Using Dublin Core

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Description of Document: This document is intended as an entry point for users of Dublin Core. For non-specialists, it will assist them in creating simple descriptive records for information resources (for example, electronic documents). Specialists may find the document a useful point of reference to the documentation of Dublin Core, as it changes and grows.

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1. Introduction

1.1. What is Metadata?

Metadata has been with us since the first librarian made a list of the items on a shelf of handwritten scrolls. The term "meta" comes from a Greek word that denotes "alongside, with, after, next." More recent Latin and English usage would employ "meta" to denote something transcendental, or beyond nature. Metadata, then, can be thought of as data about other data. It is the Internet-age term for information that librarians traditionally have put into catalogs, and it most commonly refers to descriptive information about Web resources.

A metadata record consists of a set of attributes, or elements, necessary to describe the resource in question. For

example, a metadata system common in libraries -- the library catalog -- contains a set of metadata records with elements that describe a book or other library item: author, title, date of creation or publication, subject coverage, and the call number specifying location of the item on the shelf.

The linkage between a metadata record and the resource it describes may take one of two forms:

1. elements may be contained in a record separate from the item, as in the case of the library's catalog record; or
2. the metadata may be embedded in the resource itself.

Examples of embedded metadata that is carried along with the resource itself include the Cataloging In Publication (CIP) data printed on the verso of a book's title page; or the TEI header in an electronic text. Many metadata standards in use today, including the Dublin Core standard, do not prescribe either type of linkage, leaving the decision to each particular implementation.

Although the concept of metadata predates the Internet and the Web, worldwide interest in metadata standards and practices has exploded with the increase in electronic publishing and digital libraries, and the concomitant "information overload" resulting from vast quantities of undifferentiated digital data available online. Anyone who has attempted to find information online using one of today's popular Web search services has likely experienced the frustration of retrieving hundreds, if not thousands, of "hits" with limited ability to refine or make a more precise search. The wide scale adoption of descriptive standards and practices for electronic resources will improve retrieval of relevant resources in any venue where information retrieval is critical. As noted by Weibel and Lagoze, two leaders in the field of metadata development:

> "The association of standardized descriptive metadata with networked objects has the potential for substantially improving resource discovery capabilities by enabling field-based (e.g., author, title) searches, permitting indexing of non-textual objects, and allowing access to the surrogate content that is distinct from access to the content of the resource itself." (Weibel and Lagoze, 1997)

In the last years we have also seen an increase in the application of Dublin Core metadata in more closed environments. There are implementations where Dublin Core metadata is used to describe resources held, owned or produced by companies, governments and international organisations to supporting portal services or internal knowledge management. There are also implementations where Dublin Core metadata is used as a common exchange format supporting the aggregation of collections of metadata, such as the case of the Open Archive Initiative. In these cases, like in the open environment of the Web, the concept of standardized descriptive metadata provides a powerful mechanism to improve retrieval for specific applications and specific user communities. It is this need for "standardized descriptive metadata" that the Dublin Core addresses.

1.2. What is the Dublin Core?

The Dublin Core metadata standard is a simple yet effective element set for describing a wide range of networked resources. The Dublin Core standard includes two levels: Simple and Qualified. Simple Dublin Core comprises fifteen elements; Qualified Dublin Core includes an additional element, Audience, as well as a group of element refinements (also called qualifiers) that refine the semantics of the elements in ways that may be useful in resource discovery. The semantics of Dublin Core have been established by an international, cross-disciplinary group of professionals from librarianship, computer science, text encoding, the museum community, and other related fields of scholarship and practice.

Another way to look at Dublin Core is as a "small language for making a particular class of statements about resources". In this language, there are two classes of terms--elements (nouns) and qualifiers (adjectives) -- which can be arranged into a simple pattern of statements. The resources themselves are the implied subjects in this language. (For additional discussion of Dublin Core Grammar, see "DCMI Grammatical Principles") In the diverse world of the Internet, Dublin Core can be seen as a "metadata pidgin for digital tourists": easily grasped, but not necessarily up to the task of expressing complex relationships or concepts.

The Dublin Core basic element set is outlined in Section 4. Each element is optional and may be repeated. Most elements also have a limited set of qualifiers or refinements, attributes that may be used to further refine (not extend) the meaning of the element. The Dublin Core Metadata Initiative (DCMI) has established standard ways to refine elements and encourage the use of encoding and vocabulary schemes. The full set of elements and element refinements conforming to DCMI "best practice" is available, with a formal registry in process.

Three other Dublin Core principles bear mentioning here, as they are critical to understanding how to think about

the relationship of metadata to the underlying resources they describe.

1. The One-to-One Principle. In general Dublin Core metadata describes one manifestation or version of a resource, rather than assuming that manifestations stand in for one another. For instance, a jpeg image of the Mona Lisa has much in common with the original painting, but it is not the same as the painting. As such the digital image should be described as itself, most likely with the creator of the digital image as Creator or Contributor, rather than the painter of the original Mona Lisa. The relationship between the metadata for the original and the reproduction is part of the metadata description, and assists the user in determining whether he or she needs to go to the Louvre for the original, or whether his/her need can be met by a reproduction.

2. The Dumb-down Principle. The qualification of Dublin Core properties is guided by a rule known colloquially as the Dumb-Down Principle. According to this rule, a client should be able to ignore any qualifier and use the value as if it were unqualified. While this may result in some loss of specificity, the remaining element value (minus the qualifier) must continue to be generally correct and useful for discovery. Qualification is therefore supposed only to refine, not extend the semantic scope of a property.

3. Appropriate values. Best practice for a particular element or qualifier may vary by context, but in general an implementor cannot always predict that the interpreter of the metadata will always be a machine. This may impose certain constraints on how metadata is constructed, but the requirement of usefulness for discovery should be kept in mind.

Although the Dublin Core was originally developed with an eye to describing document-like objects (because traditional text resources are fairly well understood), DC metadata can be applied to other resources as well. Its suitability for use with particular non-document resources will depend to some extent on how closely their metadata resembles typical document metadata and also what purpose the metadata is intended to serve. (Implementors interested in using Dublin Core for diverse resources are encouraged to browse the Dublin Core Projects pages for ideas on using Dublin Core metadata for their resources.)

Dublin Core has as its goals:

Simplicity of creation and maintenance

> The Dublin Core element set has been kept as small and simple as possible to allow a non-specialist to create simple descriptive records for information resources easily and inexpensively, while providing for effective retrieval of those resources in the networked environment.

Commonly understood semantics

> Discovery of information across the vast commons of the Internet is hindered by differences in terminology and descriptive practices from one field of knowledge to the next. The Dublin Core can help the "digital tourist" -- a non-specialist searcher -- find his or her way by supporting a common set of elements, the semantics of which are universally understood and supported. For example, scientists concerned with locating articles by a particular author, and art scholars interested in works by a particular artist, can agree on the importance of a "creator" element. Such convergence on a common, if slightly more generic, element set increases the visibility and accessibility of all resources, both within a given discipline and beyond.

International scope

> The Dublin Core Element Set was originally developed in English, but versions are being created in many other languages, including Finnish, Norwegian, Thai, Japanese, French, Portuguese, German, Greek, Indonesian, and Spanish. The DCMI Localization and Internationalization Special Interest Group is coordinating efforts to link these versions in a distributed registry.
>
> Although the technical challenges of internationalization on the World Wide Web have

not been directly addressed by the Dublin Core development community, the involvement of representatives from virtually every continent has ensured that the development of the standard considers the multilingual and multicultural nature of the electronic information universe.

Extensibility

While balancing the needs for simplicity in describing digital resources with the need for precise retrieval, Dublin Core developers have recognized the importance of providing a mechanism for extending the DC element set for additional resource discovery needs. It is expected that other communities of metadata experts will create and administer additional metadata sets, specialized to the needs of their communities. Metadata elements from these sets could be used in conjunction with Dublin Core metadata to meet the need for interoperabilbility. The DCMI Usage Board is presently working on a model for accomplishing this in the context of "application profiles."

Rachel Heery and Manjula Patel, in their article "Application profiles: mixing and matching metadata schemas" define an application profile as:

> " ... schemas which consist of data elements drawn from one or more namespaces, combined together by implementors, and optimised for a particular local application."

This model allows different communities to use the DC elements for core descriptive information, and allowing domain specific extensions which make sense within a more limited arena.

1.3. The Purpose and Scope of This Guide

This document is intended to be an entry point for users of Dublin Core. For non-specialists, it will assist in creating simple descriptive records for information resources (for example, electronic documents, JPEG images, video clips). Specialists may find the document a useful point of reference to the documentation of Dublin Core, as it changes and grows.

"Using Dublin Core" will show in a non-technical fashion how Dublin Core metadata may be used by anyone to make their material more accessible. It discusses the principles, structure and content of Dublin Core metadata elements, how to use them in composing a complete Dublin Core metadata record, as well as how to qualify elements to support use by a wide variety of communities.

Another important goal of this document is to promote "best practices" for describing resources using the Dublin Core element set. The Dublin Core community recognizes that consistency in creating metadata is an important key to achieving optimal retrieval and intelligible display across disparate sources of descriptive records. Inconsistent metadata effectively hides desired records, resulting in uneven, unpredictable or incomplete search results.

As a general introduction, this document is necessarily brief, and cannot address all the issues implementors may encounter while planning their use of metadata. Several avenues remain for those who have additional questions beyond those addressed in this guide.

1. 1. Appended to this guide are references to relevant articles and other resources, including those with more technical guidance for implementors
2. The Dublin Core Website contains references to additional documents and resources of the DCMI community and ways for implementors to become involved in the DCMI
3. Specific questions can be addressed to AskDCMI. In addition to fielding questions, the AskDCMI service maintains a searchable archive of already answered questions and links to additional resources.

2. Syntax Issues

In this guide, we have chosen to represent Dublin Core examples in a "generic" form (Element="value"). Examples of other syntaxes, including: HTML (the Web's Hypertext Markup Language format), RDF/XML (the Resource Description Framework using eXtensable Markup Language) and in plain XML can be found in syntax-specific

documents available on the DCMI Website. Some are also referenced within this document and in the Bibliography Section of this guide.

HTML provides an easily understood format for demonstrating Dublin Core's underlying concepts, but more complex applications using qualification may find that using XML or RDF makes more sense. When considering an appropriate syntax, it is important to note that Dublin Core concepts are equally applicable to virtually any file format, as long as the metadata is in a form suitable for interpretation both by search engines and by human beings.

2.1. HTML

HTML can be used to express either simple or qualified Dublin Core, although there are limitations inherent in representing refinements in HTML. Specific instructions for expressing Dublin Core in HTML can be found in the following two DCMI documents:

1. Encoding Dublin Core Metadata in HTML
2. Expressing Qualified Dublin Core in HTML/XHTML meta elements

2.2. RDF/XML

RDF (Resource Description Framework) allows multiple metadata schemes to be read by humans as well as parsed by machines. It uses XML (EXtensible Markup Language) to express structure thereby allowing metadata communities to define the actual semantics. This decentralized approach recognizes that no one scheme is appropriate for all situations, and further that schemes need a linking mechanism independent of a central authority to aid description, identification, understanding, usability, and/or exchange.

RDF allows multiple objects to be described without specifying the detail required. The underlying glue, XML, simply requires that all namespaces be defined and once defined, they can be used to the extent needed by the provider of the metadata.

For example:

```
<rdf:RDF
   xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
   xmlns:dc="http://purl.org/dc/elements/1.1/">

   <rdf:Description rdf:about="http://media.example.com/audio/guide.ra">

      <dc:creator>Rose Bush</dc:creator>
      <dc:title>A Guide to Growing Roses</dc:title>
      <dc:description>Describes process for planting and nurturing different kinds of rose bushes.</dc:description>
      <dc:date>2001-01-20</dc:date>

   </rdf:Description>
</rdf:RDF>
```

This simple example uses Dublin Core by itself to describe an audio recording of a guide to growing rose bushes. With XML or RDF/XML, Dublin Core can now be mixed with other metadata vocabularies. For example, the simple Dublin Core description above might be used alongside other vocabularies such as vCard that can describe the author's affiliation and contact information, or a more specialized "rose description" vocabulary that described the rose bushes in greater detail.

DCMI has made available several recommendations specifically about using these syntaxes:

1. Guidelines for Implementing Dublin Core in XML
2. Expressing Simple Dublin Core in RDF/XML
3. Expressing Qualified Dublin Core in RDF/XML (Proposed Recommendation)

2.3. Metadata Storage and Maintenance Issues

Some implementations using Dublin Core have chosen to embed their metadata within the resource itself. This approach is taken most often with documents encoded using HTML, but is also sometimes possible with other kinds

of documents. Simple tools have been developed to make provision of Dublin Core metadata within HTML encoded pages fairly easy. One such tool, DC.dot, extracts metadata information from an HTML document, and formats it so that it can be edited, then cut and pasted back into the HTML header of the original document.

On the other hand, metadata can be stored in any kind of database, and provide a link to the described resource rather than be embedded within it. This approach is likely to be most practical for many non-textual resources, and is increasingly used for text as well, primarily to support easier maintenance and sharing of metadata.

Each of these approaches have their advantages and disadvantages, and the balance point changes as implementations become larger and more diverse, and also as the metadata ages over time.

3. Element Content and Controlled Vocabularies

Each Dublin Core element is optional and repeatable, and there is no defined order of elements. The ordering of multiple occurrences of the same element (e.g., Creator) may have a significance intended by the provider, but ordering is not guaranteed to be preserved in every user environment. Ordering or sequencing may be syntax dependent, for instance, RDF/XML supports ordering, but HTML does not.

Content data for some elements may be selected from a "controlled vocabulary," which is a limited set of consistently used and carefully defined terms. This can dramatically improve search results because computers are good at matching words character by character but weak at understanding the way people refer to one concept using different words, i.e. synonyms. Without basic terminology control, inconsistent or incorrect metadata can profoundly degrade the quality of search results. For example, without a controlled vocabulary, "candy" and "sweet" might be used to refer to the same concept. Controlled vocabularies may also reduce the likelihood of spelling errors when recording metadata.

One cost of a controlled vocabulary is the necessity for an administrative body to review, update and disseminate the vocabulary. For example, the US Library of Congress Subject Headings (LCSH) and the US National Library of Medicine Medical Subject Headings (MeSH) are formal vocabularies, indispensable for searching rigorously cataloged collections. However, both require significant support organizations. Another cost is having to train searchers and creators of metadata so that they know when using MeSH, for example, to enter "myocardial infarction" instead of the more colloquial "heart attack." More sophisticated implementations can make such tasks much easier for users, but the controlled vocabulary terms must be present for them to be able to accomplish that task.

Using controlled vocabularies can be done most effectively using qualifiers. Without an encoding scheme specifically designated, a subject which might very well be carefully selected from a controlled vocabulary cannot be distinguished from a simple keyword.

4. The Elements

5. Dublin Core Qualifiers

6. Glossary

7. Bibliography

Metadata associated with this resource: http://dublincore.org/documents/usageguide/index.shtml.rdf

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Using Dublin Core - The Elements

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4. The Elements

This section lists each element by its full name and label. For each element there are guidelines to assist in creating metadata content, whether it is done "from scratch" or by converting an existing record in another format.

The elements are listed in the order they were developed, but there are other useful ways to group them. In the following table, you can see that some elements relate more to the content of the item, some to the item as intellectual property, still others to the particular instantiation, or version, of the item.

Content	Intellectual Property	Instantiation
Coverage	Contributor	Date
Description	Creator	Format
Type	Publisher	Identifier
Relation	Rights	Language

Source
Subject
Title
Audience

In the element descriptions below, a formal single-word label is specified to make the syntactic specification of elements simpler for encoding schemes. Although some environments, such as HTML, are not case-sensitive, it is recommended best practice always to adhere to the case conventions in the element names given below to avoid conflicts in the event that the metadata is subsequently converted to a case-sensitive environment, such as XML.

Some information may appear to belong in more than one metadata element. While there will normally be a clear preferred choice, there is potential semantic overlap between some elements. Consequently, there will occasionally be some judgment required from the person assigning the metadata.

4.1. Title

Label: Title

Element Description: The name given to the resource. Typically, a Title will be a name by which the resource is formally known.

Guidelines for creation of content:

If in doubt about what constitutes the title, repeat the Title element and include the variants in second and subsequent Title iterations. If the item is in HTML, view the source document and make sure that the title identified in the title header (if any) is also included as a Title.

Examples:

Title="A Pilot's Guide to Aircraft Insurance"
Title="The Sound of Music"
Title="Green on Greens"
Title="AOPA's Tips on Buying Used Aircraft"

4.2. Subject

Label: Subject and Keywords

Element Description: The topic of the content of the resource. Typically, a Subject will be expressed as keywords or key phrases or classification codes that describe the topic of the resource. Recommended best practice is to select a value from a controlled vocabulary or formal classification scheme.

Guidelines for creation of content:

Select subject keywords from the Title or Description information, or from within a text

resource. If the subject of the item is a person or an organization, use the same form of the name as you would if the person or organization were a Creator or Contributor, but do not necessarily repeat the name in the Creator or Contributor element.

In general, choose the most significant and unique words for keywords, avoiding those too general to describe a particular item. Subject might include classification data if it is available (for example, Library of Congress Classification Numbers or Dewey Decimal numbers) or controlled vocabularies (such as Medical Subject Headings or Art and Architecture Thesaurus descriptors) as well as keywords.

When including terms from multiple vocabularies, use separate element iterations. If multiple vocabulary terms or keywords are used, either separate terms with semi-colons or use separate iterations of the Subject element.

Examples:

Subject="Aircraft leasing and renting"
Subject="Dogs"
Subject="Olympic skiing"
Subject="Street, Picabo"

4.3. Description

Label: Description

Element Description: An account of the content of the resource. Description may include but is not limited to: an abstract, table of contents, reference to a graphical representation of content or a free-text account of the content.

Guidelines for creation of content:

Since the Description field is a potentially rich source of indexable terms, care should be taken to provide this element when possible. Best practice recommendation for this element is to use full sentences, as description is often used to present information to users to assist in their selection of appropriate resources from a set of search results.

Descriptive information can be copied or automatically extracted from the item if there is no abstract or other structured description available. Although the source of the description may be a web page or other structured text with presentation tags, it is generally not good practice to include HTML or other structural tags within the Description element. Applications vary considerably in their ability to interpret such tags, and their inclusion may negatively affect the interoperability of the metadata.

Examples:

Description="Illustrated guide to airport markings and lighting signals, with particular reference to SMGCS (Surface Movement Guidance and Control System) for airports with low visibility conditions."

Description="Teachers Domain is a multimedia library for K-12 science educators, developed by WGBH through funding from the National Science Foundation as part of its National Science Digital Library initiative. The site offers a wealth of classroom-ready instructional resources, as

well as online professional development materials and a set of tools which allows teachers to manage, annotate, and share the materials they use in classroom teaching."

4.4. Type

Label: Resource Type

Element Description: The nature or genre of the content of the resource. Type includes terms desribing general categories, functions, genres, or aggregation levels for content. Recommended best practice is to select a value from a controlled vocabulary (for example, the DCMIType vocabulary). To describe the physical or digital manifestation of the resource, use the FORMAT element.

Guidelines for content creation:

If the resource is composed of multiple mixed types then multiple or repeated Type elements should be used to describe the main components.

Because different communities or domains are expected to use a variety of type vocabularies, best practice to ensure interoperability is to include at least one general type term from the DCMIType vocabulary in addition to the domain specific type term(s), in separate Type element iterations.

Examples:

```
Type="Image"
Type="Sound"
Type="Text"
Type="simulation"
```

Note: The first three values are taken from the DCMI Type Vocabulary, and follow the capitalization conventions for that vocabulary. The last value is a term from an unspecified source.

The item described is an *Electronic art exhibition catalog:*

```
Type="Image"
Type="Text"
Type="Exhibition catalog"
```

Note: The first two values are taken from the DCMI Type Vocabulary, and follow the capitalization conventions for that vocabulary. The last valuee is a term from an unspecified source.

The item described is a *Multimedia educational program with interactive assignments:*

```
Type="Image"
Type="Text"
Type="Software"
Type="Interactive Resource"
```

Note: All values in this example are taken from the DCMI Type Vocabulary, and follow the capitalization conventions for that vocabulary.

4.5. Source

Label: Source

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

Guidelines for content creation:

In general, include in this area information about a previous version which does not fit easily into Relation.

Examples:

> Source="RC607.A26W574 1996" [where "RC607.A26W574 1996" is the call number of the print version of the resource, from which the present version was scanned]
>
> Source="Image from page 54 of the 1922 edition of Romeo and Juliet"

4.6. Relation

Label: Relation

Element Description: A reference to a related resource. Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system.

Guidelines for content creation:

Relationships may be expressed reciprocally (if the resources on both ends of the relationship are being described) or in one direction only, even when there is a refinement available to allow reciprocity. If text strings are used instead of identifying numbers, the reference should be appropriately specific. For instance, a formal bibliographic citation might be used to point users to a particular resource.

Because the refined terms used with Relation provide significantly more information to a user than the unqualified use of Relation, implementors who are describing heavily interrelated resources might choose to use qualified Dublin Core.

Examples:

> Title="Reading Turgenev"
> Relation="Two Lives" [Resource is a collection of two novellas, one of which is "Reading Turgenev"]
> *[Relationship described is **IsPartOf**.*

[Part/Whole relations are those in which one resource is a physical or logical part of another]

Title="Candle in the Wind"
Subject="Diana, Princess of Wales"
Date="1997"
Creator="John, Elton"
Type="sound"
Description="Tribute to a dead princess."
Relation="Elton John's 1976 song Candle in the Wind"
*[Relationship described is **IsVersionOf**.*

[Version relations are those in which one resource is an historical state or edition, of another resource by the same creator]

Title="Electronic AACR2"
Relation="Anglo-American Cataloging Rules, 2nd edition"
*[Relationship described is **IsFormatOf**]*

Title="Landsat TM dataset of Arnhemland, NT, Australia"
Relation="arnhem.gif"
[Relationship described is **HasFormat**]

[Format transformation relations are those in which one resource has been derived from another by a reproduction or reformatting technology which is not fundamentally an interpretation but intended to be a representation.]

Title="Morgan's Ancient Society"
Relation="Engels' Origin of the Family, Private Property and the State"
*[Relationship described is **IsReferencedBy**]*

Title="Nymphet Mania"
Relation="References Adrian Lyne's 'Lolita'"
*[Relationship described is **References**]*

[Reference relations are those in which the author of one resource cites, acknowledges, disputes or otherwise make claims about another resource.]

Title="Peter Carey's novel Oscar and Lucinda"
Relation="1998 movie Oscar and Lucinda"
*[Relationship described is **IsBasisFor**]*

Title="The movie My Fair Lady"
Relation="Shaw's play Pygmalion"
*[Relationship described is **IsBasedOn**]*

[Creative relations are those in which one resource is a performance, production, derivation, adaptation or interpretation of another resource.]

Title="Dead Ringer"
Relation="Gemstar e-book"
*[Relationship described is **Requires**]*

[Dependency relations are those in which one resource requires another resource for its functioning, delivery, or content and cannot be used without the related resource being

present.]

4.7. Coverage

Label: Coverage

Element Description: The extent or scope of the content of the resource. Coverage will typically include spatial location (a place name or geographic co-ordinates), 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 [Getty Thesaurus of Geographic Names, http://www.getty.edu/research/tools/vocabulary/tgn/]). Where appropriate, named places or time periods should be used in preference to numeric identifiers such as sets of co-ordinates or date ranges.

Guidelines for content creation:

Whether this element is used for spatial or temporal information, care should be taken to provide consistent information that can be interpreted by human users, particularly in order to provide interoperability in situations where sophisticated geographic or time-specific searching is not supported. For most simple applications, place names or coverage dates might be most useful. For more complex applications, consideration should be given to using an encoding scheme that supports appropriate specification of information, such as DCMI Period, DCMI Box or DCMI Point.

Examples:

```
Coverage="1995-1996"
Coverage="Boston, MA"
Coverage="17th century"
Coverage="Upstate New York"
```

4.8. Creator

Label: Creator

Element Description: An entity primarily responsible for making the content of the resource. Examples of a Creator include a person, an organization, or a service. Typically the name of the Creator should be used to indicate the entity.

Guidelines for creation of content:

Creators should be listed separately, preferably in the same order that they appear in the publication. Personal names should be listed surname or family name first, followed by forename or given name. When in doubt, give the name as it appears, and do not invert.

In the case of organizations where there is clearly a hierarchy present, list the parts of the hierarchy from largest to smallest, separated by full stops and a space. If it is not clear whether there is a hierarchy present, or unclear which is the larger or smaller portion of the body, give the name as it appears in the item.

If the Creator and Publisher are the same, do not repeat the name in the Publisher area. If the nature of the responsibility is ambiguous, the recommended practice is to use Publisher for organizations, and Creator for individuals. In cases of lesser or ambiguous responsibility, other than creation, use Contributor.

Examples:

Creator="Shakespeare, William"
Creator="Wen Lee"
Creator="Hubble Telescope"
Creator="Internal Revenue Service. Customer Complaints Unit"

4.9. Publisher

Label: Publisher

Element Description: The entity responsible for making the resource available. 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.

Guidelines for content creation:

The intent of specifying this field is to identify the entity that provides access to the resource. If the Creator and Publisher are the same, do not repeat the name in the Publisher area. If the nature of the responsibility is ambiguous, the recommended practice is to use Publisher for organizations, and Creator for individuals. In cases of ambiguous responsibility, use Contributor.

Examples:

Publisher="University of South Where"
Publisher="Funky Websites, Inc."
Publisher="Carmen Miranda"

4.10. Contributor

Label: Contributor

Element Description: An entity responsible for making contributions to the content of the resource. 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.

Guideline for content creation:

The same general guidelines for using names of persons or organizations as Creators apply here. Contributor is the most general of the elements used for "agents" responsible for the resource, so should be used when primary responsibility is unknown or irrelevant.

4.11. Rights

Label: Rights Management

Element Description: Information about rights held in and over the resource. Typically a Rights 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 element is absent, no assumptions can be made about the status of these and other rights with respect to the resource.

Guidelines for content creation:

The Rights element may be used for either a textual statement or a URL pointing to a rights statement, or a combination, when a brief statement and a more lengthy one are available.

Examples:

```
Rights="Access limited to members"
Rights="http://cs-tr.cs.cornell.edu/Dienst/Repository/2.0/Terms"
```

4.12. Date

Label: Date

Element Description: A date associated with an event in the life cycle of the resource. Typically, Date 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 [Date and Time Formats, W3C Note, http://www.w3.org/TR/NOTE-datetime] and follows the YYYY-MM-DD format.

Guidelines for content creation:

If the full date is unknown, month and year (YYYY-MM) or just year (YYYY) may be used. Many other schemes are possible, but if used, they may not be easily interpreted by users or software.

Examples:

```
Date="1998-02-16"
Date="1998-02"
Date="1998"
```

4.13. Format

Label: Format

Element Description: The physical or digital manifestation of the resource. Typically, Format may include the media-type or dimensions of the resource. Examples of dimensions include size and duration. Format may be used to determine the software, hardware or other equipment needed to display or operate the resource.

Recommended best practice is to select a value from a controlled vocabulary (for example, the list of Internet Media Types [http://www.isi.edu/in-notes/iana/assignments/media-types/media-types] defining computer media formats).

Guidelines for content creation:

In addition to the specific physical or electronic media format, information concerning the size of a resource may be included in the content of the Format element if available. In resource discovery size, extent or medium of the resource might be used as a criterion to select resources of interest, since a user may need to evaluate whether they can make use of the resource within the infrastructure available to them.

When more than one category of format information is included in a single record, they should go in separate iterations of the element.

Examples:

```
Title="Dublin Core icon"
Identifier="http://purl.org/metadata/dublin_core/images/dc2.gif"
Type="Image"
Format="image/gif"
Format="4 kB"

Subject="Saturn"
Type="Image"
Format="image/gif 6"
Format="40 x 512 pixels"
Identifier="http://www.not.iac.es/newwww/photos/images/satnot.gif"

Title="The Bronco Buster"
Creator="Frederic Remington"
Type="Physical object"
Format="bronze"
Format="22 in."
```

4.14. Identifier

Label: Resource Identifier

Element Description: An unambiguous reference to the resource within a given context. Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. Examples of formal identification systems include the Uniform Resource Identifier (URI) (including the Uniform Resource Locator (URL), the Digital Object Identifier (DOI) and the International Standard Book Number (ISBN).

Guidelines for content creation:

This element can also be used for local identifiers (e.g. ID numbers or call numbers) assigned by the Creator of the resource to apply to a particular item. It should not be used for identification of the metadata record itself.

Examples:

Identifier="http://purl.oclc.org/metadata/dublin_core/"
Identifier="ISBN:0385424728"
Identifier="H-A-X 5690B" [publisher number]

4.15. Language

Label: Language

Element Description: A language of the intellectual content of the resource. Recommended best practice for the values of the Languge element is defined by RFC 3066 [RFC 3066, http://www.ietf.org/rfc/rfc3066.txt] which, in conjunction with ISO 639 [ISO 639, http://www.oasis-open.org/cover/iso639a.html]), defines two- and three-letter primary language tags with optional subtags. Examples include "en" or "eng" for English, "akk" for Akkadian, and "en-GB" for English used in the United Kingdom.

Guidelines for content creation:

Either a coded value or text string can be represented here. If the content is in more than one language, the element may be repeated.

Examples:

Language="en"
Language="fr"
Language="Primarily English, with some abstracts also in French."
Language="en-US"

NOTE: Audience is an element, but not part of the Simple Dublin Core fifteen elements. Use Audience only when using Qualified Dublin Core.

4.16. Audience

Label: Audience

Element Description: A class of entity for whom the resource is intended or useful. A class of entity may be determined by the creator or the publisher or by a third party.

Guidelines for content creation:

Audience terms are best utilized in the context of formal or informal controlled vocabularies. None are presently recommended or registered by DCMI, but several communities of interest are engaged in setting up audience vocabularies. In the absence of recommended controlled vocabularies, implementors are encouraged to develop local lists of values, and to use them consistently.

Examples:

Audience="elementary school students"
Audience="ESL teachers"

Audience="deaf adults"



Metadata associated with this resource: http://dublincore.org/documents/usageguide/elements.shtml.rdf

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Using Dublin Core - Dublin Core Qualifiers

Date Issued:	2003-08-26
Identifier:	http://dublincore.org/documents/2003/08/26/usageguide/qualifiers.shtml
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Is Replaced By:	Not Applicable
Latest version:	http://dublincore.org/documents/usageguide/
Translations:	http://dublincore.org/resources/translations/
Status of document:	DCMI Recommended Resource
Description of document:	This document describes the principles governing Dublin Core qualifiers, the two categories of qualifiers, and lists instances of qualifiers approved by the Dublin Core Usage Committee as well as guidance for their use.

5. Dublin Core Qualifiers

This document presents in part the results of an ongoing process to develop exemplary terms extending or refining the original 15 elements of the Dublin Core Metadata Element Set (DCMES). The terms or "qualifiers" listed here were identified, generally in working groups of the Dublin Core Metadata Initiative, (DCMI) and judged by the DCMI Usage Board to be in conformance with principles of good practice for the qualification of Dublin Core metadata elements.

In determining the makeup of these qualifiers, preference was given to vocabularies, notations, and terms already maintained by established agencies. It should be emphasized that the list of externally-maintained vocabularies identified here is a preliminary list. There are many more controlled vocabularies or classification systems that are not on this preliminary list. The DCMI has initiated a registration process, intended to be available in 2003, which will begin by registering subject vocabularies and from there extend to encoding and vocabulary schemes relevant to other elements. Until that registry is available, detail on currently recommended schemes are listed at: DCMI Encoding Schemes - a current list

Inevitably, there will be situations where an agent or client will encounter DCMES descriptions that use unfamiliar qualifiers developed by implementors for specialized local or domain-specific needs. The useful interpretation of such a DCMES description will depend on the ability of an application to ignore the unknown qualifiers and fall back on the broader meaning of the

element in its unqualified form. The guiding principle for the qualification of Dublin Core elements, colloquially known as the "Dumb-Down Principle," is that a client should be able to ignore any qualifier and use the information as if it were unqualified. While this may result in some loss of specificity, the remaining element value (without the qualifier) should continue to be generally correct and useful for discovery.

It is expected that implementors will develop additional qualifiers for use within local applications or specific domains. Such qualifiers may not be understood by other applications. However, qualifiers that conform to the principles of qualification defined here are more likely to be reusable by other communities within the broader context of cross-domain discovery.

At the time of the ratification of this document, the DCMI recognizes two broad classes of qualifiers:

- **Element Refinement.** These qualifiers make the meaning of an element narrower or more specific. A refined element shares the meaning of the unqualified element, but with a more restricted scope. A client that does not understand a specific element refinement term should be able to ignore the qualifier and treat the metadata value as if it were an unqualified (broader) element. The definitions of element refinement terms for qualifiers must be publicly available.
- **Encoding Scheme.** These qualifiers identify schemes that aid in the interpretation of an element value. These schemes include controlled vocabularies and formal notations or parsing rules. A value expressed using an encoding scheme will thus be a token selected from a controlled vocabulary (e.g., a term from a classification system or set of subject headings) or a string formatted in accordance with a formal notation (e.g., "2000-01-01" as the standard expression of a date). If an encoding scheme is not understood by a client or agent, the value may still be useful to a human reader. The definitive description of an encoding scheme for qualifiers must be clearly identified and available for public use.

All of the qualifiers listed in this document fall into one of these two categories. Specific guidance is given below for element refinements. If a particular encoding scheme is available for the element and or/element refinement, its application is generally described either in this document or in documentation available with the encoding scheme itself. Audience, which is at the element level but not one of the original 15 elements, is described along with the other elements.

Additional qualifier categories may evolve over time and with implementation experience. The qualifiers listed here do not constitute a closed set, designed to meet all of the descriptive needs of implementors. Rather, they form the foundation for a larger body of qualifiers that will evolve as additional qualifiers are developed by various communities, some of which may eventually be submitted to the DCMI Usage Board for review and approval. Implementors may deploy the qualifiers on these lists with confidence that they conform to the Dumb-Down Principle, and are encouraged to use these qualifiers as examples to guide development of local qualifiers for Dublin Core metadata elements.

Summary Refinement and Scheme Table

This summary of the element refinements and schemes is provided for the convenience of users. Terms in this summary may have the status of "recommended" or "conforming." The reference definitions and status indications may be found in DCMI Terms. Click on the term to go directly to the reference definition for that term.

DCMES Element	Element Refinement(s)	Element Encoding Scheme(s)
Title	Alternative	-
Creator	-	-
Subject	-	LCSH MeSH DDC LCC UDC
Description	Table Of Contents Abstract	-
Publisher	-	-
Contributor	-	-
Date	Created Valid Available Issued Modified Date Copyrighted Date Submitted	DCMI Period W3C-DTF
Type	-	DCMI Type Vocabulary
Format	-	IMT
	Extent	-
	Medium	-
Identifier	-	URI
	Bibliographic Citation	-
Source	-	URI
Language	-	ISO 639-2RFC 3066
Relation	Is Version Of Has Version Is Replaced By Replaces Is Required By Requires Is Part Of Has Part Is Referenced By References Is Format Of Has Format Conforms To	URI

Coverage	Spatial	DCMI Point ISO 3166 DCMI Box TGN
	Temporal	DCMI Period W3C-DTF
Rights	Access Rights	-
Audience	Mediator Education Level	-

Properties of Dublin Core Qualifiers

Dublin Core qualifiers have the following properties:

- **Name:** The unique token assigned to the qualifier.
- **Label:** The human-readable label assigned to the qualifier.
- **Definition:** A statement that represents the concept and essential nature of the qualifier.
- **Comment:** Additional information associated with the qualifier (if available).
- **See Also:** A link to more information about the qualifier (if available).

For the up-to-date specification of all metadata terms maintained by the Dublin Core Metadata Initiative, including elements, element refinements, encoding schemes, and vocabulary terms (the DCMI Type Vocabulary), see http://dublincore.org/documents/dcmi-terms/. In the listing below, the Name and Label attributes are the same as in the specification, but the Definition and Comment appear together as "Term Description", and guidance and examples are added.

Multiple Language Encodings of Dublin Core Entities

Dublin Core qualifiers will be expressed in languages other than English. A single invariant token assigned to each qualifier -- the Name property -- stands for a given qualifier concept irrespective of the language in which it is defined. This token can be incorporated into a URI to form a unique identifier for the qualifier. All other properties of a qualifier (Label, Definition, Comment, and aspects of See Also as appropriate) can be translated from English into any other language.

All other properties of Dublin Core entities (Label, Definition, Comment, and aspects of See Also as appropriate) will be expressed in the language and character set of the translation.

Element Refinements

These element refinement terms are extensions to the "Simple Dublin Core" 15 elements or to the additional element term Audience.

Refinement(s) for element: Title

Alternative

Label: Alternative

Term description: Any form of the title used as a substitute or alternative to the formal title of the resource. This qualifier can include Title abbreviations as well as translations.

Guidelines for creation of content:

An alternative title can be used to provide access to secondary titles, but should only be used when a value is present in the Title element.

Examples:

Alternative="AMA newsletter" (Title="American Meteorological Association newsletter")
Alternative="Ocho semanas" (Title="Eight weeks")

Refinement(s) for element: Description

tableOfContents

Label: Table of Contents

Term description: A list of subunits of the content of the resource.

Guidelines for creation of content:

When a description of a resource consists of a list of the contents, whether from a menu or other mechanism, tableOfContents can be used to differentiate this list from descriptive text that is written in sentence form. This allows more options for display and indexing.

Examples:

tableOfContents="Introduction; Vertebrates; Invertebrates; Molluscs"

Abstract

Label: Abstract

Term description: A summary of the content of the resource.

Guidelines for creation of content:

Used when a description of a resource consists of a formal abstract. For implementations where formal abstracts are preferred, using the specific term allows the label to better reflect the level of the description.

Examples:

Abstract="This article describes the work of the IFB Chaos Committee, including a summary of its

major findings."

Refinement(s) for element: Date

Date refinements are generally useful in situations where more than one date is needed, and the difference between the dates may be important to users. Note that the first five Date refinement terms were among the earlier ones approved by DCMI, and the naming convention of the time was not to include "date" as part of the refined term. The most recent ones reflect changes in the naming convention used, in which the name of the refined term expresses more clearly the relationship to the parent element.

Created

Label: Created

Term description: Date of creation of the resource.

Guidelines for creation of content:

If the date of creation of the resource is known, and that date is important to note specifically (e.g., there are other relevant dates to record), use the term Created for the creation date of the resource. Note that the "one-to-one" rule requires that the creation date be that of the resource being described, not any early version from which the current resource is derived.

Valid

Label: Valid

Term description: Date (often a range) of validity of a resource.

Guidelines for creation of content:

If the resource is only valid or relevant for a particular date or range of dates, the term Valid may be used to express those dates. This may be particularly important if the resource will be retained over time but its use is valid only during a particular period or until a particular date.

Available

Label: Available

Term description: Date (often a range) that the resource will become or did become available.

Guidelines for creation of content:

In general, the term Available should be used in the case of a resource for which the date of availability may be distinct from the date of creation, and the date of availability is relevant to the use of the resource.

Issued

Label: Issued

Term description: Date of formal issuance (e.g., publication) of the resource.

Guidelines for creation of content:

The term Issued should be applied when a formal date of issuance or publication is relevant to the resource, and is distinct from other dates that may be used with the resource.

Modified

Label: Modified

Term description: Date on which the resource was changed.

Guidelines for creation of content:

Modified dates may be used to record either all instances of modification or only the latest. When only one modified date is recorded, it is assumed to be the latest.

dateAccepted

Label: Date Accepted

Term description: Date of acceptance of the resource (e.g. of thesis by university department, of article by journal, etc.).

Guidelines for creation of content:

If, in the lifecycle of a resource, the date of acceptance by a formal body or entity is relevant to the use of the resource, dateAccepted may be used.

dateSubmitted

Label: Date Submitted

Term description: Date of submission of the resource (e.g. thesis, articles, etc.).

Guidelines for creation of content:

If, in the lifecycle of a resource, the date of submission to a body or entity is relevant to the use of the resource, dateSubmitted may be used.

Refinement(s) for element: Format

Extent

Label: Extent

Term description: The size or duration of the resource.

Guidelines for creation of content:

Because the refinement Extent is used in a variety of situations, it generally consists of both a numeric value and a caption that is needed to interpret the numeric value. Best practice is to separate the numeric value and the caption with a space, whether the caption appears before or after the value.

Examples:

```
Extent="folio"
Extent="899 Kb"
Extent="21 minutes"
```

Medium

Label: Medium

Term description: The material or physical carrier of the resource.

Guidelines for creation of content:

Medium is generally used when the resource is of a physical nature, for instance a painting or model, where the physical carrier or material used is relevant to the user. For instance, if the resource is a movie on DVD, and is only available as a physical object, it should be described as such. If it is available digitally, its format would be reflected in the Format element.

Examples:

```
Medium="cotton fabric with sequins"
Medium="bronze on wooden pedestal"
Medium="oil on wood"
```

Refinement(s) for element: Relation

Most of the refinements of Relation are expressed as "reciprocals" and may be used to link resources in two directions, though this is not required. Implementors need not describe both or all resources involved in a reciprocal relationship to express the relationship--in other words, they may describe a later version and relate it to the earlier without having the need or opportunity to describe the earlier, and vice versa. In some of the relationships below, maintaining reciprocality is more important. In others, one direction of the relationship is more relevant that the other. These differences will be mentioned in the guidelines for specific terms.

In All cases, either a string or a URI may be used as a value. If a URI is used, the scheme

should be designated.

Examples for Relation refinements can be found with the Relation element. When using Relation refinements, do not use embedded text labels, as the examples illustrate.

isVersionOf

Label: Is Version Of

Term description: 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.

Guidelines for creation of content:

Use only in cases where the relationship expressed is at the content level. Relationships need not be close for the relationship to be relevant. "West Side Story" is a version of "Romeo and Juliet" and that may be important enough in the context of the resource description to be expressed using isVersionOf. The Broadway Show and the movie of "West Side Story" also relate at a similar level, but the video and DVD of the movie are more usefully expressed at the level of format, the content being essentially the same.

See also isFormatOf.

hasVersion

Label: Has Version

Term description: 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.

Guidelines for creation of content:

See isVersionOf for basic guidelines.

isReplacedBy

Label: Is Replaced By

Term description: The described resource is supplanted, displaced, or superseded by the referenced resource.

Guidelines for creation of content:

When establishing a chain of versions, where only one version is valid, the use of isReplacedBy and Replaces allows the relationship to be expressed and the user directed to the appropriate version. In this case, the reciprocal relationships are quite important.

Replaces

Label: Replaces

Term description: The described resource supplants, displaces, or supersedes the referenced resource.

Guidelines for creation of content:

See isReplacedBy for basic guidelines.

isRequiredBy

Label: Is Required By

Term description: The described resource is required by the referenced resource, either physically or logically.

Guidelines for creation of content:

In the case of IsRequiredBy and Requires, there is a clearer need to express the Requires relationship than the IsRequiredBy, though both can be useful. This relationship is most often seen in relationships between software and documents or applications and hardware and/or software requirements.

Requires

Label: Requires

Term description: The described resource requires the referenced resource to support its function, delivery, or coherence of content.

Guidelines for creation of content:

See isRequiredBy for basic guidelines.

isPartOf

Label: Is Part Of

Term description: The described resource is a physical or logical part of the referenced resource.

Guidelines for creation of content:

The isPartOf and hasPart relationships are essentially "parent/child" relationships--hierarchical

in nature. With them can be expressed both one-to-one and one-to-many types of relationships.

hasPart

Label: Has Part

T*erm description:* The described resource includes the referenced resource either physically or logically.

Guidelines for creation of content:

See isPartOf for basic guidelines.

isReferencedBy

Label: Is Referenced By

Term description: The described resource is referenced, cited, or otherwise pointed to by the referenced resource.

Guidelines for creation of content:

The isReferencedBy and References refinements enable the expression of relationships that aid the user but are not necessary tied to the lifecycle or necessary for the intended use of the resource. This relationship might be used to link an article critical of a resource to that resource, a satire of a speech to the original speech, etc.

References

Label: References

Term description: The described resource references, cites, or otherwise points to the referenced resource.

Guidelines for creation of content:

See isReferencedBy for basic guidelines.

isFormatOf

Label: Is Format Of

Term description: The described resource is the same intellectual content of the referenced resource, but presented in another format.

Guidelines for creation of content:

This relationship is explicitly for the expression of relationships between resources for which format is the primary variable. Because Dublin Core maintains the principle of "one-to-one," each resource is expected to have its own description.

See also isVersionOf.

hasFormat

Label: Has Format

Term description: The described resource pre-existed the referenced resource, which is essentially the same intellectual content presented in another format.

Guidelines for creation of content:

See isFormatOf for basic guidelines.

conformsTo

Label: Conforms To

Term description: A reference to an established standard to which the resource conforms.

Guidelines for creation of content:

The standards referenced might be educational standards, accessibility standards, or any other established standard that is relevant to the use of the resource.

Refinement(s) for element: Coverage

Spatial

Label: Spatial

Term description: Spatial characteristics of the intellectual content of the resource.

Guidelines for creation of content:

Spatial characteristics may include geographic names, latitude/longitude, or other established georeferenced values. Clearly, this refinement does not allow complex or sophisticated georeferencing, but attention to standard schemes and controlled vocabularies should provide useful results. Controlled vocabulary terms can be drawn from recommended vocabularies, or standard labelling within the value can provide useful assistance to users and applications. For additional information on encoding spatial information see the DCMI Box Encoding Scheme and the DCMI Point Encoding Scheme.

Examples:

Spatial="Chicago, Ill."
Spatial="Lat: 44 00 00 S Long: 068 00 00 W Name:Patagonia"
Spatial="Upstate New York"

Temporal

Label: Temporal

Term description: Temporal characteristics of the intellectual content of the resource.

Guidelines for creation of content:

Temporal characteristics include those aspects of time that relate to the intellectual content of a resource and not its lifecycle. Examples might include a resource describing some aspect of the 19th century but itself created this year. In that case, the Temporal Coverage would be the 19th century, and the Date (or Date Created) would be 2003. Values can be text strings or encoded values. Specific suggestions for encoding Temporal characteristics may be found in the DCMI Period Encoding Scheme.

Examples:

Temporal="Jurassic Period"
Temporal="1922-1978"
Temporal="Twentieth Century"

Refinement(s) for element: Audience

Mediator

Label: Mediator

Term description: A class of entity that mediates access to the resource and for whom the resource is intended or useful. The audiences for a resource are of two basic classes: (1) an ultimate beneficiary of the resource, and (2) frequently, an entity that mediates access to the resource. The mediator element refinement represents the second of these two classes.

Guidelines for creation of content:

In an educational setting, a teacher might be designated the Mediator for a resource intended for use by a teacher in a classroom of students of a particular level or sharing other similar characteristics. Resources intended to be used directly by those same students would not include a Mediator. Mediators may be expressed in more or less specific terms, depending on the needs of the implementation. Controlled vocabularies can be useful in distinguishing Mediators.

Examples:

Mediator="Reading specialist"
Mediator="ESL teachers"

educationLevel

Label: Education Level

Term description: A general statement describing the education or training context. Alternatively, a more specific statement of the location of the audience in terms of its progression through an education or training context.

Guidelines for creation of content:

Commonly, this term would be used for a grade level for materials intended for an educational setting. Although no specific controlled vocabulary has been recommended for use with educationLevel, consistent use of terminology or reliance on an available controlled vocabulary enables more consistent results.

Examples:

```
educationLevel="elementary school students"
educationLevel="4th-5th grade"
educationLevel="secondary science"
```

Refinement(s) for element: Rights

accessRights

Label: Access Rights

Term description: Information about who can access the resource or an indication of its security status. Access Rights may include information regarding access or restrictions based on privacy, security or other regulations.

Guidelines for creation of content:

Access rights is intended to allow the characterization of restrictions to view, search or use resources, based on attributes of the resource itself or the class or category of user. An example would be a resource that was restricted to users holding a particular security clearance, or one that required login or authentication at a particular website.

Examples:

```
accessRights="Available to subscribers only."
accessRights="Viewable by Medium security cleared staff only."
```

Refinement(s) for element: Identifier

bibliographicCitation

Label: Bibliographic Citation

Term description: A bibliographic reference for the resource. Recommended practice is to include sufficient bibliographic detail to identify the resource as unambiguously as possible, whether or not the citation is in a standard form.

Guidelines for creation of content:

Because this term is not describing a relationship to another resource, it should be limited to citations to the resource described in the remainder of the record. For instance, if the resource is an article for a journal, it is appropriate to include very specific information about the article, even page references, if such information is used to cite the article in a standard format for reference by other resources, *even if the article being described is in a digital format*.

Examples:

bibliographicCitation="ESOP, v.2, no. 1, Apr. 2003, p. 5-8"
bibliographicCitation="Nature, v.87, p. 200"



Metadata associated with this resource: http://dublincore.org/documents/usageguide/qualifiers.shtml.rdf

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DCMI Glossary

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The DCMI Glossary is a collaborative effort of the User Guide Committee with special thanks to Gail Clement & Pete Winn, whose original glossary was a basis for this version. Terms included in this glossary are based on DCMI documents, presentations at DC conferences, and discussions on the DC General listserv. We welcome comments and feedback regarding additions, deletions or changes to the terms and/or definitions found below.

The glossary was last updated on 23 April 2004.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Related Standards

1:1 principle
The principle whereby related but conceptually different entities, for example a painting and a digital image of the painting, are described by separate metadata records

A

AACR2
See Anglo-American Cataloguing Rules

administrative metadata
Metadata used in managing and administering information resources, e.g., location or donor information. Includes rights and access information, data

on the creation and preservation of the digital object.

AGLS

See AGLS (Australian Government Locator Service)

Anglo-American Cataloguing Rules (AACR2)

The dominant bibliographic standard regulating cataloging in the English-speaking world. AACR2 represents a set of rules for the standard description of and access to all materials which a library holds or to which it has access.

American Standard Code for Information Interchange (ASCII)

A scheme that provides standard numeric values to represent letters, numbers, punctuation marks and other characters. The use of standard values allows computers and computer programs to exchange data.

application profile

In DCMI usage, an application profile is a declaration of the metadata terms an organization, information resource, application, or user community uses in its metadata. In a broader sense, it includes the set of metadata elements, policies, and guidelines defined for a particular application or implementation. The elements may be from one or more element sets, thus allowing a given application to meet its functional requirements by using metadata elements from several element sets including locally defined sets. For example, a given application might choose a specific subset of the Dublin Core elements that meets its needs, or may include elements from the Dublin Core, another element set, and several locally defined elements, all combined in a single schema. An application profile is not considered complete without documentation that defines the policies and best practices appropriate to the application.

Appropriate values

Best practice for a particular Element or Qualifier may vary by context. Definitions may provide some guidance; other information may be found in *"Using Dublin Core"*.

ASCII

See American Standard Code for Information Interchange

Author

See Creator

authority control

A set of rules or procedures that assist in the maintenance of consistent forms of names or terms within a database.

authority file

A collection of authority records.

authority record

A record that registers the preferred form of a personal or corporate name, geographic region or subject term. It may indicate variant forms of the established heading, biographical or cultural information associated with the heading, as well as related headings.

B

Basic Semantics Register

An ISO Standard ISO/TS 16668:2000 which identifies and defines semantic components for use in data exchange.

best practice

Guidance and documentation to describe and standardize the use of metadata elements that best support a community's needs.

BSR

See Basic Semantics Register

C

case-sensitive
Lower and upper case letters are not treated as if they were interchangeable; e.g. 'a' is not the same as 'A'.

classification
A logical scheme for arrangement of knowledge, usually by subject. Classification schema are alpha and/or numeric; for example, Library of Congress Classification, Dewey Classification, Universal Decimal Classification.

controlled vocabulary
A prescribed set of consistently used and carefully defined terms.

Contributor
The Dublin Core element used to designate the entity responsible for making contributions to the content of the resource. 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. See also *"Using Dublin Core"*.

Coverage
The Dublin Core element used to designate the extent or scope of the content of the resource. Coverage will typically include spatial location (a place name or geographic co-ordinates), 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, and that, where appropriate, named places or time periods be used in preference to numeric identifiers such as sets of co-ordinates or date ranges. See also *"Using Dublin Core"*.

Creator
The Dublin Core element used to designate the entity primarily responsible for making the content of the resource. Examples of a Creator include a person, an organization, or a service. See also *"Using Dublin Core"*.

Crosswalk
A table that maps the relationships and equivalencies between two or more metadata schemes. Crosswalks or metadata mapping support the ability of search engines to search effectively across heterogeneous databases.

D

Date
The Dublin Core element used to designate the date associated with an event in the life cycle of the resource. Typically, Date will be associated with the creation or availability of the resource. See also *"Using Dublin Core"*.

DCMES
Dublin Core Metadata Element Set. See Dublin Core.

DCMI
See Dublin Core Metadata Initiative

DCMI recommendation
A DCMI recommendation is a human-readable document that may define one or more DCMI terms.

DCMI term

A DCMI term is a DCMI element, a DCMI qualifier or term from a DCMI-maintained controlled vocabulary. Each DCMI term is defined in a DCMI recommendation and is identified by a Uniform Resource Identifier (URI) within a DCMI namespace.

DCMI term declaration

A DCMI term declaration is the machine-processable representation of one or more DCMI terms, expressed in a schema language.

Description

The Dublin Core element used to designate a textual description of the content of the resource. See also *"Using Dublin Core"*.

DCSV

See Dublin Core Structured Value

descriptive metadata

Metadata that supports the discovery of an object.

digital tourist

An inexperienced searcher in the digital environment who does not possess knowledge of community- specific vocabularies. The Dublin Core provides a rudimentary vocabulary, or "pidgin language" for information discovery when exploring new digital territories. Coined by Ricky Erway at the Metadata Workshop on Metadata for Networked Images, September 24-25, 1996.

discovery software

A computer application designed to simplify, assist and expedite the process of finding information resources.

Digital Object Identifier

DOI was developed by the International DOI Foundation as a system for identifying and exchanging intellectual property in the digital environment. It provides a mechanism to link a searcher to digital content and facilitates copyright management.

Document Type Definition (DTD)

In SGML or XML, a formal description of the components of a specific document or class of documents. DTDs provide a formal grammar used for machine processing (parsing) of documents expressed in SGML or XML. A DTD description includes:

- The containers or elements that make up the document; e.g., paragraphs, headings, list items, figures, tables, etc.
- The logical structure of the document; e.g., chapters containing sections, etc.
- Additional information associated with elements (known as attributes); e.g., identifiers, date stamps, etc.

document-like object (DLO)

Originally defined as an entity that resembles a document from the standpoint that it is substantially text-based and shares other properties of a document; e.g., electronic mail messages or spreadsheets. The definition was expanded at the 3rd DC workshop to refer to any discrete information resource that are characterized by being fixed (i.e., having identical content for each user). Examples include text, images, movies, and performances.

DOI

see Digital Object Identifier

dot.syntax

A mechanism for refining the meaning of the element in HTML; for example, <META NAME="DC.Title.Alternative" CONTENT="*Title*">

DTD

See Document Type Definition

Dublin Core

The Dublin Core is a metadata element set. It includes all DCMI terms (that is, refinements, encoding schemes, and controlled vocabulary terms) intended to facilitate discovery of resources. The Dublin Core has been in development since 1995 through a series of focused invitational workshops that gather experts from the library world, the networking and digital library research communities, and a variety of content specialties. See the Dublin Core Web Site for additional information.

Dublin Core Metadata Initiative

The Dublin Core Metadata Initiative is the body responsible for the ongoing maintenance of Dublin Core. DCMI is currently hosted by the OCLC Online Computer Library Center, Inc., a not-for-profit international library consortium. The work of DCMI is done by contributors from many institutions in many countries. DCMI is organized into working groups to address particular problems and tasks. DCMI working groups are open to all interested parties. Instructions for joining can be found at the DCMI web site under Working Groups (http://dublincore.org/groups/)

Dublin Core Simple

See Simple Dublin Core

Dublin Core Structured Values

DCSV recognizes two types of substrings: labels and values. A label is the name of the type of a value, and a value is the data itself. A value that is comprised of components, i.e. a value which has its own label and value, is called a structured value. Punctuation supports the parsing of the DCSV.

Dublin Core Terms

See DCMI term

Dumb-down Principle

The qualification of Dublin Core Elements is guided by a rule known colloquially as the Dumb-Down Principle. According to this rule, a client should be able to ignore any qualifier and use the value as if it were unqualified. While this may result in some loss of specificity, the remaining term value (minus the qualifier) must continue to be generally correct and useful for discovery. Qualification is therefore supposed only to refine, not extend the semantic scope of an Element.

E

EAD

see EAD (Encoded Archival Description)

electronic information resource

An information resource that is maintained in electronic, or computerized format, and may be accessed, searched and retrieved via electronic networks or other electronic data processing technologies (e.g., CD-ROM)

element

An element is a property of a resource. As intended here, "properties" are attributes of resources -- characteristics of a resource, such as a Title, Publisher, or Subject. Elements are formally defined terms which are used to describe attributes and properties of a resource.

element refinement (qualifier)

Qualifiers make the meaning of an element narrower or more specific. An element refinement is a property of a resource which shares the meaning of a particular DCMI Element but with narrower semantics. In some

application environments (notably HTML-based encodings), Element refinements are used together with elements in the manner of natural-language "qualifiers" (i.e., adjectives) . However, since element refinements are properties of a resource (like elements), element refinements can alternatively be used in metadata records independently of the properties they refine. In DCMI practice, an Element refinement refines just one parent DCMI property.

embedded metadata

Metadata that is maintained and stored within the object it describes; the opposite of stand-alone metadata.

Encoded Archival Description

An SGML DTD that represents a highly structured way to create digital finding aids for a grouping of archival or manuscript materials. The standard is maintained in the Network Development and MARC Standards Office of the Library of Congress (LC) in partnership with the Society of American Archivists. For more information see http://lcweb.loc.gov/ead/.

encoding scheme

An encoding scheme provides contextual information or parsing rules that aid in the interpretation of a term value. Such contextual information may take the form of controlled vocabularies, formal notations, or parsing rules. If an encoding scheme is not understood by a client or agent, the value may still be useful to a human reader. There are two types of encoding schemes: Vocabulary Encoding Schemes and Syntax Encoding Schemes

extensible

Having the potential to be expanded in scope, area or size. In the case of Dublin Core, the ability to extend a core set of metadata with additional elements.

Extensible Markup Language (XML)

A subset of Standard Generalized Markup Language (SGML), a widely used international text processing standard. XML is being designed to bring the power and flexibility of generic SGML to the Web, while maintaining interoperability with full SGML and HTML. For more information, see http://www.w3.org/XML/

F

Format

The Dublin Core element used to designate the physical or digital manifestation of the resource. See also *"Using Dublin Core"*.

G

GIF

See Graphics Interchange Format

GILS

See GILS (Global Information Locator Service)

glossary

An alphabetized list of terms with definitions often created by an organization to reflect its needs. Normally lacks hierarchical arrangement or cross references. Also known as a term list.

Graphics Interchange Format (GIF)

The dominant graphics format on the Web, limited to 256 colors. GIFs

provide sharper black & white images than JPEGs.

granularity

The level of detail at which an information object or resource is viewed or described.

H

Harvester

A harvester is a client application that issues OAI-PMH requests. A harvester is operated by a service provider as a means of collecting metadata from repositories. (http://www.openarchives.org/OAI/openarchivesprotocol.html#harvester)

HTML

See Hypertext Markup Language

Hypertext Markup Language (HTML)

The standard text-formatting language for documents on the World Wide Web. HTML text files contain content that is rendered on a computer screen and markup, or tags, that can be used to tell the computer how to format that content. HTML tags can also be used to encode metadata and to tell the computer how to respond to certain user actions, such as a mouse click. For more information, see http://www.w3.org/MarkUp/.

I

Identifier

The Dublin Core element that is an unambiguous reference to the resource within a given context. Recommended best practice is to identify the resource by means of a string or number conforming to a formal identification system. See also *"Using Dublin Core"*.

IETF

See Internet Engineering Task Force

IEEE LOM

See IEEE LOM (Institute of Electrical and Electronics Engineers. Learning Object Metadata)

IMS

See IMS Instructional Management Systems

IMT

See Internet Media Type

INDECS

See INDECS (Interoperability of Data in D-Commerce Systems)

indexing

The process of evaluating information entities and creating terms that aid in finding and accessing the entity. Index terms may be in natural language or controlled vocabulary or a classification notation.

indexing program

Computer software used to order things; frequently used to refer to software that alphabetizes some or all of the terms in one or more electronic documents.

information resource

Any entity, electronic or otherwise, capable of conveying or supporting intelligence or knowledge; e.g. a book, a letter, a picture, a sculpture, a database, a person. See also DLO

instantiation

An identifiable occurrence or occasion of something; in the case of Dublin Core, a specific occurrence of an information resource.

International Organization for Standardization

ISO was established in 1947 as a worldwide federation of national standards bodies from some 130 countries.

Internet Commons

The global Internet environment, collection of information-bearing repositories whose data can be accessed through the Internet.

Internet Engineering Task Force (IETF)

The IETF is responsible for solving short-term engineering needs of the Internet. It has over 40 Working Groups.

Internet Media Type (IMT)

A set of terms that describe types of resources on the Internet. Used as an encoding scheme for the Format element in Dublin Core. http://www.isi.edu/in-notes/iana/assignments/media-types/media-types

interoperability

The ability of different types of computers, networks, operating systems, and applications to work together effectively, without prior communication, in order to exchange information in a useful and meaningful manner. There are three aspects of interoperability: semantic, structural and syntactical.

Interoperability Qualifiers

Additional metadata used either to refine the semantics of a Dublin Core metadata element's value, or to provide more information about the encoding scheme used for the value.

ISO

See International Organization for Standardization

J

Joint Photographic Experts Group (JPEG)

A standard for compressing digital images. The advantage of JPEG is that it uses compression to make graphics files smaller, making them faster to transfer and view over the World Wide Web. More than 16 million color hues are available. Better than GIF for color photographs. The disadvantage is some loss of image quality due to data loss during compression. For more information see http://www.jpeg.org/

JPEGs

See Joint Photographic Experts Group

K

Keywords

See Subject

L

Language

The Dublin Core element used to designate the language of the intellectual content of the resource. Recommended best practice for the values of the Language element is defined by RFC 3066. See also *"Using Dublin Core"*.

literal

A literal or "appropriate literal" is the value of any given metadata entity

that can be either a hyperlink or a string value (literal). A literal affords a great deal of flexibility and power, but increases complexity. Metadata should as well include an appropriate literal that reflects the base value of the metadata entity. For example, in these fragments: creator = "Public, John Q." creator = " http://authority.org/public-john-q-1234" the first has a value expressed as an appropriate literal whereas the second has a (hypothetical) link to an authority structure. It is not entirely clear what a person or application will find at the end of the link, so the metadata should contain an appropriate literal for simple discovery purposes.

M

mapping metadata
See crosswalk

MARC
See MARC (Machine-Readable Cataloging Record)

META tag
The HTML element used to demarcate metadata on a Web page. <META> </META>.

metadata
In general, "data about data;" functionally, "structured data about data." Metadata includes data associated with either an information system or an information object for purposes of description, administration, legal requirements, technical functionality, use and usage, and preservation. . In the case of Dublin Core, information that expresses the intellectual content, intellectual property and/or instantiation characteristics of an information resource. See Section 1.1 of this guide. For a history of the term See Caplan,pp. 1-3.

metadata record
A syntactically correct representation of the descriptive information (metadata) for an information resource. In the case of Dublin Core, a representation of the Dublin Core elements that has been defined for the resource. The majority of metadata records and record fragments in this document are presented in HTML syntax.

metadata schema registry
A publicly accessible system that records the semantics, structure and interchange formats of any type of metadata. A formal authority, or agency, maintains and manages the development and evolution of a metadata registry. The authority is responsible for policies pertaining to registry contents and operation. See also http://www.dlib.org/dlib/may02/wagner/05wagner.html

METS (Metadata Encoding & Transmission Standard
See METS (Metadata Encoding & Transmission Standard

MIME
See Multipurpose Internet Mail Extensions

MODS
See MODS (Metadata Object Description Schema)

Multipurpose Internet Mail Extensions
The standard for attaching files to Internet e-mail messages. Attached files may be text, graphics, spreadsheets, documents, sound files, etc.

N

National Information Standards Organization

NISO, accredited by ANSI, develops and promotes technical standards used in a wide variety of information services.

namespace

A DCMI namespace is a collection of DCMI terms. Each DCMI namespace is identified by a URI. An XML namespace [XML-NAMES] is a collection of names, identified by a URI reference [RFC2396], that are used in XML documents as element types and attribute names. The use of XML namespaces to uniquely identify metadata terms allows those terms to be unambiguously used across applications, promoting the possibility of shared semantics. DCMI adopts this mechanism for the identification of all DCMI terms. For example, the namespace for Dublin Core elements and qualifiers would be expressed respectively in XML as:

```
xmlns:dc = "http://purl.org/dc/elements/1.1/
xmlns:dcterms = "http://purl.org/dc/terms/
```

The use of namespaces allows the definition of an element to be unambiguously identified with a URI, even though the label "title" alone might occur in many metadata sets. In more general terms, one can think of any closed set of names as a namespace. Thus, a controlled vocabulary such as the Library of Congress Subject Headings, a set of metadata elements such as DC, or the set of all URLs in a given domain can be thought of as a namespace that is managed by the authority that is in charge of that particular set of terms.

networked resource

An object that is available electronically via a network.

NISO

See National Information Standards Organization

O

OAI

See Open Archives Initiative

OAI-PMH

See Open Archives Initiative Protocol for Metadata Harvesting

OCLC

See Online Computer Library Center

ONIX

See ONIX (ONline InformationeXchange)

Ontology

A hierarchical structure that formally defines the semantic relationship of a set of concepts. Used to create structured / controlled vocabularies for the discovery or exchange of information. A thesaurus, like the AAT is an example.

Online Computer Library Center (OCLC)

The major source of cataloging data for libraries around the world; located in Dublin, Ohio, US. For more information, see http://www.oclc.org/.

Open Archives Initiative

"Develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content. The Open Archives Initiative has its roots in an effort to enhance access to e-print archives as a means of increasing the availability of scholarly communication" For more

information see http://www.openarchives.org/organization/index.html.

OpenURL

A method for describing resources and associated resources that are referenced in a network environment. It defines the mentods for transporting these descriptions between networked systems. NISO standard NISO Z39.88-2003 (still in draft). The Standard has been issued in two parts and it available for comment through California Institute of Technology http://library.caltech.edu/openurl/Public_Comments.htm

Open Archives Initiative Protocol for Metadata Harvesting

The Protocol "provides an application-independent interoperability framework based on metadata harvesting. There are two classes of participants in the OAI-PMH framework: Data Providers administer systems that support the OAI-PMH as a means of exposing metadata; and Service Providers use metadata harvested via the OAI-PMH as a basis for building value-added services. " For more information see http://www.openarchives.org/organization/index.html.

P

parsing

Parsing may be divided into parts: lexical analysis and semantic parsing. Lexical analysis divides strings into components based on punctuation or tagging. Semantic parsing then attempts to determine the meaning of the string.

Persistent Uniform Resource Locator

An approach to the URL permanence problem proposed by OCLC. A PURL is a public alias for a document. A PURL remains stable, while the document's background URL will change as it is managed (e.g. moved) over time. A PURL is created by a Web administrator who is registered as a PURL "owner" and who maintains a mapping of the PURL to a current and functioning URL. A PURL is a form of URN.

Property

A property is a specific aspect, characteristic, attribute, or relation used to describe a resource. Dublin Core metadata elements are properties http://dublincore.org/documents/2003/04/02/dc-xml-guidelines/

Publisher

The Dublin Core element used to designate the entity responsible for making the resource available. 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. See also *"Using Dublin Core"*.

PURL

See Persistent Uniform Resource Locator

Q

qualifier

"Qualifiers" is the generic heading traditionally used for terms now usually referred to specifically as Element Refinements or Encoding Schemes. A qualifier must follow the Dumb-Down Principle. There are two broad categories of qualifiers: Encoding schema and Element refinement.

Qualified Dublin Core

Qualified Dublin Core includes an additional element, Audience, as well as a group of element refinements (also called qualifiers) that refine the

semantics of the elements in ways that may be useful in resource discovery

R

RDF

See Resource Description Framework.

RDF Site Summary

RSS was created and popularized by Netscape for their personalized portal site. Rich Site Summary (RSS) is a lightweight XML application designed to exchange headline metadata between news content providers and portals.

record

A record is some structured metadata about a resource, comprising one or more properties and their associated values.
http://dublincore.org/documents/2003/04/02/dc-xml-guidelines/

registry

A system to provide management of metadata elements. See also metadata schema registry The DCMI Registry Working Group (WG) is the development of a metadata registry providing authoritative information regarding the DCMI vocabulary and the relationship between terms in that vocabulary.

Relation

The Dublin Core element used to designate A reference to a related resource. Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system. See also *"Using Dublin Core"*.

Request for Comment (RFC)

A Request for Comment (RFC) is the process of establishing a standard on the Internet. Discussion of the proposed standard on the Internet is facilitated by the Internet Engineering Task Force (IETF). Once approved, the standard receives a unique number which identifies it; e.g., RFC See http://www.isi.edu/rfc-editor/. and http://www.ietf.org/rfc.html

resource

A resource is anything that has identity. Familiar examples include an electronic document, an image, a service (e.g., "today's weather report for Los Angeles"), and a collection of other resources. Not all resources are network "retrievable"; e.g., human beings, corporations, and bound books in a library can also be considered resources.
http://dublincore.org/documents/2003/04/02/dc-xml-guidelines/

Resource Description Framework (RDF)

The basic language for writing metadata; a foundation which provides a robust flexible architecture for processing metadata on the Internet. RDF will retain the capability to exchange metadata between application communities, while allowing each community to define and use the metadata that best serves their needs. For more information see http://www.w3.org/RDF/

resource discovery

The process through which one searches and retrieves an information resource.

Resource Type

See Type.

Resource Description

See Description.

Resource Identifier
See Identifier

RFC
See Request for Comment

Rights
The Dublin Core element used to provide a link to information about rights held in and over the resource. Typically a Rights 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 element is absent, no assumptions can be made about the status of these and other rights with respect to the resource. See also *"Using Dublin Core"*.

Rights Management
See Rights

ROADS
Resource Organisation And Discovery in Subject based services. A UK funded project whose aim is to develop discovery software for Internet resources.

RSS
See RDF Site Summary .

S

schema or scheme(plurals schemas or schemata; schemes)
In general terms, any organization, coding, outline or plan of concepts. In terms of metadata, a systematic, orderly combination of elements or terms. In terms of DCMI term declarations represented in XML or RDF schema language, schemas are machine-processable specifications which define the structure and syntax of metadata specifications in a formal schema language. In terms of an encoding scheme, is a set of rules for encoding information that supports a specific community of users. See also Encoding scheme.

scheme
See schema

SCORM
See SCORM (Sharable Content Object Reference Model)

search engine
A utility capable of returning references to relevant information resources in response to a query.

semantic interoperability
Ability to search for digital information across heterogeneous distributed databases whose metadata schemas have been mapped to one another. It is achieved through agreements about content description standards; for example, Dublin Core, Anglo-American Cataloging Rules.

Semantic Web
A term coined by Tim Berners-Lee which views the future Web as a web of data, like a global database. The infrastructure of the Semantic Web would allow machines as well as humans to make deductions and organize information. The architectural components include semantics (meaning of the elements), structure (organization of the elements), and syntax (communication). http://www.w3.org/DesignIssues/Semantic.html

semantics
Significance or meaning. In the case of Dublin Core, the significance or

intended meaning of individual metadata elements and their components.

SGML

See Standard Generalized Markup Language

SICI

Serial Item and Contribution Identifier (ANSI/NISO Z39.56-1996 Vers. 2) A numeric notation to identify serial issues and articles uniquely regardless of their distribution medium (paper, electronic, microform).

Simple Dublin Core

The fifteen Dublin Core elements used without qualifiers, that is without element refinement or encoding schemes. Sometimes referred to as Dublin Core simple.

software agent

A computer program that carries out tasks on behalf of another entity. Frequently used to reference a program that searches the Internet for information meeting the specified requirements of an individual user.

Source

The Dublin Core element used to designate a reference to a resource from which the present resource is derived. The present resource may be derived from the Source resource in whole or part. Recommended best practice is to reference the resource by means of a string or number conforming to a formal identification system. See also *"Using Dublin Core"*.

spatial

An element refinement of Coverage. Spatial characteristics of the intellectual content of the resource.

Standard Generalized Markup Language (SGML)

A non-proprietary language/enabling technology for describing information. Information in SGML is structured like a database, supporting rendering in and conversion between different formats. Both XML and later versions of HTML are instances of SGML. For more information see http://www.w3.org/MarkUp/SGML/.

stand-alone metadata

Metadata that is created, maintained and stored independently of the object it describes. The opposite of embedded metadata.

structured value

See Dublin Core Structured Value

structural interoperability

Is achieved through data models for specifying semantic schemas in a way that they can be shared; for example, RDF.

structural metadata

Structural metadata defines the digital object's internal organization and is needed for display and navigation of that object.

sub-element

See element refinement

Subject

The Dublin Core element used to describe the content of the resource. The element may use controlled vocabularies or keywords or phrases that describe the subject or content of the resource. See also *"Using Dublin Core"*.

Subject Headings

An alphabetical list of words or phrases that represent a concept that is under authority control, e.g., the Library of Congress Subject Headings.

surrogate content

Metadata as a substitute for an actual resource.

switching language

A mediating language used to establish equivalencies among various

indexing languages. Dublin Core has been viewed as a switching "language" between various metadata schemas.

syntactic interoperability

Achieved by marking up our data in a similar fashion so we can share the data and so that our machines can understand and take the data apart in sensible ways; for example, XML, EAD and MARC.

syntax

The form and structure with which metadata elements are combined. In the case of Dublin Core, the form and structure of how metadata elements and their components are combined to form a metadata record.

Syntax Encoding Schemes

Syntax Encoding Schemes indicate that the value is a string formatted in accordance with a formal notation, such as "2000-01-01" as the standard expression of a date.

T

taxonomy

In general terms, systematic classification according to principles or general laws. In digital terms, automated classification of documents in a hierarchy based on information gathered by a metacrawler. May refer to a classification of DCMI terms. A classification system such as Library of Congress Classification is an example of a taxonomy.

technical metadata

Metadata that documents the creation and the digital characteristics of the files.

TEI

See Text Encoding Initiative

temporal

An element refinement of coverage. Temporal characteristics of the intellectual content of the resource.

term

See DCMI term

Text Encoding Initiative (TEI)

An international project to develop guidelines for the preparation and interchange of electronic texts for scholarly research as well as a broad range of other language industry uses. The TEI DTD is an SGML Document Type Definition for encoding literary works. For more information, seehttp://www.tei-c.org/

thesaurus

A structured vocabulary make up of names, words, and other information, typically including synonyms and/or hierarchical relationships for the purpose of cross-referencing in order to organize a collection of concepts for reference and retrieval. See the ANSI/NISO Standard for thesaurus construction Z39.19-2003 (R1998; ISO 2788). A controlled vocabulary of terms or concepts that are structured hierarchically (parent/child relationships) or as equivalences (synonyms), and related terms (associative). See also Subject headings and glossary. A thesaurus is a taxonomy.

Thesaurus of Geographic Names

The TGN is a controlled vocabulary containing around 1,000,000 names and other information about places. It includes physical features and administrative entities, such as cities and nations. The emphasis in TGN is on places important for art and architecture.

Title

The Dublin Core element used to designate the name given to the resource. Typically, a Title will be a name by which the resource is formally known. See also *"Using Dublin Core"*.

tokens

The means to denote the status of an element or qualifier within a registry; e.g., proposed, recommended, conforming (to the namespace), obsolete, or local.

Type

The Dublin Core element used to designate the nature or genre of the content of the resource. 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. See also *"Using Dublin Core"*.

U

ULAN

See Union List of Artist Names

Unicode

A universal encoding scheme designed to allow interchange, processing and display of the world's principal languages, as well as many historic and archaic scripts. Unicode supports and fosters a multilingual computing world community by allowing computers using one language to "talk" to computers using a different language. A registered trademark of Unicode, Inc.

Unicode Transformation Format, 8-bit (UTF-8)

A temporary form of Unicode that is well suited for routing data through systems that are not designed for Unicode, such as some email servers and Web clients. UTF-8 is an attractive way of storing multilingual data on the Internet, without requiring full Unicode compliance.

Uniform Resource Identifier (URI)

The syntax for all names/addresses that refer to resources on the World Wide Web. For information about Internet addressing, see http://www.w3.org/Addressing/Addressing.html.

Uniform Resource Locator (URL)

A technique for indicating the name and location of Internet resources. The URL specifies the name and type of the resource, as well as the computer, device and directory where the resource may be found. The URL for Dublin Core Metatdata Initiative is <http://dublincore.org/>. For information about Internet addressing, see http://www.w3.org/Addressing/Addressing.html.

Uniform Resource Name (URN)

A URI (name and address of an object on the Internet) that has some assurance of persistence beyond that normally associated with an Internet domain or host name. For information about Internet addressing, see http://www.w3.org/Addressing/Addressing.html.

Union Lists of Artists' Names (ULAN)

Union List of Artist Names. A controlled vocabulary of artists' names and biographical and bibliographic information produced by the Getty Vocabulary Program.

URI

See Uniform Resource Identifier

URL

See Uniform Resource Locator

URN

See Uniform Resource Name

USMARC

See MARC

UTF-8

See Unicode Transformation Format, 8-bit.

V

value qualifier

Value qualifier refers to either an encoding rule or controlled vocabulary that aids in the interpretation of the value within the metatag. See encoding scheme.

vCard

A standard for storing information about individuals or corporations; an electronic business card.
For more information, check the Internet Mail Consortium page on personal data exchange.

Vocabulary Encoding Schemes

Vocabulary Encoding Schemes indicate that the value is a term from a controlled vocabulary, such as the value "China - History" from the Library of Congress Subject Headings.

Vocabulary Terms

The Usage Board maintains the DCMI Type Vocabulary -- a general, cross-domain list of recommended terms that may be used as values for the Resource Type element to identify the genre of a resource. The member terms of the DCMI Type Vocabulary are called Vocabulary Terms.

W

Warwick Framework

An architecture for the interchange of metadata packages, or "containers"; designed to satisfy the need for competing, overlapping, and complementary metadata models. For more information, see http://www.dlib.org/dlib/july96/07weibel.html.

World Wide Web (WWW)

The panoply of Internet resources (text, graphics, audio, video, etc.) that are accessible via a Web browser.

World Wide Web Consortium (W3C)

An international industry consortium founded in October 1994 to lead the World Wide Web to its full potential by developing common protocols that promote its evolution and ensure its interoperability. For additional information see http://www.w3.org/Consortium/.

WWW

See World Wide Web

W3C

See World Wide Web Consortium

X

XML

See Extensible Markup Language

Y

Z

Z39.50
A NISO standard for an application layer protocol for information retrieval which is specifically designed to aid retrieval from distributed servers. http://lcweb.loc.gov/z3950/agency

Dublin Core Projects

Related Metadata Standards

AGLS (Australian Government Locator Service)
A set of 19 descriptive elements based on the Dublin Core which the Australian government departments and agencies can use to improve the visibility and accessibility of their services and information over the Internet.

EAD (Encoded Archival Description)
An SGML DTD that represents a highly structured way to create digital finding aids for a grouping of archival or manuscript materials. The standard is maintained in the Network Development and MARC Standards Office of the Library of Congress (LC) in partnership with the Society of American Archivists. For more information see http://lcweb.loc.gov/ead/.

GILS (Global Information Locator Service)
GILS embraces open standards to implement interoperable searching across diverse, decentralized information 'locators' to return references to all kinds of electronic and non-electronic information resources. Locators are implemented as common semantics for characterizing information resources, i.e. common metadata semantics. Formally known as Government Information Locator Service

IEEE LOM (Institute of Electrical and Electronics Engineers. Learning Object Metadata)
Standard jointly developed by IMS, IEEE, ARIADNE, and ADL/SCORM for describing, exchanging and managing, locating and evaluating learning objects, that is, instructional content, in a digital or non-digital format. The Draft standard dated 15 July 2002 includes nine categories for the metadata: general, life-cycle, meta-metadata, educational, technical, rights, relation, annotation and classification. Includes a mapping to Dublin Core Simple (Annex B, p. 44)

IMS (Instructional Management Systems)
A specification developed by EDUCAUSE (formerly EDUCOM), a consortium of U.S. institutions of higher learning and vendors, for for the discovery and description of learning objects. The specification covers a wide range of e-learning related activities, e.g. vocabulary markup, learning design, content packaging, learner information. It became the basis for the IEEE Learning Object Meta-Data (LOM). The specification includes the element names, definitions, datatypes, and field lengths and defines a conceptual structure for the metadata.

INDECS (Interoperability of Data in D-Commerce Systems)
Standard that addresses the management of intellectual property rights and rights transactions for all media. Elements designed to faciliate the exchange of rights information between domain-specific standards.

MARC (Machine-Readable Cataloging Record)
The MARC formats are standards for the representation and communication of

bibliographic and related information (authority, holdings, classification, community information) in machine-readable form. MARC 21 grew out of the harmonization of USMARC and CAN/MARC, formerly national standards, and has emerged as an international standard. MARC21 is an implementation of the American National Standard, Information Interchange Format (ANSI Z39.2) and its international counterpart, Format for Information Exchange (ISO 2709). UniMARC was originally designed for conversion between national formats but now has been adopted by some countries as their national standard.

METS (Metadata Encoding & Transmission Standard

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

MODS (Metadata Object Description Schema)

"Intended to be able to carry selected data from existing MARC 21 records as well as to enable the creation of original resource description records. It includes a subset of MARC fields and uses language-based tags rather than numeric ones, in some cases regrouping elements from the MARC 21 bibliographic format."

ONIX (ONline Information eXchange)

Developed by book publisher for the exchange of book trade information between publishers and wholesalers, e-tail and retail booksellers, other publishers, and anyone else involved in the supply chain. Standards are also being developed by publishers for serials. Mapping between ONIX and MARC exists to facilitate the exchange of content from publishers to library cataloging agencies. Consists of more than 236 elements.

SCORM (Sharable Content Object Reference Model)

eLearning metadata standards supported by ADL (Advanced Distributive Learning Initiative). See IEEE LOM

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http://www.schemas-forum.org/related/glossary.html

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Other useful glossaries

Digital Library Initiative at the Univerisity of Illinois at Urbana-Champaign.

UKOLN Glossary

The online edition of Digital Libraries, by William Arms, (c) 2000 MIT Press, updated with additional material by the author.

Glossary Web Thesaurus Compendium. Provides listings of thesauri by alphabetical order and subject. Has links to related literature and software for building thesauri.



Metadata associated with this resource: http://dublincore.org/documents/usageguide/glossary.shtml.rdf

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