MPEG Interoperability Initiative: D-Cinema Package Constraints

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MPEG Interoperability Initiative: D-Cinema Package Constraints

1 Scope

This document specifies constraints on the following documents; generally known as the MPEG Interop Packaging Specifications:

Mpeg Interop: Composition Playlist Specification

Mpeg Interop: Packing List Specification

Mpeg Interop: Delivery Media Representation and Segmentation

It also specifies operational constraints regarding how the specifications are applied in creating an interchangeable package.

2 Overview (informative)

A packing list, depicted in abstract form in Figure1, is a list of identification information about a distribution package. Said another way, a packing list describes a particular distribution package by enumerating its contents. A distribution package contains track files, one or more composition playlist files and possibly other files. The information contained in the packing list allows a receiver to validate the whole package upon receipt. The packing list's elements are not ordered.

Figure 1 illustrates the abstract form of a complete packing list for a trailer and a single reel feature.

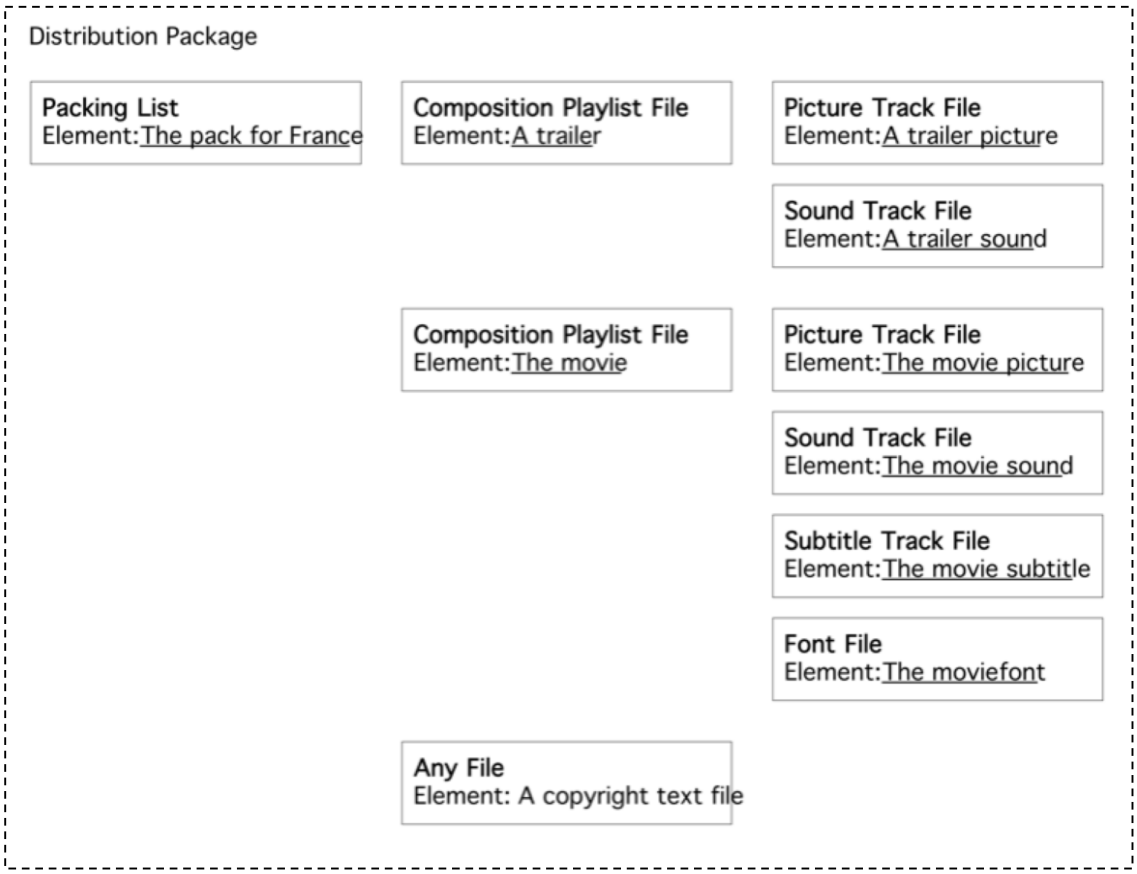

Figure 2 illustrates the abstract form of a partial packing list, in which a replacement “reel” it being sent to theatres. This may be created, for example, to distribute a change in the end credits of a feature. Note that this partial package includes picture, sound and sub-title track files, and a composition playlist file that references those files as well as files from a previously delivered package. The example package shown in Figure 2 is not related to the example package shown in Figure 1.

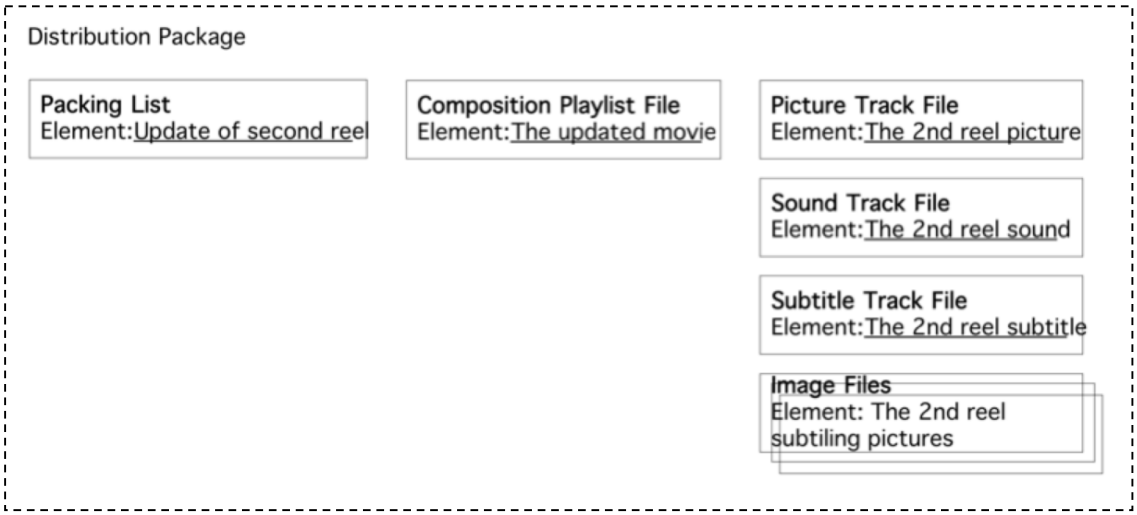

Figure 2. **Prototypical Partial Packing List. [Informative]**

3 Composition Playlist Constraints

3.1 Entry Point

For all Assets derived from the GenericAssetType, the EntryPoint element shall be required, not optional.If playback starts at the beginning of the track file, the value shall be set to zero.

3.2 Duration

For all Assets derived from the GenericAssetType, the Duration element shall be required, not optional.

3.3 IconId

Playback equipment shall not recognize the IconID element

3.4 Asset Types

All Composition Playlists shall include a Main Picture Asset

Composition Playlist Reels shall not reference more than one Asset of each type.

3.5 Projector Data

If a ProjectorData Asset is present, its use shall be constrained as follows:

a) The first Reel shall reference a ProjectorData Asset.

b) All other Reels must reference the same ProjectorData Asset as Reel 1. c) The EntryPoint shall be zero.

3.6 Markers

If a MainMarkers Asset is present, its use shall be constrained as follows:

a) Markers shall appear in the MarkerList in order of ascending offset

b) No Marker shall be assigned an Offset that exceeds the Duration of the MainPicture asset for that Reel

c) The EntryPoint shall be zero

4 Packing List Constraints

4.1 IconId

Playback equipment shall not recognize the IconID element

5 Asset Map Constraints

5.1 Number of Volumes

The number of volumes shall be restricted to one.

5.2 Number of Chunks

The number of chunks shall be restricted to one. Hence, each ChunkList shall only contain one Chunk element.

6 Subtitle File Mastering Constraints

6.1 Subtitle file format

The subtitle file format shall be as specified by the document “Subtitle Specification for DLP Cinema Projection Technology”.

6.2 Subtitle file time reference

All TimeIn and TImeOut values in the subtitle file should be relative to the entry point (first displayed frame) of the associated picture reel.

6.3 Subtitle file timecode reference

The timecode used for the generation of the subtitle file shall be 24 FPS timecode.

6.4 Subtitle file text, font, and image references

The URI for all LoadFont elements shall be relative.

The URI for the Image elements shall be relative.

7 Operational Constraints

7.1 Packaging of composition with intermission

Compositions which are intended to be interrupted by an intermission are to be packaged as two separate compositions. This will allow the intermission length to be controlled by exhibition without resorting to handling content with intermissions in a different manner.

7.2 Constraint on edit rates

The edit rates of all Assets must be equal and constant for the duration of the Composition.

7.3 Constraint on picture-related parameters

The following picture-related parameters shall not change for the duration of the Composition Playlist:

- Raster size
- Screen Aspect Ratio
- Frame Rate

7.4 Constraint on sound-related parameters

All sound track files referenced by a given composition must share identical:

- baseband sample rate

- baseband sample bit depth
- language
- channel format (presentation format)

7.5 Constraint on subtitle-related parameters

All subtitle tracks referenced by a given Composition Playlist must share identical language.The subtitle file shall not contain any subtitles outside the playable portion determined by the EntryPoint and Duration of the subtitle asset.

7.6 Constraint on projector data

The ProjectorData Asset associated with the first Reel shall be used for the entire Composition.

Each ProjectorData file shall be a CineCanvas™ Metadata file according to "Metadata Specification for DLP-Cinema" (contact T.I. for a copy of this specification).

Each CineCanvas™Metadata file shall reference a PCF file using a relative URI

7.7 Constraint on Package Structure

Each Subtitle file shall be placed in a directory labelled with the UUID of the SubtitleID element of that file

Subtitle file resources (font, image) shall be placed in a directory structure as indicated by the relevant URI that references the resource.

Each Metadata file shall be placed in a directory labelled with the UUID of the MetadataID element.

Metadata file resources shall be placed in a directory structure as indicated by the relevant URI that references the resource.

7.8 Constraint on Duration

All Assets referenced by a single Reel shall have the same Duration

8 Constraints on KDM

All keys needed to decrypt a Composition shall be contained in a single KDM.

9 Change History

Ver	Date	By	Sect	Description
1	8 June 2004			Initial compilation of constraints
2	16 June 2004			Changes based on review comments
2.2	18 June 2004			Changes based on reviews.
2.3	18 August 2004			Changes based on July 27/28
2.4	22 Nov. 2004			Updates to subtitles and other sections based on recent meetings and reflector comments.
2.5	19 May 2005			Updates to clarify language, add new constraints for PCF files, Markers, and subtitles. Added subtitle and PCF packaging constraints.
2.6	26 May, 2005			Section 6.2: Changed "shall" to "should". Misc. editorial.