**3GPP TSG-SA WG4 Meeting #131S4-250222**

**CH, Geneva, 17 – 21 February 2025**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **5** | **rev** |  | **Current version:** |  |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

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| ***Title:*** | [5G\_RTP\_Ph2] Enhancements to Dynamic Policy API for N6-unmarked PDUs | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_RTP\_Ph2 | | | | |  | ***Date:*** | | | 1 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | C |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | PDU Set and End of Data Burst marking only applies to RTP PDUs since marking is done via an RTP header extension. Hence, PDUs belonging to protocols such as RTCP, STUN, etc. cannot be marked i.e., they do not carry the PDU Set Information.  In Rel-18, SA2 has agreed that the PSA UPF marks, in the downlink, each N6-unmarked PDU ("lone PDU") with PDU Set Information into a PDU Set. If the UPF receives a PDU that does not belong to a PDU Set based on Protocol Description for PDU Set identification, the UPF still maps it to a PDU Set and determines the PDU Set Information by implementation-specific means.  This means that for N6-unmarked PDUs, PDU Set Information must be determined by the UPF. For some elements of the PDU Set Information, this is straightforward, e.g., PSN=0 since the PDU Set has only one PDU, PSSize is equal to the size of the N6-unmarked PDU (since there is only one PDU in the PDU Set). However, for PSI, the UPF may only assign a preconfigured value (e.g. by the network operator) which may not reflect the application requirements.  To address this issue, SA4 concluded in TR 26.822 that for N6-unmarked PDUs, senders need to signal application-defined PSI values to 5GC, which requires extensions to the Dynamic Policy API in TS 26.113. | | | | | | | | |
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| ***Summary of change:*** | | If specific QoS with PDU Set parameters is desired for the application flows of an RTC session, the Media Session Handler includes a new structure *unmarkedPDUInfoList* in the *mediaTransportParameters* property of the *ApplicationFlowDescription* object, when the Dynamic Policy API is invoked.  In case PDU Set marking is enabled, the PSI values in *unmarkedPDUInfoList* could apply to protocols that cannot be marked, e.g., RTCP, STUN PDUs  In case PDU Set marking is not enabled, the PSI values in *unmarkedPDUInfoList* could also apply to RTP PDUs (since they are unmarked too). | | | | | | | | |
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| ***Consequences if not approved:*** | | Not possible to indicate application-defined PSI values for N6-unmarked PDUs to 5GC. | | | | | | | | |
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| ***Clauses affected:*** | | 10.3 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
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| ***Other comments:*** | | A summary of the related solution in TR 26.822 is provided in [**S4-250144**](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_131_Geneva/Docs/S4-250144.zip). | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* \* First change \* \* \* \*

## 10.3 Dynamic Policy API

The Dynamic Policy API allows the RTC Media Session Handler of the RTC Client or the ICE Function of the RTC AS or the WebRTC Signalling Function of the RTC AS to request a specific QoS and/or charging policy to be applied to the application flows of an RTC session. The Dynamic Policy API is invoked as a result of SDP negotiation during the WebRTC signalling phase of the RTC session.

The relevant procedures are specified in clause 5.3.3 of TS 26.510 [3].

The resource structure and the data model are specified in clause 9.3 of TS 26.510 [3].

If specific QoS with PDU Set parameters is desired, and PDU Set marking is not enabled for the selected Policy Template as specified in clause 5.3.3.2 of TS 26.510 [3], the Media Session Handler shall additionally populate the mediaTransportParameters property of the Application‌Flow‌Description object (see clause 5.5.4.13 of TS 29.571 [36]) as follows when creating or updating a Dynamic Policy Instance based on that Policy Template:

- The transportProto property shall be set to the value SRTP.

- The rtpHeaderExtInfo object (see clause 5.5.4.14 of TS 29.571 [36]) shall be omitted.

- The rtpPayloadInfoList property shall contain a single member populated as follows:

- rtpPayloadTypeList shall be set to the *RTP Payload Type* value(s) to be used by the RTC endpoint (e.g., the RTC Access Function of an RTC Client) for the negotiated SRTP session(s) to be carried by the application flow in question.

- rtpPayloadFormat shall be populated as appropriate in the absence of RTP header extensions.

- The properties of the unmarkedPDUInfoList object (see clause 5.5.4.13 of TS 29.571 [36]) shall be populated as follows.

- protocol shall be set to the application protocol name for the N6-unmarked PDUs (e.g. RTP, RTCP, STUN).

- packetType shall be set to a packet type specific to the protocol. This field is optional.

NOTE: packetType is currently only used for RTCP and shall be set to one of the IANA registered RTCP Control Packet Types.

- pduSetImportance shall be set to a PDU Set Importance [37] value in the range 0 to 15 (inclusive).

NOTE: Support for unmarkedPDUInfoList depends on its definition by CT4 in the type Protocol Description defined in TS 29.571 [36] clause 5.5.4.13.

If PDU Set marking is enabled for the selected Policy Template as specified in clause 5.3.3.2 of TS 26.510 [3], the Media Session Handler shall additionally populate the mediaTransportParameters property of the Application‌Flow‌Description object (see clause 5.5.4.13 of TS 29.571 [36]) as follows when creating or updating a Dynamic Policy Instance based on that Policy Template:

- The transportProto property shall be set to the value SRTP.

- The properties of the rtpHeaderExtInfo object (see clause 5.5.4.14 of TS 29.571 [36]) shall be populated as follows:

- rtpHeaderExtType shall be set to PDU\_SET\_MARKING.

- rtpHeaderExtId shall be set to the value of the *ID* field to be used by the RTC endpoint (e.g., the RTC Access Function of an RTC Client) in the *RTP Header Extension for PDU Set Marking* on the application flow in question, as specified in clause 4.2 of TS 26.522 [37]. The value of this parameter is negotiated via the SDP offer/answer procedure during the WebRTC signalling phase of the RTC session.

- longFormat shall be set according to the use of the one- or two-byte *RTP Header Extension for PDU Set Marking*, as specified in clause 4.2.1 of TS 26.522 [37]. The value of this parameter is negotiated via the SDP offer/answer procedure during the WebRTC signalling phase of the RTC session.

- pduSetSizeActive shall be set to reflect the presence of the *PDU Set Size* field in the *RTP Header Extension for PDU Set Marking*, as specified in clause 4.2.4 of TS 26.522 [37]. The value of this parameter is negotiated via the SDP offer/answer procedure during the WebRTC signalling phase of the RTC session.

NOTE: The intention of the RTC Access Function of the RTC Client to include the optional NPDS (Number of PDUs in the PDU Set) field in the *RTP Header Extension for PDU Set Marking* is not yet signalled in advance to the 5G Core by means of a Boolean flag in the RtpHeaderExtInfo specified in clause 5.5.4.14 of TS 29.571 [36].

- The rtpPayloadInfoList property shall contain a single member populated as follows:

- rtpPayloadTypeList shall be set to the *RTP Payload Type* value(s) to be used by the RTC endpoint (e.g., the RTC Access Function of an RTC Client) for the negotiated SRTP session(s) to be carried by the application flow in question.

- rtpPayloadFormat shall be omitted because RTP header extensions are present.

- The properties of the unmarkedPDUInfoList object (see clause 5.5.4.13 of TS 29.571 [36]) shall be populated as follows.

- protocol shall be set to the protocol name for the N6-unmarked PDUs (e.g. RTCP, STUN).

- packetType shall be set to a packet type specific to the protocol. This field is optional.

NOTE: packetType is currently only used for RTCP and shall be set to one of the IANA registered RTCP Control Packet Types.

- pduSetImportance shall be set to a PDU Set Importance [37] value in the range 0 to 15 (inclusive).

NOTE: Support for unmarkedPDUInfoList depends on its definition by CT4 in the type Protocol Description defined in TS 29.571 [36] clause 5.5.4.13.

In all PDUs it contributes at reference point RTC‑4m or RTC‑12 that fall within the scope of the application flow description, the RTC Access Function (Media Access Function) shall use the protocol indicated in transportProto; it shall set the SRTP header fields in accordance with rtpPayloadInfoList; and it shall include a one- or two- byte (consistent with the signalled length) *RTP Header Extension for PDU Set Marking* in the SRTP header with fields set according to the values declared in the rtpHeaderExtInfo property per above.