3GPP TSG SA WG4 Meeting #130 S4-242065

Orlando, US, 18-22 November 2024 Revision of S4-241914

**Title: Reply LS on Introduction of Extensions to IP Packet Filters for Differentiated QoS Handling for Multiplexed Media Flows**

**Response to: S2-2411001 (S4-241812)**

**Release: Rel-19**

**Work Item: XRM\_Ph2**

**Source: L.M. Ericsson Limited (to be: SA WG4)**

**To: SA WG2**

**CC:** **CT3, CT4**

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**Attachments: -**

# 1 Overall description

SA4 thanks SA2 for their liaison on Extensions to IP Packet Filters.

**Question 1:**

*SA2 would like to know if SA4 believes the chosen IP Packet Filter Set extension will suffice to handle needed differentiation for the intended, multiplexed IP traffic flows, as described above and if, additional information is needed, for example Media Identification (MID).*

**Answer 1:**

SA4 has executed FS\_5G\_RTP\_Ph2 with relevant Key Issues to study the feasibility of RTP multiplexing and QoS flow mapping. When using PDU Sets in the media streams, it was raised that UPF and RAN nodes should identify the PDU sets belonging to a specific media stream in a PDU session in the case of multiplexed media streams.

SA4 believes that the (S)RTP header fields SSRC and PT are in general sufficient to identify and differentiate separate (S)RTP streams in a multiplexed IP traffic flow. SA4 would like to highlight the benefit of both SSRC and PT being mandatory (S)RTP header fields that are present in all (S)RTP packets and all implementations. However, SA4 is aware that for some (S)RTP/(S)RTCP implementations, the SSRC field value might not be available to the signaling plane before the (S)RTP session is started.

Regarding potential use of (S)RTP/(S)RTCP SDES MID as described by IETF RFC 9143, SA4 considers this to be a simplified (S)RTP stream identification and as an optional identification when available. It can be useful in case SSRC is not known before the (S)RTP session starts, as mentioned above. In some cases, multiple RTP streams identified by multiple SSRCs respectively will be used in a single SDP media description and will thus be marked with same MID, such that MID alone is not sufficient to identify a single (S)RTP stream but then also SSRC is needed. MID also provides a stable (S)RTP stream identifier across SSRC changes due to SSRC collisions (see IETF RFC 3550 for details on SSRC collisions).

Use of MID information is required by implementations of W3C WebRTC 1.0, in both SDP signaling, in (S)RTP Header Extension, and in (S)RTCP SDES packets, as described by IETF RFC 8834. SA4 is not aware of any other (S)RTP/(S)RTCP implementations beyond WebRTC 1.0 and Gstreamer RTP stack that make use of SDES MID. Use of RTP Header Extension encryption according to IETF RFC 6904 would allow for MID to be unencrypted even if other RTP Header Extensions are encrypted. Use of RTP Header Extension encryption according to IETF RFC 9335 encrypts all RTP Header information, which would make MID inaccessible for Packet Filters, but an (S)RTP sender can unilaterally choose per-packet whether or not to use IETF RFC 9335 encryption. An (S)RTP sender that implements MID and desires to make it usable for PDU Set handling can thus choose to not encrypt MID information, regardless if IETF RFC 6904 or IETF RFC 9335 encryption is used. There may still exist (S)RTP/(S)RTCP implementations that neither have SSRC value available before (S)RTP session start, nor can make use of SDES MID either because it is not implemented or is encrypted.

SA4 therefore recommends using the identification triplet (SSRC, PT, MID) for Packet Filter purposes, where one or more of those triplet elements are included;

* (SSRC, -, -): A specific RTP stream, SSRC value, regardless of PT content format and MID values
* (-, PT, -): All RTP streams marked with this PT content format value
* (-, -, MID): All RTP streams marked with this MID value
* (SSRC, PT, -): A specific RTP stream, SSRC value, marked with this PT content format value
* (SSRC, -, MID): A specific RTP stream, SSRC value, marked with this MID value
* (-, PT, MID): All RTP streams marked with this PT content format and MID values
* (SSRC, PT, MID): A specific RTP stream, SSRC value, marked with this PT content format and MID values

**Question 2:**

*SA2 would also like to ask if, when differentiated mapping of (S)RTP media streams to QoS Flows is applied, there may be also a need to map certain (S)RTCP packet types to the same QoS Flow as the (S)RTP media streams they control?*

*Therefore, SA2 would also like to ask SA4 to guide SA2 on differentiated handling of (S)RTCP packets, and also whether Packet Type and SSRC value would suffice as extended packet filters.*

**Answer 2:**

Regarding guidance of potential differentiated handling of (S)RTCP packets, SA4 believes that mapping both (S)RTP and (S)RTCP packets to same QoS Flow will be desirable in the absolute majority of cases. Any other approach would need explicit motivation and study of potential benefits and drawbacks.

SA4 believes that (S)RTCP Packet Type and SSRC value would suffice as extended (S)RTCP packet filters, in case it would be motivated to separate out specific (S)RTCP packets or Packet Types, recognizing that there also exist sub-divisions for some (S)RTCP Packet Types (e.g., RTCP FB in IETF RFC 4585 and RTCP-XR in IETF RFC 3611). SA4 is considering differentiated treatment of (S)RTCP packets within a QoS Flow using the PSI mechanism but did not come to a conclusion.

# 2 Actions

**To SA WG2**

**ACTION:** SA4 kindly asks SA2 to take the above provided answers into consideration.

# 3 Dates of next SA WG4 meetings

**SA4#131: 17 - 21 February, 2025 Geneva, Switzerland**

**SA4#131bis-e: 7 - 11 April, 2025 Electronic meeting**

**SA4#132: 19 - 23 May, 2025 Japan**