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AMENDMENT 1
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Information technology — Multimedia framework (MPEG-21) —

Part 7:
Digital Item Adaptation

AMENDMENT 1: DIA Conversions and Permissions

Technologies de l'information — Cadre multimédia (MPEG-21) —

Partie 7: Adaptation d'article numérique

AMENDEMENT 1: Conversions et droits d'accès DIA

Reference number
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

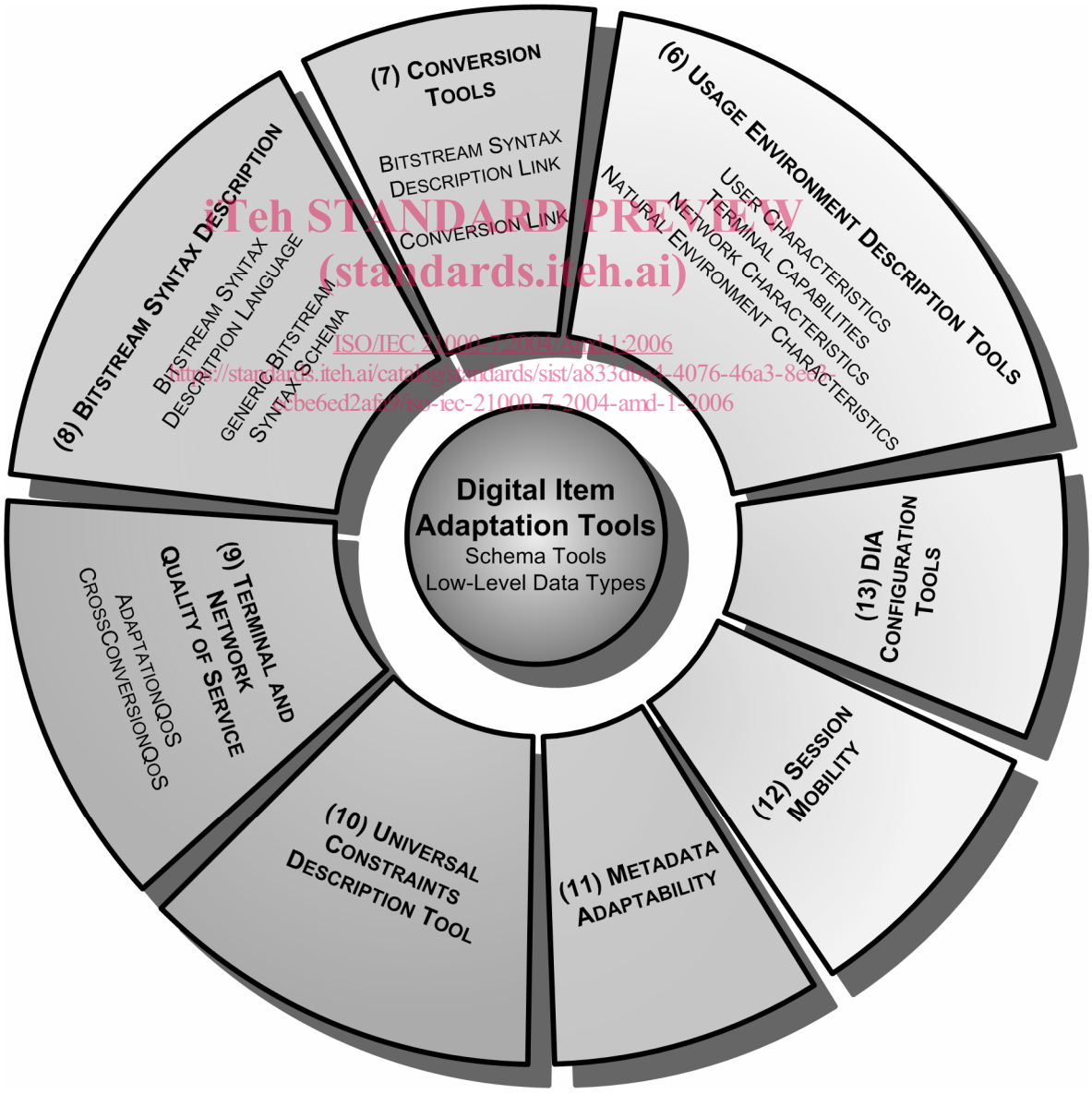
Amendment 1 to ISO/IEC 21000-7:2004 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

Information technology — Multimedia framework (MPEG-21) —

Part 7:
Digital Item Adaptation

AMENDMENT 1: DIA Conversions and Permissions

In subclause 1.4, replace Figure 2 with the following figure:



In subclause 1.4, replace the following text:

The second category is referred to as *BSDLink* which provides the facilities to create a rich variety of adaptation architectures based on tools specified within this part of ISO/IEC 21000, ISO/IEC 21000-2, and ISO/IEC 15398 among others. The syntax and semantics of this tool is specified in clause 7.

with:

The second category is referred to as *Conversion Tools* which provides the facilities to create a rich variety of adaptation architectures based on tools specified within this part of ISO/IEC 21000, ISO/IEC 21000-2, and ISO/IEC 15398 among others. The syntax and semantics of this tool is specified in clause 7.

In subclause 1.5, remove the following text:

This specification deals with adaptation but specifically does not address the relationship of rights and permissions to adaptations. The relationship of rights and permissions is to be addressed in an amendment to this part of ISO/IEC 21000. It is expected that users of this part of ISO/IEC 21000 will register terms describing their specific adaptations with the Registration Authority described in ISO/IEC 21000-6 in order to provide interoperability.

Append a new paragraph at the end of this subclause with the following text:

ISO/IEC 21000-5 and ISO/IEC 21000-6 provide the tools to permit playing, modifying, and adapting by controlling the kinds of things that can be changed. This part of ISO/IEC 21000 provides tools for use with ISO/IEC 21000-5 to provide the means by which that control over the changes that can occur when playing, modifying, or adapting digital items and their component resources can be effected. It is expected that users of this part of ISO/IEC 21000 will register terms describing their specific adaptations with the Registration Authority described in ISO/IEC 21000-6 in order to provide interoperability.

In subclause 3.4, in Table 1, append the following three additional rows:

r	urn:mpeg:mpeg21:2003:01-REL-R-NS
sx	urn:mpeg:mpeg21:2003:01-REL-SX-NS
mx	urn:mpeg:mpeg21:2003:01-REL-MX-NS

Insert a new subclause 3.1.3 as follows:

3.1.3 Conversion and permission-specific terms and definitions

3.1.3.1
Conversion
A process that changes the characteristics of a **resource**.

NOTE In general a conversion performs the act as defined by the ISO/IEC 21000-6 term *adapt*.

3.1.3.2
Conversion act
A **conversion** and its parameters, including the actual name of the parameters. The semantics shall be defined through ISO/IEC 21000-6.

3.1.3.3
Conversion tool
A hardware and/or software module that implements a **conversion act** in order to perform the **conversion** as specified by the ISO/IEC 21000-6 term defining this **conversion**.

Insert a new subclause 5.6 as follows:

5.6 Conversion descriptions

5.6.1 Introduction

Subclause 5.6 specifies conversion descriptions identifying conversions. Conversion descriptions and parameters can be defined within this part of ISO/IEC 21000 by referencing appropriate ISO/IEC 21000-6 terms which specify the semantics of the conversion as well as its parameters. The conversion description tool as specified within subclause 5.6 provides a basic abstract type for a subset of types that can be used for defining conversions and permissions.

5.6.2 Syntax

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ISO/IEC 21000-7, AMD/1: Conversions and Permissions -->
<!-- Schema for Conversion Descriptions -->
<schema
   version="ISO/IEC 21000-7:2004/Amd.1"
   id="ConvD-AMD1.xsd"
   targetNamespace="urn:mpeg:mpeg21:2003:01-DIA-NS"
   xmlns="http://www.w3.org/2001/XMLSchema"
   xmlns:dia="urn:mpeg:mpeg21:2003:01-DIA-NS"
   elementFormDefault="qualified" attributeFormDefault="unqualified">

   <include schemaLocation="BSDLink-AMD1.xsd"/>

  <!-- ################################################  -->
  <!--  Definition of ConversionDescriptionBaseType      -->
  <!-- ################################################  -->

  <complexType name="ConversionDescriptionBaseType" abstract="true">
   <complexContent>
    <extension base="dia:DIADescriptionType">
     <sequence>
      <element name="ConversionActUri">
       <complexType>
        <attribute name="uri" type="anyURI" use="required"/>
       </complexType>
      </element>
      <element name="Parameter" type="dia:BaseParameterType"
          minOccurs="0" maxOccurs="unbounded"/>
     </sequence>
    </extension>
   </complexContent>
  </complexType>

</schema>
```

5.6.3 Semantics

Semantics of the `ConversionDescriptionBaseType`:

Name	*Definition*
`ConversionDescriptionBaseType`	`ConversionDescriptionBaseType` extends `DIADescriptionType` and provides a base abstract type for a subset of types that can be used as part of the `ConversionCapabilitiesType`, `ConversionLinkType`, `ConversionUriType` and `PermittedDiaChanges` to identify a conversion. A conversion is defined by the conversion act which references a specialized ISO/IEC 21000-6 term and its parameters.
`ConversionActUri`	Describes the conversion act using a reference to a specialized ISO/IEC 21000-6 term.
`uri`	Describes the reference to the specialized ISO/IEC 21000-6 term.
`Parameter`	Describes an input parameter to the conversion tool as defined by the specialized ISO/IEC 21000-6 term.

5.6.4 Example

EXAMPLE See subclause 6.5.29 Example 4, and subclause 14.6 for examples of conversion descriptions.

Insert the following as a new subclause 6.5.28 and increment subsequent subclauses accordingly:

6.5.28 ConversionCapabilities

6.5.28.1 Introduction

This subclause specifies the conversion capabilities of a terminal which express the types of conversions that a terminal is capable of performing.

6.5.28.2 Syntax

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ISO/IEC 21000-7, AMD/1: Conversions and Permissions -->
<!-- Schema for ConversionCapabilities -->
<schema
   version="ISO/IEC 21000-7:2004/Amd.1"
   id="ConvCapab-AMD1.xsd"
   targetNamespace="urn:mpeg:mpeg21:2003:01-DIA-NS"
   xmlns="http://www.w3.org/2001/XMLSchema"
   xmlns:dia="urn:mpeg:mpeg21:2003:01-DIA-NS"
   elementFormDefault="qualified" attributeFormDefault="unqualified">

   <include schemaLocation="UCD.xsd"/>
   <include schemaLocation="UED.xsd"/>
```

```
   <include schemaLocation="ConvD-AMD1.xsd"/>

   <!-- ################################################ -->
   <!--  Definition of ConversionCapabilitiesType        -->
   <!-- ################################################ -->

   <complexType name="ConversionCapabilitiesType">
      <complexContent>
         <extension base="dia:TerminalCapabilityBaseType">
            <sequence>
               <element name="ConversionCapability"
                  type="dia:ConversionCapabilityType"
                  minOccurs="0" maxOccurs="unbounded"/>
            </sequence>
         </extension>
      </complexContent>
   </complexType>

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

  <complexType name="ConversionCapabilityType">
   <complexContent>
    <extension base="dia:ConversionDescriptionBaseType">
     <sequence>
      <any namespace="##other" processContents="lax" minOccurs="0"/>
     </sequence>
    </extension>
   </complexContent>
  </complexType>

</schema>
```


6.5.28.3 Semantics

Semantics of the `ConversionCapabilitiesType`:

Name	*Definition*
`ConversionCapabilitiesType`	Tool for describing the conversions that a terminal is capable of performing. NOTE 1 Each child shall be a conversion capability description that identifies a conversion the terminal is capable of performing.
`ConversionCapability`	Describes a conversion that a terminal is capable of performing.

Semantics of the `ConversionCapabilityType`:

Name	*Definition*
`ConversionCapabilityType`	Tool for describing a conversion that a terminal is capable of performing.

Name	*Definition*
`any`	Describes a conversion that a terminal is capable of performing using XML. NOTE 2 Provides an extension mechanism which allows the inclusion of conversion descriptions defined within other parts of ISO/IEC 21000 or even other standardization bodies.

In subclause 6.5.29, append the following text:

EXAMPLE 4 This example describes a terminal capable of dithering and scaling.

```
<DIA>
   <Description xsi:type="TerminalsType">
      <Terminal>
         <TerminalCapability xsi:type="ConversionCapabilitiesType">
            <ConversionCapability>
               <ConversionActUri uri="urn:mpeg:mpeg21:2003:01-RDD-NS:dither"/>
            </ConversionCapability >
            <ConversionCapability>
               <ConversionActUri uri="http://www.adaptationRUs.com/scale"/>
            </ConversionCapability >
         </TerminalCapability>
      </Terminal>
   </Description>
</DIA>
```


Change the heading of clause 7 to "Conversion tools" and replace the text of the clause as follows:

7 Conversion tools

7.1 Introduction

This clause specifies syntax and semantics of the conversion tools. The conversion tools include the BSDLink and ConversionLink tools. The former provides means for linking a steering description to Bitstream Syntax Descriptions (BSDs) enabling the BSD-based adaptation approach based on the decisions provided by the steering description. The latter is complementary to the BSDLink tool and provides means for linking steering description to general-purpose conversions not covered by the BSDLink tool, e.g., transcoding or summarization.

7.2 Bitstream syntax description link

Include the ISO/IEC 21000-7:2004 text of clause 7 here, demoting each heading one level.

Replace the text of subclause 7.2.2 with the following text:

```
<?xml version="1.0"?>
<!-- Digital Item Adaptation ISO/IEC 21000-7 -->
<!-- Schema for Bitstream syntax description link -->
<schema
  version="ISO/IEC 21000-7:2004/Amd.1"
```

```
id="BSDLink-AMD1.xsd"
xmlns="http://www.w3.org/2001/XMLSchema"
xmlns:dia="urn:mpeg:mpeg21:2003:01-DIA-NS"
targetNamespace="urn:mpeg:mpeg21:2003:01-DIA-NS"
elementFormDefault="qualified" attributeFormDefault="unqualified">

<include schemaLocation="DIA.xsd"/>

<!-- ########################################################## -->
<!-- Definition of the BSDLinkType                              -->
<!-- ########################################################## -->

<complexType name="BSDLinkType">
  <complexContent>
    <extension base="dia:DIADescriptionType">
      <sequence>
        <element ref="dia:SteeringDescriptionRef" minOccurs="0"/>
        <element name="BSDRef" type="dia:ReferenceType"/>
        <element ref="dia:BitstreamRef" minOccurs="0">
        <element name="BSDTransformationRef" maxOccurs="unbounded">
          <complexType>
            <complexContent>
              <restriction base="anyType">
                <attribute name="uri" type="anyURI" use="required"/>
                <attribute name="type" type="anyURI" use="optional"/>
              </restriction>
            </complexContent>
          </complexType>
        </element>
        <element name="Parameter" type="dia:BaseParameterType" minOccurs="0"
          maxOccurs="unbounded"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>

<!-- ########################################################## -->
<!-- Definition of the SteeringDescriptionRef                   -->
<!-- ########################################################## -->

<element name="SteeringDescriptionRef" type="dia:ReferenceType"/>

<!-- ########################################################## -->
<!-- Definition of the BitstreamRef                             -->
<!-- ########################################################## -->

<element name="BitstreamRef">
  <complexType>
    <attribute name="uri" type="anyURI" use="required"/>
  </complexType>
</element>

<!-- ########################################################## -->
<!-- Definition of the SteeringDescriptionType                  -->
<!-- ########################################################## -->
```

```
  <complexType name="SteeringDescriptionType" abstract="true">
    <complexContent>
      <extension base="dia:DIADescriptionType"/>
    </complexContent>
  </complexType>

  <!-- ########################################################## -->
  <!-- Definition of the BaseParameterType                        -->
  <!-- ########################################################## -->

  <complexType name="BaseParameterType" abstract="true">
    <complexContent>
      <extension base="dia:DIABaseType">
        <attribute name="name" type="QName" use="required"/>
      </extension>
    </complexContent>
  </complexType>

  <!-- ########################################################## -->
  <!-- Definition of the ConstantType                             -->
  <!-- ########################################################## -->

  <complexType name="ConstantType">
    <complexContent>
      <extension base="dia:BaseParameterType">
        <sequence>
          <element name="Value" type="string"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>

  <!-- ########################################################## -->
  <!-- Definition of the IOPinRefType                             -->
  <!-- ########################################################## -->

  <complexType name="IOPinRefType">
    <complexContent>
      <extension base="dia:BaseParameterType">
        <sequence>
          <element name="Value" type="anyURI"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>

</schema>
```


7.3 Conversion link

7.3.1 Introduction

This subclause specifies the syntax and semantics of the ConversionLink tool. The ConversionLink is similar to BSDLink in the way that this tool provides the facilities to link so-called steering description tools and conversion descriptions in a flexible and extensible way. However, though both tools do target conversions, the BSDLink tool targets basically the adaptation of scalable bitstreams whereas the ConversionLink tool is applicable for any kind of adaptations, e.g., transcoding, transforming, or transmoding.

The ConversionLink tool eases the referencing of information assets which can be used for conversion, i.e., references to these assets are stored in the ConversionLink. This description contains at least a reference to a conversion act which specifies the semantics of a conversion and the semantics of its generic parameters including the actual name of the parameters. Additionally, the ConversionLink tool may contain a reference to a steering description which governs the whole conversion process, a reference to the actual resource subject to the conversion and possibly a description of this resource.

A conversion decision architecture compatible with Annex B is given in Annex J.

7.3.2 ConversionLink syntax

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Digital Item Adaptation ISO/IEC 21000-7 -->
<!-- Schema for Conversion link -->
<schema
   version="ISO/IEC 21000-7:2004/Amd.1"
   id="ConvL-AMD1.xsd"
   targetNamespace="urn:mpeg:mpeg21:2003:01-DIA-NS"
   xmlns="http://www.w3.org/2001/XMLSchema"
   xmlns:dia="urn:mpeg:mpeg21:2003:01-DIA-NS"
   elementFormDefault="qualified" attributeFormDefault="unqualified">

   <include schemaLocation="BSDLink-AMD1.xsd"/>
   <include schemaLocation="ConvD-AMD1.xsd"/>

   <!-- ########################################################   -->
   <!-- Definition of the ConversionLinkType                       -->
   <!-- ########################################################   -->

  <complexType name="ConversionLinkType">
   <complexContent>
    <extension base="dia:ConversionDescriptionBaseType">
     <sequence>
      <element ref="dia:SteeringDescriptionRef" minOccurs="0"/>
      <element ref="dia:BitstreamRef" minOccurs="0"/>
      <element name="ResourceDescriptionRef" minOccurs="0">
       <complexType>
        <attribute name="uri" type="anyURI" use="required"/>
       </complexType>
      </element>
     </sequence>
    </extension>
   </complexContent>
  </complexType>

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

  <complexType name="ConversionCompositeType">
    <complexContent>
      <extension base="dia:DIADescriptionType">
        <sequence>
          <element name="ConversionDescription" type="dia:ConversionLinkType"
minOccurs="2" maxOccurs="unbounded"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>

</schema>
```