INTERNATIONAL STANDARD

ISO/IEC 29500-1

Fourth edition
2016-11-01

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

Part 1: Fundamentals and Markup Language Reference

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

Partie 1: Principes essentiels et référence de langage de balisage

Reference number
ISO/IEC 29500-1:2016(E)

© ISO/IEC 2016

COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Table of Contents

Foreword ..... **viii**

Introduction ..... **x**

1. Scope **1**

2. Conformance **2**

2.1 Document Conformance 2
2.2 Application Conformance 2
2.3 Application Descriptions 3
2.4 Interoperability Guidelines 5

3. Normative References **6**

4. Terms and Definitions **10**

5. Notational Conventions **13**

6. Acronyms and Abbreviations **14**

7. General Description **15**

8. Overview **16**

8.1 Content Overview 16
8.2 Packages and Parts 16
8.3 Consumers and Producers 16
8.4 WordprocessingML 16
8.5 SpreadsheetML 18
8.6 PresentationML 18
8.7 Supporting MLs 19

9. Packages **21**

9.1 Office Open XML's Use of OPC 21
9.2 Relationships in Office Open XML 22

10. Markup Compatibility and Extensibility **27**

11. WordprocessingML **28**

11.1 Glossary of WordprocessingML-Specific Terms 28
11.2 Package Structure 28
11.3 Part Summary 31
11.4 Document Template 57
11.5 Framesets 58
11.6 Master Documents and Subdocuments 59
11.7 Mail Merge Data Source 60
11.8 Mail Merge Header Data Source 61
11.9 XSL Transformation 62

12. SpreadsheetML **64**

12.1 Glossary of SpreadsheetML-Specific Terms 64
12.2 Package Structure 65

©ISO/IEC 2016 – All rights reserved

12.3 Part Summary 67
12.4 External Workbooks 102

13. PresentationML 103
13.1 Glossary of PresentationML-Specific Terms 103
13.2 Package Structure 103
13.3 Part Summary 106
13.4 HTML Publish Location 124
13.5 Slide Synchronization Server Location 125

14. DrawingML 127
14.1 Glossary of DrawingML-Specific Terms 127
14.2 Part Summary 127

15. Shared 140
15.1 Glossary of Shared Terms 140
15.2 Part Summary 141
15.3 Hyperlinks 162

16. Part Overview 164
16.1 WordprocessingML Summary 164
16.2 SpreadsheetML Summary 164
16.3 PresentationML Summary 165
16.4 DrawingML Summary 166
16.5 Shared Summary 166

17. WordprocessingML Reference Material 169
17.1 Table of Contents 169
17.2 Main Document Story 189
17.3 Paragraphs and Rich Formatting 195
17.4 Tables 373
17.5 Custom Markup 485
17.6 Sections 547
17.7 Styles 614
17.8 Fonts 670
17.9 Numbering 692
17.10 Headers and Footers 734
17.11 Footnotes and Endnotes 747
17.12 Glossary Document 780
17.13 Annotations 798
17.14 Mail Merge 929
17.15 Settings 970
17.16 Fields and Hyperlinks 1158
17.17 Miscellaneous Topics 1293
17.18 Simple Types 1302

18. SpreadsheetML Reference Material 1523
18.1 Table of Contents 1523
18.2 Workbook 1542
18.3 Worksheets 1589

 ©ISO/IEC 2016 – All rights reserved

18.4 Shared String Table 1717
18.5 Tables 1726
18.6 Calculation Chain 1742
18.7 Comments 1745
18.8 Styles 1752
18.9 Metadata 1801
18.10 Pivot Tables 1815
18.11 Shared Workbook Data 1959
18.12 QueryTable Data 1988
18.13 External Data Connections 1995
18.14 Supplementary Workbook Data 2016
18.15 Volatile Dependencies 2026
18.16 Custom XML Mappings 2031
18.17 Formulas 2039
18.18 Simple Types 2434

19. PresentationML Reference Material 2516
19.1 Table of Contents 2516
19.2 Presentation 2522
19.3 Slides 2559
19.4 Comments 2597
19.5 Animation 2601
19.6 Slide Synchronization Data 2690
19.7 Simple Types 2691

20. DrawingML - Framework Reference Material 2719
20.1 DrawingML - Main 2719
20.2 DrawingML - Picture 3087
20.3 DrawingML - Locked Canvas 3095
20.4 DrawingML - WordprocessingML Drawing 3096
20.5 DrawingML - SpreadsheetML Drawing 3152

21. DrawingML - Components Reference Material 3181
21.1 DrawingML - Main 3181
21.2 DrawingML - Charts 3361
21.3 DrawingML - Chart Drawings 3469
21.4 DrawingML - Diagrams 3490

22. Shared MLs Reference Material 3599
22.1 Math 3599
22.2 Extended Properties 3720
22.3 Custom Properties 3727
22.4 Variant Types 3729
22.5 Custom XML Data Properties 3740
22.6 Bibliography 3743
22.7 Additional Characteristics 3780
22.8 Office Document Relationships 3784
22.9 Shared Simple Types 3785

23. Custom XML Schema References 3800

©ISO/IEC 2016 – All rights reserved

23.1 Table of Contents 3800
23.2 Elements 3800

Annex A. (normative) Schemas – W3C XML Schema 3805
A.1 WordprocessingML 3805
A.2 SpreadsheetML 3871
A.3 PresentationML 3955
A.4 DrawingML - Framework 3986
A.5 DrawingML - Components 4054
A.6 Shared MLs 4105
A.7 Custom XML Schema References 4129

Annex B. (informative) Schemas – RELAX NG 4131
B.1 WordprocessingML 4132
B.2 SpreadsheetML 4178
B.3 PresentationML 4273
B.4 DrawingML - Framework 4298
B.5 DrawingML - Components 4350
B.6 Shared MLs 4386
B.7 Custom XML Schema References 4402
B.8 Additional Resources 4403

Annex C. (informative) Additional Syntax Constraints 4405

Annex D. (informative) Namespace Prefix Mapping in Examples 4406

Annex E. (informative) WordprocessingML Custom XML Data Extraction 4408

Annex F. (normative) WordprocessingML Page Borders 4411

Annex G. (normative) Predefined SpreadsheetML Style Definitions 4412
G.1 Built-in Table Styles 4412
G.2 Built-in Cell Styles 4468
G.3 Built-in PivotTable AutoFormats 4472

Annex H. (informative) Example Predefined DrawingML Shape and Text Geometries 4488

Annex I. (informative) Bidirectional Support 4489
I.1 Introduction 4489
I.2 Shared (WordprocessingML and DrawingML) 4489
I.3 WordprocessingML 4491
I.4 SpreadsheetML 4494
I.5 PresentationML 4495
I.6 DrawingML 4495
I.7 The Unicode Bidirectional Algorithm and Office Open XML 4495

Annex J. (informative) Accessibility Best Practices 4499
J.1 The Value of Creating an Accessible Office Open XML Implementation 4499
J.2 Needs by Type of Disability 4500
J.3 Best Practices for Developers 4503
J.4 Best Practices for Document and Template Authors 4506
J.5 Best Practices for Customers of Office Open XML Implementations 4519

 ©ISO/IEC 2016 – All rights reserved

Annex K. (informative) Root Element Locations 4532
K.1 Grouped by Part Name 4532
K.2 Grouped by Schema Name 4534
Annex L. (informative) Primer 4538
L.1 Introduction to WordprocessingML 4538
L.2 Introduction to SpreadsheetML 4630
L.3 Introduction to PresentationML 4769
L.4 Introduction to DrawingML 4801
L.5 Introduction to VML 4960
L.6 Introduction to Shared MLs 4974
L.7 Miscellaneous Topics 5005
Annex M. (informative) Differences Between ISO/IEC 29500 and ECMA-376:2006 5016
M.1 WordprocessingML 5016
M.2 SpreadsheetML 5019
M.3 PresentationML 5020
M.4 DrawingML 5021
M.5 VML 5022
M.6 Shared 5022
M.7 Custom XML Schema References 5023
Bibliography 5024

©ISO/IEC 2016 – All rights reserved

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

This fourth edition cancels and replaces the third edition (ISO/IEC 29500-1:2012), which has been technically revised by incorporation of the Technical Corrigenda ISO/IEC 29500-1:2012/Cor.1:2015 and ISO/IEC 29500-1:2012/Cor.2:2016.

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, F and G form a normative part of this Part of ISO/IEC 29500. Annexes B–E and H–M are for information only.

This Part of ISO/IEC 29500 includes five annexes (Annex A, Annex B, Annex F, Annex G, and Annex H) that refer to data files provided in electronic form.

 ©ISO/IEC 2016 – All rights reserved

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 M of this Part.

©ISO/IEC 2016 – All rights reserved

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.

©ISO/IEC 2016 – All rights reserved

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

Part 1:

Fundamentals and Markup Language Reference

1. Scope

ISO/IEC 29500 defines a set of XML vocabularies for representing word-processing documents, spreadsheets and presentations. On the one hand, the goal of ISO/IEC 29500 is to be capable of faithfully representing the pre-existing corpus of word-processing documents, spreadsheets and presentations that had been produced by the Microsoft Office applications (from Microsoft Office 97 to Microsoft Office 2008, inclusive) at the date of the creation of ISO/IEC 29500. It also specifies requirements for Office Open XML consumers and producers. On the other hand, the goal is to facilitate extensibility and interoperability by enabling implementations by multiple vendors and on multiple platforms.

This Part of ISO/IEC 29500 specifies concepts for documents and applications of both strict and transitional conformance.

©ISO/IEC 2016 – All rights reserved

2. Conformance

2.1 Document Conformance

A document of conformance class Office Open XML Strict shall be a package of conformance class OPC, as specified in ISO/IEC 29500-2, for which all the following shall hold:

- The document obeys all constraints specified in this Part of ISO/IEC 29500
- The document is of category Wordprocessing, Spreadsheet, or Presentation, as defined in §4
- For each OPC Part of the document of the types listed in §11.3, §12.3, §13.3, §14.2 or §15.2, all the following shall hold:
    i. The Part may contain markup in the Markup Compatibility namespace as specified in ISO/IEC 29500-3
    ii. After the removal of any extensions by an MCE processor as specified in ISO/IEC 29500-3, the part is valid against the strict W3C XML Schema (Appendix A)

This Part of ISO/IEC 29500 uses the following further terms to refer to documents of conformance class Office Open XML Strict:

- *WML Strict*, if the document is of category Wordprocessing
- *SML Strict*, if the document is of category Spreadsheet
- *PML Strict*, if the document is of category Presentation

2.2 Application Conformance

Application conformance incorporates both syntax and semantics:

- A conforming consumer shall not reject any conforming documents of at least one document conformance class.
- A conforming producer shall be able to produce conforming documents of at least one document conformance class.
- A conforming application shall treat the information in Office Open XML documents in a manner consistent with the semantic definitions given in ISO/IEC 29500. An application's intended behavior need not require that application to process all of the information in an Office Open XML document. However, the information that it does process shall be processed in a manner that is consistent with the semantic definitions given in ISO/IEC 29500.

[*Note*: This note illustrates the third bullet above. Conforming applications might serve various functions. Examples include a viewer, an editor, and a back-end processor. Here is an illustration of how the third bullet applies to each of those examples:

- If a conforming viewer supports a given feature, then when it displays information using that feature, it respects the semantics of that feature as described in the Standard.

 ©ISO/IEC 2016 – All rights reserved

- If a conforming editor supports a given feature, then when it provides its user with an interface for manipulating information using that feature, it respects the semantics of that feature as described in the Standard.
- If a conforming back-end processor supports a given feature, then when that processor transforms or assembles information involving that feature, that processor respects the semantics of that feature as described in the Standard.

end note]

This Part of ISO/IEC 29500 defines the following application conformance classes:

- *WML Strict*, if the application is a conforming application that is a consumer or producer of documents having conformance class WML Strict.
- *SML Strict*, if the application is a conforming application that is a consumer or producer of documents having conformance class SML Strict.
- *PML Strict*, if the application is a conforming application that is a consumer or producer of documents having conformance class PML Strict.

Conformance can also involve the use of application descriptions; see §2.3 for details.

2.3 Application Descriptions

An application can be defined as conforming to zero or more *application descriptions* in a particular conformance class.

The application descriptions defined within ISO/IEC 29500 are:

- Base
- Full

[*Note*: These application descriptions should not be taken as limiting the ability of an application provider to create innovative applications. They are intended as a mechanism for labelling applications rather than for restricting their capabilities. The intention is to promote interoperability between different applications that share the same conformance class. Application descriptions are orthogonal to the conformance of the documents produced by those applications. For example, a tool used for automated translation of documents might have an application description of “Base” but will still produce fully conformant documents. *end note*]

The application descriptions are determined in terms of an application’s semantic understanding of particular features. *Semantic understanding* is to be interpreted in that an application shall treat the information in Office Open XML documents in a manner consistent with the semantic definitions given in ISO/IEC 29500.

Each application description is identified by a URI.

The application descriptions are defined in the following subclauses.

©ISO/IEC 2016 – All rights reserved

2.3.1 Base Application Description

Description URI: http://purl.oclc.org/ooxml/descriptions/base

An application conforming to this description has a semantic understanding of at least one feature within its conformance class.

[*Note*: In addition, applications that include a user interface are strongly recommended to support all accessibility features appropriate to that user interface. *end note*]

2.3.2 Full Application Description

Description URI: http://purl.oclc.org/ooxml/descriptions/full

An application conforming to this description has a semantic understanding of every feature within its conformance class.

2.3.3 Additional Application Descriptions

It is expected that additional application descriptions will be defined within the maintenance process for ISO/IEC 29500. It is also expected that third parties might define their own application descriptions; for example to inform their procurement decisions, or to deal with domains such as accessibility.

[*Note*: A possible application description would be a “standard” application description for a wordprocessing application. This could be created by taking the intersection of the features available in common wordprocessing applications such as Word 2000, OpenOffice 2, WordPerfect, and iWork Pages. In addition, it could define formats such as specific image and video formats required to be supported to conform to the description. Similar descriptions could be created for spreadsheet applications and presentation applications. Such a description would promote interoperability between applications implementing OOXML. It would also promote interoperability between applications implementing OOXML and applications implementing other document formats such as ISO/IEC 26300. *end note*]

Application descriptions are not required to be strict subsets of each other. An application can simultaneously conform to multiple application descriptions.

Any such newly created description shall enumerate the features that are required for conformance to it. Such a description should provide a machine-processable schema, preferably using a standard such as ISO/IEC 19757.

[*Note*: If the application conforming to a description is a document consumer, it should be able to consume any document that respects such a schema associated with the description. If the application is a document producer, any document produced by that application should respect the schema of the description. *end note*]

Any such description should be identified using a URI, in a similar manner to the names used for application descriptions within ISO/IEC 29500.

 ©ISO/IEC 2016 – All rights reserved

[*Note*: For the convenience of users of the description, it is recommended that creators of a description should make a human- or machine-readable form of that description available at a URL corresponding to the description URI. *end note*]

2.3.4 Representation of Application Descriptions within Documents

An application description is related to applications, rather than to document conformance. Therefore, there is no normative mechanism for representing an application description within a document.

[*Note*: It is recommended that implementers wishing to represent an application description within a document use the standard metadata mechanism for Office Open XML. *end note*]

2.4 Interoperability Guidelines

[*Guidance*: The following interoperability guidelines incorporate semantics.

For the guidelines to be meaningful, a software application should be accompanied by documentation that describes what subset of ISO/IEC 29500 it supports. The documentation should highlight any behaviors that would, without that documentation, appear to violate the semantics of document XML elements. Together, the application and documentation should satisfy the following conditions.

1. The application need not implement operations on all XML elements defined in ISO/IEC 29500. However, if it does implement an operation on a given XML element, then that operation should use semantics for that XML element that are consistent with ISO/IEC 29500.
2. If the application moves, adds, modifies, or removes XML element instances with the effect of altering document semantics, it should declare the behavior in its documentation.

The following scenarios illustrate these guidelines.

- A presentation editor that interprets the preset shape geometry "`rect`" as an ellipse does not observe the first guideline because it implements "`rect`" but with incorrect semantics.
- A batch spreadsheet processor that saves only computed values even if the originally consumed cells contain formulas, might satisfy the first condition, but does not observe the second because the editability of the formulas is part of the cells' semantics. To observe the second guideline, its documentation should describe the behavior.
- A batch tool that reads a word-processing document and reverses the order of text characters in every paragraph with "Title" style before saving it can be conforming even though ISO/IEC 29500 does not recommend this behavior. This tool's behavior would be to transform the title "Office Open XML" into "LMX nepO eciffO". Its documentation should declare its effect on such paragraphs.

The normative requirements in §2.1 imply that a conforming producer shall not write unescaped non-XML characters. As an implementation guideline, a conforming producer additionally should not write escaped non-XML characters. Doing so damages interoperability with existing XML-based standards such as SOAP and RDF. For example, implementers could either refuse to create documents including such characters, or warn users that including such characters compromises the re-usability of their documents. *end guidance*]

©ISO/IEC 2016 – All rights reserved

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.

ANSI X3.4-1986, *American Standard Code for Information Interchange (ASCII)*

Bureau of Standards, Metrology and Inspection of the Ministry of Economic Affairs, *CNS 7648: Data Elements and Interchange Formats — Information Interchange — Representation of Dates and Times*

Calendar Reform Committee, Indian Ephemeris and Nautical Almanac. 1957

Stokes, M., M. Anderson, S. Chandrasekar, and R. Motta. *A Standard Default color Space for the Internet. Vers. 1.10*. November 5, 1996. http://www.w3.org/Graphics/Color/sRGB

Har'El, Zvi, *Gauss Formula for the Julian Date of Passover*. Deptartment of Mathematics, Technion, Israel Institue of Technology, Haifa 32000, Isreal, 2005, 6

Duerst, M, and M Suignard. *Internationalized Resource Identifiers (IRIs).* IETF. January 2005. http://tools.ietf.org/html/rfc3987

IANA, *Character Sets from IANA*, as specified at http://www.iana.org/assignments/character-sets

IANA. *MIME Media Types*. Internet Assigned Numbers Authority. http://www.iana.org/assignments/media-types/

IEC 60559:1989, *Binary Floating-Point Arithmetic for Microprocessor Systems*

ISO/IEC 2382-1:1993, *Information technology — Vocabulary — Part 1: Fundamental terms*

ISO 8601:2004, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/IEC 8859-1:1998, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1* (referred to in ISO/IEC 29500 as the ANSI character set)

ISO/IEC 9075-1, *Information technology — Database languages — SQL — Part 1: Framework (SQL/Framework)*

ISO/IEC 9075-3, *Information technology — Database languages — SQL — Part 3: Call-Level Interface (SQL/CLI)*

ISO/IEC 9945-2, *Information technology — Portable Operating System Interface (POSIX) — Part 2: System Interfaces*

 ©ISO/IEC 2016 – All rights reserved

ISO/IEC 10118-3:2004, *Information technology — Security techniques — Hash-functions — Part 3: Dedicated hash-functions*.

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

ISO/IEC 14496-22:2009, *Information technology — Coding of audio-visual objects — Part 22: Open Font Format*

ISO/IEC 29500-2:2012, Information technology — Document description and processing languages — Office Open XML File Formats – Part 2: Open Packaging Conventions

ISO/IEC 29500-3:2015, Information technology — Document description and processing languages — Office Open XML File Formats – Part 3: Markup Compatibility and Extensibility

Japanese Industrial Standard, JIS X 0301: *Data elements and interchange formats —Information interchange — Representation of dates and times*. Japan, 2002.

Kingdom of Saudi Arabia, Ministry of Islamic Affairs, Endowments, Da‘wah and Guidance.

Korean Law Enactment No. 4, 1961.

Faure, D. (n.d.). *Creating and Using Components (KParts)*. http://techbase.kde.org/Projects/Documentation.

Maimon, Rabbi Moshe ben, *Complete Restatement of the Oral Law (Mishneh Torah)*.

Ausbrooks, Ron, et al. *Mathematical Markup Language (MathML) Version 2.0 (Second Edition)*. October 21, 2003. http://www.w3.org/TR/MathML/.

Kaliski, B. *The MD2 Message-Digest Algorithm*. April 1992. http://www.ietf.org/rfc/rfc1319.txt

Rivest, R. *The MD4 Message-Digest Algorithm*. April 1992. http://www.ietf.org/rfc/rfc1320.txt

The MD5 Message-Digest Algorithm. April 1992. http://www.ietf.org/rfc/rfc1321.txt.

National Measurement Regulations 1999, Commonwealth of Australia
http://www.comlaw.gov.au/Details/F2011C00445

NIST Guide to SI Units, http://physics.nist.gov/Pubs/SP811/appenB9.html

QuickTime File Format Specification (2007-09-04 version)
http://developer.apple.com/standards/classicquicktime.html

Resource Description Framework (RDF), http://www.w3.org/RDF/

RFC 822, *Standard for ARPA Internet Text Messages* (http://www.ietf.org/rfc/rfc0822.txt)

RFC 2045, Borenstein, N., and N. Freed. *Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies*. The Internet Society. 1996. http://www.ietf.org/rfc/rfc2045.txt

©ISO/IEC 2016 – All rights reserved

RFC 2119, Bradner, Scott, 1997: *Key words for use in RFCs to Indicate Requirement Levels*. http://www.ietf.org/rfc/rfc2119.txt

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

RFC 3066, Alvestrand, H. *Tags for the Identification of Languages*. The Internet Society. 2001. http://www.ietf.org/rfc/rfc3066.txt

RFC 3339, Klyne, G. and C. Newman. *Date and Time on the Internet: Timestamps*. The Internet Society. 2002. http://www.ietf.org/rfc/rfc3339.txt

RFC 3629, Yergeau, F. *UTF-8, a transformation format of ISO 10646*. The Internet Society. 2003. http://www.ietf.org/rfc/rfc3629.txt

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

Simple Object Access Protocol (SOAP), http://www.w3.org/TR/soap12

SMIL, Bulterman, D., Grassel, G., Jansen, J., Koivisto, A., Layaïda, N., Michel, T., et al. (2005, December 13). *Synchronized Multimedia Integration Language (SMIL 2.1)*. Retrieved from W3C: http://www.w3.org/TR/SMIL/

SVG, Andersson, O., Armstrong, P., Axelsson, H., Berjon, R., Bézaire, B., Bowler, J., et al. (2003, January 14). *Scalable Vector Graphics (SVG) 1.1 Specification*. Retrieved from W3C - World Wide Web Consortium: http://www.w3.org/TR/SVG/

The GNOME Project. (2003, December 12). *Component Model - Bonobo Document Model*. Retrieved from The GNOME Development Site: http://developer.gnome.org/bonobo-activation/stable/

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

Unicode Technical Note #28, *Nearly Plain-Text Encoding of Mathematics*. August 29, 2006, http://www.unicode.org/notes/tn28

United States Postal Service. *Domestic Mail Manual*. United States Postal Service. November 8, 2007. http://pe.usps.com/cpim/ftp/manuals/dmm300/Full/MailingStandards.pdf

The Units of Measurement Regulations 1995, United Kingdom http://www.opsi.gov.uk/si/si1995/Uksi_19951804_en_2.htm

Universal Postal Union. *POST*CODE: Postal addressing systems*. Berne: UPU Publications, 2006, ISBN 92-95025-37-7, ISSN 1020-6019

Web Accessibility Initiative (WAI), http://www.w3.org/WAI/

 ©ISO/IEC 2016 – All rights reserved

XSLT, Clark, James, *XSL Transformations (XSLT) Version 1.0*, World Wide Web Consortium Recommendation. 1999. http://www.w3.org/TR/xslt

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 Base, Marsh, Jonathan. *XML Base*. World Wide Web Consortium. 2001. http://www.w3.org/TR/2001/REC-xmlbase-20010627/

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/

XPATH, Clark, James; DeRose, Steve *XML Path Language (XPath) Version 1.0*, World Wide Web Consortium Recommendation. 1999. http://www.w3.org/TR/xpath.

XML Schema Part 0: Primer (Second Edition), W3C Recommendation 28 October 2004, http://www.w3.org/TR/xmlschema-0/

XML Schema Part 1: Structures (Second Edition), W3C Recommendation 28 October 2004, http://www.w3.org/TR/xmlschema-1/

XML Schema Part 2: Datatypes (Second Edition), W3C Recommendation 28 October 2004, http://www.w3.org/TR/xmlschema-2/

.*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

©ISO/IEC 2016 – All rights reserved