

What Is...

IMS Content Packaging?

by Scott Wilson and Sarah Currier

In Brief

What is IMS Content Packaging?

IMS Content Packaging is a specification for sending learning resources (or learning objects) from one program to another, facilitating easier delivery, reuse and sharing of materials.

IMS Packages enable you to export content from one virtual learning environment (VLE), content management system or digital repository, and import it into another while retaining information describing the media in the IMS Package, and how it is structured, such as a table of contents or the HTML page to show first. There are a number of learning applications – from authoring tools to VLEs – now supporting IMS Content Packaging.

Although IMS Content Packaging allows you to transport materials between environments, it does not guarantee the interoperability of the content inside the Package with the new environment. For example, if you package AutoCAD drawings in an IMS Package and send it to someone else, they will still need to have a program capable of viewing AutoCAD files.

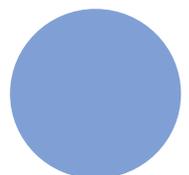
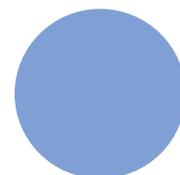
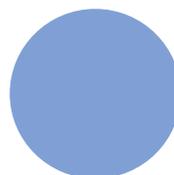
One of the key benefits of IMS Content Packaging is that all the various support materials for a piece of content (such as style-sheets, movies and images) can be bundled together, ensuring that your HTML-based materials don't suffer from broken image icons. They can also be disaggregated and reused as individual learning objects.

Another key benefit is that content packages support rich metadata, enabling intelligent filtering and searching when stored in a repository of learning objects.

What is IMS Content Packaging for?

The main things that IMS Content Packaging allows you to do are:

- Transmit content from one VLE to another
- Import content into a VLE from a resource network, repository, or publisher
- Export your content so that it can be reused by other departments or institutions
- Assemble, or aggregate, existing content into a single Package for delivery
- Transfer content from an authoring tool to a VLE or repository



Technical Details

How IMS Content Packaging works

An IMS Package consists of an archive and a manifest. The archive can be a ZIP file or a CD-ROM; basically anything that can contain files. The manifest is an XML file that describes what the Package contains and how the content is organised. (If the archive is like a box, then the manifest is the label on the box).

The manifest XML file contains three main sections:

- a **metadata** section that describes the whole IMS Package
- a **resources** section that lists the resources in the IMS Package (these can be hyperlinks to web-based resources as well as actual files in the archive) and any metadata that describes them
- an **organisations** section that describes the structure of the resources within the IMS Package.

Although you can write a manifest file by hand there are a number of tools available that automate the work for you.

The resources in the archive itself can be any type of media; for example, HTML files, GIF and JPEG images, Flash animations, PDF documents, PowerPoint slides, and Word documents. The only limitation is whether the recipient of the IMS Package has an application capable of viewing the files you've packaged up.

Any special requirements for viewing resources can be included in the metadata for either the IMS Package or the individual resources; for example, a particular browser version needed to view a web page, or the need for speakers and a sound card to listen to audio content.

Requirements

To create an IMS Package, all you need is to have your learning materials available in electronic form, and a content packaging tool (see People, Products and Services). Your VLE or content authoring application may also have a packaging tool built into it.

If you want to view an IMS Package someone has provided you with, you need to import it into a VLE or other application that supports the IMS Content Packaging specification.

To make an IMS Package that is truly reusable, however, you need to be careful about how you author the content within it, as it may be used in a different context.

For example, if your resources contain hyperlinks to other resources it makes it more difficult to separate the resources and reuse them in another way. Instead, you can use the Organizations section of the IMS Package to provide a navigation structure for the user without the need for hyperlinks in the resources themselves. The CETIS Educational Content Special Interest Group has support materials available to help you with writing reusable content (see People, Products and Services).

IMS Packages are typically distributed as ZIP archive files, and can be sent using email and loaded directly into applications from the file system. In some applications (for example, within an integrated repository and VLE) you may want to send content packages directly using a protocol such as HTTP, FTP or SOAP. In these cases, IMS Packages can be treated like any file object. To use SOAP, for instance, you need to be using SOAP with Attachments, and include the IMS Package as a MIME attachment.

Related specifications

IMS Packages can make good use of metadata, particularly when used as part of a resource network or a content repository. The IEEE standard for Learning Object Metadata (based upon the IMS Learning Resource Meta-data specification) should be used for this purpose.

If you want to store more sophisticated information with the IMS Package, for example to provide an order in which the resources should be used, with branching points and test conditions, then there are two specifications available. IMS Simple Sequencing is good for scenarios where individual learners undertake self-paced work. IMS Learning Design is a more sophisticated specification that provides for collaboration and other multi-learner activities.

Implementations

JISC projects using Content Packaging

The MLE programme included projects focusing on content:

http://www.jisc.ac.uk/index.cfm?name=mle_home

The Exchange for Learning (X4L) Programme is focused on moving and exchanging content, and includes a number of projects that use the IMS Content Packaging specification:

http://www.jisc.ac.uk/index.cfm?name=programme_x4

The DiLVLE Programme is concerned with linking Digital Libraries with VLEs, and will also contain projects that work with the IMS Content Packaging specification:

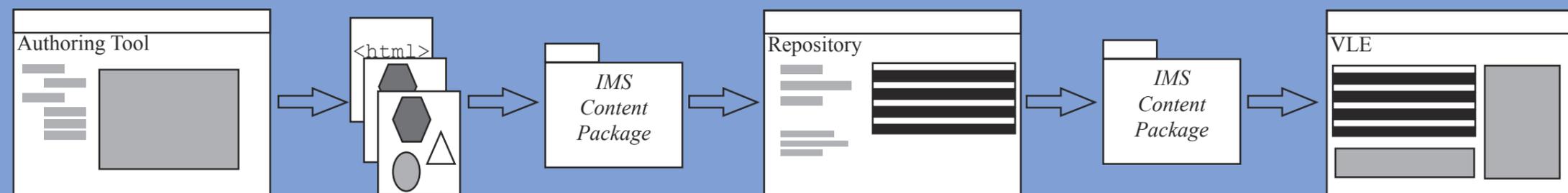
http://www.jisc.ac.uk/index.cfm?name=programme_divle

Other examples

High Level Skills for Industry Project (Yorkshire & Humberside Development Agency and the University of Hull):

<http://www.hlsi.org.uk/>

IMS Content Packaging allows content to be shared between systems such as authoring tools, repositories, VLEs and portals.



Resources

People, products and services

The CETIS Educational Content Special Interest Group (EC-SIG) offers information, support and advice to people working with IMS Content Packaging and related specifications. Contact the EC-SIG Coordinator Sheila MacNeill at s.macneill@strath.ac.uk, or go to:

<http://www.cetis.ac.uk/educational-content/>

Products which support IMS Content Packaging include:

RELOAD, an open source IMS Content Packaging and Metadata editor developed for the X4L programme. Other features include the ability to edit SCORM 1.2 and IMS Learning Design content:

<http://www.reload.ac.uk>

E-cat, a Microsoft Word plug-in that allows educational practitioners to create educational content for online and offline delivery. Fully integrated with the HLSI repository, it produces web ready content plus an IMS standards based packaged output for saving. This product has internal metadata tools to assist in describing content to facilitate future searching and retrieval. E-cat can be supplied with an additional plug in which enables creation of assessments in the form of tests and questions which again are in an IMS standards form and can be included in the repository.

<http://www.hlsi.org.uk/>

See also: Intrallect; Xtensis; BlackBoard; WebCT; Giunti Labs; Macromedia Dreamweaver, and many more.

Resources on the Internet

The IMS website contains both the specification documents and also some supporting materials:

<http://www.imsglobal.org/content/packaging/index.html>

The CETIS website also has some materials about IMS Content Packaging:

<http://www.cetis.ac.uk>

About this guide

This guide was produced by CETIS, the Centre For Educational Technology Interoperability Standards. For more CETIS briefings, visit <http://www.cetis.ac.uk/static/briefings.html>.

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About CETIS

CETIS is the JISC's Centre For Educational Technology Interoperability Standards. For more information visit the CETIS website

