

WARP Draft Issues

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Repo: <https://github.com/moq-wg/warp-streaming-format>

Issues: <https://github.com/moq-wg/warp-streaming-format/issues>

Streaming format architecture

Base drafts for catalog and packaging – after discussions yesterday

Catalog draft



Defines versioning, catalog naming, track operations, track relationships, packaging declarations.

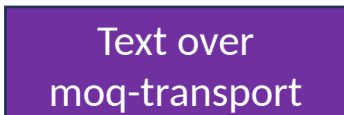
Packaging drafts



Specifies how to package CMAF content for carriage over a moq-transport/catalog environment

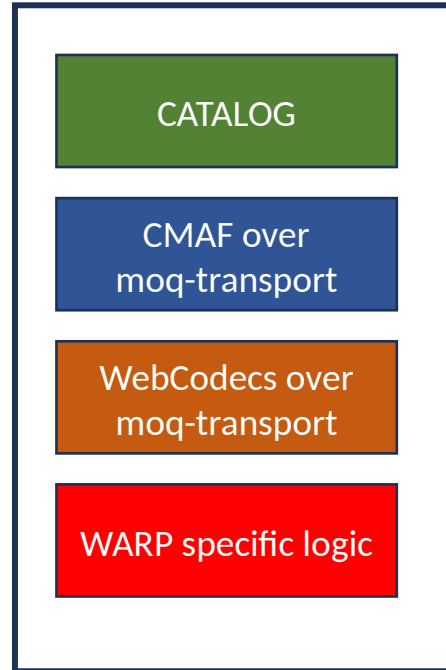


Specifies how to package LOC content for carriage over a moq-transport/catalog environment

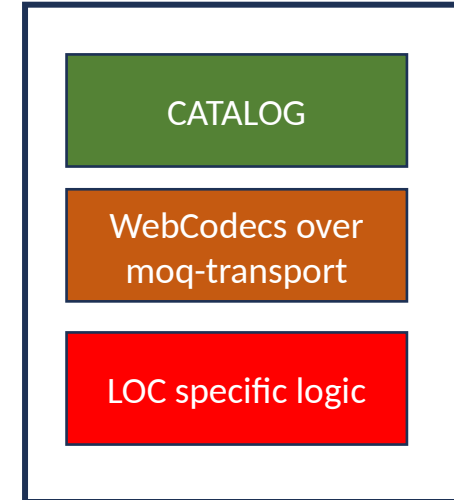


Specifies how to package text content for carriage over a moq-transport/catalog environment

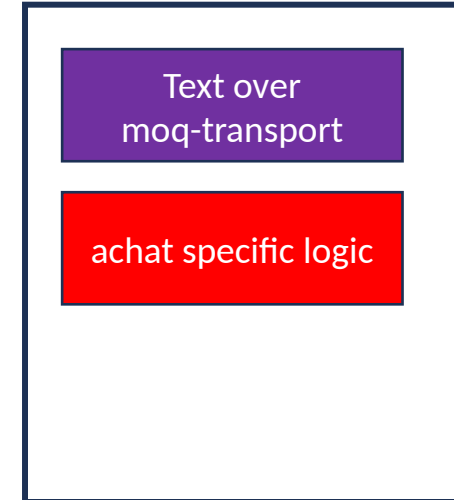
WARP



LOC



Alan's chat



Multiple catalog format/versions [#7](#)

In the current draft, the catalog lives at a well-known path with a single format/version. If the consumer does not support this format/version pair, then playback will not work, unless it knows how to request a different catalog.

Questions

- Do we need a system which advertises formats to “blind” clients which then choose the one they want, or do we assume that clients know the format(s) they wish to receive ahead of connecting?
- This issue is related to the opening architectural question about multiple concurrent streaming formats .

Issue #7 contd: How does a publisher simultaneously publish multiple different streaming formats?

If a publisher wants to output WARP content and Alan's Chat at the same time, they can't both produce a catalog called "catalog". On the receiver side, how does a client ask for a specific streaming format? Possible solutions:

1. Each streaming format defines a unique name or number for its catalog. We register these in an IANA table to ensure uniqueness.

```
example.com/path/catalog-warp  
example.com/path/catalog-achat
```

```
example.com/path/warp  
example.com/path/achat
```

```
example.com/path/0  
example.com/path/3
```

2. We allow hierarchical catalogs which can reference other catalogs. Thus, the first catalog loaded would be a description of the other available catalogs,

```
example.com/path/catalog  
{  
  type:0, example.com/path/alpha  
  type:3, example.com/path/beta  
}
```

3. We have a single catalog that describes all available streaming formats produced by that publisher.

```
example.com/path/catalog  
{  
  { type:0,  
    ...  
  },  
  { type:3,  
    ...  
  },  
}
```

4. We allow the application to transfer the format knowledge

```
example.com/path/warp/catalog  
example.com/path/achat/catalog
```

Track Description needs to capture media format information [#2](#)

Essentially a question as to whether the catalog itself should be a separate draft. This would allow a common catalog type to be shared by many streaming formats.

Questions

1. Are the core features of a catalog sufficiently common that a single catalog can be used by all streaming formats?
 1. Track relationship descriptors
 2. Track operations – add/modify/remove/replace?
 3. Track initialization
2. We can define a catalog draft, but not all streaming formats are required to use it.

What about SVC? [#14](#)

Current draft says tracks must be independently decodable, implying that SVC is not supported.

Should we

1. add SVC support to WARP?
2. create a new SVC specific streaming format?
3. Merge with LOC and support SVC ?

Does catalog specification need to be CMAF-specific? [#13](#)

The document currently specifies both a catalog format, and how to bind CMAF into it.

Should we:

1. Retain the tight binding between WARP and CMAF?
2. Decouple the catalog format from CMAF but retain the bindings in the same draft?
3. Have the CMAF bindings in a separate draft, allowing them to be used by other streaming formats?

Content "protection" and "encryption" [#8](#)

Document currently specifies CENC compliant AES-128 cbc as preferred encryption mode for DRM. This was to avoid the divergence that has plagued the segmented media ecosystem.

Should we:

1. For CMAF packaging, should we allow all 4 encryption modes as recognized by CENC (Common Encryption)?
2. Define an optional standard content protection (full payload encryption) scheme for WARP? Implementers may use it for interop, or else implement their own.

Additional Catalog questions, if time allows

1. Should quality parameters be described for CMAF tracks? The reason to do this is for clients which don't have mp4 parsers and which need to make track selection decisions.
2. Listing all INIT segments makes for a larger CMAF catalog. What if each init was in its own track? The client would then subscribe only to the inits that it needed. Init track can be subscribed-to in parallel with the media segments track to reduce receipt delay.
3. Are we comfortable going with a JSON catalog for now during rapid development, with the option of creating a binary schema later in the development process?