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**Information technology — Multimedia  
content description interface —**

**Part 5:  
Multimedia description schemes**

**AMENDMENT 5: Quality metadata,  
multiple text encodings, extended  
classification metadata**

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*Technologies de l'information — Interface de description du  
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*Partie 5: Schémas de description multimédia*

*AMENDEMENT 5: Métadonnées de qualité, encodages de texte  
multiples, métadonnées de classification étendues*

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ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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.

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

## Introduction

The Multimedia Preservation Application Format (MP-AF, ISO/IEC 23000-15) makes use of MPEG-7 MDS for descriptive and technical metadata. The following gaps in MPEG-7 MDS for preservation applications are addressed by this amendment:

- Support for identifying the script of a string. This is useful in cases where a language can be represented in multiple scripts (e.g., Japanese, Bulgarian). While the script identifier according to ISO 15924 can be represented as part of the language tag, introducing a separate attribute improves the modularity of the metadata to represent it separately.
- Support for multiple string encodings in a single XML document. In some cases strings (e.g., identifiers, file names) need to be kept in their original character encoding different to the encoding of the metadata document. In order to enable this and avoid problems with XML parsing, the content of the string is then base64 or percent encoded and the original character encoding is identified.
- Extended classification metadata, i.e. increasing the cardinality of some classification metadata elements and adding the option to identify the version of the content.
- Metadata for quality control. Detailed quality descriptors are only available for audio (MPEG-7 part 4/AMD 2), while similar tools for format/wrapper and visual quality checks and defects are missing. A representation compatible with the European Broadcasting Union's (EBU) Quality Control data model is needed.

This amendment defines solutions for filling these gaps in MDS. These extensions are expected to be useful also for applications beyond preservation.

The extensions are all optional, thus descriptions conforming to a version of MPEG-7 MDS prior to this amendment are valid against a version including this amendment.

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# Information Technology — Multimedia content description interface — Part 5: Multimedia description schemes, AMENDMENT 5: Quality metadata, multiple text encodings, extended classification metadata

## 1 Scope

This amendment extends text and classification descriptors for descriptive metadata for audiovisual content making use of existing datatypes and adding some elements and attributes, and adds support for quality metadata. A first extension improves internationalization for text-based metadata by identifying the script(s) used and enables carrying encoded strings represented in multiple character sets in the same XML document. A second improvement extends classification metadata in order to: (a) improve interoperability with existing metadata formats used in professional media production, (b) increase cardinality of some elements and (c) add attributes and a version element. Finally a third extension improves the tools for describing profiles for quality control of audiovisual media, as well as the results of quality analysis on wrapper, bitstream and baseband level.

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NOTE The XML schema implementing this amendment as well as a consolidated XML schema for MPEG-7 including this amendment are contained in the electronic attachment.

## 2 Multiple Text Encodings

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*In 7.2.2, replace the entire text of the subclause with the following text:*

### 7.2.2 Textual datatypes

#### 7.2.2.1 Introduction

The `TextualBase` datatype provides a base from which other kinds of textual description tools are derived. It can also be used in the definitions of tools that contain textual descriptions. An optional attribute, `xml:lang`, is used to specify the language of the contained text.

The `Textual` datatype, derived from the `TextualBase` datatype, is a non-abstract type that is used for simple textual descriptions.

In cases where textual elements need to be stored in their native character set (different from the encoding of the XML document), the character set can be specified using the `charset` attribute. In order to allow for correct parsing of the document, the content of the textual element must be encoded in this case (using base64 or percent encoding).

#### 7.2.2.2 Textual datatypes syntax

```
<!-- ##### -->
<!-- Definition of Textual datatypes (7.2.2) -->
<!-- ##### -->
<!-- Definition of TextualBase datatype -->
<complexType name="TextualBaseType" abstract="true">
```

```

<simpleContent>
  <extension base="string">
    <attribute ref="xml:lang" use="optional"/>
    <attribute name="phoneticTranscription" use="optional">
      <simpleType>
        <list itemType="mpeg7:PhoneType"/>
      </simpleType>
    </attribute>
    <attribute name="phoneticAlphabet" type="mpeg7:phoneticAlphabetType"
      use="optional" default="sampa"/>
    <attribute name="charset" type="string" use="optional"/>
    <attribute name="encoding" type="string" use="optional"/>
    <attribute name="script" type="string" use="optional"/>
  </extension>
</simpleContent>
</complexType>

<!-- Definition of Textual datatype -->
<complexType name="TextualType">
  <simpleContent>
    <extension base="mpeg7:TextualBaseType"/>
  </simpleContent>
</complexType>

```

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**7.2.2.3 Textual datatypes semantics**

Semantics of the TextualBaseType:

Name	Definition
TextualBaseType	Abstract base type for textual descriptions. This type includes the xml:lang attribute for identifying the language in which the description is written and can contain a phonetic transcription of the text
xml:lang	Indicates the language in which the textual description is written (optional). If no value is specified for this attribute, the value of the xml:lang attribute is inherited from the closest containing element that specifies a value for xml:lang.
phoneticTranscription	Describes a phonetic transcription of the text using a phonetic alphabet. The transcription is represented as a list of phones (i.e. PhoneType). The definition for PhoneType is given in ISO/IEC 15938-4.
phoneticAlphabet	Describes the phonetic alphabet that is used for the transcription in phoneticTranscription, e.g. IPA (International Phonetic Association alphabet). The specification of the phoneticAlphabetType is given in ISO/IEC 15938-4.
charset	Specifies the character set of the string, if it does not conform to the character set of the XML document. In this case, the content of TextualBaseType must be encoded, and the encoding attribute must be present.
encoding	The encoding used to represent string in a charset different than the global character set of the XML document. Recommended



Name	Definition
	encodings are base64 or percent.
script	Specifies the script used for representing the string, using the values defined in ISO 15924. This allows the correct identification of the script being used for languages that can be represented in multiple scripts. For modularity of representation, a separate attribute is provided as an alternative to coding the script in the <code>xml:lang</code> attribute. It is recommended to use the script attribute.

Semantics of the TextualType:

Name	Definition
TextualType	Describes a textual description. TextualType that extends the abstract TextualBaseType. This type includes the <code>xml:lang</code> attribute for identifying the language in which the description is written and can contain a phonetic transcription of the text

#### 7.2.2.4 Textual datatypes example (informative)

The following example description excerpt shows the use of Textual datatype for describing the free text in English: "The Giants win the pennant."

```
<Textual xml:lang="en">
  The Giants win the pennant.
</Textual>
```

The following example description excerpt shows the use of Textual datatype for describing the name of the city of Moscow in Russian, using Cyrillic script.

```
<Textual xml:lang="ru" script="Cyril">Москва</Textual>
```

### 3 Extended Classification Metadata

In 9.2.3, replace the entire text of the subclause with the following text:

#### 9.2.3 Classification DS

##### 9.2.3.1 Introduction

The Classification DS describes the classification of the multimedia content. The resulting descriptions facilitate searching and filtering of multimedia content based on user preferences (e.g. language, style, genre, and so forth) and service-oriented classifications (e.g. purpose, parental guidance, market segmentation, media review, and so forth).

##### 9.2.3.2 Classification DS syntax

```
<!-- ##### -->
<!-- Definition of Classification DS (9.2.3) -->
```

```

<!-- ##### -->

<!-- Definition of Classification DS -->
<complexType name="ClassificationType">
  <complexContent>
    <extension base="mpeg7:DSType">
      <sequence>
        <element name="Form" type="mpeg7:ControlledTermUseType" minOccurs="0"
          maxOccurs="unbounded" />
        <element name="Genre" minOccurs="0" maxOccurs="unbounded">
          <complexType>
            <complexContent>
              <extension base="mpeg7:ControlledTermUseType">
                <attribute name="type" use="optional" default="main">
                  <simpleType>
                    <restriction base="NMTOKEN">
                      <enumeration value="main"/>
                      <enumeration value="secondary"/>
                    </restriction>
                  </simpleType>
                </attribute>
                <attribute name="confidence" use="optional"
                  type="mpeg7:zeroToOneType" />
              </extension>
            </complexContent>
          </complexType>
        </element>
        <element name="Subject" type="mpeg7:TextAnnotationType"
          minOccurs="0" maxOccurs="unbounded" />
        <element name="Purpose" type="mpeg7:ControlledTermUseType"
          minOccurs="0" maxOccurs="unbounded" />
        <element name="Language" type="mpeg7:ExtendedLanguageType"
          minOccurs="0" maxOccurs="unbounded" />
        <element name="CaptionLanguage" minOccurs="0" maxOccurs="unbounded">
          <complexType>
            <simpleContent>
              <extension base="language">
                <attribute name="closed" type="boolean" use="optional"
                  default="true" />
                <attribute name="supplemental" type="boolean"
                  use="optional" default="false" />
              </extension>
            </simpleContent>
          </complexType>
        </element>
        <element name="SignLanguage" minOccurs="0" maxOccurs="unbounded">
          <complexType>
            <simpleContent>
              <extension base="language">
                <attribute name="primary" type="boolean" use="optional" />
                <attribute name="translation" type="boolean"
                  use="optional" />
              </extension>
            </simpleContent>
          </complexType>
        </element>
        <element name="Release" minOccurs="0" maxOccurs="unbounded">
          <complexType>
            <sequence>
              <element name="Region" type="mpeg7:regionCode"

```

```

        minOccurs="0" maxOccurs="unbounded" />
    </sequence>
    <attribute name="date" type="mpeg7:timePointType"
        use="optional" />
</complexType>
</element>
<element name="Target" minOccurs="0">
    <complexType>
        <sequence>
            <element name="Market" type="mpeg7:ControlledTermUseType"
                minOccurs="0" maxOccurs="unbounded" />
            <element name="Age" minOccurs="0">
                <complexType>
                    <attribute name="min" type="nonNegativeInteger"
                        use="optional" />
                    <attribute name="max" type="nonNegativeInteger"
                        use="optional" />
                </complexType>
            </element>
            <element name="Region" type="mpeg7:regionCode"
                minOccurs="0" maxOccurs="unbounded" />
        </sequence>
    </complexType>
</element>
<element name="ParentalGuidance" type="mpeg7:ParentalGuidanceType"
    minOccurs="0" maxOccurs="unbounded" />
<element name="MediaReview" type="mpeg7:MediaReviewType"
    minOccurs="0" maxOccurs="unbounded" />
<element name="Version" type="mpeg7:TextAnnotationType" minOccurs="0" />
</sequence>
</extension>
</complexContent>
</complexType>

<!-- Definition of ExtendedLanguage datatype -->
<complexType name="ExtendedLanguageType">
    <simpleContent>
        <extension base="language">
            <attribute name="type" use="optional" default="original">
                <simpleType>
                    <restriction base="NMTOKEN">
                        <enumeration value="original" />
                        <enumeration value="dubbed" />
                        <enumeration value="background" />
                    </restriction>
                </simpleType>
            </attribute>
            <attribute name="supplemental" type="boolean"
                use="optional" default="false" />
        </extension>
    </simpleContent>
</complexType>

<!-- Definition of ParentalGuidance datatype -->
<complexType name="ParentalGuidanceType">
    <sequence>
        <choice>
            <element name="ParentalRating" type="mpeg7:ControlledTermUseType" />
            <element name="MinimumAge" type="nonNegativeInteger" />
        </choice>
    </sequence>
</complexType>

```