

WebCodecs MoQ Media Format

draft-mzanaty-moq-loc-04

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What is LOC? The ABCs...

Low-Overhead* Container Media Format

- **A**lternative to CMAF
- **B**ased on WebCodecs
- **C**atalog bindings

*Minimal extra encapsulation and application overhead when interfacing with WebCodecs.

Motivation: Why not CMAF?

- CMAF overhead is >100 bytes per frame
(can be much more depending on options)
- Prohibitive for audio, >100% overhead
- Complexity of nested header boxes
- Complexity of multi-frame packing options
(chunks, fragments, segments)
- Requires unnecessary parsing and encapsulation / de-encapsulation of media stream to find frame boundaries.

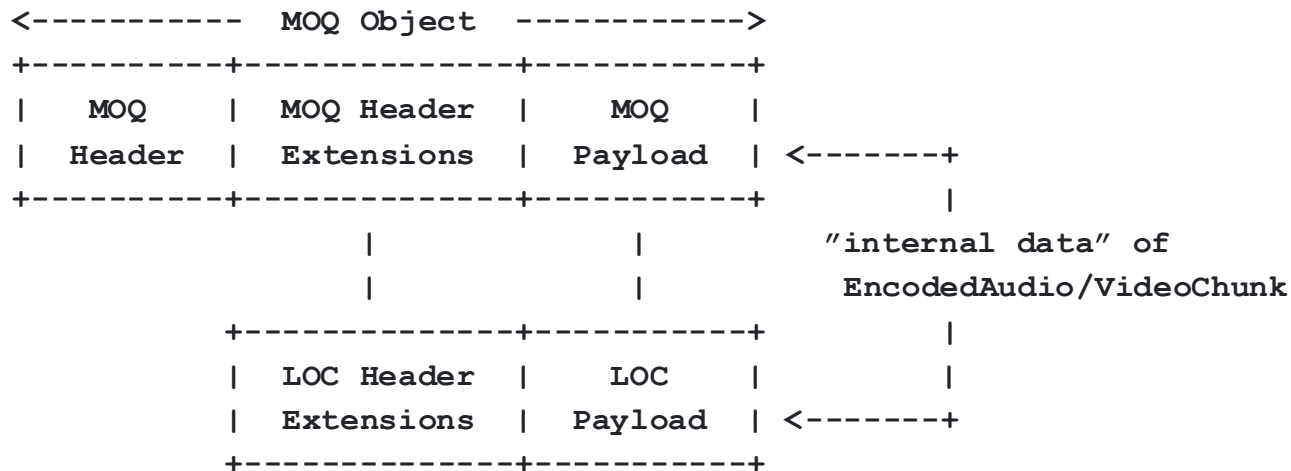
Motivation: Why WebCodecs?

- Minimal overhead, no extra encapsulation
- EncodedAudioChunk / EncodedVideoChunk “internal data” is the raw elementary bitstream format of codecs without any encapsulation, so we use this directly as the LOC Payload.
- Referring to the WebCodecs Codec Registry avoids duplicating it in an identical IANA registry.
- Usable outside WebCodecs or a web browser.

Updates in version -04

- The metadata header uses the new MOQT Header Extensions. (PR#502)
- The payload fully aligns with the MOQT Object Payload.
- The payload supports video formats in both MP4 and AnnexB format.
 - Parameter sets can be in band or out of band.
 - NAL units can be prefixed with lengths or start codes.
- Examples are added for audio and video tracks, including scalable video.

New LOC Format version -04



LOC Header Extensions = some MOQ Object Header Extensions

LOC Payload = all MOQ Object Payload

LOC Payload = "internal data" of EncodedAudio/VideoChunk

Open Issues

- WebCodecs video format options “avc” (was “avcc”) and “hevc” versus “annexb”. This really means “mp4” versus “annexb”.
- Old MP4 codec strings (“avc1”, “hvc1”) define 2 separate aspects:
 1. Parameter sets out of band (“extradata”) versus in band.
 2. Length prefix versus start code prefix before each NAL unit.
- New MP4 codec strings (“avc3”, “hev1”) change 1 but not 2.
 1. Parameter sets in band or out of band (“extradata”).
 2. Length prefix versus start code prefix before each NAL unit.
- Need to resolve future direction for both WebCodecs and LOC.
 - Ideally, properly support and recommend new “avc3” / “hev1” formats with length prefixes and in band parameter sets.