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AMENDMENT 2
2005-02-15

Information technology — Multimedia content description interface —

Part 5: Multimedia description schemes

AMENDMENT 2: Multimedia description schemes user preference extensions

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

Partie 5: Schémas de description multimédia

AMENDEMENT 2: Extensions de préférence d'utilisateur des schémas de description multimédia

Reference number
ISO/IEC 15938-5:2003/Amd.2:2005(E)

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Amendment 2 to ISO/IEC 15938-5:2003 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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Information technology — Multimedia content description interface —

Part 5: Multimedia description schemes

AMENDMENT 2: Multimedia description schemes user preference extensions

Except where noted otherwise, add the corresponding subclauses of ISO/IEC 15938-5:2003 with the content of the following subclauses hereafter:

6.5.7 LogicalUnitLocator datatype

6.5.7.1 Introduction

The locating of nested units is supported by defining an explicit structure to the `LogicalUnitLocator` that allows media locators to be included as sub-units. Furthermore, by supporting hierarchical structures directly through this nesting, the `LogicalUnitLocator` retains a clear semantics when multiple locators are sequenced within a description to identify the union of logical units.

6.5.7.2 LogicalUnitLocator datatype syntax

Syntax of the `LogicalUnitLocatorType`:

```
  <!-- ################################################ -->
  <!--  Definition of LogicalUnitLocator datatype (6.5.7)  -->
  <!-- ################################################ -->

  <!-- Definition of LogicalUnitLocator datatype (AMD/2)  -->
  <complexType name="LogicalUnitLocatorType">
    <complexContent>
      <extension base="mpeg7:MediaLocatorType">
        <choice minOccurs="1" maxOccurs="unbounded">
          <element name="LogicalUnit">
            <complexType>
              <sequence minOccurs="0" maxOccurs="unbounded">
                <element name="SubUnit" type="mpeg7:MediaLocatorType"/>
              </sequence>
              <attribute name="unit" type="mpeg7:termReferenceType"
use="required"/>
              <attribute name="value" type="string" use="required"/>
            </complexType>
          </element>
          <element name="ReferenceUnit">
            <complexType>
              <sequence minOccurs="0" maxOccurs="unbounded">
                <element name="SubUnit" type="mpeg7:MediaLocatorType"/>
              </sequence>
```

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```
            <attributeGroup ref="mpeg7:referenceGrp"/>
          </complexType>
        </element>
      </choice>
    </extension>
  </complexContent>
</complexType>
```

6.5.7.3 LogicalUnitLocator datatype semantics

Semantics of the `LogicalUnitLocatorType`:

Name	*Definition*
`LogicalUnitLocatorType`	Describes the location of logical unit of a media resource, such as a "track" of a CD or "chapter" of a DVD. The localization within a target resource can be specified using either `LogicalUnit` or `ReferenceUnit` elements. In the case that multiple instances of these elements are included within the description, the result is the union of the individual locator elements, e.g., chapter 1 and chapter 2 of a DVD. Nested logical units should be described using the `SubUnit` elements of each locator element.
`LogicalUnit`	Describes the localization of a logical unit by identifying the name of the logical unit, e.g., "chapter" and value, e.g., "2".
`unit`	Identifies the unit, e.g., "chapter" using `termReferenceType`. The unit name can belong to a classification scheme in order to enforce a controlled vocabulary. The `termReferenceType` also allows names to be used that do not belong to classification schemes when needed.
`value`	Describes the value of the unit, e.g., "2" using string.
`SubUnit`	Describes nested units located within the parent logical unit, e.g., "section 2" of "chapter 1". `SubUnit` is of type `MediaLocator` to allow non-logical sub-units to be described.
`ReferenceUnit`	Describes the localization of a logical unit by identifying reference of the logical unit, such as by `xpath` expression.
`referenceGrp`	Identifies the reference of the logical unit using `xpath`, `idref`, etc.

6.5.7.4 Example (informative)

The following example describes the logical unit of a "chapter" of a DVD. This example assumes that a classification scheme "urn:dvd:logicalunit" has been defined for DVDs that identifies the names of its logical units, e.g., "chapter".

```
<Mpeg7>
  <Description xsi:type="ContentEntityType">
    <MultimediaContent xsi:type="AudioVisualType">
      <AudioVisual>
        <MediaLocator xsi:type="LogicalUnitLocatorType">
          <LogicalUnit unit="urn:dvd:logicalunit:chapter" value="1"/>
        </MediaLocator>
      </AudioVisual>
```


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```
    </MultimediaContent>
  </Description>
</Mpeg7>
```

The following example describes the logical unit of a CD that corresponds to track 8 from disk 2. This example assumes that a classification scheme has been defined for CDs that identifies the names of its logical units. Furthermore, this example shows the explicit use of hierarchy of units to indicate that the track is from disk 2. The `LogicalUnitLocator` describes the increasing granularity and nesting of logical units in the case of hierarchical relationship using the `SubUnit` element.

```
<Mpeg7>
  <Description xsi:type="ContentEntityType">
    <MultimediaContent xsi:type="AudioVisualType">
      <AudioVisual>
        <MediaLocator xsi:type="LogicalUnitLocatorType">
          <LogicalUnit unit="urn:cd:logicalunit:disk" value="2">
            <SubUnit xsi:type="LogicalUnitLocatorType">
              <LogicalUnit unit="urn:cd:logicalunit:track" value="8"/>
            </SubUnit>
          </LogicalUnit>
        </MediaLocator>
      </AudioVisual>
    </MultimediaContent>
  </Description>
</Mpeg7>
```

The following example uses the `ReferenceUnit xpath` reference mechanism of `LogicalUnitLocator` to address a fragment of an XML resource.

```
<Mpeg7>
  <Description xsi:type="ContentEntityType">
    <MultimediaContent xsi:type="AudioVisualType">
      <AudioVisual>
        <MediaLocator xsi:type="LogicalUnitLocatorType">
          <ReferenceUnit xpath="../../../../SceneUnit[1]"/>
        </MediaLocator>
      </AudioVisual>
    </MultimediaContent>
  </Description>
</Mpeg7>
```

The following example uses the `ReferenceUnit xpath` reference mechanism of `LogicalUnitLocator` to address a fragment of an XML resource.

```
<Mpeg7>
  <Description xsi:type="ContentEntityType">
    <MultimediaContent xsi:type="AudioVisualType">
      <AudioVisual>
        <MediaLocator xsi:type="LogicalUnitLocatorType">
          <ReferenceUnit xpath="../../../../SceneUnit[1]"/>
        </MediaLocator>
      </AudioVisual>
    </MultimediaContent>
  </Description>
</Mpeg7>
```

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The following example describes a fragment that corresponds to a time point at 30 seconds from the beginning of the third track of an Audio CD.

```
<Mpeg7>
  <Description xsi:type="ContentEntityType">
    <MultimediaContent xsi:type="AudioType">
      <Audio>
        <MediaLocator xsi:type="LogicalUnitLocatorType">
          <LogicalUnit unit="urn:cd:logicalunit:track" value="3">
            <SubUnit xsi:type="TemporalSegmentLocatorType">
              <MediaTime>
                <MediaTimePoint>T00:00:30</MediaTimePoint>
              </MediaTime>
            </SubUnit>
          </LogicalUnit>
        </MediaLocator>
      </Audio>
    </MultimediaContent>
  </Description>
</Mpeg7>
```

The following example describes the first 15 seconds of all the audio tracks of the second CD disk in a three disk CD Audio package.

```
<Mpeg7>
  <Description xsi:type="ContentEntityType">
    <MultimediaContent xsi:type="AudioType">
      <Audio>
        <MediaLocator xsi:type="LogicalUnitLocatorType">
          <LogicalUnit unit="urn:cd:logicalunit:disk" value="2">
            <SubUnit xsi:type="LogicalUnitLocatorType">
              <LogicalUnit unit="urn:cd:logicalunit:track" value="1">
                <SubUnit xsi:type="TemporalSegmentLocatorType">
                  <MediaTime>
                    <MediaTimePoint>T00:00:00</MediaTimePoint>
                    <MediaDuration>PT15S</MediaDuration>
                  </MediaTime>
                </SubUnit>
              </LogicalUnit>
            </SubUnit>
            <SubUnit xsi:type="LogicalUnitLocatorType">
              <LogicalUnit unit="urn:cd:logicalunit:track" value="2">
                <SubUnit xsi:type="TemporalSegmentLocatorType">
                  <MediaTime>
                    <MediaTimePoint>T00:00:00</MediaTimePoint>
                    <MediaDuration>PT15S</MediaDuration>
                  </MediaTime>
                </SubUnit>
              </LogicalUnit>
            </SubUnit>
            <SubUnit xsi:type="LogicalUnitLocatorType">
              <LogicalUnit unit="urn:cd:logicalunit:track" value="3">
                <SubUnit xsi:type="TemporalSegmentLocatorType">
                  <MediaTime>
                    <MediaTimePoint>T00:00:00</MediaTimePoint>
                    <MediaDuration>PT15S</MediaDuration>
                  </MediaTime>
```


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```
                </SubUnit>
              </LogicalUnit>
            </SubUnit>
            <!-- repeat for remaining tracks -->
          </LogicalUnit>
        </MediaLocator>
      </Audio>
    </MultimediaContent>
  </Description>
</Mpeg7>
```

Except where noted otherwise, replace the corresponding subclauses of ISO/IEC 15938-5:2003 with the content of the following subclauses hereafter:

7.5.3.2 Person DS syntax

```
<!-- ################################## -->
<!--  Definition of Person DS (7.5.3)  -->
<!-- ################################## -->

<!-- Definition of Person DS  (AMD/2) -->
<complexType name="PersonType">
   <complexContent>
      <extension base="mpeg7:AgentType">
         <sequence>
            <choice minOccurs="1" maxOccurs="unbounded">
               <element name="Name" type="mpeg7:PersonNameType"/>
                        <element name="NameTerm"
type="mpeg7:ControlledTermUseType"/>
            </choice>
            <element name="Affiliation" minOccurs="0" maxOccurs="unbounded">
               <complexType>
                  <choice>
                     <element name="Organization"
type="mpeg7:OrganizationType"/>
                     <element name="OrganizationRef"
type="mpeg7:ReferenceType"/>
                     <element name="PersonGroup"
type="mpeg7:PersonGroupType"/>
                     <element name="PersonGroupRef"
type="mpeg7:ReferenceType"/>
                  </choice>
               </complexType>
            </element>
            <element name="Citizenship" type="mpeg7:countryCode"
            minOccurs="0" maxOccurs="unbounded"/>
            <choice minOccurs="0">
               <element name="Address" type="mpeg7:PlaceType"/>
               <element name="AddressRef" type="mpeg7:ReferenceType"/>
            </choice>
            <element name="ElectronicAddress"
type="mpeg7:ElectronicAddressType"
               minOccurs="0" maxOccurs="unbounded"/>
            <element name="PersonDescription" type="mpeg7:TextualType"
minOccurs="0"/>
            <element name="Nationality" type="mpeg7:countryCode"
minOccurs="0"/>
         </sequence>
```

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```
      </extension>
   </complexContent>
</complexType>
```

7.5.3.3 Person DS semantics

Semantics of the `PersonType`:

Name	*Definition*
`PersonType`	Describes an individual person.
`Name`	Describes a name associated with this person. Multiple names are allowed. The interpretation of different names is not defined in this standard.
`NameTerm`	Describes a name associated with this person using a term from a classification scheme.
`Affiliation`	Describes an organizations or person groups with which this person is affiliated. For example, the company for which the individual works, the sports team on which they place, and so on. A person may be affiliated with more than one organization or group.
`Organization`	Describes an organization that this person is affiliated with.
`OrganizationRef`	Describes a reference to an organization that this person is affiliated with.
`PersonGroup`	Describes a group that this person is affiliated with.
`PersonGroupRef`	Describes a reference to a person group that this person is affiliated with.
`Citizenship`	Describes the countries in which this person is a legal citizen. A person may hold multiple citizenships. The legal definition of citizenship is not defined in this standard and may vary from country to country.
`Address`	Describes a place that is the address where this person can be located.
`AddressRef`	Describes a reference to a place that is the address where this person can be located.
`ElectronicAddress`	Describes the electronic address information for this person.
`PersonDescription`	Describes information about a person to distinguish them from other persons of the same name - e.g. farmer, poet, American dentist
`Nationality`	Describes the nationality of an individual by origin, birth, or naturalization

7.5.6 PersonName datatype

- The LinkingName element is Name Component that describes a link used between family, given and other names (e.g. den, ten, van den, von)

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- The Salutation element is Name Component that describes an individual's salutation or title. Eg. Mr., Mrs., Sir. This is distinct fro the Title element which is reserved for terms used personal honours (e.g., F.R.S.) and qualifications (e.g., Professor).

7.5.6.1 Introduction

The `PersonName` datatype describes the name of a person, whether historical, existing, or fictional.

7.5.6.2 PersonName datatype syntax

```
<!-- ########################################### -->
<!--  Definition of PersonName datatype (7.5.6)  -->
<!-- ########################################### -->

<!-- Definition of PersonName datatype  (AMD/2)-->
<complexType name="PersonNameType">
   <sequence>
      <choice minOccurs="1" maxOccurs="unbounded">
         <element name="GivenName" type="mpeg7:NameComponentType"/>
         <element name="LinkingName" type="mpeg7:NameComponentType"
minOccurs="0"/>
         <element name="FamilyName" type="mpeg7:NameComponentType"
minOccurs="0"/>
         <element name="Title" type="mpeg7:NameComponentType" minOccurs="0"/>
         <element name="Salutation" type="mpeg7:NameComponentType"
minOccurs="0"/>
         <element name="Numeration" type="string" minOccurs="0"/>
      </choice>
   </sequence>
   <attribute name="dateFrom" type="mpeg7:timePointType" use="optional"/>
   <attribute name="dateTo" type="mpeg7:timePointType" use="optional"/>
   <attribute name="type" use="optional">
      <simpleType>
         <restriction base="NMTOKEN">
            <enumeration value="former"/>
            <enumeration value="variant"/>
            <enumeration value="main"/>
         </restriction>
      </simpleType>
   </attribute>
   <attribute ref="xml:lang" use="optional"/>
</complexType>

<!-- Definition of NameComponent datatype -->
<complexType name="NameComponentType">
   <simpleContent>
      <extension base="mpeg7:TextualBaseType">
         <attribute name="initial" type="string" use="optional"/>
         <attribute name="abbrev" type="string" use="optional"/>
      </extension>
   </simpleContent>
</complexType>
```

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7.5.6.3 PersonName datatype semantics

Semantics of the `PersonNameType`:

Name	*Definition*
`PersonNameType`	Describes the name of a person.
`GivenName`	Describes the given name(s) of a person. At least one given name shall be specified in a name description. Given names include middle names and/or middle initials, if known. Given names may be initials or abbreviation if only these elements are known.
`Linking Name`	Describes a link used between family, given and other names (e.g. den, ten, van den, von)
`FamilyName`	Describes the family name(s) of an individual. This may be a surname, clan name, and so forth. The use of this element is optional since not all person names include a family name.
`Title`	Indicates the titles that are part of the name of an individual, such as honorifics. This part of a name is optional.
`Salutation`	Descries an individual's salutation or title. Eg. Mr., Mrs., Sir
`Numeration`	Indicates a roman numeral or other numeric designation that is part of the name of an individual. For example, the "III" in "William James III."
`dateFrom`	Indicates the date starting from which this name came into use (e.g. date of birth, date of change to a new name, and so forth). If not specified, then no so such date is known.
`dateTo`	Indicates the date starting from which this name ceased to be used (death, old name after name change, etc). If not specified, then use of the name is still current.
`type`	Indicates the type of name using one of the following values: • *former* – The name is no longer used. • *variant* – The name is a variation of the official or most commonly used name. For example, an abbreviated form of the official name, or an informal nickname. • *main* –The name is either the official one or is widely known and used.
`xml:lang`	Describes the language in which the name is described. This need not be the same as the original language of the name. For example, a Japanese name can be described in English.

Semantics of the NameComponentType:

Name	*Definition*
`NameComponentType`	Describes a component of a name.
`Initial`	Indicates the initial for the name component. Initials are a truncated form of the of the name component.
`abbrev`	Indicates an alternative shorter form for a name component. For example, "Bill" for "William."

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7.5.7.2 ElectronicAddress datatype syntax

```
<!-- ################################################ -->
<!--  Definition of ElectronicAddress datatype (7.5.7)  -->
<!-- ################################################ -->

<!-- Definition of ElectronicAddress datatype (AMD/2) -->
<complexType name="ElectronicAddressType">
   <sequence>
      <element name="Telephone" minOccurs="0" maxOccurs="unbounded">
        <complexType>
         <simpleContent>
            <extension base="string" >
               <attribute name="type" use="optional" >
                  <simpleType>
                     <restriction base="string">
                        <enumeration value="central"/>
                        <enumeration value="secondary"/>
                     </restriction>
                  </simpleType>
               </attribute>
            </extension>
         </simpleContent>
        </complexType>
      </element>
      <element name="Fax" type="string" minOccurs="0" maxOccurs="unbounded"/>
      <element name="Email" type="string" minOccurs="0" maxOccurs="unbounded"/>
      <element name="Url" type="anyURI" minOccurs="0" maxOccurs="unbounded"/>
   </sequence>
</complexType>
```

7.5.7.3 ElectronicAddress datatype semantics

Semantics of the `ElectronicAddressType`:

Name	*Definition*
`ElectronicAddressType`	Describes an electronic address.
`Telephone`	Describes a telephone number.
`type`	Indicates a particular type of phone number, if known: • *central* – The telephone number of a central switchboard. • *secondary* – The telephone number is a mobile number (e.g., cell phone).
`Fax`	Describes a fax number.
`Email`	Describes an E-mail address.
`Url`	Describes a URL address, such as a home page.

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7.6.2.2 Place DS syntax

```
<!-- ################################ -->
<!--  Definition of Place DS (7.5.2)  -->
<!-- ################################ -->

<!-- Definition of Place DS (AMD/2)  -->
<complexType name="PlaceType">
   <complexContent>
      <extension base="mpeg7:DSType">
         <sequence>
            <element name="Name" type="mpeg7:TextualType"
               minOccurs="0" maxOccurs="unbounded"/>
            <element name="NameTerm" type="mpeg7:ControlledTermUseType"
               minOccurs="0" maxOccurs="unbounded"/>
            <element name="PlaceDescription" type="mpeg7:TextualType"
                        minOccurs="0" maxOccurs="unbounded"/>
            <element name="Role" type="mpeg7:TermUseType"
               minOccurs="0"/>
            <element name="GeographicPosition" minOccurs="0">
               <complexType>
                  <sequence>
                     <element name="Point" type="mpeg7:GeographicPointType"/>
                  </sequence>
                  <attribute name="datum" type="string" use="optional"/>
               </complexType>
            </element>
            <element name="AstronomicalBody" type="mpeg7:TermUseType"
               minOccurs="0" maxOccurs="unbounded"/>
            <element name="Region" type="mpeg7:regionCode"
               minOccurs="0" maxOccurs="unbounded"/>
            <element name="AdministrativeUnit"
               minOccurs="0" maxOccurs="unbounded">
               <complexType>
                  <simpleContent>
                     <extension base="string">
                        <attribute name="type" type="string" use="optional"/>
                     </extension>
                  </simpleContent>
               </complexType>
            </element>
            <choice>
               <element name="PostalAddress" minOccurs="0">
                  <complexType>
                     <sequence>
                        <element name="AddressLine" type="mpeg7:TextualType"
                           minOccurs="1" maxOccurs="unbounded"/>
                        <element name="PostingIdentifier"
type="mpeg7:TextualType"
                     minOccurs="0"/>
                     </sequence>
                     <attribute ref="xml:lang" use="optional"/>
                  </complexType>
               </element>
               <element name="StructuredPostalAddress" minOccurs="0">
                  <complexType>
                     <sequence>
                        <element name="StreetNumber" type="string" minOccurs
="0" />
```


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```
                              <element name="StreetName" type="string" minOccurs
="0" />
                              <element name="PostalTown" type="string" minOccurs
="0" />
                              <element name="City" type="string" minOccurs ="0" />
                              <element name="StateProvinceCounty" type="string"
                                    minOccurs ="0" />
                              <element name="Country" type="mpeg7:countryCode"
                                    minOccurs ="0" />
                              <element name="PostingIdentifier"
type="mpeg7:TextualType"
                                    minOccurs="0"/>
                           </sequence>
                        </complexType>
                     </element>
                  </choice>
                  <choice>
                     <element name="InternalCoordinates" type="string"
minOccurs="0"/>
                     <element name="StructuredInternalCoordinates" minOccurs="0">
                        <complexType>
                           <sequence>
                              <element name="RoomNumber" type="string" minOccurs
="0" />
                              <element name="RoomName" type="string" minOccurs ="0"
/>
                              <element name="BuildingName" type="string" minOccurs
="0" />
                           </sequence>
                        </complexType>
                     </element>
                  </choice>
                  <element name="ElectronicAddress"
type="mpeg7:ElectronicAddressType"
                     minOccurs="0" maxOccurs="unbounded"/>
               </sequence>
               <attribute ref="xml:lang" use="optional"/>
            </extension>
         </complexContent>
</complexType>
```

7.6.2.3 Place DS semantics

Semantics of the `PlaceType`:

Name	*Definition*
`PlaceType`	Describes a location.
`Name`	Describes a name of the place. Multiple values are allowed to support multiple languages.
`NameTerm`	Describes a name of the place using a term from a classification scheme.
`PlaceDescription`	The textual description of a place.

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Name	*Definition*
Role	Indicates the role of the place, such as "real location," "fictional setting," or "shooting location."
GeographicPosition	Describes the geographic position of the place.
Point	Describes a geographic point in the place.
datum	Indicates the geodetic datum system used in the description of GeographicPosition (optional). Possible values include "wgs84“ (World Geodetic System 1984), "itrf“ (International Terrestrial Reference Frames), "tokyo“ (Tokyo Datum) and so on.
AstronomicalBody	Describes the name of the astronomical body on which the location exists. For example, "Earth."
Region	Describes the region of the place specified using the appropriate ISO 3166-2 region code.
AdministrativeUnit	Describes the name of the administrative units to which the place belongs- e.g. a city, a town, a village, or even a fictional unit as the USS Enterprise. The administrative unit is a place within the region specified. More than one administrative unit may be specified. In this case the order of administrative is interpreted as being from largest to smallest. In other words, each administrative unit should contain the subsequent administrative unit.
Type	Indicates the type of administrative unit being identified (e.g. "town," "city," "spaceship").
PostalAddress	Describes the postal address including street (or square) and house number or name of the place. The postal address does not need to include the information specified by other elements of the Place DS, such as country, region, or administrative unit. However, such information may be included in this element.
AddressLine	Describes one line of the postal address of the place. The division of the postal address into lines is not specified by this standard.
PostingIdentifier	Describes the postal identifier for the place (optional). For example, a ZIP code or Postal code.
StructuredPostalAddress	Describes a postal address by division into individual structured elements.
StreetNumber	Describes the alphanumeric street number of an address. (e.g. “1” in 1 Downing Street)
StreetName	Describes street or thoroughfare name
PostalTown	Describes the postal town name
City	Describes city of the address
StateProvinceCounty	Describes the state, province or county of the address
InternalCoordinates	Describes the internal coordinates of the place within the specified postal address (e.g. an apartment or room number, the drawing room, etc).
StructuredInternalCoordinates	Describes a structured set of internal coordinates of the place within the address, (e.g., Ballroom A, Empire State Building)

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Name	*Definition*
RoomNumber	Describes the alphanumeric room, suite or apartment number of an address (e.g., A)
RoomName	Describes the room, suite or apartment name of an address. (e.g., Ballroom)
BuildingName	Describes the building name of an address. (e.g., Empire State Building)
xml:lang	Indicates the language used to describe the place.

Except where noted otherwise, replace the corresponding subclauses of ISO/IEC 15938-5:2003 with the content of the following subclauses hereafter:

11.4.2.2 StillRegion DS syntax

```
<!-- ######################################## -->
<!--  Definition of StillRegion DS (11.4.2)  -->
<!-- ######################################## -->

<!-- Definition of StillRegion DS (AMD/2) -->
<complexType name="StillRegionType">
   <complexContent>
      <extension base="mpeg7:SegmentType">
         <sequence>
            <choice minOccurs="0">
               <element name="SpatialLocator" type="mpeg7:RegionLocatorType"/>
               <element name="SpatialMask" type="mpeg7:SpatialMaskType"/>
            </choice>
            <choice minOccurs="0">
               <element name="MediaTimePoint" type="mpeg7:mediaTimePointType"/>
               <element name="MediaRelTimePoint"
                        type="mpeg7:MediaRelTimePointType"/>
               <element name="MediaRelIncrTimePoint"
                        type="mpeg7:MediaRelIncrTimePointType"/>
            </choice>
            <choice minOccurs="0" maxOccurs="unbounded">
               <element name="VisualDescriptor" type="mpeg7:VisualDType"/>
               <element name="VisualDescriptionScheme"
type="mpeg7:VisualDSType"/>
               <element name="GridLayoutDescriptors"
type="mpeg7:GridLayoutType"/>
               <element name="IlluminationInvariantColor"
type="mpeg7:IlluminationInvariantColorType"/>
            </choice>
            <element name="MultipleView" type="mpeg7:MultipleViewType"
                     minOccurs="0"/>
            <element name="SpatialDecomposition"
                     type="mpeg7:StillRegionSpatialDecompositionType"
                     minOccurs="0" maxOccurs="unbounded"/>
         </sequence>
      </extension>
   </complexContent>
</complexType>
```

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11.4.2.3 StillRegion DS semantics

Semantics of the `StillRegionType`:

Name	*Definition*
`StillRegionType`	Describes an image or a 2D spatial region of an image or a video frame. The still region need not be connected in space. The `StillRegion DS` uses visual description tools (`VisualDType` and `VisualDSType`) to describe the visual features of the still region. The spatial localization or composition of the still region is optionally described using a choice of `SpatialLocator` or `SpatialMask`. `StillRegionType` extends `SegmentType`.
`SpatialLocator`	Describes the spatial localization of the still region using a `RegionLocatorType` (defined in ISO/IEC 15938-3) (optional). The spatial locator describes a spatially connected sub-region that includes the spatial components of the still region.
`SpatialMask`	Describes a 2-D spatial mask that defines the spatial composition of the still region (optional). The still region is formed from the set of sub-regions described by the `SpatialMask`. If absent, the still region is composed of the single connected region defined by the `SpatialLocator`.
`MediaTimePoint`	Indicates the time point of a still region from video using `mediaTimePointType` (optional).
`MediaRelTimePoint`	Indicates the time point of a still region from video using `MediaRelTimePointType` (optional).
`MediaRelIncrTimePoint`	Indicates the time point of a still region from video using `MediaRelIncrTimePointType` (optional).
`VisualDescriptor`	Describes visual features of the still region using a visual descriptor (optional). The specific `VisualDTypes` are defined in ISO/IEC 15938-3.
`VisualDescriptionScheme`	Describes visual features of the still region using a visual DS (optional). The specific `VisualDSTypes` are defined in ISO/IEC 15938-3.
`GridLayoutDescriptors`	Describes visual features of the sub-regions resulting from a grid decomposition of the still region (optional). `GridLayoutDescriptors` descriptions only apply to rectangular still regions. The `GridLayoutType` is defined in ISO/IEC 15938-3.
`IlluminationInvariantColor`	Describe illumination compensated color feature of the segment (optional). The IlluminationInvariantColorType is defined in ISO/IEC 15938-3/Amd.1.
`MultipleView`	Describes visual features of a 3D object depicted in the 2D still region as seen from one or more viewing positions or angles (optional). The `MultipleViewType` is defined in ISO/IEC 15938-3.
`SpatialDecomposition`	Describes a spatial decomposition of the still region into one or more sub-segments (optional).

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11.4.8.2 VideoSegment DS syntax

```
<!-- ######################################## -->
<!--  Definition of VideoSegment DS (11.4.8)  -->
<!-- ######################################## -->

<!-- Definition of VideoSegment DS (AMD/2)-->
<complexType name="VideoSegmentType">
   <complexContent>
      <extension base="mpeg7:SegmentType">
         <sequence>
            <choice minOccurs="0">
               <element name="MediaTime" type="mpeg7:MediaTimeType"/>
               <element name="TemporalMask" type="mpeg7:TemporalMaskType"/>
            </choice>
            <choice minOccurs="0" maxOccurs="unbounded">
               <element name="VisualDescriptor" type="mpeg7:VisualDType"/>
               <element name="VisualDescriptionScheme"
type="mpeg7:VisualDSType"/>
               <element name="VisualTimeSeriesDescriptor"
                  type="mpeg7:VisualTimeSeriesType"/>
               <element name="GofGopFeature" type="mpeg7:GofGopFeatureType"/>
            </choice>
            <element name="MultipleView" type="mpeg7:MultipleViewType"
                     minOccurs="0"/>
            <element name="Mosaic" type="mpeg7:MosaicType"
                     minOccurs="0" maxOccurs="unbounded"/>
            <choice minOccurs="0" maxOccurs="unbounded">
               <element name="SpatialDecomposition"
                         type="mpeg7:VideoSegmentSpatialDecompositionType"/>
               <element name="TemporalDecomposition"
                         type="mpeg7:VideoSegmentTemporalDecompositionType"/>
               <element name="SpatioTemporalDecomposition"

   type="mpeg7:VideoSegmentSpatioTemporalDecompositionType"/>
               <element name="MediaSourceDecomposition"

   type="mpeg7:VideoSegmentMediaSourceDecompositionType"/>
            </choice>
         </sequence>
      </extension>
   </complexContent>
</complexType>
```

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11.4.8.3 VideoSegment DS semantics

Semantics of the `VideoSegmentType`:

Name	*Definition*
`VideoSegmentType`	Describes a video or a temporal segment of a video. The `VideoSegment DS` uses visual description tools (`VisualDType` and `VisualDSType`) to describe the visual features of the video segment. The temporal localization or composition of the video segment is optionally described using a choice of `MediaTime` or `TemporalMask`. `VideoSegmentType` extends `SegmentType`.
`MediaTime`	Describes the temporal localization of the video segment using `MediaTimeType` (optional). The temporal locator describes a temporally connected sub-interval by specifying the start time and the duration of the video segment. The sub-interval describes a temporal bounding box that may bound a set of individual video segments. If neither `MediaTime` nor `TemporalMask` is described, then the video segment refers to the entire video.
`TemporalMask`	Describes a temporal mask that defines the temporal composition of the video segment. (optional). The video segment is formed from the set of sub-intervals described by the `TemporalMask`. If absent, the video segment is composed of the single connected interval defined by `MediaTime`.
`VisualDescriptor`	Describes visual features of the video segment using a visual descriptor (optional). The specific `VisualDTypes` are defined in ISO/IEC 15938-3.
`VisualDescriptionScheme`	Describes visual features of the video segment using a visual description scheme (optional). The specific `VisualDSTypes` are defined in ISO/IEC 15938-3.
`VisualTimeSeriesDescriptor`	Describes a temporal sequence of visual features in the video segment (optional). The `VisualTimeSeriesDescriptor` applies only in the case of a connected video segment. The `VisualTimeSeriesDescriptorType` is defined in ISO/IEC 15938-3.
`GofGopFeature`	Describe representative visual features in the segment (optional). The `GofGopFeatureType` is defined in ISO/IEC 15938-3/Amd.1.
`MultipleView`	Describes visual features of a 3D moving physical object depicted in the video segment as seen from one or more viewing positions or angles (optional). The `MultipleViewType` is defined in ISO/IEC 15938-3.
`Mosaic`	Describes a mosaic constructed from the video segment (optional).
`SpatialDecomposition`	Describes a spatial decomposition of the video segment into one or more sub-segments (optional).
`TemporalDecomposition`	Describes a temporal decomposition of the video segment into one or more sub-segments (optional).

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Name	*Definition*
SpatioTemporalDecomposition	Describes a spatio-temporal decomposition of the video segment into one or more sub-segments (optional).
MediaSourceDecomposition	Describes a media source decomposition of the video segment into one or more sub-segments (optional).

11.4.10.2 MovingRegion DS syntax

```
<!-- ######################################### -->
<!--  Definition of MovingRegion DS (11.4.10)  -->
<!-- ######################################### -->

<!-- Definition of MovingRegion DS (AMD/2) -->
<complexType name="MovingRegionType">
   <complexContent>
      <extension base="mpeg7:SegmentType">
         <sequence>
            <choice minOccurs="0">
               <element name="SpatioTemporalLocator"
                     type="mpeg7:SpatioTemporalLocatorType"/>
               <element name="SpatioTemporalMask"
                     type="mpeg7:SpatioTemporalMaskType"/>
            </choice>
            <choice minOccurs="0" maxOccurs="unbounded">
               <element name="VisualDescriptor" type="mpeg7:VisualDType"/>
               <element name="VisualDescriptionScheme"
type="mpeg7:VisualDSType"/>
               <element name="VisualTimeSeriesDescriptor"
                  type="mpeg7:VisualTimeSeriesType"/>
               <element name="GofGopFeature" type="mpeg7:GofGopFeatureType"/>
            </choice>
            <element name="MultipleView" type="mpeg7:MultipleViewType"
                     minOccurs="0"/>
            <choice minOccurs="0" maxOccurs="unbounded">
               <element name="SpatialDecomposition"
                        type="mpeg7:MovingRegionSpatialDecompositionType"/>
               <element name="TemporalDecomposition"
                        type="mpeg7:MovingRegionTemporalDecompositionType"/>
               <element name="SpatioTemporalDecomposition"

   type="mpeg7:MovingRegionSpatioTemporalDecompositionType"/>
               <element name="MediaSourceDecomposition"

   type="mpeg7:MovingRegionMediaSourceDecompositionType"/>
            </choice>
         </sequence>
      </extension>
   </complexContent>
</complexType>
```

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11.4.10.3 MovingRegion DS semantics

Semantics of the `MovingRegionType`:

Name	*Definition*
`MovingRegionType`	Describes a video or a spatio-temporal region of a video. The moving region need not be connected in space or time. The `MovingRegion DS` uses visual description tools (`VisualDType` and `VisualDSType`) to describe the visual features of the moving region. The spatio-temporal localization or composition of the moving region is optionally described using a choice of `SpatioTemporalLocator` or `SpatioTemporalMask`. `MovingRegionType` extends `SegmentType`.
`SpatioTemporalLocator`	Describes the spatio-temporal localization of the moving region using `SpatioTemporalLocatorType` (optional). The spatio-temporal locator describes a spatio-temporally connected sub-region that includes the spatio-temporal components of the moving region. The `SpatioTemporalLocatorType` is defined in ISO/IEC 15938-3.
`SpatioTemporalMask`	Describes a spatio-temporal mask that defines the spatio-temporal composition of the moving region (optional). The moving region is formed from the set of sub-regions described by the `SpatioTemporalMask`. If absent, the moving region is composed of the single connected region defined by the `SpatioTemporalLocator`.
`VisualDescriptor`	Describes the visual features of the moving region using a visual descriptor (optional). The specific `VisualDTypes` are defined in ISO/IEC 15938-3.
`VisualDescriptionScheme`	Describes the visual features of the moving region using a visual description scheme (optional). The specific `VisualDSTypes` are defined in ISO/IEC 15938-3.
`VisualTimeSeriesDescriptor`	Describes a temporal sequence of visual features in the moving region (optional). The `VisualTimeSeriesDescriptor` applies only in the case of a connected moving region. The `VisualTimeSeriesType` is defined in ISO/IEC 15938-3.
`GofGopFeature`	Describe representative visual features in the segment (optional). The `GofGopFeatureType` is defined in ISO/IEC 15938-3/Amd.1.
`MultipleView`	Describes visual features of a 3D moving physical object depicted in the moving region as seen from one or more viewing positions or angles (optional). The `MultipleViewType` is defined in ISO/IEC 15938-3.
`SpatialDecomposition`	Describes the spatial decomposition of the moving region into one or more sub-segments (optional).
`TemporalDecomposition`	Describes the temporal decomposition of the moving region into one or more sub-segments (optional).
`SpatioTemporalDecomposition`	Describes the spatio-temporal decomposition of the moving region into one or more sub-segments (optional).

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Name	*Definition*
`MediaSourceDecomposition`	Describes the media source decomposition of the moving region into one or more sub-segments (optional).

14.2.2.2 ContentCollection DS syntax

```
<!-- ################################################ -->
<!--  Definition of ContentCollection DS (14.2.2)  -->
<!-- ################################################ -->

<!-- Definition of ContentCollection DS (AMD/2)-->
<complexType name="ContentCollectionType">
   <complexContent>
      <extension base="mpeg7:CollectionType">
         <sequence>
            <choice minOccurs="0" maxOccurs="unbounded">
               <element name="VisualFeature" type="mpeg7:VisualDType"/>
               <element name="GofGopFeature" type="mpeg7:GofGopFeatureType"/>
               <element name="AudioFeature" type="mpeg7:AudioDType"/>
            </choice>
            <choice minOccurs="0" maxOccurs="unbounded">
               <element name="Content" type="mpeg7:MultimediaContentType"/>
               <element name="ContentRef" type="mpeg7:ReferenceType"/>
            </choice>
            <choice minOccurs="0" maxOccurs="unbounded">
               <element name="ContentCollection"
                  type="mpeg7:ContentCollectionType"/>
               <element name="ContentCollectionRef"
type="mpeg7:ReferenceType"/>
            </choice>
         </sequence>
      </extension>
   </complexContent>
</complexType>
```

14.2.2.3 ContentCollection DS semantics

Semantics of the `ContentCollectionType`:

Name	*Definition*
`ContentCollectionType`	Describes a collection of multimedia content, which can include images, video, audio, sounds, graphics, and so forth. The `ContentCollectionType` may describe a mix of different types of multimedia content within a single content collection description. `ContentCollectionType` extends `CollectionType`.
`VisualFeature`	Describes an aggregated visual feature of the content collection. For example, `VisualFeature` can describe the aggregated color of the images in an image collection using `GoFGoPColor D` (defined in ISO/IEC 15938-3). `VisualFeature` applies only in the case of a homogeneous collection of visual content such as a collection of images or a collection of video. Describe an visual feature of the content collection.

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Name	*Definition*
GofGopFeature	Describes an aggregated visual feature of the content collection. To represent color distribution scalably using GofGopColor, the VisualFeature element can be used. Othewise, for examples, to represent spatial distribution of color by ColorLayout and spatial distribution of edge by EdgeHistogram, GofGopFeature shall be used instead of VisualFeature. VisualFeature applies only in the case of a homogeneous collection of visual content such as a collection of images or a collection of video. The GofGopFeatureType is specified in ISO/IEC 15938-3/Amd.1.
AudioFeature	Describes an aggregated audio feature of the content collection. The AudioFeature applies only in the case of a homogeneous collection of audio content such as a collection of songs or a collection of speech documents.
Content	Describes content that makes up the described content collection (optional).
ContentRef	Describes a reference to content that makes up the described content collection (optional).
ContentCollection	Describes a child content collection that is nested within the described content collection (optional).
ContentCollectionRef	Describes a reference to a description of a child content collection that is nested within the described content collection (optional).

Except where noted otherwise, replace the corresponding subclauses of ISO/IEC 15938-5:2003 with the content of the following subclauses hereafter:

15.2.1 Introduction

Subclause (15.2) specifies tools for describing user's preferences pertaining to consumption of multimedia content. User preference descriptions can be correlated with content descriptions to find and consume desired content. Correspondence between user preferences and content descriptions facilitates accurate and efficient personalization of content access and content consumption.

User preferences descriptions can be utilized by consumers (or their agents) for accessing and consuming multimedia content that fits their personal preferences. A generic usage model is depicted in Figure 77, where a user agent takes content descriptions and user preferences as input and generates a filtered output specifying the content item(s) that fit personal preferences. The descriptions of the user's preferences are used to find preferred multimedia content and to present preferred views of the content automatically. In specific applications, the output may include identifiers or media locators of preferred multimedia content, or a summary of a multimedia program where the type of the summary satisfies user's summary preferences. For example, a particular user may indicate a preference for movies of a certain genre, in which case movies of other genres may be filtered out by a user agent or ranked lower in an ordered list of multimedia content. Another example is a user who prefers to view only the goals of a soccer match, while yet another user may prefer a 30-minute highlight summary of the entire match.

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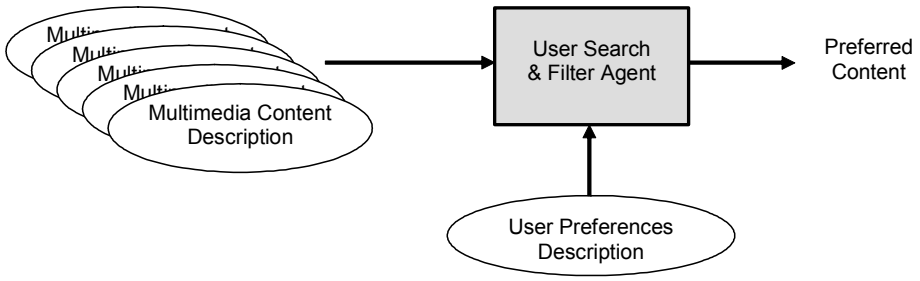

Figure 77 - A generic usage model for user preference and content descriptions.

A diagram of the `UserPreferences` DS specified in subclause 15.2 is shown in Figure 78. The `UserPreferences` DS enables users to specify their preferences (likes and dislikes) for certain types of content, using the `FilteringAndSearchPreferences` DS, for ways of browsing the content, using the `BrowsingPreferences` DS, and for ways of recording the content, using the `RecordingPreferences` DS. Preferences related to the creation of the content, the classification of the content and the source of the content are specified using the `CreationPreferences` DS, `ClassificationPreferences` DS and `SourcePreferences` DS, respectively. A `FilteringAndSearchPreferences` element may contain child `FilteringAndSearchPreference` elements, defining a hierarchy of preference elements. Preferences related to summarization of the content are specified using the `SummaryPreferences` DS.

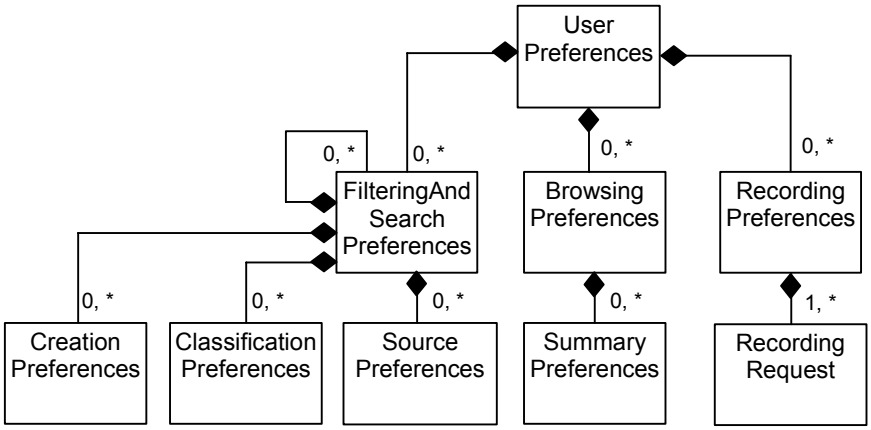

Figure 78 - The UserPreferences DS

The `FilteringAndSearchPreferences` DS, the `CreationPreferences` DS and its parts, the `ClassificationPreferences` DS and its parts, the `SourcePreferences` DS and its parts, the `BrowsingPreferences` DS, and the `SummaryPreferences` DS and its parts, the `RecordingPreferences` DS, and the `RecordingRequest` DS and its parts, are all used to represent user preference components. Some components are individual preference components, for example, a preference for a particular genre (part of the `ClassificationPreferences` DS). Other components are container components, such as the `FilteringAndSearchPreferences` DS, the `CreationPreferences` DS, the `ClassificationPreferences` DS, the `SourcePreferences` DS, the `BrowsingPreferences` DS, and the `SummaryPreferences` DS. User preference components may carry a preference value attribute indicating the relative importance of a component with respect to other components.

The `UserPreferences` DS enables users to specify preferences that apply only in a particular context, in terms of time and place. The DS enables users to indicate whether their preferences or parts of their preferences should be kept private or not. The DS also enables users to indicate whether the automatic update of their usage preferences description, e.g., by an agent, should be permitted or not.

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Except where noted otherwise, replace the corresponding subclauses of ISO/IEC 15938-5:2003 with the content of the following subclauses hereafter:

15.2.3.1 Introduction

The `UserPreferences` DS is used to describe the user's preferences pertaining to consumption of multimedia content, in particular, filtering, searching and browsing of multimedia content. The `UserPreferences` DS contains `FilteringAndSearchPreferences`, `BrowsingPreferences` and `RecordingPreferences`, and contains an attribute indicating whether the user's preferences may be updated automatically.

15.2.3.2 UserPreferences DS syntax

```
<!-- ########################################### -->
<!--  Definition of UserPreferences DS (15.2.3)  -->
<!-- ########################################### -->

<!-- Definition of UserPreferences DS (AMD/2) -->
<complexType name="UserPreferencesType">
   <complexContent>
      <extension base="mpeg7:DSType">
         <sequence>
            <element name="UserIdentifier"
 type="mpeg7:UserIdentifierType" minOccurs="0"/>
            <element name="FilteringAndSearchPreferences"
                  type="mpeg7:FilteringAndSearchPreferencesType"
                  minOccurs="0" maxOccurs="unbounded"/>
            <element name="BrowsingPreferences"
                  type="mpeg7:BrowsingPreferencesType"
                  minOccurs="0" maxOccurs="unbounded"/>
            <element name="RecordingPreferences"
                  type="mpeg7:RecordingPreferencesType"
                  minOccurs="0" maxOccurs="unbounded"/>
         </sequence>
         <attribute name="allowAutomaticUpdate" type="mpeg7:userChoiceType"
            use="optional" default="false"/>
      </extension>
</complexContent>
</complexType>
```

15.2.3.3 UserPreferences DS semantics

Semantics of the `UserPreferencesType`:

Name	*Definition*
`UserPreferencesType`	Specifies preferences pertaining to consumption of multimedia content of a particular user. Contains two types of user preferences: • `FilteringAndSearchPreferences` - see 15.2.5 - 15.2.8 in ISO/IEC 15938-5. • `BrowsingPreferences` - see 15.2.9 – 15.2.10 in ISO/IEC 15938-5. • `RecordingPreferences` - see 15.2.11 in ISO/IEC 15938-5.

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Name	*Definition*
`UserIdentifier`	Identifies a particular set of user preferences and distinguish it from other sets of user preferences. See 15.2.4 in ISO/IEC 15938-5.
`FilteringAndSearchPreferences`	Describes user's preferences related to filtering and searching of multimedia content. See 15.2.5 in ISO/IEC 15938-5. Multiple `FilteringAndSearchPreferences` elements may be included.
`BrowsingPreferences`	Describes user's preferences related to navigation and browsing of multimedia content. See 15.2.9 in ISO/IEC 15938-5. Multiple `BrowsingPreferences` elements may be included.
`RecordingPreferences`	Describes the user's preferences related to recording of multimedia content. See 15.2.11 in ISO/IEC 15938-5. Multiple `RecordingPreferences` elements may be included.
`allowAutomaticUpdate`	Indicates whether the user permits automatic update of the usage preferences information, e.g., by a software agent. The values allowed are defined as follows. • *true* - Indicates that associated preferences may be automatically updated, e.g. by a trusted software agent. • *false* - Indicates that associated preferences may not be automatically updated, i.e., only the user is allowed to update the preference information. • *user* - Indicates that the user should be asked for permission on a case by case basis. By default, the value of `allowAutomaticUpdate` is false.

15.2.3.4 UserPreferences DS examples (informative)

The `UserPreferences` DS is used to specify user's preferences pertaining to filtering, searching and browsing of multimedia content and can be used for personalized viewing and listening. Filtering and search preferences describe, for example, favourite titles, genres, actors and sources of content. This information can be used to find preferred multimedia content by matching it with information in multimedia content descriptions. Browsing preferences, for example, describe preferred views of favourite content, where preferences may be dependent on usage conditions such as available bandwidth or the time the user has to consume the information. This allows the user to navigate and access different views of the content in a personalized manner. An example UserPreferences description is as follows. Subelements of the `FilteringAndSearchPreferences`, `BrowsingPreferences` and `RecordingPreferences` are introduced in later subclauses.

Note: XML comments are used in the description examples below to replace description details.

```
<UserPreferences allowAutomaticUpdate="true">
   <UserIdentifier>
      <!-- User preferences identification elements -->
   </UserIdentifier>
   <FilteringAndSearchPreferences>
      <!-- Filtering and search preference elements -->
   </FilteringAndSearchPreferences>
```

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```
   <BrowsingPreferences>
      <!-- Browsing preference elements -->
   </BrowsingPreferences>
   <RecordingPreferences>
      <!-- Recording preference elements -->
   </RecordingPreferences>
</UserPreferences>
```

Except where noted otherwise, Replace the corresponding subclauses of ISO/IEC 15938-5:2003 with the content of the following subclauses.

15.2.7.1 Introduction

The `ClassificationPreferences` DS is used to describe user preferences related to classification of the multimedia content, e.g., preferred genre and form of the content, preferred country, time that the content was released, preferred language of the spoken content or captions, and specific parts of contents that can be associated with a particular set of user preferences. In case of data broadcasting envorinment, TV program-dependent or –independent data can be broadcast in conjunction with the main TV programs. The `ClassificationPreferences` DS can be effectively used for filtering and searching purposes.

15.2.7.2 ClassificationPreferences DS syntax

```
<!-- ################################################## -->
<!--  Definition of ClassificationPreferences DS (15.2.7)  -->
<!-- ################################################## -->

<!-- Definition of ClassificationPreferences DS -->
<complexType name="ClassificationPreferencesType">
   <complexContent>
      <extension base="mpeg7:DSType">
         <sequence>
            <element name="Country" minOccurs="0" maxOccurs="unbounded">
               <complexType>
                  <simpleContent>
                     <extension base="mpeg7:countryCode">
                        <attribute name="preferenceValue"
                           type="mpeg7:preferenceValueType"
                           use="optional" default="10"/>
                     </extension>
                  </simpleContent>
               </complexType>
            </element>
            <element name="DatePeriod" minOccurs="0" maxOccurs="unbounded">
               <complexType>
                  <complexContent>
                     <extension base="mpeg7:TimeType">
                        <attribute name="preferenceValue"
                           type="mpeg7:preferenceValueType"
                           use="optional" default="10"/>
                     </extension>
                  </complexContent>
               </complexType>
            </element>
            <element name="LanguageFormat" minOccurs="0" maxOccurs="unbounded">
               <complexType>
                  <simpleContent>
                     <extension base="mpeg7:auxiliaryLanguageType">
                        <attribute name="preferenceValue"
                           type="mpeg7:preferenceValueType"
                           use="optional" default="10"/>
```


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```
                        </extension>
                    </simpleContent>
                </complexType>
            </element>
            <element name="Language" minOccurs="0" maxOccurs="unbounded">
                <complexType>
                    <simpleContent>
                        <extension base="mpeg7:ExtendedLanguageType">
                            <attribute name="preferenceValue"
                                type="mpeg7:preferenceValueType"
                                use="optional" default="10"/>
                        </extension>
                    </simpleContent>
                </complexType>
            </element>
            <element name="CaptionLanguage" minOccurs="0"
maxOccurs="unbounded">
                <complexType>
                    <simpleContent>
                        <extension base="language">
                            <attribute name="preferenceValue"
                                type="mpeg7:preferenceValueType"
                                use="optional" default="10"/>
                        </extension>
                    </simpleContent>
                </complexType>
            </element>
            <element name="Form" minOccurs="0" maxOccurs="unbounded">
                <complexType>
                    <complexContent>
                        <extension base="mpeg7:TermUseType">
                            <attribute name="preferenceValue"
                                type="mpeg7:preferenceValueType"
                                use="optional" default="10"/>
                        </extension>
                    </complexContent>
                </complexType>
            </element>
            <element name="Genre" minOccurs="0" maxOccurs="unbounded">
                <complexType>
                    <complexContent>
                        <extension base="mpeg7:TermUseType">
                            <attribute name="preferenceValue"
                                type="mpeg7:preferenceValueType"
                                use="optional" default="10"/>
                        </extension>
                    </complexContent>
                </complexType>
            </element>
            <element name="Subject" minOccurs="0" maxOccurs="unbounded">
                <complexType>
                    <simpleContent>
                        <extension base="mpeg7:TextualType">
                            <attribute name="preferenceValue"
                                type="mpeg7:preferenceValueType"
                                use="optional" default="10"/>
                        </extension>
                    </simpleContent>
                </complexType>
            </element>
            <element name="Review" minOccurs="0" maxOccurs="unbounded">
                <complexType>
                    <sequence>
```

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```
                        <element name="Rating" type="mpeg7:RatingType"
                           minOccurs="0"/>
                        <element name="Reviewer" type="mpeg7:AgentType"
                           minOccurs="0"/>
                     </sequence>
                     <attribute name="preferenceValue"
                        type="mpeg7:preferenceValueType"
                        use="optional" default="10"/>
                  </complexType>
               </element>
               <element name="ParentalGuidance" minOccurs="0"
maxOccurs="unbounded">
                  <complexType>
                     <complexContent>
                        <extension base="mpeg7:ParentalGuidanceType">
                           <attribute name="preferenceValue"
                           type="mpeg7:preferenceValueType"
                              use="optional" default="10"/>
                        </extension>
                     </complexContent>
                  </complexType>
               </element>
<element name="AssociatedData"
                        minOccurs="0" maxOccurs="unbounded">
<complexType>
<simpleContent>
                        <extension base="mpeg7:TextualType">
<attribute name="preferenceValue"
type="mpeg7:preferenceValueType"
use="optional" default="10"/>
                        </extension>
                     </simpleContent>
                  </complexType>
               </element>
            </sequence>
            <attribute name="preferenceValue" type="mpeg7:preferenceValueType"
               use="optional" default="10"/>
         </extension>
      </complexContent>
</complexType>

<!-- Definition of auxiliaryLanguage datatype -->
<simpleType name="auxiliaryLanguageType">
   <union>
      <simpleType>
         <restriction base="NMTOKEN">
            <enumeration value="dubbed"/>
            <enumeration value="closedCaptions"/>
            <enumeration value="subTitles"/>
            <enumeration value="signLanguage"/>
            <enumeration value="audioDescription"/>
         </restriction>
      </simpleType>
      <simpleType>
         <restriction base="mpeg7:termAliasReferenceType" />
      </simpleType>
      <simpleType>
         <restriction base="mpeg7:termURIReferenceType" />
      </simpleType>
   </union>
</simpleType>
```


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15.2.7.3 ClassificationPreferences DS semantics

Semantics of the `ClassificationPreferencesType`:

Name	*Definition*
`ClassificationPreferencesType`	Specifies user preferences related to the classification of the content.
`Country`	Describes user's preference for the country of origin of the content, i.e., the country of the initial release. A `preferenceValue` attribute may be attached to each `Country` element to indicate its relative priority.
`DatePeriod`	Describes user's preference for a period of time when the content was first released. `DatePeriod` shall include both the start and the duration of the period. A `preferenceValue` attribute may be attached to each `DatePeriod` element to indicate its relative priority.
`LanguageFormat`	Describes user's preferences with respect to various auxiliary language formats. Indicates whether a user prefers content with dubbing (indicated by the value `dubbed`), with closed captions (indicated by the value `closedCaptions`), with subtitles (indicated with the value `subTitles`), with sign language (indicated with the value `signLanguage`), or with audio descriptions (indicated with the value `audioDescription`). A `preferenceValue` attribute may be attached to each `LanguageFormat` element to indicate its relative priority.
`Language`	Describes user's preference for the spoken language of the content. A `preferenceValue` attribute may be attached to each `Language` element to indicate its relative priority.
`CaptionLanguage`	Describes user's preference for the language used in captions included with the content (both closed captions as well as open captions, or subtitles). A `preferenceValue` attribute may be attached to each `CaptionLanguage` element to indicate its relative priority.
`Form`	Describes user's preference for the format or production type of the content. `TermUseType` is defined in clause 7. `Form` may contain a free term or a term from a classification scheme. A classification scheme that may be used (the `FormatCS`) is defined in Annex B. A `preferenceValue` attribute may be attached to each `Form` element to indicate its relative priority.
`Genre`	Describes user's preference for the genre of the content. `TermUseType` is defined in clause 7. `Genre` may contain a free term or a term from a classification scheme. A classification scheme that may be used (the `GenreCS`) is defined in Annex B. A `preferenceValue` attribute may be attached to each `Genre` element to indicate its relative priority.

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Name	*Definition*
`Subject`	Describes user's preference for the subject of the multimedia content. The subject classifies multimedia content from a point of view of types of content, without considering genre classification. A `preferenceValue` attribute may be attached to each `Subject` element to indicate its relative priority.
`Review`	Describes user's preference with respect to a critical review of the multimedia content. May be used to indicate a minimum rating assigned to content; a preferred reviewer of content; or a combination of rating and reviewer. A `preferenceValue` attribute may be attached to each `Review` element to indicate its relative priority.
`Rating`	Describes the minimum preferred rating value assigned to multimedia content by a reviewer. The reviewer's rating value is specified according to a rating scheme, which may vary from one publication to another. The rating scheme may be specified using a classification scheme, see clause 7.
`Reviewer`	Describes user's preference for a reviewer of multimedia content. A reviewer can be a person, a person group, or an organization.
`ParentalGuidance`	Describes user's preference for the parental guidance classification of the multimedia content. `ParentalGuidance` shall contain a parental rating value or recommended minimum age. The parental rating value depends on a rating scheme, which may vary from one organization to another, or from one region or country to another. `ParentalGuidance` may include (an) indication(s) of the region(s) where it applies. If used, `ParentalRating` shall contain a term from a classification scheme. Several classification schemes that may be used for `ParentalRating` are defined in Annex B. A `preferenceValue` attribute may be attached to each `ParentalGuidance` element to indicate its relative priority.
`AssociatedData`	Describes user's preference for the type of additional data broadcast along with the primary content in a data broadcasting environment (e.g. weather, traffic, stock information, or advertisements). A `preferenceValue` attribute may be attached to each `AssociatedData` element to indicate its relative priority.
`preferenceValue`	Describes the relative priority or weight assigned to a particular `ClassificationPreferences` description. See 15.2.2 of ISO/IEC 15938-5. By default, the value of `preferenceValue` is 10.

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Semantics of the `auxiliaryLanguageType`:

Name	*Definition*
`auxiliaryLanguageType`	A datatype that enumerates types of auxiliary language information used in multimedia content. The types allowed are defined as follows. • *dubbed* - Indicates content that includes dubbed spoken language. • *closedCaptions* - Indicates content that includes closed captions. • *subTitles* - Indicates content that includes subtitles. • *signLanguage* - Indicates content that includes sign language. • *audioDescription* - Indicates content that includes audio description. Other values that are datatype-valid with respect to `mpeg7:termReferenceType` are reserved.

15.2.7.4 ClassificationPreferences DS examples (informative)

The `ClassificationPreferences` DS can be used to specify the user's preferred language or a favorite genre (e.g., "science-fiction movies", "business news" or "pop-music") or preferred country of origin (e.g. music from France). In the following example, the user prefers news programs with closed captions in English, when he/she is in Japan. In this example, the user also prefers movies that are spoken in English and have been reviewed by Roger Ebert and rated at 10 (where 10 is the best rating) and have a PG-13 parental rating label according to the MPAA (Motion Picture Association of America) rating scheme. Multiple instantiations of `ClassificationPreferences` can be ranked by the application according to the values of their individual `preferenceValue` attributes.

```
<UserPreferences allowAutomaticUpdate="false">
   <FilteringAndSearchPreferences>
      <ClassificationPreferences preferenceValue="10">
         <LanguageFormat>closedCaptions</LanguageFormat>
         <CaptionLanguage>en</CaptionLanguage>
         <Genre href="urn:mpeg:mpeg7:cs:GenreCS:2001:1.3.1">
            <Name>Daily news</Name>
         </Genre>
      </ClassificationPreferences>
      <ClassificationPreferences preferenceValue="12">
         <Language>en</Language>
         <Genre href="urn:mpeg:mpeg7:cs:GenreCS:2001:8">
            <Name>Movies</Name>
         </Genre>
         <Review>
            <Rating>
               <RatingValue>10</RatingValue>
               <RatingScheme best="10" worst="1" style="higherBetter"/>
            </Rating>
            <Reviewer xsi:type="PersonType">
               <Name>
                  <FamilyName>Ebert</FamilyName>
                  <GivenName>Roger</GivenName>
               </Name>
            </Reviewer>
```

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```
        </Review>
        <ParentalGuidance>
           <ParentalRating
              href="urn:mpeg:mpeg7:cs:MPAAParentalRatingCS:2001:PG-13">
              <Name>PG-13</Name>
           </ParentalRating>
           <Region>us</Region>
        </ParentalGuidance>
     </ClassificationPreferences>
     <PreferenceCondition>
        <Place>
           <Name xml:lang="en">Japan</Name>
           <Region>jp</Region>
        </Place>
     </PreferenceCondition>
  </FilteringAndSearchPreferences>
</UserPreferences>
```

The `ClassificationPreferences` DS can also be used to specify the user's preference on specific parts of a content or the combinations of a time, place and specific parts of content that can be associated with a particular set of browsing, filtering and search preferences. For example, a user may have preferences for different broadcast sports programs during different seasons of the year. Similarly, a user may have preference for programs in English language when the user is traveling in Japan. The following example highlights the case where the user's stated genre preferences apply every day during primetime hours (8PM to 11PM). In this example, user is interested in a daily drama in the specific time and has preference on assocated data about advertisement and traffic information by the following instance.

```
<UserPreferences>
   <FilteringAndSearchPreferences>
      <ClassificationPreferences>
         <Genre href="urn:mpeg:mpeg7:cs:GenreCS:2001:2">
            <Name>Drama</Name>
         </Genre>
         <AssociatedData preferenceValue="-50">Advertisement</AssociatedData>
         <AssociatedData preferenceValue="30">Traffic
              Information</AssociatedData>
      </ClassificationPreferences>
      <PreferenceCondition>
         <Time recurrence="daily">
            <TimePoint>T20:00+01:00</TimePoint>
            <Duration>PT3H</Duration>
         </Time>
      </PreferenceCondition>
   </FilteringAndSearchPreferences>
</UserPreferences>
```

Except where noted otherwise, Replace the corresponding subclauses of ISO/IEC 15938-5:2003 with the content of the following subclauses hereafter:

15.2.9 BrowsingPreferences DS

15.2.9.1 Introduction

The `BrowsingPreferences` DS is used to describe user preferences pertaining to navigation of and access to content. In particular, a user may express preferences on the type and content of summaries of multimedia content. These preferences may be conditioned on certain times and locations, and type of multimedia content in terms of genre.

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15.2.9.2 Syntax

```
<!-- ################################################ -->
<!--  Definition of BrowsingPreferences DS (15.2.9)  -->
<!-- ################################################ -->

<!-- Definition of BrowsingPreferences DS (AMD/2) -->
<complexType name="BrowsingPreferencesType">
<complexContent>
<extension base="mpeg7:DSType">
            <sequence>
               <element name="SummaryPreferences"
type="mpeg7:SummaryPreferencesType"
                        minOccurs="0" maxOccurs="unbounded"/>
<element name="BrowsingLocation" type="anyURI"
minOccurs="0" maxOccurs="unbounded"/>
                <element name="PreferenceCondition"
minOccurs="0" maxOccurs="unbounded">
<complexType>
<complexContent>
                         <extension base="mpeg7:PreferenceConditionType">
                            <sequence>
                               <element name="Genre" type="mpeg7:TermUseType"
                                        minOccurs="0"/>
                            </sequence>
                         </extension>
                      </complexContent>
                   </complexType>
                </element>
          </sequence>
          <attribute name="protected" type="mpeg7:userChoiceType"
                  use="optional" default="true"/>
<attribute name="preferenceValue" type="mpeg7:preferenceValueType"
                   use="optional" default="10"/>
</extension>
</complexContent>
</complexType>
```

15.2.9.3 BrowsingPreferences DS semantics

Semantics of the `BrowsingPreferencesType`:

Name	*Definition*
`BrowsingPreferencesType`	Describes user preferences for multimedia content navigation and browsing.
`SummaryPreferences`	Describes user's preferences regarding multimedia content summaries. See 15.2.10 in ISO/IEC 15938-5. Multiple `SummaryPreferences` elements may be included.
`BrowsingLocation`	Describes a device location where the user wants to consume (browse) the contents. The device location is designated with URI.
`PreferenceCondition`	Describes the usage condition(s) for a particular browsing preference description, in terms of time and place, and genre of the multimedia content. A `PreferenceCondition` describes the time interval(s) and location in which the set of browsing preferences apply. If multiple `PreferenceCondition` elements are present, the preferences apply under all conditions indicated. See 15.2.2 in ISO/IEC 15938-5.

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Name	*Definition*
Genre	Describes a usage condition for a particular browsing preference description in terms of genre. If the Genre element is instantiated, the browsing preferences apply only to multimedia content with the specified genre. TermUseType is defined in clause 7. Genre may contain a free term or a term from a classification scheme. A classification scheme that may be used (the GenreCS) is defined in Annex B.
protected	Indicates whether the user desires to keep the browsing preferences information private. The values allowed are defined as follows. • *true* - Indicates that the browsing preferences information may only be accessed by the user and shall not be communicated to external parties. • *false* - Indicates that the browsing preferences information does not have to be kept private and may be communicated to external parties, such as service providers and trusted software agents. • *user* - Indicates that the user shall be asked for approval on a case by case basis. By default, the value of protected is true.
preferenceValue	Describes the relative priority or weight assigned to a particular BrowsingPreferences description, in case multiple BrowsingPreferences descriptions are present. The preferenceValue attribute of BrowsingPreferences indicates the relative priority or weight of the combination of preferences described by SummaryPreferences elements. See 15.2.2 in ISO/IEC 15938-5. By default, the value of preferenceValue is 10.

15.2.9.4 BrowsingPreferences DS examples (informative)

The following is a simple example of a UserPreferences description with BrowsingPreferences that apply only during a particular period of time, in Seoul, and only for content matching the "Daily news" genre. Also, the user wishes to keep the information in the UserIdentifier and BrowsingPreferences private as indicated by the protected attribute.

```
<UserPreferences allowAutomaticUpdate="false">
   <UserIdentifier protected="true">
      <Name xml:lang="en">Yoon</Name>
   </UserIdentifier>
   <BrowsingPreferences protected="true">
      <SummaryPreferences>
         <!-- Summary preference elements -->
      </SummaryPreferences>
      <PreferenceCondition>
         <Place><Name xml:lang="en">Seoul</Name></Place>
         <Time recurrence="daily">
            <TimePoint>T21:00+09:00</TimePoint>
            <Duration>PT1H</Duration>
         </Time>
         <Genre href="urn:mpeg:mpeg7:cs:GenreCS:2001:1.3.1">
            <Name>Daily news</Name>
         </Genre>
      </PreferenceCondition>
   </BrowsingPreferences>
</UserPreferences>
```


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A user is interested in a TV comedy program with its title “Gag Concert” and it is scheduled to be broadcast for one hour, starting at 9:00 P.M. via the KBS2 channel on every Sunday. The user particularly likes an episode “high-handedness” that is described as a keyword in the example.

The user wants to brows only the key audiovisual clip summary of the “Gag Concert” TV program during at least 20 minutes or 55 minutes in maximum on a display monitor which is identified at IP address 210.107.132.104 at home.

```
<UserPreferences>
       <FilteringAndSearchPreferences>
          <CreationPreferences>
             <Title>Gag Concert</Title>
             <Keyword>high-handedness</Keyword>
          </CreationPreferences>
          <ClassificationPreferences>
          <Genre href="urn:mpeg:mpeg7:cs:GenreCS:2001:2.1.2">
             <Name>Comedy</Name>
          </Genre>
       </ClassificationPreferences>
       <SourcePreferences>
          <DisseminationSource>KBS2</DisseminationSource>
       </SourcePreferences>
       <PreferenceCondition>
          <Place><Name>Seoul</Name></Place>
          <Time recurrence="weekly">
             <TimePoint>2003-02-02T21:00</TimePoint>
             <Duration>PT1H</Duration>
          </Time>
       </PreferenceCondition>
       </FilteringAndSearchPreferences>
       <BrowsingPreferences>
       <SummaryPreferences>
          <SummaryType>KeyAudioVisualClips</SummaryType>
          <MinSummaryDuration>PT20M</MinSummaryDuration>
          <MaxSummaryDuration>PT55M</MaxSummaryDuration>
       </SummaryPreferences>
       <BrowsingLocation>210.107.132.104</BrowsingLocation>
       <PreferenceCondition>
          <Place><Name>Home</Name></Place>
       </PreferenceCondition>
          </BrowsingPreferences>
</UserPreferences>
```

Except where noted otherwise, add the content of the following subclauses at the end of the corresponding subclauses of ISO/IEC 15938-5:2003 hereafter:

15.2.11 RecordingPreferences DS

15.2.11.1 Introduction

The `RecordingPreferences` DS is used to describe user preferences pertaining to recording of content. In particular, a user may request particular content entities, such as television programs, to be recorded. The user may indicate at which location (by which device) the content should be recorded, and what part(s) of the content and its associated data should be recorded.

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15.2.11.2 Syntax

The syntax of `RecordingPreferences` DS is specified as follows:

```
<!-- ############################################ -->
<!--  Definition of RecordingPreferencesType   (15.2.11)-->
<!-- ############################################ -->

<!-- Definition of RecordingPreferencesType (AMD/2) -->
<complexType name="RecordingPreferencesType">
   <sequence>
      <element name="RecordingRequest" type="mpeg7:RecordingRequestType"
         minOccurs="1" maxOccurs="unbounded"/>
   </sequence>
</complexType>

<!-- Definition of RecordingRequestType (AMD/2) -->
<complexType name="RecordingRequestType">
   <sequence>
      <element name="ContentIdentifier" type="mpeg7:UniqueIDType"/>
      <element name="DisseminationSource" type="mpeg7:TextualType"
minOccurs="0"/>
      <element name="Title" type="mpeg7:TextualType" minOccurs="0"/>
      <element name="RecordingPeriod" minOccurs="1">
         <complexType>
            <choice>
               <element name="SpecificTimePeriod" type="mpeg7:TimeType"/>
               <element name="EntireTimePeriod"/>
            </choice>
         </complexType>
      </element>
      <element name="RecordingLocationPreferences" type="anyURI"
               minOccurs="1" maxOccurs="unbounded" />
      <element name="RecordingSourceTypePreferences"
               minOccurs="1" maxOccurs="2">
         <complexType>
            <choice>
               <element name="OriginalContents"/>
               <element name="Summary" type="mpeg7:summaryComponentType"
                    maxOccurs="unbounded"/>
            </choice>
         </complexType>
      </element>
      <element name="RecordAssociatedData" minOccurs="0">
         <attribute name="type" use="required">
            <complexType>
               <simpleType>
                  <union>
                     <simpleType>
                        <restriction base="NMTOKEN">
                           <enumeration value="none"/>
                           <enumeration value="all"/>
                        </restriction>
                     </simpleType>
                     <simpleType>
                        <restriction base="mpeg7:termAliasReferenceType" />
                     </simpleType>
                     <simpleType>
                        <restriction base="mpeg7:termURIReferenceType" />
                     </simpleType>
                  </union>
```


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```
                </simpleType>
             </complexType>
          </attribute>
       </element>
    </sequence>
</complexType>
```

15.2.11.3 Semantics

Semantics of the `RecordingPreferencesType`:

Name	*Definition*
`RecordingPreferencesType`	Describes user preferences for recording contents.
`RecordingRequest`	Describes user's preference on source, title, recording period, recording locations, recording source type, and associated data for recording.

Semantics of the `RecordingRequestType`:

Name	*Definition*
`RecordingRequestType`	Describes user preferences on request for content recording.
`ContentIdentifier`	Indicates a content to be recorded.
`DisseminationSource`	Describes user's preference of particular channel or dissemination source for recording.
`Title`	Describes the title of a preferred content to be recorded.
`RecordingPeriod`	Describes the recording period for a preferred content to be recorded.
`SpecificPeriodTime`	Describes a specific time interval that indicates a starting record time and its duration of content to be recorded.
`EntirePeriodTime`	Indicates the entire recording of contents.
`RecordingLocationPreferences`	Describes a device location where the preferred content is to be recorded. The device location is designated by URI.
`RecordingSourceTypePreference`	Describes user preference on the types (original or summary versions) of content to be recorded.
`OriginalContents`	Indicates the original version of contents.
`Summary`	Indicates the summary version of contents. Its type is specified by SummaryComponentType in ISO/IEC 15938-5.
`RecordAssociatedData`	Describes associated data to be recorded with a content indicated by the `ContentIdentifier`.

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15.2.11.4 RecordingPreferences DS examples (informative)

Users are usually interested in acquiring their preferred contents. For example, while a personal is traveling, he/she wants to remotely record (or store) his/her preferred broadcast programs at a designated(wanted) site(location) such as a PVR or PC in his/her home or office. Then he/she can watch the stored (recorded) program contents in his/her preferred times. This is nothing new but important and very usual in our daily life.

The following example shows the usage of Recording Preferences. For example, a user wants to record a TV program titled by “Happy Together” starting at 11:05 P.M. on Feb 6, 2003 for one hour at KBS2 channel on a storage located by IP address 210.107.132.70. The user’s preference on the recording source types includes the original version and the summary versions with key audio visual clips and key frames.

```
<RecordingPreferences>
  <RecordingRequest>
    <ContentIdentifier>urn:kbs2:entertainment:gagshow:2004:1</ContentIdentifier>
    <DisseminationSource>KBS2</DisseminationSource>
    <Title>Happy Together</Title>
    <RecordingPeriod>
      <EntireTimePeriod/>
    </RecordingPeriod>
    <RecordingLocationPreferences>210.107.132.70</RecordingLocationPreferences>
    <RecordingSourceTypePreferences>
      <OriginalContents/>
        </RecordingSourceTypePreferences>
        <RecordingSourceTypePreferences>
          <Summary>keyAudioVisualClips</Summary>
          <Summary>keyFrames</Summary>
    </RecordingSourceTypePreferences></RecordingRequest>
    <RecordingRequest>
    <ContentIdentifier>urn:kbs2:news:show:2004:1</ContentIdentifier>
    <Title>News at 8</Title>
       <!-- more elements -->
  </RecordingRequest>
  <RecordingRequest>
    <!-- more elements -->
   </RecordingRequest>
</RecordingPreferences>
```

Except where noted otherwise, replace the corresponding subclauses of ISO/IEC 15938-5:2003 with the content of the following subclauses hereafter:

B.2.8 ContentCS

```
<ClassificationScheme uri="urn:mpeg:mpeg7:cs:ContentCS:2001"
   domain=//MediaInformation/MediaProfile/MediaFormat/Content">
   <Term termID="1">
      <Name xml:lang="en">Audio</Name>
      <Term termID="1.1">
         <Name xml:lang="en">Natural</Name>
      </Term>
      <Term termID="1.2">
         <Name xml:lang="en">Synthetic</Name>
      </Term>
      <Term termId="1.3">
         <Name xml:lang="en">1D Audio</Name>
      </Term>
      <Term termId="1.4">
```


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```
            <Name xml:lang="en">2D Audio</Name>
        </Term>
        <Term termId="1.5">
            <Name xml:lang="en">3D Audio</Name>
        </Term>
        <Term termId="1.6">
            <Name xml:lang="en">Multichannel Audio</Name>
        </Term>
        <Term termId="1.7">
            <Name xml:lang="en">Speech</Name>
        </Term>
    </Term>
    <Term termID="2">
        <Name xml:lang="en">Audiovisual</Name>
    </Term>
    <Term termID="3">
        <Name xml:lang="en">Scene</Name>
    </Term>
    <Term termID="4">
        <Name xml:lang="en">Visual</Name>
        <Term termID="4.1">
            <Name xml:lang="en">Image</Name>
            <Term termId="4.1.1">
                <Name xml:lang="en">2D Image</Name>
            </Term>
            <Term termId="4.1.2">
                <Name xml:lang="en">3D Image</Name>
                <Term termId="4.1.2.1">
                    <Name xml:lang="en">Stereoscopic Image</Name>
                </Term>
                <Term termId="4.1.2.2">
                    <Name xml:lang="en">Multiview Image</Name>
                </Term>
                <Term termId="4.1.2.3">
                    <Name xml:lang="en">Omnidirectional Image</Name>
                </Term>
            </Term>
        </Term>
        <Term termID="4.2">
            <Name xml:lang="en">Video</Name>
            <Term termId="4.2.1">
                <Name xml:lang="en">2D Video</Name>
            </Term>
            <Term termId="4.2.2">
                <Name xml:lang="en">3D Video</Name>
                <Term termId="4.2.2.1">
                    <Name xml:lang="en">Stereoscopic Video</Name>
                </Term>
                <Term termId="4.2.2.2">
                    <Name xml:lang="en">Multiview Video</Name>
                </Term>
                <Term termId="4.2.2.3">
                    <Name xml:lang="en">Omnidirectional Video</Name>
                </Term>
            </Term>
        </Term>
        <Term termID="4.3">
            <Name xml:lang="en">Graphics</Name>
        <Term termId="4.1">
            <Name xml:lang="en">2D Graphics</Name>
        </Term>
```

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```
      <Term termId="4.2">
         <Name xml:lang="en">3D Graphics</Name>
      </Term>
      </Term>
   </Term>
   <Term termID="5">
      <Name xml:lang="en">Text</Name>
   </Term>
</ClassificationScheme>
```


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