

I T H A K A

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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

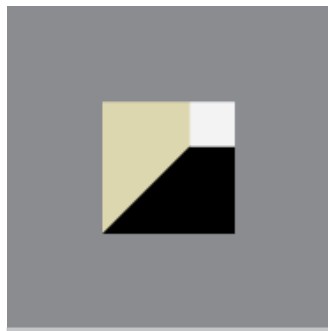
September 14, 2011



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Archive Service Product Manager
Portico, JSTOR

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609-986-2218

Portico - Third Party Preservation



PORTICO

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.



PORTICO

Preserved Content



PORTICO

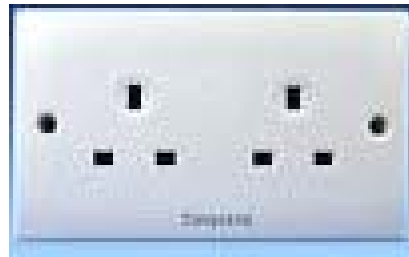
» E-journal titles	9,190
» E-book titles	12,733
» D-collections	12
» E-journal files	223,993,405
» E-book files	869,888
» D-collection files	83,178,138
» Total Archive	308,729,560



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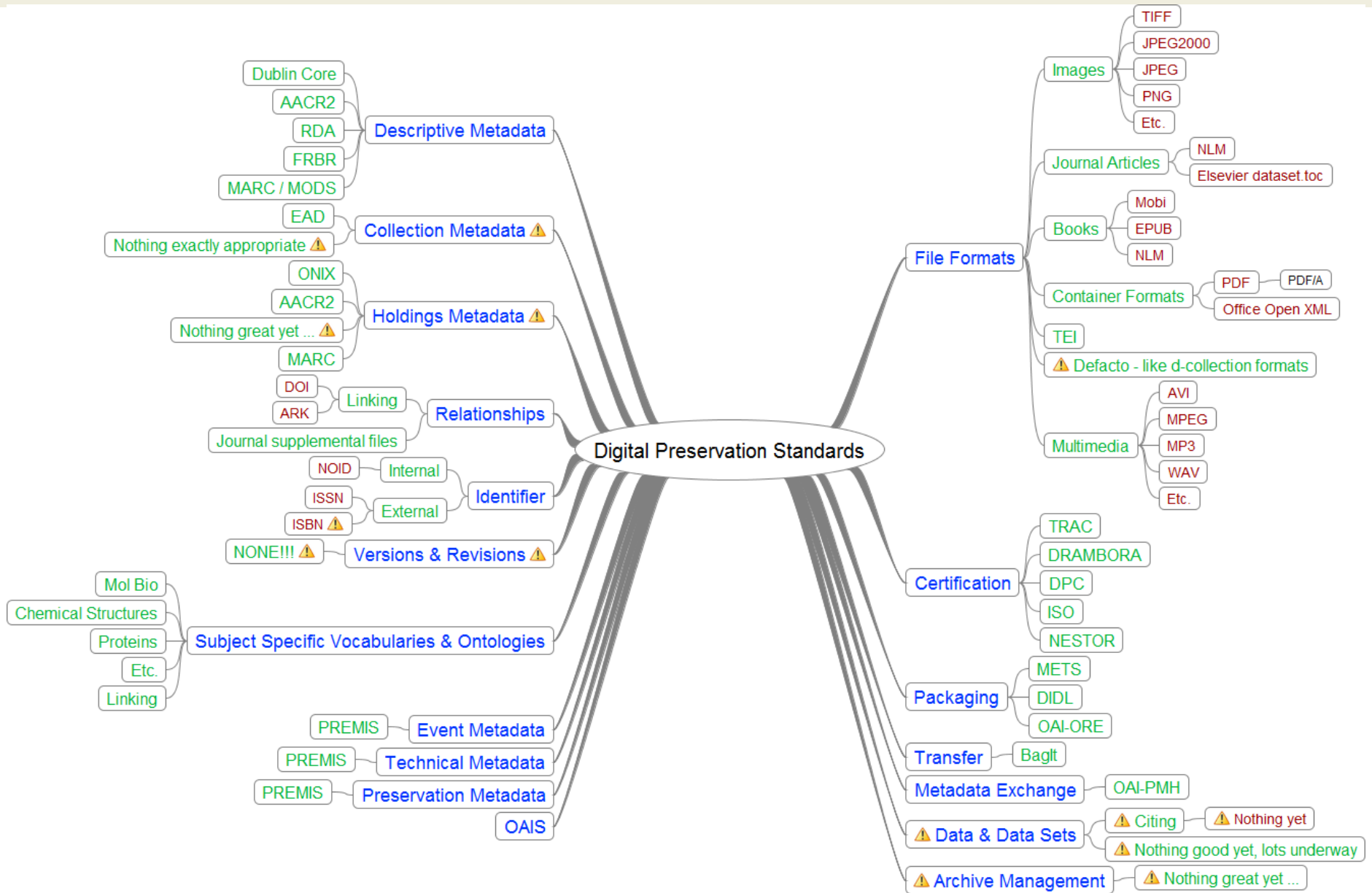
Standards are Great: Everyone Should Have One!

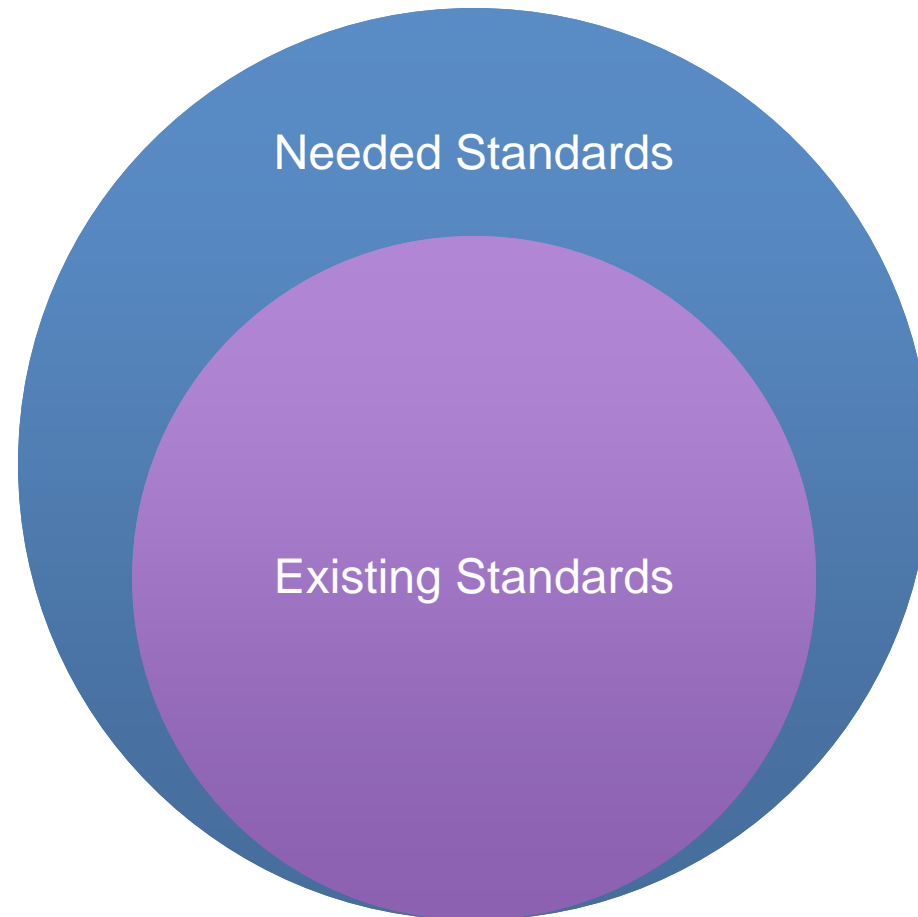
I T H A K A
JSTOR | PORTICO | ITHAKA S+R



PORTICO

20 Minutes on Standards





Standards Portico Uses

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

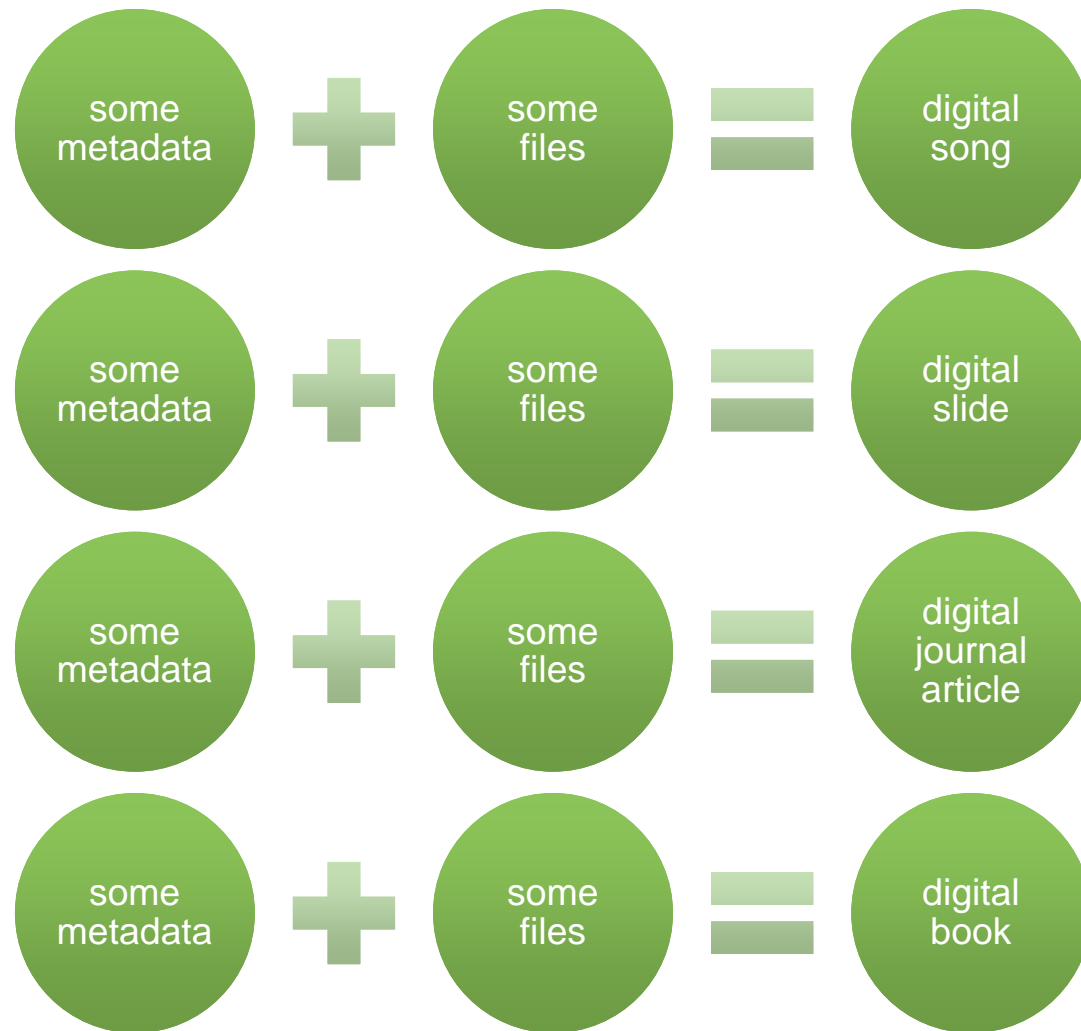
Discoverability

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

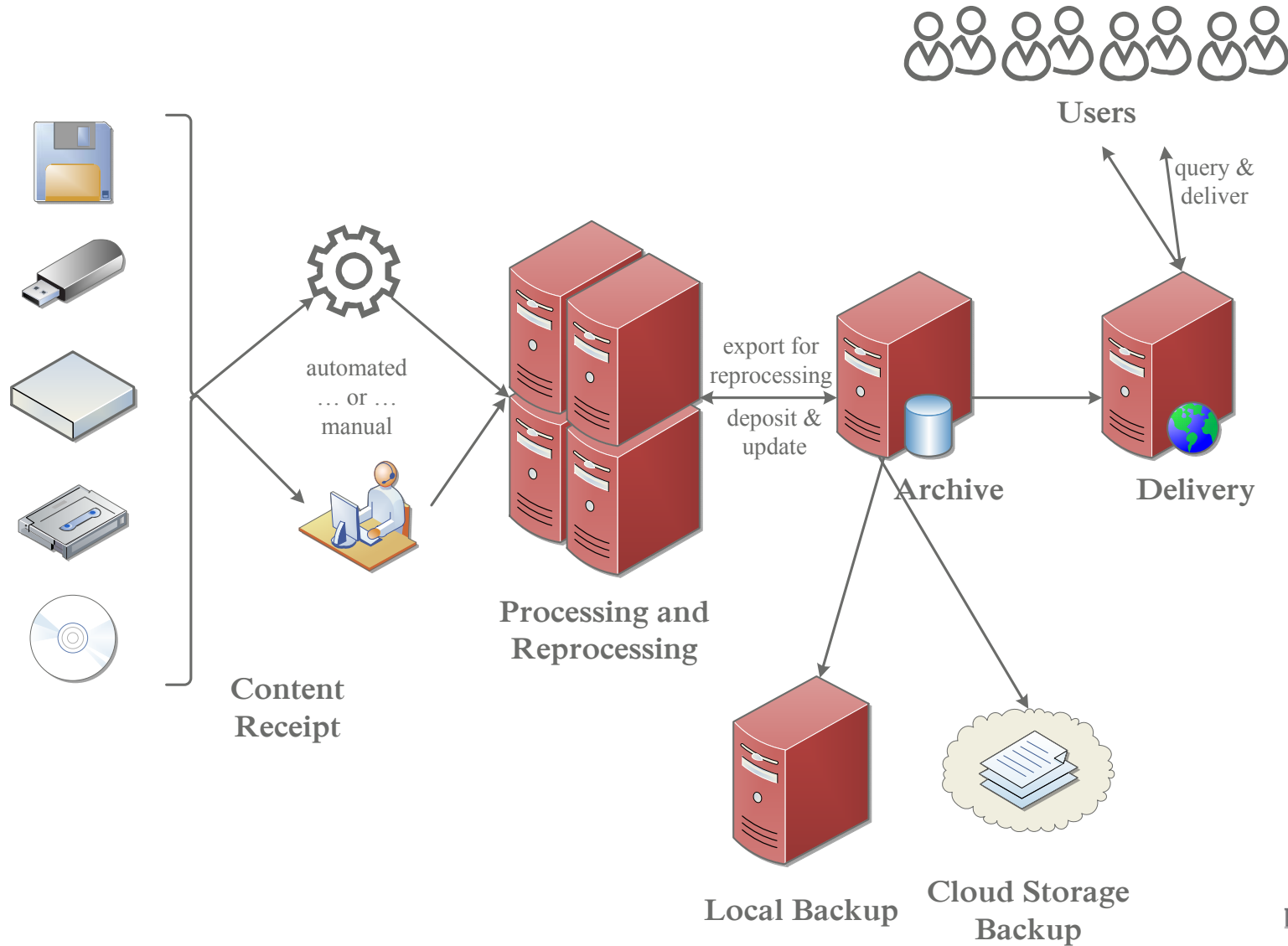
Accessibility

- the content must be available for use to the appropriate community

Context: Content



Context: Preservation Activities



Standards & Specifications

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

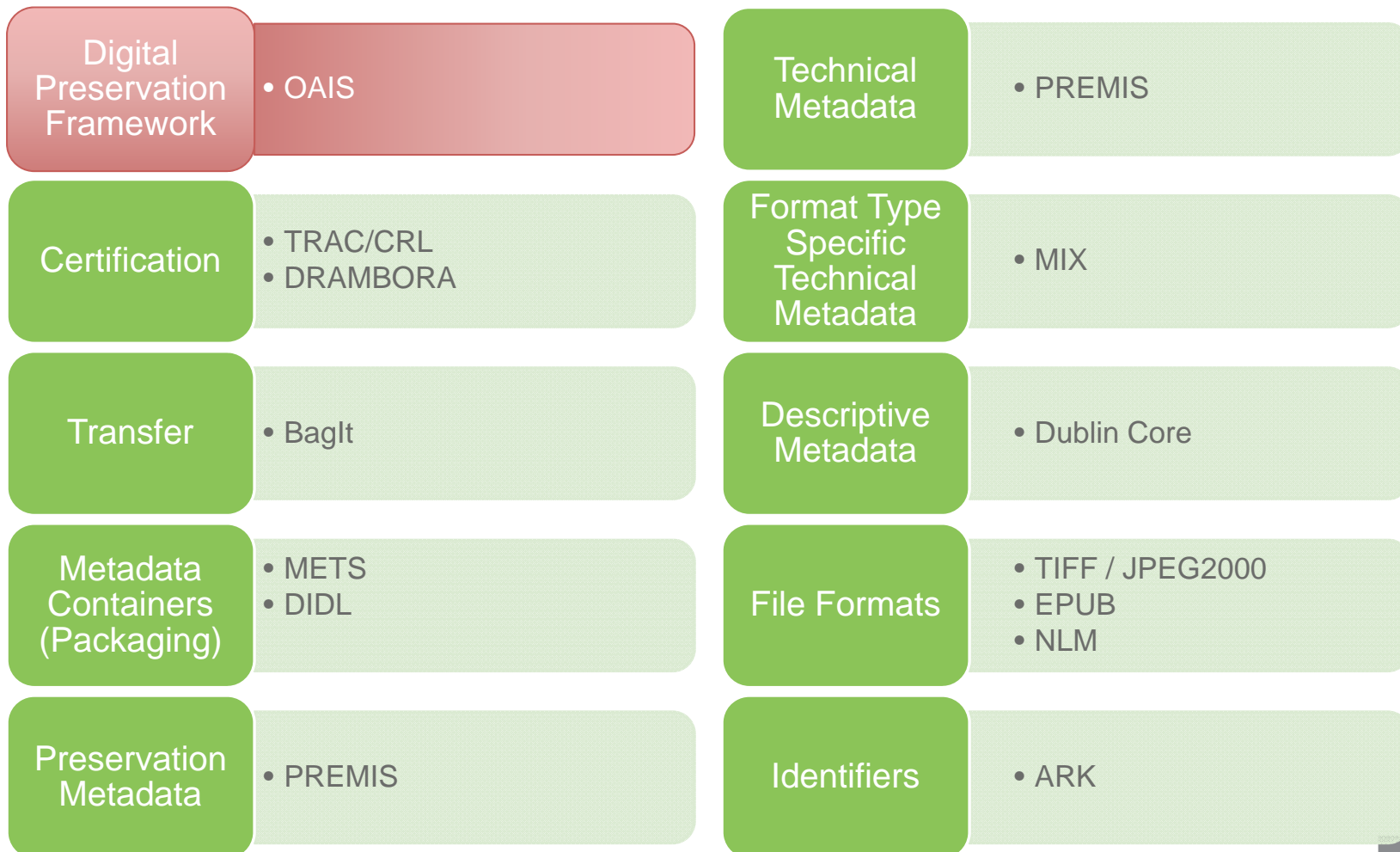
- TIFF
- PDF/A
- NLM

Identifiers

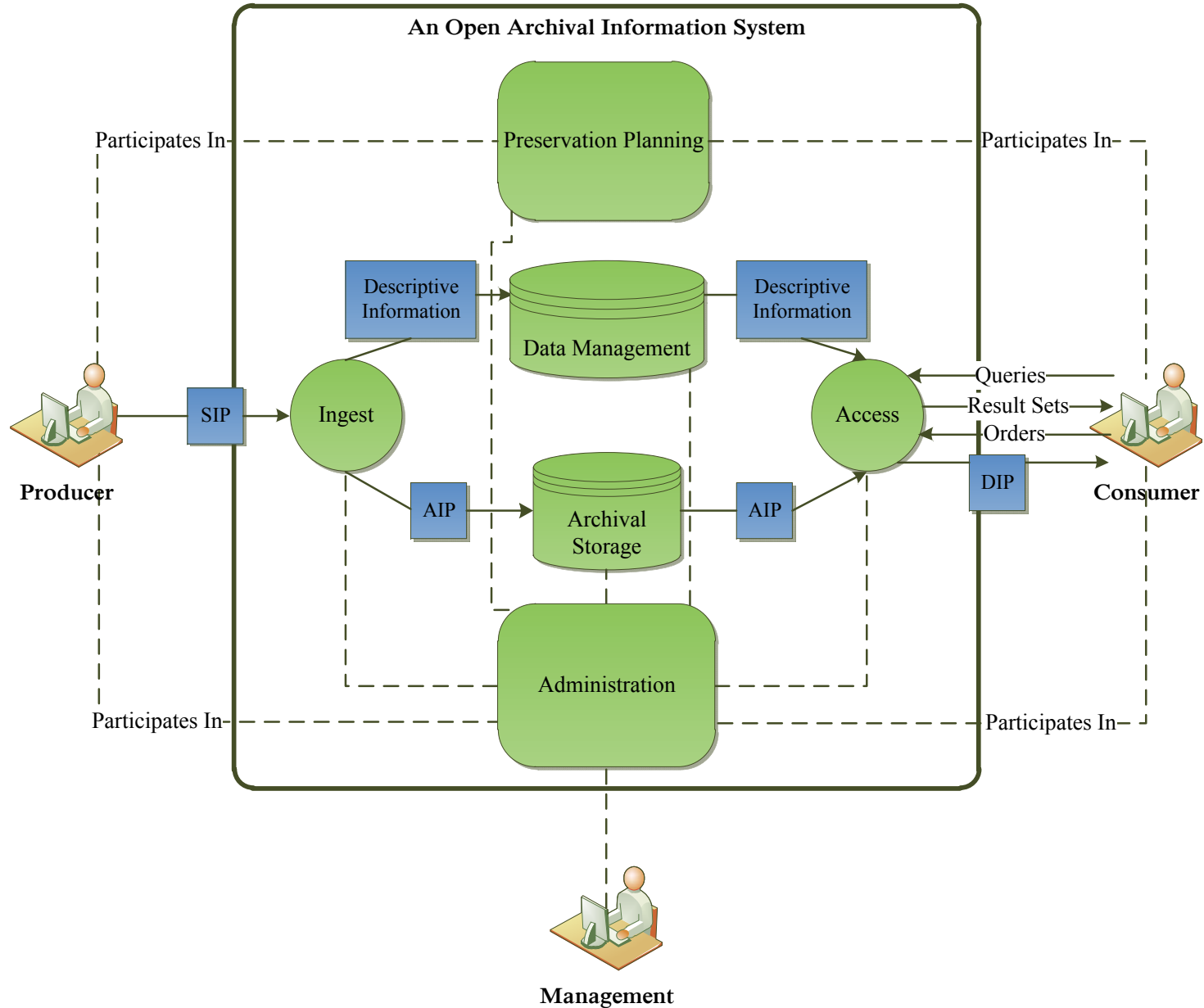
- NOID and ARK



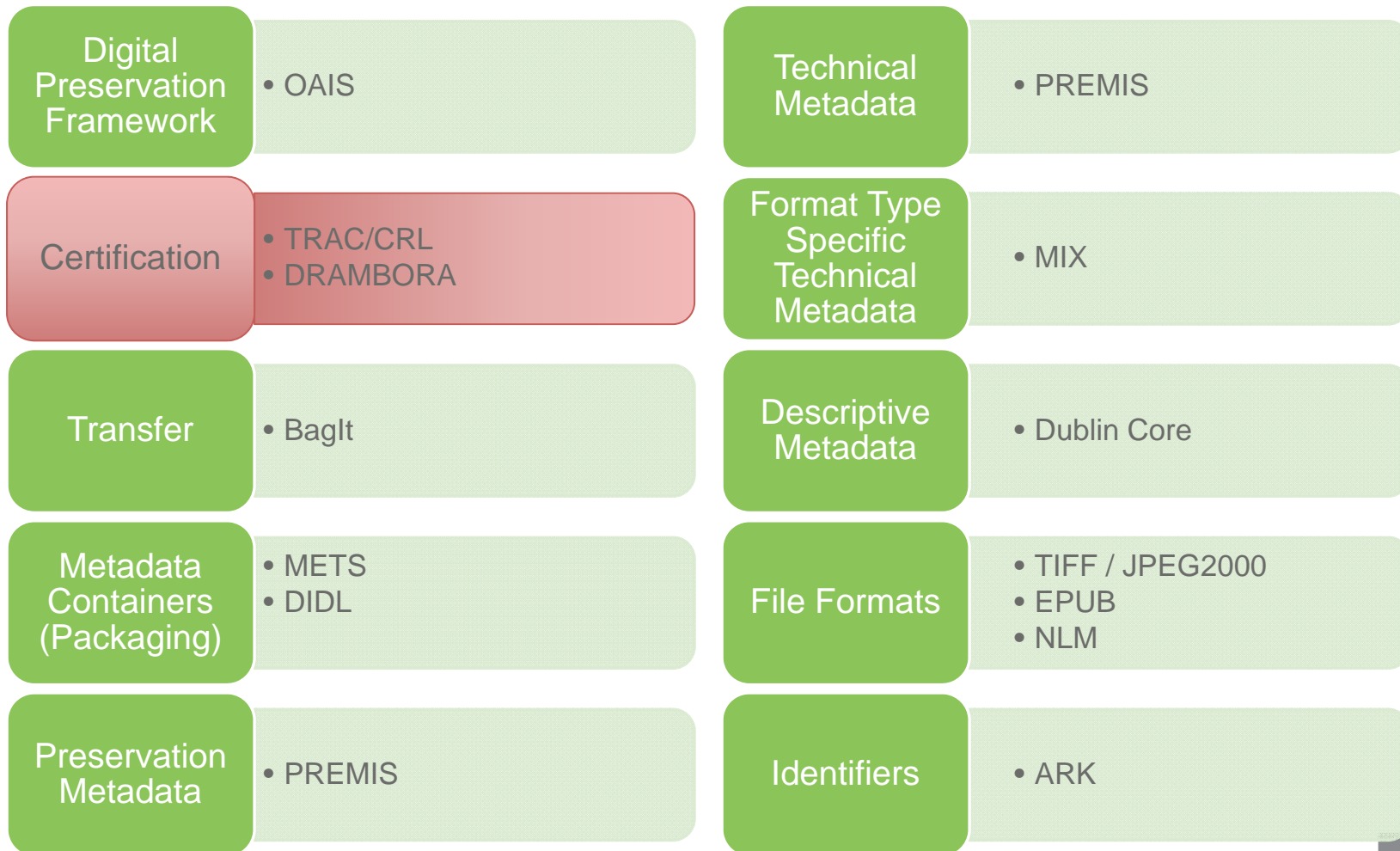
Standards & Specifications



Standards & Specifications: Framework



Standards & Specifications



Standards & Specifications: Certification

Trustworthy Repositories Audit & Certification: Criteria and Checklist

preservation repository CRL specifications certification
criteria RLG Programs oclc audit digital object management
NARA trustworthy metadata preservation repository
CRL specifications certification criteria RLG Programs
OCLC audit digital object management NARA trustwor-
thy metadata preservation repository CRL specifications
certification criteria RLG Programs oclc audit digital
object management NARA trustworthy metadata preser-
vation repository CRL specifications certification criteria
RLG Programs oclc audit digital object management NARA
trustworthy metadata preservation repository CRL
specifications certification criteria RLG Programs oclc au-
dit digital object management NARA trustworthy meta-
data

Contents:

- 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





Can you afford to gamble with the security of your digital assets?

DRAMBORA enables organizations to better fulfill their responsibilities and achieve their strategic goals by:

- identifying the strengths and weaknesses of their digital repository; and
- assisting them to plan effectively to mitigate these risks.

Start managing your risks today!



"Digital curation is about converting uncertainties into measurable and manageable risks"

Seamus Ross, Director DPE and Associate Director DCC

A risk-aware path to self-assurance and partner confidence for digital repositories

Get Involved!

If your organization wishes to learn more about DRAMBORA, request support or join the growing network of DRAMBORA users, contact us online at <http://www.repositoryaudit.eu/feedback/> or by email at feedback@repositoryaudit.eu, support@repositoryaudit.eu or training@repositoryaudit.eu

DRAMBORA Consortium Sponsors include
the European Commission Information Society Technologies (IST) Sixth Framework Programme (FP6),
Joint Information Systems Committee (JISC),
UK e-Science Programme



DRAMBORA is jointly funded by the Digital Curation Centre (DCC) DigitalPreservationEurope (DPE)

DRAMBORA
Digital Repository Audit Method Based on Risk Assessment

DRAMBORA enables internal assessment by providing repository administrators with a means to assess their capabilities, identify their weaknesses, and recognise their strengths.

A RISK-BASED APPROACH
DRAMBORA characterises digital curation as a risk-management activity. The DRAMBORA toolkit provides a metric to enable an auditor to establish the organisational context and goals of a repository and then to assess how it is achieving these in terms of risk. Risk is used as a metric: it can be expressed quantitatively, thereby supporting comparisons across repositories and over time within a repository.

DRAMBORA BENEFITS
Following the successful completion of the self-assessment exercise, organisations can expect to have:

- A well established and documented organizational profile
- Clearly identified and documented repository assets, roles and activities
- Constructed a catalogue of pertinent risks and inter-risk relationships
- Developed a shared understanding of the successes and shortcomings of the repository's management and structure
- Alerted repository managers to the likelihood of a specific risk occurring
- Implemented contingency mechanisms to alleviate the effects of risks that cannot be avoided.

THE DRAMBORA TOOLKIT FACILITATES:

- Documentation of organisational and regulatory frameworks
- Identification of activities, assets and their owners
- Identification and assessment of risks associated with managing digital information
- Management of risks to ensure business continuity and future use of information

DRAMBORA
Converting uncertainties into measurable and manageable risks



ABOUT DRAMBORA
Based on practical research and developed jointly by the Digital Curation Centre and DigitalPreservationEurope, the Digital Repository Audit Method Based on Risk Assessment (DRAMBORA) provides a methodology for self-assessment. The toolkit has been evaluated and applied across a diverse range of organizations, such as national libraries, scientific data centres and archival institutions.

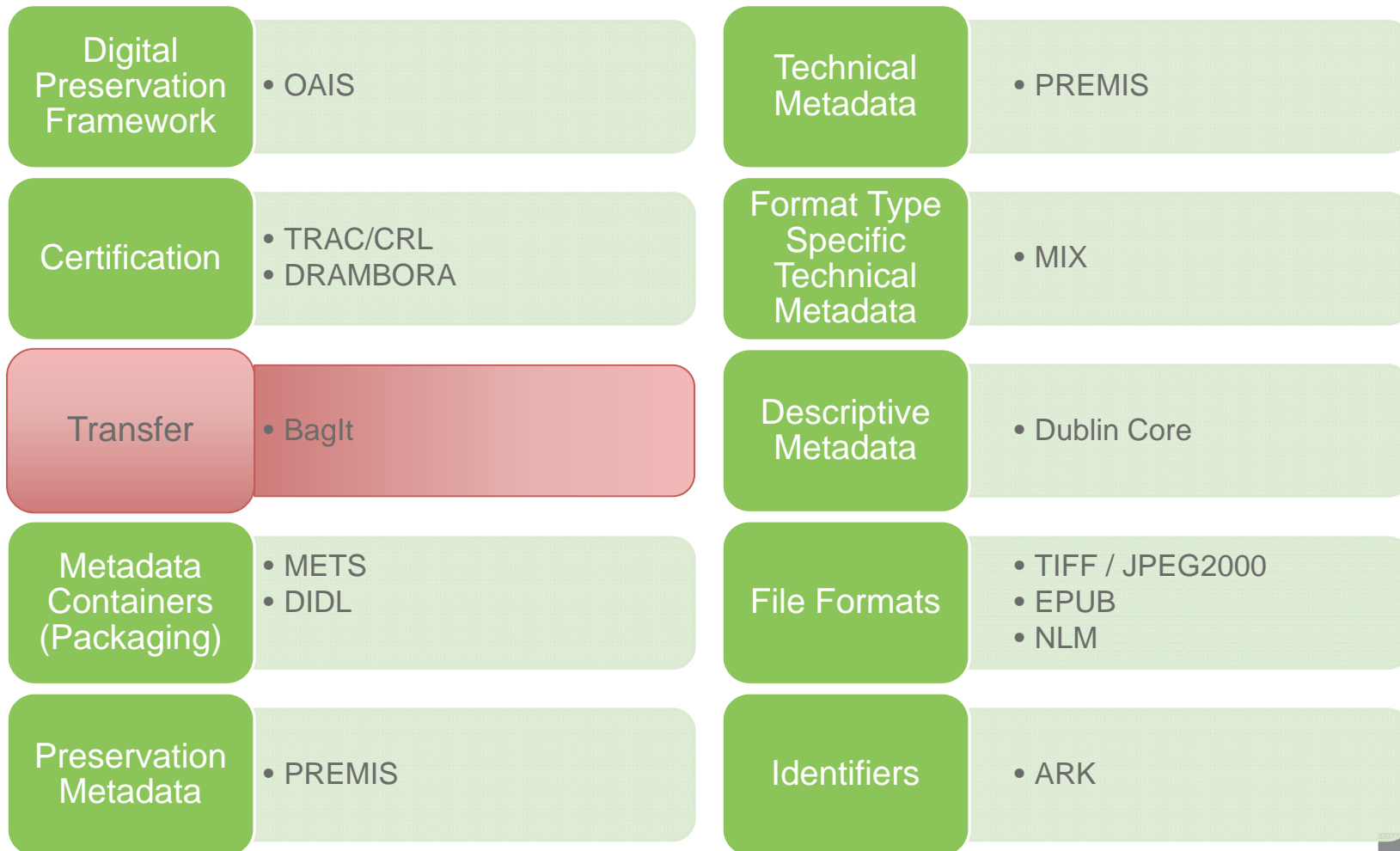
OC LC

CRL

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION
1985

DRAMBORA Digital Repository Audit Method Based on Risk Assessment

Standards & Specifications



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

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.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [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.

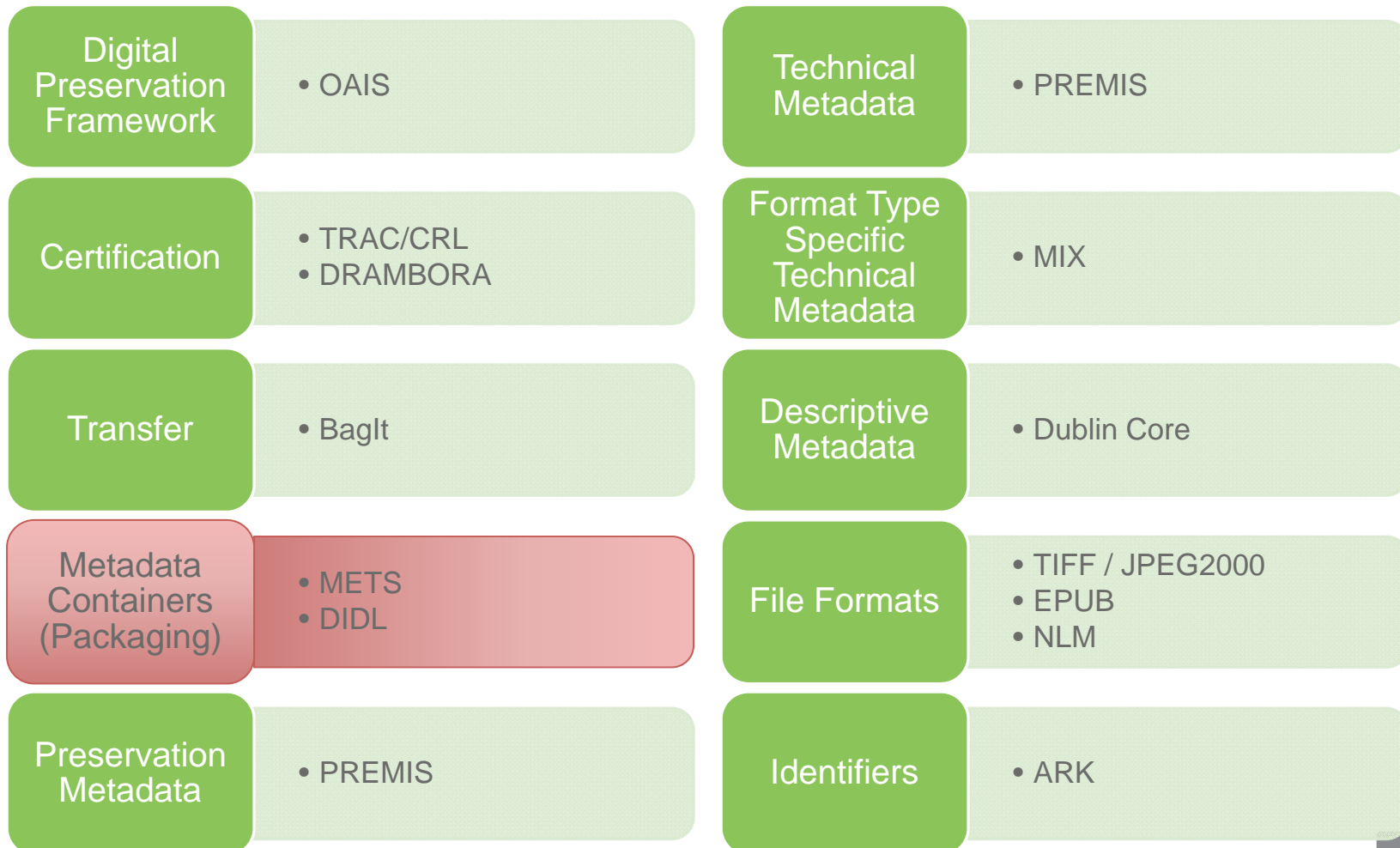
Copyright Notice

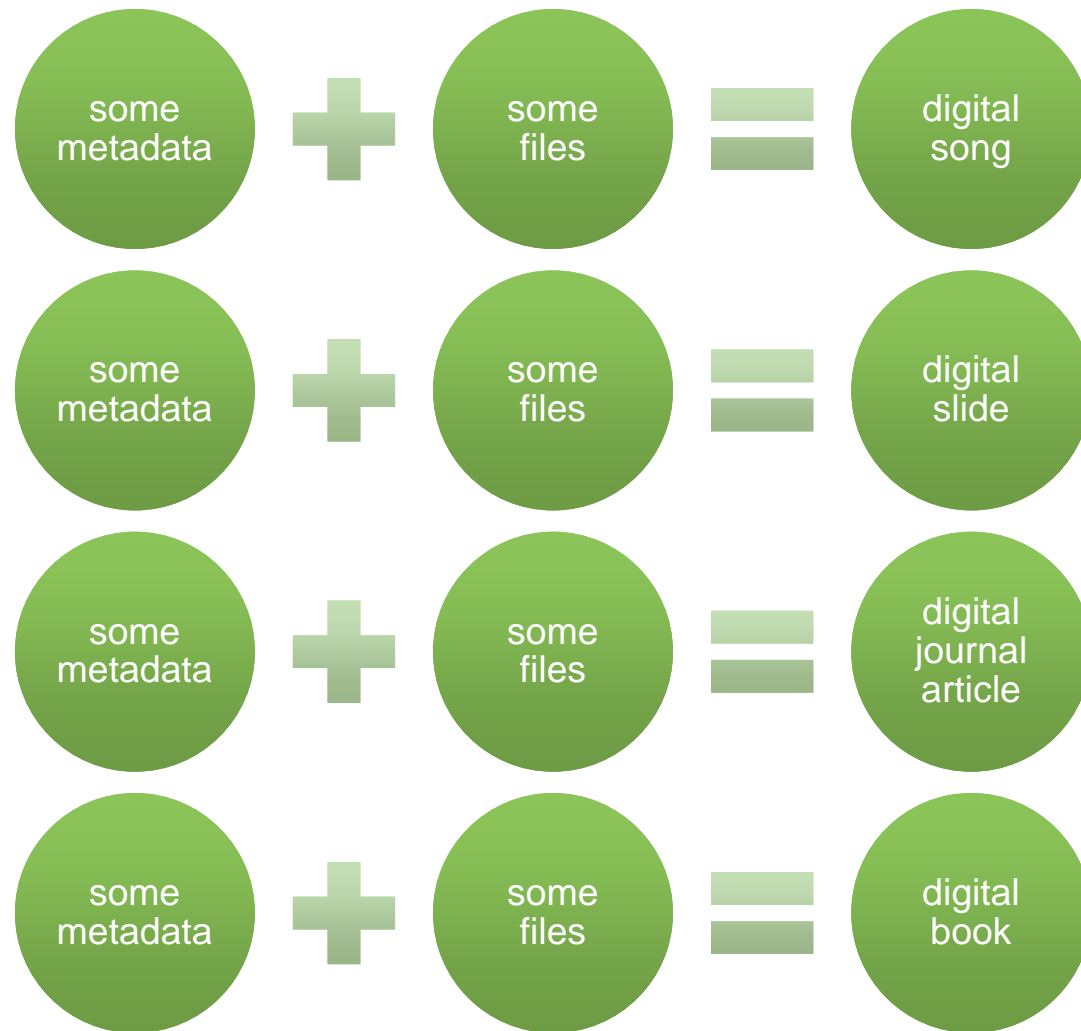
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This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of



Standards & Specifications





- 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

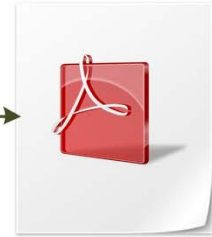
- These TIF files are page images.
- The TIF file named XYZ is page 1. It is a valid TIF and has a checksum of 123456.
- The TIF file named ABC is page 2. It is not a valid TIF and has a checksum of 78910.
- ...



- 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.
- ...



[The Library of Congress](#) >> [Standards](#)



Metadata Encoding & Transmission Standard

[Official Web Site](#)

Home

The METS schema is a standard for encoding descriptive, administrative, and structural metadata regarding objects within a digital library, expressed using the [XML schema language](#) of the [World Wide Web Consortium](#). The standard is maintained in the [Network Development and MARC Standards Office](#) of the Library of Congress, and is being developed as an initiative of the Digital Library Federation.



Open Archives Initiative Object Reuse and Exchange

[Home](#) [Projects](#) [Specifications](#) [Community](#) [About OAI](#)

Open Archives Initiative -> ORE

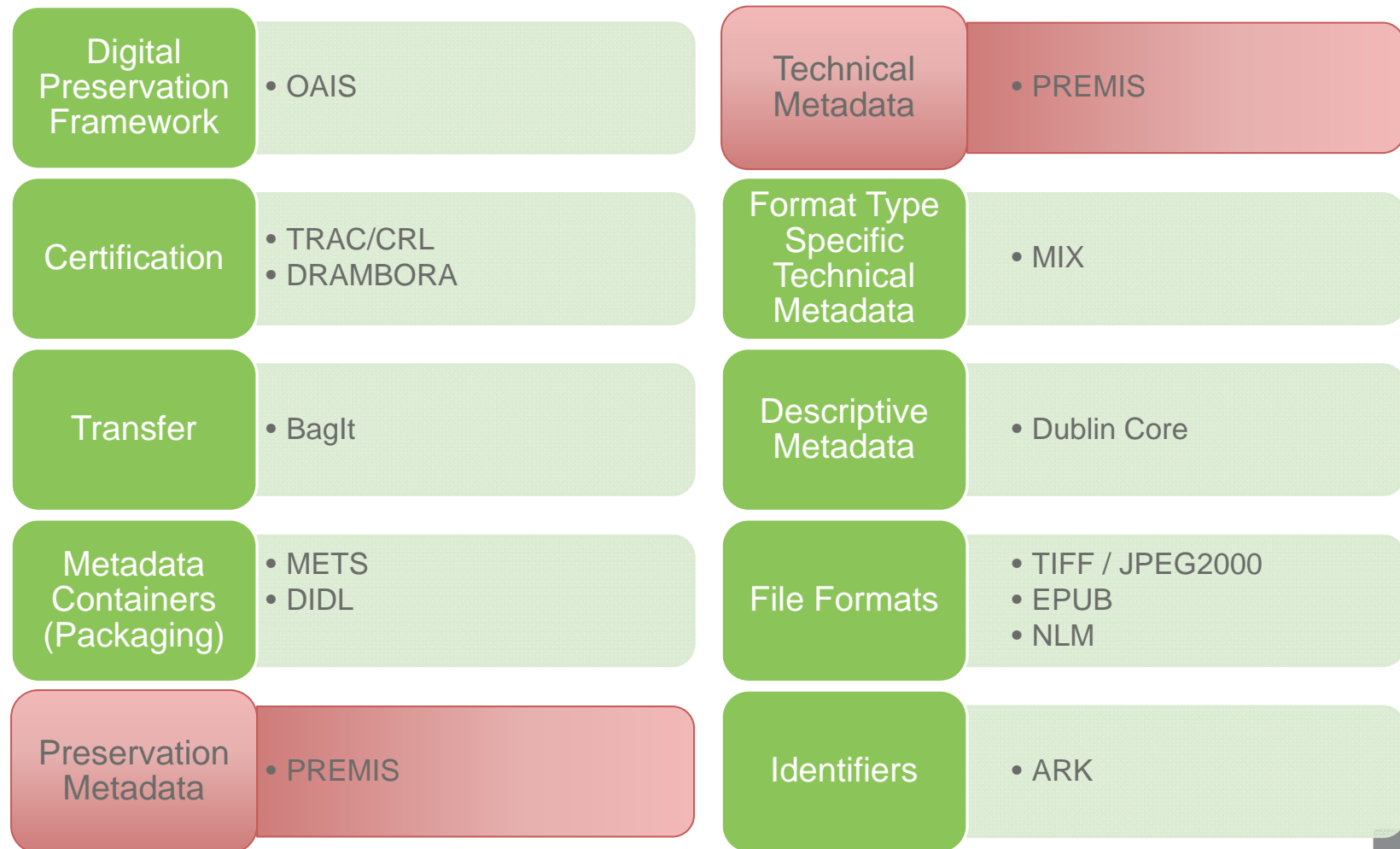
MPEG-21 Part 2: Digital Item Declaration Language (DIDL)

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

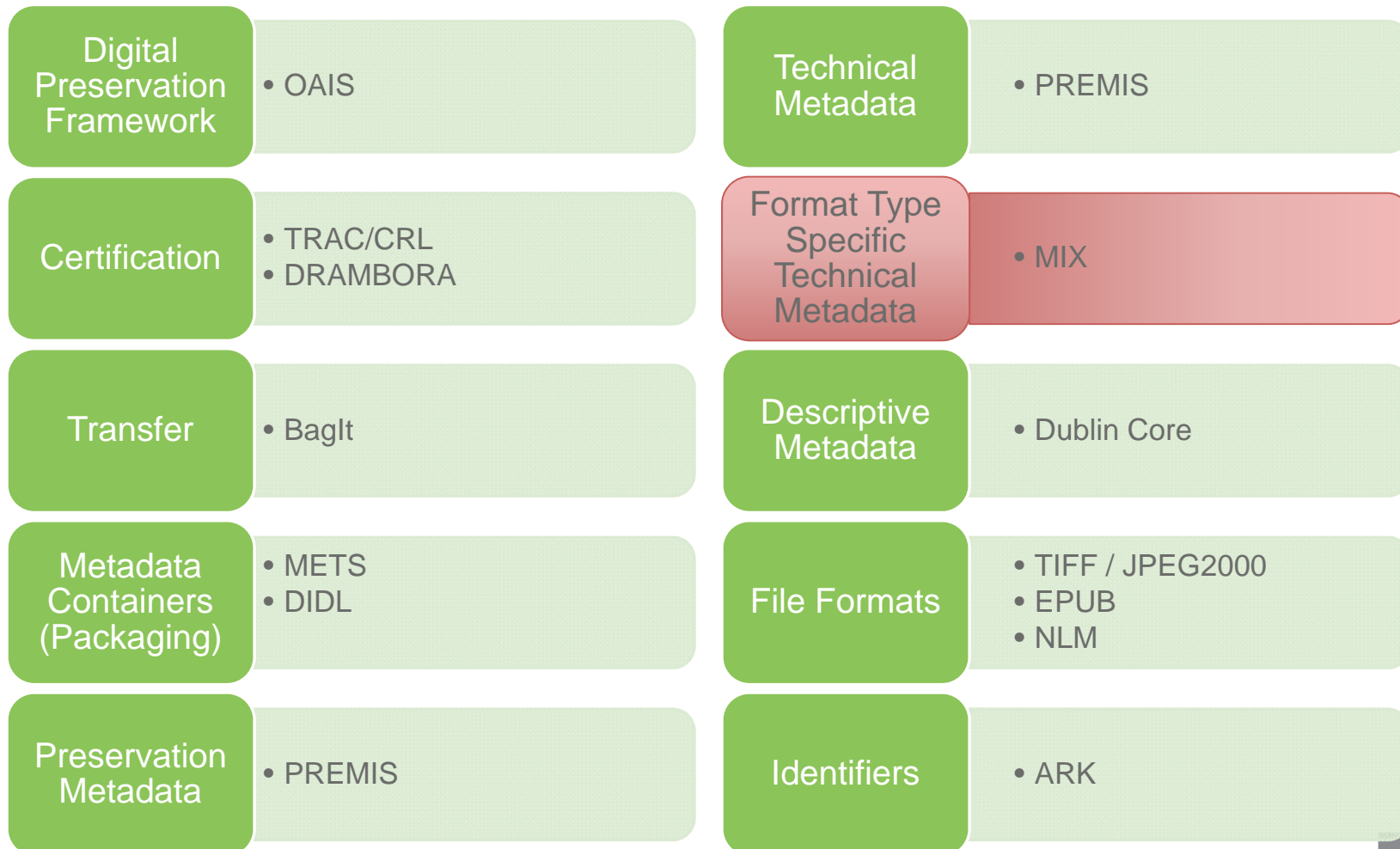


Standards & Specifications: Preservation Metadata

**PREMIS
Data Dictionary**
**for Preservation
Metadata**
version 2.1
January 2011

Contents:
Acknowledgments
Introduction
 Background
 The PREMIS Data Model
 General Topics on Structure & Use
 Implementation Considerations
The PREMIS Data Dictionary Version 2.1
Special Topics
Methodology
Glossary

Standards & Specifications



[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 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 \(previous version\)](#)

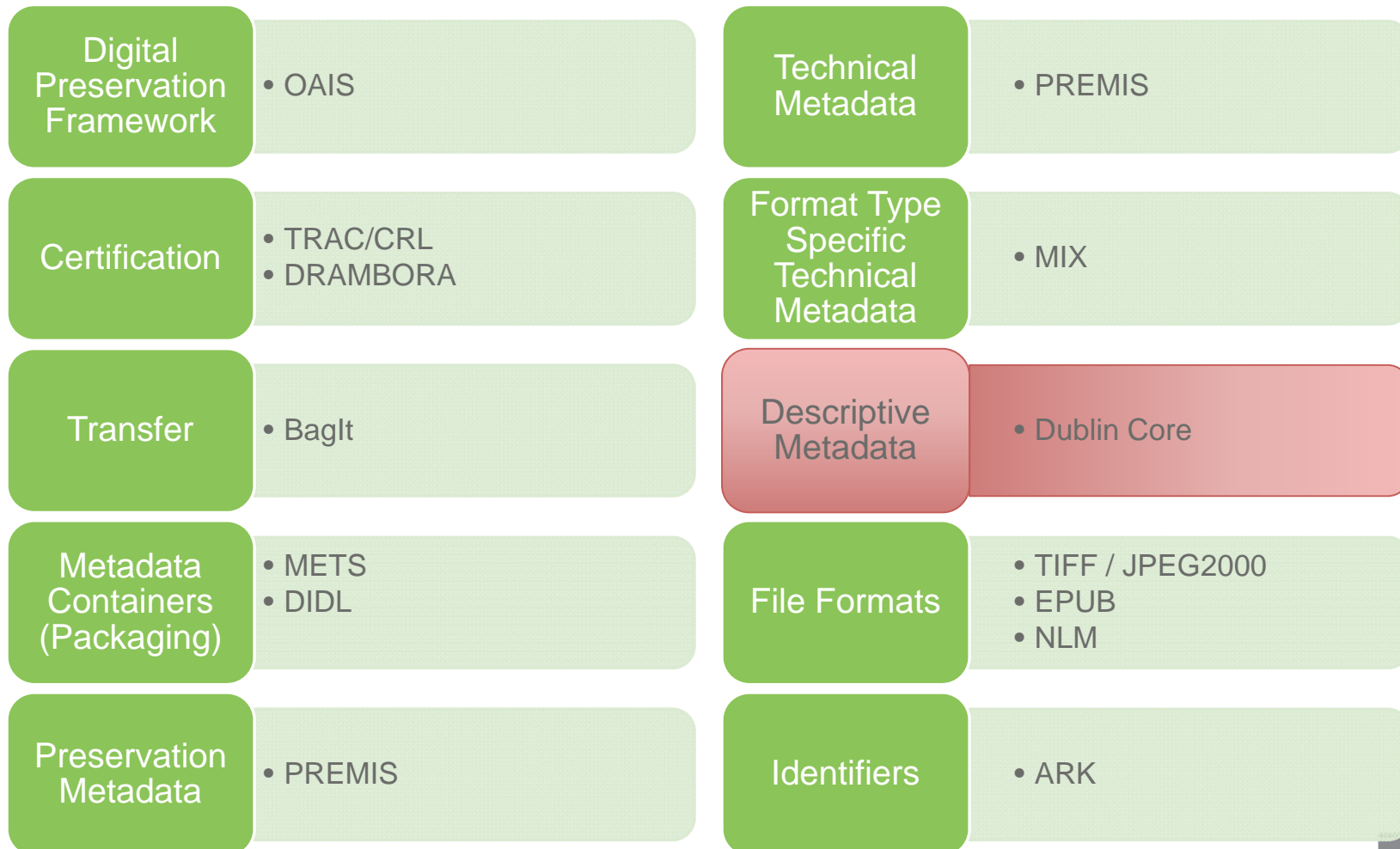
MIX Example Documents

- Example MIX XML Documents
 - [Test MIX document instance \(version 1.0\)](#)
 - [Test MIX document instance \(version 0.2\)](#)

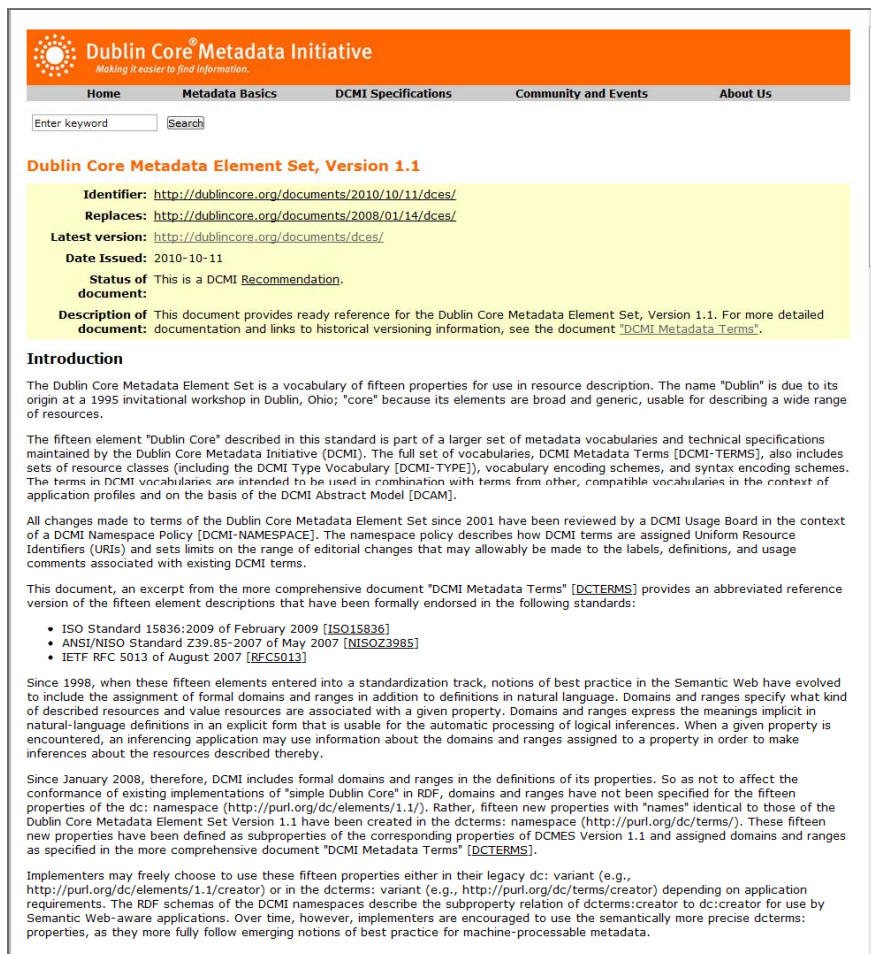
Tools & Utilities

- [JHOVE - JSTOR/Harvard Object Validation Environment](#)

Standards & Specifications



Standards & Specifications: Descriptive MD



Dublin Core Metadata Initiative
Making it easier to find information.

Home Metadata Basics DCMI Specifications Community and Events About Us

Enter keyword

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]

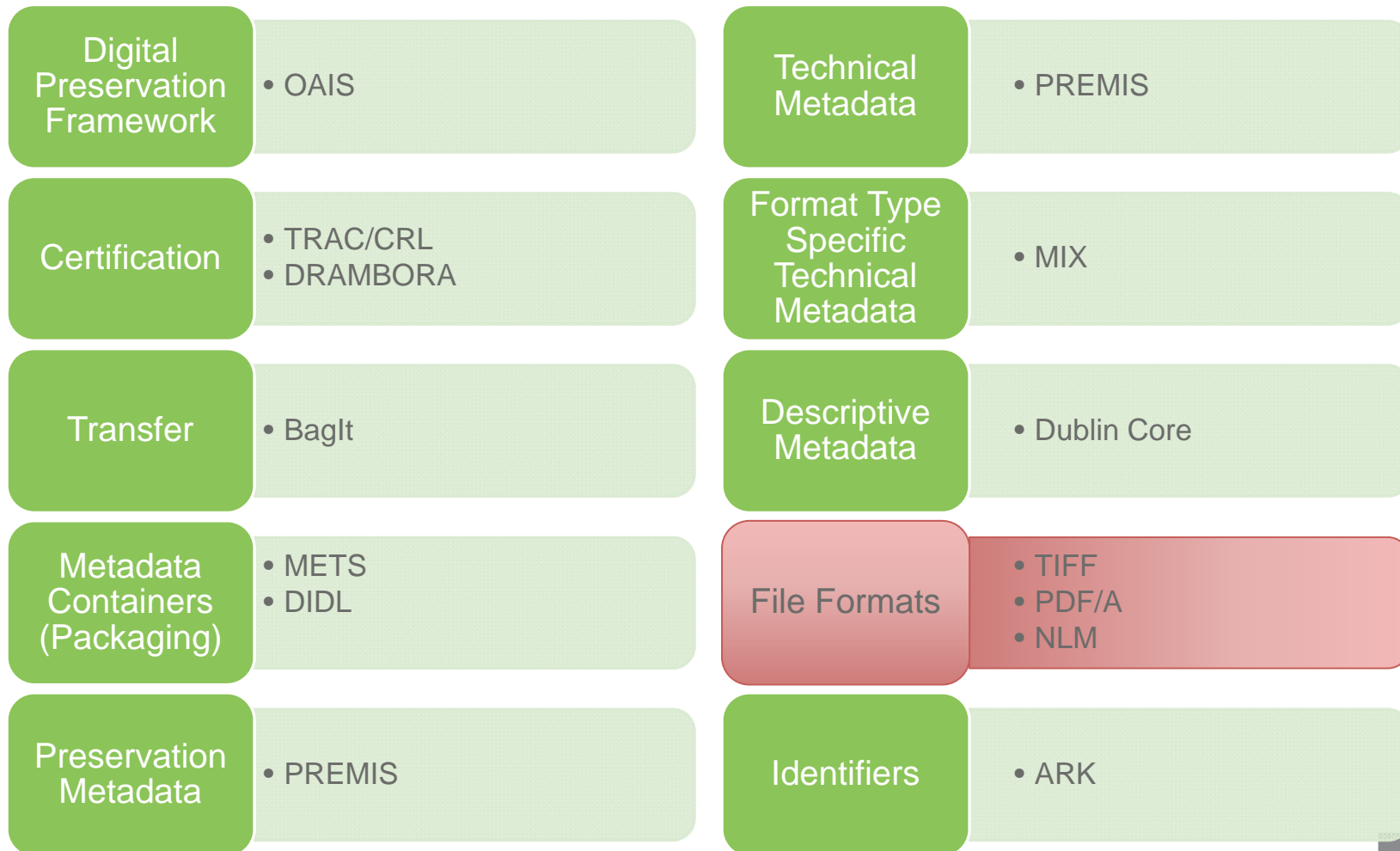
Since 1998, when these fifteen elements entered into a standardization track, notions of best practice in the Semantic Web have evolved to include the assignment of formal domains and ranges in addition to definitions in natural language. Domains and ranges specify what kind of described resources and 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/terms/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

Standards & Specifications




Standards & Specifications: File Formats



NLM Journal Archiving and Interchange Tag Suite

National Center for Biotechnology Information National Library of Medicine



[Archiving and Interchange Tag Set](#) [Journal Publishing Tag Set](#) [Article Authoring Tag Set](#) [NCBI Book Tag Set](#)


Introduction

The [National Center for Biotechnology Information \(NCBI\)](#) of the National Library of Medicine and the National Library of Medicine Journal Archiving and Interchange Tag Suite with the intent of providing a common format in which journals 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 articles and non-article material such as letters, editorials, and book and product reviews.

The Suite of Modules

The intent of this Tag Suite is to preserve the intellectual content of journals in a format that content was originally delivered. The Suite has been written as a set of modules, each of which is a separate physical file. No module is an entire schema by itself, but they can be combined into a number of different schemas.

and archiving journals. Details on the development of the Suite are available as well.



PDF Standards

A Service of AIIIM and the PDF Technology Community

Welcome | PDF Standards Defined | Corrigendas | PDF Reference | PDF/A | PDF/E | PDF/AU | PDF/VT | PDF/X | Other Work | AIIIM | Contacts

PDF/A - Action Items

PDF/A - Meetings

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 AIIIM Standards Board in October 2002. In August 2003, the project work was approved as an ISO New Work Item. [ISO 19005-1](#), 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 AIIIM 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 [ISO 32000-1 \(ISO PDF\)](#) as well as ISO 19005-3 which will address electronic documents containing dynamic media (movies, sounds, 3D, etc). This wiki 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 [PDF/A Embedded](#). Please post comments to this page.

PDF/A Links

AIIIM'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 [FAQs 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](#).

US Library of Congress, [Sustainability of Digital Formats](#). <http://www.digitalpreservation.gov>

All content is owned by ISO, AIIIM and the Committees themselves. RSS Feed

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Content problem? Email Betsy Fanning, bfanning@aillim.org. Site problem? Email pdfstandards@appliant.com



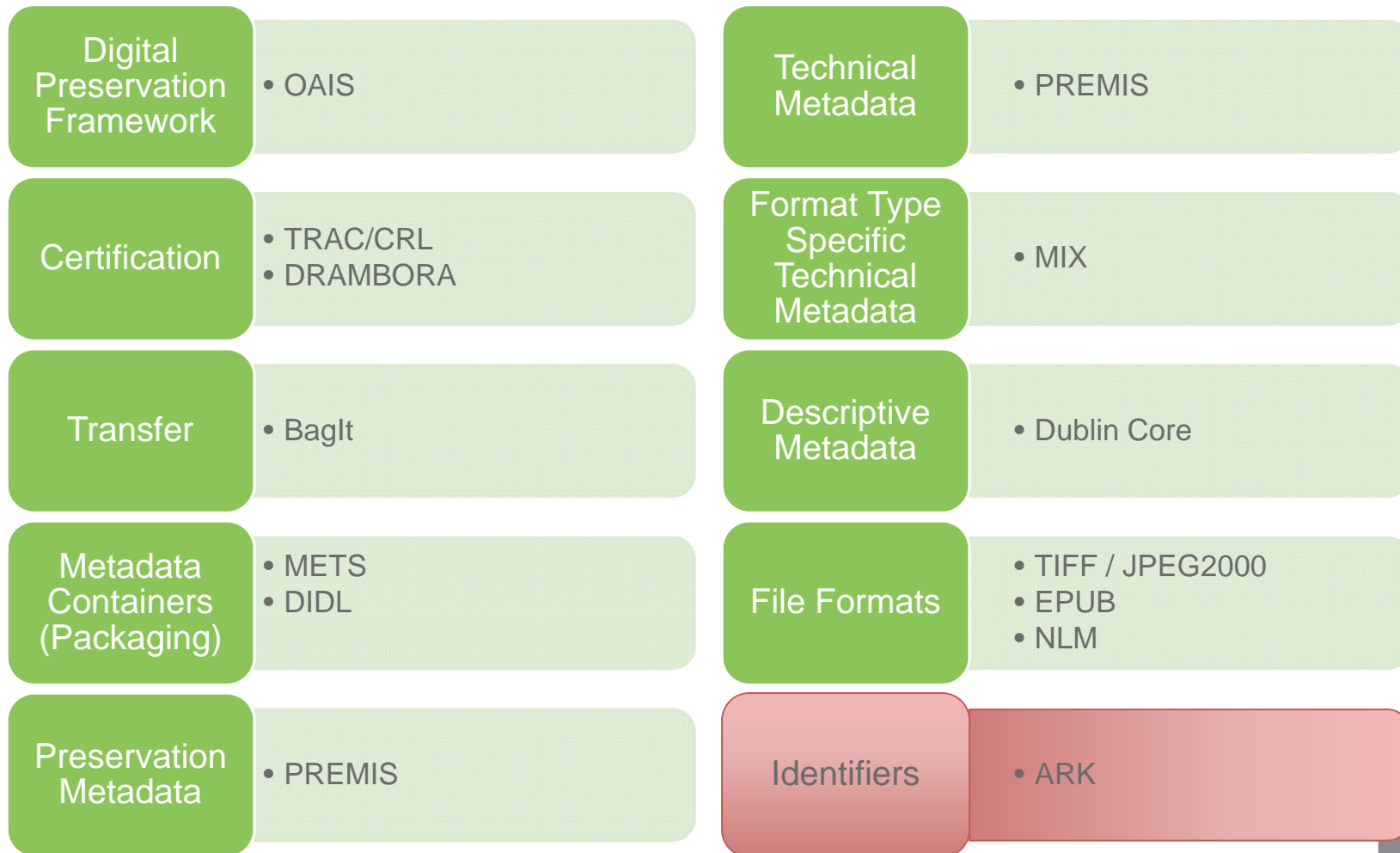
Find, Control, and Optimize Your Information

TIFF™


Revision 6.0

Final — June 3, 1992

Standards & Specifications



Standards & Specifications: Identifiers

University of California
 **CDL** **NOID**
California Digital Library
1 Added by Perry Willett, last edited by Perry Willett on Jan 25, 2010 (view change)

+ Add ▾ ⚙ Tools ▾

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** **ARK**
California Digital Library
3 Added by Perry Willett, last edited by Perry Willett on Aug 09, 2010 (view change)

+ Add ▾ ⚙ Tools ▾

ARK: Archival Resource Key

Name:	ARK
Version:	2008-05-22
Status:	Beta
Specification:	The ARK Identifier Scheme: PDF TXT
Additional Information:	<ul style="list-style-type: none">• 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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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.

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General

- [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

- [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

[\[edit\]](#) [\[edit\]](#)

navigation

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entries

- [Standards Entries](#)

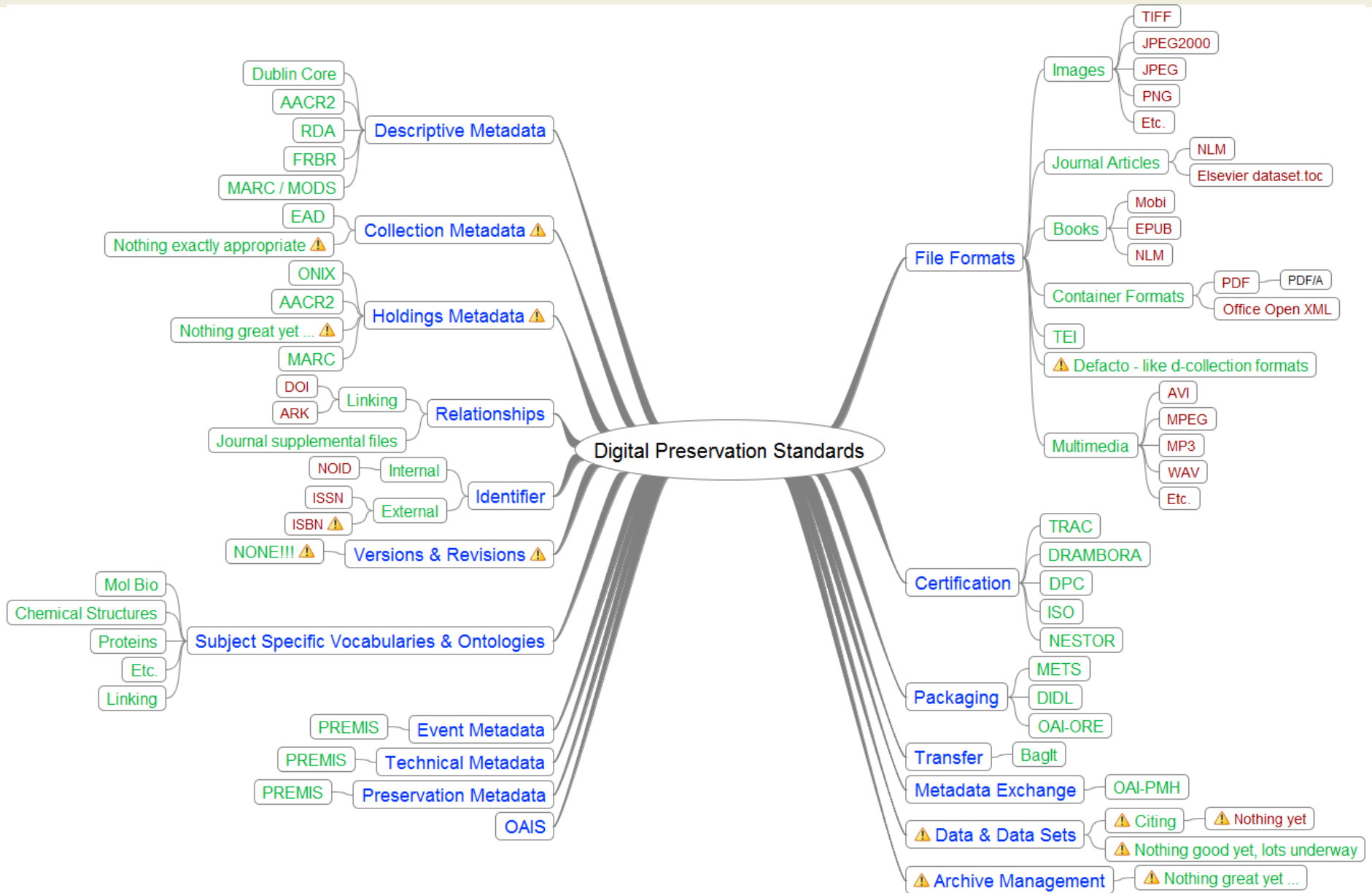
resources

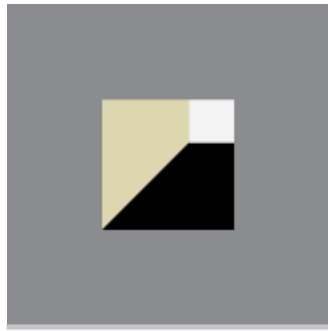
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THANK YOU.

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