1.8 has component

Explanation	*Size*	*Order*	*Value Space*	*Datatype*
Identifies a resource that is a component of the described resource. For example, a web page can consist of text and a number of images. Each image is a **component** of the resource.	0..*	Unspecified	Repertoire of ISO/IEC 10646-1:2000	CharacterString

This element is used to identify components of a resource such as images, audio files, etc. embedded within it.

It is possible that a resource can decompose into a number of sub-components; thus, this element can occur multiple times.

Typically components in different access modes will be identified and described separately, even where they are part of the composite resource, because they may need to be replaced or augmented individually.

If the described resource is *atomic*, then it cannot have any parts, and this element should not be used.

This element differs from the Relation element of the IEEE-LOM in that it is intended to address accessibility information. The Relation element was not designed to address or accommodate accessibility requirements. The Relation element within IEEE-LOM is intended for a higher level of granularity, for example, to define the relationship between a chapter and a book of which it is a part. Has component is intended to identify different components such as an audio track, an image and text within the same compound learning object or learning resource to address or accommodate accessibility requirements.

Formally, a character string is expected as an entry for this element.

It is expected that there will be local implementations of this element that invoke or use subelements that may use a nested approach. For example, one implementation using IEEE-LOM may use, 1.1 identifier, 1.1.1 catalog and 1.1.2 entry as a unique way to identify has component:

- hasComponent
    - 1.1 identifier
        - 1.1.1 catalog
        - 1.1.2 entry

Such an implementation may look like the following:

<identifier>
<catalog>URL</catalog>
<entry>http://www.cancore.ca</entry>
</identifier>

A Dublin Core implementation would use the definition of identifier as, "An unambiguous reference to the resource within a given context". An example may look like, <dc:identifier rdf:resource="http://www.cancore.ca"/>

Vocabulary Recommendations

CanCore recommends that the vocabulary values for this element include, but not be limited to, URI, URL, URN, PURL and DOI.

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).

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).

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/). ISBNs may be incorporated or included here, for example, urn:isbn:xxx-xxx-xxx.

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.

Example

Has alternative:

This shows a case where the described resource indicates that it contains two components, an image of a cat and one of a dog:

http://www.somewhere.org/dog.jpg
http://www.somewhere.org/cat.gif

XML Example

The following markup indicates that the described resource contains two components:

```
<accmd:hasComponent>
  <LOM:identifier>
    <LOM:catalog>URI</LOM:catalog>
    <LOM:entry>http://www.somewhere.org/dog.jpg</LOM:entry>
  </LOM:identifier>
</accmd:hasComponent>
```