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Information technology — Multimedia content description interface —

Part 12: Query format

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

Partie 12: Format de requête

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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.

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ISO/IEC 15938-12 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition (ISO/IEC 15938-12:2008), which has been technically revised.
It also incorporates ISO/IEC 15938-12:2008/Cor.1:2009, ISO/IEC 15938-12:2008/Cor.2:2010, ISO/IEC 15938-12:2008:Amd.1:2011 and ISO/IEC 15938-12:2008:Amd.2:2011.

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*

— *Part 12: Query format*

Introduction

The MPEG-7 standard, also known as the "Multimedia Content Description Interface", aims at providing standardized core technologies allowing the description of audiovisual data content in multimedia environments. This is a challenging task given the broad spectrum of requirements and targeted multimedia applications, and the broad number of audiovisual features of importance in such a context. In order to achieve this broad goal, MPEG-7 standardizes:

- Datatypes that are description elements not specific to the audiovisual domain that corresponds to reusable basic types or structures employed by multiple Descriptors and Description Schemes.

- Descriptors (D) to represent Features. Descriptors define the syntax and the semantics of each feature representation. A Feature is a distinctive characteristic of the data, which signifies something to somebody. It is possible to have several descriptors representing a single feature, i.e. to address different relevant requirements. A Descriptor does not participate in many-to-one relationships with other description elements.

- Description Schemes (DS) to specify the structure and semantics of the relationships between their components, which may be both Ds and DSs. A Description Scheme shall have descriptive information and may participate in many-to-one relationships with other description elements.

- A Description Definition Language (DDL) to allow the creation of new DSs and, possibly, Ds and to allow the extension and modification of existing DSs.

- Systems tools to support multiplexing of descriptions or description and data, synchronization issues, transmission mechanisms, file format, etc.

The standard is subdivided into twelve parts:

1. Systems: Architecture of the standard, tools that are needed to prepare MPEG-7 Descriptions for efficient transport and storage, and to allow synchronization between content and descriptions. Also tools related to managing and protecting intellectual property.

2. Description Definition Language: Language for defining new DSs and eventually also new Ds, binary representation of DDL expressions.

3. Visual: Visual description tools (Ds and DSs).

4. Audio: Audio description tools (Ds and DSs).

5. Multimedia Description Schemes: Description tools (Ds and DSs) that are generic, i.e. neither purely visual nor purely audio.

6. Reference Software: Software implementation of relevant parts of the MPEG-7 Standard.

7. Conformance: Guidelines and procedures for testing conformance of MPEG-7 implementations.

8. Extraction and use of MPEG-7 descriptions.

9. Profiles and Levels.

10. Schema Definition.

11. MPEG-7 Profile Schemas.

12. Query Format.

This part of ISO/IEC 15938 contains the tools of the MPEG Query Format (MPQF). It addresses the normative aspects of the MPQF and also illustrates some non-normative examples. The syntax of the Query Format is defined using the guidelines of DDL ISO/IEC 15938-2.

Information technology — Multimedia content description interface —

Part 12: Query format

1 Scope

1.1 Organization of the document

This part of ISO/IEC 15938 describes the query format tools which may be used independently or in combination with other parts of ISO/IEC 15938. Each query format tool is described in two normative sections:

- Syntax: Normative specification of the query and management format.
- Semantic: Normative definition of the semantics of all the components of the corresponding query format specification.

In some instances the query format level tool is also described using either one or two informative sections:

- Examples: Optionally an informative section dealing with examples is appended.
- Definitions: Optionally an informative section dealing with definitions is appended.

1.2 Overview of the Query Format

The query format provides a standardized interface for multimedia content information retrieval systems (e.g. MPEG-7 databases) in three aspects which are input query format, output query format, and query managements. The input query format specifies the interface through which the users can describe their search criteria with a set of precise input parameters in addition to a set of preferred output parameters to depict the return result sets. The output query format specifies the interface format for the result set. The query management provides means for selecting services (e.g. MPEG-7 database) or aggregated services (e.g. service provider that administers a set of different services) based on service properties (e.g. supported query format).

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.

XQuery 1.0 and XPath 2.0 Data Model (XDM). W3C Recommendation, 23 January 2007. http://www.w3.org/TR/xpath-datamodel/

XML Path Language (XPath) 2.0. W3C Recommendation, 23 January 2007. http://www.w3.org/TR/xpath20/