

Using Common Media Manifest with Interoperable Media Format (IMF)

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REVISION HISTORY

Version	Date	Description
1.0	August 3, 2017	Initial release

1 INTRODUCTION

1.1 Background

Common Manifest allows user experiences to be assembled from individual assets, e.g. a video track, audio track, etc.

The Interoperable Master Format (IMF) family of specifications¹ facilitates the management and processing of multiple Compositions (airline edits, special edition ...) of the same high-quality finished work (feature, episode, trailer, etc.). The playback timeline of each Composition is controlled by a Composition Playlist (CPL), which is specified in SMPTE ST 2067-3 and defines a Virtual Track for each essence kind, e.g. video, audio, etc.

An IMF Output Profile List (OPL), which is specified in SMPTE ST 2067-100, can then be used to transform (scaled, cropped, etc.) Virtual Tracks to meet the specific needs of downstream distribution channels.

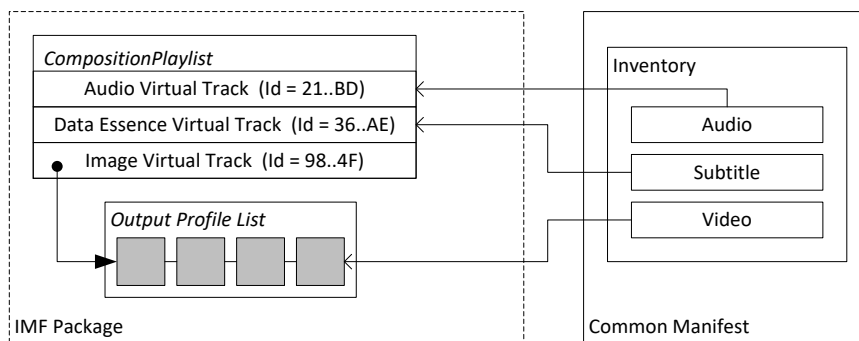


Figure 1. Referencing an IMF Package from Common Manifest.

As illustrated in Figure 1, this document allows Common Manifest to reference IMF CPL Virtual Tracks and IMF OPL Macro Outputs. The IMF files can be either local or accessed through HTTP or HTTPS.

1.2 Document Naming and Conventions

This specification uses the formal grammar of XML as specified in Section 6 of Extensible Markup Language (XML) 1.0, with the following additions.

`expression{n}` matches exactly n repetitions of `expression`.

`expression{n,m}` matches between n and m (inclusive) repetitions of `expression`.

The following definitions are provided for convenience:

```
<hexdig> ::= [a-fA-F0-9]
<uuid> ::= <hexdig>{8} "-" <hexdig>{4}>{3} "-" <hexdig>{12}
```

¹ <https://doi.org/10.5594/SMPTE.OV2067-0.2017>

```
<alpha> ::= [a-zA-Z]
<digit> ::= [0-9]
```

1.3 Normative References

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

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

IETF RFC 3986, Uniform Resource Identifier (URI): Generic Syntax

SMPTE ST 2067-100:2014, Interoperable Master Format – Output Profile List

World Wide Web Consortium (W3C) (2004, February 4), Extensible Markup Language (XML) 1.0 (Third Edition).

MovieLabs (December 20, 2016), Common Media Manifest Metadata Version 1.6, December 20, 2016

2 REFERENCING IMF CPL VIRTUAL TRACKS

2.1 General

A Common Manifest Inventory Asset that references an IMF CPL Virtual Track shall conform to this Section.

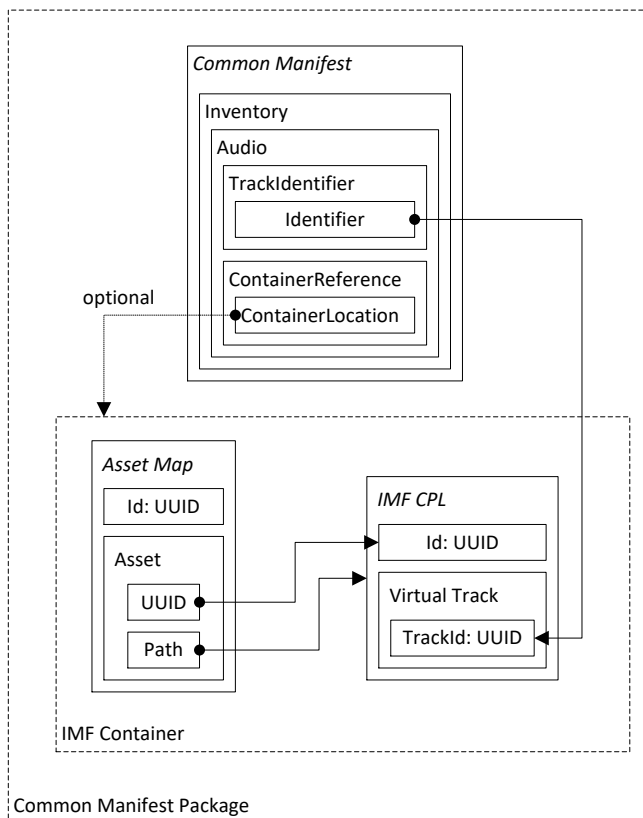


Figure 2. Referencing an IMF CPL Virtual Track.

2.2 TrackReference

The `TrackReference` element is not used and should not be present.

2.3 TrackIdentifier

The `TrackIdentifier/Namespace` element shall be `"smpte:imf"`.

The `TrackIdentifier/Identifier` element shall conform to the `<track-id>` syntax:

```
<track-id> ::= "cpls/" <cpl-id> "/virtual-tracks/" <virtual-track-id>
<cpl-id> ::= <uuid>
<virtual-track-id> ::= <uuid>
```

where `<cpl-id>` shall be the `Id` of the Composition Playlist (see Section 6.1.1 of SMPTE ST 2067-3) and `<virtual-track-id>` shall be equal to the `TrackId` of the CPL Virtual Track (see Section 6.9.3 of SMPTE ST 2067-3).

The `TrackIdentifier/Location` element is not used and should not be present.

1.1 ContainerReference

If present, the `ContainerReference` element shall conform to Section 3.

2 REFERENCING OPL MACRO OUTPUTS

2.1 General

A Common Manifest Inventory Asset that references an OPL Macro Output shall conform to this Section.

2.2 TrackReference

The `TrackReference` element is not used and should not be present.

2.3 TrackIdentifier

The `TrackIdentifier/Namespace` element shall be "smpte:imf".

The `TrackIdentifier/Identifier` element shall conform to the `<track-ref>` syntax:

```
<track-ref> ::= "opls/" <opl-id> "/" <macro-output-handle>  
<opl-id> ::= <uuid>
```

where `<opl-id>` is the `Id` of the Output Profile List and `<macro-output-handle>` is the Macro Instance Output Handle, as specified in SMPTE ST 2067-100.

The `TrackIdentifier/Location` element is not used and should not be present.

2.4 ContainerReference

If present, the `ContainerReference` element shall conform to Section 3.

3 REFERENCING AN IMF CONTAINER

3.1 ContainerLocation

The `ContainerLocation` element shall reference the Asset Map document of a Delivery that conforms to SMPTE ST 2067-2, using either:

-
- A relative-path reference, without query or fragment component, as specified in RFC 3986. The relative-path reference shall be resolved relative to the URI of the Common Manifest document.
 - An absolute-URI as specified in RFC 3986. One of the following schemes shall be used: "http" or "https".

The Delivery shall include all assets necessary to process the Common Manifest Inventory Asset.

The Delivery shall use one of the following Map Profiles:

- Basic Map Profile v2 at Annex A of SMPTE ST 429-9, as referenced in SMPTE ST 2067-2, which specifies the mapping of Mapped File Sets onto a hierarchical, random-access filesystem which supports long path names and files larger than 4GB; or
- The IMF HTTP Map Profile at Annex L of SMPTE ST 2067-2, which specifies the mapping of Mapped File Sets onto HTTP and HTTPS.

3.2 ContainerIdentifier

The `ContainerIdentifier` element is not used and should not be present.

3.3 ParentContainer

The `ParentContainer` element is not used and should not be present.