CDP Metadata Working Group

Dublin Core Metadata Best Practices

Version 2.1.1

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The Institute of Museum and Library Services, an independent Federal grant-making agency dedicated to creating and sustaining a nation of learners by helping libraries and museums serve their communities, supports the Collaborative Digitization Program at the University of Denver.

1. Introduction

1.1. Purpose and Scope

The intent of the *CDP Dublin Core Metadata Best Practices (CDPDCMBP)* is to provide guidelines for creating metadata records for digitized cultural heritage resources that are either born digital or have been reformatted from an existing physical resource, such as photographs, text, audio, video, three-dimensional artifacts, etc. This document uses the Dublin Core element set as defined by the Dublin Core Metadata Initiative (DCMI).[1]

Application of these best practices will result in standardized Dublin Core records that:

- enhance online search and retrieval accuracy in local and shared databases (i.e., union catalogs)
- improve resource discovery capabilities
- improve quality control of metadata records
- facilitate interinstitutional interoperability

These guidelines have been created to address the needs of a diverse audience of cultural heritage institutions composed of museums, libraries, historical societies, archives, etc. This document seeks to accommodate different backgrounds and metadata skill levels of those charged with creating metadata records, including catalogers, curators, archivists, librarians, Web site developers, database administrators, volunteers, authors, editors, or anyone interested in creating digital libraries of cultural heritage materials. We have attempted to provide clear and concise explanation of terms and concepts, as well as examples describing the varied resources found in cultural heritage institutions. Some terms may be used interchangeably, such as *catalog, online catalog* and *database*; *digital resource* and *digital object*; or *controlled vocabulary, thesaurus* and *subject heading list*.

1.2. Background

Funded by a grant awarded by the Institute for Museum and Library Services (IMLS) in the fall of 2001, the Collaborative Digitization Program at the University of Denver (formerly known as the Colorado Digitization Project), spearheaded a multistate initiative to create a virtual collection of distributed digital resources on the topic of *Western Trails*. As part of this initiative, representatives from eight Western states participated in the revision of the Colorado Digitization Program's existing *General Guidelines for Descriptive Metadata Creation & Entry* (1999). This group, the Western States Digital Standards Group (WSDSG) Metadata Working Group, released the first version of the *Western States Dublin Core Metadata Best Practices (WSDCMBP), Version 1.2* in January 2003. The Collaborative Digitization Program (CDP) agreed to assume the responsibility for maintaining the *WSDCMBP,* and supported ongoing discussion by the WSDSG Metadata Working Group. In May 2005, the Western States Dublin Core Metadata Working Group agreed to change its name to CDP Metadata Working Group

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

and rename the document *CDP Dublin Core Metadata Best Practices* to better reflect the input and use of the document beyond the western United States.

1.3. Updating the CDP Dublin Core Metadata Element Set & Best Practices

The Dublin Core Metadata Initiative maintains the Dublin Core metadata format upon which the CDP metadata is based. Since the Collaborative 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 CDP Metadata Working Group to update its metadata element set and best practices document as needed in response to DCMI modifications.

At this time DCMI elements and qualifiers with the status of *conforming* have not been included in CDPDCMBP. In addition we have not included the ***Audience*** element at this time, pending further clarification of its use by the community.

1.4. Acknowledgments

The Institute of Museum and Library Services, an independent federal grant-making agency dedicated to creating and sustaining a nation of learners by helping libraries and museums serve their communities, supports the Collaborative Digitization Program.

The following individuals participated in the meetings and discussions, making significant contributions to the development of this document:

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2. Planning and Implementing the *CDP Dublin Core Metadata Best Practices*

2.1. What is Metadata?

Metadata is a modern term for the bibliographic information that libraries traditionally entered into their catalogs or databases, or registration information about collections that museums have entered into their systems; however the term *metadata* is most commonly used to refer to descriptive information about digital resources.

The creation of metadata for digital resources is an important part of a digitization project, and must be incorporated into a project's workflow. Metadata should be created and associated with a 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 technical information, such as the resolution at which the images were scanned, the hardware and software used to produce the image, compression information, pixel dimensions, etc. Administrative metadata may also assist in the long-term preservation of digital resources; models for preservation metadata subsets are described in *2.5 Emerging Trends*.

Today's users are accessing digital resources 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. Therefore, 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 [2]

2.2. What is Dublin Core and why use it?

The Dublin Core is an internationally recognized metadata standard composed of fifteen basic elements, or descriptive categories, used to describe a variety of digital 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 Element Set has been approved by the American National Standards Institute (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 nonspecialist 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 nonspecialist 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 digital 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

[2] Anne J. Gilliland-Swetland. "Setting the Stage." *Introduction to Metadata: Pathways to Digital Information.* (Getty Research Institute, 1998).
<http://www.getty.edu/research/conducting_research/standards/intrometadata/2_articles/index.html>

discovery, and to accommodate the granularity (defined by Wikipedia as "the extent to which a system contains discrete components of ever-smaller size") needed for access.

While the Dublin Core is relatively simple to learn and easy to use, its elements include the most essential information about a resource.

2.3. Dublin Core and the CDP Metadata Working Group (CDP)

Adoption of standards is key to effective sharing of resources and interinstitutional 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 (VRACore)*; and *Categories for the Descriptions of Works of Art (CDWA)*, are being applied to digital resources. The primary objective of the CDP Metadata Working Group is to improve access to the unique cultural heritage resources and special collections that have been converted into digital formats. The standards followed to accomplish this objective depend on 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 formats from a variety of standards, including MARC, Dublin Core, *Encoded Archival Description (EAD)*, *VRACore*, and *Government Information Locator Service (GILS)*, through the development of crosswalks (see section 2.4.6 for more information on crosswalks). The CDP best practices take into account a variety of standard formats that may be used at the local level, while simultaneously meeting needs at the collaborative level.

In addition to handling the multiple standards used by their constituent institutions, shared metadata environments 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 metadata environment.

To respond to the need of improved access within this diverse, evolving environment, the CDP Metadata Working Group has adopted Dublin Core as the standard to support interoperability among cultural heritage institutions, because it provides for the broadest

level of common elements, flexibility, and application among the institutions. Furthermore, Dublin Core is used in the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) (http://www.openarchives.org), which is supported by the Institute of Museum and Library Services in order to create a single repository of all digital collections created through IMLS funding since 1998.[3]

This document has 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 or multistate initiative. The CDP 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 Web sites, individual digital objects,[4] and collections of digital objects.

2.3.1. Additional elements needed for digital resources

The CDP Metadata Working Group has developed three additional elements considered necessary to use the Dublin Core standard effectively for digitized cultural heritage resources. A basic CDPDC record will include fifteen elements from the Dublin Core standard and three additional CDP elements.

2.3.1.1. Date Original and Date Digital

Since the Dublin Core ***Date*** element is limited to the date a digital resource was created or modified, the Working Group developed the ***Date Original*** element to contain the date of the original resource. The creation date of the original object from which the digital resource is derived may be a critical component for providing access to cultural heritage digital resources. It is best practice to use this element when an institution or collaborative 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 resource. To differentiate the role of the Dublin Core ***Date*** element, it has been given the label ***Date Digital*** in *CDPDCMBP*.

2.3.1.2. Digitization Specifications

Digitization Specifications (formerly ***Format Creation***) provides information related to the creation of the digital object. This element is best used to include information that supports the preservation and quality control of the digital object over time. The type of information specified for this element has been drawn from the *Data Dictionary: Technical Metadata for Digital Still Images (Z39.87)* standard and includes the hardware and software used to create the digital object, spatial dimensions, spatial resolution, applied compression algorithms, color management profiles, and other image manipulation processes applied to the resource.

[3] IMLS Digital Collections and Content Project. 27 July 2004. <http://imlsdcc.grainger.uiuc.edu/>

[4] A digital object may be an item that is born digital or an object that has been reformatted from the original. It can be a digital image, a manuscript, a diary, digital audio, a three-dimensional artifact, digital video, or other digital object.

Digitization Specifications may also contain technical or preservation metadata for other digital formats, such as audio, video, or text encoding, according to emerging standards.

2.3.1.3. Contributing Institution

Contributing Institution (formerly ***Holding Institution***), records information about the institutions or administrative units involved in the creation of a digital resource. This element is particularly important for collaborative projects where records from multiple institutions are combined in a shared database. Since the ***Contributing Institution*** is not necessarily the same as the copyright holder (***Rights Management***) or the ***Publisher,*** the Working Group felt it necessary to record this information separately.

2.3.2. Mandatory and Optional Elements

The Dublin Core record as developed by the CDP Metadata Working Group includes eighteen elements, each of which is repeatable. To assure success in a collaborative environment where consistent description of digital resources is critical for interoperability, the CDP Metadata Working Group has designated the following ten mandatory elements:

- ***Title***
- ***Creator (if available)***
- ***Subject***
- ***Description***
- ***Date Digital***
- ***Date Original (if applicable)***
- ***Format***
- ***Digitization Specifications***
- ***Resource Identifier***
- ***Rights Management***

The remaining eight elements are optional, but recommended. Richer, more complete records increase the likelihood that database users will locate the desired digital resource.

- Publisher
- Contributor
- Type
- Source
- Language
- Relation
- Coverage
- Contributing Institution

2.4. Practical Considerations for Implementing CDP Dublin Core

2.4.1. Record for digital objects vs. Record for original objects

The CDP Metadata Working Group recommends that a new record be created when resources are converted into digital formats. Adding information about the digital resource to an existing record for the original resource is inadequate for supporting the preservation and management of the digital resource over time. Use or augmentation of existing records may be a realistic necessity for some institutions. In such cases it is strongly recommended that preservation and technical metadata be stored outside of descriptive cataloging systems. See *2.5 Emerging Trends* for more information about the importance of preservation metadata.

2.4.2. Controlled vocabularies

When entering information about digital resources, employing terminology from controlled vocabularies can improve the quality of search results through consistency and a reduction of unintended errors. 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 uncontrolled keywords. Recognizing the diverse nature of the statewide initiatives and the involvement of a broad range of cultural heritage institutions, the lists of controlled vocabularies referenced by the *CDPDCMBP* 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 Web site. 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.

2.4.3. 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 noncontrolled 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.

2.4.4. Interoperability

Interoperability is the capability that allows different computer systems to share information across a network. In a collaborative context the policies, procedures, and terminology choices local institutions make can have a large impact on the success of interoperability beyond system design. As different sectors of the cultural heritage community have generated automated collections information they have adopted unique practices and semantics for describing their resources that make interoperability more difficult. By adopting a common set of best practices, controlled vocabularies, and interoperable system architecture, institutions can increase their visibility and provide opportunities for new connections with others to serve the shared needs of constituent communities. Interoperability can also be achieved using existing systems by ensuring local practices and data can be shared using standardized metadata formats and

crosswalks (see *2.4.6. Crosswalks*). Projects selecting new systems and software should consider compliance with the following interoperability protocols:

- ANSI Z39.50 Protocol
  http://www.loc.gov/z3950/agency/
- Open Archives Initiative – Protocol for Metadata Harvesting (OAI-PMH)
  http://www.openarchives.org/

2.4.5. Character Encoding

Another important consideration for portability and interoperability of metadata is the choice of character encoding. Character encoding describes the method with which different systems represent human-readable letters, diacritics, and punctuation in computer-readable code. Project personnel should be aware of the impact character encoding has on their ability to share metadata outside of local systems. When crosswalking data (see *2.4.6. Crosswalks*) it may also be necessary to translate between character encodings in order to properly represent data in different systems (for example, when crosswalking MARC records stored in MARC-8 character encoding to a Dublin Core XML schema that requires Unicode [UTF-8]). Project managers planning on making records available through OAI harvesting protocols should avoid character encodings not supported by UTF-8 encoding (e.g., extended Latin-1 encoding frequently used in Microsoft Office products). For additional information about character encoding see "Character Encoding" in Wikipedia.[5]

2.4.6. Crosswalks

Crosswalks are processes and procedures that translate one metadata format into another metadata format.[6] Crosswalks provide the ability to create and maintain a local set of metadata and to map that metadata into any number of related metadata format standards. In order to build successful crosswalks and mapping schemes, it is important to maintain consistency within metadata standards adopted by local databases or catalogs. The following are examples of crosswalks related to the Dublin Core standard:

- Dublin Core to MARC21:
  http://www.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/fgdc2marc.html

[5] For additional information on character encoding, see "Character Encoding," Wikipedia. <http://en.wikipedia.org/wiki/Character_encoding>

[6] A thorough discussion of crosswalks is available at Margaret St. Pierre and William P. LaPlant, Jr., *Issues in Crosswalking Content Metadata Standards* (National Information Standards Organization, October 15, 1998). <http://www.niso.org/press/whitepapers/crsswalk.html> See also Murtha Baca, "Metadata Standards Crosswalk," in *Introduction to Metadata: Pathways to Digital Information* (Getty Research Institute, 1998). <http://www.getty.edu/research/conducting_research/standards/intrometadata/3_crosswalks/crosswalk1.html>

- MARC to Dublin Core: http://loc.gov/marc/marc2dc.html

2.5. Emerging Trends

Although the CDP Metadata Working Group has selected Dublin Core as the basis for these best practices, it is important to recognize that metadata standards for digital objects continue to evolve. The following section identifies a number of emerging trends that are shaping the future of digital object repositories.

2.5.1. 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, text encoded with TEI XML markup, 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 their 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 early stages of development and as of this writing has been adopted by a number of digital library projects.[7]

2.5.2. Metadata Object Descriptive Schema (MODS)

Maintained by the Library of Congress, the Metadata Object Description Schema (MODS) lies between the full MARC XML schema and Dublin Core. MODS "is a derivative of the MARC 21 bibliographic format (MAchine-Readable Cataloging) and as such includes a subset of MARC fields, using language-based tags rather than numeric ones."[8] MODS offers a more robust schema than MARC 21 for describing digital objects, particularly for bibliographic resources.

2.5.3. 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 objects are subject to change, so the change history of the object must be maintained over time to ensure its authenticity and integrity. It is important to record this information

[7] Library of Congress, *Metadata Transmission and Encoding Standard Official Website,* 16 November 2004. <http://www.loc.gov/standards/mets/>

[8] Library of Congress, *MODS User Guidelines, version 3.0.*, 23 June 2004. <http://www.loc.gov/standards/mods/v3/mods-userguide.html>

because the equipment or software required to access the digital object may no longer be available. The best practice is to capture information about the hardware, operating system, and software used 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 digital archives managers with sufficient information to maintain the digital object into the future.

In particular, preservation metadata may be 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 listed above address two functional objectives: 1) providing preservation managers with sufficient knowledge to take appropriate actions in order to maintain a digital object's integrity 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.

2.5.4. Data Dictionary: Technical Metadata for Digital Still Images (Z39.87)

The National Information Standards Institute (NISO) has also released a draft *Data Dictionary: Technical Metadata for Digital Still Images (Z39.87),* with the purpose of supporting image quality assessment and data processing needs through an image's life cycle. Elements captured by Z39.87 include spatial resolution, spatial dimensions, capture hardware and software, compression schemes, color profiles, and other metrics that define digital still images.[9] The CDP Metadata Working Group has recommended including some Z39.87 elements in the ***Digitization Specifications*** element.

2.5.5. Reference Model for an Open Archival Information System (OAIS)

The Reference Model for an Open Archival Information System (OAIS) is not a metadata standard but "is an archive, consisting of an organization of people and systems, that has accepted the responsibility to preserve information and make it available for a **Designated Community.**" The model "provides a framework for the understanding and increased awareness of archival concepts needed for long-term digital information preservation and access," and "for describing and comparing architectures and operations of existing and future archives."[10]

[9] National Information Standards Organization, *Data Dictionary: Technical Metadata for Still Images*, June 2002. <http://www.niso.org/standards/resources/Z39_87_trial_use.pdf>

[10] Consultive Committee for Space Data Systems (CCSDS), *Reference Model for an Open Archival Information System*, page 1-1, January 2002. <http://ssdoo.gsfc.nasa.gov/nost/wwwclassic/documents/pdf/CCSDS-650.0-B-1.pdf>

2.5.6. Preservation Metadata Implementation Strategies (PREMIS)

Recognizing that preservation of digital media would be a critical issue for libraries, OCLC (Online computer Library Center) and RLG (Research Libraries Group) formed a partnership to explore issues involved in implementing preservation metadata. PREMIS is based on work by RLG's Working Group on Preservation Issues of Metadata, which in May 1998 released a set of sixteen recommended metadata elements considered essential for preserving a digital master file over the long-term.[11] In 2002, the new working group released A Metadata Framework to Support the Preservation of Digital Objects.[12] In May, 2005 OCLC and RLG published Data Dictionary for Preservation Metadata: Final Report of the PREMIS Working Group.[13]

[11] http://www.oclc.org/research/projects/pmwg/
[12] http://www.loc.gov/standards/premis/
[13] http://www.oclc.org/research/projects/pmwg/premis-final.pdf

3. Using the *CDP Dublin Core Metadata Best Practices*

3.1. What's New in CDPDCMBP Version 2.1

In May 2005, the Western States Dublin Core Metadata Working Group agreed to change its name to CDP Metadata Working Group and rename this document *CDP Dublin Core Metadata Best Practices* to better reflect the input and use of the document beyond the western United States. Changes from version 2.0 to version 2.1 include editorial changes to reflect the name change and format and organizational changes to make the document easier to use.

Version 2.1 also includes major revisions made between versions 1.2 and 2.0. The majority of those changes were element definitions to further clarify their meanings and provide additional examples appropriate for cultural heritage collections.

Major changes in version 2.0 include:

- ***Format.Use*** has become ***Format*** to align use of this field with the Dublin Core Metadata Initiative element set.
- ***Format.Creation*** has become ***Digitization Specifications*** to reflect that it include additional preservation information beyond the format of the master digital object.
- ***Holding Institution*** has become ***Contributing Institution*** in order to accommodate multiple roles that digitization project partners may play. For example, one institution may physically hold the original resource, another may perform the digital imaging, and another may create metadata. Each of these factors contributes to establishing the provenance of the available resource and associated metadata.

It is not required that metadata created under versions 1.0 -1.2 be modified to reflect the changes in versions 2.0 and 2.1.

3.2. Element Descriptions

The CDPDCMBP Element descriptions include the following attributes that provide information about elements.

Description Label	Comment
Term Name	The unique name that identifies the element.
Label	The human-readable name used for public display of data.
Dublin Core Definition	A statement that represents the concept and essential nature of the element.[14]
Dublin Core Comment	Additional information about the element or its application.[15]

[14] Dublin Core Definitions and Comments in this document are taken from Dublin Core Metadata Initiative, "DCMI Metadata Terms," 14 June 2004. < http://www.dublincore.org/documents/dcmi-terms/>

CDP Comment	Additional information about the use of the element in the CDP context.
Mandatory	Specifies if the element is required by the *CDPDCMBP*.
Repeatable	Specifies whether the element may be used more than once.

Qualifiers Refinements Schemes	Lists valid qualifiers from *DCMI Metadata Element Set, version 1.1* and additional qualifiers used in the CDP context.
Input Guidelines	Provides additional guidance about entering and encoding values for the elements and qualifiers.
Notes	Additional information about the element.
Examples	Instances of how the element is used.
Maps to:	Defines relationship of the *CDPDCMBP* element to the *DCMI Metadata Element Set, version 1.1*.
CDPDC Term Modified	Indicates when revisions were last made to the *CDPDCMBP* element.

3.3. Mandatory and Optional Elements

The CDP Metadata Working Group has designated ten mandatory elements that are critical for supporting interoperability in a collaborative initiative. The mandatory elements are:

- ***Title***
- ***Creator (if available)***
- ***Subject***
- ***Description***
- ***Date Digital***
- ***Date Original (if applicable)***
- ***Format***
- ***Digitization Specifications***
- ***Resource Identifier***
- ***Rights Management***

The remaining eight elements are optional, but recommended. Richer, more complete records increase the likelihood that database users will locate the desired digital resource.

- Publisher
- Contributor
- Type
- Source

[15] Ibid.

- Language
- Relation
- Coverage
- Contributing Institution

3.4. General Input Guidelines

Metadata creators should follow the general grammatical rules of the language involved when entering descriptive information about resources. In addition, it may be useful to consult the latest version of the *Anglo-American Cataloging Rules (AACR2)*, *Describing Archives: A Content Standard (DAC)*,[16] or *Cataloging Cultural Objects (CCO)* for more information and details on general rules and guidelines for data entry. The following are a few brief comments:

3.4.1. Punctuation

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

3.4.2. 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.

3.4.3. 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. Acronyms should be entered in capital letters.

3.4.4. Initial Articles

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

3.4.5. Character Encoding

Have a clear understanding of how the database handles nonstandard characters and diacritics (such as ü, é, ñ, etc.) and input them so that they display and retrieve effectively.[17]

[16] Published in 2004, *Describing Archives: A Content Standard* is intended to supersede *Archives, Personal Papers and Manuscripts (APPM)*

[17] For additional information on Character Encoding see: "Character Encoding," Wikipedia. <http://en.wikipedia.org/wiki/Character_encoding>. Implementation of character encoding is also discussed in section *2.4.5 Character Encoding*.

3.4.6. Qualifiers

The elements described 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 CDP Metadata Working Group has adopted "Qualified" Dublin Core that consists of an element and additional qualifiers known as ***refinements*** and ***schemes***. Recommendations for using qualifiers appear along with each element description.

4. CDP Dublin Core Element Descriptions

4.1. Title

Term Name: title
Label: Title
Dublin Core Definition: The name given to the resource.
Dublin Core Comment:
Typically, a ***Title*** will be a name by which the resource is formally known.
CDP Comment:
The name given to the resource by the creator or publisher; may also be an identifying phrase or name of the object supplied by the contributing institution.
Mandatory: Yes
Repeatable: Yes
Qualifiers:
Refinements:

Refinement Name	Refinement Label	Definition
alternative	Alternative	Any form of the title used as a substitute or alternative to the formal title of the resource

Schemes: None

Input Guidelines:
1. Enter multiple titles in the order in which they appear on the resource or in order of their importance. Use separate ***Title*** elements to enter multiple titles or *clearly separate each entry* by a semicolon and a space within an 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 the title, if there is one, from the resource itself, such as a caption from a photograph or a title on a map.
3. When no title is found on the resource itself, use a title assigned by the contributing institution or found in reference sources. For more guidance in constructing titles, consult established cataloging rules such as *Anglo-American Cataloging Rules (AACR2), Describing Archives: A Content Standard (DAC),* or *Cataloging Cultural Objects (CCO).*
4. Make the title as descriptive as possible, avoiding simple generic titles such as "Papers" or "Annual report."
5. 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.
6. Capitalize only the first letter of the first word of the title or of any proper names contained within the title.
7. 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 language. Some institutions may wish to apply consistent guidelines prescribed by the Modern Language Association (MLA), *Chicago Manual of Style*, etc.

8. File names, accession numbers, call numbers, or other identification schemes should be entered in the ***Identifier*** element.
9. 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	Comments
Ancient man in North America	
Plat-of-the-Town of Grand Junction, Gunnison County, Colorado	**Title [Alternative]:** Grand Junction plat map
Buffalo	*Title from the music score "The Buffalo." Note that the initial article has been removed.*
10 & 1000	**Title [Alternative]**: Ten and one thousand
Dia de la Tierra	*Title from poster*
Untitled	*Title assigned by artist*
Aunt Jane	*Handwritten caption from photograph*
Nellie Tayloe Ross interview at the Business and Professional Women's Club (Washington (D.C.)), 1938	*Title of oral history interview--digital audio file*
Transcript of Nellie Tayloe Ross interview at the Business and Professional Women's Club (Washington (D.C.)), 1938	*Title of oral history interview--transcript of digital audio file*
Oral history interview with John Schulz	

Titles supplied by contributing institution	Comments
Sewing exercise book, Gilpin School	
United States Japanese-American relocation center papers and records, 1942-1945	
Annual report of the Jewish Consumptives' Relief Society at Denver, Colo.	
View From Grand Lake	*photograph of Grand Lake*
Bear statue in old setting	*sculpture of a bear*

Walnut rolltop desk	*photograph of a material culture object*
Portrait of an Unidentified Man	
Green and gold ceramic fruit bowl	*photograph of a material culture object*

Maps to: Dublin Core ***Title***
CDPDC Term Modified: 2006-09-21

4.2. Creator

Term Name: creator
Label: Creator
Dublin Core Definition:
An entity primarily responsible for making the content of the resource.
Dublin Core Comment:
Examples of a ***Creator*** include a person, an organization, or a service. Typically, the name of a ***Creator*** should be used to indicate the entity.
CDP Comment:
A person or entity primarily responsible for creating the intellectual content of the resource. Examples of creators include authors of written documents, artists, photographers, collectors of natural specimens or artifacts, organizations that generate archival collections, etc.
Mandatory: Yes, if available
Repeatable: Yes
Qualifiers:
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 semicolon and a space within an element. Secondary authors, editors, etc., may be entered using the ***Contributor*** element.
2. If using established cataloging rules to construct ***Creator*** elements, follow those rules. Some examples of established rules include: *Anglo-American Cataloging Rules (AACR2)*, *Describing Archives: A Content Standard (DAC)*, and *Cataloging Cultural Objects (CCO)*. If not using such rules, then use the following guidelines.
3. Determine the correct form of the name when possible. The *Library of Congress Authorities* (http://authorities.loc.gov) or 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. If a group or organization name includes subordinate units, the name may 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 Authorities* ("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 a controlled vocabulary, enter it as it appears and do not invert. For example: "Sitting Bull".
8. *Optional:* The function of a creator may be included in parentheses after the name. For example: "Adams, Ansel (photographer)."
9. If the creator is unknown, leave the element blank.

Notes:

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

Examples:

Personal Names	**Comments**
Onassis, Jacqueline Kennedy, 1929- Toulouse-Lautrec, Henri de, 1864-1901 Jeanne-Claude, 1935- Duran y Gonzalez, Juan Maria, 1899- Chavez de Aguilar, Maria Alicia Armijo Aguilar, Leopoldo	
Laozi	*Avoid other variants given in LC Authority record, such as Lao-Tzu or Po-yang Li.*
Webb, Wellington E.	
Pak, Sæong-t°aek	*Caution: remember to check how your database handles nonstandard characters such as diacritics before using them.*
Billy, the Kid	
Scroggins, C. H.	
Madonna, 1958-	*Meaning the* entertainer*; this is the form given in the* LC Authorities*; use of the name "Madonna" without the birth date may cause confusion.*
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	**Comments**
Ty, Inc.	
International Business Machines Corporation	*Avoid abbreviations such as IBM or I.B.M. unless specified in the authority record.*
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.	
University of Colorado, Boulder. Dept. of Geography	
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 Authority record 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***
CDPDC Term Modified: 2004-11-15

4.3. Subject

Term Name: subject
Label: Subject
Dublin Core Definition: A topic of the content of the resource.
Dublin Core Comment:
Typically, ***Subject*** will be expressed as keywords, key phrases, or classification codes that describe a topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.
CDP Comment:
What the content of the resource is *about* or what it *is*, expressed by headings, keywords, phrases, names, or other terms for significant people, places, and events, etc. A classification code also may be assigned.
Mandatory: Yes
Repeatable: Yes
Qualifiers:
Refinements: None
Schemes: It is strongly recommended that subject words and phrases come from established thesauri or discipline-related word lists. Established recommended schemes are given in the DCMI Dublin Core Metadata Terms.

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

Scheme Name	Scheme Label	Definition
DDC	DDC	Dewey Decimal Classification http://www.oclc.org/dewey/
LCC	LCC	Library of Congress Classification http://www.loc.gov/catdir/cpso/lcco/lcco.html [This link is to the LCC outline only.]
LCNAF	LCNAF	LC Name Authorities File http://authorities.loc.gov
LCSH	LCSH	Library of Congress Subject Headings
MESH	MeSH	Medical Subject Headings http://www.nlm.nih.gov/mesh/meshhome.html
UDC	UDC	Universal Decimal Classification http://www.udcc.org [This link is to the UDC outline & subscription information.]

Other established thesauri or word lists include, but are not limited to:		
Scheme Name	**Scheme Label**	**Definition**
AASL	AASL	Asian American Studies Library subject headings

AAT	AAT	Art and Architecture Thesaurus http://www.getty.edu/research/conducting_research/vocabularies/aat/
AMG	AMG	Audiovisual Materials Glossary (AMG)
ATLA	ATLA	Religion Indexes Thesaurus
CHT	CHT	Chicano Thesaurus for Indexing Chicano Materials
ERICD:	ERICD:	Thesaurus of ERIC Descriptors http://www.ericfacility.net/extra/pub/thessearch.cfm
FAST	FAST	Faceted Application of Subject Terminology http://fast.oclc.org/
GEOREFT	GEOREFT	GEORef Thesaurus
GMGPC	GMGPC	Thesaurus for Graphic Materials: TGM II, Genre and Physical Characteristic Terms http://www.loc.gov/rr/print/tgm2/
GSAFD	GSAFD	Guidelines on Subject Access to Individual Works of Fiction, Drama, etc.
LCSHAC	LCSHAC	LC Subject Headings: Annotated Card Program (Children's headings)
LCTGM	LCTGM	Thesaurus for Graphic Materials: TGM I, Subject Terms http://www.loc.gov/rr/print/tgm1/
Local	Local	Locally controlled list of terms
MIM	MIM	Moving Image Materials: Genre terms
NALAT	NALAT	NAL Agricultural Thesaurus http://agclass.nal.usda.gov/agt/agt.htm
NASAT	NASAT	NASA Thesaurus http://www.sti.nasa.gov/thesfrm1.htm
NICEM	NICEM	NICEM (National Information Center for Educational Media) Thesaurus For order info, see http://www.nicem.com/
NIMACSC	NIMACSC	NIMA Cartographic Subject Categories
NLMC	NLMC	NLM Classification http://wwwcf.nlm.nih.gov/class/
NMC	NMC	Revised Nomenclature for Museum Cataloging: a revised and expanded version of Robert C. Chenhall's system for classifying man-made objects.
NTISSC	NTISSC	NTIS Subject Categories http://grc.ntis.gov/grcdbg.pdf
RBGENR	RBGENR	Genre Terms: A Thesaurus for Use in Rare Books and Special Collections
Sears	Sears	Sears Subject Headings
TEST	TEST	Thesaurus of Engineering and Scientific Terms
TGN	TGN	Getty Thesaurus of Geographic Names http://www.getty.edu/research/conducting_research/vocabularies/tgn/
WATREST	WATREST	Thesaurus of Water Resources Terms

Input Guidelines:

1. Enter multiple subjects or classification codes 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 semicolon and a space within an element.
2. Use subject terms from established thesauri and classification schemes.
3. To determine the subject, use the title, description, and resource itself.
4. Enter subjects taken from different schemes or thesauri in separate ***Subject*** elements.
5. Identify applicable schemes or thesauri in the ***Subject*** element or label using standardized abbreviations such as those from the *MARC Code List: Part IV: Term, Name, Title Sources* (http://www.loc.gov/marc/relators/relasour.html#rela600b).
6. Use specific or unique words rather than more general words (Example: If the object is a picture of lilies, use the term "Lilies" instead of "Flowers"; if the object is a field of wild flowers, use the term "Wild flowers" instead of "Flowers.")
7. Subjects may be personal or organization names as well as topics, places, genres, forms, and events.
8. ***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.
9. Have a clear understanding of how the database handles nonstandard characters and diacritics (such as ü, é, ñ, etc.) and input them so that they display and retrieve effectively.
10. If the subject is a person or organization, use the same form of name as if the person or organization were a ***Creator***.

Notes:

1. Subjects are different from the very the broad categories found in the ***Type*** element. A digital image that is a photograph could be given the subject genre 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. Repeat these names in the ***Subject*** element only if the 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	Subject Scheme/Comment
Missionaries – Biographies	ATLA
Islamic revival	ATLA
Heaven's Gate (Sect)	ATLA
Indians of North America – Religion	ATLA, LCSH
Territorial style	AAT

966.905	DDC *History and geography of Nigeria after 1960*
Camera obscura works	GMGPC
Metalpoint drawings	GMGPC
Protest posters	GMGPC
Northwind, Chief	LCNAF
F782.L2	LCC *United States local history—Colorado—Larimer County*
Villa, Pancho, 1878-1923	LCNAF
Polastron, Marie-Louise d'Esparbès de Lussan, vicomtesse de, 1764-1804	LCNAF
Beanie babies (Stuffed animals)	LCSH
Indians of North America	LCSH
Arapahoe County (Colo.) – Map	LCSH
Student protesters – Posters	LCSH
Peace movements – Posters	LCSH
Saddlery	LCSH
Atomic bomb	LCSH
Bibionidae – Southern States	LCSH *(a.k.a. Lovebugs)*
Breast – Cancer	LCSH
Leptocoris trivittatus	LCSH *(a.k.a. Box-elder bug)*
Camera obscuras	LCSH, AAT
Bookmarks	LCSH, GMGPC
Deer – Florida	LCSH, LCTGM
Coal miners – West Virginia – Jackson County	LCSH, LCTGM
Saddles	Local
Lovebugs – Southern States	Local
Box-elder bug	Local
Horse & buggy	Local
9-11	Local
Breast Neoplasms	MeSH
Animal parasites and pests	NALAT
Vocal music	NICEM
Rocky Mountain states	NICEM
Soil erosion	NICEM
WZ 260	NLMC *History of medicine—Early Printed Books—XVIII Century*

Maps to: Dublin Core ***Subject***
CDPDC Term Modified: 2004-07-21

4.4. Description

Term Name: description
Label: Description
Dublin Core Definition: An account of the content of the resource.
Dublin Core Comment:
Description may include but is not limited to: an abstract, a table of contents, reference to a graphical representation of content, or a free-text account of the content.
CDP Comment:
Descriptive comments about the original object that cannot be observed in the digital resource should be entered in the ***Source*** element.
Mandatory: Yes
Repeatable: Yes
Qualifiers:
Refinements:

Refinement Name	Refinement Label	Definition
abstract	Abstract	A summary of the content of the resource
tableOfContents	Table of Contents	A list of subunits of the content of the resource

Schemes: None

Input Guidelines:
1. Enter multiple descriptions in the order of their importance. Use separate ***Description*** elements to enter multiple descriptions or *clearly separate each entry* by a semicolon and a space within an element.
2. Enter descriptive text, remarks, and comments about the digital object. This information can be taken from the object or provided by the contributing institution.
3. Enter here specialized information not included in other elements, for example, description, technique, and distinguishing features if observable in the digital object and inscriptions.

Examples:

Description	Comments
Horse and buggy, in front of the J.C. Penney store, Longmont, Colorado, ca. 1901.	
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 solider.	*Description of a poster.*
Off-white wedding dress that belonged to Flora Anfenger Hornbein who married Philip Hornbein in 1905.	
Sheet music originally published by Head Music, New York, 1911.	*Description of sheet music.*

Description [Abstract]	Comment
A collection of 225 posters from the 9th Colorado International Invitational Poster Exhibition, held 1995 in Fort Collins, Colorado.	
Description [Table of Contents]	**Comment**
Title page. Prefatory. Preparatory. Southwest Kansas and the Arkansas Valley. What the Government Reports Show. Government Land Office Statistics. The Arkansas Valley. The Old and the New. Pawnee Rock and its Inscriptions. In and About Kinsley. Wheat Raising. Wool Growing. Cattle Raising. In the Mountains. Cañon City and Vicinity. Oak and Oil Creek Cañons. The Grand Cañon of the Arkansas. The Hayden Survey. Ouray to South Arkansas. Twin Lakes and Mount of the Holy Cross. Manitou and Colorado Springs. Idaho and Chicago Lakes. Long's Peak and Estes Park. The Climate of Colorado. Mineral Springs. The San Juan Mining Districts. From Del Norte to Lake City. The Summit Gold District. San Miguel to Mount Sneffles. Expense of the San Juan Trip. Cost of Miners' Outfit. The Elk Mountain District. The Sangre de Cristo District. The Chalk Creek District. The California Gulch District. Hunting and Fishing. Prairie and Water Fowl. Trout and Grayling.	*Table of Contents* for New Rocky mountain tourist, Arkansas valley and San Juan guide. The tour through the grain districts of the Arkansas valley.

Maps to: Dublin Core ***Description***
CDPDC Term Modified: 2004-07-21

4.5. Publisher

Term Name: publisher
Label: Publisher
Dublin Core Definition: An entity responsible for making the resource available.
Dublin Core Comment:
Examples of a ***Publisher*** include a person, an organization, or a service. Typically, the name of a publisher should be used to indicate the entity.
CDP Comment:
An 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, project, repository, etc.
Mandatory: No
Repeatable: Yes
Qualifiers:
Refinements: None
Schemes: None

Input Guidelines:

1. Enter multiple publishers in the order in which they appear on the resource or in order of their importance. Use separate ***Publisher*** elements to enter multiple publishers or *clearly separate each entry* by a semicolon and a 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 entered in the ***Source*** element. If a publisher of an earlier form is considered important to users and therefore for resource discovery, include it in a ***Contributor*** element.
3. When in doubt about whether an entity is a publisher or a creator, enter a corporate entity as ***Publisher*** and a personal name as ***Creator***.
4. Use of authority files, such as *Library of Congress Authorities* (http://authorities.loc.gov) is encouraged.
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 *Library of Congress Authorities* ("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**	**Comment**
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	These are publishers of the digital object.
Contributor **element**	**Comment**
Caxton Printers	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.
Source **element**	**Comment**
Excerpt from the book Cavalry Wife: the diary of Eveline M. Alexander, 1866-1867, Texas A&M University Press, 1977, ISBN 0890960259	Describes publication information of original source from which digital object was derived.

Maps to: Dublin Core ***Publisher***
CDPDC Term Modified: 2004-07-21

4.6. Contributor

Term Name: contributor
Label: Contributor
Dublin Core Definition:
An entity responsible for making contributions to the content of the resource.
Dublin Core Comment:
Examples of a ***Contributor*** include a person, an organization, or a service. Typically, the name of a ***Contributor*** should be used to indicate the entity
CDP Comment:
The 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
Qualifiers:
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 semicolon and a 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); *Describing Archives: A Content Standard (DAC),* and *Cataloging Cultural Objects (CCO).* If not using such rules, then use the following guidelines.
3. Determine the correct form of the name when possible. *Library of Congress Authorities* (http://authorities.loc.gov) or 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. If a group or organization name includes subordinate units, the name may 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 Authorities* ("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 a controlled vocabulary, enter it as it appears and do not invert. For example: "Sitting Bull."
8. *Optional:* The function of a contributor may be included in parentheses after the name. For example: "Rockwell, Norman, 1894-1978 (illustrator)."

Notes:

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

Examples:

Personal Names	**Comments**
Onassis, Jacqueline Kennedy, 1929- Toulouse-Lautrec, Henri de, 1864-1901 Jeanne-Claude, 1935- Duran y Gonzalez, Juan Maria, 1899- Chavez de Aguilar, Maria Alicia Armijo Aguilar, Leopoldo	
Laozi	*Avoid other variants given in LC Authority record, such as Lao-Tzu or Po-yang Li.*
Webb, Wellington E.	
Pak, Sæong-t°aek	*Caution: remember to check how your database handles nonstandard characters such as diacritics before using them.*
Billy, the Kid	
Scroggins, C. H.	
Madonna, 1958-	*Meaning the* entertainer*; this is the form given in the* LC Authorities*; use of the name "Madonna" without the birth date may cause confusion.*
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	**Comments**
Ty, Inc.	
International Business Machines Corporation	*Avoid abbreviations such as IBM or I.B.M. unless specified in the authority record.*
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.	
University of Colorado, Boulder. Dept. of Geography	
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 Authority record 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 ***Contributor***
CDPDC Term Modified: 2004-11-15

4.7. Date Original

Term Name: dateOriginal
Label: Date Original
Dublin Core Definition: none
Dublin Core Comment: none
CDP Comment:
Creation or modification dates for the *original* resource from which the digital object was derived or created.
Mandatory: Yes, if applicable
Repeatable: Yes
Qualifiers:
Refinements:

Refinement Name	Refinement Label	Definition
created	**Created**	Date of creation of the resource
valid	**Valid**	Date (often a range) of validity of a resource
available	**Available**	Date (often a range) that the resource will become or did become available
issued	**Issued**	Date of formal issuance (e.g., publication) of the resource
modified	**Modified**	Date on which the resource was changed

Schemes:

Scheme Name	Scheme Label	Definition
W3CDTF	W3C-DTF	World Wide Web Consortium encoding rules for dates and times http://www.w3.org/TR/NOTE-datetime.html
Period	DCMI Period	A specification of the limits of a time interval 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 semicolon and a space within an element.
2. Enter dates in the form "YYYY-MM-DD" in accordance with the W3C Date Time Format (W3C-DTF) encoding scheme. Use a single hyphen to separate the year, month, and date components:
    a. Year: YYYY ("1897" for the year 1897))
    b. Year and month: YYYY-MM ("1897-07" for July 1897))
    c. Complete date: YYYY-MM-DD ("1897-07-16" for July 16, 1897)
3. For a range of dates, enter the dates in accordance with the DCMI Period encoding scheme, separating them with a space, hyphen, space, as in "1910 - 1920."

4. Follow dates with a question mark ("1997?") to show a date is approximate or a circa date.
5. Enter dates for different purposes in separate ***Date Original*** elements; i.e., date resource created and date modified.

Notes:

1. Enter dates pertaining to the *digitized* version of the resource under the ***Date Digital*** element**.**
2. Include other date information about the original resource in the ***Coverage***, ***Description*** or ***Source*** elements as appropriate.

Examples:

Date Original [W3CDTF]	**Comments**
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
1998-06-15	Creation date for letter written on June 15, 1998
1925?	Approximate year photograph taken or circa date
2000-06-15	Original date for a slide created on June 15, 2000, of a clay pot (archeological artifact). *Note: further date information pertaining to the creation of the slide can be included in the* ***Description*** *element.*
Date Original [DCMI Period]	**Comments**
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

Maps to: Dublin Core ***Date***
CDPDC Term Modified: 2004-07-21

4.8. Date Digital

Term Name: dateDigital
Label: Date Digital
Dublin Core Definition: A date of an event in the life cycle of the resource.
Dublin Core Comment:

Typically, ***Date [Digital]*** will be associated with the creation or availability of the resource. Recommended best practice for encoding the date value is defined in a profile of ISO 8601 [W3C-DTF] and follows the YYYY-MM-DD format.

CDP Comment:

Date of creation or availability of the *digital* resource. The contributing institution may approximate the date a resource was digitized.

Mandatory: Yes
Repeatable: Yes
Qualifiers:

Refinements:

Refinement Name	Refinement Label	Definition
created	**Created**	Date of creation of the resource
valid	**Valid**	Date (often a range) of validity of a resource
available	**Available**	Date (often a range) that the resource will become or did become available
issued	**Issued**	Date of formal issuance (e.g., publication) of the resource
modified	**Modified**	Date on which the resource was changed

Schemes:

Scheme Name	Scheme Label	Definition
W3CDTF	W3C-DTF	World Wide Web Consortium encoding rules for dates and times http://www.w3.org/TR/NOTE-datetime.html
Period	DCMI Period	A specification of the limits of a time interval 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 Digital*** elements to enter multiple dates or *clearly separate each entry* by a semicolon and a space within an element.
2. Enter dates in the form "YYYY-MM-DD" in accordance with the W3C Date Time Format (W3C-DTF) encoding scheme. 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 dates in accordance with the DCMI Period encoding scheme, separating them with a space, hyphen, space, as in "2002 - 2004."
4. Enter dates for different purposes in separate ***Date Digital*** elements; i.e., date resource created and date first issued.
5. Follow dates with a question mark ("1997?") to show a date is approximate, or a circa date**.**

Notes:

1. Enter dates pertaining to the *original* version of the resource under the ***Date Original*** element.
2. 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:

Date Digital [W3C-DTF]	**Comments**
2004-04-05	Digital object created April 5, 2004
2002	Date for digitized article reprint: reprinted 1948; digitized 2002
1996	Date with only year known
1996-04	Date with only month and year known
Date Digital [DCMI Period]	**Comments**
1996-04-01 - 1996-04-30	Date span

Maps to: Dublin Core ***Date***
CDPDC Term Modified: 2004-07-21

4.9. Type

Term Name: type
Label: Resource Type
Dublin Core Definition: The nature or genre of the content of the resource.
Dublin Core Comment:
Type includes terms describing general categories, functions, genres, or aggregation levels for content. Recommended best practice is to select a value from a controlled vocabulary (for example, the DCMI Type Vocabulary [DCMITYPE]). To describe the physical or digital manifestation of the resource, use the ***Format*** element.
CDP Comment:
Best practice for CDP metadata is to use only the DCMI Type Vocabulary.
Mandatory: No
Repeatable: Yes
Qualifiers:
Refinements: None
Schemes:

Scheme Name	Scheme Label	Definition
DCMIType	DCMI Type Vocabulary	DCMI Type Vocabulary http://dublincore.org/documents/dcmi-type-vocabulary/

Input Guidelines:
1. Some digital objects may involve more than one type, e.g., 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 semicolon and a space within an element.

Notes:
1. Note that digital representations of three-dimensional objects should use the designations "Image," "Text," or one of the other types from the DCMI Type Vocabulary. Use of the term "Physical Object" is limited to databases of only physical objects, not their digital surrogates.
2. In 2003, DCMI recommended the use of the narrower terms "Still Image" or "Moving Image" in addition to the broader term "Image."

Examples:

DCMI Type Vocabulary	Comments
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
Still Image	photograph, painting, drawing, graphic design, plan, and map
Moving Image	animation, movie, television program, video
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, manuscript, music score; Note that page images are text
Physical Object	Museum piece, architectural structure, monument

Maps to: Dublin Core ***Type***
CDPDC Term Modified: 2004-07-21

4.10. Format (formerly Format.Use)

Term Name: format
Label: Format
Dublin Core Definition: The physical or digital manifestation of the resource.
Dublin Core Comment:

Typically, ***Format*** may include the media type or the dimensions of the resource. ***Format*** may be used to describe the software, hardware, or other equipment needed to display or operate the resource. Examples of dimensions include size and duration. Recommended best practice is to select a value from a controlled vocabulary (for example, the list of Internet Media Types [MIME] defining computer media formats).

CDP Comment:

Use the ***Format*** element to record the Internet Media Type (IMT scheme). Use the Extent refinement to record a resource's file size and/or duration. Use the Medium refinement to describe an item's physical (as opposed to its digital) nature. The ***Format*** element is reserved for describing the *access* file only (be it image, audio, or video). Technical metadata relating to the digitization process (i.e., scanner model, scanner resolution, color schemes, file size of the *master* file, etc.) should be recorded in the ***Digitization Specifications*** element.

Mandatory: Yes
Repeatable: Yes
Qualifiers:

Refinements:

Refinement Name	Refinement Label	Definition
extent	**Extent**	The size or duration of the resource
medium	**Medium**	The material or physical carrier of the resource

Schemes:

Scheme Name	Scheme Label	Definition
IMT	IMT	Internet Media Type http://www.iana.org/assignments/media-types/

Input Guidelines:

1. Some digital objects may involve more than one format, for example, an oral history interview may have audio formats and text format transcriptions. Use separate ***Format*** elements to enter multiple formats or *clearly separate each entry* by a semicolon and a space within an element.
2. Enter formats for different purposes as separate ***Format*** elements, i.e., separate file size and duration entries.
3. Select electronic format terms from the Internet Media Types (IMT) standardized list, also known as MIME types.
4. Record the file size as bytes (e.g., 3,000,000 bytes) and not as kilobytes (Kb), megabytes (Mb), etc.
5. For audio and video file formats include the duration (i.e., play time) of the resource.

6. 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 that is usually attached to files of this format. See "audio/WAV" example below.

Notes:

1. Many local systems may not routinely capture format information. If not, this metadata may be inserted automatically by technical staff at the time of metadata sharing, as long as the same digital formats were created consistently throughout digitization projects.
2. The ***Format*** element may influence a user's decision to access the described resource. When the resource being described requires the use of software, hardware, or other infrastructures that are external to the resource itself, record that information in the ***Relation [Requires]*** element. For example, if a Dublin Core record for the digitized version of a hand-written letter is delivered to the user as a PDF file, Adobe Acrobat Reader (which is external to the resource being described) is required to view that PDF file. In this scenario, the metadata would be entered as follows:

   Format [IMT]: application/pdf
   Format [Extent]: 7,500,000 bytes
   Relation [Requires]: Adobe Acrobat Reader

   An MP3 audio file requiring Real Audio for listening would have the following metadata:

   Format [IMT]: audio/mp3
   Format [Extent]: 3,200,000 bytes
   Format [Extent]: 5 minutes
   Relation [Requires]: Real Audio Player

Examples:

Format [Extent]	Comment
3,000,000 bytes	file size for a 3 megabyte file
1 minute	play time for a digital audio file

Format [Medium]	Comment
DVD	describes the physical carrier of the resource
oil on canvas	describes the physical nature/material of the resource
linen with beads	describes the physical nature/material of the resource

Format [IMT]	Comment

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/wav	sound file in WAV format (See Input Guideline 6 of section 4.10 for explanation of new media types)

Maps to: Dublin Core ***Format***
CDPDC Term Modified: 2006-09-21

4.11. Digitization Specifications (formerly Format.Creation)

Term Name: digSpecs
Label: Digitization Specifications
Dublin Core Definition: None
Dublin Core Comment: None
CDP Comment:

Use the ***Digitization Specifications*** element to record technical information about the hardware, software, and processes used to create the digitized resource. Include information such as scanner model, scan resolution, color profiles, compression schemes, size of *master* file (sometimes referred to as archival file), etc. This element is primarily intended for use at the local level. Use the ***Format*** element to record information about the *access* file.

This element is free text, and is not based on 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. For more information see *2.5 Emerging Trends,* above.

Mandatory: Yes
Repeatable: Yes
Qualifiers:

Refinements: None
Schemes: None

Input Guidelines:

1. Most digital objects will include multiple digitization specifications. Use separate ***Digitization Specifications*** elements to enter multiple specifications or *clearly separate each entry* by a semicolon and a space within an element.
2. Refer to NISO document Z39.87-2002, *Data Dictionary: 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 focuses on visual resources, but many of the technical metadata elements would apply to any digital file.
3. See also the Collaborative Digitization Program's *Digital Audio Best Practices* (http://www.cdpheritage.org/resource/audio/) for how to record technical metadata for audio files.
4. An excellent print resource for more information is Maggie Jones and Neal Beagrie's *Preservation Management of Digital Materials: A Handbook* (British Library, 2001). It is also available online at http://www.dpconline.org/graphics/handbook/index.html.

5. The following are some important technical details of digital file creation that are worth recording. These details are not included in any of the other elements in this document:

   Strongly Recommended:
   a. File size for master file - The number of bytes as provided by the computer system. Best practice is to record the file size as bytes (e.g., 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. Compression - Electronic format or compression scheme used for optimized storage and delivery of digital object. This information often supplements the *Format* element.

   d. Extent of master file - Pixel dimensions, pagination, spatial resolution, play time, or other measurements of the physical or temporal extent of the digital object.

   Recommended:
   e. 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.

   f. 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.

   g. Creation software - Name and version number of the software used to create the digital object.

   h. Preferred presentation - Designation of the device, application, medium, or environment recommended for optimal presentation of the digital object.

   i. 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. Statement about methods of deriving checksum.

   j. 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.

   k. 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 especially useful when different persons generated multiple versions of the object’s content.

6. The contributing institution of the digital object may create and manage each of these elements as separate database fields.

   Note:
   Other useful creation information about the digital file creation, 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:

Digitization Specifications	Comment
3,000,000 bytes	file size for *master* file format
24 bits	bit depth of *master* file format
600 ppi	spatial resolution of *master* file format
CCITT Group 4	lossless TIFF compression algorithm used in *master* file format
00:15:25	duration of *master* file format
2224446888	checksum value for a 1,001,000 byte file
Epson 1640XL	Scanner hardware
PhotoshopCS	Creation software

Examples for populating an element for digitized audio:

Master file: audio/wav; 16,935,568 bytes; 6 minutes, 24 seconds.
Computer Hardware: 3 Intel Celeron 1.8GHz/224 MB RAM PCs manufactured by PowerSpec, each with a Firewire hard drive (2 manufactured by MicroNet, and 1 by LaCie); M-Audio Delta Audiophile internal sound card; External Firewire Hard Drive;
Analog to Digital Converter: Prism Sound Dream ADA-8XR; Prism Sound Dream AD-2;
Analog Playback Equipment: Nakamichi Dragon, Nakamichi Cassette Deck 1;
Operating System: Windows XP;
Capture and editing software: Steinberg Wavelab 4.0;
Formatting software: Sony Soundforge.

Maps to: Dublin Core ***Description***
CDPDC Term Modified: 2006-09-21

4.12. Resource Identifier

Term Name: identifier
Label: Resource Identifier
Dublin Core Definition: An unambiguous reference to the resource within a given context.
Dublin Core Comment:
Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. Formal identification systems include the Uniform Resource Identifier (URI) (including the Uniform Resource Locator [URL]), the Digital Object Identifier (DOI), the International Standard Book Number (ISBN), and the International Standard Serial Number (ISSN).
CDP Comment:
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 accessed, managed, stored, recalled, and used reliably. Input the ISSN, ISBN, other international standard numbers, and local naming conventions that describe the original in ***Source***.
Mandatory: Yes
Repeatable: Yes
Qualifiers:
Refinements: None
Schemes:

Scheme Name	Scheme Label	Definition
URI	URI	Uniform Resource Identifier http://www.ietf.org/rfc/rfc2396.txt

Input Guidelines:
1. Enter multiple identifiers in order of their importance. Use separate ***Identifier*** elements to enter multiple identifiers or *clearly separate each entry* by a semicolon and a 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) or the Digital Object Identifier (DOI).
3. For multipiece, multipart 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: None

Examples:

Element Value	Definition
DOI:10.1219/10223954	Digital Object Identifier (DOI) for an image of the *Mona Lisa*
http://jsr.lib.virginia.edu/	URL for *Journal of Southern Religion*

For further examples, see the Library of Congress's *Naming Conventions For Digital Resources* at http://www.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***
CDPDC Term Modified: 2004-07-21

4.13. Source

Term Name: source
Label: Source
Dublin Core Definition: A reference to a resource from which the present resource is derived.
Dublin Core Comment:
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.
CDP Comment:
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
Qualifiers:
Refinements: None
Schemes:

Scheme Name	Scheme Label	Definition
URI	URI	Uniform Resource Identifier http://www.ietf.org/rfc/rfc2396.txt

Input guidelines:

1. Enter multiple source information in order of their importance. Use separate ***Source*** elements to enter multiple sources or *clearly separate each entry* by a semicolon and a space within an element. Usually there will be only one 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 [IsVersionOf***] — 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 a formal identification system (such as 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, or 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.
2. In general, include information about a previous version which does not fit easily into ***Relation*****.**

Examples:

Source	Comments
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	Digitized reproduction of a handwritten letter described in ***Source*** element
Original version: 35 mm slide of a Van Briggle dark blue vase, slide no. 101 in the Modern Pottery Slide Collection, San Francisco Institute of Art.	Digitized image from an original slide described in ***Source*** element
Excerpted from: 30 minute audio cassette recording of Galway Kinnell, reading from his poems, at Southern Connecticut State University, April 6, 1987	Digitized audio clip taken from a audio cassette recording described in ***Source*** element
Original artifact: Red Raku Ware Tea Bowl, 3 3/8 x 5 1/2 inches, Metropolitan Museum of Art, New York, Accession No. 98-234	Textual description
Original format: First Road West: The Oregon Trail Through Wyoming (Cheyenne, Wyo. : Wyoming Recreation Commission, 1976) 1 videocassette (48 min.) : sd., col. ; 1/2 in. F597.F47 1976 (Univ. of Wyoming Libraries)	Textual description
http://www.library.edu/record=3363607	URL for a MARC record that describes the original resource
Originally published as: Geek Love (New York: Warner Books, 1990), ISBN: 0446391301, 355 p.	Digitized version of a published book described in ***Source*** element

Original book: Fisher, Vardis. God or Caesar?: the Writing of Fiction for Beginners (Caldwell, Idaho Caxton Printers, 1953), 271 p. PN3355.F5 (Library of Congress)	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
Reproduction of: Red Cross Emblem poster, University of Winchester, World War II Poster Collection.	Textual description

Maps to: Dublin Core ***Source***
CDPDC Term Modified: 2004-07-21

4.14. Language

Term Name: language
Label: Language
Dublin Core Definition:
A language of the intellectual content of the resource.
CDP Comment:
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
Repeatable: Yes
Qualifiers:
Refinements: None
Schemes:

Scheme Name	Scheme Label	Definition
ISO639-2	ISO 639-2	Codes for the Representation of Names of Languages, Part 2 http://www.loc.gov/standards/iso639-2/englangn.html

Input Guidelines:

1. A resource may include multiple languages. Use separate ***Language*** elements to enter multiple languages or *clearly separate each entry* by a semicolon and a space within an element.
2. Indicate language using three-letter language codes defined by ISO 639-2. 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."

Notes:

1. These guidelines deliberately omit the option authorized by the Dublin Core Metadata Initiative to use the RFC3066 scheme that includes country codes in combination with the language codes as in "en-UK" for "English, United Kingdom" or "en-US" for "English, United States." RFC3066 is defined at http://www.faqs.org/rfcs/rfc3066.html

Examples:

Language code	Definition
spa	Spanish
eng	English
ger	German

yid	Yiddish

Maps to: Dublin Core ***Language***
CDPDC Term Modified: 2004-07-21

4.15. Relation

Term Name: relation
Label: Relation
Dublin Core Definition: A reference to a related resource
Dublin Core Comment:
Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.
CDP Comment:
The element contains information necessary to show a relationship with another resource. A relationship may be multidirectional (i.e., a record may reference one or more other related resources). There may also be a one-directional relationship, even though a refinement may exist to show reciprocity (e.g., the use of ***Relation [Requires]*** does not necessitate the use of ***Relation [Is Required By]*** in another record). The relationship may be one of intellectual content variation (***Is Version Of/Has Version***), part-to-whole (***Is Part Of/Has Part***), citation/reference (***References/Is Referenced By, Conforms To***), substitution (***Replaces/Is Replaced By***), format variation (***Has Format/Is Format Of***), or dependency (***Requires/Is Required By***).

The element may consist of textual information about the related resource relevant to the specific refinement; it may also consist of an identifier, such as a URI, for linking directly to the other resource.
Mandatory: No
Repeatable: Yes
Qualifiers:
Refinements: Use one of the following refinements to explain the nature of the relationship between the described resource (i.e., the resource being described by the metadata record) and the related resource being referred to in the ***Relation*** element. The refinement is included in the element encoding; *do not repeat it in the element value*.

Refinement Name	Refinement Label	Comment
isVersionOf	*Is Version Of*	The described resource is a version, edition, or adaptation of the referenced resource. Changes in version imply substantive changes in content rather than differences in format.
hasVersion	*Has Version*	The described resource has a version, edition, or adaptation, namely the referenced resource.
isReplacedBy	*Is Replaced By*	The described resource is supplanted, displaced, or superseded by the referenced resource.
replaces	*Replaces*	The described resource supplants, displaces, or supersedes the referenced resource.

isRequiredBy	*Is Required By*	The described resource is required by the referenced resource, either physically or logically.
requires	*Requires*	The described resource requires the referenced resource to support its functionality, delivery, or coherence of content.
isPartOf	*Is Part Of*	The described resource is a physical or logical part of the referenced resource.
hasPart	*Has Part*	The described resource includes the referenced resource either physically or logically.
isReferencedBy	*Is Referenced By*	The described resource is referenced, cited, or otherwise pointed to by the referenced resource.
references	*References*	The described resource references, cites, or points to the referenced resource.
isFormatOf	*Is Format Of*	The described resource is the same intellectual content of the referenced resource, but presented in another format.
hasFormat	*Has Format*	The described resource *pre-existed* the referenced resource, which is essentially the same intellectual content presented in another format.
conformsTo	*Conforms To*	A reference to an established standard to which the resource conforms.

Schemes:

Scheme Name	Scheme Label	Definition
URI	URI	Uniform Resource Identifier http://www.ietf.org/rfc/rfc2396.txt

Input guidelines:

1. Use separate ***Relation*** elements to enter multiple relations or *clearly separate each entry* by a semicolon and a space within an element.
2. A resource may relate to another resource in a variety of ways that can be described by using more than one ***Relation*** element. For example, the same resource can be a *part* of a larger resource while simultaneously containing a smaller resource within itself; it can be a more recent version of one resource and be superceded by another. A resource can be a different version of another resource, or contain the same intellectual content as another resource, but be in a different format.
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:

Relation [Refinement]	Relation Entry	Comments
Relation [Is Version Of]	Second ed.	Another edition of same work
Relation [Is Part Of]	Library Journal v. 127, no. 9 (May 15, 2002) p. 32-4	The described resource *is* the article and nothing else
Relation [Has Part]	Library Journal v. 127, no. 9 (May 15, 2002) p. 32-4	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
Relation [Is Part Of]	Jack and Charmian London correspondence and papers, 1894-1953. Utah State University Special Collections & Archives, MSS COLL 10	
Relation [Is Part Of]	Frank Waters Papers, University of New Mexico General Library	
Relation [Is Version Of]	Adaptation of the play Death of a Salesman by Arthur Miller	
Relation [Has Version:]	Collection of recorded fairy tales read from various sources including: Babar the King (New York: Random House, 1935)	
Relation [Is Part Of]	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 [Is Format Of]	Digital reproduction of the poster Wildflowers Amuk, City Museum of Wildflowers, New York.	
Relation [Is Format Of]	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 [Is Format Of]	Transcript of oral history interview with Nellie Tayloe Ross at the Business and Professional Women's Club (Washington (D.C.)), 1938	
Relation [References]	American Culture Series II	The described resource is an index to the series
Relation [Is Referenced By]	The New Sabin, v. 1, no. 333. ISBN 0878750495	
Relation [Replaces]	Western States Dublin Core Metadata Best Practices, version 1.2, January 2003	
Relation [Is Replaced By]	Western States Dublin Core Metadata Best Practices, version 2.0, April 2004	
Relation [Requires]	Adobe Acrobat Reader, version 6.0	
Relation [Requires]	Windows Media Player, RealPlayer or Apple QuickTime	
Relation [Is Part Of]	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
Relation [Conforms To]	Encoded Archival Description, Version 2002	Record for an archival finding aid encoded as EAD XML

Maps to: Dublin Core ***Relation***
CDPDC Term Modified: 2006-09-21

4.16. Coverage

Term Name: coverage
Label: Coverage
Dublin Core Definition: The extent or scope of the content of the resource.
Dublin Core 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]) that, where appropriate, uses named places or time periods in preference to numeric identifiers such as sets of coordinates or date ranges.
CDP Comment:
Coverage 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
Qualifiers:
Refinements:

Refinement Name	Refinement Label	Definition
spatial	Spatial	Spatial characteristics of the intellectual content of the resource
temporal	Temporal	Temporal characteristics of the intellectual content of the resource

Schemes:

Spatial Schemes		
Scheme Name	**Scheme Label**	**Definition**
TGN	TGN	*Thesaurus of Geographic Names* http://www.getty.edu/research/conducting_research/vocabularies/tgn/
Point	DCMI Point	Encoding for geographic coordinates to locate a point in space http://dublincore.org/documents/dcmi-point/

Box	DCMI Box	Encoding for geographic limits to define a region of space http://dublincore.org/documents/dcmi-box/
ISO3166	ISO 3166	Codes for the representation of names of countries and their subdivisions http://www.iso.org/iso/en/ISOOnline.frontpage

Temporal Schemes		
Scheme Name	**Scheme Label**	**Definition**
Period	DCMI Period	DCMI Period http://dublincore.org/documents/dcmi-period/

Other Spatial Schemes available, but not recommended by DCMI		
Scheme Name	**Scheme Label**	**Definition**
GNIS	GNIS	Geographic Name Information System http://geonames.usgs.gov/index.html
OSGRS	OSGRS	Ordnance Survey Grid Reference System http://sewhgpgc.co.uk/os.php
Other schemes available, but not recommended by DCMI		
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 semicolon and a 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)*, *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 areal features *[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 User Guide 6*, Reston, VA. 1996. http://geonames.usgs.gov/gnis_users_guide_descripdbs.html).

   Enter coordinates as "DDDMMSSXDDDMMSSX" 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 two

spaces are provided for latitude and three spaces for longitude degrees. 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. Follow dates with a question mark ("1997?") to show a date is approximate, or a circa date.

Notes: None

Examples:

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

Maps to: Dublin Core ***Coverage***
CDPDC Term Modified: 2004-07-21

4.17. Rights Management

Term Name: rights
Label: Rights Management
Dublin Core Definition: Information about rights held in and over the resource.
Dublin Core Comment:
Typically, a ***Rights Management*** element will contain a rights management statement for the resource, or reference a service providing such information. Rights information often encompasses intellectual property rights (IPR), copyright, and various property rights. If the ***Rights Management*** element is absent, no assumptions can be made about the status of these and other rights with respect to the resource.
CDP Comment:
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
Qualifiers:
Refinements: None
Schemes: None

Input Guidelines:
1. Enter multiple rights in order of their importance. Use separate ***Rights Management*** elements to enter multiple rights or *clearly separate each entry* by a semicolon and a space within an element.
2. Enter a textual statement and/or a URL pointing to a use and access rights statement for digital resources on the Internet.
3. This statement can be a general copyright statement for the institution, for the whole collection, or a specific statement for each resource.
4. The statement may be general, providing contact information, or specific, including the name of the copyright holder.
5. 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:

Rights Management	Comment
http://www.college.edu/copyright.html	URL for a complete copyright statement
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.	Free text rights management statement.
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.	Free text rights management statement.
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 Management***
CDPDC Term Modified: 2004-07-21

4.18. Contributing Institution (formerly Holding Institution)

Term Name: contributingInstitution
Label: Contributing Institution
Dublin Core Definition: None
CDP Comment:

A consistent reference to the institutions or administrative units that contributed to the creation, management, description, and/or dissemination of the digital resource. For example, one institution may physically hold the original resource, another may perform the digital imaging, and another may create metadata.

Contributing Institution is intended to aid in the management and preservation of metadata records in a shared environment by identifying the provenance of records and digital objects.

Mandatory: No
Repeatable: Yes
Qualifiers:

Refinements: None
Schemes: None

Input Guidelines:

1. Use separate ***Contributing Institution*** elements to enter multiple institutions or *clearly separate each entry* by a semicolon and a space within an element.
2. Institution names should be entered exactly the same way for every record contributed, to permit reliable sorting.
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)*
4. It may be necessary to identify the roles of individual contributing institutions within local systems. ***Contributing Institution*** may be extended to include a controlled vocabulary of institutional roles to meet local project needs.
5. It is not necessary to store contributing information locally if the collaborative system used can append it automatically when included by a shared metadata repository.

Notes: None

Examples:

Contributing Institution	Definition
Wyoming State Historical Society	Name entered in direct order
Nebraska. Dept. of Administrative Services	Name entered hierarchically by organization and suborganization, as opposed to just "Dept. of Administrative Services"
University of Denver. Dept. of Anthropology [Owner] University of Denver. Penrose Library [Metadata Creator]	Example showing multiple roles.

Maps to: None
CDPDC Term Modified: 2004-11-15

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