

SMPTE STANDARD

Interoperable Master Format – Sidecar Composition Map



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Foreword

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SMPTE Engineering Documents are drafted in accordance with the rules given in its Operations Manual. This SMPTE Engineering Document was prepared by Technology Committee 35PM.

Intellectual Property

At the time of publication no notice had been received by SMPTE claiming patent rights essential to the implementation of this Engineering Document. However, attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SMPTE shall not be held responsible for identifying any or all such patent rights.

Introduction

This section is entirely informative and does not form an integral part of this Engineering Document.

It is often desirable to associate a Sidecar Asset with a Composition. Such Sidecar Asset contains information applicable to the Composition in its entirety. Examples of Sidecar Assets include QC reports, metadata specific to a distribution channel, etc.

The association between a Sidecar Asset and a Composition needs to survive delivery even when processors along the way do not understand the contents of the Sidecar Asset file. In addition, such association is sometimes made after the creation of the Composition Playlist, which cannot always be modified.

This document specifies a Sidecar Composition Map instance that allows any number of Sidecar Assets (identified using the same Id used by the Packing List to reference them) to be each associated with multiple Compositions (identified using its Composition Playlist Id). An IMP can contain any number of Sidecar Composition Map instances.

1 Scope

This document defines the Sidecar Composition Map structure, which allows a Sidecar Asset to be associated with a Composition Playlist.

2 Conformance Notation

Normative text is text that describes elements of the design that are indispensable or contains the conformance language keywords: "shall", "should", or "may". Informative text is text that is potentially helpful to the user, but not indispensable, and can be removed, changed, or added editorially without affecting interoperability. Informative text does not contain any conformance keywords.

All text in this document is, by default, normative, except: the Introduction, any section explicitly labeled as "Informative" or individual paragraphs that start with "Note:"

The keywords "shall" and "shall not" indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted.

The keywords, "should" and "should not" indicate that, among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

The keywords "may" and "need not" indicate courses of action permissible within the limits of the document.

The keyword "reserved" indicates a provision that is not defined at this time, shall not be used, and may be defined in the future. The keyword "forbidden" indicates "reserved" and in addition indicates that the provision will never be defined in the future.

A conformant implementation according to this document is one that includes all mandatory provisions ("shall") and, if implemented, all recommended provisions ("should") as described. A conformant implementation need not implement optional provisions ("may") and need not implement them as described.

Unless otherwise specified, the order of precedence of the types of normative information in this document shall be as follows: Normative prose shall be the authoritative definition; Tables shall be next; then formal languages; then figures; and then any other language forms.

3 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE ST 2067-2:2016, Interoperable Master Format — Core Constraints

World Wide Web Consortium (W3C) (26 November 2008). Extensible Markup Language (XML) 1.0 (Fifth Edition)

World Wide Web Consortium (W3C) (28 October 2004). XML Schema Part 1: Structures (Second Edition)

World Wide Web Consortium (W3C) (10 June 2008). XML Signature Syntax and Processing (Second Edition)

IETF RFC 3023 (January 2001). XML Media Types

4 Glossary

Asset: An Asset is a set of data, such as essence or metadata. Any type of data may be referred to as an Asset.

5 Sidecar Asset

A Sidecar Asset shall be an Asset, with the following constraints:

- the Asset shall contain information associated with one or more Compositions, as defined in SMPTE ST 2067-2 Section 6,
 - no Virtual Track of the associated Compositions shall reference the Asset;
 - the Asset should not contain information essential to the processing of the Composition; and
 - the Asset should apply to a Composition in its entirety, and not specific intervals on the Composition timeline.

A Composition may be associated with zero or more Sidecar Assets.

Note: This specification does not restrict the contents of a Sidecar Assets, including size and format, other than through the above constraints.

6 Sidecar Composition Map

6.1 Instance

A Sidecar Composition Map instance shall be an XML document, as defined in W3C Extensible Markup Language (XML), that consists of a single SidecarCompositionMap element of type SidecarCompositionMapType. SidecarCompositionMapType is defined in Section 7.2.

6.2 Schema

A Sidecar Composition Map instance shall conform to the XML schema definitions (as defined in W3C XML Schema Part 1: Structures) found in this specification. In the event of a conflict between schema definitions and the prose, the prose shall take precedence.

The XML schema root element shall be as defined in Table 1.

Table 1. XML schema document root element definition.

```
<xs:schema targetNamespace="http://www.smpte-ra.org/ns/2067-9/2018"
  xmlns:scm="http://www.smpte-ra.org/ns/2067-9/2018"
  xmlns:dcml="http://www.smpte-
ra.org/schemas/433/2008/dcmlTypes/"
  xmlns:ds="http://www.w3.org/2000/09/xmldsig#"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:import namespace="http://www.smpte-ra.org/schemas/433/2008/dcmlTypes/" />
  <xs:import namespace="http://www.w3.org/2000/09/xmldsig#" />
  <xs:element name="SidecarCompositionMap" type="scm:SidecarCompositionMapType" />
  <!-- schema definitions found in this document excluding this one -->
</xs:schema>
```

Note 1: The prefix associated with each namespace in an XML Schema definition document is arbitrary and a Sidecar Composition Map instance can use another prefix value for the same namespace.

Note 2: The XML Schema definitions found in this specification include elements specified in W3C XML Signature Syntax and Processing and SMPTE ST 433.

6.3 Character Encoding

Sidecar Composition Map instances shall be encoded using the UTF-8 character encoding.

6.4 Media Type

The XML Media Type of a Sidecar Composition Map instance is text/xml, as specified in IETF RFC 3023.

7 XML Structure

7.1 General

In order to avoid duplication between text and schema, the cardinality and default values of elements are specified in the schema definitions only.

7.2 SidecarCompositionMapType

Table 2. SidecarCompositionMapType schema definition.

```
<xs:complexType name="SidecarCompositionMapType">
  <xs:sequence>
    <xs:element name="Id" type="dcml:UUIDType"/>
    <xs:element name="Properties">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="Annotation" type="dcml:UserTextType" minOccurs="0"/>
          <xs:element name="IssueDate" type="xs:dateTime"/>
          <xs:element name="Issuer" type="dcml:UserTextType" minOccurs="0"/>
          <xs:any maxOccurs="unbounded" minOccurs="0" namespace="##other"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="SidecarAssetList">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="SidecarAsset" type="scm:SidecarAssetType"
            maxOccurs="unbounded"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="Signer" type="ds:KeyInfoType" minOccurs="0"/>
    <xs:element name="Signature" type="ds:SignatureType" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
```

7.2.1 Id

The Id element uniquely identifies the Sidecar Composition Map instance. Any two Sidecar Composition Maps may have equal Id values if and only if the two Sidecar Composition Maps are identical.

7.2.2 Properties

7.2.2.1 Annotation

The Annotation element shall be a free-form, human-readable annotation describing the Sidecar Composition Map. It is meant strictly for display to the user.

7.2.2.2 IssueDate

The IssueDate element shall indicate the time and date at which the Sidecar Composition Map instance was created.

7.2.2.3 Issuer

The Issuer element shall be a free-form, human-readable annotation that identifies the entity that created the Sidecar Composition Map instance. It is meant strictly for display to the user.

Note: The Signer element defined in Section 7.2.4 is used to identify the entity that digitally signed the Sidecar Composition Map.

7.2.3 SidecarAssetList

The SidecarAssetList element shall contain a list of SidecarAsset elements of type SidecarAssetType. SidecarAssetType is defined in Section 7.3.

The child Id element value of each SidecarAsset shall be unique within the SidecarAssetList.

A given association between a Sidecar Asset and a Composition may be present in multiple Sidecar Composition Maps.

7.2.4 Signer

The Signer element uniquely identifies the entity that digitally signed the Sidecar Composition Map. If the Signer element is present, then the Signature element shall also be present.

If X.509 certificates are used as specified in W3C XML Signature Syntax and Processing, then the Signer element shall contain one X509Data element containing one X509IssuerSerial element, which uniquely identifies the certificate used to sign the Sidecar Composition Map.

7.2.5 Signature

The Signature element contains a digital signature authenticating the Sidecar Composition Map.

If the Signature element is present, then the Signer element shall be present.

The digital signature shall be enveloped, as specified in W3C XML Signature Syntax and Processing, and apply to the entire Sidecar Composition Map.

7.3 SidecarAssetType

Table 3. SidecarAssetType schema definition.

```
<xs:complexType name="SidecarAssetType">
  <xs:sequence>
    <xs:element name="Id" type="dcml:UUIDType"/>
    <xs:element name="AssociatedCPLList">
      <xs:complexType>
        <xs:sequence>
          <xs:element maxOccurs="unbounded" name="CPLId" type="dcml:UUIDType"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
```

7.3.1 Id

The Id element shall uniquely identify the Sidecar Asset.

Its value shall be the Id used by the Packing List to reference the Asset, as defined in Section 7.3.1 of SMPTE ST 2067-2.

7.3.1.1 AssociatedCPLListCPLId

Each CPLId element value shall be equal to the Id element value of the Composition Playlist of a Composition that is associated with the Sidecar Asset.

No two CPLId elements shall have equal values within the same AssociatedCPLList element.

8 Delivering Sidecar Composition Maps

An IMP, as defined in SMPTE ST 2067-2, may contain one or more Sidecar Composition Map instances.

Each such Sidecar Composition Map instance shall only reference Sidecar Assets contained in the same IMP.

Note: Compositions referenced by a Sidecar Composition Map instance are not necessarily contained in the same IMP.

9 Processing Sidecar Composition Maps

When processing a Sidecar Composition Map, implementations should preserve elements and attributes in foreign namespaces, wherever the XML Schema definitions in this specification define extension points through the <any> Wildcard Schema Component.

Annex A Consolidated Schema (Informative)

This specification is accompanied by the following element, which is an XML schema document as defined in W3C XML Schema Part 1: Structures.

st2067-9a-2018.xsd

This element collects the XML schema definitions specified in this specification. It is informative and, in case of conflict, this specification takes precedence.

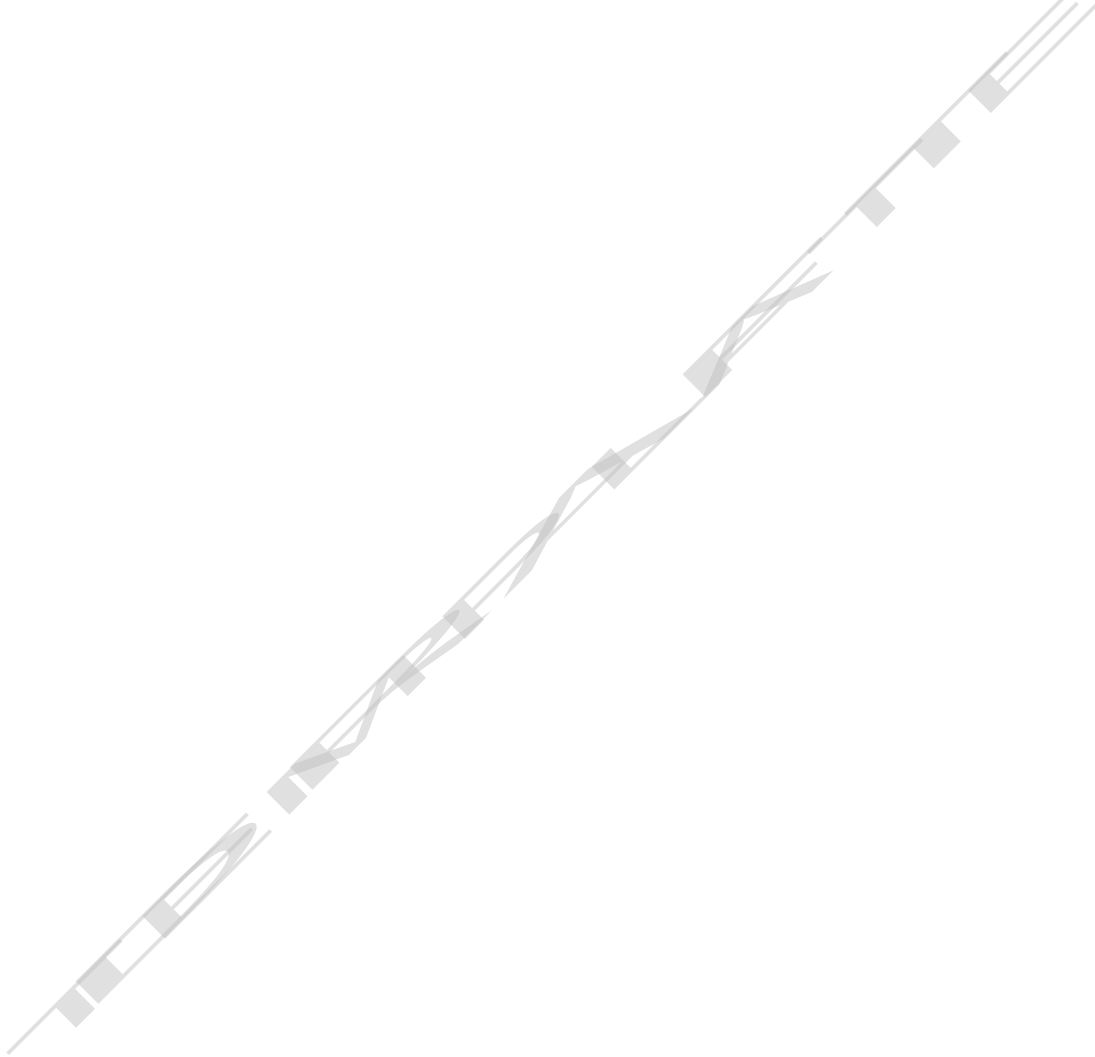
Annex B Example (Informative)

This specification is accompanied by the two following elements, which are, in order, a sample Sidecar Composition Map document and a sample Packing List.

st2067-9b-2018.xml

st2067-9c-2018.xml

The Sidecar Composition Map document is contained in the IMP described by the Packing List.



Bibliography

SMPTE ST 433:2008, D-Cinema — XML Data Types

SMPTE ST 433:2008 Am1:2011, D-Cinema — XML Data Types — Amendment 1

SMPTE ST 2067-3:2016, Interoperable Master Format — Composition Playlist

World Wide Web Consortium (W3C) (8 December 2009). Namespaces in XML 1.0 (Third Edition)