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BSI Standards Publication

Guidelines for implementors of EN 15744 and EN 15907

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National foreword

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Richtlinien für Implementierer von EN 15744 und EN 15907

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Contents

Page

Foreword

This document (CEN/TS 16371:2012) has been prepared by Technical Committee CEN/TC 372 “Project Committee - Cinematographic Works”, the secretariat of which is held by DIN.

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1 Scope

This Technical Specification outlines technological approaches towards implementing EN 15907 and (partially) EN 15744 for the purpose of exchanging metadata about cinematographic works.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15744, *Film identification – Minimum set of metadata for cinematographic works*

EN 15907:2010, *Film identification – Enhancing interoperability of metadata – Element sets and structures*

ISO 15836:2009, *Information and documentation – The Dublin Core metadata element set*

ISO/IEC 19757-2:2008, *Information technology – Document Schema Definition Language (DSDL) – Part 2: Regular-grammar-based validation – RELAX NG*

ISO/IEC 19757-4:2006, *Information technology – Document Schema Definition Languages (DSDL) – Part 4: Namespace-based Validation Dispatching Language (NVDL)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19757-2:2008 and the following apply.

3.1
encoding scheme
a set of definitions for the structured representation of complex data objects

3.2
foreign element
element with a name whose namespace URI is not the namespace URI for the parent schema

3.3
instance
XML document that is being validated with respect to an XML schema

3.4
schema
XML-encoded set of declarative rules against which one or more instances can be validated

3.5
URI
compact string of characters that uses the syntax defined in IETF RFC 2396 to identify an abstract or physical resource

3.6
valid with respect to a schema
member of the set of XML documents described by the schema

3.7
validator
software module that determines whether a schema is correct and whether an instance is valid with respect to a schema

4 Options for implementing the CEN metadata standards for cinematographic works

4.1 General

Neither EN 15744 nor EN 15907 mandate a particular representation for conformant metadata. Interoperability is assumed if metadata is communicated in a format that (1) preserves the meaning as defined in the standards, and (2) can be produced and/or consumed by all parties taking part in an exchange of metadata.

Both standards specify element names and associated definitions, while EN 15907 additionally specifies relationships between elements.

4.2 Data exchange options for EN 15744

4.2.1 General

EN 15744 specifies fifteen metadata elements similar in intent to many „core“ specifications such as the Dublin Core Metadata Element Set (DCMES, ISO 15836:2003, revised 2009). For data exchange purposes, EN 15744-conformant metadata can be prepared in one of the following ways.

4.2.2 EN 15744 mapped to DCMES

In cases where a party in a metadata exchange is unable to provide or consume EN 15744-conformant metadata, or such metadata is to be merged with DCMES-based metadata, the element contents may be transformed to a DCMES-conformant representation using the Dublin Core mapping statements contained in EN 15744.

A representation transformed according to the DCMES may be encoded in any syntax endorsed by the Dublin Core Metadata Initiative.

4.2.3 EN 15744 native

Metadata using the EN 15744 element specifications may be encoded in any syntax endorsed by the Dublin Core Metadata Initiative. Where appropriate, this metadata may be combined with elements from other standards and specifications, provided that any element not defined in EN 15744 is labelled with a namespace reference indicating its origin.

4.3 EN 15907 Data exchange using XML

4.3.1 General

The following clauses specify requirements for an XML-based exchange of metadata instances conformant with EN 15907. Further definitions based on different encoding schemes may be made available in the future.

4.3.2 Wrapper element

A wrapper element is required whenever more than a single instance of a Cinematographic Work element is to be exchanged as a contiguous data stream. Depending on the exchange scenario, such an element may or may not be defined by the exchange specification. Where this is not the case, sequences of Cinematographic Work elements shall be enclosed in an **ExchangeSet** element.

4.3.3 Description units

Cinematographic Work

Since EN 15907 defines this unit of description as the reference point for any Variant and/or Manifestation, it shall be used as the top-level element in an XML-based representation of a conformant metadata. This requirement entails that a work-level identity shall be supplied even in cases where no work-level information

about a Manifestation is available. It is the task of the metadata supplier to provide elementary work-level identification, independent of whether this information is transitory, preliminary, or persistent.

Variant

Defined as optional in EN 15907, this unit of description may or may not be included depending on one of the following conventions:

a) All work-level descriptions have a default instance of Variant. In this case, any instance of Manifestation, even if not more than one is known, shall occur as a child element of a Variant.

b) A Variant is used to distinguish two or more sets of (one or more) Manifestations, and omitted if all Manifestations are considered to belong to a single set. In the latter case, each instance of Manifestation will occur as a direct sub-element of the Cinematographic Work, while in the former case each Manifestation will occur as a direct child element of a Variant instance.

c) A Variant is used to distinguish a particular set of Manifestations from those that are not considered to belong to any Variant. In this case, instances of Manifestation can occur both as sub-elements of Cinematographic Work and of one or more instances of Variant.

d) The Variant is never used. In this case, each instance of Manifestation shall occur as a child element of the Cinematographic Work instance.

It is recommended that a contiguous XML-encoded data stream containing EN 15907-compliant metadata restricts the use (or non-use) of the Variant to a single convention from the above list. It is further recommended that parties engaging in an XML-based exchange of EN 15907-compliant metadata agree on one of the above conventions so as to minimise the risk of misalignment when processing this metadata.

Manifestation

Although not explicitly stated in EN 15907, this unit of description shall be considered mandatory if compatibility with EN 15744 is required. A Cinematographic Work without a known manifestation, or one that has never been realised, shall be associated with a Manifestation of an appropriate type (e.g. „unknown“ or „production aborted“).

Item

Any item-level description shall be represented as a dependent element (i.e. a sub-element in XML) with respect to a Manifestation. Where an item is the only source for metadata, the EN 15907 data model assumes that properties such as extent and format are those of the manifestation, i.e. common to all possibly existing exemplars.

An item may be composed of sections representing a unique combination of cinematographic works. Such item-level compilations are not in the immediate scope of EN 15907. They may be expressed by associating a single instance of Item with two or more manifestations of different works by use of a suitable specialisation of the HasOtherRelationship.

4.3.4 Expressing Relationships

Except for some one-to-many relationships, which can be expressed through XML element nesting, any relationship expression requires the use of identifiers. An XML encoding of EN 15907-conformant metadata shall not use the ID/IDREF or KEY/KEYREF types, since these require references to be resolvable within the scope of accessible XML document instances. Moreover, these features are specific to XML whereas EN 15907 may also be used with other encodings.

Each many-to-many relationship defined in EN 15907 can be understood as a predicate (in the linguistic sense) with a subject represented by the element instance at hand, and an object represented by an identifier or, in some cases, an instance of some other element. Identifiers in the object position shall have global

scope, wherever possible. Element instances in the object position shall be represented as XML child elements of the relationship element.

Semantic enrichment

The basic many-to-many relationship types defined in EN 15907 are semantically weak and typically require specialisation by means of type vocabularies.

EN 15907 provides for type attributes or sub-elements that may or shall take on values from (preferably controlled) vocabularies. An XML-based representation of specialised relationship types shall meet the following requirements:

a) Multiplicity of types. An object of a relationship shall be allowed to appear in more than one role without the necessity of repeating subject and object for each role.

b) Language attribute. A type name shall be allowed to have a language attribute.

Neither of these requirements can be met by using the XML attribute syntax. An XML encoding of EN 15907 relationship types shall therefore use the XML element syntax wherever any of the above requirements apply.

4.3.5 Adding Type Vocabularies

All metadata values apart from those that are free text or scalar values shall be taken from controlled vocabularies wherever an appropriate source for such vocabulary is available. Parties planning to exchange EN 15907-conformant metadata in an XML encoding are advised to add their choice of vocabularies to the XML schema definition in the following way:

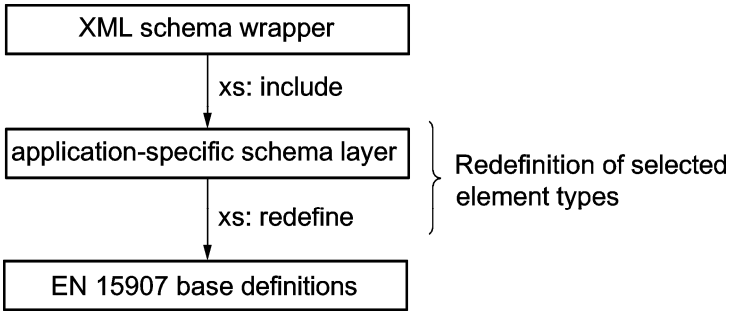

Figure 1 — References between XML schema components

A type vocabulary may be added by redefining an element type declaration from the base definitions within an application-specific schema layer. As an example, let the data type for the *usage* attribute specified in 6.9.2 of EN 15907:2010 be defined as follows:

```
<xs:simpleType name="LanguageUsageType">
    <xs:restriction base="xs:string"/>
</xs:simpleType>
```

This definition allows any sequence of characters to be accepted as a legal value for the *usage* attribute. Restricting the set of allowed values can be achieved by adding a replacement for the base definition to the application-specific schema layer:

```
<xs:simpleType name="LanguageUsageType">
    <xs:restriction base="ns1:LanguageUsageType">
        <xs:enumeration value="commentary" />
        <xs:enumeration value="dialogue" />
        <xs:enumeration value="dubbing" />
        (...)
```

```
    </xs:restriction>
</xs:simpleType>
```

where *ns1* shall be resolvable to the namespace URI of the base definitions. When referencing an EN 15907 schema definition via a customised application-specific schema layer, the namespace URI for the resulting schema definition shall carry an appendix allowing software applications to distinguish this from other customised variants of the schema.

4.3.6 Adding elements from foreign namespaces

EN 15907 allows for inclusion of foreign elements such as authority records in cases where this data is to be exchanged together with metadata for a cinematographic work. For example, 5.1.1 of EN 15907:2010 specifies that instances of the Agent entity may be included with an EN 15907-compliant metadata instance. Since EN 15907 does not specify structures for an Agent entity, such inclusions will have to refer to definitions from outside the scope of the standard. An XML schema definition may provide for a corresponding inclusion point as follows:

```
<xs:complexType name="AgentInstanceType">
    <xs:sequence>
        <xs:any processContents="lax" minOccurs="1"/>
        <xs:element name="note" type="xs:string" minOccurs="0"/>
    </xs:sequence>
</xs:complexType>
```

which says that instances of the AgentInstanceType may belong to arbitrary namespaces without compromising the validity of the enclosing EN 15907 metadata instance. An instantiation of this construct may take on the following form:

```
  <HasAgent>
    <Activity>Director</Activity>
    <AgentName>Federico Fellini</AgentName>
    <AgentInstance>
      <eac:cpfDescription xmlns:eac="urn:isbn:1-931666-33-4">
        <eac:identity><eac:entityId>98237993</eac:entityId>
          <eac:entityType>person</eac:entityType>
          <eac:nameEntry>
            <eac:part localType="surname">Fellini</eac:part>
            <eac:part localType="givenName">Federico</eac:part>
          </eac:nameEntry>
        </eac:identity>
        <eac:description>
          <eac:existDates>
            <eac:dateRange><eac:fromDate>1920-01-20</eac:fromDate>
              <eac:toDate>1993-10-31</eac:toDate></eac:dateRange>
          </eac:existDates>
          <eac:place><eac:placeRole>Birthplace</eac:placeRole>
            <eac:placeEntry countryCode="IT">Rimini</eac:placeEntry>
          </eac:place>
        </eac:description>
      </eac:cpfDescription>
    </AgentInstance>
  </HasAgent>
```

where each element without a namespace prefix belongs to the EN 15907 XML namespace and only these elements will be checked for conformant usage by a validator. Parties wishing to exchange metadata with mixed namespaces are advised to use implementations of the Namespace-based Validation Dispatching Language (NVDL) as specified in ISO/IEC 19757-4:2006 for validating the usage of all elements occurring in a metadata instance.

4.3.7 Representing metadata statements outside the scope of EN 15907

Transforming pre-existing metadata into an EN 15907-compliant form may require the disposition of statements for which no semantically equivalent target element or attribute is defined. If (and only if) an out-of-scope element can neither be represented using the mechanism specified in 4.3.6, nor discarded in a data exchange, then the application-specific schema layer may be used to add a definition for such element(s).

Annex A
(informative)

List of EN 15907 elements and attributes that may be redefined in an application-specific schema layer

EN 15907 name	Clause	XML type declaration name	Specialisation by
descriptionLevel	4.1.2	DescriptionLevelEnum	additions to pre-defined vocabulary
variantType	4.2.2	VariantTypeType	introduction of controlled vocabulary
manifestationType	4.3.2	ManifestationTypeType	introduction of controlled vocabulary
Instantiation type	4.4.3	ItemTypeType	introduction of controlled vocabulary
Agent type	5.1.3	AgentInstanceType	introduction of controlled vocabulary
Identifier	6.1	IdentifierType	additional structural elements
Title relationship	6.3.3	TitleRelationshipType	introduction of controlled vocabulary
Unit	6.3.3	PartUnitType	introduction of controlled vocabulary
Carrier type	6.7.3	CarrierTypeType	introduction of controlled vocabulary
reference	6.5.2	CountryOfReferenceReferenceType	introduction of controlled vocabulary
reference	6.6.2	YearOfReferenceReferenceType	introduction of controlled vocabulary
Aspect ratio	6.7.3	AspectRatioType	introduction of controlled vocabulary or syntax rules
Gauge	6.7.3	GaugeType	introduction of controlled vocabulary
Colour system	6.7.3	ColourType	introduction of controlled vocabulary
Chromatism	6.7.3	ChromatismType	introduction of controlled vocabulary

SystemName	6.7.3	SoundSystemNameType	introduction of controlled vocabulary
usage	6.9.2	LanguageUsageType	introduction of controlled vocabulary
Preservation type	6.15.3	PreservationEventType	introduction of controlled vocabulary
Description type	6.17.3	DescriptionTypeType	introduction of controlled vocabulary
Code	7.2.3	CodedRegionType	additions to pre-defined vocabulary
scheme	7.2.3	RegionCodeSchemeEnum	additions to pre-defined vocabulary
Region name	7.2.3	PlainRegionType	introduction of controlled vocabulary
Timespan	7.3	TimespanType	additional syntax rules
activity	8.2.2	AgentActivityType	introduction of controlled vocabulary
relationshipType	8.5.2	SubjectRelationshipType	introduction of controlled vocabulary
relationshipType	8.6.2	OtherRelationshipType	introduction of controlled vocabulary
relationshipDetail	8.6.2	OtherRelationshipDetailType	additional structural elements
Decision type	6.13.3	DecisionTypeType	introduction of controlled vocabulary
Publication type	6.11.3	PublicationTypeType	introduction of controlled vocabulary
Event relationship	6.12.13	EventRelationshipType	introduction of controlled vocabulary
Language tag	7.4	LanguageTagType	restriction to subset of RFC 4646
Expression of time spans	Annex ZA	TimeQualifierType	modifications to pre-defined vocabulary

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