CanCore Guidelines Version 2.0: Meta-Metadata Category

History of Meta-Metadata Category Element

Date	Version	Comment	Person
June 6, 2002	1.1	Based on IMS Learning Resource Meta-data 1.2.1	Sue Fisher
February 6, 2003	1.8	Based on IEEE 1484.12.1 LOM; new formatting applied	Norm Friesen
June 22, 2003	1.9	Revisions; examples added	Norm Friesen
November 21, 2003	2.0	Final revisions incorporating feedback	Norm Friesen

Use of Meta-Metadata Category Elements in Other Application Profiles

Element	CanCore	SCORM	Curriculum Online	TLF	SingCORE	UK LOM Core	Dublin Core
3:Meta-Metadata	Y	M	M	M	Y	M	
3.1:Identifier	Y	M	M	N	Y	M	
3.1.1:Catalog	Y	M	M	N	Y	M	
3.1.2:Entry	Y	M	M	N	Y	M	
3.2:Contribute	Y	O	M	Y	Y	M	
3.2.1:Role	Y	O	M	O	Y	M	
3.2.2:Entity	Y	O	M	O	Y	M	
3.2.3:Date	Y	O	M	O	Y	M	
3.3:Metadata Schema	Y	M	O	N	Y	M	
3.4:Language	Y	O	O	M	Y	M	

Legend

Y = Yes, Included in Subset
O = Optional
N = No, Not Included in Subset
M = Mandatory
D = Draft Status
DC = Dublin Core

3:Meta-Metadata

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
This category describes this metadata record itself (rather than the learning object that this record describes). This category describes how the metadata instance can be identified; who created this metadata instance; and how, when, and with what references. NOTE: This is not the information that describes the learning object itself.	1	Unspecified	-	-

This element category describes the metadata record being created. It uses elements and element aggregations identical or similar to those in the General and Life Cycle categories.

The sub-elements in this category are:

3.1:Identifier
- **3.1.1:Catalog**
- **3.1.2:Entry**

3.2:Contribute
- **3.2.1:Role**
- **3.2.2:Entity**
- **3.2.3:Date**

3.3:Metadata Schema

3.4:Language

Elements listed in **bold** are included in the CanCore application profile.

Example

- Identifier:
  - Catalog: OurLOR http://www.lor.ca
  - Entry: JF-CAFI3376
- Contribute:
  - Role: creator
  - Entity: Doe, J.; Our University
  - Date: 2003-10-30
- Contribute:
  - Role: validator
  - Entity: Smith, Mary
  - Date: 2003-11-03
- Contribute:
  - Role: validator
  - Entity: Altova
  - Date: 2003-11-03
- Metadata schema: LOMv1.0
- Metadata schema: CanCorev2.0

XML Example

```
<metaMetadata>
  <identifier>
    <catalog>OurLOR http://www.lor.ca</catalog>
    <entry>JF-CAFI3376</entry>
  </identifier>
  <contribute>
    <role>
     <source>LOMv1.0</source>
     <value>creator</value>
    </role>
    <entity>
     BEGIN:VCARD
     VERSION:3.0
      N:Doe;J.;
      FN:J. Doe
     ORG:Our University
     END:VCARD
    </entity>
    <date>
     <dateTime>2003-10-30</dateTime>
    </date>
  </contribute>
  <contribute>
    <role>
     <source>LOMv1.0</source>
     <value>validator</value>
    </role>
    <entity>
     BEGIN:VCARD
     VERSION:3.0
     N:Smith;Mary;
     FN:Mary Smith
     ORG:None
     END:VCARD
    </entity>
    <date>
     <dateTime>2003-11-03</dateTime>
    </date>
  </contribute>
  <contribute>
    <role>
     <source>LOMv1.0</source>
     <value>validator</value>
    </role>
    <entity>
     BEGIN:VCARD
     VERSION:3.0
     N:None;
     FN:None
```

```
      ORG:Altova
      END:VCARD
     </entity>
     <date>
      <dateTime>2003-11-30</dateTime>
     </date>
   </contribute>
 <metadataSchema>LOMv1.0</metadataSchema>
 <metadataSchema>CanCorev2.0</metadataSchema>
 <language>eng</language>
</metaMetadata>
```

3.1:Identifier

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
A globally unique label that identifies this metadata record.	Smallest permitted maximum: 10 items	Unspecified	-	-

Using sub-elements 3.1.1:Identifier.Catalog and 3.1.2:Identifier.Entry, provide a name for the identification scheme and a unique value to identify the metadata instance or record being created.

3.1:Identifier consists of:

3.1.1:Catalog
3.1.2:Entry

- This element aggregate refers explicitly to the metadata record being created. It does not refer to the learning resource being described. To supply an identifier for the learning resource, refer to the 1.1:General.Identifier aggregate element.

- Recommendations for the formulation of globally unique, location-independent, persistent identifiers are available from CanCore at http://www.cancore.ca/documents/Resourceids.doc.

Vocabulary Recommendations

The use of a globally unique, location-independent, persistent identifier for each metadata record becomes important in an interoperable environment, especially when metadata harvesting technologies are used. A local implementation should add identifiers to its metadata records before making them available for metadata harvesting or other forms of distribution.

Examples

- The Merlot record for the America's Jazz Heritage Website:
  http://www.si.edu/ajazzh/
  Catalog: URI
  Entry:
  http://www.merlot.org/artifact/ArtifactDetail.po?oid=1000000000000518662

- An ABI record using their locally developed catalog system:
  Catalog: ABIMeta http://www.abi.com
  Entry: 1001000000016355

XML Examples

```
<identifier>
  <catalog>URI</catalog>
<entry>http://www.merlot.org/artifact/ArtifactDetail.po?oid=10000
00000000518662</entry>
</identifier>

<identifier>
  <catalog>ABIMeta http://www.abi.com</catalog>
  <entry>1001000000016355</entry>
</identifier>
```

3.1.1:Catalog

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
The name or designator of the identification or cataloging scheme for this entry. A namespace scheme.	1	Unspecified	Repertoire of ISO/IEC 10646-1:2000	Character-String (smallest permitted maximum: 1000 char)

Use the common abbreviation or the standard name for the identification scheme that is used to reference the learning resource.

- Catalog does not refer to a subject classification scheme (e.g., DDC, LCSH). For the identification of subject classification schemes, see 9.2.1:Classification.TaxonPath.Source.
- Most catalogs are known by a standard abbreviation. Use this abbreviation rather than spelling out the name of the catalog (e.g., use DOI rather than Digital Object Identifier).
- This element is not for the metadata record, but the learning resource.

Vocabulary Recommendations

CanCore recommends that the vocabulary values for this element include, but not be limited to, URI, URL, URN, PURL, DOI, ISBN, and ISSN. For more information about digital identifiers, see CanCore's "Recommendations for Globally Unique, Location-Independent, Persistent Identifiers" (http://www.cancore.ca/documents/Resourceids.doc). The recommended values are as follows:

URI Uniform Resource Identifier
http://www.w3.org/Addressing/
A character string used to identify a resource (such as a file) from anywhere on the Internet by type and location (e.g., http://www.cancore.ca, ftp://www.ibm.com). The document "RFC2396" defines the generic syntax of URI, and provides guidelines for their use (see http://www.ietf.org/rfc/rfc2396.txt). *Because of its generality, CanCore encourages its use as a value for 1.1.1:General.Identifier.Catalog.*

URL Uniform Resource Locator
http://www.w3.org/Addressing/URL/Overview.html
An informal name for addresses associated with the Web and other common Internet protocols (e.g., http://www.cancore.ca, ftp://129.128.193.212). Because this term is informal, CanCore discourages its use for 1.1.1:General.Identifier.Catalog.

URN Uniform Resource Name
http://www.ietf.org/rfc/rfc2141.txt
"A particular scheme, urn:, specified by RFC2141 and related documents, intended to serve as persistent, location-independent, resource identifiers." (See http://www.w3.org/Addressing/). Because this scheme does not appear to have progressed beyond the "request for comments" stage, and because of the ambiguity associated with its definition (e.g., http://www.w3.org/Addressing/ and http://foldoc.doc.ic.ac.uk/foldoc/foldoc.cgi?Uniform+Resource+Name), CanCore does not recommend its use as a value for 1.1.1:General.Identifier.Catalog.

PURL Persistent Uniform Resource Locator
http://purl.oclc.org/
Functionally, a PURL is a URL. However, instead of pointing directly to the location of an Internet resource, a PURL points to an intermediate resolution service. The PURL resolution service associates the PURL with the actual URL and returns that URL to the client. The client can then complete the URL transaction in the normal fashion. In other words, this is a standard HTTP redirect. PURLs satisfy many of the requirements of URNs, but they do not allow for complete location independence.

DOI Digital Object Identifier
http://www.doi.org/
A system for identifying and exchanging intellectual property in a distributed, digital environment, developed in part by the Association of American Publishers. DOIs have been widely implemented in some contexts, including publishing and government, and are being considered by some educational infrastructure initiatives. DOI systems also provide some digital rights management features. Their use, however, may involve some upfront costs.

Examples

- URI
- TeleCampus

XML Examples

```
<catalog>URI</catalog>
<catalog>TeleCampus</catalog>
```

3.1.2:Entry

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
The value of the identifier within the identification or cataloging scheme that designates or identifies this metadata record. A namespace-specific string.	1	Unspecified	Repertoire of ISO/IEC 10646-1:2000	CharacterString (smallest permitted maximum: 1000 char)
Provide the actual value of the URN or identifier as derived from any specified identification scheme.				

Technical Implementation Notes

- To avoid manual input, values for this element should be captured from existing electronic resources whenever possible.

- Preserve any typographical symbols or spacing from your source.

Examples

- http://www.merlot.org/artifact/ArtifactDetail.po?oid=1000000000000518662
- 1001000000016355

XML Examples

```
<entry>http://www.merlot.org/artifact/ArtifactDetail.po?oid=10000
00000000518662</entry>

<entry>1001000000016355</entry>
```

3.2:Contribute

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
Those entities (i.e., people, organizations) that have affected the state of this metadata instance during its life cycle (e.g., creation, validation). NOTE: This data element is concerned with contributions to the metadata. Data element 2.3:Lifecycle.Contribute is concerned with contributions to the learning object.	Smallest permitted maximum: 10 items	Ordered	-	-

This element group describes who is responsible for the metadata record, the nature of their responsibility (either Creator or Validator), and any dates that are affiliated with the record's creation.

Identify contributing person(s) and/or organization(s) for purposes of administration and record management, keeping contact and personal details to a minimum.

3.2:Contribute consists of:

3.2.1:Role
3.2.2:Entity
3.2.3:Date

- The LOM is neither a system for version control nor a means of storing contact information. It can also be costly and cumbersome to record and maintain contact, personal, and organizational details. CanCore therefore recommends keeping information included in the 3.2:Contribute element aggregation to a minimum.

- This aggregate element, and all of the simple elements it contains, can be repeated up to 10 times. Because these repetitions are Ordered, the sequence in which information is provided in these repetitions should be seen as significant.

- Together, the repetitions permitted for the Contribute and Role elements mean that up to 100 possible instances of contributor types and identities can be accommodated.

- The elements and their relationships that make up the 3.2:Contribute aggregate are similar to those in the 2.3:LifeCycle.Contribute aggregate, but 3.2:Contribute describes the metadata record while 2.3:Contribute describes the learning resource.

Example

- Role: creator
  Entity: Friesen, Norm; Kosovac, Branka; Athabasca University
  Date: 2003-04-24
  Role: validator
  Entity: Doe, Jane; Athabasca University
  Date: 2003-05-01

XML Example

```
<contribute>
  <role>
    <source>LOMv1.0</source>
    <value>creator</value>
  </role>
  <entity>
    BEGIN:VCARD
    VERSION:3.0
    N:Friesen;Norm
    FN:Norm Friesen
    ORG:None;
    END:VCARD
  </entity>
  <entity>
    BEGIN:VCARD
    VERSION:3.0
    N:Kosovac;Branka;
    FN:Branka Kosovac
    ORG:Athabasca University;
    END:VCARD
  </entity>
  <date>
    <dateTime>2003-04-24</dateTime>
  </date>
</contribute>
<contribute>
  <role>
    <source>LOMv1.0</source>
    <value>validator</value>
  </role>
  <entity>
    BEGIN:VCARD
    VERSION:3.0
    N:Doe;
    FN:Jane
    ORG:Athabasca University;
    END:VCARD
  </entity>
```

```
    <date>
      <dateTime>2003-05-01</dateTime>
    </date>
  </contribute>
```

3.2.1:Role

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
Kind of contribution. Exactly one instance of this data element with the value Creator should exist.	1	Unspecified	creator validator	Vocabulary (State)

Function or part performed by the person, institution, etc. contributing to the metadata record, for administrative and record management purposes.

- Use a separate 3.2:Contribute group for each role that applies to the metadata record being created. This is likely to be of greatest use for administrative and record management purposes. All metadata records should have an indentified Creator.

- If more than one person or organization contributed to the creation of the metadata record, use a single 3.2:Contribute element that contains 3.2.1:Role equal to Creator and multiple instances of 3.2.2:Entity.

- Any validation statement in the metadata record should refer to the record's integrity according to the rules and recommendations of the schemes referred to in 3.3:Metadata Schema. Note that the record contents themselves are different and can be separated from the schema or binding that is subjected to syntactic validation.

Vocabulary Recommendations

creator
"One who, or that which, creates or gives origin to" (*OED*). A creator is the entity (person, organization, or indexing system) primarily responsible for making the content of the metadata record. A creator can be a person, institution, group, or other entity (including automated indexing systems).

validator
"One who or that which confirms the validity of something" (*OED*). The entity that is primarily responsible for ensuring the syntactic and semantic integrity of the metadata record according to the rules and recommendations of metadata schemas and quality control mechanisms. A validator can be a person, system, institution, or other entity. If parsing software is identified, the validator is the entity responsible for the software that performs the validation.

3.2.2:Entity

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
The identification of and information about entities (i.e., people, organizations) contributing to this metadata instance. The entities shall be ordered as most relevant first.	Smallest permitted maximum: 10 items	Ordered	vCard, as defined by IMC vCard 3.0 (RFC 2425, RFC 2426)	Character-String (smallest permitted maximum: 1000 char)

The content of the 3.2.2:Entity element is governed by the vCard (virtual business card) specification (www.imc.org/pdi/) and, as such, could contain very specific information about contributors such as e-mail address, affiliation, and address. CanCore does not recommend tracking detailed or exhaustive affiliation information in the metadata record for a resource.

- The vCard specification is intended for the interchange of personal contact and affiliation information, such as that found on business cards or personal homepages. It includes dozens of elements, including time zone, photograph, logo, and delivery address.

- Three elements or properties are declared to be mandatory in the vCard specification. As defined in the vCard specification itself, these are:
    - FN (formatted person's name; e.g., Mr. John Q. Public, Esq.)
      "FN is a (possibly ambiguous) name by which the person is commonly known and conforms to the naming conventions of the country or culture with which it is associated. A value for FN is a text string. For example, a typical name of a person in an English-speaking country comprises a personal title if required (e.g., Mr., Ms., Dr., Professor, Sir), a first name, middle name(s) and/or initial(s) if any, a last name, a generation qualifier if any (e.g., Jr.), and decorations and awards if any (e.g., QC). It is based on the semantics of the X.520 Common Name attribute."
    - N (structured person's name; e.g., Stevenson;John;Philip,Paul;Dr.;Jr.)
      "N is a list of components separated by the SEMICOLON character in the following sequence: Family Name, Given Name, Additional Names, Honorific Prefixes, and Honorific Suffixes. Each component can have multiple values (e.g., multiple Additional Names) separated by the COMMA character (ASCII decimal 44). This type is based on the semantics of the X.520 individual name attributes [sic], and is a single structured text value"
    - VERSION (The value of the VERSION property, as per the LOM specification, will always be 3.0.)

- CanCore further recommends that a fourth vCard element, ORG, be included in the context of LOM records:
    - ORG (the name and optionally the unit or units of the organization; e.g., ORG:ABC, Inc.;North American Division;Marketing)
      This is the institutional entity with which the person is associated as a contributor to the learning resource. CanCore recommends including specific

organizational unit(s) as described in the vCard specification, going from general (e.g., university or corporation name) to specific (e.g., department or division).

- Name in vCard 3.0 applies only to a person and is a mandatory element. However, corporate contributions may be made to a learning resource where no actual values for the mandatory FN (formatted name) and N (structured name) properties exist. Best and common practices for dealing with this issue have not yet emerged, and CanCore recommends that a pseudo-value of "none" be supplied for FN and N elements when a corporate author is being described.

Technical Implementation Notes

- To save some data-entry effort, implementers should consider automatic population of FN based on manually entered values for N and the naming conventions of the specific country or culture. For example, in contexts where English, French, or some other European languages dominate, a string representing a value of N would be formulated as follows:
  - [family name];[given name];[additional names];[honorific prefixes];[honorific suffixes]

  This can be translated into the following FN value:
  - [honorific prefixes] [given name] [additional names] [family name], [honorific suffixes]

Examples

- Norm Friesen, Ph.D.
- CAREO

*XML Examples**

```
<entity>
  BEGIN:VCARD
  VERSION:3.0
  N:Friesen;Norm;Ph.D.
  FN: Norm Friesen, Ph.D.
  ORG:Athabasca University
  END:VCARD
</entity>

<entity>
  BEGIN:VCARD
  VERSION:3.0
  N:None;
  FN:None
  ORG:CAREO
  END:VCARD
</entity>
```

*vCard uses non-XML encoding, requiring its own parsing rules and supporting technologies. Best and common practices for the precise formulation of this encoding are not yet clear. Given different behaviours of existing parsing tools for XML and vCard, it may be best to insert vCard encoding into a LOM XML record as a "CDATA section" as follows:

```
<entity>
<![ CDATA[ BEGIN:vCARD
VERSION:3.0
N:Smith;John;W
FN:John W. Smith
END:vCARD]]>
</entity>
```

3.2.3:Date

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
The date of the contribution.	1	Unspecified	-	DateTime

Where known and appropriate, indicate a date on which the contribution was made or completed.

- This element has the LOM datatype of DateTime, which is based the ISO 8601:2000 standard for expressing date and time. This ISO standard is summarized at http://www.w3.org/TR/xmlschema-2/#isoformats. According to the LOM datatype and in keeping with the ISO standard, dates should be expressed in the YYYY-MM-DD format. For general or partial dates, eliminate values as necessary from right to left: YYYY (a year date only), YYYY-MM (a year and month date only).

- Textual descriptions of date are permissible if the date cannot be expressed in structured, numeric form, or if textual information is needed to supplement the structured, numeric value.

Vocabulary Recommendations

Use ISO 8601:2000.

Examples

- 2003-04-24
- 2003-04
- 2003
- 12:00, 2003-04-24
- during testing/pendant la phase expérimentale

XML Examples:

```
<date>
 <dateTime>2003-04-24</dateTime>
</date>

<date>
 <dateTime>2003-04</dateTime>
</date>

<date>
 <dateTime>2003</dateTime>
</date>

<date>
 <dateTime>2003-04-24T12:00:00.0</dateTime>
</date>
```

```
<date>
  <description>
    <string language="eng">during testing</string>
    <string language="fra">pendant la phase expérimentale
    </string>
   </description>
</date>
```

3.3:Metadata Schema

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
The name and version of the authoritative specification used to create this metadata instance. NOTE: This data element may be user-selectable or system-generated. If multiple values are provided, then the metadata instance shall conform to multiple metadata schemas.	Smallest permitted maximum: 10 items	Unordered	Repertoire of ISO/IEC 10646-1:2000	Character-String (smallest permitted maximum: 30 char)

Indicate the metadata schema(s) to which the metadata record conforms. Schema here is understood in a broad sense, including application profiles and best practice guidelines such as those provided by CanCore. The person or organization responsible for metadata validation (as indicated in 3.2:Contribute) should ensure the metadata record conforms to all schemes referenced in this element. Conformance in this context can refer to both XML validity and adherence to recommended semantic and other guidelines.

- Provide an entry for the appropriate versions of the IEEE LOM, IMS Learning Resource Meta-data, and CanCore. Any project-specific implementations of these schemas can also be listed here.

- Include the name of the governing body as well as the version number.

Vocabulary Recommendations

The value should identify the latest version of the LOM (currently LOMv1.0).

Records made using CanCore's application profile and/or with extensive reference to CanCore's guidelines should also identify the relevant version of CanCore (currently CanCorev2.0).

Examples

- CanCorev2.0
- LOMv1.0

XML Examples

```
<metadataSchema>CanCorev2.0</metadataSchema>
<metadataSchema>LOMv1.0</metadataSchema>
```

3.4:Language

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
Language of this metadata instance. This is the default language for all LangString values in this metadata instance. If a value for this data element is not present in a metadata instance, then there is no default language for LangString values. NOTE 1: This data element concerns the language of the metadata instance. Data element 1.3:General.Language concerns the language of the learning object.	1	Unspecified		Character-String (smallest permitted maximum: 100 char)

Indicate the default human language of the metadata record, using the appropriate language code.

- The LOM datamodel indicates that both two-letter language codes (ISO 639-1) and three-letter language codes (ISO 639-2) can be used for this element.
    - Two-letter language codes are widely used in XML and LOM communities, and should be acceptable for implementations in many jurisdictions, and for the description of materials in common languages.
    - Some policies and official practices in Canada and the US require three letter language codes to be used to be able to accommodate indigenous languages.

- Implementations using either predominantly one or the other of these language code sets in record creation should be able to accommodate both types.

- For listings of two- and three-letter language codes, see the Library of Congress (the official ISO 639-2 Registration Authority) at http://lcweb.loc.gov/standards/iso639-2/langcodes.html.

- Use the optional country code (ISO 3166) only if it provides information necessary to your community of users. Indication of country code is generally desirable, but not always practical. Identifying variations in written or spoken language use can be challenging. Further identifying regional variations (e.g., cockney English, Philadelphia English) may sometimes be desirable, but may introduce even further challenges.

- For a list of optional, ISO 3166 country codes, see http://www.iso.org/iso/en/prods-services/iso3166ma/02iso-3166-code-lists/index.html. Use only if it provides information necessary to your community of users.

- Language codes starting with "x-" denote experimental codes without guarantee for uniqueness.

- This element is distinct from 1.3:General.Language, the language of the learning resource, and 5.11:Educational.Language, the user's natural language.

- The language selected will be used as the default value for the Language attribute in all LangString elements within the metadata record. In order to facilitate this default capacity, LOM indicates that only a single 3.4:Language instance is allowable. This can lead to difficult choices for implementers of multilingual metadata repositories. CanCore recommends:
    - Choose a single language to act as a default for the metadata record (using 3.4:Language) and have the record creator identify language variations beyond the default on an element-by-element basis. This is likely the easiest and most time-efficient solution.
    - Do not use 3.4:Language. Instead, for each element with a LangString datatype used in the metadata record, identify both the language and the value for the element.

Examples

- fra
- eng-CA

XML Examples

```
<language>fra</language>
<language>eng-CA</language>
```