Title:

OhioLINK Digital Media Center (DMC) Metadata Application Profile

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Description of Document: This application profile recommends the implementation of a core set of metadata elements and Dublin Core Metadata Element Set mappings (http://www.dublincore.org) for use in projects in the OhioLINK Digital Media Center (DMC). This draft is submitted to DMSC for review.

This document is modeled on a similar document created by the Western States Digital Standards Group. More information is available at http://www.cdpheritage.org/westerntrails/wt_bpmetadata.html.

Change Log: 20060821: in the "Condensed View: DMC Core Element Set" Digital Creation Date mapping corrected to be DC.date.available. (Was already correct in element description)

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Introduction

The OhioLINK Digital Media Center (DMC) is used to store and publish digital media assets from OhioLINK institutions and other collaborating organizations or publishers. Contributors to the system, in addition to adding digital objects, will also be required to contribute additional information about the digital objects called metadata. This document describes the necessary elements that comprise the core set of metadata for the DMC.

Purpose

The primary purpose of this document is to provide guidance to contributors in the metadata creation process and to improve both local and remote resource discovery. These guidelines are based on recognized standards that will ensure the consistency required for effective access while also maintaining enough flexibility to accommodate a variety of collections.

The following pages contain the basic guidelines for creating DMC metadata records for digital objects and the original resources from which they may be derived. Digital objects may include reformatted (digitized) photographs, text, audio, video, and three-dimensional artifacts as well as resources that are born digital. Application of these best practices will result in standards-based records that:

1. improve retrieval accuracy and resource discovery
2. facilitate multi-institutional interoperability and quality control
3. comply with the Open Archives Initiative Protocol for Metadata Harvesting
4. enable collection migration, import & export between the DMC and other systems as necessary.

These guidelines will also provide a foundation for OhioLINK training and consultation and will serve as a reference for DMC software enhancements and development. This document will need to evolve over time and it is suggested that a feedback mechanism and scheduled reviews be established.

Background

These guidelines were prepared by the OhioLINK DMSC Metadata Task Force, a task force created by the DMSC in April of 2003. The task force was formed in order to advise the DMSC on metadata requirements of the DMC, to develop and implement metadata solutions for DMC projects, and to monitor metadata standards for the OhioLINK community.

Selection of Standards

After a careful review of emerging metadata schemas, best practice documents, and DMC elements currently in use, the task force selected Dublin Core as the basis for the DMC core element set. It is the logical choice for the following reasons:

1. It is the de-facto standard in the digital library community with a number of best practice documents written to guide implementation efforts.
2. It is the metadata foundation on which the Open Archives Initiative is based, therefore it supports harvesting by external organizations.
3. It enables widespread access across distributed collections of heterogeneous resources within the DMC.
4. It supports the creation of resource descriptions that are easy to create and understand.
5. It is extensible and flexible.

The resulting DMC core consists primarily of elements from Dublin Core and supplementary elements deemed necessary in this environment. Mapping to the Dublin Core is indicated for each individual element. Dublin Core definitions have been retained for those elements drawn directly from the DC element set. Any refinements have been made according to Dublin Core Metadata Initiative (DCMI) principles.

"The Western States Dublin Core Metadata Best Practices" document was chosen as a model for the DMC guidelines since the task force found it to be thorough, accessible and timely. A number of other best practices were reviewed but tended to be narrow in scope by comparison. While some effort was made to reconcile differences between guidelines published by various communities of practice, the Western States model seemed appropriate for DMC's multi-contributor environment.

Regarding the selection of schemes, every effort was made to choose recognized authoritative sources in common use by the digital library community. Most of the recommended schemes are publicly accessible over the internet. Additional information and URLs are provided in the References section.

Extensibility of Metadata in the OhioLINK DMC

This core metadata element set applies to all contributions to the OhioLINK DMC. The intent is not to provide an exhaustive set of elements covering every attribute of all possible entity types but to establish a common set of elements that support first and foremost resource discovery and only secondarily resource description. However, some contributions to the DMC may require metadata elements not included in this core. From the DMC's inception and throughout its evolution we have recognized the need to accommodate metadata that may be project or domain-specific (i.e. appropriate to a particular subject, discipline, or object type) and therefore NOT suitable across all collections. In support of this we have created subject-based databases that will use the CORE elements but will have additional elements. A full discussion of those elements is beyond the scope of this document and is available in related documentation. Examples include the 'Nationality' element in the Art database, and the 'Species' and 'Genus' elements in the Scientific/Specimen database. Other additional elements

may be added to those subject based databases as the system evolves and as the collections may come to require it. Once a DMC proposal is accepted the contributor will work with OhioLINK staff to determine the metadata requirements of the collection and to which database the collection belongs. Under certain cases new elements may be added.

Software

Contributors to the OhioLINK DMC are supplied with software for uploading media data (images, audio, video, etc.) and for cataloging that data. This interface may evolve and include different features as appropriate (e.g. pull down menus for commonly used pre-defined values.). Use of specific interface components are beyond the scope of this document. Instructions for accessing and using the DMC interface will be supplied to contributors after the contributor's proposal is accepted.

Digital Resource Commons of Ohio

The DMC is evolving and expanding into a new service called the Digital Resource Commons. Current DMC metadata will be supported but new types of data, new functionality, and new subject areas will be enabled. A similar architecture for extensible metadata will be used. For instance, a database of digitized books or previously published research articles may include extended metadata elements such as 'Alternate Title' or 'Original Publisher' as necessary.

Snapshot of DMC Core Element Set

The following list provides an at-a-glance view of the DMC Core Element set in the same order as presented later in the document in detail. **Mandatory elements** appear in **bold**.

- **Title**
- **Creator**
- Contributor
- Date
- Description
- Subject
- Spatial Coverage
- Temporal Coverage
- Language
- Work Type
- Repository Name
- Repository ID
- **Digital Publisher**
- Digital Creation Date
- Digitizing Equipment
- Asset Source
- Rights
- Collection Name
- OhioLINK Institution
- **Asset Type**
- **OID (Object Identifier)**
- Permissions

General Input Guidelines

Input guidelines are provided for all non-system supplied elements, including guidelines for commonly encountered anomalies or otherwise ambiguous situations. While it is impossible to anticipate all situations, every effort has been made to assist contributors in metadata creation. Recommended best practice is to select or establish content standards prior to project implementation and to apply them consistently across elements as appropriate. Examples of established content standards include: Anglo-American Cataloguing Rules (AACR2) and Archives, Personal Papers, and Manuscripts (APPM). Select terms from controlled vocabularies, thesauri and heading lists; establish new terms and headings using the same standards. Employing terminology from these types of sources ensures consistency, reduces spelling errors and can improve the quality of search results. In some cases, this document refers to specific external content standards such as the date/time standard ISO 8601. Full citations for text-based standards or URLs for those that are Internet accessible are provided in the References.

1. **Repeatable Values.** For elements that allow repeatable values, follow guidelines in the software interface. The interface may require multiple values to be added to an element by delimiting them with a semi-colon and space or the interface may provide separate text entry fields for each value to be entered.
2. **Names.** Apply the same rules or guidelines to format names of creators, digital publishers, contributors, and names entered as subjects. If not following established rules such as Anglo-American Cataloguing Rules (AACR2), then use these guidelines:
    a. Determine correct form of the name when possible. The Library of Congress Authority File (http://authorities.loc.gov) or other locally specified bibliographic utility (OCLC, RLIN, etc.) should be consulted.
    b. Enter personal names in inverted form in most cases: last name, first name, middle name or initial. If it is not obvious how to invert or structure the name, use the name form given in an authority list or enter it as it would be in the country of origin. Birth and/or death dates, if known, can be added, in accordance with the authorized form of name.
    c. Enter group or organization names in full, direct form. In the case of a hierarchy, list the parts from the largest to smallest, separated by a period and space.
    d. If there is doubt as to how to enter a name and the form of name cannot be verified in an authority list, enter it as it appears and do not invert (Example: Sitting Bull).
    e. Optional: The role of a person or entity may be included in parentheses after the name (Example: Rockwell, Norman, 1894-1978 (illustrator)). See list of terms at http://www.loc.gov/marc/relators/relaterm.html.
3. **Dates.** Enter dates in the form YYYY-MM-DD in accordance with the date/time standard ISO 8601 defined in http://www.w3.org/TR/NOTE-datetime.html. Use a single hyphen to separate year, month, and date components:
    a. Year:
    YYYY (1997 for the year 1997)
    b. Year and month:
    YYYY-MM (1997-07 for July 1997)
    c. Complete date:
    YYYY-MM-DD (1997-07-16 for July 16, 1997)
    d. For a range of dates, enter the dates on the same line, separating them with a space hyphen space (1910 – 1920)
    e. To show date is approximate, follow the date with a question mark (1890?)

f. Input B.C.E. dates (200 B.C.E.) and time periods (Jurassic) as needed.

4. **Diacritics.** Enter diacritics and other non-standard characters as needed. In general, Unicode is offered that will support any character on any platform.
5. **Other**. Custom metadata services may be available. Contact OhioLINK as necessary.

Elements

The following section describes each element in detail, including how it is applied and specific guidelines for entering values. Each element occupies a single page. The "Element Documentation Format" is not an element itself, but rather a guide to the structure of each element page that includes instructive descriptions of the following items:

- Element Name
- Definition
- Obligation
- Occurrence
- Recommended Schemes
- Input Guidelines
- Examples
- Maps to DC Element

Element Documentation Format

Element Name:

The name given to the data element as it appears in the database. An element represents a single characteristic or property of a resource.

Definition: Specifies the type of information required for the named element. In most cases definitions are taken directly from the Dublin Core Element Set definitions [http://www.niso.org/international/SC4/n515.pdf]. *Comments: appear in italics and may be included to provide additional information or clarification.*

Obligation: Indicates whether or not a value must be entered. An obligation will be designated as one of the following:

1. *Mandatory* means that a value must be entered even if it requires the creation of an arbitrary value.
2. *Required (if available)* means that a value must be included if it is available.
3. *Optional* means that it is not required to include a value for this element.

Occurrence: Indicates whether only a single value or multiple values can be used.

1. *Repeatable*: If the occurrence is Repeatable, more than one value can be entered.
2. *Non-Repeatable*: If the occurence is Non-Repeatable then only a single value can be used.

Recommended Schemes: Established lists of terms or classification codes from which a user can select when assigning values to an element in a database. There are two types of schemes: Vocabulary Encoding Schemes and Syntax Encoding Schemes. Vocabulary schemes are controlled vocabularies such as LCSH and other formal thesauri. Syntax schemes indicate that the value is a string formatted in accordance with a formal notation, such as "2000-01-01" as the standard expression of a date. See the list of recommended schemes included in the References.

Input Guidelines:
Input Guidelines list common conventions and syntax rules used to guide the data entry process. In the case of system supplied values a brief explanation of the process will be provided.

Examples:
Examples are provided to illustrate the types of values, conventions and syntax used for the element.

Maps to DC Element: Gives the Dublin Core element equivalent, if applicable.

Title

Definition: A name given to a resource. Typically a title will be a name by which the resource is known. It may also be an identifying phrase or object name supplied by the holding institution.

Obligation: Mandatory
Occurrence: Non-Repeatable

Recommended Schemes: None.

Input Guidelines:
1. Identify and enter one Title element per record according to the guidelines that follow.
2. Transcribe title from the resource itself, such as book title, photograph caption, artist's title, object name, etc., using same punctuation that appears on the source.
3. When no title is found on the resource itself, use a title assigned by the holding institution or found in reference sources. If title must be created, make the title as descriptive as possible, avoiding generic terms such as Papers or Annual report. Use punctuation appropriate for English writing.
4. When possible, exclude initial articles from title. Exceptions might include when the article is an essential part of the title or when local practice requires use of initial articles.
5. Capitalize only the first letter of the first word of the title and of any proper names contained within the title.
6. Consult established cataloging rules such as Anglo-American Cataloguing Rules (AACR2) or Archives, Personal Papers, and Manuscripts (APPM) for more information.

Examples:
1. Channel crew poling ice blocks
2. DH-4 battle plane and Wright Model C Flyer share air space
3. Exhibition flight over Lake Erie
4. Great Ballcourt

Maps to DC Element: Title

Creator

Definition: An entity primarily responsible for making the content of the resource. Examples of creators include authors of written documents, artists, illustrators, photographers, collectors of natural specimens or artifacts, organizations that generate archival collections, etc. *Comments: Entities with a secondary role in the creation process should be entered under 'Contributor'.*

Obligation: Mandatory
Occurrence: Repeatable

Recommended Schemes: Library of Congress Authority File.

Input Guidelines:
1. Enter the name(s) of the creator(s) of the object. Construct names according to General Input Guidelines. Enter multiple primary creators in the order in which they appear on the resource or in order of their importance. Secondary authors, editors, etc. should be entered using the Contributor element.
2. Use "unknown" if a creator cannot be determined.
3. Repeat the names of creators in the subject element only if the object is also about the creator in some way. (Example: A record for a self portrait of Picasso would list Picasso, Pablo, 1881-1973 as both creator and subject; a record for a work by Picasso would list Picasso, Pablo, 1881-1973 only in the creator element).

Examples:
1. Niebergall, Ernst
2. Dayton Wright Airplane Company
3. United States. Army. Air Corps.
4. Grimm, Linda T.
5. unknown

Maps to DC Element: Creator

Contributor

Definition: An entity responsible for making contributions to the content of the resource. Person(s) or organization(s) who made significant intellectual contributions to the resource but whose contribution is secondary to any person(s) or organization(s) already specified in a Creator element. Examples: editor, transcriber, illustrator, performers, etc. *Comments: An entity with a primary role in the creation process should be entered under 'Creator'.*

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: Library of Congress Authority File

Input Guidelines:
1. Construct names according to General Input Guidelines.

Examples:
1. Niebergall, Ernst
2. Dayton Wright Airplane Company
3. United States. Army. Air Corps.
4. Grimm, Linda T.

Maps to DC Element: Contributor

Date

Definition: Creation or modification date(s) for the original resource from which the digital object was derived or created.

Obligation: Required (if available)
Occurrence: Repeatable

Recommended Schemes: ISO 8601

Input Guidelines:
1. A resource may have several associated dates, including creation date, copyright date, revision date, edition date, modification date, etc. Enter dates according to General Input Guidelines.
2. Enter date of creation or availability of the digital resource in Digital Creation Date element.

Examples:
1. 1965-05-04
2. 1988
3. 1969-07
4. 1969-1988

Maps to DC Element: Date

Description

Definition: An account of the content of the resource. Examples of Description include, but are not limited to: an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content. *Comments: Use other, more specific elements where applicable.*

Obligation: Required (if available)
Occurrence: Repeatable

Recommended Schemes: None.

Input Guidelines:
1. Enter descriptive text, remarks, and comments about the object. This information can be taken from the object, repository records, or other sources.
2. Enter here specialized information not included in other elements such as provenance, distinguishing features, inscriptions, the nature of the language of the resource, and/or history of the work.
3. Use punctuation necessary to make entry clear and easy to read.

Examples:
1. Looking north with the Ballcourt in the foreground and Temple I in the background
2. Composite image, fake, showing Wilbur Wright delivering a stone bridge abutment at Chateau Thierry. Sent to Wilbur Wright by L. Allais from Chateau Thierry.
3. Sanduskians eagerly watched George Bing as he made adjustments to his engine during a test flight on the Sandusky Bay ice. Bing's design resembled that of the Hudson flier Glenn Curtiss had flown successfully from Euclid Beach to Cedar Point, Ohio, in 1910. However, Bing believed he had incorporated new and important safety features in his biplane. Safety was an important component if a regular air mail route between Sandusky, Ohio, and Kelley's Island were to be established.
4. In German and English, in parallel columns.

Maps to DC Element: Description

Subject

Definition: A topic of the content of the resource. Typically, Subject will be expressed as thesaurus terms, classification codes, or keywords that describe a topic of the resource. Recommended best practice is to select a value from a controlled vocabulary, name authority file or formal classification scheme. *Comments: Specific geographic subjects or time periods should be described elsewhere: use Spatial Coverage (geographic subject) and Temporal Coverage (time period).*

Obligation: Required (if available)
Occurrence: Repeatable

Recommended Schemes: It is strongly recommended that subject words and phrases come from established thesauri or discipline-related word lists, e.g. LCSH, Mesh, TGM.

Input Guidelines:
1. Determine subject terms using the resource itself, including title and description. Use words or phrases from established thesauri or construct new subject terms following the rules of an established thesaurus if available terms do not adequately describe content of resource. Construct names according to General Input Guidelines.
2. Enter multiple subjects in order of their importance, often determined by how much of the entire content is devoted to a particular subject.
3. Subjects may be personal or organization names as well as topics, places, genres, forms, and events. Subject elements may describe not only what the object is, but also what the object is about.
4. Repeat the names of creators in the subject element only if the object is also about the creator in some way. (Example: A record for a self portrait of Picasso would list Picasso, Pablo, 1881-1973 as both creator and subject; a record for a work by Picasso would list Picasso, Pablo, 1881-1973 only in the creator element).

Examples:
1. Gliding and soaring
2. Campaigns & battles
3. Kill Devil Hills (N.C.)
4. African Americans -- Civil rights -- History

Maps to DC Element: Subject

Spatial Coverage

Definition: Describes the spatial characteristics of the intellectual content of the resource. Spatial refers to the location(s) covered by the intellectual content of the resource (i.e. place names; longitude and latitude; celestial sector; etc.) not the place of publication.

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: TGN (Getty Thesaurus of Geographic Names), DCMI Point, DCMI Box, ISO 3166, Library of Congress Authority File, Library of Congress Subject Headings

Input Guidelines:
1. Multiple places and physical regions may be associated with the intellectual content of a resource.
2. If using place names, select terms from a controlled vocabulary or thesaurus.

Examples:
1. Alaska
2. Cleveland (Ohio)
3. east=148.26218; north=-36.45746; elevation=2228; name=Mt. Kosciusko
4. name=Western Australia; northlimit=-13.5; southlimit=-35.5; westlimit=112.5; eastlimit=129

Maps to DC Element: Coverage

Temporal Coverage

Definition: Temporal coverage refers to the time period covered by the intellectual content of the resource (e.g. Jurassic; 1900-1920), not necessarily the publication date or digital creation date. For artifacts and art objects the temporal characteristics refer to the date or time period during which the artifact was made, or art object depicts.

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: ISO 8601, Library of Congress Subject Headings

Input Guidelines:
1. Multiple dates and time periods may be associated with the intellectual content of the resource.
2. Enter dates according to General Input Guidelines.

Examples:
1. 1840
2. 1900?
3. 1915-1925
4. 20th century
5. Paleolithic
6. Victorian

Maps to DC Element: Coverage

Language

Definition: A language of the intellectual content of the resource. *Comments: Images do not usually have a language unless there is significant text in a caption or in the image itself, and would therefore not be coded for language.*

Obligation: Required (if available)
Occurrence: Repeatable

Recommended Schemes: ISO639-2

Input Guidelines:
1. Indicate language or languages using the language codes defined by ISO 639-2. When given a choice between two three-letter codes, use the bibliographic set.
3. A textual description of the nature of the language may also be included in the Description element. (Example: In German and English, in parallel columns).

Examples:
1. spa
2. fre
3. eng

Maps to DC Element: Language

Work Type

Definition: The manifestation of the original object.

Obligation: Required (if available)
Occurrence: Repeatable

Recommended Schemes: AAT, TGM-2 (Genre)

Input Guidelines:
1. Use values consistently.
2. Where applicable, use a discipline specific authority file or controlled vocabulary.

Examples:
1. Painting
2. Mixed-Media
3. Photograph
4. Sculpture

Maps to DC Element: Type

Repository Name

Definition: The name of the organization or institution that holds the original physical object, if applicable. Some digital resources may have no local repository and thus the Repository Name is not used.

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: None

Input Guidelines:
1. Construct names according to General Input Guidelines.
2. If digital publisher is the same as the creator or contributor, enter the name or entity in both elements.
3. Institutional names should include enough information to identify the parent institution.

Examples:
1. Ohio University. Dept. of Archives and Special Collections
2. Center for Epigraphical and Palaeographical Studies, The Ohio State University
3. Rutherford B. Hayes Presidential Center (Fremont, Ohio)

Maps to DC Element:

Repository ID

Definition: A reference to a resource from which the present resource is derived. This element is often local accession number or other identifier. Some digital resources may have no local repository (or no local id schema) and thus the Repository ID is not used.

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: None

Input Guidelines:
1. Enter each identifier exactly as presented by the source institution (Examples: ISBN, ISSN, call number, control number, accession number, etc.).

Examples:
1. 6845
2. 1921.105
3. mss117/series1/sub1.2/box23/folder09/001_07011917
4. NC52 .H35

Maps to DC Element: Source

Digital Publisher

Definition: An entity responsible for making the resource available. Examples of Publisher include a university, college department, corporate body, publishing house, museum, historical society, project, repository, etc. who provide the digital object to OhioLINK. *Comments: Use more specific values than the 'OhioLINK Institution' element.*

Obligation: Mandatory
Occurrence: Repeatable

Recommended Schemes: Library of Congress Authority File

Input Guidelines:
1. Construct names according to General Input Guidelines.
2. If digital publisher is the same as the creator or contributor, enter the name or entity in both elements.

Examples:
1. Ohio University. Dept. of Archives and Special Collections
2. Center for Epigraphical and Palaeographical Studies
3. Rutherford B. Hayes Presidential Center (Fremont, Ohio)

Maps to DC Element: Publisher

Digital Creation Date

Definition: Dates of creation or availability of the digital resource; may be approximated by agency creating the record.

Obligation: Required (if available)
Occurrence: Non-Repeatable

Recommended Schemes: ISO 8601

Input Guidelines:
1. Enter date according to General Input Guidelines.
2. Enter all other dates related to a resource in the Date element.

Examples:
1. 2001
2. 2000-04-03

Maps to DC Element: DC.date.available

Digitizing Equipment

Definition: Equipment or tools used to create the digital object. May include scanners, digital cameras, etc.

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: None

Input Guidelines:
1. Enter descriptive text about the equipment used.
2. For digital still images refer to Image Creation section of Data Dictionary--Technical Metadata for Digital Still Images (NISO Z39.87-2002 AIIM 20-2002)

Examples:
1. Minolta DX 35 Flatbed Scanner
2. Sony DSC-20 Digital Camera
3. ATI Radeon 100559 Graphics card; Sony SLV-D201P VHS-DVD Player; S-Video Input cable

Maps to DC Element: N.A.

Asset Source

Definition: The immediate parent (manifestation) of the digital object. Often this value will be the same as Work Type.

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: None

Input Guidelines:
1. Use values consistently.
2. Where applicable, use a discipline specific authority file or controlled vocabulary.

Examples:
1. 35 MM Negative
2. 4" x 5" Transparency
3. VHS

Maps to DC Element: DC.Relation-HasFormat

Rights

Definition: Information about rights held in and over the resource. Typically, Rights will contain a rights management statement for the resource, or reference a service providing such information. Rights information often encompasses Intellectual Property Rights (IPR), Copyright, and various Property Rights. If the Rights element is absent, no assumptions may be made about any rights held in or over the resource.

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: None

Input Guidelines:
1. Enter a textual statement and/or URL pointing to a use and access rights statement for digital resources on the Internet.
2. This statement may be a general rights statement for the institution, for the whole collection, or a specific statement for each resource.
3. The statement may be general, providing contact information, or specific, including the name of the rights holder.

Examples:
1. Copyright 1999 Ohio State University
2. U.S. and international copyright laws protect this digital image. Commercial use or distribution of the image is not permitted without prior permission of the copyright holder.
3. Please contact collection_manager@university.edu for permission to use the digital image

Maps to DC Element: Rights

Collection Name

Definition: Formal or informal group of objects to which item belongs.

Obligation: Optional
Occurrence: Repeatable

Recommended Schemes: None

Input Guidelines:
1. Enter name of collection to which the resource belongs. Include sufficient information to enable users to identify, cite, and locate or link to the related resources.

Examples:
1. J.M.R. Cormack Macedonian Collection
2. Professor Geoffrey Braswell Collection
3. E. W. Scripps Papers, 1868-1926

Maps to DC Element: Relation; Relation.IsPartOf

OhioLINK Institution

Definition: A consistent reference to the OhioLINK Institution that contributes the material. *Comments: see also "Digital Publisher"*.

Obligation: Required (if available)
Occurrence: Repeatable

Recommended Schemes: None

Input Guidelines:
1. Choose the appropriate name or names from the list of OhioLINK institutions.

Examples:
1. Ohio University
2. Oberlin College
3. University of Cincinnati

Maps to DC Element: N.A.

Asset Type

Definition: The manifestation of the digital resource. This element is automatically captured and assigned by the OhioLINK DMC software. Values include image, audio, video, text, group, etc. Other properties automatically captured include file format (e.g. jpeg, tiff, ram, mov, mpeg, etc.) dimensions, file size, etc.

Obligation: Mandatory
Occurrence: Non-Repeatable

Recommended Schemes: Internally Defined.

Input Guidelines:
1. This element is automatically captured by the DMC Software

Examples:
1. IMAGE, JPEG, 250Kb
2. AUDIO, .WAV, 2.4 Mb
3. VIDEO, .MPEG 319Mb

Maps to DC Element: This element loosely maps to two DC elements (DC.type and DC.format).

OID (Object Identifier)

Definition: A unique ID given to the digital object by the software. This element is an accession number automatically assigned by the OhioLINK DMC Software. Contributors who have local identifiers for objects that they wish to add to the record should use "Repository ID" *Comments: This element is subsequently used to form a persistent URL.*

Obligation: Mandatory
Occurrence: Non-Repeatable

Recommended Schemes: None

Input Guidelines:
1. This element is automatically captured by the DMC Software

Examples:
1. 10403
2. 204654
3. 223421

Maps to DC Element: Identifier

Permissions

Definition: The audience to which the publisher agrees to provide access to content.

Obligation: Mandatory
Occurrence: Non-Repeatable

Recommended Schemes: Internally Defined.

Input Guidelines:
1. Choose “World”, “State of Ohio”, or “OhioLINK” from the list.

Examples:
1. World
2. State of Ohio
3. OhioLINK

Maps to DC Element: N.A.

Condensed View: DMC CORE ELEMENT SET

ELEMENT NAME	OBLIGATION	OCCURRENCE of VALUES	MAPPING
Title	Mandatory	Non-Repeatable	DC.title
Creator	Mandatory	Repeatable	DC.creator
Contributor	Optional	Repeatable	DC.contributor
Date	Required (if available)	Repeatable	DC.date
Description	Required (if available)	Repeatable	DC.description
Subject	Required (if available)	Repeatable	DC.subject
Spatial Coverage	Optional	Repeatable	DC.coverage.spatial
Temporal Coverage	Optional	Repeatable	DC.coverage.temporal
Language	Required (if available)	Repeatable	DC.language
Work Type	Required (if available)	Repeatable	DC.type
Repository Name	Optional	Repeatable	N.A.
Repository ID	Optional	Repeatable	DC.source
Digital Publisher	Mandatory	Repeatable	DC.publisher
Digital Creation Date	Required (if available)	Non-repeatable	DC.date.available
Digitizing Equipment	Optional	Repeatable	N.A.
Asset Source	Optional	Repeatable	DC.relation.HasFormat
Rights	Optional	Repeatable	DC.rights
Collection Name	Optional	Repeatable	DC.relation DC.relation.IsPartOf
OhioLINK Institution	Required (if available)	Repeatable	N.A.
Asset Type	Mandatory (system supplied)	Non-repeatable	DC.format DC.type
OID (Object Identifier)	Mandatory (system supplied)	Non-repeatable	DC.identifier
Permissions	Mandatory	Non-repeatable	N.A.

DMC Core Elements: Grouped by Function

Elements related to the original (regardless of format)	**Elements related to the digital manifestation**	**Elements related to OhioLINK asset management**
Title	**Digital Publisher**	Collection Name
Creator	Digital Creation Date	OhioLINK Institution
Contributor	Digitizing Equipment	**Asset Type**
Date	Asset Source	**OID (Object Identifier)**
Description	Rights	**Permissions**
Subject		
Spatial Coverage		
Temporal Coverage		
Language		
Work Type		
Repository Name		
Repository ID		

Glossary

This list includes specialized terms and their definitions. Some of these terms may not appear in the document but may carry significance within digital library community. Sources for definitions are listed in "Information Sources for Glossary" that immediately follows this section.

ADMINISTRATIVE METADATA: Metadata used to manage and administer information resources, e.g., intellectual property rights or technical information.

APPLICATION PROFILE: A set of metadata elements, policies, and guidelines and documentation that have been defined for a specific application.

ATTRIBUTE: A category of information about an element or entity. This category can be used to identify, qualify, classify or quantify the element or entity.

CROSSWALK: A map from the metadata elements of one scheme to the metadata elements of another. Crosswalks help promote interoperability.

DESCRIPTIVE METADATA: Metadata used for resource discovery.

DUBLIN CORE: A basic set of 15 metadata elements designed to represent core fields for the description of any electronic resource.

ELEMENT: A discrete unit of data about a resource. The Dublin Core standard uses 15 metadata elements, or categories of information, to describe a digital object. Elements may be further *qualified*.

ENCODING SCHEME: A scheme that helps interpret element values. Data entered following the rules of a specific encoding scheme may therefore be specifically interpreted according to that scheme. Examples can include parsing rules or controlled vocabularies.

ENTITY: An object or thing about which information needs to be known or held. An entity may be tangible, may be an activity or operation, or may be conceptual.

EXTENSIBLE: Able to be extended.

HARVESTING: Harvesting (or metadata harvesting) is a means of collecting metadata from repositories.

HYPERTEXT MARKUP LANGUAGE (HTML): A text-formatting language for documents on the World Wide Web. HTML files can also contain embedded metadata tags to aid description and discovery. HTML is a subset of SGML.

INTEROPERABILITY: The ability of software and hardware on multiple machines from multiple vendors to communicate.

METADATA: In general, "data about data;" functionally, "structured data about data." Metadata includes data associated with either an information system or an information object for purposes of description,

administration, legal requirements, technical functionality, use and usage, and preservation. In the case of Dublin Core, information that expresses the intellectual content, intellectual property and/or instantiation characteristics of an information resource.

METADATA REGISTRY: A publicly accessible system for recording and managing information about metadata schema.

NISO: National Information Standards Organization

OPEN ARCHIVES INITIATIVE (OAI): The OAI provides an application-independent interoperable framework based on metadata harvesting.

PRESERVATION METADATA: Metadata that facilitates long-term preservation of and access to electronic resources.

QUALIFIER: Qualifiers refine or restrict the meaning of an element.

RIGHTS METADATA: A type of administrative metadata, rights metadata enables the management of rights related to information resources.

SCHEMA: A set of metadata elements and their rules defined to describe a specified group of digital objects.

STRUCTURAL METADATA: Metadata that describes the internal organization of a resource. Structural metadata also aids navigation and display.

SYNTAX: The form and structure with which metadata elements are combined. How a metadata scheme is structured for exchange in machine-readable form. Common syntaxes include MARC, SGML, and XML.

TECHNICAL METADATA: A type of administrative metadata that identifies and describes the electronic formats comprising digital objects; used to document the creation and physical characteristics of electronic resources.

UNICODE: A means of representing any character from any language on any computer software or hardware platform. It is a 16-bit character set standard, designed and maintained by the non-profit consortium Unicode Inc.

Information Sources for Glossary

Caplan, Priscilla. Metadata Fundamentals for all Librarians. Chicago: ALA, 2003.

Clement, Gail and Winn, Pete. 24 Feb. 2001. Dublin Core Metadata Glossary. Final draft. 24 Feb. 2001. Dublin Core Users Guide Committee. <http://library.csun.edu/mwoodley/dublincoreglossary.html>

Day, Michael and Powell, Andy. UKOLN Metadata Glossary. 9 August 2001. <http://www.ukoln.ac.uk/metadata/glossary/>

Dekkers, M. "Application Profiles, or how to Mix and Match Metadata Schemas." Cultivate Interactive. Issue 3 (29 January 2001) <http://www.cultivate-Int.org/issue3/schemas/>

Dublin Core Metadata Initiative. Glossary. 12 April 2001. <http://dublincore.org/Documents/2001/04/12/usageguide/glossary.shtml>

Gartner, Richard. METS: Metadata Encoding and Transmission Standard. May 2002. <http://www.jisc.ac.uk/uploaded_documents/tsw_02-05.pdf>

Heery, Rachel. "What is… RDF?" Ariadne. Issue 14 (March 1998). <http://www.ariadne.ac.uk/issue14/whatis>

Hillmann, Diane. "Using Dublin Core." Dublin Core Metadata Initiative Web Page. 6 August 2003. <http://dublincore.org/documents/usageguide/>

Gilliland-Swetland, Anne J. Setting the stage. 5 July 2000. From Introduction to Metadata, Pathways to Digital Information. <http://www.getty.edu/research/institute/standards/intrometa/2_articles/index.html>

Howarth, Lynne C. Modelling a Metalevel Ontology: Overview of Selected Metadata Standards. 2002. <http://www.fis.utoronto.ca/special/metadata/overview.htm>

Lombardi, Victor. Metadata Glossary. May 2003. <http://www.noisebetweenstations.com/personal/essays/metadata_glossary/metadata_glossary.html>

McLellan, Tim. Data Modeling: Finding the Perfect Fit, An Introduction to Data Modeling. 1995. <http://www.islandnet.com/~tmc/html/articles/datamodl.htm#Introduction>

Walsh, Norman. "What is XML?" A Technical Introduction to XML. 3 October 1998. <http://www.xml.com/pub/a/98/10/guide1.html>

References

The following references include schemes and content standards recommended for defining the values of elements. They are grouped with the elements to which they apply.

Introduction

- Dublin Core Metadata Initiative
  http://dublincore.org/
- Open Archives Initiative
  http://www.openarchives.org/

General Input Guidelines

- AACR2 Anglo-American cataloguing rules. (2nd ed., 2002 revision) Chicago : American Library Association, 2002.
- APPM Hensen, Steven L. Archives, personal papers, and manuscripts : a cataloging manual for archival repositories, historical societies, and manuscript libraries. (2nd ed.) Chicago : Society of American Archivists, 1989.
- Library of Congress Authority File
  http://authorities.loc.gov/

Creator

- LC Authority File
  http://authorities.loc.gov/

Contributor

- LC Authority File
  http://authorities.loc.gov/

Date

- ISO 8601
  http://www.w3.org/TR/NOTE-datetime

Subject

- Library of Congress Authority File
  http://authorities.loc.gov/
- LCSH (Library of Congress Subject Headings)
  http://lcweb.loc.gov/cds/lcsh.html
- MeSH (Medical Subject Headings)
  http://www.nlm.nih.gov/mesh/meshhome.html
- TGM (Thesaurus for Graphic Materials – I: Subject Terms)
  http://lcweb.loc.gov/rr/print/tgm1

Spatial Coverage

- LCSH (Library of Congress Subject Headings)
  http://lcweb.loc.gov/cds/lcsh.html

- DCMI Box (uses geographic limits to identify a region of space)
  http://dublincore.org/documents/dcmi-box
- TGN (Getty Thesaurus of Geographic Names)
  http://www.getty.edu/research/conducting_research/vocabularies/tgn/
- DCMI Point (uses geographic coordinates to locate a point in space)
  http://dublincore.org/documents/dcmi-point
- ISO 3166 (uses 3-letter codes to represent names of countries)
  http://www.iso.ch/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/index.html

Temporal Coverage

- ISO 8601
  http://www.w3.org/TR/NOTE-datetime
- LCSH (Library of Congress Subject Headings)
  http://lcweb.loc.gov/cds/lcsh.html

Language

- ISO 639-2
  http://www.loc.gov/standards/iso639-2/englangn.html

Work Type

- AAT (Art & Architecture Thesaurus Online)
  http://www.getty.edu/research/conducting_research/vocabularies/aat/
- TGM (Thesaurus for Graphic Materials II: Genre and Physical Characteristics)
  http://lcweb.loc.gov/rr/print/tgm2

Digital Publisher

- LC Authority File
  http://authorities.loc.gov/

Digital Creation Date

- ISO 8601
  http://www.w3.org/TR/NOTE-datetime
- Z39.87-2002
  http://www.niso.org/standards/resources/Z39_87_trial_use.pdf

Digitizing Equipment

- Data Dictionary -- Technical Metadata for Digital Still Images (NISO Z39.87-2002 AIIM 20-2002)
  http://www.niso.org/standards/resources/Z39_87_trial_use.pdf

Permissions

- 3 options (World / State of Ohio / OhioLINK)