CSU CORE
DATA DICTIONARY
Version 1.1

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By

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Note on Version 1.1

Version 1.1 of the CSU Core Metadata Dictionary contains updates on the ***Identifier*** element to facilitate creation of logical collections in DigiTool (the digital assets management system currently in use at Colorado State University Libraries) and thus reflect current local best practice.

Introduction

Colorado State University Libraries (CSU Libraries) has been involved in multiple digitization projects since 2000. With the growth of the number of projects (and project managers) and the development of an Institutional Repository, the Libraries decided to develop a data dictionary, including input guidelines, of core metadata elements that would guide project managers at CSU Libraries in metadata planning for their specific projects.

The Metadata Best Practices Task Force was created in June, 2007, and charged with developing the data dictionary. After reviewing existing standards and best practices developed by various communities, the Task Force developed draft recommendations and held open forums to allow interested CSU Libraries staff and faculty to comment. These comments informed this final draft of the CSU Core Data Dictionary. When the draft has been approved by the Digital Matrix Group and the Libraries Planning Group, the final version will become the basis for all metadata creation for digital projects at the CSU Libraries.

The elements defined and described in this Data Dictionary constitute the minimum set of elements for all digital projects at CSU Libraries.

Project managers may decide to exceed the CSU Core, or make recommended or optional elements mandatory for a specific project. If that is the case, the project manager should create a project-specific data dictionary, include it in the Institutional Repository, and reference that data dictionary in the ***MetadataSchema*** in the project metadata. The project manager may reference the CSU Core Data Dictionary (with the version) and only include the new or altered elements in the project data dictionary, or he/she may include the CSU Core within the text of the project data dictionary. The Task Force recommends that project managers use a format similar to the CSU core, and identify: element name, obligation, repeatability, definition, comment, refinements, schema, audience, and mapping, as well as implementation guidelines and examples (it is expected that the examples come from the project itself).

The CSU Core Data Dictionary currently includes the ***Thesis.Degree*** element. This element will be removed from the CSU Core once the data dictionary for the ETD project is completed. The Task Force included it in this draft as the original charge asked the Task Force to address metadata for ETDs (among the other upcoming projects), but recognizes that this should not be part of the CSU Core, and is applicable only the theses and dissertations.

Once the CSU Core Data Dictionary is approved and implemented, the Task Force will begin 'metadata usability' tests to determine if our choices meet the needs of our users, whether those users are staff or end users. These usability studies will advise future versions of this document. Should changes to the CSU Core be considered necessary, the Task Force will draft those changes and hold open forums to discuss the changes with CSU Libraries faculty and staff.

Discussion of methodology for usability studies:
- Usability studies to gauge the adequacy/usefulness of the core metadata elements can be a productive assessment tool.

- Further discussion of testing models and audiences needs to occur.
- Adaptations may need to be made following such testing.

Due to the tight timeline for creation and implementation of the data dictionary, other topics of discussion and or decisions that may ultimately impact the final data dictionary are still under consideration as of mid-October, 2007. The Task Force wanted to outline some of these outstanding factors, as they may ultimately have impact during implementation of the data dictionary.

Further discussion regarding topical terms and controlled vocabularies:
- Various controlled vocabularies for topical terms exist, including: LCSH, NAL, CABI, MeSH, AAT, TGM, ERIC, etc.
- LCSH is multidisciplinary and is recommended, as the Digital Repository as a whole will be multidisciplinary; however, some of the collections within the Digital Repository will be equivalent to journal articles and discipline-specific vocabularies are more granular than LCSH. End users' needs will need to be balanced against the resources required to add discipline-specific controlled terms.
- Locally defined controlled vocabularies may also be established depending on a project.

Further discussion regarding authority control for proper names, geographic areas, buildings, etc.:
- Depending on the project, significant proper names, locations, and buildings may need to be referenced.
- Vocabularies for such include: LCNAF; LCSH; geographic coordinates; locally defined controlled vocabularies (poster collection genre terms, various fields in Garst); and locally established names (using the previously assigned version of a name consistently).

Both DigiTool and CONTENTdm lack a referencing structure for controlled vocabularies, whether proper names or topical headings, which significantly impacts resource discovery.

Issues remaining to be resolved as noted in the Element descriptions:
- Circa dates are barriers to resource discovery if users qualify searches by date. The issue is international with no standard solution yet developed. The Task Force will monitor developments around this issue and attempt to develop a local solution until a standard solution is identified.
- DigiTool extraction of *Date.Digital* for PDF documents appears not to conform to ISO 8601. The Task Force plans to work with Research and Development to correct this non-conforming date.
- The Task Force will investigate ways to link *Contributor* and *Contributor.Role* in DigiTool collections.
- The Task Force anticipates deposits of computer program files as either stand-alone resources or accompanying other digital resources. The Task Force will begin identifying appropriate terminology for use when these types of resources are contributed to the Digital Repository.

Amending or modifying the CSU Core Metadata Dictionary:

- The current version 1.1 of the Metadata dictionary may need to be updated, expanded, or modified.
- The procedure for such changes needs to be discussed and guidelines put into place.

The Task Force has developed a wiki page that includes the charge, the standards reviewed, various web links, the full text of the Phase One report, and additional resources re: metadata. Path:
http://lib.colostate.edu/staffwiki/index.php?title=Metadata_Best_Practices_Task_Force

Respectfully submitted September 18, 2007

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Notes:

1. This data dictionary attempts to be system-neutral as regards the Digital Asset Management System used to store the digital resource and its associated metadata. However, there are sufficient differences in the two systems currently in place at CSU Libraries (DigiTool and CONTENTdm) to impact metadata decisions—the most extreme example is the Technical Metadata that can be extracted in DigiTool but not in CONTENTdm. When choices regarding a metadata element are likely to be impacted based on the Digital Asset Management System being used, differences are identified.
2. The order of the elements in both the list above and in the text of the data dictionary is alphabetical and does not imply any hierarchy among the elements.
3. Details on Obligation and Repeatability are included in the discussion of each element and its refinements.
4. Generally, the Task Force has not made recommendations for the display labels for the elements. Most of the element names are based on Dublin Core element names, and are not necessarily the label for the element to be displayed to end users. When display labels are mentioned, the assumption is that the project manager will make the final determination of the display label to use.
5. By using Dublin Core-based element names, and by mapping to unqualified (i.e., no refinements) Dublin Core, the Task Force feels that the metadata is prepared for output as either simple Dublin Core (for OAI harvesting) or as MODS XML files. The output of the metadata is governed by the structure of the Digital Asset Management System in

which the metadata is stored. The Task Force is consulting with Digital Repositories and Research and Development staff to ascertain DigiTool and CONTENTdm capacities to output simple Dublin Core for OAI-harvesting and MODS for Alliance Digital Repository metadata sharing.

Data Dictionary Structure

The CSU Core Data Dictionary provides the following attributes for the metadata elements:

Element Attribute	Description
Element Name	The unique name that identifies the element.
Standard Referenced	The metadata standard(s) consulted that served as a model for the element. One or more of the following: ○ *Dublin Core Metadata Initiative* (DC) ○ *Collaborative Digitization Program Dublin Core Metadata Best Practices* (CDP) ○ *Networked Library of Digital Theses and Dissertations ETD-MS - an Interoperability Metadata Standard for Electronic Theses and Dissertations* (ETD-MS) ○ *Visual Resources Association VRA Core* (VRA Core) ○ *Institute of Electrical and Electronics Engineers Learning Object Metadata Standard* (LOMS) ○ *NISO/ANSI Z39.87: Technical Metadata for Digital Still Images* (Z39.87) ○ *PREMIS Data Dictionary* (PREMIS)
Obligation	States whether the element is: ○ Mandatory ○ Mandatory if applicable ○ Recommended ○ Optional
Repeatable	States whether the element may be repeated: ○ Repeatable ○ Non-repeatable
Definition	A statement that represents the concept and essential nature of the term.
Comment	Additional information about the term or its application as applied in the CSU context.
Refinements	Lists valid qualifiers for the element.
Schema	Lists valid schema to be used in the element.
Audience	Lists the intended audience for the element: ○ System ○ Manager (curator, repository manager) ○ Staff User ○ End User
Simple DC Mapping	The simple Dublin Core to which this element maps for metadata sharing via OAI harvesting
Input Guidelines	Provides guidance about entering and encoding values for the element and its refinements.
Examples	Instances of how the element is used.

CSU Core Data Dictionary

Audience

Element Name	Audience
Standard Referenced	DC, LOM
Obligation	Optional
Repeatable	Yes
Definition	This element contains a class of entity for whom the described digital resource is intended or useful.
Comment	A class of entity may be determined by the creator or the publisher or by a third party. Use of this element is primarily for learning objects, tutorials, etc.
Refinements	None
Schema	Implementers are encouraged to develop local lists of values, and to use them consistently.
Audience	Manager, Staff User, End User
Simple DC Mapping	Audience

Input Guidelines:

1. The *Audience* element has not been broadly used in digitization projects. However, the Task Force would like to include *Audience* as an optional element in anticipation of including learning objects developed by CSU faculty in the Digital Repository. Expansion of this element, the Input Guidelines, and the Examples is likely when CSU Libraries begins to receive or solicit these types of digital resources.

Examples:

- 4th grade [For a math tutorial.]
- Undergraduate [For a library tutorial.]

Contributor

Element Name	Contributor
Standard Referenced	DC, CDP, ETD-MS
Obligation	Recommended
Repeatable	Yes
Definition	An entity responsible for making contributions to the resource.
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.
Refinements	*Contributor.Role* (Optional, Repeatable) This element contains the role of a specific *Contributor*. As long as the *Contributor.Role* cannot be directly linked to *Contributor,* this element is optional. Some projects may use a limited number of roles as the label for the *Contributor* element. *Contributor.Role* identifies the role a person or entity played in the creation or approval of the work. Examples: advisor, committee member, chair, co-chair, referee, juror, editor, illustrator, indexer, etc.
Schema	LCAF http://authorities.loc.gov/ [for authorized form of a contributor's name], AACR2 [for instructions on establishing a contributor's name for those names not included in the LCAF]
Audience	Manager, Staff User, End User
Simple DC Mapping	Contributor

Input Guidelines:

1. Enter each contributor in a separate *Contributor* element.
2. The form of name should be used consistently in all occurrences, across all projects. The Task Force recommends using the Library of Congress Authority File (LCAF) to determine the established form of a name of a person or entity. If no authority record exists, consult Sage or other locally developed lists for previously used form of name. Care should be taken to make the name unique and consistent in the database, using *Anglo-American Cataloging Rules, 2ⁿᵈ Ed., 2002 Rev.* (AACR2) guidelines for resolving conflicts.
3. The role of the contributor may be entered in the refined element *Contributor.Role*; no schema is listed for these roles; however, the Task Force recommends developing a local list of roles and selecting the role from that list.

Examples:

- *Contributor:* Peterson, Jacob, 1899-1936 [For the illustrator of a monograph, using the form of the name as established in the LCAF.]
- *Contributor:* Means, Dennis [For the interviewer of an oral history in the Germans From Russia collection, name not established in the LCAF; usage in Sage: Means, Dennis.]

Options for using *Contributor.Role*
- *Contributor:* Rocca, Jorge G. [Name of the thesis committee member.]
- *Contributor.Role*: Committee member [Role as thesis committee member.]

or

- *Contributor.CommitteeMember:* Rocca, Jorge G. [For a thesis committee member with role specified in the label.]

Coverage

Element Name	Coverage
Standard Referenced	DC, CDP
Obligation	Recommended
Repeatable	Yes
Definition	The spatial or temporal topic of the resource, the spatial applicability of the resource, or the jurisdiction under which the resource is relevant.
Comment	Spatial topic may be a named place or a location specified by its geographic coordinates. Temporal period may be a named period, date, or date range. A jurisdiction may be a named administrative entity or a geographic place to which the resource applies. Recommended best practice is to use a controlled vocabulary such as the Thesaurus of Geographic Names [TGN]. Where appropriate, named places or time periods can be used in preference to numeric identifiers such as sets of coordinates or date ranges.
Refinements	**REQUIRED** *Coverage.Spatial* -- Spatial characteristics of the intellectual content of the resource. *Coverage.Temporal* -- Temporal characteristics of the intellectual content of the resource.
Schema	LCSH for place names and time periods TGN
Audience	Manager, Staff User, End User
Simple DC Mapping	Coverage

Input Guidelines:

1. Use as a refined element. Use separate elements for each place or time period.
    a. Spatial characteristics may include geographic names, latitude/longitude, or other established geo-referenced values.
    b. Temporal characteristics include those aspects of time that relate to the intellectual content of a resource and not its lifecycle.
2. Use free text to input B.C.E. dates; e.g. 200 B.C.E.
3. For a range of dates, enter the dates as YYYY-YYYY or YYYY/MM-YYYY/MM or YYYY/MM/DD-YYYY/MM/DD.
4. To show that a date is approximate, follow it with a question mark, as in 1997?
5. *Subject* may also contain either geographical or spatial coverage if warranted by LCSH, i.e., the time period is established in LCSH and/or the subject term may be subdivided geographically. If that is the case, recommended practice is to repeat the coverage information in the appropriate refinement of the *Coverage* element.

Examples:

- *Coverage.Spatial:* Fort Collins (Colo.) [For an image of Old Town in Fort Collins, Colo.]
- *Coverage.Spatial:* Rocky Mountains [For a paper describing the weather patterns in the Rocky Mountains.]

- *Coverage.Temporal*: Nineteenth century [For an image taken sometime in the 19th century, with exact date unknown, as opposed to the date range 1801-1900.]
- *Coverage.Temporal*: Middle Ages [For the image of an artifact from Medieval Europe; used instead of the date range: 800 – 1500.]

Creator

Element Name	Creator
Standard Referenced	DC, CDP, ETD-MS
Obligation	Mandatory if Applicable
Repeatable	Yes
Definition	The *Creator* element contains the name of the person or entity primarily responsible for the intellectual or artistic content of the digital resource.
Comment	The creator of original objects cannot always be known. For example, the photographer is unknown for most of the images in the University Historic Photographs Collection. When the creator is known, this element is mandatory.
Refinements	None
Schema	LCAF http://authorities.loc.gov/ [for authorized form of a creator's name], AACR2 [for instructions on establishing a creator's name for those names not included in the LCAF]
Audience	Manager, Staff User, End User
Simple DC Mapping	Creator

Input Guidelines:

1. If multiple people or entities are equally responsible for the intellectual or artistic content of the resource, the *Creator* element should be repeated, and each person or entity listed in separate elements.
2. If there are mixed responsibilities, the *Creator* element should be used for the primary responsibility and the *Contributor* element should be used for the secondary responsibility.
3. The form of name should be used consistently in all occurrences, across all projects. The Task Force recommends using the Library of Congress Authority File (LCAF) to determine the established form of a name of a person or entity. If no authority record exists, consult Sage or other locally developed lists for previously used form of name. Care should be taken to make the name unique and consistent in the database, using *Anglo-American Cataloging Rules, 2nd Ed., 2002 Rev.* (AACR2) guidelines for resolving conflicts.

Examples:

- *Creator:* Collins, Caspar Wever, 1844-1865 [The artist responsible for the Camp Collins (C.T.) map, as established in the LCAF.]
- *Creator:* Colorado State University. Libraries [The entity responsible for creating the CSU Libraries Policies and Procedures Manual, as established in the LCAF.]
- *Creator:* Mahlman, Jerry David [Author of several monographs on meteorology cataloged in Sage, used as the author. Author's name is variably listed on the title pages as J.D. Mahlman and Jerry D. Mahlman. Name not established in the LCAF.]

- *Creator:* Hoffman, Gene [Name of poster artist as maintained in the Artist Database developed for the International Poster Collection. Artist's name is variably listed as Gene Hoffman, Eugene Hoffman. Name not established in the LCAF.]

Date

Element Name	Date
Standard Referenced	DC, CDP
Obligation	Mandatory
Repeatable	No
Definition	The date that the digital resource was created or that the original resource was created.
Comment	Some of the described digital resources will be digital surrogates of physical objects, such as a scanned image of a photograph, a digital photograph of a poster, or a digitized audio file from an audio cassette recording. Other digital resources will be 'born digital', such as a Master's thesis created in word processing software and saved as a .pdf, or a digital photograph of Morgan Library. In both cases, there is a *Date.Original* and a *Date.Digital*. For digitized resources, the *Date.Original* will be the date the original analog resource was created, and *Date.Digital* will be the day the digital surrogate of the original analog resource was created. For 'born digital' resources, if the original digital object is used, *Date.Original* and *Date.Digital* will be the same; if the original digital object is reformatted and the reformatted version is used, *Date.Original* will be the date the original digital object is created and *Date.Digital* will be the date the reformatted version is created. Over time, as digital resources are re-formatted (for example, converting a word-processed document from Word 97 to Word 2007) to allow for continuous access, the *Date.Original* will be maintained in the metadata. This will also permit searching by *Date.Original*, even for born digital objects. While the value of this does not seem necessary at the moment, in 10 years it will become clear that users will want to be able to search on 2007 as the *Date.Original*, and there must be data in the element to do this.
Refinements	**REQUIRED** *Date.Digital* –The date that the digital resource was created. (Mandatory, Not repeatable) *Date.Original* – The date of the original resource was created. (Mandatory, Not repeatable)
Schema	For actual dates, ISO 8601 as defined by the World Wide Web Consortium profile at http://www.w3.org/TR/Note-datetime.html
Audience	System, Manager, Staff User, End User
Simple DC Mapping	Date

Input Guidelines:

1. *Date* must always be used with a refinement. At present, only the refinements *.Digital* and *.Original* are part of the CSU Core.
2. Per the ISO 8601 standard as defined by a World Wide Web Consortium (W3C) profile at: http://www.w3.org/TR/NOTE-datetime.html, *Date.Digital* should be formatted as: YYYY-MM-DDThh:mm:ss.sTZD, where YYYY is the four digit year,

MM is the two digit month, DD is the two digit day of the month, T notes the beginning of time notation, hh is the two digit hour based on a 24 hour clock, mm is the two digit minute, ss is the two digit second, .s is the single digit $1/10^{th}$ of a second, and TZD is the time zone expressed as relates to Coordinated Universal Time (UTC). *Note: It appears from one sample that the **Date.Digital** (Creation Date in the XML file produced by DigiTool during ingest) that the date is not formatted per ISO 8601. When extracted from a PDF file, the Creation Date is listed as: Mon Mar 05 03:58:38 MST 2007 instead of 2007-03-05T03:58:38-6:00. That is how the created date is recorded in the PDF properties. However, the Creation Date for the jpeg thumbnail created for the PDF during ingest is listed according to the W3C profile. This means the Creation Date, at least for PDF documents, will require transformation, particularly if the date is output to other systems, such as OAI harvesting.)*

3. ***Date.Digital*** will be extracted from the digital resource during the ingest process for digital resources in DigiTool.
4. ***Date.Digital*** must be manually entered for digital resources in CONTENTdm.
5. When manually entered the minimum expression for ***Date.Digital*** will be YYYY-MM-DD.
6. When the date of the original artifact is known, the date in ***Date.Original*** will conform to the ISO 8601 to the extent that the date is known, i.e., YYYY-MM-DD, or YYYY-MM, or YYYY, where YYYY is the four-digit year, MM is the two-digit month, and DD is the two-digit day of the month. Further information about the hour, minute, second of creation is not necessary.
7. When the date of the original artifact is unknown, a value of "undated" (without the quotation marks) should be entered in ***Date.Original***.
8. If the date is approximately known, a circa (ca.) date should be entered in ***Date.Original***.

Note: Circa dates present resource discovery barriers and have not yet been resolved. Further investigation is needed to solve the problem of how to ensure digital resources with circa dates in ***Date.Original*** will be discovered in date-limited searches, or in faceted displays using date metadata.

Examples:

- For an electronic thesis delivered as a PDF file:
  - ***Date.Digital:*** 2007-07-10T08:47:54-06:00 [Extracted from the PDF when ingested into DigiTool, assuming processing to format date per ISO 8601.]
  - ***Date.Original:*** 2007-07-10
- For a .tiff master image scanned from a handwritten letter:
  - ***Date.Digital:*** 2007-07-03 [Taken from the "Properties" of the original digital master and entered manually in CONTENTdm.]
  - ***Date.Original:*** 1910-07-14 [Date the letter was written.]
- For a faculty paper scanned from the print original into a PDF document:
  - ***Date.Digital:*** 2007-07-02T15:16:46-6:00 [Extracted from the PDF when ingested into DigiTool, assuming processing to format date per ISO 8601.]

- o ***Date.Original:*** 1967-05 [The month and year the original analog Atmospheric Science Paper was published.]
- For a .tiff master image scanned from a print photograph:
  - o ***Date.Digital:*** 2006-12-10T09:04:06-6:00 [Digital creation date extracted from the .tiff when ingested into DigiTool.]
  - o ***Date.Original:*** 1903 [When only the year in which the photograph was taken is known.]
- For a .tiff master image scanned from a print photograph:
  - o ***Date.Digital:*** 2006-12-10T09:04:06-6:00 [Digital creation date, extracted from the .tiff when ingested into DigiTool.]
  - o ***Date.Original:*** ca. 1920 [An approximation of the year the original analog photograph was taken.]
- For a .tiff master image of a digital photograph:
  - o ***Date.Digital:*** 2006-10-02T10:21:17-6:00 [Digital creation date, extracted from the .tiff when ingested into DigiTool.]
  - o ***Date.Original:*** undated [Date of the original analog object of the image is unknown.]
- For a faculty paper written in Word and later converted to PDF for addition to the Digital Repository:
  - o ***Date.Digital:*** 2007-09-18T13:42:-6:00 [Digital creation date of the PDF, extracted from the PDF when ingested into DigiTool, assuming processing to format date per ISO 8601.]
  - o ***Date.Original:*** 2007-07-19 [Date the original Word document was created.]

Description

Element Name	Description
Standard Referenced	DC, CDP
Obligation	Varies with refinement.
Repeatable	Yes (See Refinements)
Definition	A general description of the intellectual or artistic content of the digital resource.
Comment	The *Description* element may include, but is not limited to: an abstract, a table of contents, or a free-text account of the content. For resources digitized from an analog original, descriptive comments about the original object that cannot be observed in the digital resource should be entered in the *Source* element.
Refinements	*Description.Abstract* (Mandatory if Applicable, Repeatable) *Description.TableOfContents* (Optional, Not repeatable)
Schema	None
Audience	Manager, Staff User, End User
Simple DC Mapping	Description (*Description*, *Description.Abstract*, and *Description.TableOfContents*)

Input Guidelines:

1. Use *Description* without refinement when the description is neither an abstract nor a table of contents.
2. Enter descriptive text, remarks, and comments about the digital resource. This information can be taken from the resource itself, taken from reference materials, or provided by the project manager.
3. Enter here specialized information not included in other elements; for example, description, technique, and distinguishing features if observable in the digital resource and inscriptions. Features not observable in the digital resource should be included in the *Source* element.
4. In the context of *Description.Abstract*, "Mandatory if Applicable" is to be defined as only when an abstract is available and can be copied and pasted into the metadata. The Task Force does not recommend creating an abstract when none exists.
5. Include the refinement *Description.TableOfContents* when the table of contents is available and can be copied and pasted into the metadata. Use of this element should be decided at the project level; for example, the manager of a project that includes a digital moving image with chapter titles, or a single audio file containing six songs, might consider *Description.TableOfContents* to be a valuable element for resource discovery.

Examples:

- *Description:* Delegate ribbon for "Twenty-eighth annual encampment, G.A.R., Colorado & Wyoming, Colorado Springs, Colo., May 14-17 1907"; belonged to Michael J. Hogarty [Free text description of the digital image of an artifact.]
- *Description.Abstract:* As the dimensions of integrated circuits continue to decrease, new metrology tools that can inspect the nanoscale patterns and features need to be developed.

In this project we developed a compact zone plate imaging tool using a 46.9 nm laser as its illumination source. The microscope can render images in transmission and reflection mode with unsurpassed spatial resolution. In addition it is very versatile as it incorporates a visible imaging system that allows the user to pre-select the area of interest to image at higher magnification with the 46.9 nm light. Image acquisition is automated through control software developed for the system. This is the highest resolution table-top microscope at this wavelength ever reported. [Abstract cut an pasted from an electronic thesis.]

- *Description.TableofContents:*

[TOC cut and pasted from an electronic thesis.]

Format

Element Name	Format
Standard Referenced	DC, CDP, Z39.87
Obligation	Mandatory
Repeatable	No (without refinements)
Definition	The digital manifestation of the resource.
Comment	Use *Format* to record the Internet Media Type (MIME Media Type) of the digital resource as registered with Internet Assigned Numbers Authority (IANA). Use the refinement *Format.Extent* to record the size or duration of the digital resource. If the digital resource requires software or hardware external to the resource itself, record that information in a *Relation.Requires* element.
Refinements	*Format.Extent* The size or duration of the digital resource. (Mandatory, Repeatable)
Schema	MIME Media Type at http://www.iana.org/assignments/media-types/
Audience	System, Manager; Staff User, End User
Simple DC Mapping	Format (*Format* and *Format.Extent*)

Input Guidelines:

1. The *Format* element is provided as part of the extracted technical metadata in DigiTool; it must be entered manually in CONTENTdm, using the list of MIME Types at http://www.iana.org/assignments/media-types/
2. New media types and applications continue to emerge. If the resource format of the digital resource is not yet registered as a MIME type, use the MIME convention of using a broad category of object format (audio, video, application, etc.) 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 that format. It is assumed that such a MIME type would need to be created and added manually for a digital resource in DigiTool as well as in CONTENTdm.
3. List the file size in the *Format.Extent* element in terms of bytes instead of kilobytes or megabytes. The extraction process in DigiTool will record the file size in bytes; this must be manually entered in CONTENTdm. NOTE: DigiTool labels this element "File Size" and does not use the caption 'bytes'.
4. For audio and video formats, list duration (playing time) in a separate *Format.Extent* field. The playing time should be listed as both a numeric value and a caption that is needed to interpret the numeric value. Use hour(s), minute(s), and second(s) as captions.

Examples:

- For a PDF document, the following would be required:
  - o *Format:* Application/pdf [MIME Type]
  - o *Format.Extent:* 45329 [File size in bytes]
  - o *Relation.Requires:* Adobe Acrobat Reader [Software required to view the resource.]

- For a master digital audio file in the aiff format (the master digital resource for the Germans From Russia audio interviews) the following would be required:
  - *Format:* audio/aiff [this is not a registered MIME type, so this is a locally created MIME type]
  - *Format.Extent:* 3,989,600 [File size in bytes.]
  - *Format.Extent:* 45 minutes, 1 second [Playing time.]
  - *Relation.Requires:* Windows Media Player (Microsoft) or QuickTime Player (Apple) [Software required to play the file.]
- For an access digital image, which can be viewed within either DigiTool or CONTENTdm without additional software, the following would be required:
  - *Format:* image/jpeg [MIME type.]
  - *Format.Extent:* 124694 [File size in bytes.]

Identifier

Element Name	Identifier
Standard Referenced	DC, CDP, ETD-MS, LOMS
Obligation	Mandatory
Repeatable	Yes
Definition	The *Identifier* is a character string (alphabetic and/or numeric) that is unique within the repository and references the digital resource.
Comment	A character string or record number that clearly and uniquely identifies a digital resource. The *Identifier* element ensures that individual digital resource can be accessed, managed, stored, recalled, and used reliably. Input the ISSN, ISBN, or other international standard numbers that have been assigned to an analog original in *Source*.
Refinements	None
Schema	URI, DOI, handle.net, purl.org, free text
Audience	System, Manager; Staff User; End User
Simple DC Mapping	Identifier

Input Guidelines:

1. Use separate *Identifier* elements to enter multiple identifiers.
2. The Digital Asset Management System will generate a unique *Identifier* when the digital object is ingested into the system that is akin to an accession number. The term used by DigiTool is PID.
3. A handle will be generated by the handle server for digital resources in DigiTool.
4. The following input guidelines apply to manually created and entered *Identifiers* and support logical collections in DigiTool:
   a. The *Identifier* will consist of a structured string of characters (alphabetic and numeric) requiring a minimal of 3 components; each component <u>must</u> be a fixed length:
      i. The first component will consist of a <u>4-character alphabetic abbreviation</u> of the project/source/collection of the original object. (Note: For digitization projects of materials held within the <u>Archives and Special Collections</u>, the first component will be the alphabetic sequence used by the Archives and Special Collections to manage their collections. For other projects, the project manager will determine the 4 characters for the first component. Project managers should not use <u>U, A, M, or W</u> as the beginning letter of the 4-character alphabetic sequence, as these are reserved for Archives and Special Collections. Digital Repository Services will maintain a master list of the alphabetic sequences used for digital projects. Each project will have a unique sequence for the first component of the *Identifier*.)
      ii. The second component will be a <u>4-character string (alphabetic and/or numeric)</u> that is a sub-collection within the project/source/collection in the first component. The alphabetic/numeric sequence for the second component does not have to be unique. If a numeric string is needed (such as a year), the numeric string <u>must</u> be the sub-collection and precede the third component as described below in order to avoid ambiguity. Use "aaaa" as a placeholder if a sub-collection is not necessary.

iii. The third component will be a <u>6-digit accession number</u> unique to that resource within the context of the first two components. This number will begin with a digit other than zero and will <u>normally</u> be in between "100001" to "999999'. This number <u>must</u> be 6-digit long and unique.

   b. Additional components, each of which will consist of <u>4-character string (alphabetic and/or numeric)</u>, <u>may</u> be added after the third component, to aid in building more specific logical collections in DigiTool. The alphabetic/numeric sequence for additional components does not have to be unique and will be determined at the project level. There are no restrictions on how many additional components may be added; however, all additional components <u>must</u> be appended to the end of the required minimal three components as described above.

5. When using DC xml, MARC xml, or .CSV files (for batch ingest) for DigiTool ingests, an additional ***Identifier*** element <u>must</u> be added to the metadata with the exact file name(s) (including file extension) of the digital file(s) to be ingested, e.g. "MTF_Phase_One_Report.pdf". This ***Identifier*** element links a metadata record to the digital file this metadata record describes and is required by the DigiTool system for successful ingests. In the DC xml or MARC xml scenario, if multiple identifiers are needed in metadata, this ***Identifier*** element <u>must</u> be the first in the order of the multiple ***Identifier*** elements for the DigiTool system to perform correct linking. In the DC xml or MARC xml scenario, this ***Identifier*** element is displayed DigiTool object viewer. In the .CSV files scenario, this ***Identifier*** element is not displayed in DigiTool object viewer.

6. When batch ingesting images in JPEG2000 format using .CSV files, an additional ***Identifier*** element will be added to the metadata with the exact file name of the digital master (including file extension), e.g. "UHPC_1a.tif". Because in the .CSV files scenario, the ***Identifier*** element mentioned in 5 above is not displayed in DigiTool object viewer, adding this ***Identifier*** element facilitates identification of the source images. (Note: normally, the JPEG2000 version will inherit the same file name from the digital master; the only difference is the file extension, that is, .jp2 rather than .tif).

7. Minimally, there <u>must</u> be an ***Identifier*** assigned by the metadata creator using guidelines in 4 above, an ***Identifier*** assigned by the Digital Asset Management System, and an ***Identifier*** assigned by the handle server.

Examples:

- UHPCS01A100001
    - o "UHPC" stands for "University Historic Photograph Collection".
    - o "S01A" stands for "Series I Subseries A", a sub-collection in which an image is arranged by the archival finding aid.
    - o "100001" is an accession number assigned to an image within the sub-collection.
- MGARaaaa100001
    - o "MGAR" stands for "Warren and Genevieve Garst Wildlife Collection".
    - o "aaaa" is used as a placeholder for the second component as there is no sub-collection.
    - o "100001" is an accession number assigned to an image within the MGAR collection.
- ETDF2007100001
    - o "ETDF" stands for Electronic Theses and Dissertations from Colorado State University in Fort Collins (as opposed to CSU Pueblo – "F" for Fort Collins, "P" for "Pueblo")

- o "2007" is the year in which a thesis or dissertation is approved.
- o "100001" is an accession number assigned when a thesis or dissertation is deposited into the CSU Digital Repository.
- FACFANIS100001ARTI
  - o "FACF" stands for Faculty Publications from Colorado State University in Fort Collins (as opposed to CSU Pueblo – "F" for Fort Collins, "P" for "Pueblo")
  - o "ANIS" stands for the Department of Animal Sciences.
  - o "100001" is an accession number assigned when a faculty paper is deposited into the CSU Digital Repository.
  - o "ARTI" stands for article, an additional component used at the project level to distinguish genres of faculty publications for generating statistical reports.
- ETDkna100001.pdf
  - o This is the exact file name of the PDF to be ingested into DigiTool using DC xml.
  - o This identifier is the first identifier element listed in the metadata record for the PDF.
  - o This identifier is displayed in DigiTool object viewer.
- UHPC_4624.tif
  - o This is the exact file name of the digital master when the JPEG2000 version of the digital master is ingested into DigiTool using .CSV ingest.
  - o UHPC_4624.jp2 is also used in the metadata file to link the JPEG2000 image to its metadata record.
  - o Only "UHPC_4624.tif"is displayed in DigiTool object viewer.
- 12655
  - o This is the digital object's PID as assigned by DigiTool upon ingest
- http://hdl.handle.net/10217/2212
  - o This is a persistent and easy-to-use URL created by the handle server using DigiTool PID 10625, which points to the actual URL: http://digitool.library.colostate.edu/R/?func=dbin-jump-full&object_id=10625
  - o "10217" is a number uniquely assigned to the CSU Digital Repository by handle.net.
  - o "2212" is a number uniquely assigned to the digital object by the handle server.

Language

Element Name	Language
Standard Referenced	DC, CDP, ETD-MS
Obligation	Mandatory if Applicable
Repeatable	Yes
Definition	The *Language* element contains the languages(s) of the intellectual or artistic content of the resource.
Comment	Use of the *Language* element implies the language(s) in which a text is written or the spoken language(s) of an audio or video resource. Images do not usually have a language unless there is significant text in a caption or in the image itself. At present, this element is limited to human languages; the Task Force has not yet addressed computer languages.
Refinements	None
Schema	ISO 639-2 http://www.loc.gov/standards/iso639-2/englangn.html
Audience	Manager, Staff User, End User
Simple DC Mapping	Language (ISO 639-2 only)

Input Guidelines:

1. The codes in ISO-639-2 differ somewhat from the MARC Language Codes. However, the variations are slight, and virtually non-existent for common languages (the languages other than English likely to be included in our digital collections). Care will need to be taken when repurposing MARC records for digital resources that the language code be encoded for ISO-639-2. Additionally, MARC records record multiple languages strung together within one subfield a or use subfield coding to indicate translations, summaries in another language, etc. and will require manipulation to conform to the CSU Core treatment of language.
2. If the digital resource contains more than one language, enter additional languages in separate *Language* fields or clearly separate each language value by semicolon space.
3. If special explanation is necessary to identify how language relates to the digital resource, add text to the *Description* element to describe the situation.
4. The codes are not necessarily intuitive, and the Task Force recommends exploring automated solutions to convert to conventional full language names in English. In the absence of an automated solution, the Task Force recommends an additional *Language* element using the conventional full language names in English for display and discovery purposes.

Examples:

- For a digitized poster with text in Portuguese:
    - *Language:* por [ISO 639-2.]
    - *Language:* Portuguese [For display/discover purposes.]
- For an digital audio file with spoken German and English:
    - *Language:* ger; eng [ISO 639-2.]
    - *Language:* German; English [For display/discover purposes.]

- For a document with parallel text in Spanish and English:
  - *Language:* spa ; eng [ISO 639-2.]
  - *Language:* Spanish ; English [For display/discovery purposes]
  - *Description:* In both Spanish and English, in parallel columns. [To describe the nature of in the document.]

MetadataSchema

Element Name	Metadata Schema
Standard Referenced	None
Obligation	Mandatory
Repeatable	Yes
Definition	The *MetadataSchema* identifies the data dictionary (title and version or date) used to create the metadata.
Comment	The element *MetadataSchema* is recorded for quality assurance, to assist in evaluating the metadata in the future, and to aid in any future migration of the metadata. The Task Force recommends that a data dictionary be designated for each project. Project-level metadata that goes beyond the CSU Core should be documented in its own data dictionary and referenced in this element.
Refinements	None
Schema	Title and version of the Data Dictionary, link to the digital version
Audience	Manager, Staff User
Simple DC Mapping	None

Input Guidelines:

1. The title and version (or date) of the data dictionary governing the creation of the metadata should be recorded in unambiguous terms, but may be abbreviated or shortened. Additionally, provide a link to the data dictionary in the digital repository.
2. A project manager may choose to apply metadata using only CSU Core, in which case, CSU Core [version used] would be the value entered into *MetadataSchema*: however, there are several decisions left to project managers within the requirements of CSU Core, so the Task Force is expecting a minimum number of digital resources using CSU Core with no modifications.
3. If legacy metadata is used for migrated collections, and the metadata does not conform to CSU Core, the value "Pre-CSU Core" may be entered in this element. The Task Force assumes that during metadata migration project managers will attempt to edit the legacy metadata to meet the CSU Core, but recognizes that in some instances that may not be feasible, and that no data dictionary had been created for some pre-existing projects— hence the provision to accommodate the legacy metadata.

Examples:

- CSU Core v.1.0 [shortened title of this document: CSU Core Data Dictionary, Version 1.0, used for a project without further expansion.]
- ETD Nov. 2007 [shortened title of Colorado State University Electronic Theses and Dissertations Data Dictionary, created in November, 2007 {made-up example}.]
- Pre-CSU Core [legacy metadata from a migrated pre-existing collection.]

Publisher

Element Name	Publisher
Standard Referenced	DC, CDP
Obligation	Mandatory
Repeatable	Yes
Definition	The entity responsible for making the digital resource available.
Comment	None
Refinements	None
Schema	None
Audience	Manager, Staff User, End User
Simple DC Mapping	Publisher

Input Guidelines:

1. Colorado State University. Libraries (authorized form of the names) should generally be entered into the *Publisher* element.
2. Departments, colleges, research labs, etc. may also appear in a repeated *Publisher* element if they are responsible for making the digital resource available, including publishing the original resource in paper.
3. For the sake of consistency, prefer the LCAF authorized form of the name for CSU departments, colleges, research labs, etc.

Examples:

- Colorado State University. Libraries [Institution making the digital resource available via its Digital Repository.]
- Colorado State University. Dept. of Atmospheric Sciences [Original publisher of the print paper that was digitized.]

Relation

Element Name	Relation
Standard Referenced	DC, CDP
Obligation	See **Relation Refinements Table**: • MA (Mandatory if Applicable) • R (Recommended) • O (Optional)
Repeatable	See Relation Refinements Table
Definition	This element contains a reference to a related resource, i.e. information necessary to describe, find, or link to a related resource.
Comment	The relationship may be one of intellectual content variation (***Relation.IsVersionOf/Relation.HasVersion***), part-to-whole (***Relation.IsPartOf/Relation.HasPart***), citation/reference (***Relation.References/Relation.IsReferencedBy, Relation.ConformsTo***), substitution (***Relation.Replaces/Relation.IsReplacedBy***), format variation (***Relation.HasFormat/Relation.IsFormatOf***), or dependency (***Relation.Requires/Relation.IsRequiredBy***). 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 URL, for linking directly to the related resource. Include the refinement in the label name, not the element value (e.g. a URI) or text (e.g. a short description). A relationship may be multi-directional (i.e., a described resource may reference one or more related resources) or one-directional even though a qualifier may exist to show reciprocity (see **Relation Refinements Table**).
Refinements	**REQUIRED** Use one of the following refinements to explain the nature of the relationship between the <u>described resource</u> (i.e. the digital resource being described by the metadata record) and the <u>related resource</u> (i.e. the resource being referred to in the specific Relation element): See **Relation Refinements Table**.
Schema	URI, URL, citation, free text
Audience	End User, Staff User, Manager
Simple DC Mapping	Relation (all Refinements)

Relation Refinements Table

Refinement Name	Obligation; Repeatable	Definition
Relation.IsPartOf	MA; Yes	The described resource is a physical or logical part of the related resource.
Relation.HasPart	MA; Yes	The described resource includes the related resource either physically or logically.
Relation.IsVersionOf	MA; Yes	The described resource is a version, edition, or adaptation of the related resource. Changes in version imply substantive changes in content rather than differences in format.
Relation.HasVersion	O; Yes	The described resource has a version, edition, or adaptation of the related resource.
Relation.IsFormatOf	MA; Yes	The described resource has the same intellectual content of the related resource, but is presented in another format.
Relation.HasFormat	O; Yes	The described resource existed before the related resource, which is essentially the same intellectual content presented in another format.
Relation.IsReferenced By	O; Yes	The described resource is referenced, cited, or otherwise pointed to by the related resource.
Relation.References	O; Yes	The described resource references, cites, or otherwise points to the related resource.
Relation.IsReplacedBy	MA; No	The described resource is supplanted, displaced, or superseded by the related resource.
Relation.Replaces	MA; No	The described resource supplants, displaces, or supersedes the related resource.
Relation.IsRequiredBy	R; Yes	The described resource is required by the related resource either physically or logically.
Relation.Requires	R; Yes	The described resource requires the related resource to support its function, delivery, or coherence of content.
Relation.ConformsTo	O; Yes	Reference to an established standard to which the resource conforms.

Input Guidelines:

1. Refinement is required for the ***Relation*** element. Select refinements from the above **Relation Refinements Table**.
2. Use separate relation elements to enter multiple relations.
3. A resource may relate to another resource in a variety of ways that can be described by using more than one ***Relation*** element.
4. Include sufficient information in the ***Relation*** element to enable users to identify, cite, and either locate or link to the related resource.
5. Note that ***Source*** is used specifically to describe the physical characteristics or conditions of the original. Do not repeat that information using the ***Relation*** element.

Examples:

Relation.IsPartOf
- University Historic Photograph Collection, Series I, Subseries E [The source collection for the image from Archives and Special Collections.]
- Camp Mitchell ; Mud Springs Station ; Ficklins Station GFR003 [In the metadata record for the image of Camp Mitchell only.]

Relation.HasPart
- Camp Mitchell GFR0002 [In the metadata record for the full image of Camp Mitchell ; Mud Springs Station ; Ficklins Station.]

Relation.IsVersionOf
- Adaptation of the author's dissertation with the same title, 1978. [Free text reference to the earlier version of the work.]

Relation.HasVersion
- Harner, Jeanne. Sickle cell anemia. 2nd ed. New York: Random House, 2005. [A reference to a later edition, using Chicago Manual of Style formatting.]

Relation.IsFormatOf
- Negative no. 4775 [Original glass plate negative number within the collection cited in ***Relation.IsPartOf***.]
- Elsberry, Russell. On the mechanics and thermodynamics of a low-level wave on the easterlies, Atmospheric Science Paper No. 101. Fort Collins: Colorado State University, Dept. of Atmospheric Sciences, 1966. [A reference to the analog original, using Chicago Manual of Style formatting.]

Relation.HasFormat
- http:\\library.colostate.edu\ir\AM042 [References the same aerial map in JPEG2000 as the digital resource being described, which is a .tiff image—made up example, will use the handle URL in an actual record.]

Relation.IsReferencedBy
- Price, L and P. Kendall. If Your Freezer Stops, Food and Nutrition Series: Food Safety, No. 9.357. Fort Collins: Colorado State University Cooperative Extension, Dec. 2004 [The digital resource being described was cited in the publication referenced.]

Relation.References
- American Culture Series II [The digital resource being described is an index to the referenced series.]

Relation.IsReplacedBy
- Price, L and P. Kendall. If Your Freezer Stops, Food and Nutrition Series: Food Safety, No. 9.357. Fort Collins: Colorado State University Cooperative Extension, Dec. 2004

[This referenced resource replaces the digital resource being described in the metadata record]

Relation.Replaces
- Price, L and P. Kendall. If Your Freezer Stops, Food and Nutrition Series: Food Safety, No. 9.357. Fort Collins: Colorado State University Cooperative Extension, Oct. 1999 [This referenced resource is replaced by the digital resource described in the metadata record.]

Relation.IsRequiredBy
- Larimer County aerial map at http://library.colostate.edu/ir/AM042 [The digital resource being described is a key to the referenced map in our institutional repository—made up example, will use the handle URL in an actual record.]

Relation.Requires
- ArcView [To view GIS data.]
- Larimer County aerial map key at http://library.colostate.edu/ir/AM043 [References the digital resource that is the key to the digital map being described—made up example, will use the handle URL in an actual record.]

Relation.ConformsTo
- Encoded Archival Description version 2002 [Identifies the standard used to create an EAD in the repository.]
- Chicago Manual of Style, 15th ed. [Identifies the standard used to create a bibliography in the repository.]

Rights

Element Name	Rights
Standard Referenced	DC, CDP
Obligation	Mandatory
Repeatable	Yes
Definition	The *Rights* element contains a statement of copyright permission or special conditions for use of the digital resource.
Comment	The *Rights* element may contain information concerning accessibility, reproduction of the digital resource, copyright holder, restrictions, securing permissions for use of text or images, etc.
Refinements	None
Schema	None
Audience	Manager, Staff User, End User
Simple DC Mapping	Rights

Input Guidelines:

1. The *Rights* element will minimally be a hyperlink to the rights statement relevant to that resource.
2. Specific rights information may be added to the *Rights* element as free text when conditions warrant.

Examples:

- *Rights:* http://lib.colostate.edu/gfr/gfrcopyright.html [A link to the copyright statement for the digital resources in the Germans From Russia digital collection.]
- *Rights:* http://www.acns.colostate.edu/?page=copyright [A link to the Colorado State University copyright statement on the ACNS web site; used for Colorado's Waters digital collection.]
- *Rights:* Image is limited to use by Colorado State University users only. Copyright information: http://lib.colostate.edu/posters/copyright.html [Restriction for International Poster images for 1991 and 1993.]
- *Rights:* Copyright of original work is retained by the author. [Copyright statement for an electronic dissertation.]

Source

Element Name	Source
Standard Referenced	DC, CDP
Obligation	Mandatory if Applicable
Repeatable	Yes
Definition	The analog resource from which the described digital resource is derived.
Comment	The *Source* element describes <u>physical characteristics</u> of the original analog resource from which a digital resource is derived, either in whole or in part. The <u>citation</u> of the original is entered in ***Relation.IsFormatOf***. Some digital resources are "born digital" and derive from no pre-existing analog resource; in these cases, the *Source* element is not used.
Schema	None
Audience	Manager, Staff User, End User
Simple DC Mapping	Source

Input Guidelines:

1. Enter source information in order of 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. Whenever possible, include a unique standard identifier such as an ISBN or ISSN. 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; in most cases this will be "Colorado State University. Libraries."
3**.** Clarify the nature of the relationship between the two resources by using an initial phrase such as "Excerpted from:," "Original:," etc.
4. Information about the condition of the physical object may be included here, or may be included in a separate project-defined element.
5. When giving physical dimensions, use the unit of measurement most appropriate for the resource.

Examples:

- *Source:* Original: black-and-white photograph, 3x5 inches, tear in upper right hand corner [When the source is a printed B&W photograph, giving dimensions and noting the condition.]
- Separate physical description from citation for the original:
  - *Source:* Original: glass plate negative, 5x7 inches [Physical description of the original analog resource that was digitized.]
  - *Relation.IsFormatOf:* Negative no. 4775 [Number of the original within the University Historical Photograph Archives collection.]

- o ***Relation.IsPartOf:*** University Historic Photograph Collection, Series I, Subseries E [The source collection for the image from Archives and Special Collections. Together with the ***Relation.IsFormatOf***, the original glass plate negative can be easily located when necessary.]
- *Source:* Excerpted from: Digitized version of audio cassette recording of interview with Magdelena Schlichenmayer. [One of the excerpts from the Germans From Russia Collection.]
- *Source:* Original: 35 mm color slide [Digital resource was scanned from a slide.]
- For a resource held in print in the CSU Libraries and digitized for the Digital Repository:
  - o ***Source:*** Print paper, 27 cm., 31 leaves.; Colorado State University. Libraries: bibliographic number .b28458096 [Physical description of the original analog version, and the bibliographic number in Sage for the print.]
  - o ***Relation.IsFormatOf:*** Elsberry, Russell. On the mechanics and thermodynamics of a low-level wave on the easterlies, Atmospheric Science Paper No. 101. Fort Collins: Colorado State University, Dept. of Atmospheric Sciences, 1966. [A reference to the analog original, using Chicago Manual of Style formatting.]

Subject

Element Name	Subject
Standard Referenced	DC, CDP, ETD-MS
Obligation	Mandatory
Repeatable	Yes
Definition	A term used to describe the content of the digital resource.
Comment	The values in this element refer to what the content of the resource is <u>about</u> or what it <u>is</u>, expressed by topical terms, headings, key terms, phrases, names, or other terms for significant people, places, and events, etc. The application of *Subject* is to be determined at the project level.
Refinements	None
Schema	Multiple controlled vocabularies: examples: LCSH, Thesaurus of ERIC Descriptors, NAL Agricultural Thesaurus, LCAF
Audience	Staff User, End User
Simple DC Mapping	Subject

Input Guidelines:

1. The use of *Subject* is to be determined at the project level, and listed in the project Data Dictionary, including any controlled vocabulary or vocabularies to be used.
2. The values for this element may come from either, a controlled vocabulary, uncontrolled terms, or both.
3. If both controlled vocabulary and uncontrolled terms are assigned to a digital resource, they should be entered into separate elements, i.e., controlled terms and uncontrolled terms should not exist in the same metadata field.
4. When a controlled vocabulary is used for the *Subject*, the display label may indicate the thesaurus/source used; when no controlled vocabulary is used, the display label may be: Key word.
5. If multiple controlled vocabularies are used for a digital resource, each vocabulary should be entered into separate elements, i.e., controlled terms from different vocabularies should not be exist in the same metadata field.
6. Controlled terms can be taken from an established list of subjects, or can be a locally created and controlled list.

Examples:

- For a thesis with author-supplied key word:
    - *Subject:* Sewage lagoons [Library of Congress Subject Heading.]
    - *Key word:* Oxidation lagoons [Author supplied key word.]
    Note: Labels included to illustrate entering values in separate fields, not to dictate label display.
- *Subject:* Photographic postcards [Thesaurus for Graphic Materials II.]
- *Subject:* Bovine herpesvirus 1 [NAL Agricultural Thesaurus]
- *Subject:* Cultural posters [Local poster genre term.]

Technical Metadata

Standard Referenced	Z39.87, PREMIS
Obligation	Mandatory in DigiTool only; individual elements are not specified in this Data Dictionary
Comment	Technical metadata is important for the long term management of digital resources. Virtually all technical metadata is embedded within the resource itself; however, the design model adopted by Z39.87 presumes that technical metadata will be stored outside the digital resource, and this Data Dictionary applies that model to all digital formats, not just still images. (To date, Z39.87 is the only nationally approved and published technical metadata standard and is restricted to digital still images.)
Audience	System, Manager
Simple DC Mapping	None

Input Guidelines:

1. The Task Force reviewed the Z39.87 standard and the PREMIS data dictionary and recommends relying on JHOVE to extract technical metadata within DigiTool during the ingest process.
2. For CONTENTdm collections, only *Type, Format,* and *Format.Extent* are mandatory.
3. Only *Type, Format,* and *Format.Extent* are mapped to simple Dublin Core for OAI harvesting.

Thesis.Degree

Element Name	Thesis.Degree
Standard Referenced	ETD-MS
Obligation	Varies with refinements.
Repeatable	Varies with refinements.
Definition	This element contains degree information for theses and dissertations awarded at Colorado State University.
Comment	Need to consult colleges, departments, and graduate school about how college and department (or school) names are displayed. A special solution may be used for field labels and actual content of the fields. A pilot may further inform the solutions.

Refinements	*Thesis.Degree.Name* (Mandatory if Applicable, Non-Repeatable);
	 Thesis.Degree.Level (Optional, Non-Repeatable);
	 Thesis.Degree.Discipline (Mandatory if Applicable, Repeatable);
	      o *Thesis.Degree.Discipline.College*
	      o *Thesis.Degree.Discipline.Department (or School)*
	 Thesis.Degree.Grantor (Mandatory if Applicable, Non-Repeatable).

Schema	*Colorado State University: Writers Style Guide (August 2007)*, on T:\Public Relations & Marketing (web version forthcoming); CSU *Official List of Colleges, Departments, Majors, Minors, and Degrees*, www.provost.colostate.edu/print/Official_List05.pdf
Audience	End User, Staff User, Manager
Simple DC Mapping	None

Input Guidelines:

1. The degree information is entered by users (i.e. undergraduate, graduate students) via the user submission-template powered by the Digital Asset Management System at the time of thesis/dissertation submission.
2. To ensure accurate and consistent terms are entered by users, the user-submission template will include drop-down menus for populating *Thesis.Degree.Name*, *Thesis.Degree.Level*, and *Thesis.Degree.Discipline*. A default value, "Colorado State University", is implemented for *Thesis.Degree.Grantor*.
3. According to the *Colorado State University: Writers Style Guide (August 2007)*, the following degrees will be included in the drop-down menu for *Thesis.Degree.Name*:
   > Bachelor of Arts (B.A.)
   > Bachelor of Fine Arts (B.F.A.)
   > Bachelor of Music (B.M.)
   > Bachelor of Science (B.S.)
   > Doctor of Philosophy (Ph.D.)
   > Doctor of Veterinary Medicine (D.V.M.)

Master of Accountancy (M. Acc.)
Master of Agriculture (M.Agr.)
Master of Arts (M.A.)
Master of Business Administration (M.B.A.)
Master of Computer Science (M.C.S.)
Master of Education (M.Ed.)
Master of Fine Arts (M.F.A.)
Master of Fishery and Wildlife Biology (M.F.W.B.)
Master of Forestry (M.F.)
Master of Music (M.M.)
Master of Natural Resources Stewardship (M.N.R.S.)
Master of Science (M.S.)
Master of Social Work (M.S.W.)

4. According to the *Colorado State University: Writers Style Guide (August 2007)*, the following options are included in the drop-down menu for ***Thesis.Degree.Level***:
    bachelor's
    master's
    doctoral

5. Further refinements, such as ***Thesis.Degree.Discipline.College*** and ***Thesis.Degree.Discipline.Department (or School)*** are used for ***Thesis.Degree.Discipline***. Use college and department names as specified in the CSU *Official List of Colleges, Departments, Majors, Minors, and Degrees*, www.provost.colostate.edu/print/Official_List05.pdf. Include only the actual name of the college/department (or school). For example, the following options are included in the drop-down menu for ***Thesis.Degree.Discipline.College***:
    Agricultural Sciences
    Applied Human Sciences
    Business
    Engineering
    Liberal Arts
    Natural Sciences
    Veterinary Medicine & Biomedical Sciences
    Warner College of Natural Resources

For ***Thesis.Degree.Discipline.Department (or School)***, a full list is included based on the above-mentioned document and follows the same input guideline.

Examples:

- A master thesis submitted by a student from the CSU Electrical and Computer Engineering Department for the Degree of Master of Science:
    o ***Thesis.Degree.Name***: Master of Science (M.S.)
    o ***Thesis.Degree.Level***: master's
    o ***Thesis.Degree.Discipline***:
        ▪ ***College***: Engineering
        ▪ ***Department***: Electrical and Computer Engineering
    o ***Thesis.Degree.Grantor***: Colorado State University

Title

Element Name	Title
Standard Referenced	DC, ETD-MS, CDP
Obligation	Mandatory
Repeatable	No
Definition	A name given to the digital resource.
Comment	Typically, a *Title* will be a name by which the digital resource is formally known or the name given to the digital resource by the creator or publisher. *Title* may also be an identifying phrase or name of the digital resource supplied by the metadata creator, project manager, or the archivist. Neither *Title* nor *Title.Alternative* needs to be unique.
Refinements	*Title.Alternative* (Mandatory if Applicable, Repeatable) Any form of the title used as a substitute or alternative to the formal title of the digital resource.
Schema	None.
Audience	Manager, Staff User, End User
Simple DC Mapping	Title (*Title* and *Title.Alternative*)

Input Guidelines:

1. Transcribe the title if one is available from digital resource itself, or enter the title given by the project manager, archivist, EAD finding aid, or found in reference sources. For more guidance in constructing titles, the project manager should consult established cataloging rules such as *Anglo-American Cataloging Rules (AACR2), Describing Archives: A Content Standard (DACS),* or *Cataloging Cultural Objects (CCO).* It is recommended that only **one** of those sets of rules be used for each project. Do not enclose supplied titles in square brackets, unless the project manager identifies a need for the brackets.
2. To aid in title sorting of results, remove any initial article and append to the end of the title, following a comma, for transcribed titles. Avoid using initial articles in supplied titles if at all possible.
3. Capitalize only the first letter of the title and proper nouns contained within the title.
4. In general, use the punctuation provided with the title or, if the title is created by the project manager, use English language punctuation standards. The project manager may designate a standard style manual such as *Chicago Manual of Style*, *University Style Manual* (Colorado State University), etc.
5. The *Title* element is repeatable only with the refinement *Alternative*. The *Title* element should be used only once and all other *Title* elements should be expressed as *Title.Alternative*.
6. *Title.Alternative* can be used for other titles useful for access, i.e., caption title, former title, spine title, collection title, series title, artist's title, object name, translation of title, and other variations of the title.
7. File names, accession numbers, call numbers, or other identification schemes should be entered in the *Identifier* element.

Examples:

- *Title:* Wildlife habitat and agricultural commodities: organizing a common property resource in northern Colorado's Phantom Canyon [Title from thesis title page, transcribed exactly.]
- *Title:* Boys and Girls Club [Title from University Historic Photographs Collection finding aid.]
- *Title:* Eastern boa constrictor coiled on sand [Title for an image, constructed by the metadata creator—project manager chose not to use square brackets on the supplied title.]
- *Title:* Fantome de Shakespeare, Le [Title for a poster with the leading initial article appended to the end of the title, following a comma.]
- *Title:* [Humble series I]—[Title for a poster when the poster itself has no title, and the title was taken from the exhibition catalog. Project manager chose to enclose the title in square brackets to indicate this title was not on the poster, and to enter "Title from catalog" in the *Description* element.]
- *Title.Alternative:* Trust based routing protocol in Mobile Ad Hoc Networks [formal title is: Trust based routing protocol in MANET; MANET is the acronym for Mobile Ad Hoc Networks.]
- *Title.Alternative:* Colorado Flower Growers Assn. Inc., August 1, 1958; Centennial Race Track - The Columbine Handicap [Additional title handwritten on the mat of an image; project manager chose the briefer handwritten title: Freedom's Pride for the *Title* element.]

Type

Element Name	Type
Standard Referenced	DC, CDP, Z39.87
Obligation	Mandatory
Repeatable	Yes
Definition	The nature or genre of the content of the resource.
Comment	The *Type* element lists terms describing general categories, functions, genres, or aggregation levels for content. To describe the physical or digital manifestation of the resource, use the *Format* element.
Refinements	None
Schema	DCMI Type Vocabulary http://dublincore.org/documents/dcmi-type-vocabulary/
Audience	Manager, Staff User, End User
Simple DC Mapping	Type

Input Guidelines:

1. Images of written language are assigned as Text in *Type*.
2. Some digital resources may require more than one *Type*, such as a scanned page containing both a picture and text.
3. Digital representations of three-dimensional objects should be assigned "Image", "Still Image", etc. as appropriate, rather than "Physical Object". The use of "Physical Object" is confined to databases describing the objects, not to their digital surrogates.

Examples:

- Text [for a PDF version of a dissertation]
- Still Image; Text [for a Masters of Fine Art thesis consisting primarily of photographs of the student's art exhibition, with only a few paragraphs of text.]