

AVTCORE WG

IETF 116

Hybrid Meeting

Tuesday, March 28, 2023

00:00 - 02:00 Eastern Time

04:00 - 06:00 UTC

Session II, G314 - G315

Mailing list: avtcore@ietf.org

Notes: <https://notes.ietf.org/notes-ietf-116-avtcore>

MeetEcho link: <https://meetecho.ietf.org/conference/?group=avtcore>

IETF 116 Meeting Tips

In-person participants





- Make sure to sign into the session using the Meetecho (usually the “Meetecho lite” client) from the Datatracker agenda
- Use Meetecho to join the mic queue
- *Keep audio and video off if not using the onsite version*
- **Wear masks unless actively speaking at the microphone.**



Remote participants

- Make sure your audio and video are off unless you are chairing or presenting during a session
- Use of a headset is strongly recommended

IETF 116 Remote Meeting Tips

- Enter the queue with , leave with 
- When you are called on, you need to enable your audio to be heard.
- Audio is enabled by unmuting  and disabled by muting 
- Video can also be enabled, but it is separate from audio.
- Video is encouraged to help comprehension but not required.

Resources for IETF 116 Yokahama

- Information about IETF 116
<https://www.ietf.org/how/meetings/116>
- Agenda
<https://datatracker.ietf.org/meeting/agenda>
- If you need technical assistance, see the Reporting Issues page:
<http://www.ietf.org/how/meetings/issues/>

Note well

This is a reminder of IETF policies in effect on various topics such as patents or code of conduct. It is only meant to point you in the right direction. Exceptions may apply. The IETF's patent policy and the definition of an IETF "contribution" and "participation" are set forth in BCP 79; please read it carefully.

As a reminder:

- By participating in the IETF, you agree to follow IETF processes and policies.
- If you are aware that any IETF contribution is covered by patents or patent applications that are owned or controlled by you or your sponsor, you must disclose that fact, or not participate in the discussion.
- As a participant in or attendee to any IETF activity you acknowledge that written, audio, video, and photographic records of meetings may be made public.
- Personal information that you provide to IETF will be handled in accordance with the IETF Privacy Statement.
- As a participant or attendee, you agree to work respectfully with other participants; please contact the ombudsteam (<https://www.ietf.org/contact/ombudsteam/>) if you have questions or concerns about this.

Definitive information is in the documents listed below and other IETF BCPs. For advice, please talk to WG chairs or ADs:

- [BCP 9](#) (Internet Standards Process)
- [BCP 25](#) (Working Group processes)
- [BCP 25](#) (Anti-Harassment Procedures)
- [BCP 54](#) (Code of Conduct)
- [BCP 78](#) (Copyright)
- [BCP 79](#) (Patents, Participation)
- <https://www.ietf.org/privacy-policy/> (Privacy Policy)

Note really well

- IETF meetings, virtual meetings, and mailing lists are intended for professional collaboration and networking, as defined in the [IETF Guidelines for Conduct](#) (RFC 7154), the [IETF Anti-Harassment Policy](#), and the [IETF Anti-Harassment Procedures](#) (RFC 7776). If you have any concerns about observed behavior, please talk to the [Ombudsteam](#), who are available if you need to confidentially raise concerns about harassment or other conduct in the IETF.
- The IETF strives to create and maintain an environment in which people of many different backgrounds are treated with dignity, decency, and respect. Those who participate in the IETF are expected to behave according to professional standards and demonstrate appropriate workplace behavior.
- IETF participants must not engage in harassment while at IETF meetings, virtual meetings, social events, or on mailing lists. Harassment is unwelcome hostile or intimidating behavior -- in particular, speech or behavior that is aggressive or intimidates.
- If you believe you have been harassed, notice that someone else is being harassed, or have any other concerns, you are encouraged to raise your concern in confidence with one of the Ombudspersons.

Reminder: IETF Mask Policy

- Masks must be worn in meeting rooms and are recommended for common areas but not required.
- In meeting rooms, masks may briefly be removed for eating and drinking, but that cannot be an excuse to leave them off for long periods.
- In meeting rooms, active speakers, defined as those who are at the front of the room presenting or speaking in the mic queue, can remove their mask while speaking.
- No exemptions for mask wearing, medical or otherwise, will be allowed.
- Masks must be equivalent to N95/FFP2 or better, and free masks will be provided.

<https://www.ietf.org/how/meetings/116/faq/#covidmeasures>

About this meeting



- Agenda: <https://datatracker.ietf.org/doc/agenda-116-avtcore/>
- Notes: <https://notes.ietf.org/notes-ietf-116-avtcore>
- Secretariat: mtd@jabber.ietf.org
- WG Chairs (Remote): Jonathan Lennox & Bernard Aboba
- Onsite: Harald Alvestrand
- Zulip Scribe: Jonathan Lennox
- Note takers: ?

Agenda



1. IETF 116 tips and resources, Note Well, Note Takers, Agenda Bashing, Draft status (Chairs, 15 min)
2. [RTP Payload Format for SCIP](https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-scip) (M. Faller, 15 min.)
<https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-scip>
3. [RTP Payload Format for Essential Video Coding \(EVC\)](https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-evc) (S. Wenger, 10 min)
<https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-evc>
4. [RTP Payload Format for Volumetric Video Coding](https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-v3c) (L. Ilola, 10 min)
<https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-v3c>
5. [RTP over QUIC](https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-over-quic) (M. Engelbart, J. Ott, S. Dawkins, 30 min)
<https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-over-quic>
6. [RTP Control Protocol \(RTCP\) Messages for Decoder Energy Reduction](https://datatracker.ietf.org/doc/html/draft-gudumasu-avtcore-decoder-energy-reduction) (S. Gudumasu, 10 min)
<https://datatracker.ietf.org/doc/html/draft-gudumasu-avtcore-decoder-energy-reduction>
7. [Wrapup and Next Steps](#) (Chairs, 15 min)

Draft Status

- Published
 - RFC 9071: was draft-ietf-avtcore-multi-party-rtt-mix
 - RFC 9134: was draft-ietf-payload-rtp-jpegxs
 - RFC 9328: was draft-ietf-avtcore-rtp-vvc
 - RFC 9335: was draft-ietf-avtcore-cryptex
- RFC Editor Queue
 - draft-ietf-payload-vp9 (MISSREF)
- Approved-announcement-to-be-sent: Revised ID Needed
 - [draft-ietf-avtcore-rfc7983bis](#)
- IESG: AD Followup (3 DISCUSS positions)
 - draft-ietf-avtcore-rtp-scip
 - Ballot statements:
<https://datatracker.ietf.org/doc/draft-ietf-avtcore-rtp-scip/ballot/>
- Waiting for AD Go-Ahead::Revised I-D Needed
 - draft-ietf-avtext-framemarking

Draft Status (cont'd)



- Adopted
 - draft-ietf-avtcore-rtp-over-quic
 - draft-ietf-avtcore-rtp-evc
 - draft-ietf-avtcore-rtp-green-metadata
 - draft-ietf-avtcore-rtp-v3c

RTP Payload Format for SCIP

[draft-ietf-avtcore-rtp-scip](#)

Dan Hanson

Mike Faller

RTP Payload for SCIP

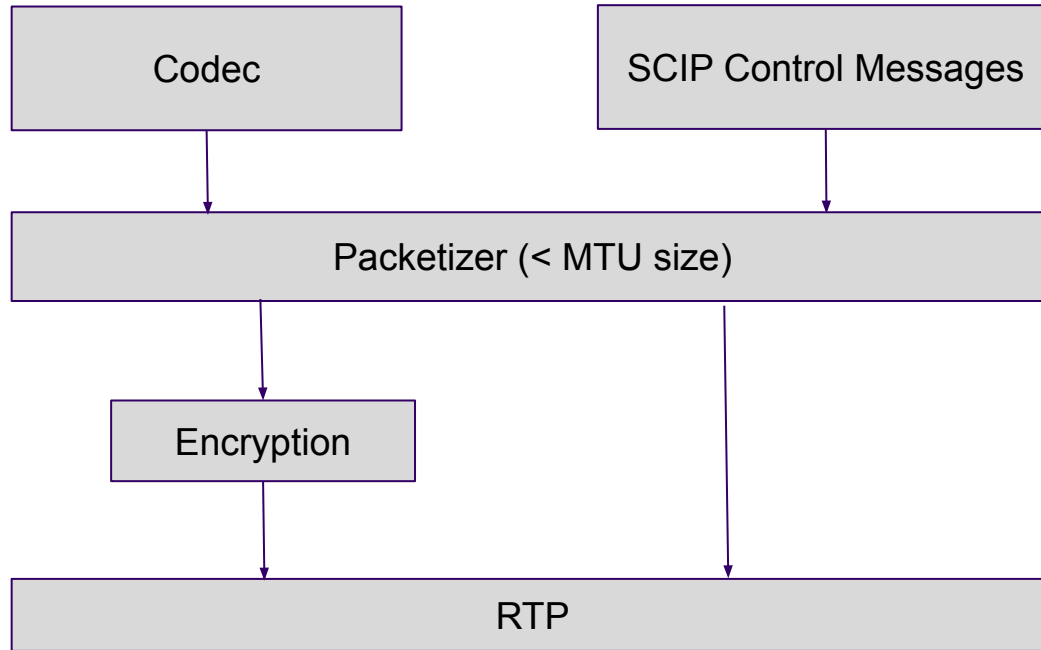


- Preliminary draft 05 distributed to WG via email for review
 - Restated focus of document to be for network devices
 - Abstract, Introduction, Media Format, Payload Format sections
 - Re-worked Section 4 Payload Format
 - Added Figure to illustrate notionally how SCIP payloads are packetized to avoid IP fragmentation
 - Codecs payloads are packetized per their respective RFC
 - of the media codecs currently used by SCIP only H.264 has potential for fragmentation
 - SCIP Control Messages can be easily segmented by the SCIP Transport Layer since they contain an overall message length field
 - Explicitly stated that network devices MUST NOT filter or modify SCIP RTP packets
 - Other changes as discussed at Interim Meeting on February 23

RTP Payload for SCIP



SCIP RTP Packetization



RTP Payload for SCIP



- Next steps:
 - Formally submit rev 05 with comments received today
 - Request another review by IESG

RTP Payload Format for Essential Video Coding (EVC)

[draft-ietf-avtcore-rtp-evc](#)

S. Zhao

S. Wenger

Y. Lim

Summary, Status and Timeline



- -00 individual draft submitted 1/21, followed closely by -01
- -02, -03 submitted Feb 23, Mar 23. Two year delay while waiting for VVC payload (Now RFC 9328) to issue
- -03's normative content is complete and ready for WGLC
- Upon final review and based on private feedback, we will need a -04 version incorporating editorial improvements (including EVC characterization)
- Our working copy of -04 is ready and will be submitted ASAP.
- Media type review email msg drafted, ready to be sent
- We have no open questions to the WG, but thought a quick refresher may be helpful
- We request WGLC on -04

Changes since -01



- Media type registration
 - Largely based on lessons learned from RFC 9328
 - As EVC is basically a subset of VVC, so is the media type registration.
 - Related: corresponding changes/simplifications in the O/A section
- Alignment with RFC 9328
 - “Boilerplate”: congestion control, security
 - Feedback message support—only PLI and FIR supported per current implementation practice – yell if you think we need SLI or RPSI
 - Numerous editorial updates lifted from RFC 9328
- Changes in the packetization rules: mostly simplifications resulting from EVC’s lack of spatial scalability support

RTP Payload Format for Volumetric Video Coding (V3C)

[draft-ietf-avtcore-rtp-v3c](#)

L. Ilola

L. Kondrad

Editorial updates to the draft



- Couldn't get the new version uploaded in the system before the deadline (v0 -> v1)
- Below are the most notable proposed changes in text
- Full diff is available [here](#)
- Mostly just fixing typos and writing style

ISO/IEC International Standards 23090-5 [ISO.IEC.23090-5] defines encoding and decoding processes of volumetric video which leverages 2D video coding technologies. V3C encoding of volumetric frame is achieved through a conversion of volumetric frame from its 3D representation to multiple 2D representations and a generation of associated data documenting such conversions and transformations. The associated data, also known as atlas data, is necessary to define how to reproject the 2D representations back into 3D volumetric frame.

ISO/IEC International Standards 23090-5 [ISO.IEC.23090-5] enables encoding and decoding processes of volumetric video which utilizes 2D video coding technologies and associated data. V3C encoding of volumetric frame is achieved through a conversion of volumetric frame from its 3D representation to multiple 2D representations and a generation of associated data.

Generally, it is useful to signal V3C parameter set out-of-band, because it describes what overall resources are needed to decode and reconstruct the associated V3C bitstream. Signalling it dynamically as part of an RTP stream might result in undefined behaviour when receiver does not have the required capabilities to decode the received video component sub-bitstreams or when reconstruction process relies on information that the receiver does not support.

What's next?

- It would be good to get more feedback
 - Spec is available [here](#), feel free to create issues and pull requests
- How can we progress the draft?
 - The authors believe that the draft as technically stable
 - Only editorial improvements have been introduced
- There are relevant 3GPP work items looking at volumetric media
 - For now only DASH and ISO/BMFF based file delivery are considered
 - For real-time delivery, the V3C RTP payload format would need to reach mature status in IETF

RTP over QUIC

<https://datatracker.ietf.org/doc/html/draft-ietf-avtcore-rtp-over-quic>

<https://datatracker.ietf.org/doc/draft-dawkins-avtcore-sdp-rtp-quic/>

<https://datatracker.ietf.org/doc/draft-dawkins-avtcore-sdp-rtp-quic-issues/>

Mathis Engelbart, Jörg Ott, Spencer Dawkins

Title Goes Here



- <Content goes here>

RTP Control Protocol (RTCP) Messages for Decoder Energy Reduction

[draft-gudumasu-avtcore-decoder-energy-reduction](#)

S. Gudumasu (InterDigital), F.Aumont (InterDigital),
Edouard Francois (InterDigital), Christian Herglotz
(FAU)

Background



- Energy Efficient Media Consumption (Green Metadata) was specified by MPEG in ISO/IEC 23001-11
- Two methods for decoder power reduction
 - Complexity metrics via SEI message
 - Interactive signaling
- Complexity metric signaling from encoder to decoder
 - Metrics related to coding tools (macro blocks, intra predicted blocks, filtering etc..)
- Interactive signaling (From decoder to encoder)
 - Spatial and temporal resolution request¹
 - Coding tools-based request

¹
[draft-ietf-avtcore-rtcp-green-metadata](#)

Problem statement



- Reducing **video decoder energy usage** during media consumption
 - How to signal the percentage of decoder power reduction required by the receiver?
 - How to signal the desired coding tools configuration to reduce decoder side power consumption by the receiver?
 - How to inform a receiver about changes to decoder power reduction percentage and/or the coding tools used by the sender/encoder?
 - Required signaling between endpoints to negotiate any of the above capabilities.

Proposal



- Usage of the interactive signaling of metadata specified by MPEG in **ISO/IEC 23001-11** to:
 - Reduce decoder operations
 - Enable/disable decoding tools
- Propose to extend RTCP feedback messages defined in AVPF [[RFC4585](#)][[RFC5104](#)] with 2 new RTCP feedback messages:
 - [Decoder Operation Reduction Request \(DORR\)](#)
 - [Decoder Operation Reduction Notification \(DORN\)](#)
- Can be used concurrently with the RTCP feedback messages defined in [draft-ietf-avtcore-rtcp-green-metadata](#)

RTCP feedback messages



- DORR RTCP message

```

0               1               2               3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                               SSRC                               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| Seq nr.      |Reserved| T=0|    Ops    |0 0 0 0 0 0 0 0 0 0|
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
    
```

Or

```

0               1               2               3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                               SSRC                               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| Seq nr.      |Reserved| T=1|    Tools    |0 0 0 0 0 0 0 0 0 0|
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
    
```

- DORN RTCP message

```

0               1               2               3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                               SSRC                               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| Seq nr.      |Reserved| T |    Ops    |    Tools    |0 0 0 0 0 0|
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
    
```

SDP signaling



- Extension of rtcp-fb Attribute in SDP
 - **rtcp-fb-ccm-param** **≠** **SP "dorr"** ; Decoder Operation Reduction Request
- Example

SDP Offer

```
v=0;
o=alice xxxxx
s=Offer/Answer
m=video 49170 RTP/AVP 98
a=rtpmap:98 H266/90000
a=fmtp:98 profile-id=1;
sprop-vps=<"video parameter sets data">;
sprop-sps=<"sequence parameter set data">;
sprop-pps=<"picture parameter set data">;
a=rtcp-fb:98 ccm fir
a=rtcp-fb:98 ccm dorr
```

SDP Answer

```
v=0;
o=alice xxxxx
s=Offer/Answer
c=xxxx
m=video 49170 RTP/AVP 98
a=rtpmap:98 H266/90000
a=rtcp-fb:98 ccm dorr
```

Next steps



- Gathering feedback
- Discussions in AVTCORE Reflector
- Update and Review
- Seek adoption when ready

Wrapup and Next Steps



- Action Items
 - Item 1
 - Item 2
- Next Steps
 - Step 1
 - Step 2

Thank you

Special thanks to:

The Secretariat, WG Participants & ADs