What is LOC? The ABCs…

Low-Overhead* Container Media Format

- Alternative to CMAF
- Based on WebCodecs
- Catalog 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.
LOC Format within MOQT Objects

<table>
<thead>
<tr>
<th>MOQ Object</th>
<th>LOC</th>
<th>LOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Header</td>
<td>Header</td>
<td>Payload</td>
</tr>
</tbody>
</table>

MOQ Object Payload

- LOC Payload is the "internal data" of a WebCodecs EncodedAudioChunk / EncodedVideoChunk (frame).
- LOC Header is metadata, some of which may migrate to the MOQ Object Header (open issue). IANA registry for this metadata.
Updates in version -03

- Removed catalog section (moved to common catalog draft)
- Define and register LOQ Streaming Format (type=2) for use with common catalog
- Specify “loc” Packaging Format for use with common catalog
- Specify bindings of base fields and optional extensions for use with common catalog (details follow)
- Reference MLS and SecureObjects for end-to-end encryption (replacing Sframe)
Updates in version -03 (continued)

- **Video optional extensions**
  - temporalId, spatialId, depends
  - renderGroup, selectionParameters

- **Video selection parameters**
  - codec, framerate, bitrate
  - width, height, displayWidth, displayHeight

- **Audio optional extensions**
  - renderGroup, selectionParameters

- **Audio selection parameters**
  - codec, bitrate, samplerate, channelConfig, lang
Open Issues

- Separate packaging container format from MOQ Streaming Format?
- Video Parameter Sets in-band with keyframes? Or in separate init/config blobs in catalog, track header, group header, etc.?
- Sequence in LOC Header or reuse MOQ Object Header?
- Timestamp in LOC Header or MOQ Object Header? Format?
- Support arbitrary content protection schemes or specify?