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# Information technology — Learning, education, and training — Content packaging

## Part 1: Information model

*Technologies de l'information — Apprentissage, éducation et  
formation — Paquetage du contenu*

*Partie 1: Modèle de l'information*

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Published in Switzerland

## Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>0 Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 Acronyms and abbreviations</b> .....	<b>6</b>
<b>5 The Content Packaging conceptual model (CPCM)</b> .....	<b>7</b>
<b>6 Class description and relationship requirements</b> .....	<b>8</b>
<b>7 Conformance</b> .....	<b>53</b>
<b>Bibliography</b> .....	<b>59</b>

## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 12785-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 36, *Information technology for learning, education and training*.

ISO/IEC 12785 consists of the following parts, under the general title *Information technology — Learning, education and training — Content packaging*:

— *Part 1: Information model*

The Extensible Markup Language (XML) Schema binding for Content Packaging Information Model and associated namespace identifiers will be declared in Part 2. Practices related to the interpretation and implementation of the Information Model will be addressed in Part 3.

## 0 Introduction

### 0.1 Purpose and overview

ISO/IEC 12785 is derived from the IMS Global Learning Consortium (IMS GLC) Content Packaging version 1.2 Specification. IMS Content Packaging is probably the most widely used specification in support of learning technology around the world. IMS Content Packaging has been an integral foundation of Sharable Content Object Reference Model (SCORM) from its inception to the current version. But, most importantly, IMS Content Packaging has also been used widely outside of SCORM on a standalone basis. IMS Content Packaging is also used in many other high profile educational uses, such as archiving for MIT OpenCourseWare, distributing content packages that exclude runtime and metadata for the Learning Federation of Australia, and nationwide e-learning services for the Cyber Home Learning System in Korea.

The IMS Content Packaging Information Model that is the source and base specification for this part of ISO/IEC 12785 describes data structures that can be used to exchange data between systems that wish to import, export, aggregate, and disaggregate packages of learning, education and training (LET) content.

The IMS Content Packaging specification was initially conceived for the packaging of instructional content. The specification supports the description of content associated with a given learning activity, location of the content, and how these pieces of content can be organized for best instructional effect. As a result of wide adoption of the specification, millions of IMS content packages of instructional content are used in a variety of software applications.

Adopters of IMS Content Packaging have extended its use beyond just the packaging of instructional content. IMS Content Packaging is now referenced by other IMS Specifications to package and exchange other types of data.

Requests for major functional additions were not included in the IMS Content Packaging version 1.1.x series and were accumulated as practice matured around implementing IMS Content Packaging. Evaluation of these requests in 2006, combined with feedback from the wider adopter community, led to the decision to make a significant update and definitive release for this specification as an International Standard series.

The new functionality and clarifications incorporated in this Content Packaging specification are as follows.

- a) The meanings of terms used within the specification have been clarified.
- b) The use of (sub)manifests, now termed child-manifests, has been clarified and enhanced:
  - 1) Interpretation of an item pointing to a child-manifest has been clarified.
  - 2) New functionality allowing components of child-manifests to be precisely referenced and interpreted has been added.
  - 3) Support for external child-manifests has been added.
- c) Support for external referenced metadata files has been added.
- d) All internal vocabularies have been removed and are now maintained through the IMS vocabularies registration process (see <http://www.imsglobal.org/vdex/index.html>).
- e) A new resource type of “stand-alone resource” has been added that allows another package to be used as a piece of LET content.

- f) The syntax and usage of the Base, Parameter, 'IsVisible', and 'Href' Information Model classes has been clarified.
- g) Support for variant resources has been added. This includes support for alternative resources for accessible LET content.
- h) Support for Organization and Item titles in multiple languages has been added.
- i) Support for interchange packages that contain only content and interchange packages that have no local content files has been clarified.

## 0.2 Compatibility

This part of ISO/IEC 12785 arises in an active implementation environment of ever increasing adoption of IMS Content Packaging. A primary goal of this part of ISO/IEC 12785 is to enable future growth while regularizing current practice. To that end, the following definition of backwards compatibility has guided the development of this Content Packaging Information Model:

- a) From the perspective of the IMS Content Packaging Information Model, the IMS Content Packaging Information Model v1.1.4 is a proper subset of this Content Packaging Information Model.
- b) The semantics of the Content Packaging Information Model components persists between versions, except where necessary to ensure disambiguation.

# Information technology — Learning, education, and training — Content packaging

## Part 1: Information model

### 1 Scope

This part of ISO/IEC 12785 defines the data structures that can be used to exchange language, education and training (LET) content among systems that wish to import, export, aggregate, and disaggregate packages of LET content.

It illustrates the conceptual structure of the Content Packaging Information Model and defines the structural relationships, data-type, value-space, and number of occurrences permitted for each kind of information object.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 639-2:1998, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO 3166-1:1997, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO/IEC 10646:2003, *Information technology — Universal Multiple-Octet Coded Character Set (UCS)*

IEEE 1484.12.1-2002, *Draft Standard for Learning Object Metadata*

IETF RFC 1951 (1996), *DEFLATE Compressed Data Format Specification version 1.3*

IETF RFC 2119 (1997), *Keywords for use in RFCs to Indicate Requirement Levels*

IETF RFC 2234 (1997), *Augmented BNF for Syntax Specifications: ABNF*

IETF RFC 2732 (1999), *Format for Literal IPv6 Addresses in URL's*

IETF RFC 3986 (2005), *Uniform Resource Identifier (URI): Generic Syntax*