IMS Content Packaging and eduCommons 3.1.1-final

This document details how to write IMS Content packages that are compatible with eduCommons 3.1.1-final.

eduCommons uses version 1.2 of the IMS Content Packaging Specification. XML Schemas for the specification can be found at http://imsglobal.org/xsd/imscp_v1p2.xsd and http://imsglobal.org/xsd/imsmd_v1p2p4.xsd.

Using XML Schemas and a Validating XML Editor

In the process of writing software that exports eduCommons supported IMS Content Packages, it is highly recommended to use a validating XML editor and associated schema files to check manifests for validity. eduCommons in some circumstances will expect import manifests to meet validity standards, and the chances of creating content packages that will work with eduCommons will be greatly increased. eduCommons provides XML schema files on export for this purpose.

An XML schema file for eduCommons specific metadata can be found both online (http://cosl.usu.edu/xsd/eduCommonsv and in eduCommons IMS Content Packages.

To use the IMS Content Package XML schemas along with the eduCommons schema, make sure your manifest specifies these packages and the relevant XML schema informtation in the header. Below is an example of attributes which you may want to set on the *manifest* tag.

```
xmlns="http://www.imsglobal.org/xsd/imscp_v1p1"
xmlns:eduCommons="http://cosl.usu.edu/xsd/eduCommonsv1.1"
xmlns:imsmd="http://www.imsglobal.org/xsd/imsmd_v1p2"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.imsglobal.org/xsd/imscp_v1p1 imscp_v1p2.xsd
                    http://www.imsglobal.org/xsd/imsmd_v1p2 imsmd_v1p2p4.xsd
                    http://cosl.usu.edu/xsd/eduCommonsv1.2 eduCommonsv1.2.xsd">
```

Specifying and Using eduCommons Namespaces

The IMS CP specification allows content packages to be extended using custom metadata fields. eduCommons takes advantage of this to pass information that does not fit into the LOM metadata format. Using the eduCommons extensions requires the use of the eduCommons namespace in typical XML style.

eduCommons can read values from colon prefixed tags, or by using an *xmlns* attribute on the top level eduCommons tag as shown below. Although both methods are acceptable, the latter is preferred due to the fact that it makes the corresponding XML more readable. Examples in the rest of the document will be given in this format.

```
<manifest xmlns="....
          xmlns:eduCommons="http://cosl.usu.edu/xsd/eduCommonsv1.2"
          ...
          >

   ...

   <eduCommons:eduCommons>
```

```
        <eduComons:objectType>
            Course
        </eduCommons:objectType>
    </eduCommons:eduCommons>


    ...
 </manifest>

<eduCommons xmlns="http://cosl.usu.edu/xsd/eduCommonsv1.2">
    <objectType>
        Course
    </objectType>
</eduCommons>
```

How to Make Items Appear in the Left Hand Navigation

eduCommons will add links to objects in the left hand navigation of a course view through the use of the *organizations* section in an IMS content package. Becuase IMS CP standards support multiple organizations within a manifest, eduCommons will use the default organization if it is specified. If no default is specified eduCommons will read from the first *organization* tag listed in the organizations section.

eduCommons gets its left hand navigation information from the *isVisible* attribute on items. If this attribute is present and set to true, eduCommons will mark this object as displayable in the left hand navigation. eduCommons will order left hand navigation items based on the ordering of *item* tags within the organization section.

An example of how to write an organizations section that eduCommons can read is given below. Notice how the default organization section is set, and how unique identifiers are used to link the item to the resource in the resources section.

The IMS CP specification requires that any id value use be unique to the manifest, otherwise anything can be used.

```
<oganizations default="ORG1234">
    <organization identifier="ORG1234">
        <item identifier="ITM1234" identifierref="RES1234" isVisi-
ble="true">
            <title>
                Hello World
            </title>
        </item>
        ...
    </organization>
</organizations>
<resources>
    <resource identifier="RES1234">
        ...
    </resource>
    ...
</resources>
```

Setting Metadata on eduCommons Enabled IMS Content Packages

eduCommons stores metadata for every content object entered into its repository. In order to write a content package that eduCommons can process, it is necessary to include a metadata section for every resource specified in the manifest.

It is also important to note that eduCommons currently will not read top level metadata sections, nor will it support nested manifests within IMS Content Packages. Support for nested manifests, and non eduCommons content packages are currently listed as future eduCommons features.

An example of how to lay out your manifest section to be eduCommons friendly is given below.

```
<manifest>
    <organizations>
        <organization>
        </organization>
    </organizations>
    <metadata>
        ... any metadata specified here is ignored by eduCommons ...
    </metadata>
    <resources>
        <resource>
            <metadata>
                ... metadata specified here is used to apply metadata
                    to content objects ...
            </metadata>
            <file href=" ... used by eduCommons to name the content object
                            and find it within the package ..."/>
        </resource>
        ...
    </resources>
    <manifest>
        ... nested manifests are not currently supported by eduCommons,
            but may be at a future date ...
    </manifest>
</manifest>
```

The eduCommons Course Object

The eduCommons course object is different to other content objects in that it has extra requirements. eduCommons represents courses as both a document and a container for content objects. This means in an IMS Manifest it will appear as a content object that is connected to an HTML file (used to render the front course page) and is also a folder which contains all content related to the course. It appears in the manifest as both.

Courses also have additional metadata associated with them in the eduCommons specific metadata section. This extra metadata is specified in a further section below.

Each manifest should specify a course object as the initial resource.

LOM Metadata Fields Read By eduCommons on Import

eduCommons uses Dublin Core fields to store metadata internally. In order to be able to support IEEE LOM metadata standards in IMS Content Packages, some mapping between metadata standards must be done. Not all LOM metadata fields are supported, and although eduCommons may populate some of these extra fields on output, it only supports reading data from the following fields:

1. General

1.2 Title

eduCommons uses this field to set the title on an object. This field is required.

1.3 Language

eduCommons uses the language setting to set the language of the content object and its metadata. eduCommons does not support setting language values on metadata or individual metadata fields. All LOM language attributes in "langstring" nodes are ignored by eduCommons. This field is optional, but recommended.

1.4 Description

eduCommons sets descriptions on content objects using this field. This field is optional, but recommended.

1.5 Keyword

eduCommons supports the use of keywords for search purposes over content. It uses this LOM field. This field is optional.

2. Lifecycle

2.3 Contribute

eduCommons supports a number of fields based on the LOM Contribute node.

When the role in a contribute node is set to "creator", eduCommons will set the eduCommons creator field to the name value in the VCARD of this section. When the role is set to "creator" it will also use the date field to set the creation date on the eduCommons content object.

eduCommons will set its contributors field with the names listed in any other LOM based contribute nodes. The roles defined in additional LOM based contribute nodes are not read or stored by eduCommons.

eduCommons also supports a number of eduCommons specific contribute nodes which are detailed in the next section.

Other

eduCommons may support a larger number of LOM fields in the future. The current supported set is likely to be expanded. However, attempts will be made to remain compatible with the above listed fields.

LOM Based eduCommons Metadata Fields

The *rights holder* field

eduCommons supports setting a rights holder for every content object. However, it also supports setting content to use a site wide default, making it possible to set a default rights holder over the whole eduComomns site. To use the site wide default setting, use "(site default)" as the rights holder name.

   eduCommons will read an write the rights holder information in a *contribute* section in the LOM metadata section of an IMS content package. The *source* tag in this contribute section is set to "eduCommonsv1.1" signifying that this role is defined by eduCommons and is not a standard LOM role. An example of how the rights holder is given below. The date field can be set to a publication or creation date. It does not matter, as eduCommons does not use the date field in this section.

```
<contribute>
    <role>
        <source>
            <langstring xml:lang="en">
                eduCommonsv1.2
            </langstring>
        </source>
        <value>
            <langstring xml:lang="en">
                rights holder
            </langstring>
        </value>
    </role>
    <centity>
        <vcard>
            BEGIN:VCARD
            FN: John Smith
            END:VCARD
        </vcard>
    </centity>
    <date>
        <datetime>
            2006-08-07 15:59:23
        </datetime>
    </date>
</contribute>
```

Note The VCARD Section In The Xml File Should Be Left Aligned, With No Whitespace In Order To Comply With VCARD Standards.

The *Instructor* and *InstructorEmail* fields

The instructor field is also encoded in a LOM contribute node, similar to the rights holder field above. Things to note here are that eduCommons will read both the *FN:* and *EMAIL;INTERNET:* fields out of the VCARD, and use them to set the *Instructor* and *InstructorEmail* settings accordingly.

```
<contribute>
    <role>
        <source>
            eduCommonsv1.2
        </source>
        <value>
            instructor
        </value>
    </role>
    <centity>
        <vcard>
            BEGIN:VCARD
            FN: John Smith
            EMAIL;INTERNET: johnsmith@somewhere.com
            END:VCARD
        </vcard>
    </centity>
    <date>
        <datetime>
            2006-08-07 15:59:23
        </datetime>
    </date>
</contribute>
```

Note The VCARD Section In The Xml File Should Be Left Aligned, With No Whitespace In Order To Comply With VCARD Standards.

eduCommons Specific Metadata

This section details eduCommons metadata that does not appear within the LOM metadata section. Instead it appears in a section following the LOM metadata as follows.

```
<metadata>
    <lom xmlns="http://www.imsglobal.org/xsd/imsmd_v1p2">
        <general>
        </general>
        <lifecycle>
        </lifecycle>
        ...
    </lom>
    <eduCommons xmlns="http://cosl.usu.edu/xsd/eduCommonsv1.2">
        <objectType>
        </objectType>
        ...
    </eduCommons>
</metadata>
```

The following section describes the tags supported by eduCommons in detail.

eduCommons Metadata Tags

The *objectType* tag

The *objectType* tag is used to signify what type of content object eduCommons should create for the given resource. Possible values are Course, Document, File, Image, or Link. This field is required. HTML or plain text resources should use the document setting. Images should use the image setting. All other resources should use the File setting, unless they are an external link. If a resource is in HTML format and represents a course home page, use the Course setting and make sure the resource appears first in the manifest resources section.

```
<objectType>
    Course
</objectType>
```

The *copyright* tag

The *copyright* tag is used by eduCommons to license content objects. It also uses the field to render copyright bylines for objects. The field should specify both the copyright and the date. e. g. "Copyright 2006". This field is optional. If it is not included, the site default copyright string will be used instead.

```
<copyright>
    Copyright 2006
</copyright>
```

The *license* tag

The license tag is used to assign a copyright license to a content object. It is also used to render a copyright byline for an object.

The license field supports four parameters:

- License Cateogory

- License Name

- License URL

- License Icon URL

The category field appears as an attribute in the *license* tag, and must be set to one of the following:

- (site default)

- All Rights Reserved

- GNU Free Document License

- Creative Commons License

- Other

The category field is also used as a label by eduCommons to allow a user to select a copyright license for a content object. It is a required field.

The *licenseName* tag is used to identify the name of the license. This name will be used in the copyright byline, and should slot into the following sentence: This resource is licensed under a _____. This is an optional field only if "(site default)" is chosen. Otherwise it must be specified.

The *licenseUrl* tag is used to specify a public web site where the legal definition of the license is displayed. It allows the license name in the copyright byline to be linked directly to the definition. It is optional.

The *licenseIconUrl* tag is used to specify a public icon image that represents the content license. This field is optional, and likely not to be included, unless the license includes a representative icon. An example where you would want to include this field would be to specify a creative commons icon along with the license.

Below is an example of how the license field would be encoded within the eduCommons metadata.

```
<license category="Creative Commons License">
    <licenseName>
        Attribution 2.5
    </licenseName>
    <licenseUrl>
        http://creativecommons.org
    </licenseUrl>
    <licenseIconUrl>
        http://creativecommons.org
    </licenseIconUrl>
</license>
```

The *clearedCopyright* tag

The *clearedCoypright* field is used by eduCommons to keep track of whether or not a content object has been cleared for publication in an open content environment. It can be set to either "true" or "false". This field is optional, and is set to "false" by default.

```
<clearedCopyright>
    true
</clearedCopyright>
```

Course related metadata

The following metadata is only applicable when the *objectType* field is set to Course. It contains metadata that is specific to course objects.

The *courseId* tag

The *courseId* tag is used to identify the course catalog number at an institution. It is used by eduComomns to render a full title of a course. Although this tag not required, is highly recommended.

```
<courseId>
    INST7000
</courseId>
```

The *term* tag

The *term* tag is used by eduCommons to specify which term, or semester the course was taught in. It is used by eduCommons to render a full title of a course. Although this tag is not required, it is highly recommended.

```
<term>
    Fall 2005
</term>
```

The *displayInstructorEmail* tag

The *displayInstructorEmail* tag is used to specify whether or not an Instructor's Email address should be published or not. It can be set to "true" or "false". This tag is optional and defaults to "false".

```
<displayInstructorEmail>
    false
</displayInstructorEmail>
```

Example IMS Content Packages

You can create example IMS packages by building content in eduCommons and then use the IMS export functionality to export them. This feature can be useful in figuring out how to write compatible packages.

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