

First edition
2007-12-15

**Information technology — Programming
languages, their environment and system
software interfaces — Native COBOL
Syntax for XML Support**

*Technologies de l'information — Langages de programmation, leur
environnement et interfaces du logiciel système — Syntaxe COBOL
native pour support XML*

Reference number
ISO/IEC TR 24716:2007(E)



© ISO/IEC 2007

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2007

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword..... iv

Introduction v

1 Scope 1

2 Normative references 1

3 Conformance to this Technical Report 1

4 Terms and definitions 1

5 Description techniques 2

6 Changes to ISO/IEC 1989:2002..... 2

6.1 Changes to 8, Language fundamentals 2

6.2 Changes to 9, I-O, objects, and user-defined functions 3

6.3 Changes to 12, Environment division 6

6.4 Changes to 13, Data division..... 8

6.5 Changes to 14, Procedure division..... 14

6.6 Changes to Annex F (informative) Substantive changes list 31

Annex A (normative) Language element lists 32

Annex B (informative) Unresolved technical issues..... 34

Annex C (informative) XML processing concepts 35

Bibliography 45

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.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

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 TR 24716, which is a Technical Report of type 2, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 22, *Programming languages, their environments and system software interfaces*, in collaboration with INCITS Technical Committee J4, Programming language COBOL.

Introduction

This Technical Report provides extensions so that COBOL can process XML documents as easily as it can read files. The new syntax to process XML documents,

- is based on the familiar approach used with COBOL I/O support,
- provides Document Object Model (DOM) style parsing,
- handles multiple input sources to handle XML in an extremely flexible manner,
- reads, updates, and writes XML documents,
- checks that XML documents are well-formed, and
- provides an optional validity check of an XML document against a schema or Document Type Definition (DTD).

Technical Report ISO/IEC 24716 extends the COBOL specification defined in ISO/IEC 1989:2002, *Information technology — Programming languages — COBOL*. It provides new syntax to read, write, and update XML documents in COBOL.

Annex A forms a normative part of this Technical Report. Annex B and Annex C and the Bibliography are for information only.

Information technology — Programming languages, their environment and system software interfaces — Native COBOL Syntax for XML Support

1 Scope

This Technical Report specifies the syntax and semantics for XML support in COBOL. The purpose of this Technical Report is to promote a high degree of portability in implementations, even though some elements are subject to trial before completion of a final design suitable for standardization.

This specification builds on the syntax and semantics defined in ISO/IEC 1989:2002.

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/IEC 1989:2002, *Information technology — Programming languages — COBOL*

Extensible Markup Language (XML) 1.0 (Fourth Edition), W3C Recommendation, 16 August 2006

Extensible Markup Language (XML) 1.1 (Second Edition), W3C Recommendation, 16 August 2006

Namespaces in XML 1.1, W3C Recommendation, 4 February 2004

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

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