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Information technology — Multimedia content description interface —

Part 10: Schema definition

Technologies de l'information — Interface de description du contenu multimédia —

Partie 10: Définition de schéma

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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 15938-10 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

ISO/IEC 15938 consists of the following parts, under the general title *Information technology — Multimedia content description interface*:

— *Part 1: Systems*

— *Part 2: Description definition language*

— *Part 3: Visual*

— *Part 4: Audio*

— *Part 5: Multimedia description schemes*

— *Part 6: Reference software*

— *Part 7: Conformance testing*

— *Part 8: Extraction and use of MPEG-7 descriptions*

— *Part 9: Profiles and levels*

— *Part 10: Schema definition*

— *Part 11: MPEG-7 profile schemas*

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Introduction

This International Standard, also known as "Multimedia Content Description Interface," provides a standardized set of technologies for describing multimedia content. It addresses a broad spectrum of multimedia applications and requirements by providing a metadata system for describing the features of multimedia content.

The following are specified in this International Standard:

- **Description Schemes (DS)** describe entities or relationships pertaining to multimedia content. Description Schemes specify the structure and semantics of their components, which may be Description Schemes, Descriptors, or datatypes.
- **Descriptors (D)** describe features, attributes, or groups of attributes of multimedia content.
- **Datatypes** are the basic reusable datatypes employed by Description Schemes and Descriptors.
- **Systems tools** support delivery of descriptions, multiplexing of descriptions with multimedia content, synchronization, file format, and so forth.

This International Standard is subdivided into 10 parts:

Part 1 – Systems: specifies the tools for preparing descriptions for efficient transport and storage, compressing descriptions, and allowing synchronization between content and descriptions.

Part 2 – Description definition language: specifies the language for defining the standard set of description tools (DSs, Ds, and datatypes) and for defining new description tools.

Part 3 – Visual: specifies the description tools pertaining to visual content.

Part 4 – Audio: specifies the description tools pertaining to audio content.

Part 5 – Multimedia description schemes: specifies the generic description tools pertaining to multimedia including audio and visual content.

Part 6 – Reference software: provides a software implementation of the International Standard.

Part 7 – Conformance testing: specifies the guidelines and procedures for testing conformance of implementations of the International Standard.

Part 8 – Extraction and use of MPEG-7 descriptions: provides guidelines and examples of the extraction and use of descriptions.

Part 9 – Profiles and levels: specifies profiles of description tools.

Part 10 – Schema definition: specifies the schema using Description Definition Language.

This document specifies the schema of the ISO/IEC 15938 standard by collecting the description tools specified in the ISO/IEC 15938, assigning a namespace designator, and specifying the resulting syntax description in a single schema using description definition language.

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Information technology — Multimedia content description interface —

Part 10: Schema definition

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1 Scope

1.1 Organization of the document

This International Standard specifies a metadata system for describing multimedia content. This part of ISO/IEC 15938 specifies the schema definition across all parts of ISO/IEC 15938. This part of ISO/IEC 15938 collects the description tools specified in ISO/IEC 15938, assigns a namespace designator, and specifies the resulting syntax description in a single schema using description definition language from ISO/IEC 15938-2.

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 15938 (*Parts 1, 2, 3, 4, 5*), *Information technology — Multimedia content description interface*

XML, *Extensible Markup Language (XML) 1.0*, October 2000

XML *Schema, W3C Recommendation*, 2 May 2001

XML *Schema Part 0: Primer*, W3C Recommendation, 2 May 2001

XML *Schema Part 1: Structures*, W3C Recommendation, 2 May 2001

XML *Schema Part 2: Datatypes*, W3C Recommendation, 2 May 2001

xPath, *XML Path Language*, *W3C Recommendation*, 16 November 1999

NOTE These documents are maintained by the W3C (http://www.w3.org). The relevant documents can be obtained as follows:

Extensible Markup Language (XML) 1.0 (Second Edition), 6 October 2000, http://www.w3.org/TR/2000/REC-xml-20001006;

XML Schema: W3C Recommendation, 2 May 2001, http://www.w3.org/XML/Schema;

XML Schema Part 0: Primer, W3C Recommendation, 2 May 2001, http://www.w3.org/TR/xmlschema-0/ ;

XML Schema Part 1: Structures, W3C Recommendation, 2 May 2001, http://www.w3.org/TR/xmlschema-1/;

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XML Schema Part 2: Datatypes, W3C Recommendation, 2 May 2001, http://www.w3.org/TR/xmlschema-2/;

xPath, XML Path Language, W3C Recommendation, 16 November 1999, http://www.w3.org/TR/1999/REC-xpath-19991116; and

Canonical XML Version 1.0, W3C Recommendation, 15 March 2001, http://www.w3.org/TR/2001/REC-xml-c14n-20010315.

3 Terms and definitions

3.1 Conventions

3.1.1 Description tools

This part of ISO/IEC 15938 specifies conformance for descriptions and bitstreams complying with ISO/IEC 15938. Descriptions are instances of description tools defined in ISO/IEC 15938. The important concepts are defined as follows:

- **Description Tool (or tool)** – refers to a Description Scheme, Descriptor, or Datatype.
- **Description Scheme (DS)** – a description tool that describes entities or relationships pertaining to multimedia content. DSs specify the structure and semantics of their components, which may be Description Schemes, Descriptors, or datatypes.
- **Descriptor (D**) – a description tool that describes a feature, attribute, or group of attributes of multimedia content.
- **Datatype** – a basic reusable datatype employed by Description Schemes and Descriptors.

3.1.2 Naming convention

In order to specify the description tools, constructs provided by the Description Definition Language (DDL) specified in ISO/IEC 15938-2 are used, such as "element," "attribute," "simpleType" and "complexType." The names associated to these constructs are created on the basis of the following conventions:

- If the name is composed of multiple words, the first letter of each word is capitalized, with the exception that the capitalization of the first word depends on the type of construct as follows:
- Element naming: the first letter of the first word is capitalized (e.g. `TimePoint` element of `TimeType`).
- Attribute naming: the first letter of the first word is not capitalized (e.g. `timeUnit` attribute of `IncrDurationType`).
- complexType naming: the first letter of the first word is capitalized, and the suffix "Type" is used at the end of the name (e.g. `PersonType`).
- simpleType naming: the first letter of the first word is not capitalized, the suffix "Type" may be used at the end of the name (e.g. `timePointType`).

Note: when referencing a complexType or simpleType in the definition of a description tool, the "Type" suffix is not used. For instance, the text refers to the "`Time datatype`" (instead of "`TimeType` datatype"), to the "`MediaLocator D`" (instead of "`MediaLocatorType D`") and to the "`Person DS`" (instead of `PersonType DS`).

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