

Utah State University

DigitalCommons@USU

Library Faculty & Staff Publications

Libraries

January 2003

Western States Dublin Core Metadata Best Practices, version 1.2

Cheryl D. Walters

Utah State University

Western States Digital Standards Group

Follow this and additional works at: https://digitalcommons.usu.edu/lib_pubs



Part of the [Library and Information Science Commons](#)

Recommended Citation

Walters, Cheryl D. and Western States Digital Standards Group, "Western States Dublin Core Metadata Best Practices, version 1.2" (2003). *Library Faculty & Staff Publications*. Paper 78.

https://digitalcommons.usu.edu/lib_pubs/78

This Unpublished Paper is brought to you for free and open access by the Libraries at DigitalCommons@USU. It has been accepted for inclusion in Library Faculty & Staff Publications by an authorized administrator of DigitalCommons@USU. For more information, please contact digitalcommons@usu.edu.



Western States Digital Standards Group
Metadata Working Group

Western States Dublin Core Metadata Best Practices

Version 1.2

January 2003

Funded by an IMLS grant to University of Denver and the Colorado Digitization Program

Created on: 8/30/2011 3:48 PM
Last Modified: 2011-08-30 3:48 PM

Table of Contents

INTRODUCTION	3
UPDATING THE WSDSG DUBLIN CORE METADATA ELEMENT SET & BEST PRACTICES	3
PURPOSE AND SCOPE.....	4
BACKGROUND	5
WHAT IS METADATA?.....	6
WHAT IS DUBLIN CORE AND WHY USE IT?	8
DUBLIN CORE AND THE WESTERN STATES DIGITAL STANDARDS GROUP (WSDSG)	9
ADDITIONAL ELEMENTS NEEDED FOR DIGITAL RESOURCES	10
CREATING A NEW RECORD VS. USING AN EXISTING RECORD	11
CONTROLLED VOCABULARY	11
GENERAL INPUT GUIDELINES	11
PUNCTUATION	11
ABBREVIATIONS	11
CAPITALIZATION	12
INITIAL ARTICLES	12
KEYWORDS VS. SUBJECT TERMS	12
CROSSWALKS.....	12
INTEROPERABILITY.....	13
MANDATORY ELEMENTS	13
QUALIFIERS	14
REFINEMENTS:	14
SCHEMES:	14
EMERGING TRENDS	15
METADATA ENCODING AND TRANSMISSION STANDARD (METS).....	15
PRESERVATION METADATA.....	15
DUBLIN CORE METADATA ELEMENT SET.....	17
TITLE	18
CREATOR.....	20
SUBJECT	22
DESCRIPTION	26
PUBLISHER.....	28
CONTRIBUTOR.....	30
DATE.ORIGINAL.....	32
DATE.DIGITAL.....	34
TYPE	36
FORMAT.USE	37
FORMAT.CREATION.....	39

IDENTIFIER	42
SOURCE.....	44
LANGUAGE	46
RELATION	48
COVERAGE.....	51
RIGHTS MANAGEMENT	54
HOLDING.INSTITUTION	56

Introduction

Funded by a grant awarded by the Institute for Museum and Library Services (IMLS) in the fall of 2001, the University of Denver (Denver, Colorado) spearheaded a multi-state collaborative initiative to create a virtual collection of widely dispersed digital resources on the topic, Western trails. As part of this initiative, 23 institutions in four Western states were awarded mini-grants to create digital content and metadata for resources related to Western trails. In addition to creation of a virtual collection of digital resources, another significant component of this multi-state initiative was development of a set of Dublin-Core based best practices by representatives from cultural heritage institutions beyond the original four participating states. Accordingly, in March 2002, 18 representatives from eight Western states met in Denver, Colorado to begin exploring issues associated with application of Dublin Core to digital objects by cultural heritage institutions. This group, the Western States Digital Standards Group (WSDSG) Metadata Working Group, formed two task forces to develop guidelines for the Dublin Core metadata. The WSDSG Metadata Working Group met again in Topeka, Kansas in July 2002 to finalize the guidelines and determine the remaining components of a best practices document. In November 2002 the resultant WSDSG *Guidelines for the Dublin Core Elements* were posted on the Colorado Digitization Program (CDP) and the Western Trails project website. In January 2003, the WSDSG *Best Practices* document will be released. This Best Practices document is based upon and supercedes the CDP's *General Guidelines for Descriptive Metadata Creation and Metadata*.

Updating the WSDSG Dublin Core Metadata Element Set & Best Practices

The Dublin Core Metadata Initiative (DCMI)¹ maintains the Dublin Core metadata format upon which the WSDSG metadata is based. Since the Colorado Digitization Program actively monitors the DCMI activities for changes to the Dublin Core standard, it will assume responsibility for maintaining this document, working in concert with the WSDSG Metadata Working Group to update its metadata element set and best practices document as needed in response to DCMI modifications.

The following individuals participated in the meetings and discussions, making significant contributions in the development of this best practice document: Cheryl Walters, Utah State University, Descriptive Working Group Chair; Chuck Thomas, University of Minnesota, Technical Working Group Chair; Kenning Arlitsch, University of Utah; Kathlene Ferris, University of New Mexico; Mark Shelstad, American Heritage Center, University of Wyoming;

¹ Dublin Core Metadata Initiative (DCMI) is the group responsible for the maintenance of the Dublin Core standard. Information on the Dublin Core can be found at <http://dublincore.org>.

Erin Kinney, Wyoming State Library; Martha Hanscom, University of Wyoming; William Garrison, University of Colorado; Elizabeth Meagher, University of Denver; Nancy Chaffin, Colorado State University; Matt Veatch, Kansas State Historical Society; Michael Kelly, Wichita State University; Eric Hansen, Kansas Library Network Board; Melanie Sturgeon, Arizona State Archives; Richard Pearse Moses, Arizona State Archives; Devra Dragos, Nebraska Library Commission; Margaret Mering, University of Nebraska Lincoln; George Machovec, Colorado Alliance of Research Libraries; Kayla Willey, Brigham Young University; Mary McCarthy, Colorado State Library; Richard Urban, Colorado Digitization Program; and Liz Bishoff, Colorado Digitization Program.

Liz Bishoff, Executive Director
Colorado Digitization Program
January 2003

Comments and questions regarding these guidelines can be sent to: colodig@coalliance.org

Purpose and Scope

These best practices offer assistance in creating metadata records for digitized resources, both those that are born digital as well as those that are reformatted from an existing physical resource (photographs, text, audio, video, three-dimensional artifacts, etc.). Creators of these records may include catalogers, curators, archivists, librarians, web site developers, database administrators, volunteers, authors, editors and other persons interested in creating digital libraries. Application of these best practices in the creation of metadata records will result in standardized records that:

- Enhance online search and retrieval accuracy in local databases and shared databases (e.g. union catalogs)
- Improve resource discovery capabilities
- Improve quality control of metadata records
- Facilitate inter-institutional interoperability

This document uses the Dublin Core element data set as defined by the Dublin Core Metadata Initiative (DCMI), ² <http://www.dublincore.org>.

Because it addresses a very diverse audience of cultural heritage institutions comprised of museums, libraries, historical societies, archives, etc., this document seeks to accommodate different backgrounds and metadata skill levels by explaining terms and concepts as needed, and providing many examples describing diverse resources. Some terms may be used interchangeably such as *catalog* or *online catalog* versus *database*; *digital resource* versus *digital object*; and *controlled vocabulary* versus *thesaurus* or *subject heading list*.

² The Audience element is still to be defined by the WSDSG. Once it is defined it will be added to the document.

This document encompasses:

- A brief introduction to metadata and the Dublin Core standard
- A definition of each element, input guidelines, information about special requirements for entering each data element, and examples
- Interoperability, information on crosswalks supporting interoperability
- Recommended lists of Controlled Vocabulary, Subject Heading Lists and Thesauri
- Emerging trends in metadata
- Selected links to metadata resources

Background

To help ensure libraries, museums, archives, and historical societies create metadata at a sufficient level and consistency to support identification and access needs in a shared environment, the WSDSG has established guidelines and standards for the creation of metadata for digital resources. These guidelines and standards take into account different standards and practices used at the local level while simultaneously meeting needs at the collaborative level.

Adoption of standards is key to effective sharing of resources and inter-institutional interoperability. Over the last decade new approaches and standards for the description of digital resources have emerged. At the same time, established library and museum cataloging standards, including *Machine Readable Cataloging* (MARC) format and the *Anglo-American Cataloging Rules*, second edition (AACR2); *Visual Resources Association Core Schemas* (VRA); and *Categories for the Descriptions of Works of Art* (CDWA), are being applied to digital resources. The primary objective of the Western States Digital Standards Group is improved access to the unique resources and special collections that have been converted into digital format in cultural heritage institutions throughout the U.S. West. The standards followed to accomplish this objective depend of a variety of factors:

- Type of materials that are being digitized
- Purpose of the digitizing project
- Potential users
- Knowledge and expertise of the staff
- Technical infrastructure available to the institution or the collaborative
- Funding

Collaborative databases providing access to collections from multiple cultural heritage institutions should be prepared to support metadata from a variety of standards including MARC, Dublin Core, *Encoded Archival Description* (EAD), VRA, *Government Information Locator Service* (GILS), and CDWA through the development of crosswalks or implementation of OAI

Funded by an IMLS grant to
The University of Denver and
The Colorado Digitization Project

Created on: 2002-07-17
Last Modified: 2011-08-30

harvesting and OAI repository. The WSDSG standards take into account a variety of different standards that might be used at the local level while simultaneously meeting needs at the collaborative level.

In addition to collaborative databases handling the multiple standards used by their constituent institutions, they also need to take into account that the nature of details provided in metadata records varies from institution to institution. Some information is proprietary or confidential, such as provenance, location, or donor information and should not be distributed on systems open to the general public. When participating in a collaborative endeavor, agreeing on what information should be made publicly available by all participants is both difficult and critical. *Best practice is to eliminate proprietary or confidential information in a shared catalog.*

To respond to the need of improved access within this diverse evolving environment, the WSDSG Metadata Working Group is recommending adoption of Dublin Core as the standard to support interoperability among cultural heritage institutions, as it provides for the broadest level of commonality of elements, flexibility and application among the institutions. Furthermore, Dublin Core is used in the Open Archives Harvest Protocol (<http://www.openarchives.org>) which is supported by the Institute of Museum and Library Services OAI Repository in order to create a single repository of all digital collections created through IMLS funding since 1998.

What is Metadata?

Metadata is usually defined as 'information about the data' or any data associated with a resource that describes that particular resource.

Until the mid-1990s, "*metadata*" was a term most prevalently used by communities involved with the management and interoperability of geospatial data, and with data management and systems design and maintenance in general. For these communities, "*metadata*" referred to a suite of industry or disciplinary standards as well as additional internal and external documentation and other data necessary for the identification, representation, interoperability, technical management, performance, and use of data contained in an information system.

Perhaps a more useful "big picture" way of thinking about metadata is as "the sum total of what one can say about any *information object* at any level of aggregation." In this context, an information object is anything that can be addressed and manipulated by a human or a system as a discrete entity.³

³Anne J. Gilliland-Swetland. Introduction to Metadata.

http://www.getty.edu/research/institute/standards/intrometadata/2_articles/index.html

It is essentially, a modern term for the bibliographic information that libraries traditionally entered into their catalogs or databases or registry information on collections that museums have entered into their systems; however the term *metadata* is most commonly used to refer to descriptive information about World Wide Web resources.

The creation of metadata for digital resources is an important part of a digitization project, and must be incorporated into a projects workflow. Metadata should be created and associated with the digital resource to support the discovery, use, management, reusability, and sustainability of the resource. Metadata is most often divided into three conceptual types (with some overlap between the three):

- **Descriptive metadata:** used for the indexing, discovery, and identification of a digital resource
- **Structural metadata:** information used to display and navigate digital resources; also includes information on internal organization of the digital resource. Structural metadata might include information such as the structural divisions of a resource (i.e. chapters in a book) or sub-object relationships (such as individual diary entries in a diary section)
- **Administrative metadata:** represents the management information for the digital object, which may include information needed to access and display the resource, as well as rights management information. Administrative metadata might include the resolution at which the images were scanned, the hardware/software used to produce the image, compression information, pixel dimensions, etc.

Recognizing that today's user is coming to the digital resource from their home, work, school, etc., at any time of the day, and often without the assistance of a librarian, archivist, curator or museum educator, metadata needs to provide information that:

- Certifies the authenticity and degree of completeness of the content
- Establishes and documents the context of the content
- Identifies and exploits the structural relationships that exist between and within information objects
- Provides a range of intellectual access points for an increasingly diverse range of users
- Provides some of the information that an information professional might have provided in a physical reference or research setting ⁴

⁴ *ibid.*

What is Dublin Core and why use it?

The Dublin Core metadata standard is a set of elements used to describe a variety of networked resources. The semantics of these elements have been established through consensus by an international, cross-disciplinary group of professionals from the library, museum, publishing, computer science, and text encoding communities, as well as from other related fields of scholarship. The Dublin Core Metadata Initiative (DCMI) Element Set has been approved by ANSI and assigned the number Z39.85.

The Dublin Core metadata standard embodies the following characteristics:

- *Simplicity of creation and maintenance*
The intention of the Dublin Core element set is to remain as simple and accessible as possible, in order to allow a non-specialist to create descriptive records for online resources both easily and efficiently, while providing for optimum retrieval of those resources in an online environment.
- *Commonly understood terminology*
The Dublin Core was developed with the "non-specialist searcher" in mind. By supporting a common set of elements, the semantics of which are universally understood and supported, resource discovery across different descriptive practices from one field of knowledge to another will increase. By using terminology that is generic yet applicable to a variety of disciplines, the visibility and accessibility of resources across these disciplines is enhanced.
- *International in scope*
The involvement of representatives from almost every continent in establishing Dublin Core specifications has ensured that the standard will address the multicultural and multilingual nature of networked resources.
- *Extensibility*
Although the Dublin Core element set was developed with simplicity in mind, the need for precise retrieval of resources has also been recognized. As the standard develops, the Dublin Core element set could serve as the core descriptive information that will be usable across the Internet, while also allowing other, additional elements to be added that make sense within a specific discipline. These additional element sets can be linked with the Dublin Core to meet the need for extensibility, to aid in additional resource discovery, and to accommodate the precision and granularity needed for access.

The WSDGS has adopted the Dublin Core because it adequately describes resources found in the library, archival, and museum communities. The standard is open and amenable to involving all of these communities, without excluding groups of users. Other standards, such as MARC have historically been difficult to adopt by other communities, such as the museum or historical societies for their non-library collections. However, for institutions committed to the MARC format, crosswalks can be developed (see Crosswalks) to map data (i.e. move or translate data from one format to the other) between Dublin Core and MARC, allowing participation in collaborative projects by those institutions. The Dublin Core and its crosswalks pave the way for interoperability between institutions. The Dublin Core element set is the “umbrella” of metadata standards that allows access for resource discovery.

In addition, while the Dublin Core is relatively simple to learn and easy to use, particularly for those institutions that might not have a professional cataloger on staff to create descriptive data about their digitized resources, its elements include cover the most essential information about a resource.

Dublin Core and the Western States Digital Standards Group (WSDSG)

These best practices have been developed for use within an individual institution as well as a collaborative environment, be that collaboration among organizations on a college or university campus; a library or historical society within a county; or, a statewide initiative or a multi-state initiative. The Western States Digital Standard Group (WSDSG) Metadata Working Group has taken into consideration the needs of a broad range of cultural heritage institutions of varying size—archives, historical societies, libraries and museums. Institutions large and small can use these guidelines to describe a wide range of digital resources, including websites, individual digital objects⁵, and collections of digital objects.

The Dublin Core record developed by the WSDSG Metadata Working Group includes 16 elements, each of which is repeatable and optional. To increase success in a collaborative environment where consistent description of digital resources is critical, the WSDSG Metadata Working Group has identified some of these elements as mandatory elements. The remaining elements are optional, but recommended. Richer, more complete records increase the likelihood of database users locating the digital resource.

⁵ Digital object may be an item that is born digital or object that has been reformatted from the original. It can be a digital photograph, manuscript, diary, digital audio, three- dimensional artifacts, digital video or other digital object.

Additional elements needed for digital resources

To effectively use the Dublin Core standard for digital resources, the WSDSG Metadata Working Group developed several additional elements so that a WSDSG Dublin Core-based metadata record includes 13 elements from the basic Dublin Core set and 3 additional elements created by WSDSG.

The first of these additional elements is **Date.Original**. The publication or creation date of the original object, from which the digital resource is derived, may be a critical component in the description of the digital resource. However, the Dublin Core Date element is limited to the date a resource was digitized. The Working Group decided to develop an additional Date element, the **Date.Original** element, to contain the date of the original work; this new element can be qualified by a selected set of refinements. It is best practice to use this element when the institution wishes to use the date of the original object to qualify a search in their database. The date of the original can also be included in the Source element, along with other descriptive information about the original.

The second element that the Working Group added is the **Format.Creation** element. This element provides information related to the creation of the digital object. The best practice is to include information that supports the migration of the digital object over time, as well as supporting the quality control of the digital resource. The type of information specified in this element includes the hardware and software used to create the digital object, resolution, and possibly the name or initials of the person performing the scanning.

A third element, the **Holding.Institution** element, records information on ownership of the digital object. This element is particularly important for collaborative projects where records from multiple institutions are combined in a shared database.

In addition to these elements, the database that will support your Dublin Core system will have to provide information on the date and time of record creation and record modification, and a unique record number.

The following guidelines offer assistance on how to use the Dublin Core elements. Each entry provides the Dublin Core definition for the element, along with a description and whether the element is mandatory. Input guidelines and examples provide some application suggestions. It should be noted that many decisions on how the record will appear to the user or how the searches and indexes will work are dependent on the functionality of the library or museum system or database where the Dublin Core record is entered. We have not made any assumptions regarding the functionality that specific systems provide for data entry, retrieval or display of the Dublin Core records.

Creating a new record vs. using an existing record

The best practice is to create a new record for digital resources. However, some institutions are adding the information about the digital resource to the existing record for the original resource; many are just adding the URL. Use or augmentation of existing records without the addition of information pertaining to the creation of the digital object are inadequate for supporting quality control of the digital resource and its migration over time. This information would be included in the **Format.Creation** element. See the Western States Digital Standards Group *Digital Imaging Best Practices* document.

Controlled vocabulary

The best practice is to select terms from controlled vocabularies, thesauri and subject heading lists for completion of the subject elements, rather than just using keywords. Employing terminology from controlled vocabularies ensures consistency and can improve the quality of search results, while reducing the likelihood of spelling errors when inputting metadata records. Recognizing the diverse nature of the statewide initiatives and the involvement of a broad range of cultural heritage institutions, controlled vocabularies have been expanded to include subject discipline taxonomies and thesauri. Several states are developing geographic based lists of terms that are available on each state's website. These lists can be helpful in achieving a level of consistency in terminology. Many of the thesauri, subject heading lists and taxonomies are currently available via the web and online links are provided wherever possible. See the Subject element in this document for the current list.

General Input Guidelines

It is best practice that participants follow the general grammatical rules of the language involved when entering descriptive information about resources. In addition, it may be useful to consult the *Anglo-American Cataloging Rules* for more information and details on general rules and guidelines for data entry. Following are a few brief comments:

Punctuation

Avoid ending punctuation unless it is part of the content of the resource.

Abbreviations

In general, the following abbreviations are allowed: common or accepted abbreviations (such as "St." for "Saint"); designations of function (such as "ed." for "Editor"); terms used with dates (b. or fl.); and distinguishing terms added to names of persons, if they are abbreviated on the item

(such as "Mrs."). We suggest that abbreviations not be used if they would make the record unclear. In case of doubt, spell out the abbreviation.

Capitalization

In general, capitalize the first word (of a title, for example) and proper names (place, personal and organization names). Capitalize content in the description element according to normal rules of writing. Enter content in lower case except for acronyms, which should be entered in capital letters.

Initial Articles

Omit initial articles at the beginning of the title such as: the, a, an, le, la, los, el, der, die, das, etc.

Keywords vs. Subject terms

Best practice recommends that subject terms be taken from a controlled vocabulary whenever possible for more accurate retrieval of resources. However, other non-controlled terms or keywords that identify the resource with some precision can be added to a record to enhance resource retrieval and discovery, especially in cases where such terms are too new to be included in controlled vocabularies.

Entry of Creator or Contributor

Enter a personal name in the Creator or Contributor element as last name first, separated by a comma, then first name, then middle name or initial. If birth and death year is known, enter them following the first name followed by a comma. Separate the birth year from the death year with a hyphen. Smith, John, 1895-1964. Smith, John James, 1914-2002.

Crosswalks

A crosswalk is defined as a set of transformations applied to the content of elements in a source metadata standard that results in the storage of appropriately modified content in the analogous elements of a target metadata standard: (NISO White Page, October 1998). A fully specified crosswalk contains a semantic mapping as well as a conversion specification. See the NISO White paper, "Issues in Crosswalking content Metadata Standards" for further information. Crosswalks provide the ability to create and maintain a set of metadata and to map that metadata into any number of related content metadata standards. In order to build successful crosswalks and mapping schemes, it is important to maintain consistency across metadata standards.

- Dublin Core to USMARC:GILS: <http://lcweb.loc.gov/marc/dccross.html>

- Dublin Core to UNIMARC: http://www.ukoln.ac.uk/metadata/interoperability/dc_unimarc.html
- TEI header to USMARC: <http://etext.lib.virginia.edu/tei/tei-marc.html/>
- GILS to USMARC: http://www.gils.net/prof_v2.html#annex_b
- FDGC to USMARC: <http://www.alexandria.ucsb.edu/public-documents/metadata/fgcd2marc.html>
- MARC to Dublin Core: <http://loc.gov/marc/marc2dc.html>

Interoperability

As cultural heritage institutions have automated collections information each sector developed unique practices, procedures and semantics for describing items. Interoperability is a set of hardware, software, policies and procedures that allows for the exchange and re-use of information across a collaborative network. This network may encompass a particular field, such as natural history, internal institutional departments, or a broader cultural heritage initiative. Beyond the technical requirements (such as Z39.50 library system queries or Open Archives Initiative protocols) for sharing data, institutions need to be aware of impact that semantic choices create (particularly for describing similar concepts such as “author,” “creator,” artist”). By adopting a common set of best practices, controlled vocabularies, and by participating in interoperable networks, institutions can increase their visibility and provide opportunities to create new connections with other cultural heritage institutions that better serves the needs of constituent communities.

- Z39.50 Protocol. <http://lcweb.loc.gov/z3950/agency/>
- Open Archives Initiative. <http://www.openarchives.org/>

Mandatory Elements

The WSDSG has identified 11 mandatory elements that are most important in describing the digital resource and are critical in supporting interoperability in a collaborative initiative. These are:

- Title
- Creator (if available)
- Subject
- Description
- Date. Digital
- Date. Original (if applicable)
- Format. Use
- Format. Creation
- Identifier
- Rights

- Holding. Institution

The WSDSG Dublin Core elements separate into three categories: Descriptive, Structural and Administrative metadata. The descriptive elements of the record consist of elements necessary for describing the resource and facilitating access to the digital resource and include Title, Creator, Contributor, Subject, Date: Original, Date: Digital, Description, Source, Publisher, Relation, Identifier, Language, and Coverage. The Structural Metadata includes Type, Format: Use, and Relation. The Administrative Metadata elements include Rights Management, Publisher, Format: Creation, and Date: Digital.

Qualifiers

The basic elements described above are intended to cover most of the information needed to give an adequate description of the digital resource. However there is often a need to further refine information about a resource than can be expressed using the basic elements. To help remedy this, the WSDSG has developed a 'Qualified' Dublin Core that consists of the element and its qualifiers. These qualifiers are defined as **refinements** and **schemes**.

Refinements:

These refine or specify the meaning of the content of an element.

Example: **Relation.IsPartOf:** *Library Journal v. 127, no. 9 (May 15, 2002) p. 32-4*
The Relation element can be refined to show the nature of the relationship between the resource described in the Relation element and the resource described by the metadata record. To show that the full-text article described by the metadata record is an article that *is part of* the May 15, 2002 issue of Library Journal, the Relation element can be "refined" by adding "IsPartOf":

Schemes:

These define rules for constructing a term, date, or other type of data in accordance with a controlled list of terms or a specific format of representing data (e.g.. dates, geographic coordinates, etc.). Schemes are usually a recognized coding system used in the description of resources. The purpose of the scheme qualifier is to introduce a degree of consistency and standardization into the Dublin Core record.

Example: **Date.Original:** 1997-07-16.

The scheme ISO 8601 for the date element allows formatting of the date in a specific way for consistency. Using this scheme, dates follow the format YYYY-MM-DD so that July 16, 1997 would be stated as 1997-07-16.

The refinements and schemes that apply to each element are discussed in the guidelines for each element.

Emerging Trends

Metadata Encoding and Transmission Standard (METS)

The Metadata Encoding and Transmission Standard (METS) is an XML-based encoding standard for digital library metadata. It is both powerful and inclusive, making provision for encoding structural, descriptive and administrative metadata. It is designed not to supersede existing metadata structures such as Dublin Core or Text Encoding Initiative (TEI) headers, but rather to provide a means of including them in the METS document. It is a way of bringing together a wide range of metadata about a digital object. Through its structural metadata section, it allows the user to express relationships between multiple representations or manifestations of the digital object, for example, encoded TEI files, the scanned page image, and audio recordings. It also allows one to express the relationship between multiple parts of a single digital representation, such as the chapters of a book. The administrative metadata section supports the encoding of the kinds of information required to manage and track digital objects and the delivery -- technical information such as file format and creation; digital rights management information including copyright and licensing information; and information on the provenance and revision history of the digital object, including migration data and transformations that have been performed over time. METS is in its earliest stages of development and in fall 2002 is just being implemented in a few research libraries.

Preservation Metadata

Preservation metadata is the information needed to execute, document and evaluate the processes that support and facilitate the long-term retention of digital content. Digital resources require detailed metadata to ensure accessibility for future generations. Digital objects are subject to change so the change history of the object must be maintained over time to ensure its authenticity and integrity. At this time we are recording technical information on preservation decisions in the Format.Creation element. With the adoption of the METS other options become available. It is important to record this information as access technologies for digital objects become obsolete. the equipment or software is no longer available. The best practice is to capture the information hardware, operating system, and software use to create the digital object. This information, as well as other forms of description and documentation, can be detailed in the metadata associated

with a digital object. Preservation metadata is extremely important to provide future digital archives managers with sufficient information to maintain the digital object. Standards and best practices for its use and implementation are still being developed.

In particular, preservation metadata maybe used to:

- store technical information supporting preservation decisions and actions
- document preservation actions taken, such as migration or emulation policies
- record the effects of preservation strategies
- ensure the authenticity of digital resources over time
- note information about collection management and the management of rights

The types of information enumerated above address two functional objectives: 1) providing preservation managers with sufficient knowledge to take appropriate actions in order to maintain a digital object's bit stream over the long-term, and 2) ensuring that the content of an archived object can be rendered and interpreted, in spite of future changes in access technologies.

An early effort to develop preservation metadata for digital objects was conducted by the Research Libraries Group's (RLG) Working Group on Preservation Issue of Metadata, which in May 1998 released a set of 16 recommended metadata elements considered essential for preserving a digital master file over the long-term.⁶ The National Information Standards Institute has also released a draft *Data Dictionary: Technical Metadata for Still Images (Z39.87)* with the purpose of supporting image quality assessment and data processing needs through an images life cycle⁷

⁶ RLG Working Group on Preservation Metadata. Final Report [online] *RLG DigiNews*. May 1998.
<http://www.rlg.org/preserv/presmeta.html>

⁷ National Information Standards Organization. Data Dictionary: Technical Metadata for Still Images.
http://www.niso.org/standards/resources/Z39_87_trial_use.pdf

Dublin Core Metadata Element Set

TITLE

Label: Title

Dublin Core Definition: A name given to the resource.

Description: Name given to the resource by the creator or publisher; may also be identifying phrase or name of the object supplied by the holding institution.

Mandatory: Yes.

Repeatable: Yes.

Refinements: Title.Alternative

Schemes: None defined.

Input Guidelines:

1. Enter one Title per element. Use separate elements, to enter more than one title if necessary for access (i.e., caption title, former title, spine title, collection title, series title, artist's title, object name, etc.) or if in doubt about what constitutes the title.
2. Transcribe title, if there is one, from the resource itself, such as a book title from the title page or a caption from a photograph.
3. When no title is found on the resource itself, use a title assigned by the holding institution or found in reference sources
4. Make the title as descriptive as possible, avoiding simple generic titles such as *Papers* or *Annual report*.
5. File names, accession numbers, call numbers, or other identification schemes should be entered in the **Identifier** element.
6. 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.
7. Capitalize only the first letter of the first word of the title or of any proper names contained within the title.
8. In general, transcribe titles and subtitles from the source using the same punctuation that appears on the source. If the holding institution has created the title, then use punctuation that would be appropriate for English writing.
9. For more guidance in constructing titles, consult established cataloging rules such as *Anglo-American Cataloging Rules (AACR2)*, *Archives*, *Personal Papers*, and *Manuscripts*.
10. **Collections:**
 - a) If multiple items are being described as a collection by one record and no collection title already exists, create a collective title that is as descriptive as possible of the contents.
 - b) If each item in such a collection is itself worthy of being described by its own record (i.e. item-level record), refer back to the collection-level title in the **Relation** element. Likewise, list any titles for subordinate item-level records in the **Relation** element of the collection-level record.

Notes: None

Examples:

Titles created by creator/publisher:

Great Gatsby
HAL's legacy: 2001's computer as dream and reality
Music man Optional additional element: **Title.Alternative:** The music man
Important farmlands, Arapahoe County (*this is a map, but not obvious from title*)
Optional additional element: **Title.Alternative:** Arapahoe County map
Symphony no. 3, A major, opus 56
12 ways to get to 11
Optional additional element: **Title.Alternative:** Twelve ways to get to eleven
L'opera completa di Watteau

Titles supplied by holding institution:

Letter petitioning for White Sulphur Springs, N.M. Post Office
Jack London papers (*correspondence, papers, etc. of Jack London*)
United States Pueblo Lands Board report regarding Pueblo of Laguna
View of the Brooklyn Bridge (*photograph of the Brooklyn Bridge*)
Venus and Cupid sculpture (*sculpture of Venus and Cupid*)
Walnut rolltop desk (*a desk with a top that rolls up and down to cover it*)
Portrait of Thomas Jefferson (*painting of Thomas Jefferson*)
Green and gold ceramic fruit bowl (*a ceramic bowl used to hold fruit*)

Maps to: Dublin Core *Title*

CREATOR

Label: Creator

Dublin Core Definition: An entity primarily responsible for making the content of the resource.

Description: Person or entity primarily responsible for creating the intellectual 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.

Mandatory: Yes, if available.

Repeatable: Yes.

Refinements: None.

Schemes: None

Input Guidelines:

1. Enter multiple creators in the order in which they appear on the resource or in order of their importance. Use separate Creator elements to enter multiple creators or *clearly separate each entry* by a semi-colon, space within an element. Secondary authors, editors, etc. may be entered using the **Contributor** element.
2. If using established cataloging rules to construct contributor elements, follow those rules. Some examples of established rules include: *Anglo-American Cataloging Rules* (AACR2); *Archives, Personal Papers, and Manuscripts* (APPM); *Categories of Description for the Works of Art* (CDWA); *Visual Resources Association* (VRA). If not using such rules, then use the following guidelines.
3. Determine the correct form of the name when possible. The Library of Congress Authority File (<http://authorities.loc.gov>) or other locally specified bibliographic utilities (OCLC, RLIN, ULAN, etc.) should be consulted when possible.
4. 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, should be added, in accordance with authorized form of the name when possible.
5. 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 periods.
6. In the case of a long group or organization name that includes subordinate units, sometimes the name can be shortened by eliminating some of the hierarchical parts not considered necessary for uniquely identifying the body in question. For example, to enter the *CIA* as a creator, use the form of the name as given in the Library of Congress Authority File (*United States. Central Intelligence Agency*) instead of the full hierarchical name (*United States. National Security Council. Central Intelligence Agency*).
7. 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*).

8. Have a clear understanding of how the database handles non-standard characters such as diacritics and input them so that they display and retrieve effectively.
9. *Optional:* The function of a creator may be included in parentheses after the name. Example: *Rackham, Arthur, 1867-1939 (illustrator)*.
10. If the creator is unknown, leave the element blank.

Notes:

1. Entities responsible for digitizing an existing resource should be entered in the *Publisher* element.

Examples:

Personal names:

Onassis, Jacqueline Kennedy, 1929-
Toulouse-Lautrec, Henri de, 1864-1901
Jeanne-Claude, 1935-
Duran y Gonzalez, Juan Maria, d 1899-
Chavez de Aguilar, Maria Alicia.
Armijo Aguilar, Leopoldo
Laozi (not *Lao-Tzu* or *Po-yang Li* or any of 34 other variants of this name given in the LCAF record)
Webb, Wellington E.
Pak, Sæong-t°aek (*Caution: remember to check how the database handles non-standard characters such as diacritics before using them*)
Alexander, the Great, 356-323 B.C.
Scroggins, C. H.
Madonna, 1958- (*meaning the entertainer; this is the form given in the LCAF; don't use just "Madonna" which could be confused with another person*)
Smith, Adam, 1723-1790 (*note that in the case of commonly encountered names, birth/death dates are very important to distinguish between otherwise identical names*).

Group or Organization names:

Ty, Inc.
International Business Machines Corporation (not *IBM* or *I.B.M.*)
Denver Art Museum
Unesco (not *U.N.E.S.C.O.* or *United Nations Organisation for Education, Science, and Culture*)
Walt Disney Company
H.W. Wilson Company
Colorado. Dept. of Social Services.
Massachusetts Institute of Technology. Migration and Development Study Group.
Note that this shorter form of the name should be used as indicated by the LC NAF instead of the fullest form of the name, which would be: *Massachusetts Institute of Technology. Center for International Studies. Migration and Development Study Group.*

Maps to: Dublin Core *Creator*

SUBJECT

Label: Subject

Dublin Core Definition: The topic of the content of the resource.

Description: What the content of the resource is *about* or what it *is*, expressed by headings, keywords, phrases, or names; or terms for significantly *associated* people, places, and events, etc.

Mandatory: Yes

Repeatable: Yes.

Refinements: None.

Schemes: It is strongly recommended that subject words and phrases come from established thesauri or discipline-related word lists. Established recommended schemes given in the DCMES Dublin Core Qualifiers memo (07/11/2000) consist of:

Code	Name of thesauri
LCSH	Library of Congress Subject Headings
MeSH	Medical Subject Headings http://www.nlm.nih.gov/mesh/meshhome.html
DDC	Dewey Decimal Classification http://www.oclc.org/dewey/
LCC	Library of Congress Classification http://lcweb.loc.gov/catdir/cpso/lcco/lcco.html
UDC	Universal Decimal Classification http://www.udcc.org

Other established thesauri or word lists include, but are not limited to:	
AAT	Art and Architecture Thesaurus http://www.getty.edu/research/tools/vocabulary/aat/
AASL	Asian American Studies Library subject headings
AMG	Audiovisual Materials Glossary (AMG)
CHT	Chicano Thesaurus for Indexing Chicano Materials
FAST	Faceted Application of Subject Terminology
GEOREFT	GEOREf Thesaurus
RBGENR	Genre Terms: A Thesaurus for Use in Rare Books and Special Collections
TGN	Getty Thesaurus of Geographic Names http://www.getty.edu/research/tools/vocabulary/tgn/
GSAFD	Guidelines on Subject Access to Individual Works of Fiction, Drama, etc.
LCAF	LC Authorities File (http://authorities.loc.gov)
LCSHAC	LC Subject Headings: Annotated Card Program (Children's headings)
Local	Locally controlled list of terms

MIM	Moving Image Materials: Genre terms
NASAT	NASA Thesaurus http://www.sti.nasa.gov/thesfrml.htm
NALAT	NAL Agricultural Thesaurus http://agclass.nal.usda.gov/agt/agt.htm
NICEM	NICEM (National Information Center for Educational Media) Thesaurus For order info, see http://www.nicem.com/thes.htm
NIMACSC	NIMA Cartographic Subject Categories
NTISSC	NTIS Subject Categories
ATLA	Religion Indexes Thesaurus
NMC	Revised Nomenclature for Museum Cataloging: a revised and expanded version of Robert C. Chenhall's system for classifying man-made objects
Sears	Sears Subject Headings
LCTGM	Thesaurus for Graphic Materials: TGM I, Subject Terms http://lcweb.loc.gov/rr/print/tgm1/
GMGPC	Thesaurus for Graphic Materials: TGM II, Genre and Physical Characteristic Terms http://lcweb.loc.gov/rr/print/tgm2/
TEST	Thesaurus of Engineering and Scientific Terms
ERICD:	Thesaurus of ERIC Descriptors http://ericae.net/scripts/ewiz/swiz4.htm
WATREST	Thesaurus of Water Resources Terms

This list includes most of the major thesauri, but more exist. *Caution:* Before opting to use terms from a thesaurus other than ones listed above, carefully consider if this thesaurus will be acceptable to any potential partners with whom you may share your records.

Input Guidelines:

1. Enter multiple subjects in the order of their importance (often based upon how much of the entire content is devoted to a particular subject). Use separate Subject elements to enter multiple subjects or *clearly separate each entry* by a semi-colon, space within an element.
2. Use subject terms from established thesauri from the list(s) above.
3. To determine subject, use the title, description, and resource itself.
4. Enter multiple subjects in the order of their importance (often based upon how much of the entire content is devoted to a particular subject).
5. Depending on your local system, use multiple subject elements (one element per subject is strongly recommended) or enter multiple subjects within the same element, *clearly separating each entry* by a semi-colon and space.
6. Enter subjects taken from different schemes or thesauri in separate subject elements.
7. Identify applicable scheme or thesauri in the subject element or label using standardized abbreviations such as those from the MARC Code List for Term, Name, Title Sources (<http://www.loc.gov/marc/relators/relasour.html#rela600b>)
8. Use specific or unique words rather than more general words (example: if object is a picture of lilies, use the term *Lilies* instead of *Flowers*; if object is a field of wild flowers, use the term *Wild flowers*, instead of *Flowers*).
9. Subjects may be personal or organization names as well as topics, places, genres, forms, and events.

10. Subject elements may describe not only what an object is *about*, but also what it *is*. A poem about coal miners might have a heading for *Coal miners – Poetry* to show the subject of the poem, and then another heading for *Poem* to show what the object *is*. Subject elements in this Dublin-core based metadata format may contain different types of headings that in other formats are differentiated into separate elements.
11. Have a clear understanding of how database handles non-standard characters such as diacritics and input them so that they display and retrieve effectively.

Notes:

1. Subjects are different from the very the broad types found in the *Type* element. A digital image that is a photograph could be given the subject term *photograph*, but its genre *type* listed in the Type element would be “*image*”. An artist’s book might be given the subject genre term *artist’s book* while the genre *type* listed in Type element would be “*text*”.
2. Enter the names of creators of the object in the creator element. Only repeat these names in the subject element if object is also *about* the creator in some way. (Example: A record for The autobiography of Benjamin Franklin would list *Franklin, Benjamin, 1706-1790* in both the creator and the subject elements; a record for an exhibition of Picasso’s works probably would list Picasso as both a creator and a subject since the exhibition is about him while a record of a single work by Picasso probably would list Picasso only in the creator element)

Examples:

Subject Terms	Source of term (i.e. scheme)
Animal parasites and pests	NALAT
Territorial style	ATT
Beanie babies (Stuffed animals)	LCSH
Deer -- Florida	LCSH, LCTGM
Indians of North America	LCSH
Indians of North America -- Religion	ATLA, LCSH
Coal miners -- West Virginia -- Jackson County	LCSH, LCTGM
Arapahoe County (Colo.) -- Map	LCSH
Northwind, Chief	LCAF
Villa, Pancho, 1878-1923	LCAF
Polastron, Marie-Louise d'Esparbâes de Lussan, vicomtesse de, 1764-1804	LCAF
Missionaries-- Biographies	ATLA
Bookmarks	LCSH, GMGPC
Camera obscura works	GMGPC
Camera obscuras	LCSH, AAT
Metalpoint drawings	GMGPC
Protest posters	GMGPC
Vocal music	NICEM
Student protesters -- Posters	LCSH
Peace movements -- Posters	LCSH
Islamic revival	ATLA
Saddlery	LCSH
Saddles	Local
Rocky Mountain states	NICEM
Atomic bomb	LCSH
Soil erosion	NICEM
Bibionidae -- Southern States. (a.k.a. Lovebugs)	LCSH
Lovebugs -- Southern States	Local

Heaven's Gate (Sect)	ATLA
Breast -- Cancer	LCSH
Breast Neoplasms	MeSH
Leptocoris trivittatus (<i>a.k.a. Box-elder bug</i>)	LCSH
Box-elder bug	Local
Horse & buggy	Local
9-11	Local

Maps to: Dublin Core *Subject*

DESCRIPTION

Label: Description

Dublin Core Definition: An account of the content of the resource.

Description: A textual description of the content of the resource such as an abstract, table of contents, full-text, or free text account of the object.

Mandatory: Yes.

Repeatable: Yes.

Refinements: May clarify nature of a given description element by adding one of the following terms to its label name:

Term	New Label
Abstract	Description. Abstract
Table of Contents	Description. Table of Contents

Schemes: None.

Input Guidelines:

1. Enter descriptive text, remarks, and comments about the object. This information can be taken from the object or provided by the record creator.
2. Enter here specialized information not included in other elements, e.g., measurements of a depicted object, description, provenance, technique, distinguishing features, inscriptions, condition, and history of the work.

Examples:

Description:

Black and white photograph of horse and buggy, in front of the J.C. Penney store, Longmont, Colorado, ca. 1901.

Print, photographic, black and white; subject, a woman and a child in a horse-drawn buggy, identified on back as Mrs. Merrick and Charlotte, on Garden of the Gods Road, by White House Ranch.

Red Cross nurse beckoning woman to assist wounded soldier
[From University of Minnesota's war posters collection]

17th to 18th century Chinese chair. Round-back chair [quanyi, yuanyi] 41 in. (h) x 24.5 in. (w) x 19.24 in. (d). Made of zitan (type of wood)

Digital version of sheet music originally published by Head Music, New York, 1911. 6 digital images
[From University of Colorado, Boulder's sheet music project]

1867; ink, wash and tempera on card, 19 x 35. Watercolor of Jackson and friend waving jackets at longhorn cattle by roadside. Includes holographic inscription by Jackson. Illustration in Picture Maker of the Old West, p. 35. [From Brigham Young University's William Henry Jackson Collection]

Label of an olive can for Monte Vista Brand Standard Ripe Olives packed by A. Adams, Jr. (F-599). 8.5" x 5.5" multi-colored label. [From San Fernando Valley History Digital Library]

Description.Abstract:

A collection of 225 posters from the 9th Colorado International Invitational Poster Exhibition, held 1995 in Fort Collins, Colorado.

Description.Table of Contents:

Opening hymn: To the poem (F. O'Hara) -- Three solos: The penny candy store beyond the El (L. Ferlinghetti). A Julia de Burgos (J. de Burgos). To what you said ... (W. Whitman).-- Three ensembles: Duet: Too, sing America (L. Hughes). Okay "Negroes" (J. Jordan). Trio: To my dear and loving husband (A. Bradstreet). Duet: Storyette H. M. (G. Stein). -- Sextet: If you can't eat you got to (E. E. Cummings). -- Three solos: Music I heard with you (C. Aikin). Zizi's lament (G. Corso). Sonnet: What lips my lips have kissed ... (E. St. Vincent Milay). -- Closing hymn: Israfel (E. A. Poe)

Maps to: Dublin Core *Description*

PUBLISHER

Label: Publisher

Dublin Core Definition: An entity responsible for making the resource available.

Description: Entity that made the resource available. For digital objects, publisher is the entity that created the digital resource. Publishers can be a corporate body, publishing house, museum, historical society, university, a project, a repository, etc.

Mandatory: No

Repeatable: Yes, a resource may have a publisher and distributor or more than one entity responsible for making the resource available. .

Refinements: None.

Schemes: None

Input guidelines:

1. Use separate Publisher elements to enter multiple publishers or *clearly separate each entry* by a semi-colon, space within an element.
2. In the case of an object that existed in another form before being digitized, the publisher of this earlier form may be given in the **Source** element or, if a publisher of an earlier form is considered important to users and therefore for resource discovery, then include it in a **Contributor** element.
3. When in doubt about whether an entity is a publisher or a creator, enter an organization as publisher and a personal name as creator.
4. Use of authority files, such as Library of Congress Authorities File (LCAF) is encouraged. This file is available via OCLC, RLIN, and the LC Web Authorities website (<http://authorities.loc.gov>).
5. Omit initial articles in publisher names.
6. 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 periods.
7. In the case of a long group or organization name that includes subordinate units, sometimes the name can be shortened by eliminating some of the hierarchical parts not considered necessary for uniquely identifying the body in question. For example, to enter the *CIA* as a contributor, use the form of the name as given in LCAF (*United States. Central Intelligence Agency*) instead of the full hierarchical name (*United States. National Security Council. Central Intelligence Agency*).
8. If the publisher is the same as the creator, enter the name or entity in both the **Publisher** and **Creator** elements.

Notes:

1. The **Publisher** element contains information about the digital publisher. Publisher information from earlier stages in an object's publishing history may be listed in elements such as **Source** and **Contributor**.

Examples

Publisher element

These are publishers of the digital object

University of Virginia Press
National Academy of Science
Denver Art Museum
Brooklyn Historical Society
Tennessee Valley Authority. Division of Natural Resources
Colorado. Division of Social Services
Keystone View Company
Microsoft Corporation
National Academy of Science
United States. Government Printing Office

Contributor element

This is the publisher of a print book that was later digitized by another entity. Caxton Printers is an important small publisher anticipated to be of interest to users and needed for resource discovery.

Caxton Printers

Source element

Describes publication information of original source from which digital object was derived.

Excerpt from the book *Cavalry Wife: the diary of Eveline M. Alexander, 1866-1867*, Texas A&M University Press, 1977, ISBN 0890960259

Maps to: Dublin Core *Publisher*

CONTRIBUTOR

Label: Contributor

Dublin Core Definition: An entity responsible for making contributions to the content of the resource.

Description: 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, etc.

Mandatory: No.

Repeatable: Yes.

Refinements: None

Schemes: None.

Input Guidelines:

1. Enter multiple contributors in the order in which they appear on the resource or in order of their importance. Use separate Contributor elements to enter multiple contributors or *clearly separate each entry* by a semi-colon, space within an element.
2. If using established cataloging rules to construct contributor elements, follow those rules. Some examples of established rules include: *Anglo-American Cataloging Rules* (AACR2); *Archives, Personal Papers, and Manuscripts* (APPM); *Categories of Description for the Works of Art* (CDWA); *Visual Resources Association* (VRA). If not using such rules, then use the following guidelines.
3. Determine the correct form of the name when possible. The Library of Congress Authority File (<http://authorities.loc.gov>) or other locally specified bibliographic utilities (OCLC, RLIN, ULAN, etc.) should be consulted when possible.
4. 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, should be added, in accordance with authorized form of the name when possible.
5. 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 periods.
6. In the case of a long group or organization name that includes subordinate units, sometimes the name can be shortened by eliminating some of the hierarchical parts not considered necessary for uniquely identifying the body in question. For example, to enter the *CIA* as a contributor, use the form of the name as given in Library of Congress Authorities File (*United States. Central Intelligence Agency*) instead of the full hierarchical name (*United States. National Security Council. Central Intelligence Agency*).
7. 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*).
8. Have a clear understanding of how database handles non-standard characters such as diacritics and input them so that they display and retrieve effectively.

9. *Optional:* The function of a contributor may be included in parentheses after the name. Example:
Rockwell, Norman, 1894-1978 (illustrator).

Notes:

1. Input entities responsible for digitizing an existing resource in the *Publisher* element.

Examples:

Personal names:

Onassis, Jacqueline Kennedy, 1929-
Toulouse-Lautrec, Henri de, 1864-1901
Jeanne-Claude, 1935-
Duran y Gonzalez, Juan Maria, d 1899-
Chavez de Aguilar, Maria Alicia.
Armijo Aguilar, Leopoldo
Laozi (not *Lao-Tzu* or *Po-yang Li* or any of 34 other variants of this name given in the LCAF record)
Webb, Wellington E.
Pak, Sæong-t°aek
Alexander, the Great, 356-323 B.C.
Scroggins, C. H.
Madonna, 1958- (*meaning the entertainer; this is the form given in the Library of Congress Name Authority File do not just use "Madonna" which could be confused with another person*)
Smith, Adam, 1723-1790 (*note that in the case of commonly encountered names, birth/death dates are very important to distinguish between otherwise identical names*).

Group or organization names:

Ty, Inc.
International Business Machines Corporation (not *IBM* or *I.B.M.*)
Denver Art Museum
Unesco (not *U.N.E.S.C.O.* or *United Nations Organization for Education, Science, and Culture*)
Walt Disney Company
H.W. Wilson Company
Colorado. Dept. of Social Services.
Massachusetts Institute of Technology. Migration and Development Study Group.
Note that this shorter form of the name should be used as indicated by the LCAF and not the fullest form of the name which would be: *Massachusetts Institute of Technology. Center for International Studies. Migration and Development Study Group.*

Maps to: Dublin Core *Contributor*

DATE.Original

Label: Date.Original

Dublin Core Definition: A date associated with an event in the life cycle of the resource.

Description: Creation or modification dates for the *original* resource from which the digital object was derived or created.

Mandatory: Yes, if applicable.

Repeatable: Yes.

Refinements: The five established refinements are:

Refinement Label	Definition
Created	Date of creation of the resource
Valid	Date of validity of the resource; this is often a range of dates
Available	Date that resource will become or did become available
Issued	Date of formal issuance (e.g. publication) of the resource
Modified	Date on which the resource was changed

Schemes: ISO 8601 <http://www.w3.org/TR/NOTE-datetime.html>

and DCMI Period <http://dublincore.org/documents/dcmi-period/>

Input guidelines:

1. A resource may have several dates associated with it, including: creation date, copyright date, revision date, edition date, modification date, etc. Use separate Date.Original elements to enter multiple dates or *clearly separate each entry* by a semi-colon, space within an element.
2. 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 the 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)*
3. For a range of dates, enter the dates on the same line, separating them with a space, hyphen, space as in *1910 - 1920*.
4. To show a date is approximate, follow it with a question mark as in *1890?* .

Notes:

1. Enter dates pertaining to the *digitized* version of the resource under the *Date.Digital element*.

2. Other date information can be described in the description element.

Examples:

Element Value	Definition
1950-06	Creation date for report issued in June, 1950
1950-07	Modification date for above report that was subsequently revised in July, 1950
1948	Date for digitized article reprint: reprinted, 1948; digitized 2002
2000 – 2002	Range of years during which collection of posters was created
1880? – 1915?	Approximate date range for set of stereographs with no known copyright date
1998-06-15	Creation date for letter written on June 15, 1998)
1925?	Approximate year photograph taken or circa date
2000-06-15	Creation date for clay pot depicted in digitized slide <i>Note: further date information pertaining to the creation of the slide can be included in the Description element.</i>

Maps to: Dublin Core *Date*

DATE.DIGITAL

Label: Date.Digital

Dublin Core Definition: A date associated with an event in the life cycle of the resource.

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

Mandatory: Yes

Repeatable: Yes

Refinements:

Refinement Label	Definition
Created	Date on which the resource was first created
Modified	Date on which resource was last modified or changed
Valid	Date of validity of the resource
Issued	Date of formal issuance (e.g. publication) of the resource

Schemes: ISO8601

Input Guidelines:

1. A resource may have several dates associated with it, including: creation date, copyright date, revision date, edition date, modification date, etc. Use separate Date.Digital elements to enter multiple dates or *clearly separate each entry* by a semi-colon, space within an element.
2. Enter eight digit numbers in the form YYYY-MM-DD as defined in <http://www.w3.org/TR/NOTE-datetime.html>, a profile of ISO 8601. In this scheme the date element 1994-11-05 corresponds to November 5, 1994.
3. If only the year is known, enter only the four-digit year.
4. Enter ranges of dates on the same line and use a dash (-) with a space on each side to separate dates.
5. Enter dates for different purposes on separate lines; i.e. date resource brought into being and date first collected.
6. If date is approximate use question mark (?) to indicate holding institution is approximating the date.

NOTES: Local systems or databases may utilize other date formats and conventions for date entry. Also, some databases distinguish between free text "display" date values, and normalized date values for more efficient back-end sorting

EXAMPLES:

Element Value	Definition
1996-04-05	Standard entry for April 5, 1996
1996	Date with only year known
1996-04	Date with only month and year known
1996-04-01 - 1996-04-30	Date span

MAPS TO: Dublin Core *Date*

TYPE

Label: Type

Dublin Core Definition: The nature or genre of the content of the resource.

Definition: A broad term drawn from a controlled vocabulary that describes the genre or nature of the resource.

Mandatory: No

Repeatable: Yes

Refinements: None

Schemes: Dublin Core Types Vocabulary <http://www.dublincore.org/documents/dcmi-type-vocabulary/>

Input Guidelines:

1. Some digital objects may involve more than one TYPE, i.e. a manuscript collection may have text, image, sound and interactive components. Use separate Type elements to enter multiple types or *clearly separate each entry* by a semi-colon, space within an element.
2. For more information, see the Colorado Digitization Program's explanation at <http://www.cdphheritage.org> or the Library of Congress reference guide on this element at <http://lcweb.loc.gov/marc/dc/typequalif-19991210.html>

Notes: None

Examples:

Collection (Group of things, could be a mixture of these examples)
Dataset (Statistical data file, CD-ROM of data, database)
Event (Gallery opening, symposium, parade)
Image (Map, stereograph, photograph, painting, engraving)
Interactive Resource (video game, virtual exhibit)
Service (System that provides function for the end-user, such as e-commerce order fulfillment)
Software (Application software such as presentation viewer, word processor)
Sound (Sound recording)
Text (Scrapbook, diary, poem, home page, manuscripts, music score. Note that page images are text)
Physical Object (Museum piece, architectural structure, monument)

MAPS TO: Dublin Core *Type*

FORMAT.USE

Label: Format.Use

Dublin Core Definition: The physical or digital manifestation of the resource.

Definition: Electronic format of the resource being described. Format.Use may include the electronic media-type or extent of the digital resource, such as file format, file size, or playtime. This element is used to help identify the software and hardware needed to load and use the digital resource.

Mandatory: Yes

Repeatable: Yes

Refinements: None

Schemes: Internet Media Types

Input Guidelines:

1. Recommended best practice is to select electronic format terms from the Internet Media Types standardized list at <http://www.isi.edu/in-notes/iana/assignments/media-types/media-types> also known as MIME types.
2. Recommended bet practice is to include file size for large media files that have high bandwidth requirements, such as digital audio and video. Record the file size as bytes (i.e. 3,000,000 bytes) and not as kilobytes (Kb), megabytes (Mb), etc.
3. For large media files, such as digital audio and video, best practice is to include the playtime of the resource.
4. New media types and applications are always emerging. If the resource format being described is not yet part of the MIME type list, follow the MIME convention by selecting a broad category of object format (audio, video, application, etc.) for the first part of the MIME type, then use as a brief identifier for the second half of the MIME type the file name suffix usually attached to files of this format. See "xip" example below.

Notes: Many local systems may not be used to capturing such information. If not, this metadata may be able to be inserted automatically by technical staff at the time of metadata sharing, if the same digital formats were created consistently throughout digitization projects.

Examples:

Element Value	Definition
image/jpeg	visual file in JPEG format
text/html	text file in HTML format
text/sgml	text file in SGML-encoded format
application/sgml	interactive application based upon SGML encoding
video/mpeg	video file in MPEG format
audio/mp3	sound file in MP3 format
audio/xip	hypothetical audio file in which the file name ends with ".xip"
3,000,000 bytes	file size for a 3 megabyte file
1 minute	playtime for a digital audio file

Maps To: Dublin Core *Format*

FORMAT.CREATION

Label: Format.Creation

Dublin Core Definition: None

Definition: Technical information about the hardware, software and processes used to create a digital resource, including specifics such as scanner model, scan resolution, color profiles, compression schemes, file sizes, etc. Primary intended use is at local level, though FILE SIZE should be contributed in a shared metadata environment.

Mandatory: Yes

Repeatable: Yes

Refinements: None

Schemes: None

Input Guidelines:

1. A resource may have multiple creation formats, such as Master, Access or Thumbnail. Use separate Format.Creation elements to enter multiple formats or *clearly separate each entry* by a semi-colon, space within an element.
2. This element is free text, and not based upon any Dublin Core recommendations. However, as a general guideline, information that describes technical aspects of the digital object's creation is beneficial for long-term administration, technical support and maintenance of digital objects.
3. Refer to NISO document Z39.87-2002, TECHNICAL METADATA FOR DIGITAL STILL IMAGES (http://www.niso.org/standards/resources/Z39_87_trial_use.pdf) for an excellent element-by-element example of the types of technical metadata that should be recorded about every digital object. This document is focused upon visual resources, but many of the technical metadata elements would apply to any digital file.
4. See also the Colorado Digitization Program's Draft Digital Audio Standards (http://www.cdpheritage.org/resource/audio/std_audio.htm).
5. An excellent print resource for more information is Maggie Jones and Neal Beagrie's Preservation Management of Digital Materials: A Handbook (British Library, 2001).
6. Some important technical details of digital file creation that are worth recording, but not included in other elements of this document:
 - a. File Size - The number of bytes as provided by the computer system. Best practice is to record the file size as bytes (i.e. 3,000,000 bytes) and not as kilobytes (Kb), megabytes (Mb), etc.
 - b. Quality - For visual resources, characteristics such as bit depth, resolution (not spatial resolution); for multimedia resources, other indicators of quality, such as 16-bit audio file.

- c. Extent - Pixel dimensions, pagination, spatial resolution, playtime, or other measurements of the physical or temporal extent of the digital object.
 - d. Compression - Electronic format or compression scheme used for optimized storage and delivery of digital object. This information often supplements the Format.Use element.
 - e. Checksum Value - A numeric value used to detect errors in file recording or file transfer, checksum helps ensure the integrity of digital files against loss of data.
 - f. Preferred Presentation - Designation of the device, application, medium, or environment recommended for optimal presentation of the digital object.
 - g. Object Producer - Name of scanning technician, digitization vendor, or other entity responsible for the digital object's creation. Distinguishable from the descriptive Creator element, this element is mainly useful when different persons generated multiple versions of the object's content.
 - h. Operating System - Computer operating system used on the computer with which the digital object was created. (Examples: Windows, Mac, UNIX, Linux). Also include version of operating system.
 - i. Creation Hardware - If a hardware device was used to create, derive or generate the digital object, indicate from a controlled list of terms the particular hardware device. (Examples: flatbed reflective scanner, digital camera, etc.) Include manufacturer, model name, and model number.
 - j. Creation Software - Name and version number of the software used to create the digital object.
 - k. Creation Methodology - If creation process used a standard series of steps, derivations or techniques, either state or refer to a URL describing the creation process.
7. The owning institution of the digital object may create and manage each of these elements as separate database fields.
8. Much of this information is only of value at the local level. In a shared metadata environment, it would be of little value for resource discovery or access, with the exception of the FILE SIZE refinement.

Notes: Other useful creation information, such as the name of technicians, text encoders, digitization vendor, may also be beneficial for long-term administration of digital collections. It is recognized that many partners may split these discrete pieces of information (resolution, bit depth, hardware, etc.) into separate fields in their local databases or management systems.

Examples:

Example 1: This 300,000,000 byte file is derived from a high-resolution (300 ppi, 24-bit) uncompressed TIFF image that was scanned from the original using an Epson 836 XL scanner, default color configuration.

Example 2 (XML representation):

```
<Format.Creation
  compression="lzw"
  quality="24-bit color, 300 ppi"
  filesize="300,000,000"
  checksum="D455 AD5F 66EF F100 B2BA 15F9"
  extent="9000h x 20,000w pixels"
  preferredpresentation="Sony Trinitron monitor using embedded color profile"
  operatingsystem="Mac OS X"
  creationhardware="PhaseOne PowerPhase FX Digital Camera attached to Mac G-4"
  methodology="Scanned files created using color profile found at http://url.address.edu"/>
```

Maps To: N/A

IDENTIFIER

Label: Identifier

Dublin Core Definition: An unambiguous reference to the resource within a given context.

Definition: A character string or record number that clearly and uniquely identifies a digital object or resource. The ***Identifier*** element ensures that individual digital objects can be managed, stored, recalled and used reliably.

Mandatory: Yes

Repeatable: Yes

Refinements: Type

Schemes: URL, ISBN, ISSN, local naming conventions.

Input Guidelines:

1. Use separate Identifier elements to enter multiple identifiers or *clearly separate each entry* by a semi-colon, space within an element. Recommended best practice is to include Identifiers from different Schemes in separate elements.
2. Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. Example formal identification systems include the Uniform Resource Identifier (URI), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN).
3. In addition to any formal or local identifying numbers, the Uniform Resource Locator (URL) should be included as an identifier for any Internet-accessible resource.
4. In a shared metadata environment, numbers unique within an institution's digital collection (e.g., accession numbers) should also include the name or a code for the institution along with the number, in case another participating institution also uses the same "unique" identifier.
5. Input ISSN, ISBN or other international standard numbers without hyphens or spaces.
6. If possible, use the identifier as the file naming basis for the digital object.
7. For multi-piece, multi-part digital objects such as each individual page image of a scanned text, best practice is to identify each page image with a predictable naming scheme locally, but to share one metadata record for the text as a single, whole resource.

Notes: It is recognized that each participating partner will maintain its own local database or management system. Many databases and systems require a unique record number for each record. Such unique identifiers are ideal entries for the ***Identifier*** element.

Examples:

Element Value	Definition
ISSN10945234	ISSN for online JOURNAL OF SOUTHERN RELIGION
http://jsr.lib.virginia.edu/	URL for JOURNAL OF SOUTHERN RELIGION
DeWaalC23655	Identifier for a rare book from a standard bibliography
KSHS//MSP01101	Local record number for a digital object belonging to KSHS
CSPM//S2001.32.35289.34	Museum accession number for a work of art

For further examples, see the Library of Congress *Naming Conventions For Digital Resources* at <http://lcweb.loc.gov/marc/naming.html> and Northwestern University's *Standards for Long-Term Storage and File Naming Conventions* at <http://staffweb.library.northwestern.edu/dl/adhocdigitization/storage/>

Maps To: Dublin Core *Identifier*

SOURCE

Label: Source

Dublin Core Definition: A reference to a resource from which the present resource is derived.
Comments: The present resource may be derived from the Source resource in whole or in part. Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.

Description:

When applicable, use the Source element to cite any other resource from which the digital resource was derived, either in whole or in part. Some digital resources are “born digital” and derive from no pre-existing resource; in these cases, the Source element is not used.

Mandatory: No.

Repeatable: Yes

Refinements: None

Schemes: None

Input guidelines:

1. Use separate Source elements to enter multiple sources or *clearly separate each entry* by a semi-colon, space within an element. Usually there will only be once source from which the present digital resource has been derived.
2. If, as in most cases, the **Source** element describes an originating resource upon which the digital resource is somehow *based*, then also include a Relation element such as **Relation.IsBasedOn** – see **Relation** element for more information. Such Relation elements often duplicate information given in the Source element, but in shorter form and often with a hyperlink added.
3. The Source element may consist of a combination of elements such as free text combined with an ISBN to describe a book.
4. Whenever possible, include a unique standard identifier such as an ISBN, ISSN, LC call number, Dewey call number, NTIS report number. If no standard identifier exists, use a local call number, control number, accession number, or barcode. Identify the institution associated with such locally derived numbers.
5. Clarify the nature of the relationship between the two resources by using an initial phrase such as *Originally published as:*, *Excerpted from:*, *Original book:*, *Original format:*, or *Reproduction of:* etc.

Notes:

1. The **Source** element usually is used in conjunction with a corresponding **Relation** element. Because Source elements show a derivative relationship with another resource, they generally have a corresponding Relation element to show that relationship. Not all Relation elements, however, conversely require a corresponding Source element because not all related resources are derivative. For example, a resource might require another resource to *support* it or it might be *referenced by* another resource. In both these cases, a Relation element might be required (i.e. **Relation.Requires** and **Relation:IsReferencedBy**), but a Source element would not. See **Relation** for more information.

Examples:

Source

Element Value	Definition
Originally published as: Geek Love (New York: Warner Books, 1990), ISBN: 0446391301, 355 p.	<i>Digitized version of a published book described in Source element</i>
Original version: 35 mm slide of a Van Briggles dark blue vase, slide no. 101 in the Modern Pottery Slide Collection, San Francisco Institute of Art.	<i>Digitized image from an original slide described in Source element</i>
Excerpted from: 30 minute audio cassette recording of Galway Kinnell, reading from his poems, at Southern Connecticut State University, April 6, 1987	<i>Digitized audio clip taken from a audio cassette recording described in Source element</i>
Original book: Fisher, Vardis. God or Caesar? : the Writing of Fiction for Beginners (Caldwell, Idaho Caxton Printers, 1953), 271 p	<i>Digitized version of a published book described in Source element; a Contributer element also separately gives the print publisher, Caxton Printers, so that it is searchable</i>
Original letter: Letter from R.C. Smith to J.L. Fisher, Dec. 24, 1892, K.C. Fisher Papers, Calhoun State University, Special Collections, Accession No. 5346-9, box 2, folder 8	<i>Digitized reproduction of a handwritten letter described in Source element</i>
Original artifact: Red Raku Ware Tea Bowl, 3 3/8 x 5 1/2 inches, Metropolitan Museum of Art, New York	<i>Textual description</i>
Original format: VHS Videotape of "Star Wars," directed by George Lucas	<i>Textual description</i>
Reproduction of: Red Cross Emblem poster, University of Winchester, War World II Poster Collection.	<i>Textual description</i>

Maps to: Dublin Core **Source**

LANGUAGE

Label: Language

Dublin Core Definition: A language of the intellectual content of the resource.

Definition: Indicates the language(s) of the intellectual content of the resource. This implies the language(s) in which a text is written or the spoken language(s) of an audio or video resource. Visual images do not usually have a language unless there is significant text in a caption or in the image itself.

Mandatory: No, but recommend entering the language element if it applies.

Repeatable: Yes.

Refinements: None

Schemes: Adhere to the ISO 639 standard for languages (a two-letter code). RFC 1766 offers an option for adding a 2-letter country code taken from ISO 3166 (see note 1 below).

Input Guidelines:

1. A resource may include multiple languages. Use separate Language elements to enter multiple languages or *clearly separate each entry* by a semi-colon, space within an element.
2. Indicate language using two-letter language codes defined by ISO 639. For a list of these codes, see <http://www.loc.gov/standards/iso639-2/englangn.html>
3. In addition to using language codes, if needed, a textual description of the nature of the language may be included in the **Description** element. Example: *In German and English, in parallel columns.*
4. Enter only one language per element; use multiple elements if needed.

Notes:

1. These guidelines deliberately omit the option authorized by the Dublin Core Metadata Initiative to add country codes in combination with the language codes as in “**en-UK**” for *English, United Kingdom* or “**en-US**” for *English, United States*. Country codes are defined in ISO3166 standard at <http://www.iso.org/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/list-en1.html>

Examples:

Language code	Equivalent
fr	French
en	English
cs	Czech
so	Somali

Maps to: Dublin Core *Language*

RELATION

Label: Relation

Dublin Core Definition: A reference to a related resource

Description: Related resource. Element contains information necessary to find or link to a related resource. Element may consist of an identifier such as an URL, URI, etc.; the physical location of the related resource, if applicable; information about the nature of the relationship between the two resources, etc.

Mandatory: No.

Repeatable: Yes. A resource may relate to other resources in a variety of relationships that requires more than one *Relation* element to describe. The same resource can be a *part* of a larger resource while simultaneously containing a smaller resource than itself; it can be a more recent version of one resource and be superseded by another. A resource can be a different *version* of another resource, or contain the same intellectual content as another resource, but in a different format.

Refinements: Use one of the following refinements to explain the nature of the relationship between the described resource (i.e. resource described by the metadata record) and the related resource described in the *Relation* element. Include the refinement in the label name, not the element text.

Refinement Label	Relationship between the two resources:
<i>Relation.IsPartOf</i>	The described resource is a physical or logical part of the related resource
<i>Relation.HasPart</i>	The described resource includes the related resource either physically or logically
<i>Relation.IsVersionOf</i>	The described resource is a version, edition, or adaptation of the related resource
<i>Relation.HasVersion</i>	The described resource has a version, edition, or adaptation of the related resource
<i>Relation.IsFormatOf</i>	The described resource has the same intellectual content of the related resource, but is presented in another format
<i>Relation.HasFormat</i>	The described resource <i>pre-existed</i> the related resource, which is essentially the same intellectual content presented in another format
<i>Relation.References</i>	The described resource references, cites, or otherwise points <u>to</u> the related resource.

<i>Relation.IsReferencedBy</i>	The described resource is referenced, cited, or otherwise pointed to <u>by</u> the related resource.
<i>Relation.IsReplacedBy</i>	The described resource is supplanted, displaced or superceded <u>by</u> the related resource.
<i>Relation.Replaces</i>	The described resource supplants, displaces or supercedes the related resource
<i>Relation.Requires</i>	The described resource requires the related resource to support its function, delivery or coherence of content.
<i>Relation.IsRequiredBy</i>	The described resource is required by the related resource either physically or logically.

Schemes: URI (Uniform Resource Identifier)

Input guidelines:

1. Use separate Relation elements to enter multiple relations or *clearly separate each entry* by a semi-colon, space within an element.
2. As appropriate, select refinement from the above list of qualifiers recommended by the Dublin Core Metadata Initiative (DCMI) at <http://dublincore.org/documents/dcmes-qualifiers/>
3. Include sufficient information in the Relation element to enable users to identify, cite, and either locate or link to the related resource.

Notes: None

Examples:

Label	What Relation Element Contains
Relation.IsVersionOf	Second ed. (<i>another edition of same work</i>)
Relation.IsBasedOn	I am a Sorcerer is the English translation of Yo Soy Hechicero
Relation.IsPartOf	Library Journal v. 127, no. 9 (May 15, 2002) p. 32-4 (<i>The described resource is the article and nothing else</i>)
Relation.HasPart	Library Journal v. 127, no. 9 (May 15, 2002) p. 32-4 (<i>The described resource is an anthology that includes this article as well as other articles each of which is described in another Relation.HasPart element</i>)
Relation.IsPartOf	Jack and Charmian London correspondence and papers, 1894-1953. Utah State University Special Collections & Archives, MSS COLL 10
Relation.IsPartOf	Frank Waters Papers, University of New Mexico General Library
Relation.IsVersionOf	Adaptation of the play Death of a Salesman by Arthur Miller
Relation:HasVersion:	Collection of recorded fairy tales read from various sources including: Babar the King (New York: Random House, 1935)
Relation.IsPartOf	E-journal article from Library Hi-Tech v. 20, no. 2 (2002) p. 137-140 http://lucia.emeraldinsight.com/vl=6724010/cl=22/nw=1/rpsv/cw/mcb/07378831/v20n2/s2/p137.idx
Relation.IsFormatOf	Digital reproduction of the poster Wildflowers Amuk, City Museum of Wildflowers, New York.

Relation.IsFormatOf	Digital reproduction of Diary of a Physician in California from microfilm version by University Microfilms, 1971 as part of American Culture Series II, reel 450, pt. 19.
Relation.References	American Culture Series, II (Described source is an index to the series)
Relation.IsReferencedBy	The New Sabin, v. 1, no. 333. ISBN 0878750495
Relation.Replaces	1040 Tax Form, 2000 (Related title is earlier version of described source, 1040 Tax Form 2001)
Relation.IsReplacedBy	1040 Tax Form, 2002 (Related title is later version of described source, 1040 Tax Form 2001)
Relation.Requires	NTIS Digest (Described resource is the NTIS Index, which requires the Digest to provide the corresponding abstracts & order information).
Relation.IsRequiredBy	NTIS Index (Index cannot stand alone; requires the Digest to supply the abstracts)
Relation.IsPartOf	Mesa Verde Black-on-white kiva jar (Vessel 25) (Record for an image of the jar's lid, the lid is part of the overall pottery piece).

Maps to: Dublin Core *Relation*

COVERAGE

Label: Coverage

Dublin Core Definition: The extent or scope of the content of the resource. Comment: Coverage will typically include spatial location (a place name or geographic coordinates), temporal period (a period label, date, or date range) or jurisdiction (such as a named administrative entity). Recommended best practice is to select *a value from a controlled vocabulary* (for example, the Thesaurus of Geographic Names [TGN]) and that, where appropriate, use *named places or time periods* in preference to numeric identifiers such as sets of coordinates or date ranges.

Description: Describes the spatial or temporal 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. Temporal coverage refers to the time period covered by the intellectual content of the resource (e.g. Jurassic; 1900-1920), *not* the publication date. For artifacts or art objects, the spatial characteristics usually refer to the place where the artifact/object originated while the temporal characteristics refer to the date or time period during which the artifact/object was made.

Mandatory: No. Currently recommended only for use in describing maps, globes, and cartographic resources or when place or time period cannot be adequately expressed using the *Subject* element.

Repeatable: Yes.

Refinements:

Coverage.Spatial: describes geographical/place information using controlled vocabularies or conventions such as coordinates in a defined grid system.

Coverage.Temporal: describes a date/time period according to accepted standards and controlled vocabularies.

Schemes:

Spatial schemes recommended by DCMES are:

TGN (Getty Thesaurus of
Geographic Names) uses place
names

<http://www.getty.edu/research/tools/vocabulary/tgn/>

DCMI Point uses geographic coordinates to locate a point in space

<http://dublincore.org/documents/dcml-point/>

ISO 3166 uses 3-letter codes to represent names of countries

<http://www.din.de/gremien/nas/nabd/iso3166ma/codlstp1/index.html>

DCMI Box uses geographic limits to identify a region of space

<http://dublincore.org/documents/dcml-box/>

Other schemes available, but not in the DCMES list:

Latitude/longitude coordinates following GNIS practice

<http://geonames.usgs.gov/index.html>

Ordnance Survey National Grid

<http://www.sewhgpgc.co.uk/os.html>

Reference such as the one for the United Kingdom.

Temporal schemes recommended by DCMES are:

DCMI Period

<http://dublincore.org/documents/dcml-period/>

W3-DTF, a profile based on ISO 8601

<http://www.w3.org/TR/NOTE-datetime>.

In this scheme, dates are indicated using the numeric form YYYY-MM-DD.

(Example: enter November 5, 1994 as **1994-11-05**).

Other schemes available, but not on the DCMES list:

Terms from controlled vocabularies such as Library of Congress Subject Headings for recording time periods (Example: **Middle Ages**).

Input Guidelines:

1. Multiple places, physical regions, dates, and time periods may be associated with the intellectual content of the resource. No hierarchy is implied. Use separate Coverage elements to enter multiple spatial and temporal values or *clearly separate each entry* by a semi-colon, space within an element.
2. If using place names, select terms from a controlled vocabulary to identify place names (e.g. Geographic Names Information System (GNIS) at <http://geonames.usgs.gov/index.html>; Getty Thesaurus of Geographical Names, Library of Congress Subject Headings, etc.).
3. If using latitude/longitude, enter according to GNIS standards:
“A variable-length alphanumeric field that contains geographic coordinate pairs locating the feature. Each coordinate pair is compressed into and fixed at 15 characters. Latitude and longitude values are in degrees, minutes, and seconds followed by a one-character directional indicator. If the degrees of longitude are less than 100, a leading zero is present. The first coordinate pair listed in this element is termed the primary coordinates. In the case of a real feature [*i.e. covering a*

broad area, such as a mountain range], they represent the location of the approximate geographic center of the feature, whereas the primary coordinates of linear features [i.e. long & narrow as in a river] represent the location of the mouth of the feature.”—[GNIS website](#).

Enter coordinates as **DDMMSSXDDDMMSSX** with **D**=degrees, **M**=minutes; **S**=seconds, **X**=Directional indicator (N, S, E, or W); citing the latitude first, following by the longitude. Note that 3 spaces are provided for Longitude degrees and only 2 for Latitude. Use leading zeros if needed to fill up allotted spaces.

Example:

To represent coordinates for Washington Monument in Washington D.C., cite as **385322N0770208W** which translates as latitude 38 degrees, 53 minutes, 22 seconds north and longitude of 77 degrees, 2 minutes, 8 seconds West.

4. Use free text to input B.C.E dates as in **200 B.C.E.**
5. For a range of dates, enter the dates on the same line, separating them with a space, hyphen, and space as in **1900 – 1950.**
6. To show a date is approximate, follow it with a question mark as in **1997?**

Notes: None

Examples:

Label	Contents of Element	Type of Data
Coverage.Temporal	1776-07-04	Date for July 4, 1776
Coverage.Temporal	Colonial America	Time Period
Coverage.Temporal	Ming	Time Period
Coverage.Spatial	394916N0771325W	Latitude/Longitude for <i>Gettysburg National Military Park</i>
Coverage.Spatial	390254N0954040W	Latitude/Longitude for <i>Topeka, Kansas</i>
Coverage.Spatial	290903N0891512W	Latitude/Longitude for <i>Mississippi River</i> , at its mouth (end) in Pilottown, Louisiana
Coverage.Spatial	442830N084430W	Latitude/Longitude, <i>Higgins Lake</i> in Mich.
Coverage.Spatial	SN 045 055	A place in Wales, using the UK Ordnance Survey Grid System
Coverage.Temporal	1840?	Approximate date or circa date
Coverage.Temporal	1900-1901	Date range
Coverage.Temporal	15th century	Time period
Coverage.Spatial	North America	Place name
Coverage.Spatial	Paris	Place name
Coverage.Spatial	Rocky Mountains	Place name
Coverage.Temporal	96 B.C.E.	Free text B.C.E. date

Maps to: Dublin Core **Coverage**

RIGHTS MANAGEMENT

Label: Rights

Dublin Core Definition: Information about rights held in and over the resource.

Definition: The content of this element is intended to be a rights management or usage statement, a URL that links to a rights management statement, or a URL that links to a service providing information on rights management for the resource. A rights management statement may contain information concerning accessibility, reproduction of images, copyright holder, restrictions, securing permissions for use of text or images, etc.

Mandatory: Yes, if Available

Repeatable: Yes

Refinements: None

Schemes: None

Input Guidelines:

1. Enter either a textual statement or a URL pointing to a use and access rights statement for digital resources on the Internet.
2. This statement can be a general copyright 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 copyright holder.
4. Make sure that the rights statement corresponds to the digital resource; for example, link to a copyright statement for the digital resource instead of the original resource.

Notes: None

Examples:

Example 1: <http://www.college.edu/copyright.html> [URL for a complete copyright statement]

Example 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. Please contact XXX for permission to use the digital image.

Example 3: This audio file may be freely used for educational uses, as long as it is not altered in any way. No commercial reproduction or distribution of this audio file is permitted without written permission of XXX. A high-quality version of this file may be obtained for a fee for personal use by contacting XXX.

Example 4: Copyright to this resource is held by XXX and is provided here for educational purposes only. It may not be downloaded, reproduced, or distributed in any format without written permission of XXX. Any attempt to circumvent the access controls placed on this file is a violation of United States and international copyright laws, and is subject to criminal prosecution.

Maps To: Dublin Core *Rights*

HOLDING.INSTITUTION

Label: Holding.Institution

Dublin Core Definition: None

Definition: A consistent reference to the institution or administrative unit that owns the digital resource for which metadata was created.

Mandatory: Yes

Repeatable: Yes

Refinements: (optional) Geographic Location, which may include postal or general address information.

Schemes: None

Input Guidelines:

1. Use separate Holding.Institution elements to enter multiple institutions or *clearly separate each entry* by a semi-colon, space within an element.
2. Institution names should be entered exactly the same way for every record contributed, to permit reliable sorting by owning institution.
3. Institutional names may be entered either in direct order (as the name generally appears), or may be entered hierarchically subdivided according to *Anglo-American Cataloging Rules (AACR2)*.

Notes: Such information may not need to be stored locally, and can usually be inserted automatically into every metadata record at the time when metadata is shared.

Examples:

Element Value	Definition
Wyoming State Historical Society	name entered in direct order
Nebraska. Dept. of Administrative Services	name entered hierarchically by org. and sub-org., as opposed to just "Dept. of Administrative Services"
Holding Institution ="Kansas State Historical Society"Geog. Location="6425 SW 6 th Avenue, Topeka, KS, 66615"	entry including optional Geographic Location refinement

Maps To: N/A