

RTP Payload Format for H.264Video – draft-ietf-avt-rtp-rfc3984bis-01

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Outline

- Overview of activities since Dublin meeting
- Summary of technical changes to RFC 3984
- Backwards compatibility issues
- Open issues
- Request and question to WG

Overview of activities since Dublin meeting

- Made two submissions, WG v00 and v01
- A lot of discussions in mailing list as well as among the “design team”
 - See the author list and the list of people acknowledged for the team
 - See the list of technical changes for what the team has done

Summary of technical changes to RFC 3984

- Documented in Section 17 of the draft
 - Totally 14 items
 - Including both bug fixes and enhancements
 - Including both normative and informative changes
- There are numerous editorial changes as well, but NOT documented in the draft

Summary of technical changes to RFC 3984

– bug fixes (1)

1) In subsections 5.4, 5.5, 6.2, 6.3 and 6.4, removed that the packetization mode in use may be signaled by external means.

2) In subsection 7.2.2, changed

There are N VCL NAL units in the deinterleaving buffer.

to

There are N **or more** VCL NAL units in the de-interleaving buffer.

3) In subsection 8.1, the semantics of sprop-init-buf-time, paragraph 2, changed

The parameter is the maximum value of (transmission time of a NAL unit -

decoding time of the NAL unit), assuming reliable and instantaneous transmission, the same timeline for transmission and decoding, and that decoding starts when the first packet arrives.

to

The parameter is the maximum value of (**decoding time of the NAL unit -**

transmission time of a NAL unit), assuming reliable and instantaneous transmission, the same timeline for transmission and decoding, and that decoding starts when the first packet arrives.

Summary of technical changes to RFC 3984 – bug fixes (2)

- 7) In subsection 8.2.2, removed sprop-deint-buf-req from being part of the media format configuration in usage with the SDP Offer/Answer model.
- 8) In subsection 8.2.2, made it clear that level is downgradable in the SDP Offer/Answer model, i.e. the use of the level part of "profile-level-id" does not need to be symmetric (the level included in the answer can be lower than or equal to the level included in the offer).
- 9) In subsection 8.2.2, removed that the capability parameters may be used to declare encoding capabilities.
- 11) In subsection 8.2.2, clarified the rules of using the media type parameters with SDP Offer/Answer for multicast.
- 12) In subsection 8.2.2, completed and corrected the list of how different media type parameters shall be interpreted in the different combinations of offer or answer and direction attribute.

Summary of technical changes to RFC 3984 – enhancements (1)

- 4) Added six new media type parameters, namely max-smbps, sprop-level-parameter-sets, use-level-parameter-sets, sprop-ssrc, sar-understood and sar-supported.
- 5) In subsection 8.1, removed the specification of parameter-add. Other descriptions of parameter-add (in subsections 8.2 and 8.4) are also removed.
- 6) In subsection 8.1, added a constraint to sprop-parameter-sets such that it can only contain parameter sets for the same profile and level as indicated by profile-level-id.

Summary of technical changes to RFC 3984 – enhancements (2)

- 10) In subsection 8.2.2, added rules on how to use sprop-parameter-sets and sprop-level-parameter-sets for out-of-band transport of parameter sets, with or without level downgrading.
- 13) In subsection 8.4, changed the text such that both out-of-band and in-band transport of parameter sets are allowed and neither is recommended or required.
- 14) Added subsection 8.5 (informative) providing example methods for decoder refresh to handle re-synchronization.

Backwards compatibility issues (1)

- Change items 1), 2), 3), 7), 8), 9), 11), 12) are bug fixes, and do not incur any backward compatibility issues.
- Change item 4), addition of six new media type parameters
 - Does not incur any backward compatibility issues for SDP Offer/Answer based applications, as legacy RFC 3984 receivers ignore these parameters, and it is fine for legacy RFC 3984 senders not to use these parameters as they are optional.
 - However, there is a backward compatibility issue for SDP declarative usage based applications, e.g. those using RTSP and SAP, because the SDP receiver per RFC 3984 cannot accept a session for which the SDP includes an unrecognized parameter. Therefore, the RTSP or SAP server may have to prepare two sets of streams, one for legacy RFC 3984 receivers and one for receivers according to this memo.

Backwards compatibility issues (2)

- Change items 5), 6) and 10) are related to out-of-band transport of parameter sets.
 - When a sender according to this memo is communicating with a legacy receiver according to RFC 3984, there is no backward compatibility issue.
 - When the legacy receiver sees an SDP message with no parameter-add the value of parameter-add is inferred to be equal to 1 by the legacy receiver (related to change item 5)). As RFC 3984 allows inclusion of any parameter sets in sprop-parameter-sets, it is fine to the legacy receiver to include parameter sets only for the default level in sprop-parameter-sets (related to change item 6)). When there are new parameters e.g. sprop-level-parameter-sets present, the legacy receiver simply ignores them (related to change item 10)).
 - When a legacy sender according to RFC 3984 is communicating with a receiver according to this memo, there is one backward compatibility issue.
 - When the legacy sender includes parameter sets for a level different than the default level indicated by profile-level-id to sprop-parameter-sets, the parameter value of sprop-parameter-sets is invalid to the receiver and therefore the session may be rejected.
 - In SDP Offer/Answer between a legacy offerer according to RFC 3984 and an answerer according to this memo, when the answerer includes in the answer parameter sets that are not a superset of the parameter sets included in the offer, the parameter value of sprop-parameter-sets is invalid to the offerer and the session may not be initiated properly (related to change item 10)).

Backwards compatibility issues (3)

- Change item 13) removed that use of out-of-band transport of parameter sets is recommended. As out-of-band transport of parameter sets is still allowed, this change does not incur any backward compatibility issues.
- Change item 14), addition of subsection 8.5 (informative) providing example methods for decoder refresh to handle parameter set losses, does not incur any backward compatibility issues as the added subsection 8.5 is informative.

Open issues

- There are two open issues left
 - A minor open issue: In the informative subsection 12.5, update references to RFC 2733 to (and check against) RFC 5109.
 - On sprop-ssrc: whether to combine it with sprop-parameter-sets and sprop-level-parameter-sets, such that the sprop-ssrc parameter is removed and two more parameters are added, i.e. sprop-ssrc-parameter-sets and sprop-ssrc-level-parameter-sets. This would be similar to a mechanism proposed in draft-lennox-avt-h264-source-fmtp-00.txt.

Request and question to WG

- Request
 - Please review the draft.
- Question
 - Can the draft be WGLC'ed after the two open issues are resolved?
 - A note: The SVC payload draft is dependent on this one.