



**International
Standard**

ISO/IEC 23000-19

**Information technology —
Multimedia application format
(MPEG-A) —**

**Part 19:
Common media application format
(CMAF) for segmented media**

**AMENDMENT 2: Additional structural
CMAF brand profile**

**Third edition
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**AMENDMENT 2
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Sample Document

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Information technology — Multimedia application format (MPEG-A) —

Part 19:

Common media application format (CMAF) for segmented media

AMENDMENT 2: Additional structural CMAF brand profile

Clause 3, Terms and definitions

3.2.1

CMAF track

Add the following note:

Note 1 to entry: In addition to a *primary media track* (3.2.14), the CMAF track can also contain *supplementary metadata tracks* (3.2.15).

Add 2 new terms to Clause 3.2:

3.2.14

primary media track

main content track that carries the audio, video, or audiovisual data, essential for the core playback experience and always present in the MovieBox

3.2.15

supplementary metadata track

metadata track that is directly related to the media data of the primary media track (3.2.14) within the same CMAF track (3.2.1).

Note 1 to entry: This track uses a handler type equal to 'meta' and provides metadata that enhances or describes the associated primary media content.

Add 2 new terms to Clause 3.3:

3.3.19

texture picture

picture that carries pixel data corresponding to information that can be rendered on a screen or some other device, either directly or indirectly after the consideration of additional information, such as alpha, depth, display, colour format, colour processing, and/or other information that can be associated with such pixel data

3.3.20**alpha picture**

picture that contains a video signal representing information indicating the opacity level of each pixel in an associated foreground picture and how that associated picture should be blended with other pictures for purposes of alpha blending

Clause 4, Abbreviated terms

Add the following abbreviated terms:

MV multi-view

*Clause 7***7.1 Overview**

Replace the two paragraphs with the following text:

The CMAF track format is derived from the ISO base media file format in this clause and structural brands are specified. At this point, the 'cmfc', the 'cmf1', and the 'cmf2' CMAF structural brands are defined. The 'cmf2' brand further restricts the 'cmfc' brand. The 'cmf1' brand both extends and restricts the 'cmfc' brand.

Several CMAF media objects are derived from the CMAF track format.

7.2

Replace Table 1 with:

Table 1 — CMAF brands

Brand	Location	Conformance requirements
cmfc	FileTypeBox and SegmentTypeBox	7.6
cmf2	FileTypeBox and SegmentTypeBox	7.7
cmf1	FileTypeBox and SegmentTypeBox	7.8
cmfs	SegmentTypeBox	7.3.3.1
cmf1	SegmentTypeBox	7.3.3.2
cmff	SegmentTypeBox	7.3.2.3
cmfr	SegmentTypeBox	7.3.2.4

Replace Table 2 with:

Table 2 — Common media application format file extensions

Track type	File extension	Internet media type (MIME type)
Video	.cmfv	video/mp4
Audio	.cmfa	audio/mp4
Text (subtitle)	.cmft	application/mp4
Metadata	.cmfm	application/mp4

7.3.1

Replace 4th row of Table 3 with:

	trak					+	ISO/IEC 14496-12	CMAF 7.5.21	Container for each track
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Replace 32nd row of Table 3 with:

		trex				+	ISO/IEC 14496-12	CMAF 7.5.14	Track extends box
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Replace 7th row of Table 5 with:

	traf					+	ISO/IEC 14496-12	CMAF 7.5.21	Track fragment
--	------	--	--	--	--	---	------------------	-------------	----------------

7.3.2.1

Replace the bullet point c)4) with:

- 4) The `MovieBox` shall contain exactly one primary media track containing media data as specified in subclause 7.3.2.2.

NOTE Timed metadata tracks can be provided as separate CMAF timed metadata tracks in a separate selection set. Alternatively, supplementary metadata tracks can be included in the same CMAF selection set.

7.3.2.2

Replace the bullet point d with:

- d) Each CMAF track contains a single primary media track and `TrackBox` for the media data, as determined by the CMAF header constraints specified in subclause 7.3.2.1. A CMAF track can contain additional `TrackBoxes` if it carries supplementary metadata tracks.

7.3.2.3

Replace the bullet points b), c) and f) with:

- b) The `MovieFragmentBox` shall conform to the constraints of the structural CMAF brand constraints specified in Table 5 and clause 7.5.21. The `MovieFragmentBox` shall contain only one `TrackFragmentBox` of the primary media track and can contain `TrackFragmentBoxes` of the supplementary metadata tracks.
- c) The `MediaDataBox` shall contain all media samples referenced by the `TrackRunBox`. The `MediaDataBox` should follow the `TrackRunBox` in byte order unless another `TrackFragmentBox` follows within the same `MovieFragmentBox`. If multiple `TrackFragmentBoxes` are present within a `MovieFragmentBox`, the `MediaDataBox` shall follow the last `TrackFragmentBox` in that `MovieFragmentBox`, ensuring all samples referenced by the `TrackRunBoxes` are contained in the corresponding `MediaDataBox`.
- f) A CMAF chunk shall contain a `TrackFragmentBaseMediaDecodeTimeBox` containing the `baseMediaDecodeTime` of the first media sample.