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

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

**AMENDMENT 2: XHE-AAC and other
media profiles**

*Technologies de l'information — Format pour application multimédia
(MPEG-A) —*

*Partie 19: Format CMAF (Common Media Application Format) pour
médias segmentés*

ISO/IEC 23000-19:2018/Amd 2:2019

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This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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Clause 2

Add the following new normative references.

ISO/IEC 23003-3:2012, *Information technology — MPEG audio technologies — Part 3: Unified speech and audio coding*

IETF RFC 6381, The 'Codecs' and 'Profiles' Parameters for "Bucket" Media Types, August 2011.

3.2

Add a new term and definition at the end of subclause 3.2.

3.2.10

CMAF supplemental data

data that can be present in a *CMAF track* (3.2.1) and its contained *media samples* (3.3.15) conformant to a set of requirements identified by a brand

Clause 5

Add new paragraphs at the end of Clause 5.

Annex K specifies the CMAF media profile for MPEG-D USAC.

Annex L specifies the CMAF media profile for IMSC 1.1.

6.5.5

In subclause 6.5.5.1, replace the first bullet in the list with the following.

- CMAF specifies CMAF media profiles, CMAF supplemental data, and ISOBMFF brands for widely used audio, video, and subtitle formats. Each CMAF media profile specifies constraints on codecs, media samples, CMAF fragments, and CMAF tracks to identify encoder/decoder interoperability and optional functionality including random access and seamless adaptive switching specified as CMAF switching set constraints. CMAF also specifies guidelines for the specification of CMAF media profiles and matching brands to enable other specifications to define CMAF media profiles that conform to general CMAF requirements. See Table A.1, Table B.1, Table A.2, and Table A.3.

Add a new subclause 6.5.5.4 and renumber the subsequent subclauses in 6.5.5.

6.5.5.4 Signalling of supplemental data in CMAF tracks

CMAF defines brands, called "supplemental data brands" to identify the presence of additional information in a CMAF track that is not required by the CMAF media profile of that track. For example, NAL units, SEI messages, ISOBMFF Boxes can be added to an otherwise conformant CMAF track file, where this supplemental data does not make the CMAF track file non-conformant. Signalling its presence may be useful during production workflow, and to decoders for track selection and decoder initialization.

In 6.5.5.6, replace the second bullet in the list with the following.

- CMAF media profiles and CMAF supplemental data are specified in A.2, A.3, A.4, and B.5.

7.3.5

Delete the NOTE.

9.3.5.2

Replace the first paragraph of subclause 9.3.5.2 with the following.

CTA 608/708 caption data (CTA-608-E, CTA-708-E) may be stored in video SEI messages defined by the associated video codec specification (see 11.4). Video embedded captions are not considered a CMAF subtitle track, and it is expected that many CMAF compatible players will ignore these messages in video CMAF tracks. The presence of CTA 608/708 caption data in such SEI messages is CMAF supplemental data and should be indicated by the addition of the 'ccea' compatibility brand in the CMAF header, as specified in A.4.

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<https://standards.iso.org/standards/catalog/standards/iso/dff8a36b-f9d5-4e77-93e6-0ea12149c4ea/iso-iec-23000-19-2018-amd-2-2019>

10.1

Add the following bullet to the end of the list.

- see Annex K for MPEG-D USAC.

11.1

Add the following text to the end of subclause 11.1.

An additional CMAF media profile for IMSC 1.1 is defined in Annex L.

11.3.1

Replace the text of Clause 11.3.1 with the following.

W3C IMSC1 and W3C IMSC1.1 are profiles of the timed text markup language (TTML) for subtitle and caption delivery. W3C IMSC1 defines a text-only profile and an image-only profile. W3C IMSC1.1 also defines a text-only profile and an image-only profile. W3C IMSC1.1 is a superset of W3C IMSC1, such that a valid W3C IMSC1 text or image profile document is a valid W3C IMSC1.1 text or image profile document, respectively.