
**Information technology — Media
context and control —**

**Part 6:
Common types and tools**

*Technologies de l'information — Contrôle et contexte de supports —
Partie 6: Types communs et outils*





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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.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

This fourth edition cancels and replaces the third edition (ISO/IEC 23005-6:2016), which has been technically revised.

The main changes compared to the previous edition are as follows:

- New classifications schemes such as 3D printer file format type CS, 3D printer type CS, printing material type CS, printing material characteristics type CS, and odor sensor technology CS are added.
- Definition of media orchestration profile is added.

A list of all parts in the ISO/IEC 23005 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The ISO/IEC 23005 series (MPEG-V) provides an architecture and specifies information representation of data flowing in and out of the real world and virtual worlds.

The data for the real world are communicated through sensors and actuators. The data for virtual worlds consist of properties of virtual objects and multi-sensorial data embedded in audio-visual content. MPEG-V specifies data formats for sensors, actuators, virtual objects, and audio-visual content.

Data captured from the real world could need to be adapted for use in a virtual world and data from virtual worlds could also need to be adapted for use in the real world. The ISO/IEC 23005 series does not specify how the adaptation is carried out but only specifies the interfaces.

Data for sensors are sensor capabilities, sensed data, and sensor adaptation preferences.

Data for actuators are sensory device capabilities, sensory device commands, and sensory effect preferences.

Data for virtual objects are characteristics of avatars and virtual world objects.

Data for audio-visual content are sensory effects.

This document contains the data types and tools (e.g., timestamp, unit, normative vocabularies) which are used in more than one part of the ISO/IEC 23005 series. This document also specifies standard profiles and levels to be used in specific application domains.

[Annex B](#) contains details of the schema for this document.

The International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of patents.

ISO and the IEC take no position concerning the evidence, validity and scope of these patent rights.

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Information technology — Media context and control —

Part 6: Common types and tools

1 Scope

This document provides definitions of data types and tools, which are used in other parts of the ISO/IEC 23005 series, but are not specific to a single part.

This document specifies syntax and semantics of the data types and tools common to the tools defined in the other parts of the ISO/IEC 23005 series, such as basic data types which are used as basic building blocks in more than one of the tools in the ISO/IEC 23005 series, colour-related basic types which are used in light and colour-related tools to help in specifying colour-related characteristics of the devices or commands, and time stamp types which can be used in device commands, and sensed information to specify timing related information.

Classification schemes, which provide semantics of words or terms and normative way of referencing them, are also defined in [Annex A](#), if they are used in more than one part of the ISO/IEC 23005 series.

The tools defined in this document are not intended to be used alone, but to be used as a part or as a supporting tool of other tools defined in other parts of the ISO/IEC 23005 series, except for the profile and level definitions.

This document also contains standard profiles and levels to be used in specific application domains. The profile and level definitions include collection of tools from ISO/IEC 23005-2 and ISO/IEC 23005-5 with necessary constraints.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO/IEC 15938-5:2003, *Information technology — Multimedia content description interface — Part 5: Multimedia description schemes*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the following terms, definitions and abbreviated terms apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1 Terms and definitions

3.1.1

adaptation engine

adaptation RV and/or adaptation VR

3.1.2

adaptation VR

entity that takes the *sensory effect metadata* ([3.1.14](#)), the *sensory device* (actuator) *capabilities* ([3.1.11](#)), the *sensor capabilities* ([3.1.9](#)), and/or the *user's sensory preferences* ([3.1.16](#)) as inputs and generates *sensory device* (actuator) *commands* ([3.1.12](#)) and/or the *sensed information* ([3.1.6](#)) based on those and then takes the *sensor capabilities* ([3.1.9](#)) as inputs and the *sensed information* ([3.1.6](#)) from sensors and adapts the *sensed information* ([3.1.6](#)) based on the *sensor capabilities* ([3.1.9](#))

EXAMPLE RoSE Engine.

3.1.3

adaptation RV

entity that takes the *sensed information* ([3.1.6](#)) from sensors, the *sensor capabilities* ([3.1.9](#)) and/or the *sensor adaptation preferences* ([3.1.8](#)) as inputs and adapts the *sensed information* ([3.1.6](#)) and/or the *virtual world object characteristics* ([3.1.16](#)) based on those inputs

3.1.4

interaction device

device that accepts inputs from users and/or gives output to users in the form of various modalities

3.1.5

provider

entity that acts as the source of the *sensory effect metadata* ([3.1.14](#))

EXAMPLE Broadcaster.

3.1.6

sensed information

information acquired by a sensor

3.1.7

sensor

consumer device by which user input or environmental information can be gathered

EXAMPLE Temperature sensor, distance sensor, motion sensor, etc.

3.1.8

sensor adaptation preferences

description to represent preferences of individual users regarding the *sensed information* ([3.1.6](#))

3.1.9

sensor capability

description to represent the characteristics of *sensors* ([3.1.7](#)) in terms of the capability of the given *sensor* ([3.1.7](#)) such as accuracy, or sensing range

3.1.10

sensory device

consumer device (actuator) by which the corresponding *sensory effect* ([3.1.13](#)) can be made

EXAMPLE Light, fan, heater, etc.

3.1.11

sensory device capability

description to represent the characteristics of actuators used to generate *sensory effects* ([3.1.13](#)) in terms of the capability of the given device

3.1.12**sensory device command**

description to control actuators used to generate *sensory effects* (3.1.13)

3.1.13**sensory effect**

effect to augment perception by stimulating human senses in a particular scene of a multimedia application

EXAMPLE Scent, wind, light, haptic [kinesthetic-force, stiffness, weight, friction, texture, widget (button, slider, joystick), tactile: air-jet, suction pressure, thermal, current, vibration, etc.]

Note 1 to entry: Combinations of tactile display can also provide directional, shape information.

3.1.14**sensory effect metadata**

defines the description schemes and descriptors to represent *sensory effects* (3.1.13)

3.1.15**user's sensory preferences**

description schemes and descriptors to represent user's preferences with respect to rendering of *sensory effects* (3.1.13)

3.1.16**virtual world object characteristics**

descriptions used to characterize a virtual world object, making it possible to migrate a virtual world object (or only its characteristics) from one virtual world to another and to control a virtual world object in a virtual world by real world devices

3.2 Abbreviated terms

MPEG-21	ISO/IEC 21000 series
DIA	digital item adaptation (see ISO/IEC 21000-7)
URI	uniform resource identifier (IETF RFC 3986)
URL	uniform resource locator (IETF RFC 3986)
XML	extensible markup language (W3C, http://www.w3.org/XML/)
RoSE	representation of sensory effects

4 Common types**4.1 General**

This clause describes types common to more than one part of the ISO/IEC 23005 series including the schema wrapper conventions, basic data types, color related data types, and time stamp type. The types defined in this clause are defined to be used in combination with tools defined in other parts of the ISO/IEC 23005 series, and are not intended to be instantiated by themselves.

4.2 Schema wrapper conventions

The syntax defined in this clause assumes the following schema wrapper to form a valid XML schema document.

```
<schema xmlns="http://www.w3.org/2001/XMLSchema_
xmlns:mpeg7="urn:mpeg:mpeg7:schema:2004" xmlns:mpegvct="urn:mpeg:mpeg-v:2016:01-CT-NS"
targetNamespace="urn:mpeg:mpeg-v:2016:01-CT-NS"
```

```

elementFormDefault="qualified" attributeFormDefault="unqualified"
version="ISO/IEC 23005-6" id="MPEG-V-CT.xsd">
  <import namespace="urn:mpeg:mpeg7:schema:2004"
schemaLocation="http://standards.iso.org/ittf/PubliclyAvailableStandards/MPEG-7_schema_
files/mpeg7-v2.xsd"/>

```

Additionally, the following line should be appended to the resulting schema document in order to obtain a well-formed XML document.

```
</schema>
```

4.3 Mnemonics for binary representations

The mnemonics in [Table 1](#) shall be used as defined in ISO/IEC 15938-3, to describe different data types used in the definitions of binary representations defined by the ISO/IEC 23005 series.

Table 1 — Mnemonics for binary representation

Mnemonics	Description
bslbf	Bit string, left bit first, where "left" is the order in which bits are written in the ISO/IEC 23005 series. Bit strings are generally written as a string of 1s and 0s within single quote marks, e.g. '1000 0001'. Blanks within a bit string are for ease of reading and have no significance. For convenience, large strings are occasionally written in hexadecimal, in which case conversion to a binary in the conventional manner will yield the value of the bit string. Thus, the left-most hexadecimal digit is first and in each hexadecimal digit the most significant of the four digits is first.
vluimsbf5	Variable length unsigned integer most significant bit first representation consisting of two parts. The first part defines the number <i>n</i> of 4-bit bit fields used for the value representation, encoded by a sequence of <i>n</i> -1 "1" bits, followed by a "0" bit signaling its end. The second part contains the value of the integer encoded using the number of bit fields specified in the first part.
uimsbf	Unsigned integer, most significant bit first.
simsbf	Signed integer, in two's complement format, most significant bit (sign) first.
fsfb	Float (32 bit), sign bit first. The semantics of the bits within a float are specified in the IEEE Standard for Binary Floating Point Arithmetic (IEEE Std 754-1985).
UTF-8	Binary string encoding defined in ISO/IEC 10646 and IETF RFC 2279, preceded by its size in bytes coded as vluimsbf5.

4.4 Common header for binary representations

4.4.1 General

This subclause specifies binary header for any stream of binary representation defined by the ISO/IEC 23005 series.

4.4.2 XML representation syntax

The common header for binary representation does not have corresponding XML representation as this header is not used in text representation.

4.4.3 Binary representation syntax

HeaderInfo{	Number of bits	Mnemonic
Signature	40	bslbf
Version	16	bslbf
Reserved	14	

HeaderInfo{	Number of bits	Mnemonic
ProfileIdentifier	8	uimsbf
ElementIdentifier	10	bslbf
}		

4.4.4 Descriptor components semantics

Name	Description
HeaderInfo	Provides information required to signal the decoder that this is the binary representation of MPEG-V description, and to identify the profile and element to which the following description belongs.
Singature	Signals the decoder that this is the beginning of the binary representation of MPEG-V description. Fixed to 0x4D 0x50 0x45 0x47 0x56 (MPEGV).
Version	First 8 bits represent the version of the schema that the root element belongs to, and the second 8 bits represent the schema version of the common tools (Part 6) that the corresponding XML instance of the given binary representation is compliant to.
Reserved	14bits reserved. Normally all 14bits filled with zeros.
ProfileIdentifier	8 bit identifying the profile that the description is conformant to.
ElementIdentifier	8 bit identifying the root element of the binarized description.

The binarized profile identifiers are defined as shown in [Table 2](#). [Table 3](#) shows binary identifiers for each element to be used in the common header for binary representations.

Table 2 — Assignment of IDs to Profiles (ProfileIdentifier)

ID	Profile
00000001	Full Profile
00000010-11111111	Reserved

Table 3 — Assignment of IDs to Elements (ElementIdentifier)

ID	Element name (Part)
0000 0000 - 0001 0011	Reserved
0001 0100	ControlInfo (Part 2)
0001 0101 - 0001 1111	Reserved
0010 0000	Declarations (Part 3)
0010 0001	GroupOfEffects (Part 3)
0010 0010	Effect (Part 3)
0010 0011	ReferenceEffect (Part 3)
0010 0100	Parameter (Part 3)
0010 0101	SEM (Part 3)
0010 0110 - 0010 0111	Reserved
0010 1000	VWOCInfo (Part 4)
0010 1001 - 0011 0001	Reserved
0011 0010	InteractionInfo (Part 5)
0011 0011	SensedInfo (Part 5)
0011 0100	DeviceCommand (Part 5)
0011 0101 - 1111 1111	Reserved

4.5 Basic datatypes

4.5.1 General

This clause describes structure of the basic datatypes which are commonly used in more than one part of the ISO/IEC 23005 series as a basic building block of the tools.

4.5.2 Syntax

```
<!-- ##### -->
<!-- Basic Datatypes -->
<!-- ##### -->
<!-- unit types -->
<simpleType name="unitType">
  <restriction base="mpeg7:termReferenceType"/>
</simpleType>
<!-- Inclination Degree Type -->
<simpleType name="InclineAngleType">
  <restriction base="integer">
    <minInclusive value="-360"/>
    <maxInclusive value="360"/>
  </restriction>
</simpleType>
<complexType name="Float3DVectorType">
  <sequence>
    <element name="X" type="float"/>
    <element name="Y" type="float"/>
    <element name="Z" type="float"/>
  </sequence>
</complexType>
```

4.5.3 Binary representation syntax

InclineAngleType{	Number of bits	Mnemonic
InclineAngle	10	simsbf
}		

Float3DVectorType{	Number of bits	Mnemonic
X	32	Fsbf
Y	32	Fsbf
Z	32	Fsbf
}		

4.5.4 Semantics

Semantics of the basic datatypes:

Name	Definition
unitType	Tool for describing a unit as a reference to a classification scheme term provided by UnitTypeCS defined in A.2.1 . The details of the structure and use of classification scheme and termReferenceType description is defined in ISO/IEC 15938-5. EXAMPLE urn:mpeg:mpeg-v:01-CI-UnitTypeCS-NS:mps would describe the unit for speed in meter per second.
InclineAngleType	Describes the angle of inclination from -360 to 360 in degrees.
Float3DVectorType	Describes a set of vector including values for x, y, z, direction.

Name	Definition
X	A value that describes a float value (can be force, torque, position) for x-axis
Y	A value that describes a float value (can be force, torque, position) for y-axis
Z	A value that describes a float value (can be force, torque, position) for z-axis

4.6 Color-related datatypes

4.6.1 General

This clause describes basic structure of the tools which are commonly used in more than one part of the ISO/IEC 23005 series to specify characteristics related to the light and/or color.

4.6.2 Syntax

```

<!-- ##### -->
<!-- Color Related Datatypes -->
<!-- ##### -->
<!-- colorType for Lighting Device type -->
<simpleType name="colorType">
  <union memberTypes="mpeg7:termReferenceType mpegvct:colorRGBType"/>
</simpleType>

<!-- colorRGB Type for Lighting Device type -->
<simpleType name="colorRGBType">
  <restriction base="NMTOKEN">
    <whiteSpace value="collapse"/>
    <pattern value="#[0-9A-Fa-f]{6}"/>
  </restriction>
</simpleType>

<complexType name="ToneReproductionCurvesType">
  <sequence maxOccurs="256">
    <element name="DAC_Value" type="mpeg7:unsigned8"/>
    <element name="RGB_Value" type="mpeg7:doubleVector"/>
  </sequence>
</complexType>

<complexType name="ConversionLUTType">
  <sequence>
    <element name="RGB2XYZ_LUT" type="mpeg7:DoubleMatrixType"/>
    <element name="RGBScalar_Max" type="mpeg7:doubleVector"/>
    <element name="Offset_Value" type="mpeg7:doubleVector"/>
    <element name="Gain_Offset_Gamma" type="mpeg7:DoubleMatrixType"/>
    <element name="InverseLUT" type="mpeg7:DoubleMatrixType"/>
  </sequence>
</complexType>

<complexType name="IlluminantType">
  <choice>
    <sequence>
      <element name="xy_Value" type="mpegvct:ChromaticityType"/>
      <element name="Y_Value" type="mpeg7:unsigned7"/>
    </sequence>
    <element name="Correlated_CT" type="mpeg7:unsigned8"/>
  </choice>
</complexType>

<complexType name="InputDeviceColorGamutType">
  <sequence>
    <element name="IDCG_Type" type="string"/>
    <element name="IDCG_Value" type="mpeg7:DoubleMatrixType"/>
  </sequence>

```

```
</complexType>
```

```
<complexType name="ChromaticityType">
  <attribute name="x" type="mpeg7:zeroToOneType" use="required"/>
  <attribute name="y" type="mpeg7:zeroToOneType" use="required"/>
</complexType>
```

4.6.3 Binary representation syntax

ColorType {	Number of bits	Mnemonic
NamedcolorFlag	1	
If(NamedcolorFlag) {		
NamedColorType	9	bslbf
} else {		
colorRGBType	24	bslbf
}		
}		

ToneReproductionCurvesType {	Number of bits	Mnemonic
NumOfRecords	8	uimsbf
for(i=0;i< NumOfRecords;i++){		
DAC_Value	8	uimsbf
RGB_Value	32*3	bslbf
}		
}		

ConversionLUTType {	Number of bits	Mnemonic
RGB2XYZ_LUT	32*3*3	bslbf
RGBScalar_Max	32*3	bslbf
Offset_Value	32*3	bslbf
Gain_Offset_Gamma	32*3*3	bslbf
InverseLUT	32*3*3	bslbf
}		

IlluminantType {	Number of bits	Mnemonic
ElementType	2	bslbf (Table 8)
if(ElementType==00){		
XY_Value	32*2	ChromaticityType
Y_Value	7	uimsbf
}else if(ElementType==01){		
Correlated_CT	8	uimsbf
}		
}		

InputDeviceColorGamutType {	Number of bits	Mnemonic
typeLength		vluimsbf5
IDCG_Type	8 * typeLength	bslbf
IDCG_Value	32*3*2	mpeg7:DoubleMatrixType
}		

ChromaticityType {	Number of bits	Mnemonic
x	32	fsfb
y	32	fsfb
}		

4.6.4 Semantics

Semantics of the basic datatypes.

Name	Definition
colorType	Describes the list of colors which the lighting device can provide as a reference to a classification scheme term or as RGB value. A CS that may be used for this purpose is the ColorCS defined in A.2.2 . EXAMPLE <code>urn:mpeg:mpeg-v:01-SI-ColorCS-NS:alice_blue</code> would describe the color Alice blue.
NamedcolorFlag	This field, which is only present in the binary representation, indicates a choice of the color descriptions. If it is 1 then the color is given by the NamedColorType in Annex A.2.2 , otherwise the color is described by colorRGBType.
NamedColorType	This field, which is only present in the binary representation, describes color in terms of ColorCS Flag in Annex A.2.2 .
colorRGBType	Tool for describing a color in 8bit values of R, G, and B each. EXAMPLE <code>#F0F8FF</code> would describe the color Alice blue in XML syntax.
ToneReproductionCurvesType	A type defining the schema of the Tone Reproduction Curves.
NumOfRecords	This field, which is only present in the binary representation, specifies the number of record (DAC and RGB value) instances accommodated in the ToneReproductionCurves.
DAC_Value	An element describing discrete DAC values of input device.
RGB_Value	An element describing normalized gamma curve values with respect to DAC values. The order of describing the RGB_Value is R_n, G_n, B_n .
ConversionLUTType	A type of defining the schema of the conversion look-up table (matrix).
RGB2XYZ_LUT	This look-up table (matrix) converts an image from RGB to CIE XYZ. The size of the conversion matrix is 3x3 such as $\begin{bmatrix} R_x & G_x & B_x \\ R_y & G_y & B_y \\ R_z & G_z & B_z \end{bmatrix}$. The way of describing the values in the binary representation is in the order of $[R_x, G_x, B_x; R_y, G_y, B_y; R_z, G_z, B_z]$. of 32 bits each.
RGBScalar_Max	An element describing maximum RGB scalar values for GOG transformation. The order of describing the RGBScalar_Max is $R_{max}, G_{max}, B_{max}$.
Offset_Value	An element describing offset values of input display device when the DAC is 0. The value is described in CIE XYZ form. The order of describing the Offset_Value is X, Y, and Z.

Name	Definition
Gain_Offset_Gamma	An element describing the gain, offset, gamma of RGB channels for GOG transformation. The size of the Gain_Offset_Gamma matrix is 3x3 such as $\begin{bmatrix} \text{Gain}_r & \text{Gain}_g & \text{Gain}_b \\ \text{Offset}_r & \text{Offset}_g & \text{Offset}_b \\ \text{Gamma}_r & \text{Gamma}_g & \text{Gamma}_b \end{bmatrix}$. The way of describing the values in the binary representation is in the order of [Gain _r , Gain _g , Gain _b ; Offset _r , Offset _g , Offset _b ; Gamma _r , Gamma _g , Gamma _b] of 32bits each.
InverseLUT	This look-up table (matrix) converts an image form CIE XYZ to RGB. The size of the InverseLUT is 3x3 such as $\begin{bmatrix} R'_x & G'_x & B'_x \\ R'_y & G'_y & B'_y \\ R'_z & G'_z & B'_z \end{bmatrix}$. The way of describing the values in the binary representation is in the order of $[R'_x, G'_x, B'_x; R'_y, G'_y, B'_y; R'_z, G'_z, B'_z]$ of 32bits each.
IlluminantType	A type defining the schema of the white point setting (e.g. D65, D93) of the input display device.
ElementType	This field, which is only present in the binary representation, describes which Illuminant scheme shall be used. In the binary description, Table 8 is used.
xy_Value	An element describing the chromaticity of the light source.
Y_Value	An element describing the luminance of the light source between 0 and 100.
Correlated_CT	Indicates the correlated color temperature of the overall illumination. The value expression is obtained through quantizing the range [1667, 25000] into 28 bins in a non-uniform way as specified in ISO/IEC 15938-3.
InputDeviceColorGamutType	A type defining the schema of the Input device color gamut.
typeLength	This field, which is only present in the binary representation, specifies the length of each IDCG_Type instance in bytes. The value of this element is the size of the largest IDCG_Type instance, aligned to a byte boundary by bit stuffing using 0-7 '1' bits.
IDCG_Type	An element describing the type of input device color gamut (e.g., NTSC, SMPTE).
IDCG_Value	An element describing the chromaticity values of RGB channels when the DAC values are maximum. The size of the IDCG_Value matrix is 3x2 such as $\begin{bmatrix} x_r & y_r \\ x_g & y_g \\ x_b & y_b \end{bmatrix}$. The way of describing the values in the binary representation is in the order of [x _r , y _r , x _g , y _g , x _b , y _b] of 32bits each.
ChromaticityType	Tool that describes the chromaticity.
X	Describes the x-value of chromaticity.
Y	Describes the y-value of chromaticity.

Table 8 — Illuminant

Illuminant	IlluminantType
00	xy and Y value
01	Correlated_CT

4.6.5 Additional validation rules

For the purpose of referencing the additional validation rules are numbered.

- 1) The number of `RGB_value` shall always be 3 (red, green, and blue). Therefore the length of vector is fixed to 3.
- 2) The size of `RGB2XYZ_LUT` matrix shall be 3 by 3. Therefore the number of rows is fixed to 3 and the number of columns is fixed to 3.
- 3) The number of `RGBScalar_Max` shall be 3 (red, green, and blue). Therefore the length of `RGBScalar_Max` vector is fixed to 3.
- 4) The number of `Offset_Value` shall be 3 (red offset, green offset, blue offset). Therefore the length of `Offset_Value` vector is fixed to 3.
- 5) The size of `Gain`, `Offset`, and `Gamma` is 3, respectively. The size of matrix `Gain_Offset_Gamma` is 3 by 3. Therefore the number of rows is fixed to 3 and the number of columns is fixed to 3.
- 6) The size of `Inverse_LUT` matrix is 3 by 3. Therefore the number of rows is fixed to 3 and the number of columns is fixed to 3.
- 7) The size of `IDCG_Value` matrix is 3 by 2. Therefore the number of rows is fixed to 3 and the number of columns is fixed to 2.

4.7 Time stamp type

4.7.1 General

This clause describes the `TimeStampType` to specify the timing information for device commands and sensed information.

4.7.2 Syntax

```
<complexType name="TimeStampType" abstract="true"/>

<complexType name="AbsoluteTimeType">
  <complexContent>
    <extension base="mpegvct:TimeStampType">
      <attribute name="absTimeScheme" type="string" use="optional"/>
      <attribute name="absTime" type="string"/>
    </extension>
  </complexContent>
</complexType>

<complexType name="ClockTickTimeType">
  <complexContent>
    <extension base="mpegvct:TimeStampType">
      <attribute name="timeScale" type="unsignedInt" use="optional"/>
      <attribute name="pts" type="nonNegativeInteger"/>
    </extension>
  </complexContent>
</complexType>

<complexType name="ClockTickTimeDeltaType">
  <complexContent>
    <extension base="mpegvct:TimeStampType">
```

```

        <attribute name="timeScale" type="unsignedInt" use="optional"/>
        <attribute name="ptsDelta" type="unsignedInt"/>
    </extension>
</complexContent>
</complexType>

```

4.7.3 Binary representation syntax

TimeStampType {	Number of bits	Mnemonic
TimeStampSelect	2	Bslbf
if(TimeStampSelect ==1) {		
AbsoluteTimeType		AbsoluteTimeType
}		
if(TimeStampSelect ==2) {		
ClockTickTimeType		ClockTickTimeType
}		
if(TimeStampSelect ==3) {		
ClockTickTimeDeltaType		ClockTickTimeDeltaType
}		
}		

AbsoluteTimeType {	Number of bits	Mnemonic
absTimeSchemePresent	1	Bslbf
if(absTimeSchemePresent) {		
absTimeSchemeLength		vluimsbf5
absTimeScheme	8*absTimeSchemeLength	bslbf
}		
absTimeLength		vluimsbf5
absTime	8*absTimeLength	bslbf
}		

ClockTickTimeType {	Number of bits	Mnemonic
timeScalePresent	1	bslbf
if(timeScalePresent) {		
Timescale	32	uimsbf
}		
ptsLength		vluimsbf5
Pts	8*ptsLength	uimsbf
}		
}		

ClockTickTimeDeltaType {	Number of bits	Mnemonic
timeScalePresent	1	bslbf
if(timeScalePresent) {		
Timescale	32	uimsbf
}		
ptsDeltaLength		vluimsbf5

ClockTickTimeDeltaType {	Number of bits	Mnemonic
ptsDelta	8*ptsDeltaLength	uimsbf
}		
}		

4.7.4 Semantics

Semantics of the TimeStampType.

Name	Definition
TimeStampType	An abstract type providing root for three different tools, which are absoluteTimeType, ClockTickTimeType, and ClockTickTimeDeltaType, for specifying timing information for interaction devices to be synchronized with media or other devices.
AbsoluteTimeType	Defines the timing information in one of the absolute time schemes provided by other standards such as ISO/IEC 15938-5 (MPEG-7) or SMPTE by extending TimeStampType.
absTimeSchemeLength	Binary length of absTimeScheme field is specified by vluimsbf5 format in bytes.
absTimeScheme	Specifies the absolute time scheme used in the format of string. See ISO/IEC 21000-17:2006, Annex C for examples of time schemes syntax. If mpeg-7 time scheme is used, the value for this field shall be "mp7t". As the length of this field cannot be estimated, the length specified by absTimeSchemeLength field in bytes is assigned for this field in binary representation.
absTimeLength	Binary length of absTime field is specified by vluimsbf5 format in bytes.
absTime	Provides value of time information in the format defined in the absolute time scheme specified in absTimeScheme attribute. As the length of this field cannot be estimated, the length specified by absTimeLength field in bytes is assigned for this field in binary representation. By default, if absTimeScheme does not specify any specific time scheme, the absolute time is given in the format of hh:mm:ss:ff, in which hh represents hours, mm represents minutes in two digits, ss represents seconds in two digits, and ff represents fractions of 1/100 seconds. When the hour is smaller than 10, it can be represented in an one digit number. The fraction of seconds may be omitted, if not necessary.
ClockTickTimeType	Defines the timing information in terms of number of clock ticks from the origin of the target device.
timescale	An optional attribute to provide the time scale for the clock tick, i.e. the number of clock ticks per second.
ptsLength	Binary length of pts field is specified by vluimsbf5 format in bytes.
pts	Specifies the number of clock ticks from the origin of the target device. As the length of this field cannot be estimated, the length specified by ptsLength field in bytes is assigned for this field in binary representation.
ClockTickTimeDeltaType	Defines the timing information in terms of relative time interval since the last timing information provided, in terms of clock ticks.
timescale	An optional attribute to provide the time scale for the clock tick, i.e. the number of clock ticks per second.
ptsDeltaLength	Binary length of ptsDelta field is specified by vluimsbf5 format in bytes.
ptsDelta	Specifies the number of clock ticks from the time point specified by the last timing information provided. As the length of this field cannot be estimated, the length specified by ptsDeltaLength field in bytes is assigned for this field in binary representation.

5 Profiles

5.1 Media orchestration profile

5.1.1 General

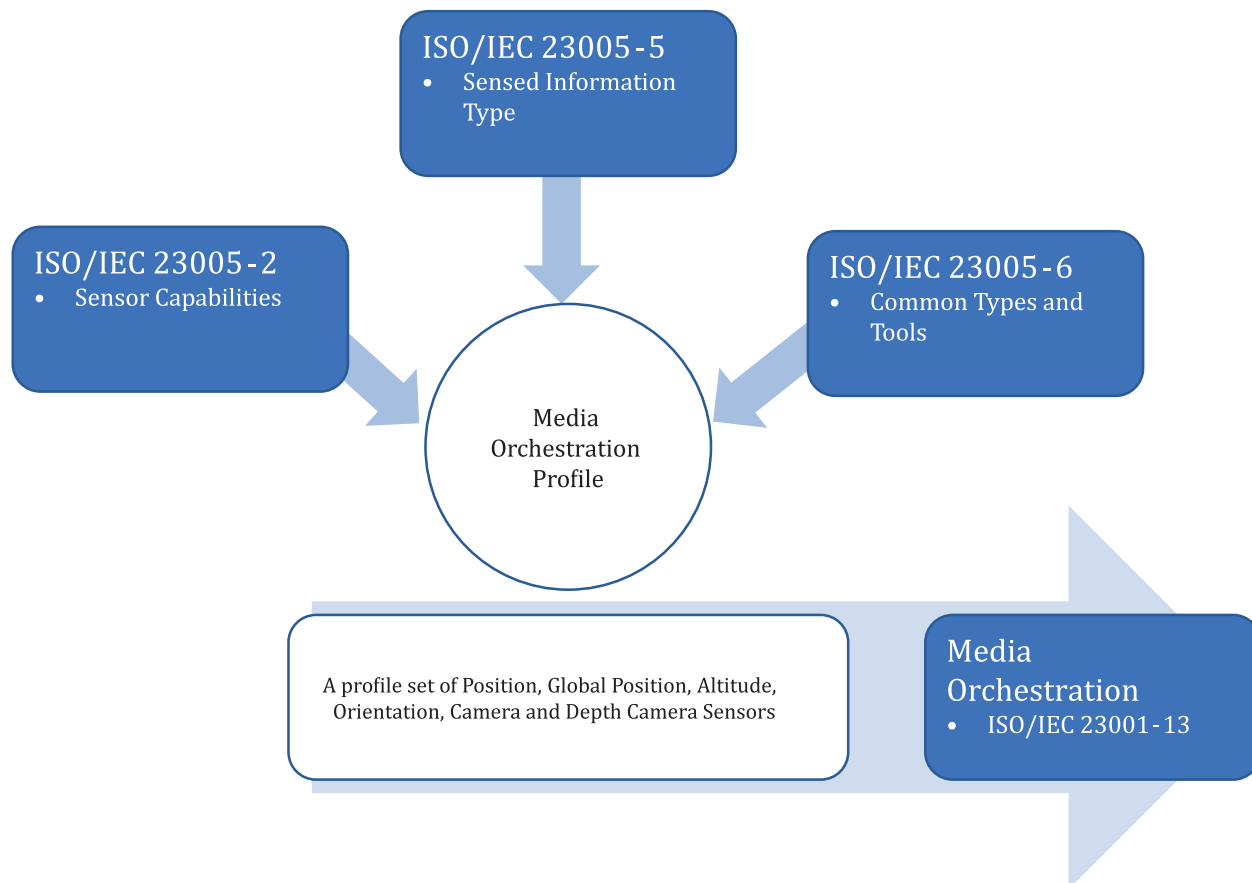


Figure 1 — Structure of media orchestration profile

This clause specifies a profile of sensing capabilities and sensed information datatypes that are useful for media orchestration applications. It makes a selection from the description tools specified in the ISO/IEC 23005 series as shown in [Figure 1](#). A level for this profile gives constraints on elements in the datatypes.

Complete description of the media orchestration profile with definitions of syntax and semantics, which are defined in other parts of the ISO/IEC 23005 series, are also included in [Annex C](#).

Metadata for media orchestration applications is defined as the data that cannot be rendered independently, and may affect rendering, processing or orchestration of the associated media data. Like media data, this metadata can be non-timed data and timed data. For example: when a tracker capable of tracking location and orientation is attached to a camera, the location and orientation of the camera are continuously tracked as the camera captures and moves. With the captured video stream, the stream of location and orientation (gaze) of the camera is also generated. This location stream can be timed metadata about associated video stream since it has an intrinsic timeline.

ISO/IEC23005-5 specifies tools for describing different modes for updating data, depending on the type of sensed information. Some types of sensed information (e.g., position or orientation) can be used in two different modes: one is normal mode and the other is update mode. In order to make processing easier, only the normal mode is used in the context of this profile.

The orchestration profile:

- includes the sensed information types which allow spatial alignment and temporal synchronization: position, orientation, global position, altitude, camera, and depth camera sensor;
- includes, without modification, the sensor capabilities for non-timed metadata: position orientation, global position, altitude and camera sensor capabilities;
- supports generic MPEG-V binarization tools.

Level 1 of the media orchestration profile:

- defines constraints for the selected data types by excluding the following attributes and elements of the sensed information types: TimeStamp, ID, sensorIdRef, linkedlist, groupId, priority, activate, crs, CameraOrientation, CameraLocation, filter, RawVideo.

5.1.2 Sensors and sensor capabilities used in media orchestration profile

The media orchestration includes the following sensor types from ISO/IEC 23005-5:

- PositionSensorType from ISO/IEC 23005-5;
- GlobalPositionSensorType from ISO/IEC 23005-5;
- AltitudeSensorType from of ISO/IEC 23005-5;
- OrientationSensorType from ISO/IEC 23005-5;
- CameraSensorType from ISO/IEC 23005-5;
- DepthCameraSensorType from ISO/IEC 23005-5.

The Media Orchestration Profile includes the following capability types from ISO/IEC 23005-2:

- PositionSensorCapabilityType from ISO/IEC 23005-2;
- GlobalPositionSensorCapabilityType from ISO/IEC 23005-2;
- AltitudeSensorCapabilityType from ISO/IEC 23005-2;
- OrientationSensorCapabilityType from ISO/IEC 23005-2;
- CameraSensorCapabilityType from ISO/IEC 23005-2.

5.1.3 Media orchestration profile, Level 1

5.1.3.1 General

Levels provide constraints for attributes and elements of the selected sensed information types to reduce the complexity of the data structure as used in services and devices. These constraints are highlighted in the following subclauses by using a bold type.

5.1.3.2 Sensed information base types

Constrained syntax of the `SensedInfoBaseType`.

Syntax	No. bits	Mnemonic
<code>SensedInfoBaseTypeType{</code>		
<code>TimeStampFlag = 0</code>	1	Bslbf
<code>SensedInfoBaseAttributes</code>	6	<code>SensedInfoBaseAttributesType</code>

Syntax	No. bits	Mnemonic
if(TimeStampFlag){		
TimeStamp	0	TimeStampType
}		
}		

Constrained syntax of the SensedInfoBaseAttributesType.

Syntax	No. bits	Mnemonic
SensedInfoBaseAttributesType{		
IDFlag = 0	1	bslbf
sensorIdRefFlag = 0	1	bslbf
linkedlistFlag = 0	1	bslbf
groupIDFlag = 0	1	bslbf
priorityFlag = 0	1	bslbf
activateFlag = 0	1	bslbf
if(IDFlag) {		
ID	0	UTF-8
}		
if(sensorIdRefFlag) {		
sensorIdRef	0	UTF-8
}		
if(linkedlistFlag) {		
linkedlist	0	UTF-8
}		
if(groupIDFlag) {		
groupID	0	UTF-8
}		
if(priorityFlag) {		
priority	0	uimsbf
}		
if(activateFlag) {		
activate	0	bslbf
}		
}		

Constraints of the SensedInfoBaseType.

Name	Constraints
SensedInfoBaseType	
sensedInfoBaseAttributes	
TimeStamp	Not used
TimeStampFlag	Equals "0" (TimeStamp is not used)

Constraints of the sensedInfoBaseAttributes.

Name	Constratins
sensedInfoBase Attributes	
id	Not used
sensorIdRef	Not used
linkedlist	Not used
groupID	Not used
activate	Not used
priority	Not used
SensedInfoBaseAttributesType	
IDFlag	Equals "0" (ID is not used)
sensorIdRefFlag	Equals "0" (sensorIdRef is not used)
linkedlistFlag	Equals "0" (linkedlist is not used)
groupIDFlag	Equals "0" (groupID is not used)
priorityFlag	Equals "0" (priority is not used)
activateFlag	Equals "0" (activate is not used)

5.1.3.3 Global position sensor

Constrained syntax of the GlobalPositionSensorType.

Syntax	No. bits	Mnemonic
GlobalPositionSensorType{		
SensedInfoBaseType	7	SensedInfoBaseTypeType in 5.1.3.2
crsLength	8	vluimsbf5
crs	0	UTF-8
Latitude	32	fsfb
Longitude	32	fsfb
}		

Constraints of the GlobalPositionSensorType.

Name	Constraints
GlobalPositionSensorType	
SensedInfoBaseType	SensedInfoBaseTypeType in 5.1.3.2
crsLength	Equals "0" (crs is not used)
crs	Not used
longitude	
latitude	

5.1.3.4 Altitude sensor

Constrained syntax of the `AltitudeSensorType`.

Syntax	No. bits	Mnemonic
<code>AltitudeSensorType{</code>		
SensedInfoBaseType	7	SensedInfoBaseTypeType in 5.1.3.2
<code>crs</code>	0	UTF-8
<code>Altitude</code>	32	fsfb
<code>}</code>		

Constraints of the `AltitudeSensorType`.

Name	Definition
<code>AltitudeSensorType</code>	
<code>crs</code>	Not used
<code>altitude</code>	
<code>SensedInfoBaseType</code>	SensedInfoBaseTypeType in 5.1.3.2

5.1.3.5 Position sensor

Constrained syntax of the `PositionSensorType`.

Syntax	No. bits	Mnemonic
<code>PositionSensorType {</code>		
<code>UpdateMode = 0</code>	1	bslbf
<code>if(UpdateMode ==0){</code>		
<code>PositionSensorNormal</code>		<code>PositionSensorNormalType</code>
<code>}else{</code>		
<code>PositionSensorUpdate</code>		<code>PositionSensorUpdateType</code>
<code>}</code>		
<code>}</code>		

Syntax	No. bits	Mnemonic
<code>PositionSensorNormalType{</code>		
<code>positionFlag</code>	1	bslbf
<code>unitFlag</code>	1	bslbf
SensedInfoBaseType	7	SensedInfoBaseTypeType in 5.1.3.2
<code>if(positionFlag) {</code>		
<code>Position</code>		<code>Float3DVectorType</code>
<code>}</code>		
<code>if(unitFlag) {</code>		
<code>Unit</code>		<code>unitType</code>
<code>}</code>		
<code>}</code>		

Constraints of the `PositionSensorType`.

Name	Constraints
<code>PositionSensorType</code>	
<code>Position</code>	
<code>unit</code>	
<code>UpdateMode</code>	Equals "0" (UpdateMode is not used)
<code>PositionSensorNormal</code>	
<code>PositionSensorUpdate</code>	Not used
<code>PositionSensorNormalType</code>	
<code>positionFlag</code>	
<code>unitFlag</code>	
<code>SensedInfoBaseType</code>	SensedInfoBaseTypeType in 5.1.3.2

5.1.3.6 Orientation sensor

Constrained syntax of the `OrientationSensorType`.

Syntax	No. bits	Mnemonic
<code>OrientationSensorType {</code>		
<code> UpdateMode = 0</code>	1	bslbf
<code> if(UpdateMode == 0){</code>		
<code> OrientationSensorNormal</code>		<code>OrientationSensorNormalType</code>
<code> }else{</code>		
<code> OrientationSensorUpdate</code>		<code>OrientationSensorUpdateType</code>
<code> }</code>		
<code>}</code>		

Syntax	No. bits	Mnemonic
<code>OrientationSensorNormalType{</code>		
<code> orientationFlag</code>	1	bslbf
<code> unitFlag</code>	1	bslbf
<code>SensedInfoBaseType</code>	7	<code>SensedInfoBaseTypeType</code> in 5.1.3.2
<code> if(orientationFlag) {</code>		
<code> orientation</code>		<code>Float3DVectorType</code>
<code> }</code>		
<code> if(unitFlag) {</code>		
<code> Unit</code>		<code>unitType</code>
<code> }</code>		
<code>}</code>		

Constraints of the `OrientationSensorType`.

Name	Constraints
<code>OrientationSensorType</code>	
<code>Orientation</code>	
<code>unit</code>	
<code>UpdateMode</code>	Equals "0" (UpdateMode is not used)
<code>OrientationSensorNormal</code>	

Name	Constraints
OrientationSensorUpdate	Not used
OrientationSensorNormalType	
orientationFlag	
unitFlag	
SensedInfoBaseType	SensedInfoBaseTypeType in 5.1.3.2

5.1.3.7 Camera sensor

Constrained syntax of the CameraSensorType.

Syntax	Number of bits	Mnemonic
CameraSensorType {		
CameraOrientationFlag = 0	1	bslbf
CameraLocationFlag = 0	1	bslbf
focalLengthFlag	1	bslbf
apertureFlag	1	bslbf
shutterSpeedFlag	1	bslbf
filterFlag = 0	1	bslbf
SensedInfoBaseType	7	SensedInfoBaseTypeType in 5.1.3.2
if (CameraOrientationFlag == 1){		
CameraOrientation	0	OrientationSensorType
}		
if (CameraLocationFlag == 1){		
CameraLocation	0	GlobalPositionSensorType
}		
if (focalLengthFlag == 1){		
focalLength	32	fsbf
}		
if (apertureFlag == 1){		
aperture	32	fsbf
}		
if (shutterSpeedFlag == 1){		
shutterSpeed	32	fsbf
}		
if (filterFlag == 1){		
Filter	0	bslbf
}		
}		

Constraints of the CameraSensorType.

Name	Constraints
CameraSensorType	
CameraLocation	Not used
CameraOrientation	Not used
focalLength	

Name	Constraints
aperture	
shutterSpeed	
filter	Not used
CameraOrientationFlag	Equals "0" (CameraOrientation is not used)
CameraLocationFlag	Equals "0" (CameraLocation is not used)
focalLengthFlag	
apertureFlag	
shutterSpeedFlag	
filterFlag	Equals "0" (filter is not used)
SensedInfoBaseType	SensedInfoBaseType in 5.1.3.2

5.1.3.8 Depth camera sensor

Constrained syntax of the DepthCameraSensorType.

DepthCameraSensorType {	Number of bits	Mnemonic
CameraSensorType		CameraSensorType in 5.1.3.7
RawVideo {		
width	16	uimsbf
height	16	uimsbf
bit_depth	8	uimsbf
stride	32	uimsbf
coding4cc	32	uimsbf
fps	16	uimsbf
use_frame_packing	1	bslbf
RawVideoDataSize = 0	8	vluimsbf5
RawVideoData	0	bslbf
}		
RawDepth {		
width	16	uimsbf
height	16	uimsbf
bit_depth	8	uimsbf
stride	32	uimsbf
coding4cc	32	uimsbf
fps	16	uimsbf
use_frame_packing	1	bslbf
RawVideoDataSize		vluimsbf5
RawVideoData		bslbf
}		
}		

Constraints of the DepthCameraSensorType:

Name	Constraints
DepthCameraSensorType	
CameraSensor	CameraSensorType in 5.1.3.7
RawVideo	Not used
Width	
height	
bit_depth	
stride	
coding4CC	
fps	
use_frame_packing	
frame_packing	
VideoData16	
VideoData64	
RawVideoDataSize	Equals "0" (RawVideo of ColorCameraSensor is not used)
RawVideoData	Not used
RawDepth	
width	
height	
bit_depth	
stride	
coding4CC	
fps	
use_frame_packing	
frame_packing	
VideoData16	
VideoData64	
RawVideoDataSize	
RawVideoData	

Annex A (normative)

Classification schemes

A.1 General

This Annex specifies a set of classification schemes that may be used by applications using description tools specified in this document. Applications need not use these classification schemes; they can use proprietary or third party ones. However, if they choose to use the classification schemes defined in this clause, no modifications or extensions are allowed to these classification schemes. The classification schemes in this clause are specified using the `ClassificationScheme` defined in ISO/IEC 15938-5. All of the classification schemes defined in this clause are uniquely identified by a URN following the "urn:mpeg:mpeg-v:01-CI-NameCS-NS" namespace identifier where Name should be replaced with the name of the classification scheme. For example, the URN "urn:mpeg:mpeg-v:01-CI-TactileDisplayCS-NS" identifies the classification scheme provided for `actuatorType` values of `TactileCapabilityType`.

In some cases there are several classification schemes associated with a single description. In such a case, any one of these classification schemes (as well as classification schemes not defined in this document) may be used depending on the application domain.

A.2 Classification schemes

A.2.1 UnitTypeCS

```
<ClassificationScheme uri="urn:mpeg:mpeg-v:01-CI-UnitTypeCS-NS">
  <Term termId="micrometer">
    <Name xml:lang="en">micrometer</Name>
    <Definition xml:lang="en">
      A unit of length or distance equal to one millionth of a meter
    </Definition>
  </Term>
  <Term termId="mm">
    <Name xml:lang="en">millimeter</Name>
    <Definition xml:lang="en">
      A unit of length or distance equal to one thousandth of a meter
    </Definition>
  </Term>
  <Term termId="cm">
    <Name xml:lang="en">centimeter</Name>
    <Definition xml:lang="en">
      A unit of length or distance equal to one hundredth of a meter
    </Definition>
  </Term>
  <Term termId="meter">
    <Name xml:lang="en">meter</Name>
    <Definition xml:lang="en">
      The basic unit of length in International System of Units
    </Definition>
  </Term>
  <Term termId="km">
    <Name xml:lang="en">kilometer</Name>
    <Definition xml:lang="en">
      A unit of length or distance equal to one thousand meter
    </Definition>
  </Term>
  <Term termId="inch">
    <Name xml:lang="en">inch</Name>
```

```

    <Definition xml:lang="en">
      A unit of length or distance equal to 0.0254 meter
    </Definition>
  </Term>
  <Term termId="yard">
    <Name xml:lang="en">yard</Name>
    <Definition xml:lang="en">
      A unit of length or distance equal to 0.9144 meter
    </Definition>
  </Term>
  <Term termId="mile">
    <Name xml:lang="en">mile</Name>
    <Definition xml:lang="en">
      A unit of length or distance equal to 1609.344 meter
    </Definition>
  </Term>
  <Term termId="mg">
    <Name xml:lang="en">milligram</Name>
    <Definition xml:lang="en">
      A unit of mass or weight equal to one millionth of a kilogram
    </Definition>
  </Term>
  <Term termId="gram">
    <Name xml:lang="en">gram</Name>
    <Definition xml:lang="en">
      A unit of mass or weight equal to one thousandth of a kilogram
    </Definition>
  </Term>
  <Term termId="kg">
    <Name xml:lang="en">kilogram</Name>
    <Definition xml:lang="en">
      The base unit of mass in International System of Units
    </Definition>
  </Term>
  <Term termId="ton">
    <Name xml:lang="en">ton</Name>
    <Definition xml:lang="en">
      A unit of mass or weight equal to a thousand kilogram
    </Definition>
  </Term>
  <Term termId="micrometerpersec">
    <Name xml:lang="en">micrometerpersec</Name>
    <Definition xml:lang="en">
      A unit of velocity equal to a millionth of a meterpersecond
    </Definition>
  </Term>
  <Term termId="mmpersec">
    <Name xml:lang="en">millimeterpersecond</Name>
    <Definition xml:lang="en">
      A unit of velocity equal to a thousandth of a meterpersecond
    </Definition>
  </Term>
  <Term termId="cmpersec">
    <Name xml:lang="en">centimeterpersecond</Name>
    <Definition xml:lang="en">
      A unit of velocity equal to a hundredth of a meterpersecond
    </Definition>
  </Term>
  <Term termId="meterpersec">
    <Name xml:lang="en">meterpersecond</Name>
    <Definition xml:lang="en">
      The SI coherent derived unit of velocity in International System of Units
    </Definition>
  </Term>
  <Term termId="kmpersec">
    <Name xml:lang="en">kilometerpersecond</Name>
    <Definition xml:lang="en">
      A unit of velocity equal to a thousand meterpersecond
    </Definition>
  </Term>
  <Term termId="inchpersec">

```

```

    <Name xml:lang="en">inchpersecond</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to 0.0254 meterpersecond
    </Definition>
</Term>
<Term termId="yardpersec">
    <Name xml:lang="en">yardpersecond</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to 0.9144 meterpersecond
    </Definition>
</Term>
<Term termId="milepersec">
    <Name xml:lang="en">milepersecond</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to 1609.344 meterpersecond
    </Definition>
</Term>
<Term termId="micrometerpermin">
    <Name xml:lang="en">micrometerperminute</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to a millionth of a meterperminute
    </Definition>
</Term>
<Term termId="mmpermin">
    <Name xml:lang="en">millimeterperminute</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to a thousandth of a meterperminute
    </Definition>
</Term>
<Term termId="cmpermin">
    <Name xml:lang="en">centimeterperminute</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to a hundredth of a meterperminute
    </Definition>
</Term>
<Term termId="meterpermin">
    <Name xml:lang="en">meterperminute</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to one sixtyth of a meterpersecond
    </Definition>
</Term>
<Term termId="kmpermin">
    <Name xml:lang="en">kilometerperminute</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to a thousand meterperminute
    </Definition>
</Term>
<Term termId="inchpermin">
    <Name xml:lang="en">inchperminute</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to 0.0254 meterperminute
    </Definition>
</Term>
<Term termId="yardpermin">
    <Name xml:lang="en">yardperminute</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to 0.9144 meterperminute
    </Definition>
</Term>
<Term termId="milepermin">
    <Name xml:lang="en">mileperminute</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to 1609.344 meterperminute
    </Definition>
</Term>
<Term termId="micrometerperhour">
    <Name xml:lang="en">micrometerperhour</Name>
    <Definition xml:lang="en">
        A unit of velocity equal to a millionth of a meterperhour
    </Definition>
</Term>

```

```

<Term termId="mmperhour">
  <Name xml:lang="en">millimeterperhour</Name>
  <Definition xml:lang="en">
    A unit of velocity equal to a thousandth of a meterperhour
  </Definition>
</Term>
<Term termId="cmperhour">
  <Name xml:lang="en">centimeterperhour</Name>
  <Definition xml:lang="en">
    A unit of velocity equal to a hundredth of a meterperhour
  </Definition>
</Term>
<Term termId="meterperhour">
  <Name xml:lang="en">meterperhour</Name>
  <Definition xml:lang="en">
    A unit of velocity equal to one over thirty-six hundred of a meterpersecond
  </Definition>
</Term>
<Term termId="kmperhour">
  <Name xml:lang="en">kilometerperhour</Name>
  <Definition xml:lang="en">
    A unit of velocity equal to a thousand meterperhour
  </Definition>
</Term>
<Term termId="inchperhour">
  <Name xml:lang="en">inchperhour</Name>
  <Definition xml:lang="en">
    A unit of velocity equal to 0.0254 meterperhour
  </Definition>
</Term>
<Term termId="yardperhour">
  <Name xml:lang="en">yardperhour</Name>
  <Definition xml:lang="en">
    A unit of velocity equal to 0.9144 meterperhour
  </Definition>
</Term>
<Term termId="mileperhour">
  <Name xml:lang="en">mileperhour</Name>
  <Definition xml:lang="en">
    A unit of velocity equal to 1609.344 meterperhour
  </Definition>
</Term>
<Term termId="micrometerpersecsquared">
  <Name xml:lang="en">micrometerpersecsquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to a millionth of a meterpersecondsquared
  </Definition>
</Term>
<Term termId="mmpersecsquared">
  <Name xml:lang="en">millimeterpersecondsquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to a thousandth of a meterpersecondsquared
  </Definition>
</Term>
<Term termId="cmpersecsquared">
  <Name xml:lang="en">centimeterpersecondsquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to a hundredth of a meterpersecondsquared
  </Definition>
</Term>
<Term termId="meterpersecsquared">
  <Name xml:lang="en">meterpersecondsquared</Name>
  <Definition xml:lang="en">
    The SI coherent derived unit of acceleration in International System of Units
  </Definition>
</Term>
<Term termId="kmpersecsquared">
  <Name xml:lang="en">kilometerpersecondsquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to a thousand meterpersecondsquared
  </Definition>

```

```

</Term>
<Term termId="inchpersecsquared">
  <Name xml:lang="en">inchpersecondsquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to 0.0254 meterpersecondsquared
  </Definition>
</Term>
<Term termId="yardpersecsquared">
  <Name xml:lang="en">yardpersecondsquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to 0.9144 meterpersecondsquared
  </Definition>
</Term>
<Term termId="milepersecsquared">
  <Name xml:lang="en">milepersecondsquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to 1609.344 meterpersecondsquared
  </Definition>
</Term>
<Term termId="micrometerperminsquared">
  <Name xml:lang="en">micrometerperminutesquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to a millionth of a meterperminsquared
  </Definition>
</Term>
<Term termId="mmperminsquared">
  <Name xml:lang="en">millimeterperminutesquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to a thousandth of a meterperminsquared
  </Definition>
</Term>
<Term termId="cmperminsquared">
  <Name xml:lang="en">centimeterperminutesquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to a hundredth of a meterperminsquared
  </Definition>
</Term>
<Term termId="meterperminsquared">
  <Name xml:lang="en">meterperminutesquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to one over thirty-six hundred of a
meterpersecondsquared
  </Definition>
</Term>
<Term termId="kmperminsquared">
  <Name xml:lang="en">kilometerperminutesquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to a thousand meterperminsquared
  </Definition>
</Term>
<Term termId="inchperminsquared">
  <Name xml:lang="en">inchperminutesquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to 0.0254 meterperminsquared
  </Definition>
</Term>
<Term termId="yardperminsquared">
  <Name xml:lang="en">yardperminutesquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to 0.9144 meterperminsquared
  </Definition>
</Term>
<Term termId="mileperminsquared">
  <Name xml:lang="en">mileperminutesquared</Name>
  <Definition xml:lang="en">
    A unit of acceleration equal to 1609.344 meterperminsquared
  </Definition>
</Term>
<Term termId="micrometerperhoursquared">
  <Name xml:lang="en">micrometerperhoursquared</Name>
  <Definition xml:lang="en">

```

A unit of acceleration equal to a millionth of a meterperhoursquared
 </Definition>
 </Term>
 <Term termId="mmperhoursquared">
 <Name xml:lang="en">millimeterperhoursquared</Name>
 <Definition xml:lang="en">
 A unit of acceleration equal to a thousandth of a meterperhoursquared
 </Definition>
 </Term>
 <Term termId="cmperhoursquared">
 <Name xml:lang="en">centimeterperhoursquared</Name>
 <Definition xml:lang="en">
 A unit of acceleration equal to a hundredth of a meterperhoursquared
 </Definition>
 </Term>
 <Term termId="meterperhoursquared">
 <Name xml:lang="en">meterperhoursquared</Name>
 <Definition xml:lang="en">
 A unit of acceleration equal to one over twelve million ninty-six hundred
 thousand of a meterpersecondsquared
 </Definition>
 </Term>
 <Term termId="kmperhoursquared">
 <Name xml:lang="en">kilometerperhoursquared</Name>
 <Definition xml:lang="en">
 A unit of acceleration equal to a thousand meterperhoursquared
 </Definition>
 </Term>
 <Term termId="inchperhoursquared">
 <Name xml:lang="en">inchperhoursquared</Name>
 <Definition xml:lang="en">
 A unit of acceleration equal to 0.0254 meterperhoursquared
 </Definition>
 </Term>
 <Term termId="yardperhoursquared">
 <Name xml:lang="en">yardperhoursquared</Name>
 <Definition xml:lang="en">
 A unit of acceleration equal to 0.9144 meterperhoursquared
 </Definition>
 </Term>
 <Term termId="mileperhoursquared">
 <Name xml:lang="en">mileperhoursquared</Name>
 <Definition xml:lang="en">
 A unit of acceleration equal to 1609.344 meterperhoursquared
 </Definition>
 </Term>
 <Term termId="Newton">
 <Name xml:lang="en">Newton</Name>
 <Definition xml:lang="en">
 The SI coherent derived unit of force in International System of Units, which is
 equal to one kilogram-meter per second squared
 </Definition>
 </Term>
 <Term termId="Nmm">
 <Name xml:lang="en">Newtonmillimeter</Name>
 <Definition xml:lang="en">
 The derived unit of energy, work, and quantity of heat in International System of
 Units, which is equal to a thousandth of one kilogram-square meter per second squared
 </Definition>
 </Term>
 <Term termId="Npmm">
 <Name xml:lang="en">Newtonpermillimeter</Name>
 <Definition xml:lang="en">
 The derived unit of surface tension in International System of Units, which is
 equal to a thousandth of one kilogram per second squared
 </Definition>
 </Term>
 <Term termId="Pa">
 <Name xml:lang="en">Pascal</Name>
 <Definition xml:lang="en">
 The basic SI (International System of Units) unit for pressure, which is equal to

one newton per square meter

```

</Definition>
</Term>
<Term termId="psi">
  <Name xml:lang="en">poundpersquareinch</Name>
  <Definition xml:lang="en">
    A unit for pressure, which is equal to 0.00014504 Pascal
  </Definition>
</Term>
<Term termId="bar">
  <Name xml:lang="en">bar</Name>
  <Definition xml:lang="en">
    A conventional unit for pressure, which is equal to 0.00001 Pascal
  </Definition>
</Term>
<Term termId="hPa">
  <Name xml:lang="en">hectopascal</Name>
  <Definition xml:lang="en">
    A unit for pressure, which is equal to 100 pascal
  </Definition>
</Term>
<Term termId="mbar">
  <Name xml:lang="en">millibar</Name>
  <Definition xml:lang="en">
    A conventional unit for pressure, which is equal to 0.001 bar
  </Definition>
</Term>
<Term termId="kPa">
  <Name xml:lang="en">kilopascal</Name>
  <Definition xml:lang="en">
    A unit for pressure, which is equal to 1000 pascal
  </Definition>
</Term>
<Term termId="dbar">
  <Name xml:lang="en">decibar</Name>
  <Definition xml:lang="en">
    A conventional unit for pressure, which is equal to 0.1 bar
  </Definition>
</Term>
<Term termId="atm">
  <Name xml:lang="en">atmosphere</Name>
  <Definition xml:lang="en">
    An established constant to denote the standard atmosphere (atm), which is
    approximately equal to the typical air pressure at earth mean sea level and is defined as
    101325 pascal
  </Definition>
</Term>
<Term termId="Hz">
  <Name xml:lang="en">Hertz</Name>
  <Definition xml:lang="en">
    The derived unit of frequency in International System of Units, which is equal to
    one over second
  </Definition>
</Term>
<Term termId="KHz">
  <Name xml:lang="en">KiloHertz</Name>
  <Definition xml:lang="en">
    A unit of frequency equal to a thousand Hertz
  </Definition>
</Term>
<Term termId="MHz">
  <Name xml:lang="en">MegaHertz</Name>
  <Definition xml:lang="en">
    A unit of frequency equal to a million Hertz
  </Definition>
</Term>
<Term termId="GHz">
  <Name xml:lang="en">GigaHertz</Name>
  <Definition xml:lang="en">
    A unit of frequency equal to a billion Hertz
  </Definition>

```

```

</Term>
<Term termId="volt">
  <Name xml:lang="en">volt</Name>
  <Definition xml:lang="en">
    The SI coherent derived unit of electric potential difference or electromotive
    force in International System of Units, which is equal to one kilogram-square meter per
    second cubed-ampere
  </Definition>
</Term>
<Term termId="millivolt">
  <Name xml:lang="en">millivolt</Name>
  <Definition xml:lang="en">
    A unit of electric potential difference or electromotive force equal to a
    thousandth of a volt
  </Definition>
</Term>
<Term termId="ampere">
  <Name xml:lang="en">ampere</Name>
  <Definition xml:lang="en">
    The basic unit of electric current in International System of Units
  </Definition>
</Term>
<Term termId="milliampere">
  <Name xml:lang="en">milliampere</Name>
  <Definition xml:lang="en">
    A unit of electric current equal to a thousandth of an ampere
  </Definition>
</Term>
<Term termId="milliwatt">
  <Name xml:lang="en">milliwatt</Name>
  <Definition xml:lang="en">
    A unit of power or radiant flux equal to a thousandth of a watt
  </Definition>
</Term>
<Term termId="watt">
  <Name xml:lang="en">watt</Name>
  <Definition xml:lang="en">
    The SI coherent derived unit of power or radiant flux in International System of
    Units, which is equal to one kilogram-square meter per second cubed
  </Definition>
</Term>
<Term termId="kilowatt">
  <Name xml:lang="en">kilowatt</Name>
  <Definition xml:lang="en">
    A unit of power or radiant flux equal to a thousand watt
  </Definition>
</Term>
<Term termId="lux">
  <Name xml:lang="en">Lux</Name>
  <Definition xml:lang="en">
    The SI coherent derived unit of illuminance in International System of Units,
    which is equal to one candela per square meter
  </Definition>
</Term>
<Term termId="celsius">
  <Name xml:lang="en">Celsius</Name>
  <Definition xml:lang="en">
    The SI coherent derived unit of Celsius temperature in International System of
    Units
  </Definition>
</Term>
<Term termId="fahrenheit">
  <Name xml:lang="en">Fahrenheit</Name>
  <Definition xml:lang="en">
    A unit of temperature which is equal to a Celsius temperature times nine fifths
    plus thirty-two
  </Definition>
</Term>
<Term termId="radian">
  <Name xml:lang="en">Radian</Name>
  <Definition xml:lang="en">

```

The SI coherent derived unit of plane angle in International System of Units

</Definition>

</Term>

<Term termID="degree">

<Name xml:lang="en">Degree</Name>

<Definition xml:lang="en">

A unit of plane angle which is equal to pi over hundred-eighty radian (pi is a mathematical constant whose value is the ratio of any circle's circumference to its diameter in Euclidean space)

</Definition>

</Term>

<Term termID="radpersec">

<Name xml:lang="en">radianpersecond</Name>

<Definition xml:lang="en">

The SI coherent derived unit of angular velocity in International System of Units, which is equal to one radian per second

</Definition>

</Term>

<Term termID="degpersec">

<Name xml:lang="en">degreepersecond</Name>

<Definition xml:lang="en">

A unit of angular velocity which is equal to pi over hundred-eighty radianpersecond

</Definition>

</Term>

<Term termID="radpersecsquared">

<Name xml:lang="en">radianpersecondssquared</Name>

<Definition xml:lang="en">

The SI coherent derived unit of angular acceleration in International System of Units, which is equal to one radian per second squared

</Definition>

</Term>

<Term termID="degpersecsquared">

<Name xml:lang="en">degreepersecondssquared</Name>

<Definition xml:lang="en">

A unit of angular acceleration which is equal to pi over hundred-eighty radianpersecondssquared

</Definition>

</Term>

<Term termID="Npermmsquare">

<Name xml:lang="en">Newtonpermillimetersquare</Name>

<Definition xml:lang="en">

A unit for pressure, which is equal to a millionth of a pascal

</Definition>

</Term>

<Term termId="ppm">

<Name xml:lang="en">ppm</Name>

<Definition xml:lang="en">

A unit of a way of quantifying small concentrations, equal to part(s) per million

</Definition>

</Term>

<Term termId="microgpcm">

<Name xml:lang="en">microgramspercubicmeter</Name>

<Definition xml:lang="en">

A unit of a way of quantifying fine dust(PM-10), equal to /

</Definition>

</Term>

<Term termId="pcpl">

<Name xml:lang="en">picocuriesperliter</Name>

<Definition xml:lang="en">

A unit of a way of quantifying radioactivity, equal to pCi/l

</Definition>

</Term>

<Term termId="btu">

<Name xml:lang="en">britishthermalunit</Name>

<Definition xml:lang="en">

A traditional unit of energy equal to about 1055 joules. Called British Thermal Unit.

</Definition>

</Term>

<Term termId="mlpm">

```

    <Name xml:lang="en">milliliterperminute</Name>
    <Definition xml:lang="en">
        A unit of quantifying flow rate. Milliliter per minute.
    </Definition>
</Term>
<Term termId="IRISD">
    <Name xml:lang="en">IRIS Diameter</Name>
    <Definition xml:lang="en">
        A unit of length or distance equal to one IRISD0/1024, specific to measure a
displacement of each facial expression basis for an individual user.
    </Definition>
</Term>
<Term termId="ES">
    <Name xml:lang="en">Eye Separation</Name>
    <Definition xml:lang="en">
        A unit of length or distance equal to one ES0/1024, which is specific to measure a
displacement of each facial expression basis for an individual user.
    </Definition>
</Term>
<Term termId="ENS">
    <Name xml:lang="en">Eye-Nose Separation</Name>
    <Definition xml:lang="en">
        A unit of length or distance equal to one ENS0/1024, which is specific to measure
a displacement of each facial expression basis for an individual user.
    </Definition>
</Term>
<Term termId="MNS">
    <Name xml:lang="en">Mouth-Nose Separation</Name>
    <Definition xml:lang="en">
        A unit of length or distance equal to one MNS0/1024, which is specific to measure
a displacement of each facial expression basis for an individual user.
    </Definition>
</Term>
<Term termId="MW">
    <Name xml:lang="en">Mouth-Width Separation</Name>
    <Definition xml:lang="en">
        A unit of length or distance equal to one MW0/1024, which is specific to measure a
displacement of each facial expression basis for an individual user.
    </Definition>
</Term>
<Term termId="AU">
    <Name xml:lang="en">Angular Unit</Name>
    <Definition xml:lang="en">
        A unit of plane angle equal to 1/100000 radian.
    </Definition>
</Term>
</ClassificationScheme>

```

Binary representation of UnitTypeCS

unitType	Term ID of unit
00000000	Micrometer
00000001	Mm
00000010	Cm
00000011	Meter
00000100	Km
00000101	Inch
00000110	Yard
00000111	Mile
00001000	Mg
00001001	Gram
00001010	Kg
00001011	Ton

unitType	Term ID of unit
00001100	Micrometerpersec
00001101	Mmpersec
00001110	Cmpersec
00001111	Meterpersec
00010000	Kmpersec
00010001	Inchpersec
00010010	Yardpersec
00010011	Milepersec
00010100	Micrometerpermin
00010101	Mmpermin
00010110	Cmpermin
00010111	Meterpermin
00011000	Kmpermin
00011001	Inchpermin
00011010	Yardpermin
00011011	Milepermin
00011100	Micrometerperhour
00011101	Mmperhour
00011110	Cmperhour
00011111	Meterperhour
00100000	Kmperhour
00100001	Inchperhour
00100010	Yardperhour
00100011	Mileperhour
00100100	Micrometerpersecsquare
00100101	Mmpersecsquare
00100110	Cmpersecsquare
00100111	Meterpersecsquare
00101000	Kmpersecsquare
00101001	Inchpersecsquare
00101010	Yardpersecsquare
00101011	Milepersecsquare
00101100	Micrometerperminsquare
00101101	Mmperminsquare
00101110	Cmperminsquare
00101111	Meterperminsquare
00110000	Kmpersminsquare
00110001	Inchperminsquare
00110010	Yardperminsquare
00110011	Mileperminsquare
00110100	Micrometerperhoursquare
00110101	Mmperhoursquare
00110110	Cmperhoursquare
00110111	Meterperhoursquare
00111000	Kmperhoursquare

unitType	Term ID of unit
00111001	Inchperhoursquare
00111010	Yardperhoursquare
00111011	Mileperhoursquare
00111100	Newton
00111101	Nmm
00111110	Npmm
00111111	Pa
01000000	psi
01000001	bar
01000010	hPa
01000011	mbar
01000100	kPa
01000101	dbar
01000110	Atm
01000111	Hz
01001000	KHz
01001001	MHz
01001010	GHz
01001011	Volt
01001100	millivolt
01001101	ampere
01001110	milliampere
01001111	milliwatt
01010000	Watt
01010001	kilowatt
01010010	Lux
01010011	celsius
01010100	fahrenheit
01010101	radian
01010110	degree
01010111	radpersec
01011000	degpersec
01011001	radpersecsquare
01011010	degpersecsquare
01011011	Npermmsquare
01011100	ppm
01011101	microgpcm
01011110	pcpl
01011111	btu
01100000	mlpm
01100001	IRISD
01100010	ES
01100011	ENS
01100100	MNS

unitType	Term ID of unit
01100101	MW
01100110	AU
01100111 - 11111111	Reserved

A.2.2 ColorCS

```

<ClassificationScheme uri="urn:mpeg:mpeg-v:01-SI-ColorCS-NS">
  <Term termID="alice_blue">
    <Name xml:lang="en">Alice blue</Name>
    <Definition>Describes the color Alice blue. Hex: #F0F8FF; RGB: 240, 248, 255; HSV:
208°, 6%, 100%.</Definition>
  </Term>
  <Term termID="alizarin">
    <Name xml:lang="en">Alizarin</Name>
    <Definition>Describes the color Alizarin. Hex: #E32636; RGB: 227, 38, 54; HSV: 355°,
83%, 89%.</Definition>
  </Term>
  <Term termID="amaranth">
    <Name xml:lang="en">Amaranth</Name>
    <Definition>Describes the color Amaranth. Hex: #E52B50; RGB: 229, 43, 80; HSV: 345°,
78%, 64%.</Definition>
  </Term>
  <Term termID="amaranth_pink">
    <Name xml:lang="en">Amaranth Pink</Name>
    <Definition>Describes the color Amaranth Pink. Hex: #F19CBB; RGB: 241, 156, 187; HSV:
345°, 47%, 92%.</Definition>
  </Term>
  <Term termID="amber">
    <Name xml:lang="en">Amber</Name>
    <Definition>Describes the color Amber. Hex: #FFBF00; RGB: 255, 191, 0; HSV: 45°,
100%, 100%.</Definition>
  </Term>
  <Term termID="amethyst">
    <Name xml:lang="en">Amethyst</Name>
    <Definition>Describes the color Amethyst. Hex: #9966CC; RGB: 153, 102, 204; HSV:
270°, 50%, 80%.</Definition>
  </Term>
  <Term termID="apricot">
    <Name xml:lang="en">Apricot</Name>
    <Definition>Describes the color Apricot. Hex: #FBCEB1; RGB: 251, 206, 177; HSV: 30°,
25%, 87%.</Definition>
  </Term>
  <Term termID="aqua">
    <Name xml:lang="en">Aqua</Name>
    <Definition>Describes the color Aqua. Hex: #00FFFF; RGB: 0, 255, 255; HSV: 180°,
100%, 100%.</Definition>
  </Term>
  <Term termID="aquamarine">
    <Name xml:lang="en">Aquamarine</Name>
    <Definition>Describes the color Aquamarine. Hex: #7FFFD4; RGB: 127, 255, 212; HSV:
160°, 50%, 100%.</Definition>
  </Term>
  <Term termID="army_green">
    <Name xml:lang="en">Army green</Name>
    <Definition>Describes the color Army green. Hex: #4B5320; RGB: 75, 83, 32; HSV: 46°,
106%, 54%.</Definition>
  </Term>
  <Term termID="asparagus">
    <Name xml:lang="en">Asparagus</Name>
    <Definition>Describes the color Asparagus. Hex: #7BA05B; RGB: 123, 160, 91; HSV: 92°,
43%, 63%.</Definition>
  </Term>
  <Term termID="atomic_tangerine">
    <Name xml:lang="en">Atomic tangerine</Name>
    <Definition>Describes the color Atomic tangerine. Hex: #FF9966; RGB: 255, 153, 102;
HSV: 20°, 100%, 75%.</Definition>
  </Term>

```

```

<Term termID="auburn">
  <Name xml:lang="en">Auburn</Name>
  <Definition>Describes the color Auburn. Hex: #6D351A; RGB: 111, 53, 26; HSV: 7°, 67%,
45%.</Definition>
</Term>
<Term termID="azure_color_wheel">
  <Name xml:lang="en">Azure (color wheel)</Name>
  <Definition>Describes the color Azure (color wheel). Hex: #007FFF; RGB: 0, 127, 255;
HSV: 210°, 100%, 50%.</Definition>
</Term>
<Term termID="azure_web">
  <Name xml:lang="en">Azure (web)</Name>
  <Definition>Describes the color Azure (web). Hex: #F0FFFF; RGB: 240, 255, 255; HSV:
210°, 100%, 98%.</Definition>
</Term>
<Term termID="baby_blue">
  <Name xml:lang="en">Baby blue</Name>
  <Definition>Describes the color Baby blue. Hex: #E0FFFF; RGB: 224, 255, 255; HSV:
180°, 12%, 100%.</Definition>
</Term>
<Term termID="beige">
  <Name xml:lang="en">Beige</Name>
  <Definition>Describes the color Beige. Hex: #F5F5DC; RGB: 245, 245, 220; HSV: 60°,
10%, 96%.</Definition>
</Term>
<Term termID="bistre">
  <Name xml:lang="en">Bistre</Name>
  <Definition>Describes the color Bistre. Hex: #3D2B1F; RGB: 61, 43, 31; HSV: 24°, 49%,
24%.</Definition>
</Term>
<Term termID="black">
  <Name xml:lang="en">Black</Name>
  <Definition>Describes the color Black. Hex: #000000; RGB: 0, 0, 0; HSV: 0°, 0%, 0%.</
Definition>
</Term>
<Term termID="blue">
  <Name xml:lang="en">Blue</Name>
  <Definition>Describes the color Blue. Hex: #0000FF; RGB: 0, 0, 255; HSV: 240°, 100%,
100%.</Definition>
</Term>
<Term termID="blue_pigment">
  <Name xml:lang="en">Blue (pigment)</Name>
  <Definition>Describes the color Blue (pigment). Hex: #333399; RGB: 51, 51, 153; HSV:
240°, 50%, 35%.</Definition>
</Term>
<Term termID="blue_ryb">
  <Name xml:lang="en">Blue (RYB)</Name>
  <Definition>Describes the color Blue (RYB). Hex: #0247FE; RGB: 2, 71, 254; HSV: 240°,
100%, 82%.</Definition>
</Term>
<Term termID="blue-green">
  <Name xml:lang="en">Blue-green</Name>
  <Definition>Describes the color Blue-green. Hex: #00DDDD; RGB: 0, 223, 223; HSV:
180°, 100%, 50%.</Definition>
</Term>
<Term termID="blue-violet">
  <Name xml:lang="en">Blue-violet</Name>
  <Definition>Describes the color Blue-violet. Hex: #8A2BE2; RGB: 138, 43, 226; HSV:
271°, 81%, 42%.</Definition>
</Term>
<Term termID="bondi_blue">
  <Name xml:lang="en">Bondi blue</Name>
  <Definition>Describes the color Bondi blue. Hex: #0095B6; RGB: 0, 149, 182; HSV:
191°, 100%, 71%.</Definition>
</Term>
<Term termID="brass">
  <Name xml:lang="en">Brass</Name>
  <Definition>Describes the color Brass. Hex: #B5A642; RGB: 181, 166, 66; HSV: 37°,
119%, 124%.</Definition>
</Term>
<Term termID="bright_green">

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    <Name xml:lang="en">Bright green</Name>
    <Definition>Describes the color Bright green. Hex: #66FF00; RGB: 102, 255, 0; HSV:
96°, 100%, 100%.</Definition>
  </Term>
  <Term termID="bright_pink">
    <Name xml:lang="en">Bright pink</Name>
    <Definition>Describes the color Bright pink. Hex: #FF007F; RGB: 255, 0, 127; HSV:
330°, 100%, 100%.</Definition>
  </Term>
  <Term termID="bright_turquoise">
    <Name xml:lang="en">Bright turquoise</Name>
    <Definition>Describes the color Bright turquoise. Hex: #08E8DE; RGB: 8, 232, 222;
HSV: 177°, 97%, 91%.</Definition>
  </Term>
  <Term termID="brilliant_rose">
    <Name xml:lang="en">Brilliant rose</Name>
    <Definition>Describes the color Brilliant rose. Hex: #FF55A3; RGB: 255, 85, 163; HSV:
330°, 75%, 84%.</Definition>
  </Term>
  <Term termID="brink_pink">
    <Name xml:lang="en">Brink Pink</Name>
    <Definition>Describes the color Brink Pink. Hex: #FB607F; RGB: 251, 96, 127; HSV:
333°, 88%, 80%.</Definition>
  </Term>
  <Term termID="bronze">
    <Name xml:lang="en">Bronze</Name>
    <Definition>Describes the color Bronze. Hex: #CD7F32; RGB: 205, 127, 50; HSV: 21°,
155%, 128%.</Definition>
  </Term>
  <Term termID="brown">
    <Name xml:lang="en">Brown</Name>
    <Definition>Describes the color Brown. Hex: #964B00; RGB: 150, 75, 0; HSV: 30°, 100%,
59%.</Definition>
  </Term>
  <Term termID="buff">
    <Name xml:lang="en">Buff</Name>
    <Definition>Describes the color Buff. Hex: #F0DC82; RGB: 240, 220, 130; HSV: 49°,
46%, 94%.</Definition>
  </Term>
  <Term termID="burgundy">
    <Name xml:lang="en">Burgundy</Name>
    <Definition>Describes the color Burgundy. Hex: #900020; RGB: 128, 0, 32; HSV: 345°,
50%, 50%.</Definition>
  </Term>
  <Term termID="burnt_orange">
    <Name xml:lang="en">Burnt orange</Name>
    <Definition>Describes the color Burnt orange. Hex: #CC5500; RGB: 204, 85, 0; HSV:
25°, 100%, 80%.</Definition>
  </Term>
  <Term termID="burnt_sienna">
    <Name xml:lang="en">Burnt sienna</Name>
    <Definition>Describes the color Burnt sienna. Hex: #E97451; RGB: 233, 116, 81; HSV:
14°, 65%, 91%.</Definition>
  </Term>
  <Term termID="burnt_umber">
    <Name xml:lang="en">Burnt umber</Name>
    <Definition>Describes the color Burnt umber. Hex: #8A3324; RGB: 138, 51, 36; HSV: 9°,
74%, 54%.</Definition>
  </Term>
  <Term termID="camouflage_green">
    <Name xml:lang="en">Camouflage green</Name>
    <Definition>Describes the color Camouflage green. Hex: #78866B; RGB: 120, 134, 107;
HSV: 91°, 20%, 53%.</Definition>
  </Term>
  <Term termID="caput_mortuum">
    <Name xml:lang="en">Caput Mortuum</Name>
    <Definition>Describes the color Caput Mortuum. Hex: #592720; RGB: 89, 39, 32; HSV:
7°, 64%, 35%.</Definition>
  </Term>
  <Term termID="cardinal">
    <Name xml:lang="en">Cardinal</Name>

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    <Definition>Describes the color Cardinal. Hex: #C41E3A; RGB: 196, 30, 58; HSV: 350°,
85%, 77%.</Definition>
  </Term>
  <Term termID="carmine">
    <Name xml:lang="en">Carmine</Name>
    <Definition>Describes the color Carmine. Hex: #960018; RGB: 150, 0, 24; HSV: 350°,
100%, 59%.</Definition>
  </Term>
  <Term termID="carmine_pink">
    <Name xml:lang="en">Carmine Pink</Name>
    <Definition>Describes the color Carmine Pink. Hex: #EB4C42; RGB: 235, 76, 66; HSV:
0°, 75%, 80%.</Definition>
  </Term>
  <Term termID="carnation_pink">
    <Name xml:lang="en">Carnation pink</Name>
    <Definition>Describes the color Carnation pink. Hex: #FFA6C9; RGB: 255, 166, 201;
HSV: 330°, 100%, 80%.</Definition>
  </Term>
  <Term termID="carolina_blue">
    <Name xml:lang="en">Carolina blue</Name>
    <Definition>Describes the color Carolina blue. Hex: #99BADD; RGB: 156, 186, 227; HSV:
210.9°, 30.8%, 86.7%.</Definition>
  </Term>
  <Term termID="carrot_orange">
    <Name xml:lang="en">Carrot orange</Name>
    <Definition>Describes the color Carrot orange. Hex: #ED9121; RGB: 237, 145, 33; HSV:
33°, 86%, 93%.</Definition>
  </Term>
  <Term termID="celadon">
    <Name xml:lang="en">Celadon</Name>
    <Definition>Describes the color Celadon. Hex: #ACE1AF; RGB: 172, 225, 175; HSV: 123°,
24%, 88%.</Definition>
  </Term>
  <Term termID="cerise">
    <Name xml:lang="en">Cerise</Name>
    <Definition>Describes the color Cerise. Hex: #DE3163; RGB: 222, 49, 99; HSV: 343°,
78%, 87%.</Definition>
  </Term>
  <Term termID="cerise_pink">
    <Name xml:lang="en">Cerise Pink</Name>
    <Definition>Describes the color Cerise Pink. Hex: #EC3B83; RGB: 236, 59, 131; HSV:
343°, 70%, 89%.</Definition>
  </Term>
  <Term termID="cerulean">
    <Name xml:lang="en">Cerulean</Name>
    <Definition>Describes the color Cerulean. Hex: #007BA7; RGB: 0, 123, 167; HSV: 196°,
100%, 65%.</Definition>
  </Term>
  <Term termID="cerulean_blue">
    <Name xml:lang="en">Cerulean blue</Name>
    <Definition>Describes the color Cerulean blue. Hex: #2A52BE; RGB: 42, 82, 190; HSV:
224°, 78%, 75%.</Definition>
  </Term>
  <Term termID="champagne">
    <Name xml:lang="en">Champagne</Name>
    <Definition>Describes the color Champagne. Hex: #F7E7CE; RGB: 247, 231, 206; HSV:
37°, 17%, 97%.</Definition>
  </Term>
  <Term termID="charcoal">
    <Name xml:lang="en">Charcoal</Name>
    <Definition>Describes the color Charcoal. Hex: #464646; RGB: 70, 70, 70; HSV: 170°,
0%, 70%.</Definition>
  </Term>
  <Term termID="chartreuse_traditional">
    <Name xml:lang="en">Chartreuse (traditional)</Name>
    <Definition>Describes the color Chartreuse (traditional). Hex: #DFFF00; RGB: 223,
255, 0; HSV: 67.5°, 100%, 100%.</Definition>
  </Term>
  <Term termID="chartreuse_web">
    <Name xml:lang="en">Chartreuse (web)</Name>
    <Definition>Describes the color Chartreuse (web). Hex: #7FFF00; RGB: 127, 255, 0;

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HSV: 90°, 100%, 100%.</Definition>
</Term>
<Term termID="cherry_blossom_pink">
  <Name xml:lang="en">Cherry blossom pink</Name>
  <Definition>Describes the color Cherry blossom pink. Hex: #FFB7C5; RGB: 255, 183,
197; HSV: 350°, 100%, 84%.</Definition>
</Term>
<Term termID="chestnut">
  <Name xml:lang="en">Chestnut</Name>
  <Definition>Describes the color Chestnut. Hex: #CD5C5C; RGB: 205, 92, 92; HSV: 0°,
55%, 80%.</Definition>
</Term>
<Term termID="chocolate">
  <Name xml:lang="en">Chocolate</Name>
  <Definition>Describes the color Chocolate. Hex: #7B3F00; RGB: 123, 63, 0; HSV: 31°,
100%, 48%.</Definition>
</Term>
<Term termID="cinnabar">
  <Name xml:lang="en">Cinnabar</Name>
  <Definition>Describes the color Cinnabar. Hex: #E34234; RGB: 227, 66, 52; HSV: 5°,
77%, 89%.</Definition>
</Term>
<Term termID="cinnamon">
  <Name xml:lang="en">Cinnamon</Name>
  <Definition>Describes the color Cinnamon. Hex: #D2691E; RGB: 210, 105, 30; HSV: 25°,
86%, 82%.</Definition>
</Term>
<Term termID="cobalt">
  <Name xml:lang="en">Cobalt</Name>
  <Definition>Describes the color Cobalt. Hex: #0047AB; RGB: 0, 71, 171; HSV: 215°,
100%, 67%.</Definition>
</Term>
<Term termID="columbia_blue">
  <Name xml:lang="en">Columbia blue</Name>
  <Definition>Describes the color Columbia blue. Hex: #9BDDFF; RGB: 155, 221, 255; HSV:
200°, 39%, 100%.</Definition>
</Term>
<Term termID="copper">
  <Name xml:lang="en">Copper</Name>
  <Definition>Describes the color Copper. Hex: #B87333; RGB: 184, 115, 51; HSV: 29°,
72%, 72%.</Definition>
</Term>
<Term termID="copper_rose">
  <Name xml:lang="en">Copper rose</Name>
  <Definition>Describes the color Copper rose. Hex: #996666; RGB: 153, 102, 102; HSV:
344°, 35%, 57%.</Definition>
</Term>
<Term termID="coral">
  <Name xml:lang="en">Coral</Name>
  <Definition>Describes the color Coral. Hex: #FF7F50; RGB: 255, 127, 80; HSV: 16°,
69%, 100%.</Definition>
</Term>
<Term termID="coral_pink">
  <Name xml:lang="en">Coral pink</Name>
  <Definition>Describes the color Coral pink. Hex: #F88379; RGB: 248, 131, 121; HSV:
16°, 69%, 100%.</Definition>
</Term>
<Term termID="coral_red">
  <Name xml:lang="en">Coral red</Name>
  <Definition>Describes the color Coral red. Hex: #FF4040; RGB: 255, 64, 64; HSV: 3°,
82%, 100%.</Definition>
</Term>
<Term termID="corn">
  <Name xml:lang="en">Corn</Name>
  <Definition>Describes the color Corn. Hex: #FBECD5; RGB: 251, 236, 93; HSV: 54°, 63%,
98%.</Definition>
</Term>
<Term termID="cornflower_blue">
  <Name xml:lang="en">Cornflower blue</Name>
  <Definition>Describes the color Cornflower blue. Hex: #6495ED; RGB: 100, 149, 237;
HSV: 219°, 58%, 93%.</Definition>

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