

CLUE Working Group
Internet-Draft
Intended status: Informational
Expires: August 6, 2013

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February 2, 2013

**An XML Schema for the CLUE data model
draft-presta-clue-data-model-schema-02**

Abstract

This document provides an XML schema file for the definition of CLUE data model types.

Status of This Memo

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1. Introduction

This document provides an XML schema file for the definition of CLUE data model types.

The schema is based on information contained in [\[I-D.ietf-clue-framework\]](#) and also relates to the data model sketched in [\[I-D.romanow-clue-data-model\]](#). It encodes information and constraints defined in the aforementioned documents in order to provide a formal representation of the concepts therein presented. The schema definition is intended to be modified according to changes applied to the above CLUE documents.

The document actually represents a strawman proposal aiming at the definition of a coherent structure for all the information associated with the description of a telepresence scenario.

2. Terminology

[TBD] Copy text from framework document.

3. XML Schema

This section contains the proposed CLUE data model schema definition. The overall structure of the CLUE data has been derived starting from a data type called "clueInfoType" which comprises the following subelements:

mediaCaptures: the list of media captures available

encodings: the list of individual encodings

encodingGroups: the list of encodings which have been grouped together

captureScenes: the list of capture scenes

simultaneousSets: the list of simultaneous capture sets

All of the above elements refer to concepts that have been introduced in [\[I-D.ietf-clue-framework\]](#) and [\[I-D.romanow-clue-data-model\]](#) and further detailed in threads on the mailing list.

```
<?xml version="1.0" encoding="UTF-8" ?>
<xs:schema
  targetNamespace="urn:ietf:params:xml:ns:clue-info"
  xmlns:tns="urn:ietf:params:xml:ns:clue-info"
```



```
xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="urn:ietf:params:xml:ns:clue-info"
elementFormDefault="qualified"
attributeFormDefault="unqualified">

  <!-- This imports the xml:language definition -->
  <!-- <xs:import namespace="http://www.w3.org/XML/1998/namespace"
  schemaLocation="http://www.w3.org/2001/03/xml.xsd"/> -->

  <!-- CLUE INFO ELEMENT -->
  <xs:element name="clueInfo" type="clueInfoType"/>

  <!-- CLUE INFO TYPE -->
  <xs:complexType name="clueInfoType">
    <xs:sequence>
      <xs:element name="mediaCaptures" type="mediaCapturesType"/>
      <xs:element name="encodings" type="encodingsType"/>
      <xs:element name="encodingGroups" type="encodingGroupsType"/>
      <xs:element name="captureScenes" type="captureScenesType"/>
      <xs:element name="simultaneousSets" type="simultaneousSetsType"/>
      <xs:any namespace="##other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="clueInfoID" type="xs:ID" use="required"/>
    <xs:anyAttribute namespace="##other" processContents="lax"/>
  </xs:complexType>

  <!-- MEDIA CAPTURES TYPE -->
  <!-- envelope of media captures -->
  <xs:complexType name="mediaCapturesType">
    <xs:sequence>
      <xs:element name="mediaCapture" type="mediaCaptureType"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

  <!-- DESCRIPTION element -->
  <xs:element name="description">
    <xs:complexType>
      <xs:simpleContent>
        <xs:extension base="xs:string">
          <xs:attribute name="lang" type="xs:language"/>
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>
  </xs:element>

  <!-- MEDIA CAPTURE TYPE -->
```

```
<xs:complexType name="mediaCaptureType" abstract="true">  
  <xs:sequence>
```

```
<!-- mandatory fields -->
<xs:element name="capturedMedia" type="xs:string"/>
<xs:element name="captureSceneIDREF" type="xs:IDREF"/>
<xs:element name="encGroupIDREF" type="xs:IDREF"/>
<xs:choice>
  <xs:sequence>
    <xs:element name="spatialInformation"
type="tns:spatialInformationType" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:element name="nonSpatiallyDefinible" type="xs:boolean"
fixed="true"/>
</xs:choice>
<!-- optional fields -->
<xs:element ref="description" minOccurs="0" maxOccurs="unbounded"/>
<xs:element name="priority" type="xs:integer" minOccurs="0"/>
<xs:element name="lang" type="xs:language" minOccurs="0"/>
<xs:element name="content" type="xs:string" minOccurs="0"/>
<xs:element name="switched" type="xs:boolean" minOccurs="0"/>
<xs:element name="dynamic" type="xs:boolean" minOccurs="0"/>
<xs:element name="composed" type="xs:boolean" minOccurs="0"/>
<xs:element name="maxCaptureEncodings" type="xs:unsignedInt"
minOccurs="0"/>
<!-- this is in place of "supplementary info": -->
<xs:element name="relatedTo" type="xs:IDREF" minOccurs="0"/>
<xs:any namespace="##other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
</xs:sequence>
<xs:attribute name="captureID" type="xs:ID" use="required"/>
<xs:anyAttribute namespace="##other" processContents="lax"/>
</xs:complexType>

<!-- SPATIAL INFORMATION TYPE -->
<xs:complexType name="spatialInformationType">
  <xs:sequence>
    <xs:element name="capturePoint" type="capturePointType"/>
    <xs:element name="captureArea" type="captureAreaType" minOccurs="0"/>
    <xs:any namespace="##other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:anyAttribute namespace="##other" processContents="lax"/>
</xs:complexType>

<!-- AUDIO CAPTURE TYPE -->
<xs:complexType name="audioCaptureType">
  <xs:complexContent>
    <xs:extension base="tns:mediaCaptureType">
      <xs:sequence>
```

```
        <xs:element name="audioChannelFormat" type="audioChannelFormatType"
minOccurs="0"/>
        <xs:element name="micPattern" type="tns:micPatternType"
minOccurs="0"/>
    </xs:sequence>
</xs:extension>
</xs:complexContent>
```



```
</xs:complexType>

<!-- MIC PATTERN TYPE -->
<xs:simpleType name="micPatternType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="uni"/>
    <xs:enumeration value="shotgun"/>
    <xs:enumeration value="omni"/>
    <xs:enumeration value="figure8"/>
    <xs:enumeration value="cardioid"/>
    <xs:enumeration value="hyper-cardioid"/>
  </xs:restriction>
</xs:simpleType>

<!-- AUDIO CHANNEL FORMAT TYPE -->
<xs:simpleType name="audioChannelFormatType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="mono"/>
    <xs:enumeration value="stereo"/>
  </xs:restriction>
</xs:simpleType>

<!-- VIDEO CAPTURE TYPE -->
<xs:complexType name="videoCaptureType">
  <xs:complexContent>
    <xs:extension base="tns:mediaCaptureType">
      <xs:sequence>
        <xs:element name="nativeAspectRatio" type="xs:string" minOccurs="0"/>
        <xs:element ref="embeddedText" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<!-- EMBEDDED TEXT ELEMENT -->
<xs:element name="embeddedText">
  <xs:complexType>
    <xs:simpleContent>
      <xs:extension base="xs:boolean">
        <xs:attribute name="lang" type="xs:language"/>
      </xs:extension>
    </xs:simpleContent>
  </xs:complexType>
</xs:element>

  <!-- CAPTURE SCENES TYPE -->
  <!-- envelope of capture scenes -->
```

<xs:complexType name="captureScenesType">

```
<xs:sequence>
  <xs:element name="captureScene" type="captureSceneType"
maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>

<!-- CAPTURE SCENE TYPE -->
<xs:complexType name="captureSceneType">
  <xs:sequence>
    <xs:element ref="description" minOccurs="0"
maxOccurs="unbounded"/>
    <xs:element name="sceneArea" type="captureAreaType"
minOccurs="0"/>
    <xs:element name="sceneEntries" type="sceneEntriesType"/>
    <xs:any namespace="##other" processContents="lax"
minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:attribute name="sceneID" type="xs:ID" use="required"/>
  <xs:attribute name="scale" type="scaleType" use="required"/>
  <xs:anyAttribute namespace="##other" processContents="lax"/>
</xs:complexType>

<!-- SCALE TYPE -->
<xs:simpleType name="scaleType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="millimeters"/>
    <xs:enumeration value="unknown"/>
    <xs:enumeration value="noscale"/>
  </xs:restriction>
</xs:simpleType>

<!-- CAPTURE AREA TYPE -->
<xs:complexType name="captureAreaType">
  <xs:sequence>
    <xs:element name="bottomLeft" type="pointType"/>
    <xs:element name="bottomRight" type="pointType"/>
    <xs:element name="topLeft" type="pointType"/>
    <xs:element name="topRight" type="pointType"/>
  </xs:sequence>
</xs:complexType>

<!-- POINT TYPE -->
<xs:complexType name="pointType">
  <xs:sequence>
    <xs:element name="x" type="xs:decimal"/>
    <xs:element name="y" type="xs:decimal"/>
    <xs:element name="z" type="xs:decimal"/>
  </xs:sequence>
```

```
</xs:complexType>
```

```
<!-- CAPTURE POINT TYPE -->
```

```
<xs:complexType name="capturePointType">
```

```
<xs:complexContent>
  <xs:extension base="pointType">
    <xs:sequence>
      <xs:element name="lineOfCapturePoint" type="tns:pointType"
minOccurs="0"/>
    </xs:sequence>
    <xs:attribute name="pointID" type="xs:ID"/>
  </xs:extension>
</xs:complexContent>
</xs:complexType>

<!-- SCENE ENTRIES TYPE -->
<!-- envelope of scene entries of a capture scene -->
<xs:complexType name="sceneEntriesType">
  <xs:sequence>
    <xs:element name="sceneEntry" type="sceneEntryType"
maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>

<!-- SCENE ENTRY TYPE -->
<xs:complexType name="sceneEntryType">
  <xs:sequence>
    <xs:element ref="description" minOccurs="0" maxOccurs="unbounded"/>
    <xs:element name="switchingPolicies" type="switchingPoliciesType"
minOccurs="0"/>
    <xs:element name="mediaCaptureIDs" type="captureIDListType"/>
  </xs:sequence>
  <xs:attribute name="sceneEntryID" type="xs:ID" use="required"/>
  <xs:attribute name="mediaType" type="xs:string" use="required"/>
</xs:complexType>

<!-- SWITCHING POLICIES TYPE -->
<xs:complexType name="switchingPoliciesType">
  <xs:sequence>
    <xs:element name="siteSwitching" type="xs:boolean" minOccurs="0"/>
    <xs:element name="segmentSwitching" type="xs:boolean" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>

<!-- CAPTURE ID LIST TYPE -->
<xs:complexType name="captureIDListType">
  <xs:sequence>
    <xs:element name="captureIDREF" type="xs:IDREF" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
```

```
<!-- ENCODINGS TYPE -->  
<xs:complexType name="encodingsType">  
  <xs:sequence>
```

```
<xs:element name="encoding" type="encodingType" maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>

<!-- ENCODING TYPE -->
<xs:complexType name="encodingType" abstract="true">
  <xs:sequence>
    <xs:element name="encodingName" type="xs:string"/>
    <xs:element name="maxBandwidth" type="xs:integer"/>
    <xs:any namespace="##other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:attribute name="encodingID" type="xs:ID" use="required"/>
  <xs:anyAttribute namespace="##any" processContents="lax"/>
</xs:complexType>

<!-- AUDIO ENCODING TYPE -->
<xs:complexType name="audioEncodingType">
  <xs:complexContent>
    <xs:extension base="tns:encodingType">
      <xs:sequence>
        <xs:element name="encodedMedia" type="xs:string" fixed="audio"
minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<!-- VIDEO ENCODING TYPE -->
<xs:complexType name="videoEncodingType">
  <xs:complexContent>
    <xs:extension base="tns:encodingType">
      <xs:sequence>
        <xs:element name="encodedMedia" type="xs:string" fixed="video"
minOccurs="0"/>
        <xs:element name="maxWidth" type="xs:integer" minOccurs="0"/>
        <xs:element name="maxHeight" type="xs:integer" minOccurs="0"/>
        <xs:element name="maxFrameRate" type="xs:integer" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<!-- H264 ENCODING TYPE -->
<xs:complexType name="h264EncodingType">
  <xs:complexContent>
    <xs:extension base="tns:videoEncodingType">
      <xs:sequence>
```

```
        <xs:element name="maxH264MacroBlocksRate" type="xs:integer"
minOccurs="0"/>
    </xs:sequence>
</xs:extension>
```



```
    </xs:complexContent>
  </xs:complexType>

  <!-- ENCODING GROUPS TYPE -->
  <xs:complexType name="encodingGroupsType">
    <xs:sequence>
      <xs:element name="encodingGroup" type="tns:encodingGroupType"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

  <!-- ENCODING GROUP TYPE -->
  <xs:complexType name="encodingGroupType">
    <xs:sequence>
      <xs:element name="maxGroupBandwidth" type="xs:integer"/>
      <xs:element name="maxGroupH264MacroBlockRate" type="xs:integer"
minOccurs="0"/>
      <xs:element name="encodingIDList" type="encodingIDListType"/>
      <xs:any namespace="##other" processContents="lax" minOccurs="0"
maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:attribute name="encodingGroupID" type="xs:ID" use="required"/>
    <xs:anyAttribute namespace="##any" processContents="lax"/>
  </xs:complexType>

  <!-- ENCODING ID LIST TYPE -->
  <xs:complexType name="encodingIDListType">
    <xs:sequence>
      <xs:element name="encIDREF" type="xs:IDREF" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

  <!-- SIMULTANEOUS SETS TYPE -->
  <xs:complexType name="simultaneousSetsType">
    <xs:sequence>
      <xs:element name="simultaneousSet" type="simultaneousSetType"
maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

  <!-- SIMULTANEOUS SET TYPE -->
  <xs:complexType name="simultaneousSetType">
    <xs:complexContent>
      <xs:extension base="captureIDListType">
        <xs:attribute name="setID" type="xs:ID" use="required"/>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
```

</xs:schema>

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4. Sample XML file

The following XML document represents a schema compliant example of a CLUE telepresence scenario.

There are 5 video captures:

VC0: the video from the left camera

VC1: the video from the central camera

VC2: the video from the right camera

VC3: the overall view of the telepresence room taken from the central camera

VC4: the video associated with the slide stream

There are 2 audio captures:

AC0: the overall room audio taken from the central camera

AC1: the audio associated with the slide stream presentation

The captures are organized into two capture scenes:

CS1: this scene contains captures associated with the participants that are in the telepresence room.

CS2: this scene contains captures associated with the slide presentation, which is a pre-registered presentation played within the context of the telepresence session.

Within the capture scene CS1, there are three scene entries available:

CS1_SE1: this entry contains the participants' video captures taken from the three cameras (VC0, VC1, VC2).

CS1_SE2: this entry contains the zoomed-out view of the overall telepresence room (VC3)

CS1_SE3: this entry contains the overall telepresence room audio (AC0)

On the other hand, capture scene CS2 presents two scene entries:

CS2_SE1: this entry contains the presentation audio stream (AC1)

CS2_SE2: this entry contains the presentation video stream (VC4)

There are two encoding groups:

EG0 This encoding groups involves video encodings ENC0, ENC1, ENC2

EG1 This encoding groups involves audio encodings ENC3, ENC4

As to the simultaneous sets, only VC1 and VC3 cannot be transmitted simultaneously since they are captured by the same device. i.e. the central camera (VC3 is a zoomed-out view while VC1 is a focused view of the front participants). The simultaneous sets would then be the following:

SS1 made by VC0, VC1, VC2, VC4, AC0, AC1

SS2 made by VC0, VC3, VC2, VC4, AC0, AC1

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<clueInfo xmlns="urn:ietf:params:xml:ns:clue-info" clueInfoID="prova">
  <mediaCaptures>
    <mediaCapture xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="audioCaptureType" captureID="AC1">
      <capturedMedia>audio</capturedMedia>
      <captureSceneIDREF>CS2</captureSceneIDREF>
      <encGroupIDREF>EG1</encGroupIDREF>
      <nonSpatiallyDefinible>true</nonSpatiallyDefinible>
      <description lang="en">presentation audio</description>
      <content>slide</content>
      <audioChannelFormat>mono</audioChannelFormat>
    </mediaCapture>
    <mediaCapture xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="videoCaptureType" captureID="VC4">
      <capturedMedia>video</capturedMedia>
      <captureSceneIDREF>CS2</captureSceneIDREF>
      <encGroupIDREF>EG0</encGroupIDREF>
      <nonSpatiallyDefinible>true</nonSpatiallyDefinible>
      <description lang="en">presentation video</description>
      <content>slides</content>
    </mediaCapture>
    <mediaCapture xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="audioCaptureType" captureID="AC0">
      <capturedMedia>audio</capturedMedia>
      <captureSceneIDREF>CS1</captureSceneIDREF>
```

<encGroupIDREF>EG1</encGroupIDREF>
<spatialInformation>

```

    <capturePoint>
      <x>0.5</x>
      <y>1.0</y>
      <z>0.5</z>
      <lineOfCapturePoint>
        <x>0.5</x>
        <y>0.0</y>
        <z>0.5</z>
      </lineOfCapturePoint>
    </capturePoint>
  </spatialInformation>
  <description lang="en">audio from the central camera mic</
description>
  <audioChannelFormat>mono</audioChannelFormat>
  <micPattern>figure8</micPattern>
</mediaCapture>
  <mediaCapture xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="videoCaptureType" captureID="VC3">
    <capturedMedia>video</capturedMedia>
    <captureSceneIDREF>CS1</captureSceneIDREF>
    <encGroupIDREF>EG0</encGroupIDREF>
    <spatialInformation>
      <capturePoint>
        <x>1.5</x>
        <y>1.0</y>
        <z>0.5</z>
        <lineOfCapturePoint>
          <x>1.5</x>
          <y>0.0</y>
          <z>0.5</z>
        </lineOfCapturePoint>
      </capturePoint>
      <captureArea>
        <bottomLeft>
          <x>0.0</x>
          <y>3.0</y>
          <z>0.0</z>
        </bottomLeft>
        <bottomRight>
          <x>3.0</x>
          <y>3.0</y>
          <z>0.0</z>
        </bottomRight>
        <topLeft>
          <x>0.0</x>
          <y>3.0</y>
          <z>3.0</z>
        </topLeft>

```

<topRight>
<x>3.0</x>


```

        <y>3.0</y>
        <z>3.0</z>
    </topRight>
</captureArea>
</spatialInformation>
<description lang="en">zoomed out view of the room</description>
</mediaCapture>
<mediaCapture xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="videoCaptureType" captureID="VC2">
    <capturedMedia>video</capturedMedia>
    <captureSceneIDREF>CS1</captureSceneIDREF>
    <encGroupIDREF>EG0</encGroupIDREF>
    <spatialInformation>
        <capturePoint>
            <x>2.5</x>
            <y>1.0</y>
            <z>0.5</z>
            <lineOfCapturePoint>
                <x>2.5</x>
                <y>0.0</y>
                <z>0.5</z>
            </lineOfCapturePoint>
        </capturePoint>
        <captureArea>
            <bottomLeft>
                <x>2.0</x>
                <y>3.0</y>
                <z>0.0</z>
            </bottomLeft>
            <bottomRight>
                <x>3.0</x>
                <y>3.0</y>
                <z>0.0</z>
            </bottomRight>
            <topLeft>
                <x>2.0</x>
                <y>3.0</y>
                <z>3.0</z>
            </topLeft>
            <topRight>
                <x>3.0</x>
                <y>3.0</y>
                <z>3.0</z>
            </topRight>
        </captureArea>
    </spatialInformation>
    <description lang="en">right camera video</description>
</mediaCapture>
```

```
<mediaCapture xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
xsi:type="videoCaptureType" captureID="VC1">
```

```
<capturedMedia>video</capturedMedia>
<captureSceneIDREF>CS1</captureSceneIDREF>
<encGroupIDREF>EG0</encGroupIDREF>
<spatialInformation>
  <capturePoint>
    <x>1.5</x>
    <y>1.0</y>
    <z>0.5</z>
    <lineOfCapturePoint>
      <x>1.5</x>
      <y>0.0</y>
      <z>0.5</z>
    </lineOfCapturePoint>
  </capturePoint>
  <captureArea>
    <bottomLeft>
      <x>1.0</x>
      <y>3.0</y>
      <z>0.0</z>
    </bottomLeft>
    <bottomRight>
      <x>2.0</x>
      <y>3.0</y>
      <z>0.0</z>
    </bottomRight>
    <topLeft>
      <x>1.0</x>
      <y>3.0</y>
      <z>3.0</z>
    </topLeft>
    <topRight>
      <x>2.0</x>
      <y>3.0</y>
      <z>3.0</z>
    </topRight>
  </captureArea>
</spatialInformation>
<description lang="en">central camera video</description>
</mediaCapture>
<mediaCapture xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="videoCaptureType" captureID="VC0">
  <capturedMedia>video</capturedMedia>
  <captureSceneIDREF>CS1</captureSceneIDREF>
  <encGroupIDREF>EG0</encGroupIDREF>
  <spatialInformation>
    <capturePoint>
      <x>0.5</x>
      <y>1.0</y>
```

<z>0.5</z>

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```
        <lineOfCapturePoint>
          <x>0.5</x>
          <y>0.0</y>
          <z>0.5</z>
        </lineOfCapturePoint>
      </capturePoint>
    <captureArea>
      <bottomLeft>
        <x>0.0</x>
        <y>3.0</y>
        <z>0.0</z>
      </bottomLeft>
      <bottomRight>
        <x>1.0</x>
        <y>3.0</y>
        <z>0.0</z>
      </bottomRight>
      <topLeft>
        <x>0.0</x>
        <y>3.0</y>
        <z>3.0</z>
      </topLeft>
      <topRight>
        <x>1.0</x>
        <y>3.0</y>
        <z>3.0</z>
      </topRight>
    </captureArea>
  </spatialInformation>
  <description lang="en">left camera video</description>
</mediaCapture>
</mediaCaptures>
<encodings>
  <encoding xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="videoEncodingType" encodingID="ENC0">
    <encodingName>h263</encodingName>
    <maxBandwidth>4000000</maxBandwidth>
    <encodedMedia>video</encodedMedia>
    <maxWidth>1920</maxWidth>
    <maxHeight>1088</maxHeight>
  </encoding>
  <encoding xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="videoEncodingType" encodingID="ENC1">
    <encodingName>h263</encodingName>
    <maxBandwidth>4000000</maxBandwidth>
    <encodedMedia>video</encodedMedia>
    <maxWidth>1920</maxWidth>
    <maxHeight>1088</maxHeight>
```

```
</encoding>  
<encoding xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
xsi:type="videoEncodingType" encodingID="ENC2">
```

```
<encodingName>h263</encodingName>
<maxBandwidth>4000000</maxBandwidth>
<encodedMedia>video</encodedMedia>
<maxWidth>1920</maxWidth>
<maxHeight>1088</maxHeight>
</encoding>
<encoding xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="audioEncodingType" encodingID="ENC3">
  <encodingName>g711</encodingName>
  <maxBandwidth>64000</maxBandwidth>
  <encodedMedia>audio</encodedMedia>
</encoding>
<encoding xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="audioEncodingType" encodingID="ENC4">
  <encodingName>g711</encodingName>
  <maxBandwidth>64000</maxBandwidth>
  <encodedMedia>audio</encodedMedia>
</encoding>
</encodings>
<encodingGroups>
  <encodingGroup encodingGroupID="EG0">
    <maxGroupBandwidth>12000000</maxGroupBandwidth>
    <encodingIDList>
      <encIDREF>ENC0</encIDREF>
      <encIDREF>ENC1</encIDREF>
      <encIDREF>ENC2</encIDREF>
    </encodingIDList>
  </encodingGroup>
  <encodingGroup encodingGroupID="EG1">
    <maxGroupBandwidth>12000000</maxGroupBandwidth>
    <encodingIDList>
      <encIDREF>ENC3</encIDREF>
      <encIDREF>ENC4</encIDREF>
    </encodingIDList>
  </encodingGroup>
</encodingGroups>
<captureScenes>
  <captureScene scale="unknown" sceneID="CS1">
    <description lang="en">main scene</description>
    <sceneArea>
      <bottomLeft>
        <x>0.0</x>
        <y>3.0</y>
        <z>0.0</z>
      </bottomLeft>
      <bottomRight>
        <x>3.0</x>
        <y>3.0</y>
```

<z>0.0</z>
</bottomRight>


```
<topLeft>
  <x>0.0</x>
  <y>3.0</y>
  <z>2.0</z>
</topLeft>
<topRight>
  <x>3.0</x>
  <y>3.0</y>
  <z>2.0</z>
</topRight>
</sceneArea>
<sceneEntries>
  <sceneEntry mediaType="video" sceneEntryID="SE1">
    <description lang="en">participants streams</description>
    <mediaCaptureIDs>
      <captureIDREF>VC0</captureIDREF>
      <captureIDREF>VC1</captureIDREF>
      <captureIDREF>VC2</captureIDREF>
    </mediaCaptureIDs>
  </sceneEntry>
  <sceneEntry mediaType="video" sceneEntryID="SE2">
    <description lang="en">room stream</description>
    <mediaCaptureIDs>
      <captureIDREF>VC3</captureIDREF>
    </mediaCaptureIDs>
  </sceneEntry>
  <sceneEntry mediaType="audio" sceneEntryID="SE3">
    <description lang="en">room audio</description>
    <mediaCaptureIDs>
      <captureIDREF>AC0</captureIDREF>
    </mediaCaptureIDs>
  </sceneEntry>
</sceneEntries>
</captureScene>
<captureScene scale="noscale" sceneID="CS2">
  <description lang="en">presentation</description>
  <sceneEntries>
    <sceneEntry mediaType="video" sceneEntryID="CS2_SE1">
      <description lang="en">presentation video</description>
      <mediaCaptureIDs>
        <captureIDREF>VC4</captureIDREF>
      </mediaCaptureIDs>
    </sceneEntry>
    <sceneEntry mediaType="audio" sceneEntryID="CS2_SE2">
      <description lang="en">presentation audio</description>
      <mediaCaptureIDs>
        <captureIDREF>AC1</captureIDREF>
      </mediaCaptureIDs>
    </sceneEntry>
  </sceneEntries>
</captureScene>
```



```
        </sceneEntry>
      </sceneEntries>
    </captureScene>
  </captureScenes>
  <simultaneousSets>
    <simultaneousSet setID="SS1">
      <captureIDREF>VC0</captureIDREF>
      <captureIDREF>VC1</captureIDREF>
      <captureIDREF>VC2</captureIDREF>
      <captureIDREF>VC4</captureIDREF>
      <captureIDREF>AC0</captureIDREF>
      <captureIDREF>AC1</captureIDREF>
    </simultaneousSet>
    <simultaneousSet setID="SS2">
      <captureIDREF>VC0</captureIDREF>
      <captureIDREF>VC3</captureIDREF>
      <captureIDREF>VC2</captureIDREF>
      <captureIDREF>VC4</captureIDREF>
      <captureIDREF>AC0</captureIDREF>
      <captureIDREF>AC1</captureIDREF>
    </simultaneousSet>
  </simultaneousSets>
</clueInfo>
```

5. Diff with unofficial -02 version

Here the link to the unofficial -02 version: <http://www.grid.unina.it/Didattica/RetiDiCalcolatori/inf/draft-presta-clue-data-model-schema-02.html>

<mediaCaptures> moved from <sceneEntry> to <clueInfo> elements.

<mediaCaptures> have been moved out from the <captureScene> blob again. Media captures should have identifiers that are valid out of the local scope of capture scenes, since a consumer should be able to require also single captures in the CONFIGURE message. This design choice reflects a bottom up approach where captures are the basis of the data model. In each media capture a reference to the capture scene containing it is provided. It identifies the space the spatial information of the media capture refers to.

XML document example updated A new example, compliant with the updated schema, has been provided.

language attribute added to <mediaCapture> Such optional attribute reflects the language used in the capture, if any. The purpose of the element could match the one of the language attribute proposed in [[I-D.groves-clue-capture-attr](#)].

<priority> added to <mediaCapture> The priority element has an integer value helping in specifying a media capture relative importance with respect to the other captures. That element could correspond to the priority attribute introduced in [[I-D.groves-clue-capture-attr](#)].

<embeddedText> added to <videoCapture> The element, if present, indicates text embedded in the video capture. The language used in such embedded textual description is also envisioned within the <embeddedText> element itself. That element could correspond to the priority attribute introduced in [[I-D.groves-clue-capture-attr](#)]

<relatedTo> added to <mediaCapture> That optional element contains the ID of a capture the capture refers to. This is for supporting cases where there is the translation of a main capture in a different language. Such translation can be marked with a <relatedTo> tag to refer to the main capture. This could be interpreted the same manner of the supplementary information attribute proposed in [[I-D.groves-clue-capture-attr](#)] and further discussed in <http://www.ietf.org/mail-archive/web/clue/current/msg02238.html>.

<dynamic> added to <mediaCapture> That optional boolean element has the same purpose of the dynamic attribute proposed in [[I-D.groves-clue-capture-attr](#)]. It indicates if the capture device originating the capture moves during the telepresence session.

new element definition for <description> <description> has a new attribute, lang, indicating the language used for the text within <description>. <description> is used to provide human readable information about captures, scene, and scene entries. The definitions of the corresponding XML elements (i.e., <mediaCapture>, <captureScene>, <sceneEntry>) have been updated to make them able to contain more than one <description>. In that way, they can be described in different languages.

<textCapture> added as new type of capture The element is just a place holder, since it is not characterized with any further information up to now.

6. Informative References

- [I-D.groves-clue-capture-attr] Groves, C., Yang, W., and R. Even, "CLUE media capture description", [draft-groves-clue-capture-attr-00](#) (work in progress), September 2012.
- [I-D.ietf-clue-framework] Duckworth, M., Pepperell, A., and S. Wenger, "Framework for Telepresence Multi-Streams", [draft-ietf-clue-framework-08](#) (work in progress), December 2012.
- [I-D.romanow-clue-data-model] Romanow, A. and A. Pepperell, "Data model for the CLUE Framework", [draft-romanow-clue-data-model-01](#) (work in progress), June 2012.

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