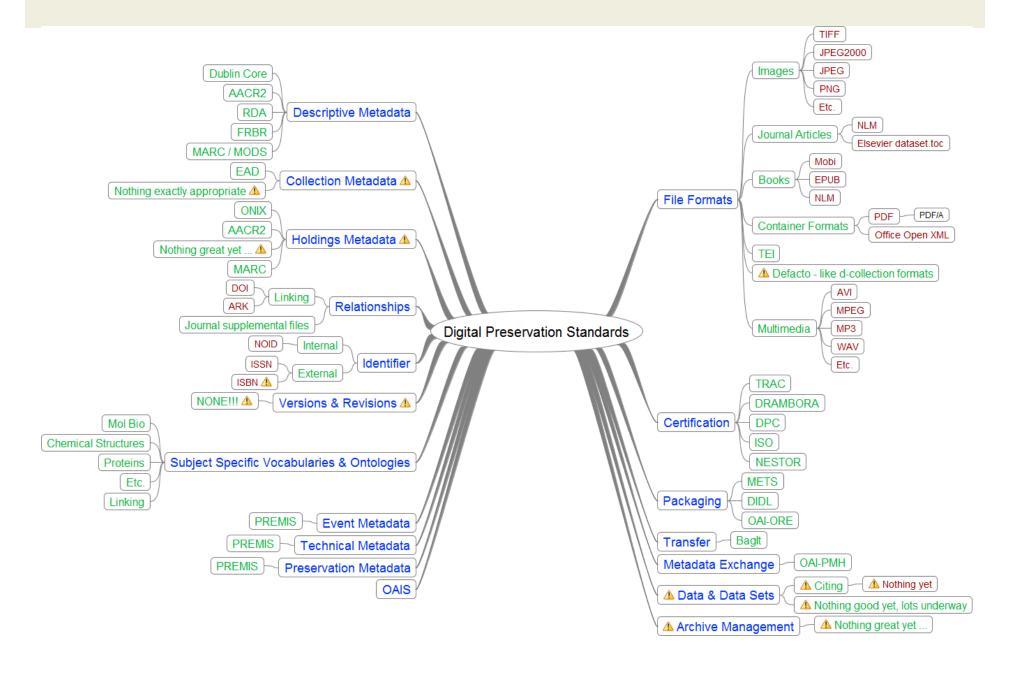




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THANK YOU.

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