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Information technology — Document description and processing languages — Office Open XML File Formats —

Part 2: Open Packaging Conventions

Technologies de l'information — Description des documents et langages de traitement — Formats de fichier "Office Open XML" —

Partie 2: Conventions de paquetage ouvert

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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 29500-2 was prepared by ISO/IEC JTC 1, Information technology, Subcommittee SC 34, Document description and processing languages.

This third edition cancels and replaces the second edition (ISO/IEC 29500-2:2011), which has been technically revised by incorporation of the Technical Corrigendum ISO/IEC 29500-2:2011/Cor.1:2012.

ISO/IEC 29500 consists of the following parts, under the general title *Information technology — Document description and processing languages — Office Open XML File Formats*:

- *Part 1: Fundamentals and Markup Language Reference*
- *Part 2: Open Packaging Conventions*
- *Part 3: Markup Compatibility and Extensibility*
- *Part 4: Transitional Migration Features*

Annexes A, B, C, D, and F form a normative part of this Part of ISO/IEC 29500. Annexes E, G, H, I, and J are for information only.

This Part of ISO/IEC 29500 includes two annexes (Annex D and Annex E) that refer to data files provided in electronic form.

The document representation formats defined by this Part are different from the formats defined in the corresponding Part of ECMA-376:2006. Some of the differences are reflected in schema changes, as shown in Annex I of this Part.

Introduction

ISO/IEC 29500 specifies a family of XML schemas, collectively called *Office Open XML*, which define the XML vocabularies for word-processing, spreadsheet, and presentation documents, as well as the packaging of documents that conform to these schemas.

The goal is to enable the implementation of the Office Open XML formats by the widest set of tools and platforms, fostering interoperability across office productivity applications and line-of-business systems, as well as to support and strengthen document archival and preservation, all in a way that is fully compatible with the existing corpus of Microsoft Office documents.

The following organizations have participated in the creation of ISO/IEC 29500 and their contributions are gratefully acknowledged:

Apple, Barclays Capital, BP, The British Library, Essilor, Intel, Microsoft, NextPage, Novell, Statoil, Toshiba, and the United States Library of Congress

Information technology — Document description and processing languages — Office Open XML File Formats

Part 2:

Open Packaging Conventions

1. Scope

This Part of ISO/IEC 29500 specifies a set of conventions that are used by Office Open XML documents to define the structure and functionality of a *package* in terms of a package model and a physical model.

The *package model* is a package abstraction that holds a collection of *parts*. The parts are composed, processed, and persisted according to a set of rules. Parts can have relationships to other parts or external resources, and the package as a whole can have relationships to parts it contains or to external resources. The package model specifies how the parts of a package are named and related. Parts have content types and are uniquely identified using the well-defined naming rules provided in this Part of ISO/IEC 29500.

The *physical mapping* defines the mapping of the components of the package model to the features of a specific physical format, namely a ZIP archive.

This Part of ISO/IEC 29500 also describes certain features that might be supported in a package, including *core properties* for package metadata, a *thumbnail* for graphical representation of a package, and *digital signatures* of package contents.

Because this Part of ISO/IEC 29500 might evolve, packages are designed to accommodate extensions and to support compatibility goals in a limited way. The versioning and extensibility mechanisms described in Part 3 support compatibility between software systems based on different versions of this Part of ISO/IEC 29500 while allowing package creators to make use of new or proprietary features.

This Part of ISO/IEC 29500 specifies requirements for documents, producers, and consumers. Conformance requirements are identified throughout the text of this Part of ISO/IEC 29500. A formal conformance statement is given in §2. An informative summary of requirements relevant to particular classes of developers is given in Annex H.

2. Conformance

Each conformance requirement is given a unique ID comprised of a letter (M – MANDATORY; S – SHOULD; O – OPTIONAL), an identifier for the topic to which it relates, and a unique ID within that topic. (Producers and consumers might use these IDs to report error conditions.) Mandatory requirements are those stated with the normative terms "shall," "shall not," or any of their normative equivalents. Should items are those stated with the normative terms "should," "should not," or any of their normative equivalents. Optional requirements are those stated with the normative terms "can," "cannot," "might," "might not," or any of their normative equivalents.

[*Example*: Package implementers shall not map logical item name(s) mapped to the Content Types stream in a ZIP archive to a part name. [M3.11] *end example*]

Each Part of this multi-part standard has its own conformance clause, as appropriate. The term *conformance class* is used to disambiguate conformance within different Parts of this multi-part standard. This Part of ISO/IEC 29500 has only one conformance class, *OPC* (that is, Open Packaging Conventions).

A document is of conformance class OPC if it obeys all syntactic constraints specified in this Part of ISO/IEC 29500.

OPC conformance is purely syntactic.

3. 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.

American National Standards Institute, *Coded Character Set — 7-bit American Standard Code for Information Interchange*, ANSI X3.4, 1986.

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*.

ISO/IEC 9594-8 | ITU-T Rec. X.509, *Information technology — Open Systems Interconnection — The Directory: Public-key and attribute certificate frameworks*.

ISO/IEC 10646, *Information technology — Universal Coded Character Set (UCS)*.

ISO/IEC 29500-3, *Information technology — Document description and processing languages — Office Open XML File Formats, Part 3: Markup Compatibility and Extensibility.*

Dublin Core Element Set v1.1. http://purl.org/dc/elements/1.1/

Dublin Core Terms Namespace. http://purl.org/dc/terms/

Extensible Markup Language (XML) 1.0 (Third Edition), W3C Recommendation, 04 February 2004.

Namespaces in XML 1.1, W3C Recommendation, 4 February 2004.

RFC 2616 *Hypertext Transfer Protocol — HTTP/1.1*, The Internet Society, Berners-Lee, T., R. Fielding, H. Frystyk, J. Gettys, P. Leach, L. Masinter, and J. Mogul, 1999, http://www.ietf.org/rfc/rfc2616.txt.

RFC 3986 *Uniform Resource Identifier (URI): Generic Syntax*, The Internet Society, Berners-Lee, T., R. Fielding, and L. Masinter, 2005, http://www.ietf.org/rfc/rfc3986.txt.

RFC 3987 *Internationalized Resource Identifiers (IRIs)*, The Internet Society, Duerst, M. and M. Suignard, 2005, http://www.ietf.org/rfc/rfc3987.txt.

RFC 4234 *Augmented BNF for Syntax Specifications: ABNF*, The Internet Society, Crocker, D., (editor), 2005, http://www.ietf.org/rfc/rfc4234.txt.

The Unicode Consortium. The Unicode Standard, http://www.unicode.org/standard/standard.html.

W3C NOTE 19980827, *Date and Time Formats*, Wicksteed, Charles, and Misha Wolf, 1997, http://www.w3.org/TR/1998/NOTE-datetime-19980827.

XML, Tim Bray, Jean Paoli, Eve Maler, C. M. Sperberg-McQueen, and François Yergeau (editors). *Extensible Markup Language (XML) 1.0, Fourth Edition*. World Wide Web Consortium. 2006. http://www.w3.org/TR/2006/REC-xml-20060816/. [Implementers should be aware that a further correction of the normative reference to XML to refer to the 5th Edition will be necessary when the related Reference Specifications to which this International Standard also makes normative reference and which also depend upon XML, such as XSLT, XML Namespaces and XML Base, are all aligned with the 5th Edition.]

XML Namespaces, Tim Bray, Dave Hollander, Andrew Layman, and Richard Tobin (editors). *Namespaces in XML 1.0 (Third Edition)*, 8 December 2009. World Wide Web Consortium. http://www.w3.org/TR/2009/REC-xml-names-20091208/

XML Base, W3C Recommendation, 27 June 2001.

XML Path Language (XPath), Version 1.0, W3C Recommendation, 16 November 1999.

XML Schema Part 1: Structures, W3C Recommendation, 28 October 2004.

XML Schema Part 2: Datatypes, W3C Recommendation, 28 October 2004.

XML-Signature Syntax and Processing, W3C Recommendation, 12 February 2002.

.ZIP File Format Specification from PKWARE, Inc., version 6.2.0 (2004), as specified in http://www.pkware.com/documents/APPNOTE/APPNOTE_6.2.0.txt. [*Note*: The supported compression algorithm is inferred from tables C-3 and C-4 in Annex C. *end note*]

