

CanCore Guidelines Version 2.0: Relation Category



History of Relation Category Document

Date	Version	Comment	Person
June 6, 2002	1.1	Based on IMS Learning Resource Meta-data 1.2.1	Sue Fisher
May 27, 2003	1.8	Based on IEEE 1484.12.1 LOM	Norm Friesen
June 15, 2003	1.8.9	Corrections	Norm Friesen
August 2, 2003	1.9	Revisions incorporating feedback; examples	Norm Friesen
November 23, 2003	2.0	Final revisions incorporating feedback	

Use of Relation Category Elements in Other Application Profiles

Element	CanCore	SCORM	Curriculum Online	TLF	Sing-CORE	UK LOM CORE	Dublin Core
7:Relation	Y	O	O	N	Y	O	DC.Relation*
7.1:Kind	Y	O	O	N/A	Y	O	
7.2:Resource	Y	O	O	N/A	Y	O	DC.Source**
7.2.1:Identifier	Y	O	O	N/A	Y	O	
7.2.1.1:Catalog	Y	O	O	N/A	Y	O	
7.2.1.2:Entry	Y	O	O	N/A	Y	O	
7.2.2:Description	N	O	O	N/A	Y	O	

*CanCore Note: The LOM datamodel indicates that DC.Relation as a whole is equivalent to LOM element 7.2:Resource (and its child elements). The LOM also indicates that the vocabulary for 7.1:Kind "is based on Dublin Core." This means that the LOM adopts the vocabulary recommended by Dublin Core, but at the same time, makes it difficult to indicate these vocabulary values when the LOM is "crosswalked" or translated to Dublin Core. For this reason, CanCore recommends that the 7:Relation element as a whole be considered equivalent to DC:Relation.

when the value of 7.1:Kind is **is based on

Legend

- Y = Yes, Included in Subset
- O = Optional
- N = No, Not Included in Subset
- N/A = Not Applicable
- M = Mandatory
- DC = Dublin Core

7:Relation

<i>Explanation</i>	<i>Size</i>	<i>Order</i>	<i>Value Space</i>	<i>Datatype</i>
<p>This category defines the relationship between this learning object and other learning objects, if any.</p> <p>To define multiple relationships, there may be multiple instances of this category. If there is more than one target learning object, then each target shall have a new relationship instance.</p>	Smallest permitted maximum: 100 items	Unordered	-	-
<p><i>Use Relation and its sub-elements to indicate associations between learning resources. Proper use of these elements can be labour-intensive, and should be considered only if resource discovery and/or use is significantly enhanced.</i></p> <p>The sub-elements in this category are:</p> <p>7.1:Kind</p> <p>7.2:Resource</p> <p> 7.2.1:Identifier</p> <p> 7.2.1.1:Catalog</p> <p> 7.2.1.2:Entry</p> <p> 7.2.2:Description</p> <p>Elements listed in bold are included in the CanCore application profile.</p> <p>The utility of the Relation category is highly dependent on the provision and interoperation infrastructure elements <i>other</i> than metadata (e.g., identification and resolution services, content packaging technology, and aggregation and disaggregation mechanisms). Properly supported and integrated, the Relation category can support important functionality and add considerable value to an implementation. Such support and integration, however, is not likely to be available across domains, or in highly distributed environments. All of these factors should be taken into account in decisions to use these elements.</p> <ul style="list-style-type: none"> • The Relation element category is useful for creating associations among resources that have been divided into multiple parts and that can be recombined into a larger whole. • The Relation element category identifies relations between resources (i.e., the resource described in the metadata record and another resource). It does not describe relations between metadata records. The one exception is if the related resource exists only as a metadata record. • Use a separate Relation element category for each related resource and type of relation that applies. • The element group is unordered; do not assume that an ordered sequencing of relation types or learning resources can be inferred from the use of this element 				

category.

- Since the 4:Technical element group does not readily accommodate multiple technical formats of the same intellectual content or resource, CanCore recommends the use of the 7:Relation category for these situations.
- This element group can be used as a way of managing thumbnail images; see the first example below. (Common practice for accommodating thumbnails in the LOM has not yet clearly emerged; and example is provided as a suggestion.)
- This element group and the ways it can be used share some similarities with MARC supporting records.

Examples

- The metadata record for an image that references a thumbnail version of the image.
 Kind: hasformat
 Resource:
 Identifier:
 Catalog: TeleCampus
 Entry: 2560lfw02324
 Description: Thumbnail version of current resource
- A segment from a video
 Kind: ispartof
 Resource:
 Identifier:
 Catalog: AthabascaLOR
 Entry: 000300000000995602
 Description: The Marie Curie episode of C-Squared
- A reference to a print resource
 Kind: references
 Resource:
 Identifier:
 Catalog: ISSN
 Entry: 1191-8276
 Description: UNB Alumni News

XML Examples

```
<relation>
  <kind>
    <source>LOMv1.0</source>
    <value>hasformat</value>
  </kind>
```

```
<resource>
  <identifier>
    <catalog>TeleCampus</catalog>
    <entry>25601fw02324</entry>
  </identifier>
  <description>
    <string language="eng">Thumbnail version of current
    resource</string>
  </description>
</resource>
</relation>

<relation>
  <kind>
    <source>LOMv1.0</source>
    <value>ispartof</value>
  </kind>
  <resource>
    <identifier>
      <catalog>AthabascaLOR</catalog>
      <entry>000300000000995602</entry>
    </identifier>
    <description>
      <string language="eng">The Marie Curie episode of
      C-Squared</string>
    </description>
  </resource>
</relation>

<relation>
  <kind>
    <source>LOMv1.0</source>
    <value>references</value>
  </kind>
  <resource>
    <identifier>
      <catalog>ISSN</catalog>
      <entry>1191-8276</entry>
    </identifier>
    <description>
      <string language="eng">UNB Alumni News</string>
    </description>
  </resource>
</relation>
```

7.1:Kind

<i>Explanation</i>	<i>Size</i>	<i>Order</i>	<i>Value Space</i>	<i>Datatype</i>
Nature of the relationship between this learning object and the target learning object, identified by 7.2:Relation.Resource.	1	Unspecified	Based on Dublin Core (See below)	Vocabulary (State)
<i>Indicate the type of relationship between the learning resource described by the metadata record and another learning resource.</i>				

Vocabulary Recommendations

The LOM vocabulary and the Dublin Core vocabulary on which it is based differ in two respects. The LOM vocabulary omits the **replaces** and **isreplacedby** values in the Dublin Core vocabulary. The LOM includes the **isbasedon** and **isbasisfor** values that are not in Dublin Core. However, the crosswalk to Dublin Core included in the LOM datamodel indicates that these values are the functional equivalent of the Source element in Dublin Core.

The denotative and connotative meanings of the vocabulary terms **isversionof/hasversion**, **isformatof/hasformat**, and **isbasedon/isbasisfor** overlap. The definitions for provided for these terms, below, attempt to differentiate between these meanings as much as possible.

The vocabulary values listed in the LOM consist of words separated by spaces. In draft XML schema documentation for the LOM, these spaces are eliminated. At the same time, records from LOM implementations generally use both types of formatting. Because of the way the values are listed in the LOM standard documentation, as well as for reasons of human readability, CanCore recommends that spaces be used for these vocabulary values.

The LOM vocabulary values are defined (directly or indirectly) in Dublin Core documentation as follows:

isversionof

The described resource is a version, edition, or adaptation of the referenced resource. Changes in version imply substantive changes in content rather than differences in format.

hasversion

The described resource has a version, edition, or adaptation—namely, the referenced resource.

isrequiredby

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

requires

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

ispartof

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

haspart

The described resource includes the referenced resource either physically or logically.

isreferencedby

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

references

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

isformatof

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

hasformat

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

isbasedon

The described resource is derived, in whole or in part, from the referenced resource. (Use this term for any types of revisions, corrections, changes, etc., that are not adequately covered by **isversionof** or **isformatof**.)

isbasisfor

The referenced resource is derived, in whole or in part, from the described resource. (Use this term for any types of revisions, corrections, changes, etc., that are not adequately covered by **hasversion** or **hasformat**.)

Example

- hasformat

XML Example

```
<kind>  
  <source>LOMv1.0</source>  
  <value>hasformat</value>  
</kind>
```

7.2:Resource

<i>Explanation</i>	<i>Size</i>	<i>Order</i>	<i>Value Space</i>	<i>Datatype</i>
The target learning object that this relationship references.	1	Unspecified	-	-
<p><i>Using sub-elements 7.2.1.1:Catalog and 7.2.1.2:Entry, provide a name for the identification scheme and a unique value to identify the related resource.</i></p> <p>7.2:Resource consists of:</p> <ul style="list-style-type: none"> 7.2.1:Identifier <ul style="list-style-type: none"> 7.2.1.1:Catalog 7.2.1.2:Entry 7.2.2:Description <ul style="list-style-type: none"> • This element aggregate refers explicitly to the learning resource being described by the metadata record. It does not refer to the metadata record itself. The one exception is if the related resource exists only as a metadata record. <ul style="list-style-type: none"> ○ To supply an identifier for the referenced metadata record, refer to the 3.1:Meta-Metadata.Identifier aggregate element. 				

Examples

- Resource:
 - Identifier:
 - Catalog: ELC
 - Entry: 00010000001000
 - Description: The Electric Field (Series: The Mechanical Universe...and Beyond)
- A learning resource that references a print textbook.
 - Resource:
 - Identifier:
 - Catalog: ISBN
 - Entry: 0-7645-7006-4
 - Description: XML in Plain English

XML Examples

```

<resource>
  <identifier>
    <catalog>ELC</catalog>
    <entry>00010000001000</entry>
  </identifier>
  <description>
    <string language="eng">The Electric Field (Series:
    The Mechanical Universe...and Beyond)</string>
  </description>
</resource>

```



```
<resource>
  <identifier>
    <catalog>ISBN</catalog>
    <entry>0-7645-7006-4</entry>
  </identifier>
  <description>
    <string language="eng">XML in Plain English</string>
  </description>
</resource>
```

7.2.1:Identifier

<i>Explanation</i>	<i>Size</i>	<i>Order</i>	<i>Value Space</i>	<i>Datatype</i>
A globally unique label that identifies the target learning object.	Smallest permitted maximum: 10 items	Unspecified	-	-
<p><i>Using sub-elements 7.2.1.1:Resource.Identifier.Catalog and 7.2.1.2:Resource.Identifier.Entry, provide a name for the identification scheme and a unique value to identify the related learning resource.</i></p> <p>7.2.1:Identifier consists of: 7.2.1.1:Catalog 7.2.1.2:Entry</p> <p>Recommendations for the formulation of globally unique, location-independent, persistent identifiers are available from CanCore at: http://www.cancore.ca/documents/Resourceids.doc.</p> <ul style="list-style-type: none"> • The values supplied for 7.2.1:Identifier should correspond to those provided for 1.1:General.Identifier in the metadata record of the referenced resource. • If the resource is non-electronic, use any globally unique identification system for identifying the resource, such as an ISBN or ISSN. • Repeated instances of this element may be useful if different identification schemes are used (and these schemes and values are likely to match those listed in the 1.1:General.Identifier group). 				

Vocabulary Recommendations

The use of a globally unique, location-independent, and persistent identifier for each learning resource becomes important in a distributed environment. A local implementation should ensure its resources are identified uniquely before making its metadata records available for harvesting or other forms of distribution.

Examples

- Identifier:
Catalog: TeleCampus
Entry: 2560lfw02324
- Identifier:
Catalog: AthabascaLOR
Entry: 000300000000995602

XML Examples

```
<identifier>  
  <catalog>TeleCampus</catalog>  
  <entry>25601fw02324</entry>  
</identifier>
```

```
<identifier>  
  <catalog>AthabascaLOR</catalog>  
  <entry>000300000000995602</entry>  
</identifier>
```

7.2.1.1:Catalog

<i>Explanation</i>	<i>Size</i>	<i>Order</i>	<i>Value Space</i>	<i>Datatype</i>
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	CharacterString (smallest permitted maximum: 1000 char)
<p><i>Use the common abbreviation or the standard name for the identification scheme that is used to reference the resource.</i></p> <p><i>If a Web address is provided as the identifier for the related resource, use URI (Uniform Resource Identifier).</i></p> <ul style="list-style-type: none"> • Catalog does not refer to a subject classification scheme (e.g., DDC, LCSH). • 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). • Preserve any typographical symbols or spacing from your source. • Recommendations for the formulation of globally unique, location-independent, and persistent identifiers are available from CanCore at http://www.cancore.ca/documents/Resourceids.doc 				

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. 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 7.2.1.1:Catalog when a Web address is provided for 7.2.1.2:Entry.

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 7.2.1.1: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 7.2.1.1: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 (e.g., 10.1002/ISBNJ0-471-58064-3).

ISBN International Standard Book Number

<http://www.isbn-international.org/>

The ISBN is a ten-digit number that is used to identify books and similar publications.

ISSN International Standard Serial Number

<http://www.issn.org:8080/English/pub/faqs/issn>

The ISSN is an eight-digit number that identifies periodical publications, including electronic serials.

Examples

- URI
- ISSN
- DOI

XML Examples

```
<catalog>URI</catalog>  
<catalog>ISSN</catalog>  
<catalog>DOI</catalog>
```

7.2.1.2:Entry

<i>Explanation</i>	<i>Size</i>	<i>Order</i>	<i>Value Space</i>	<i>Datatype</i>
The value of the identifier within the identification or cataloging scheme that designates or identifies the target learning object. A namespace-specific string.	1	Unspecified	Repertoire of ISO/IEC 10646-1:2000	Character-String (smallest permitted maximum: 1000 char)
<p><i>Provide the actual value of the URI or other identifier for the identified resource as derived from any specified identification scheme.</i></p> <ul style="list-style-type: none"> • Preserve any typographical symbols or spacing from your source. 				

Technical Implementation Note

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

Examples

- 0-09-963629-4
- <http://www.dublincore.org/documents/dces/>

XML Examples

```
<entry>0-09-963629-4</entry>
<entry>http://www.dublincore.org/documents/dces/</entry>
```

7.2.2:Description

<i>Explanation</i>	<i>Size</i>	<i>Order</i>	<i>Value Space</i>	<i>Datatype</i>
Description of the target learning object.	Smallest permitted maximum: 10 items	Unspecified	-	LangString (smallest permitted maximum: 1000 char)
<p><i>Indicate the nature of the referenced resource. A short title or simple phrase of description may be all that is necessary.</i></p> <p>CanCore does not recommend the use of this element for the purposes of interoperation in distributed environments.</p> <ul style="list-style-type: none"> • A description of the resource is not required for its retrieval. • CanCore recommends that descriptions be less than 1000 characters in length. Keep in mind that this element is intended only to identify what the related resource is to the end user. It is not meant to act as a surrogate metadata record for that resource. Otherwise, see the CanCore recommendations for 1.4:General.Description for further guidance. (For example, just the title of the related resource can be included as its description.) • Descriptions of related resources can be useful for print or non-digital resources, as well as for complex relationships between resources. • It may be better to provide multiple identifiers under 7.2.1:Identifier to ensure that the resource can be retrieved, rather than describing it using 7.2.2:Description. 				

Examples

- An audio interview with Kim Campbell.
- An Introduction to Perl: The textbook this online tutorial is based on.

XML Examples

```
<description>
  <string language="eng">An audio interview with Kim
  Campbell.</string>
  <string language="fra">Une entrevue audio avec Kim
  Campbell.</string>
</description>
```



```
<description>  
  <string language="eng">An Introduction to Perl: The  
    textbook this online tutorial is based on.</string>  
</description>
```