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Information technology — Multimedia content description interface —

Part 9: Profiles and levels

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

Partie 9: Profils et niveaux

Reference number
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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 15938-9 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 International 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: provides guidelines and standard profiles.

Part 10 – Schema definition: specifies the schema using description definition language.

Part 11 – Profile Schemas: listing of profile schemas using description definition language.

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Information technology — Multimedia content description interface —

Part 9: Profiles and levels

1 Scope

1.1 General

This part of 15938-9 collects standard profiles and levels for MPEG-7, specified across all ISO/IEC 15938 parts. While all parts are potential candidates for profiling, current profiles concentrate on the description definition language [ISO/IEC 15938-2], visual [ISO/IEC 15938-3], audio [ISO/IEC 15938-4] and multimedia description schemes [ISO/IEC 15938-5], which are based on the namespace versioning defined in schema definition [ISO/IEC 15938-10].

1.2 Organization of the document

ISO/IEC 15938-9 provides six clauses. Clause 1 sets out the scope of this document while Clause 2 lists the normative and informative document references. Clause 3 provides definitions for terms and. Clause 4 provides the informative part of description for application areas and functionality with the normative part of table for tools used and their constraints for each of the standard profiles and levels. Clause 5 provides a table of URI values for each standard profile, while Annex A contains a collection of profile schema for each of the standard profiles.

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 15938-2, *Information technology — Multimedia content description interface — Part 2: Description definition language*

ISO/IEC 15938-3, *Information technology — Multimedia content description interface — Part 3: Visual*

ISO/IEC 15938-4, *Information technology — Multimedia content description interface — Part 4: Audio*

ISO/IEC 15938-5, *Information technology — Multimedia content description interface — Part 5: Multimedia description schemes*

ISO/IEC 15938-10, *Information technology — Multimedia content description interface — Part 10: Schema definition*

Note: The 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

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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/

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.

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

3 Definition of MPEG-7 Profiling

3.1 General

For ISO/IEC 15938, there may be different kinds of profiles. Currently, only description profiles are defined in this part. It is conceivable that other types (dimensions) of profiles are defined in the future, and that it would be possible to combine profiles from such different dimensions into a single conformant application or device.

Description profiles define subsets of description tools across the different parts of ISO/IEC 15938. This document exclusively contains description profiles. Relevant terms related to this document are defined below.

3.2 Definitions

3.2.1 Profile

A profile is a subset of tools defined in ISO/IEC 15938, providing a particular set of functionalities for one or more classes of applications.

3.2.2 Level

A level is a defined set of constraints on a profile to limit the complexity of the profile.

3.2.3 MPEG-7 Schema

Parts 2 (DDL), 3 (Visual), 4 (Audio) and 5 (MDS) of ISO/IEC 15938 define description tools: descriptors, description schemes and data types. The combined syntax of these description tools, across Parts 2, 3, 4 and 5 of ISO/IEC 15938, forms a schema in the XML Schema sense. This schema is defined by Part 10 (Schema Definition) of ISO/IEC 15938, as are the different versions of this schema. This schema is defined in a namespace, identified by a URN value. For example, the value “urn:mpeg:mpeg7:schema:2001” is used for the namespace of version 1 of the ISO/IEC 15938-10 schema. The semantics of description tools is described in Parts 2, 3, 4 and 5 of ISO/IEC 15938.

3.2.4 Description profile

A *description profile* provides a means of selecting and constraining description tools from the ISO/IEC 15938-10 schema, thereby constraining conforming descriptions in their content. A description profile generally limits the use of description tools to subsets of the description tools defined in ISO/IEC 15938. The description tools in a description profile support a set of functionalities for a certain class of applications.

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3.2.5 Description level

A *description level* defines further constraints to limit the complexity of conforming descriptions, for a given description profile. Such constraints may be restrictions on the syntax and/or semantics of the selected description tools. For example, a particular element within a data type may be excluded from occurring in descriptions. Description levels may mandate the usage of a data type in descriptions, and may also limit the size of conforming descriptions.

In general, all levels should conform to the same profile schema. Exceptions may be made when there is a need to make minor changes to the schema. Exceptions need to be considered on a case-by-case basis.

3.2.6 Profile schema

A profile schema is a schema that corresponds to the subset of syntax and semantics of the ISO/IEC 15938-10 schema as defined by a particular description profile. A profile schema is a restriction of the ISO/IEC 15938-10 schema in the following sense: *any description that is valid against the profile schema shall also be valid against the ISO/IEC 15938-10 schema*, while a description that is valid against the ISO/IEC 15938-10 schema may or may not be valid against the profile schema. A profile schema may be used to determine conformance to a description profile, namely by testing the validity of a description that claims to conform to a particular profile against the profile schema of that profile.

3.3 Conventions

3.3.1 Naming and identification of profiles

In this specification, a profile is referred to by a textual name (for example, the “Simple Metadata Profile”). Levels of a profile are labeled using numbers.

Each description profile, and each combination of description profile and level, is uniquely identified by a URI value. The URI value identifying a particular profile (and level) may include an abbreviation of the name of the profile (and level), for example “SMP” in the case of the Simple Metadata Profile and Level. Level of a profile is labeled with "-L" after the profile name, followed with a level number. The URI values for all profiles and levels are specified in Table 4 in Clause 5 of this specification.

3.3.2 Specification of profiles and levels

In this specification, a description profile is defined using a table that lists the description tools selected to be included in the profile, as well as any further constraints imposed on these description tools. All selected description tools within a given description profile, and their respective constraints, are listed in a subclause dedicated to that profile and this subclause includes its levels, if any are defined.

For example, an element of a complexType that is optional in the ISO/IEC 15938-10 schema (its *minOccurs* attribute in the schema equals 0 and its *maxOccurs* attribute is greater than 0) can be excluded within a description profile. This exclusion is indicated by the annotation “element excluded” in the table for that profile. In that case, a description that is compliant with this description profile and contains an instance of the complexType in question shall not contain an instance of the excluded element. The same can be applied to an attribute of a complexType that is optional in the ISO/IEC 15938-10 schema (its *use* attribute in the ISO/IEC 15938-10 schema equals optional). Excluding such an attribute in a description profile is indicated by the annotation “use=”prohibited”” or “attribute excluded” in the table. It is not permitted to exclude or prohibit attributes or elements that are mandatory in the ISO/IEC 15938-10 schema.

As a second example, an element or attribute that is optional in the ISO/IEC 15938-10 schema can be mandated as required within a description profile. This is indicated by the annotation, for example, “minOccurs=1” for the element or ‘use=”required”’ for the attribute. In this case, an element or attribute is required to be instantiated in a description that conforms to the corresponding description profile.

As a third example, an element that is of an abstract type in the ISO/IEC 15938-10 schema must be instantiated with an xsi:type attribute to indicate the use of a derived type. Within a description profile, the use of a particular derived type (if there is more than one) can be mandated by requiring that the xsi:type attribute

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is given a particular value in a description. It is indicated by the annotation, for example, ‘xsi:type=”ContentEntityType”’.

4 Description Profiles

4.1 General

This section presents each of the ISO/IEC 15938 standard profiles in terms of application areas, functionality, and description tools used in the profile.

For each profile there is a table with three columns. For a given row of the table, the first column indicates the tool in question (a global element, a global attribute, an attribute group, a complexType, or a simpleType). The second column may be empty. If not empty, it contains the name of an item related to the tool that is somehow constrainted and the third column contains a specification of the constraint on that item.

4.2 Simple Metadata Profile (SMP) and Level

4.2.1 Application Areas (INFORMATIVE)

This profile describes simple metadata tagging for single instances of multimedia clips. This profile can be used in the areas such as music, images, and mobile applications, just to name a few.

4.2.2 Functionality (INFORMATIVE)

The main functionality of this profile is to describe single instances of multimedia clip.

The following are some of the high-level functionalities that are supported by this profile:

ID3

- Mapping ID3 V1.1 tags into MPEG-7 tools to describe song title, album title, artist, year of recording, genre, and user comment for MP3.
- The table below shows the detailed mapping:

ID3 V1.1	Description	MPEG-7 Path
Song Title	Title of the song	CreationInformation/Creation/Title[@type=”songTitle”]
Album Title	Title of the album	CreationInformation/Creation/Title[@type=”albumTitle”]
Artist	Artist performing the song	CreationInformation/Creation/Creator[Role/@href=”urn:mpeg:mpeg7:RoleCS:2001:PERFORMER”]/Agent[@xsi:type=”PersonType”]/Name/{FamilyName, GivenName} (Artist Name) CreationInformation/Creation/Creator[Role/@href=”urn:mpeg:mpeg7:RoleCS:2001:PERFORMER”]/Agent[@xsi:type=”PersonGroupType”]/Name (Group Name)
Year	Year of the recording	CreationInformation/CreationCoordinates/Date/TimePoint (Recording date.)
Comment	An account of the content of the resource.	CreationInformation/Creation/Abstract/FreeTextAnnotation
Track	CD track number of song	Not currently representable in MPEG-7.
Genre	ID 3 V1 Genre ID 3 V2 Genre (4)(Eurodisco)	CreationInformation/Classification/Genre[@href=”urn:id3:v1:4”] CreationInformation/Classification/Genre[@href=”urn:id3:v1:4”]/Term[@termID=”urn:id3:v2:Eurodisco”] CreationInformation/Classification/Genre[@href=”urn:id3:v1:4”] CreationInformation/Classification/Genre[@type=”secondary][@href=”urn:id3:v2:Eurodisco”]

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Example of ID3 information mapped to MPEG-7:

ID3 V1.1	Value
Song Title	If Ever You Were Mine
Album Title	Celtic Legacy
Artist	Natalie MacMaster
Year	1995
Comment	AG# 3B8308D8
Track	05
Genre	80 (Folk)

3GPP

- Mapping 3GPP desired metadata fields into ISO/IEC 15938 tools to describe title, description, copyright, performer/artist, author/composer, genre, and rating.
- The table below shows the detailed mapping:

3GPP	Description	MPEG-7 Path
Title	Title	CreationInformation/Creation/Title[@type="main"]
Description (not an end-user annotation)	Description (not an end-user annotation)	CreationInformation/Creation/Abstract/FreeTextAnnotation
Copyright	Copyright	CreationInformation/Creation/CopyrightString
Performer/Artist	Performer/Artist	CreationInformation/Creation/Creator[Role/@href="urn:mpeg:mpeg7:RoleCS:2001:PERFORMER"]/Agent[@xsi:type="PersonType"]/Name/{FamilyName, GivenName} *(Artist Name)* CreationInformation/Creation/Creator[Role/@href="urn:mpeg:mpeg7:RoleCS:2001:PERFORMER"]/Agent[@xsi:type="PersonGroupType"]/Name *(Group Name)*
Author/Composer	Author/Composer	CreationInformation/Creation/Creator[Role/@href="urn:mpeg:mpeg7:RoleCS:2001:COMPOSER"]/Agent[@xsi:type="PersonType"]/Name/{FamilyName, GivenName} *(Artist Name)*
Genre	Genre	CreationInformation/Classification/Genre[@href="urn:id3:v1:4"] CreationInformation/Classification/Genre[@href="urn:id3:v1:4"]/Term[@termID="urn:id3:v2:Eurodisco"] CreationInformation/Classification/Genre[@href="urn:id3:v1:4"] CreationInformation/Classification/Genre[@type="secondary][@href="urn:id3:v2:Eurodisco"]
Rating	Rating	CreationInformation/Classification/ParentalGuidance/ParentalRating[@href="urn:mpeg:mpeg7:cs:ICRAParentalRating:4"]

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EXIF

- Mapping EXIF desired metadata tags into ISO/IEC 15938 to describe artist, image description, user comment, global position system (GPS) information, and file creation date and time.
- The table below shows the detailed mapping:

EXIF Tag	Description	MPEG-7 Path
Artist	Creator – who took picture	CreationInformation/Creation/Creator [Role/@href="urn:mpeg:mpeg7:RoleCS:2001:AUTHOR"]/ Agent[@xsi:type="PersonType"]/Name/{FamilyName, GivenName} (Artist Name)
ImageDescription	Title	CreationInformation/Creation/Title[@type="main"]
UserComment	Free text description	CreationInformation/Creation/Abstract/FreeTextAnnotation
GPSLatitudeRef GPSLatitude GPSLongitudeRef GPSLongitude GPSAltitudeRef GPSAltitude	Where was image taken – i.e., location	CreationInformation/Creation/CreationCoordinates /Location/GeographicPosition/Point/[longitude="", latitude="", altitude=""]
FileDateTime	When – date & time	CreationInformation/Creation/CreationCoordinates/Date

- Additional semantic ISO/IEC 15938 tools (non-EXIF tags) are also useful which includes:

Useful Non-EXIF metadata information	What the Description allows	MPEG-7 Path
Semantic Description	Who and what in the picture	CreationInformation/Creation/Abstract/StructuredAnnotation/{Who, WhatObject, WhatAction}

4.2.3 Tools in the Profile (NORMATIVE)

This profile is defined with respect to the Version 1 schema as specified in ISO/IEC 15938 Part 10. The namespace of the Version 1 schema providing a basis for this profile is "urn:mpeg:mpeg7:schema:2001." The following table lists the ISO/IEC 15938 description tools (global elements, global attributes, attribute groups, complexTypes and simpleTypes) and the profile constraints that are part of this profile:

Table 1 — Description Profile Tool for SMP

Global Elements	Name	Constraint
Mpeg7	Description	xsi:type="CreationDescriptionType" xsi:type="CreationDescriptionType" xsi:type="ClassificationSchemeDescriptionType"
Global Attributes	**Name**	
dim		--
Global Attribute Groups	**Name**	**Constraint**
mediaTimePropertyGrp		--
referenceGrp		--
timePropertyGrp		--

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Complex Types	Element/Attribute Name	Constraint
AgentType		--
ClassificationScheme BaseType		--
ClassificationScheme DescriptionType		--
ClassificationSchemeType		--
ClassificationType	Form Subject Purpose Language CaptionLanguage SignLanguage Release Target MediaReview	element excluded element excluded element excluded element excluded element excluded element excluded element excluded element excluded element excluded
CompleteDescriptionType	DescriptionMetadata Relationships OrderingKey	element excluded element excluded element excluded
ContentManagementType		--
ControlledTermUseType		--
CreationDescriptionType		--
CreationInformationType		--
CreationToolType	Character Instrument	element excluded element excluded
CreatorType		--
DescriptionProfileType	profileAndLevelIndication	When used, this attribute must include one (or more) appropriate profile URI value(s) specified in Table 4
DSType	Header timePropertyGrp mediaTimePropertyGrp	element excluded use=”prohibited” use=“prohibited”
GeographicPointType		--
ImageLocatorType	MediaTimePoint MediaRelTimePoint MediaRelIncrTimePoint BytePosition	element excluded element excluded element excluded element excluded
InlineTermDefinitionType	Term	element excluded
MediaAgentType	AgentRef	element excluded
MediaInstanceType	InstanceIdentifier LocationDescription	element excluded element excluded
MediaLocatorType	InlineMedia	element excluded
Mpeg7BaseType		--
Mpeg7Type	DescriptionProfile	See DescriptionProfileType
NameComponentType		--
ParentalGuidanceType	MinimumAge Region	element excluded element excluded

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PersonNameType	Title Numeration dateFrom dateTo type	element excluded element excluded use=”prohibited” use=”prohibited” use=”prohibited”
PersonType	NameTerm Affiliation Citizenship Address AddressRef ElectronicAddress	element excluded element excluded element excluded element excluded element excluded element excluded
PlaceType	Name NameTerm AstronomicalBody Region AdministrativeUnit PostalAddress InternalCoordinates	element excluded element excluded element excluded element excluded element excluded element excluded element excluded
RatingType		--
RelatedMaterialType	MediaLocator MediaInformation CreationInformation CreationInformationRef UsageInformation UsageInformationRef	element excluded element excluded element excluded element excluded element excluded element excluded
StructuredAnnotationType		--
TermDefinitionBaseType	Definition	element excluded
TermDefinitionType		--
TermUseType		--
TextAnnotationType	DependencyStructure KeywordAnnotation relevance confidence	element excluded element excluded use=”prohibited” use=”prohibited”
TextualBaseType	phoneticTranscription phoneticAlphabet	use=”prohibited” use=”prohibited”
TextualType		--
TimeType	RelTimePoint RelIncrTimePoint Duration IncrDuration	element excluded element excluded element excluded element excluded
TitleMediaType	TitleVideo TitleAudio	element excluded element excluded
TitleType		--
Simple Types	**Element/Attribute Name**	**Constraints**
basicTimePointType		--
termReferenceType		--
termRelationQualifierType		--
timePointType		--

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4.2.4 Levels for SMP (NORMATIVE)

No levels are defined for the Simple Metadata Profile.

Note: Levels for this profile may be defined in the future by means of an amendment to this part of ISO/IEC 15938.

4.3 User Description Profile (UDP) and Level

4.3.1 Application Areas (INFORMATIVE)

The description tools in this profile can be used to describe the personal preferences and usage patterns of users of multimedia content. Descriptions of users' preferences enable automatic discovery, selection and recommendation or recording of multimedia content. Preferences can be automatically inferred from the user's prior viewing and listening habits, which can in turn be derived from a usage history. The goal is to support improved usability of a variety of multimedia devices through personalization: personalized multimedia services offered to the consumer, personalized multimedia content discovery, filtering and selection and personalized consumption of multimedia content. Such tools and services will help reduce the information overload that users may be faced with in the near future, due to the increasing availability of multimedia content from e.g. digital TV broadcast channels and the Internet.

4.3.2 Functionality (INFORMATIVE)

The main functionality of this profile is description of users of multimedia content.

The following are some of the high-level functionalities that are supported by this profile:

User Preferences tools

- Support automatic discovering, filtering and recommending content that fits the user's preferences.
- Support client and server-based user preferences as well as short-term and long-term preferences.
- Support multiple users, multiple sets of preferences for each user, and preferences can be conditioned on both time and place.
- Support content preferences, such as show title, genre, actor/director and many others, as well as preferences for audiovisual or textual summaries of certain types and durations.
- Support grouping of preferences as well as dependencies between preferences.
- Support user preferences between different devices, regardless of brand, physical location, and sensitive of the media.
- Support privacy and user control.

Usage History tools

- Usage history can be exchanged between consumers, agents, content providers, and devices, under consumer control.
- Support capture/playback users' history by their interactions with users' systems or devices when accessing a variety of multimedia content types.
- Support dynamic construction of personalized program or content guides based on users' usage history viewing habits.

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4.3.3 Tools in the Profile (NORMATIVE)

This profile is defined with respect to the Version 1 schema as specified in ISO/IEC 15938 Part 10. The namespace of the Version 1 schema providing a basis for this profile is “urn:mpeg:mpeg7:schema:2001.” The following table lists the ISO/IEC 15938 description tools (global elements, global attributes, attribute groups, complexTypes and simpleTypes) and the profile constraints that are part of this profile:

Table 2 — Description Profile Tool for UDP

Global Elements	**Name**	**Constraint**
Mpeg7	Description	xsi:type="UserDescriptionType"
Global Attributes	**Name**	
dim		--
Global Attribute Groups	**Name**	**Constraint**
mediaTimePropertyGrp		--
referenceGrp		--
timePropertyGrp		--
Complex Types	**Element/Attribute Name**	**Constraint**
AgentType		--
BrowsingPreferencesType		--
ClassificationPreferencesType		--
ClassificationSchemeAliasType		--
ClassificationSchemeBaseType		--
ClassificationSchemeDescriptionType	ClassificationSchemeBase	element excluded
ClassificationSchemeType		--
CompleteDescriptionType	DescriptionMetadata Relationships OrderingKey	element excluded element excluded element excluded
ContentManagementType		--
ControlledTermUseType		--
CreationPreferencesType		--
CreatorType	Instrument	element excluded
DescriptionProfileType	profileAndLevelIndication	When used, this attribute must include one (or more) appropriate profile URI value(s) specified in Table 4
DSType		--
DType		--
ElectronicAddressType		--
ExtendedLanguageType		--
FilteringAndSearchPreferencesType		--
GeographicPointType		--
HeaderType		--
ImageLocatorType		--

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IncrDurationType		--
InlineMediaType		--
InlineTermDefinitionType	Term	element excluded
MediaAgentType		--
MediaFormatType	Bandwidth TargetChannelBitrate ScalableCoding VisualCoding/ ColorSampling	element excluded element excluded element excluded element excluded
MediaIncrDurationType		--
MediaLocatorType		--
MediaRelIncrTimePointType		--
MediaRelTimePointType		--
MediaTimeType		--
Mpeg7BaseType		--
Mpeg7Type	DescriptionProfile DescriptionMetadata	See DescriptionProfileType element excluded
NameComponentType		--
OrganizationType		--
ParentalGuidanceType		--
PersonGroupType		--
PersonNameType		--
PersonType		--
PlaceType	AstronomicalBody	element excluded
PreferenceConditionType		--
RatingType		--
ReferenceType		--
RelIncrTimePointType		--
RelTimePointType		--
SourcePreferencesType		--
SummaryPreferencesType		--
TemporalSegmentLocatorType		--
TermDefinitionBaseType		--
TermDefinitionType		--
TermUseType		--
TextualBaseType	phoneticTranscription phoneticAlphabet	attribute excluded attribute excluded
TextualType		--
TimeType		--
TitleMediaType		--

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TitleType		--
UniqueIDType		--
UsageHistoryType		--
UserActionHistoryType		--
UserActionListType		--
UserActionType		--
UserDescriptionType		--
UserIdentifierType		--
UserPreferencesType		--
Simple Types	**Element/Attribute Name**	**Constraint**
auxiliaryLanguageType		--
basicDurationType		--
basicTimePointType		--
characterSetCode		--
countryCode		--
durationType		--
floatVector		--
integerVector		--
listOfPositiveIntegerForDim		--
mediaDurationType		--
mediaTimeOffsetType		--
mediaTimePointType		--
mimeType		--
nonNegativeReal		--
preferenceValueType		--
probabilityVector		--
regionCode		--
summaryComponentType		--
termReferenceType		--
termRelationQualifierType		--
timeOffsetType		--
timePointType		--
unsigned8		--
unsigned12		--
userChoiceType		--
xPathAbsoluteSelectorType		--
xPathRefType		--
xPathSelectorType		--
xPathType		--
zeroToOneType		--

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4.3.4 Levels for UDP (NORMATIVE)

No levels are defined for the User Description Profile.

Note: Levels for this profile may be defined in the future by means of an amendment to this part of ISO/IEC 15938.

4.4 Core Description Profile (CDP) and Level

4.4.1 Application Areas (INFORMATIVE)

This profile provides the ability to describe general multimedia content such as images, videos, audio, and collections. Furthermore, content collections spanning various media types can also be described. As such, this profile provides a core set of tools that can be used to describe common multimedia content for a broad range of applications such as general multimedia creation, consumption, and distribution, broadcast television programming, educational courseware, just to name a few.

4.4.2 Functionality (INFORMATIVE)

The main functionality supported by this profile is the ability to describe images, videos, audio, audio-visual, and collection of multimedia contents.

The following are some of the high-level functionalities that are supported by this profile:

- Provides tools for describing metadata for the descriptions of multimedia content.
- Provides tools for describing image, audio, video, audio-visual, and collection of multimedia contents.
- Provides tools for describing relationships between different multimedia contents.
- Provides tools for describing media information, media creation information, media usage information, media structure information, and media semantics information.

4.4.3 Tools in the Profile (NORMATIVE)

This profile is defined with respect to the Version 1 schema as specified in ISO/IEC 15938 Part 10. The namespace of the Version 1 schema providing a basis for this profile is “urn:mpeg:mpeg7:schema:2001.” The following table lists the ISO/IEC 15938 description tools (global elements, global attributes, attribute groups, complexTypes and simpleTypes) and the profile constraints that are part of this profile:

Table 3 — Description Profile Tool for CDP

Global Elements	**Element/Attribute Name**	**Constraint**
Mpeg7	Description DescriptionUnit	xsi:type="ContentEntityType" element excluded
Global Attributes	**Name**	**Constraint**
dim		--
Global Attribute Groups	**Name**	**Constraint**
listOfPositiveIntegerForDim		--
mediaTimePropertyGrp		--
referenceGrp		--
timePropertyGrp		--
xpathAbsoluteSelectorType		--

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Complex Types	Element/Attribute Name	Constraint
AffectiveType		--
AgentObjectType		--
AgentType		--
AudioSegmentMediaSource DecompositionType		--
AudioSegmentTemporal DecompositionType		--
AudioSegmentType	AudioDescriptor AudioDescriptionScheme	element excluded element excluded
AudioType		--
AudioVisualSegmentMedia SourceDecompositionType		--
AudioVisualSegmentTemporal DecompositionType	AudioVisualRegion AudioVisualRegionRef	element excluded element excluded
AudioVisualSegmentType	SpatialDecomposition SpatioTemporalDecomposition	element excluded element excluded
AudioVisualType		--
AvailabilityType		--
ClassificationType		--
CollectionType		--
ColorSamplingType		--
CompleteDescriptionType		--
ConceptType		--
ContentCollectionType	VisualFeature AudioFeature	element excluded element excluded
ContentDescriptionType		--
ContentEntityType	MultimediaContentType that are supported: ImageType AudioType VideoType, AudioVisualType, MultimediaCollectionType	 -- -- -- -- --
ControlledTermUseType		--
CreationInformationType		--
CreationToolType		--
CreationType		--
CreatorType		--
DependencyStructure PhraseType		--
DependencyStructureType		--
DescriptionMetadataType	Package	element excluded

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DescriptionProfileType	profileAndLevelIndication	When used, this attribute must include one (or more) appropriate profile URI value(s) specified in Table 4
DisseminationType		--
DSType		--
DType		--
ElectronicAddressType		--
EventType		--
ExtendedLanguageType		--
ExtentType		--
FinancialType		--
FloatMatrixType		--
GeographicPointType		--
GraphType		--
HeaderType		--
ImageLocatorType		--
ImageType		--
IncrDurationType		--
InlineMediaType		--
InlineTermDefinitionType		--
IntegerMatrixType		--
KeywordAnnotationType		--
MaskType		--
MediaAgentType		--
MediaFormatType		--
MediaIdentificationType		--
MediaIncrDurationType		--
MediaInformationType		--
MediaInstanceType		--
MediaLocatorType		--
MediaProfileType		--
MediaQualityType		--
MediaRelIncrTimePointType		--
MediaRelTimePointType		--
MediaReviewType		--
MediaSourceSegment DecompositionType		--
MediaTimeType		--
MediaTranscodingHintsType		--

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MovingRegionType	SpatioTemporalLocator SpatioTemporalMask VisualDescriptor VisualDescriptionScheme VisualTimeSeriesDescriptor MultipleView SpatialDecomposition TemporalDecomposition SpatioTemporalDecomposition MediaSourceDecomposition	element excluded element excluded element excluded element excluded element excluded element excluded element excluded element excluded element excluded element excluded
Mpeg7BaseType		--
Mpeg7Type	DescriptionProfile	See DescriptionProfileType
MultimediaCollectionType		--
MultimediaContentType		--
NameComponentType		--
NonDependencyStructure PhraseType		--
ObjectType		--
OrderingKeyType		--
OrganizationType		--
ParentalGuidanceType		--
PersonGroupType		--
PersonNameType		--
PersonType		--
PlaceType		--
PointOfViewType		--
PositionType		--
RatingType		--
ReferenceType		--
RelatedMaterialType		--
RelationType		--
RelIncrTimePointType		--
RelTimePointType		--
RightsType		--
SegmentDecompositionType		--
SegmentType	MatchingHint	element excluded
SemanticBagType		--

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SemanticBaseType	AbstractionLevel MediaOccurrence/ AudioDescriptor MediaOccurrence/ AudioDescriptionScheme MediaOccurrence/ VisualDescriptor MediaOccurrence/ VisualDescriptionScheme	element excluded element excluded element excluded element excluded element excluded
SemanticPlaceType		--
SemanticStateType		--
SemanticTimeType		--
SemanticType		--
SpatioTemporalSegment DecompositionType		--
StillRegionType	SpatialLocator SpatialMask VisualDescriptor VisualDescriptionScheme GridLayoutDescriptors MultipleView SpatialDecomposition	element excluded element excluded element excluded element excluded element excluded element excluded element excluded
StructuredAnnotationType		--
StructuredCollectionType		--
TemporalMaskType		--
TemporalSegment DecompositionType		--
TemporalSegmentLocatorType		--
TermUseType		--
TextAnnotationType		--
TextualBaseType	phoneticTranscription phoneticAlphabet	use = “prohibited” use = “prohibited”
TextualType		--
TimeType		--
TitleMediaType		--
TitleType		--
UniqueIDType		--
UsageInformationType		--
UsageRecordType		--
VideoSegmentMediaSource DecompositionType		--
VideoSegmentSpatioTemporal DecompositionType	StillRegion StillRegionRef	element excluded element excluded
VideoSegmentTemporal DecompositionType		--

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VideoSegmentType	VisualDescriptor VisualDescriptionScheme VisualTimeSeriesDescriptor MultipleView Mosaic SpatialDecomposition SpatioTemporalDecomposition element can be initiated only for having MovingRegion element, which provides VideoTextType to describe superimposed text data.	element excluded element excluded element excluded element excluded element excluded element excluded
VideoTextType		--
VideoType		--
WordFormType		--
Simple Types	**Element/Attribute Name**	**Constraint**
basicDurationType		--
basicTimePointType		--
countryCode		--
currencyCode		--
dependencyOperatorType		--
durationType		--
floatVector		--
integerVector		--
mediaDurationType		--
mediaTimeOffsetType		--
mediaTimePointType		--
mimeType		--
minusOneToOneType		--
nonNegativeReal		--
regionCode		--
termReferenceType		--
termRelationQualifierType		--
timeOffsetType		--
timePointType		--
xPathFieldType		--
xPathRefType		--
xPathSelectorType		--
xPathType		--
zeroToOneType		--

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4.4.4 Levels for CDP (NORMATIVE)

No levels are defined for the Core Description Profile.

Note: Levels for this profile may be defined in the future by means of an amendment to this part of ISO/IEC 15938.

5 MPEG-7 Profile URI Values and Schema Namespace

The following table contains ISO/IEC 15938 standard profile URI values:

Table 4 — Profile URI Values

MPEG-7 Profile Name	ProfileAndLevelIndication URI Value	ISO/IEC 15938-10 Schema Namespace
Simple Metadata Profile and Level	urn:mpeg:mpeg7:profiles:2004:SMP	urn:mpeg:mpeg7:schema:2001
User Description Profile and Level	urn:mpeg:mpeg7:profiles:2004:UDP	urn:mpeg:mpeg7:schema:2001
Core Description Profile and Level	urn:mpeg:mpeg7:profiles:2004:CDP	urn:mpeg:mpeg7:schema:2001

6 MPEG-7 Profile Schemas

ISO/IEC TR 15938-11 contains actual schema in XSD form for each of the ISO/IEC 15938-9 standard description profiles.

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