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**Industrial automation systems and  
integration — Open systems application  
integration framework —**

**Part 1:  
Generic reference description**

**AMENDMENT 1**  
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*Systèmes d'automatisation industrielle et intégration — Cadres  
d'intégration d'application pour les systèmes ouverts —*

*Partie 1: Description générale de référence*  
*AMENDEMENT 1*



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Amendment 1 to ISO 15745-1:2003 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration*, Subcommittee SC 5, *Architecture, communication and integration frameworks*.

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# Industrial automation systems and integration — Open systems application integration framework —

## Part 1: Generic reference description

### AMENDMENT 1

*Page 1, Clause 2*

Add the following normative reference:

“REC-xmldsig-core-20020212, XML-Signature – W3C Recommendation 12 February 2002”

*Page 5, Clause 3*

Add the following term and definition:

**“3.37  
integrity**

property that data has not been changed, destroyed, or lost in an unauthorized or accidental manner [W3C]”

*Page 12, Subclause 7.2.1 and Figure 5*

Replace the entire subclause and figure with the following:

“The master profile template consists of a header section, a body section, and an optional integrity signature (see Figure 5).”

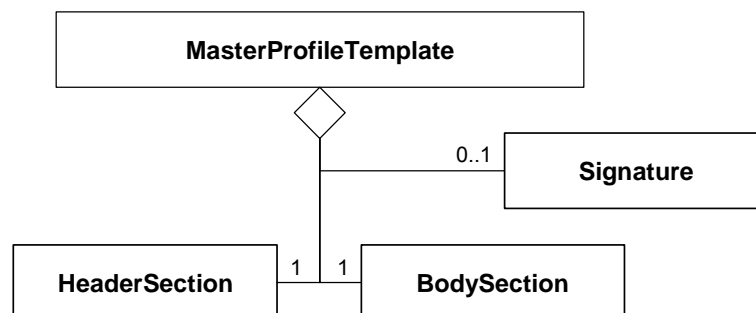


Figure 5 – Master profile template class diagram”

Pages 13 and 14, Table 1

Replace "ProfileClassID", "ISO15745Reference", "ISO15745Edition", and "IASInterfaceType" entries with the following:

Attribute	Description
ProfileClassID	<p>Identification of the profile class.</p> <p>XML data type : ProfileClassID_DataType (based on "string") – see Figure 6.</p> <p>Valid profiles classes are:</p> <ul style="list-style-type: none"> <li>AIP</li> <li>Process</li> <li>InformationExchange</li> <li>Resource</li> <li>Device</li> <li>CommunicationNetwork</li> <li>Equipment</li> <li>Human</li> <li>Material</li> </ul> <p>EXAMPLE : AIP</p>
ISO15745Reference	<p>Identifies the part of ISO 15745 (see ISO15745Part), together with its edition (see ISO15745Edition) and the profile technology (see ProfileTechnology).</p> <p>XML data type : ISO15745Reference_DataType – see Figure 6.</p> <p>Multiple references are allowed e.g. for a device with more than one communication interface.</p>
ISO15745Edition	<p>Edition of the referenced part of ISO 15745.</p> <p>XML data type : positiveInteger</p> <p>The first digit shall reference the edition, and the second digit shall reference the amendment (if any).</p> <p>EXAMPLE 1 : 1 (indicating 1<sup>st</sup> edition, no amendment)</p> <p>EXAMPLE 2 : 11 (indicating 1<sup>st</sup> edition, 1<sup>st</sup> amendment)</p> <p>EXAMPLE 3 : 42 (indicating 4<sup>th</sup> edition, 2<sup>nd</sup> amendment)</p>
IASInterfaceType	<p>The IAS interface type.</p> <p>XML data type : IASInterfaceType_DataType (based on "string") – see Figure 6.</p> <p>This field is optional.</p> <p>Valid IAS interface types are listed below and described in Annex B.</p> <p>Any combination of the following is permitted:</p> <ul style="list-style-type: none"> <li>a) IAS interface types defined in ISO/IEC TR 14252 (see B.1): <ul style="list-style-type: none"> <li>CSI Communication Services Interface</li> <li>HCI Human/Computer Interface</li> <li>ISI Information Services Interface</li> <li>API Application Program Interface</li> </ul> </li> <li>b) IAS interface types defined in ISO 15745 (see B.2): <ul style="list-style-type: none"> <li>CMI Configuration Management Interface</li> <li>ESI Engineering Support Interface</li> <li>FSI Facility Services Interface</li> <li>MTI Material Transport Interface</li> <li>SEI Safety And Environmental Interface</li> <li>USI Utility Services Interface</li> </ul> </li> <li>c) User defined IAS interface types (see B.3).</li> </ul> <p>EXAMPLE 1 : ISI ESI</p> <p>EXAMPLE 2 : CMI 37X6</p>

Page 14, Subclause 7.2.4

Replace the entire subclause with the following:

#### 7.2.4 Integrity signature (Signature element)

A profile may include an optional dedicated element (Signature) that enables checking of the integrity of all the other elements (e.g. header and body) in the corresponding XML file.

NOTE 1 Profiles are editable text files using XML notation. Integration tools may use profiles from different sources and the integrity signature (Signature element) enables the user to determine if unauthorized or accidental changes have occurred. This is the only purpose of the integrity check.

NOTE 2 The integrity check applies only to the XML profile documents, not to the schemas that were used to generate these XML profile documents.

The Signature element (see Figure 6):

- shall follow the requirements given in the XML Digital Signature Recommendation of the World Wide Web Consortium (see REC-xmlsig-core-20020212);
- shall be of the same data type as the Signature Type of W3C;
- shall be the last XML child element of the root element (ISO15745Profile);
- shall reside in a schema which imports the "xmlsig-core-schema.xsd" schema using the namespace "http://www.w3.org/2000/09/xmlsig#".

NOTE 3 The use of the integrity signature (Signature element) with a profile container is described in 7.4.2.

<https://standards.iteh.ai/catalog/standards/sist/c32ddea4-2090-40f6-9f0e-81458c800a4a/iso-15745-1-2003-amd-1-2007>

Pages 15 and 16, Figure 6

Replace the entire figure with the following:

```
<?xml version="1.0" encoding="UTF-8" ?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:ds="http://www.w3.org/2000/09/xmlsig#">
  <xsd:import namespace="http://www.w3.org/2000/09/xmlsig#"
    schemaLocation="xmlsig-core-schema.xsd" />

  <!-- Target namespaces are not specified in this master template -->

  <xsd:element name="ISO15745Profile">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="ProfileHeader" type="ProfileHeader_DataType"/>
        <xsd:choice>
          <xsd:element name="ProfileBody" type="ProfileBody_DataType" />
          <!-- This "abstract type" definition format is mandatory if a profile container is used (see 7.4).
            If desired, this definition format can also be used without a profile container. -->
          <xsd:element ref="ProfileBody" />
          <!-- This "legacy" definition format shall not be used if a profile container is used (see 7.4) -->
        </xsd:choice>
        <xsd:element name="Signature" type="ds:SignatureType" minOccurs="0" maxOccurs="1" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>
```

```

</xsd:complexType>
</xsd:element>

<xsd:annotation>
  <xsd:documentation>* HEADER SECTION *</xsd:documentation>
</xsd:annotation>

<xsd:complexType name="ProfileHeader_DataType">
  <xsd:sequence>
    <xsd:element name="ProfileIdentification" type="xsd:string" />
    <xsd:element name="ProfileRevision" type="xsd:string" />
    <xsd:element name="ProfileName" type="xsd:string" />
    <xsd:element name="ProfileSource" type="xsd:string" />
    <xsd:element name="ProfileClassID" type="ProfileClassID_DataType" />
    <xsd:element name="ProfileDate" type="xsd:date" minOccurs="0" maxOccurs="1" />
    <xsd:element name="AdditionalInformation" type="xsd:anyURI" minOccurs="0" maxOccurs="1" />
    <xsd:element name="ISO15745Reference" type="ISO15745Reference_DataType" />
    <xsd:element name="IASInterfaceType" type="IASInterface_DataType" minOccurs="0"
      maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>

<xsd:annotation>
  <xsd:documentation>* BODY SECTION *</xsd:documentation>
</xsd:annotation>

<xsd:complexType name="ProfileBody_DataType" abstract="true" />
<!-- If the "abstract type" definition format is used, the profile body details shall be specified in the actual
  profile body data types that will be mapped to this abstract type. -->

<xsd:element name="ProfileBody">
  <xsd:documentation>ISO 15745-1:2003/Amd.1:2007
  <!-- Profile body details are not specified in this master profile template. They only need to be specified here
  if the "legacy" definition format is used. -->
  </xsd:element>

<xsd:annotation>
  <xsd:documentation>* HEADER AUXILIARY DATA TYPES *</xsd:documentation>
</xsd:annotation>

<xsd:simpleType name="ProfileClassID_DataType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="AIP" />
    <xsd:enumeration value="Process" />
    <xsd:enumeration value="InformationExchange" />
    <xsd:enumeration value="Resource" />
    <xsd:enumeration value="Device" />
    <xsd:enumeration value="CommunicationNetwork" />
    <xsd:enumeration value="Equipment" />
    <xsd:enumeration value="Human" />
    <xsd:enumeration value="Material" />
  </xsd:restriction>
</xsd:simpleType>

<xsd:complexType name="ISO15745Reference_DataType">
  <xsd:sequence>
    <xsd:element name="ISO15745Part" type="xsd:positiveInteger" />
    <xsd:element name="ISO15745Edition" type="xsd:positiveInteger" />
    <xsd:element name="ProfileTechnology" type="xsd:string" />
  </xsd:sequence>
</xsd:complexType>

```



```

<xsd:simpleType name="IASInterface_DataType">
  <xsd:union>
    <xsd:simpleType>
      <xsd:restriction base="xsd:string">
        <xsd:enumeration value="CSI" />
        <xsd:enumeration value="HCI" />
        <xsd:enumeration value="ISI" />
        <xsd:enumeration value="API" />
        <xsd:enumeration value="CMI" />
        <xsd:enumeration value="ESI" />
        <xsd:enumeration value="FSI" />
        <xsd:enumeration value="MTI" />
        <xsd:enumeration value="SEI" />
        <xsd:enumeration value="USI" />
      </xsd:restriction>
    </xsd:simpleType>
    <xsd:simpleType>
      <xsd:restriction base="xsd:string">
        <xsd:length value="4" />
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:union>
</xsd:simpleType>

<xsd:annotation>
  <xsd:documentation>* ISO 15745 DEFINED DATA TYPES *</xsd:documentation>
</xsd:annotation>

<xsd:complexType name="ProfileHandle_DataType">
  <xsd:sequence>
    <xsd:element name="ProfileIdentification" type="xsd:string"/>
    <xsd:element name="ProfileRevision" type="xsd:string"/>
    <xsd:element name="ProfileLocation" type="xsd:anyURI" minOccurs="0" maxOccurs="1" />
  </xsd:sequence>
</xsd:complexType>

</xsd:schema>

```

- NOTE 1 The definition of the profile body using an abstract type has been added for reasons of flexibility – in particular, to allow the use of a profile container (see 7.4). An example of how to use this option is given in Figure 18.
- NOTE 2 Use of the "abstract type" definition format of ProfileBody (ProfileBody\_DataType) will be indicated in the XML file by using the expression <ProfileBody xsi:type="xxx">. Use of the "legacy" definition format of ProfileBody (ProfileBody element) will be indicated in the XML file by using the expression <ProfileBody>.

**Figure 6 – Master profile template XML schema**

Page 16, Subclause 7.2.6

Add the following NOTE after Figure 6:

- NOTE XML files compliant with ISO 15745-1:2003 are also compliant with the schema given in Figure 6.