This is a preview - click here to buy the full publication

INTERNATIONAL STANDARD

ISO/IEC 19756

First edition
2011-06-15

Information technology — Topic Maps — Constraint Language (TMCL)

Technologies de l'information — Plans relatifs à des sujets — Contraintes de langage (TMCL)

Reference number
ISO/IEC 19756:2011(E)

© ISO/IEC 2011

This is a preview - click here to buy the full publication

COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2011

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

© ISO/IEC 2011 – All rights reserved

This is a preview - click here to buy the full publication

Contents

Page

Foreword ... v

Introduction ... vi

1 Scope ... 1

2 Normative references ... 1

3 Notation and Conventions ... 1
3.1 General ... 1
3.2 tmdm:subject ... 2
3.3 Following an Association ... 2
3.4 Following an Association to Roles of Given Type ... 2
3.5 Playing a Role ... 2
3.6 Being a Subtype ... 2
3.7 Being an Instance ... 2
3.8 Matching a Regular Expression ... 2
3.9 The Value of an Occurrence ... 2
3.10 Comparison of iso:ctm-integer values ... 3

4 Validation Semantics ... 3

5 TMCL Syntax ... 3

6 TMCL Declarations ... 4
6.1 General ... 4
6.2 Topic Type ... 4
6.3 Name Type ... 4
6.4 Occurrence Type ... 4
6.5 Association Type ... 4
6.6 Role Type ... 4
6.7 Overlap Declaration ... 5

7 TMCL Constraint Types ... 5
7.1 General ... 5
7.2 Abstract Topic Type Constraint ... 5
7.3 Subject Identifier Constraint ... 5
7.4 Subject Locator Constraint ... 6
7.5 Item Identifier Constraint ... 7
7.6 Topic Name Constraint ... 7
7.7 Variant Name Constraint ... 8
7.8 Topic Occurrence Constraint ... 9
7.9 Topic Role Constraint ... 9
7.10 Scope Constraint ... 10
7.11 Scope Required Constraint ... 11
7.12 Reifier Constraint ... 12
7.13 Topic Reifies Constraint ... 12
7.14 Association Role Constraint ... 13
7.15 Role Combination Constraint ... 14
7.16 Occurrence Data Type Constraint ... 15
7.17 Unique Value Constraint ... 15
7.18 Regular Expression Constraint ... 16

8 Additional TMCL Templates ... 16

9 User-defined Constraints ... 16
9.1 General ... 16
9.2 Denial Constraint ... 17
9.3 Requirement Constraint ... 17

10 Schema Documentation ... 17
10.1 General ... 17
10.2 The Schema Topic ... 17

© ISO/IEC 2011 – All rights reserved

This is a preview - click here to buy the full publication

10.3 Documentation Occurrences..... 18
10.4 The Topic Map Topic Type..... 19
11 Conformance..... 19
Annex A (normative) **TMCL Templates CTM..... 20**
Annex B (normative) **TMCL meta-schema..... 25**

© ISO/IEC 2011 – All rights reserved

This is a preview - click here to buy the full publication

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 19756 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 34, *Document description and processing languages*.

© ISO/IEC 2011 – All rights reserved

This is a preview - click here to buy the full publication

Introduction

TMCL is a constraint language for Topic Maps, allowing definitions of Topic Maps schemas to be written in a precise and machine-readable form. This makes it possible to validate a topic map against a TMCL schema to see if it conforms to the constraints in the schema, and also enables other uses, such as schema-driven editors, object mappings, and so on.

TMCL is defined as a Topic Maps vocabulary consisting of a number of topic, association, occurrence, and role types, identified by Published Subject Identifiers (PSIs), and defined using English prose. TMCL defines the concept of validation, by which a given topic map is valid according to a schema if it conforms to all the constraints in that schema and a number of global validation rules which apply to all topic maps independent of schema.

TMCL does not have any syntax of its own, since it is defined simply as a Topic Maps vocabulary. However, a number of CTM templates are defined in this International Standard in order to facilitate authoring of TMCL schemas using CTM.

© ISO/IEC 2011 – All rights reserved

This is a preview - click here to buy the full publication

Information technology — Topic Maps — Constraint Language (TMCL)

1 Scope

This International Standard defines a Topic Maps vocabulary for representing constraints on Topic Maps instance data and CTM templates for authoring TMCL schemas.

It does not define a syntax for representing constraints on Topic Maps instance data.

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.

NOTE Each of the following documents has a unique identifier that is used to cite the document in the text. The unique identifier consists of the part of the reference up to the first comma.

ISO/IEC 13250-2:2006, *Information technology — Topic Maps — Part 2: Data model*

ISO/IEC 18048, *Information technology — SGML applications — Topic Map Query Language (TMQL)*[1)]

ISO/IEC 13250-6, *Information technology — Topic Maps — Part 6: Compact syntax*

XML Schema-2, *XML Schema Part 2: Datatypes Second Edition*, W3C Recommendation, 28 October 2004, available at <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>

1) To be published

© ISO/IEC 2011 – All rights reserved