**3GPP TSG-SA2 Meeting #166S2-241abcd**

**Orlando, United States, 18th Nov 2024 - 22nd Nov 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
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|  |  | **CR** |  | **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 |  | Radio Access Network | **X** | Core Network | **X** |

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| ***Title:***  | Support of multi-modal Service ID awareness at RAN |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | SA2 |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** |  |
|  |  |  |  |  |
| ***Category:*** |  |  | ***Release:*** |  |
|  | *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 canbe 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
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| ***Reason for change:*** | Rel-18 XRM work has specified policy control enhancements to support multi-modal services, namely the use of Multi-modal Service ID (MMSID) in AF and PCF as per clause 5.37.2 of TS 23.501. As part of NR\_XR\_Ph3-Core RAN work, RAN2 has asked about the type of Multi-modal information that can be provided to NG-RAN by the core. SA2 has agreed on forwarding MMSID to RAN via control plane, as part of Rel-19 alignment work.This CR updates TS23.501 to support the above according to the following principles:1. MMSID provided by PCF to SMF within PCC rules.
2. MMSID provided to NG-RAN at QoS flow creation.
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| ***Summary of change:*** | Add support of Multi-modal Service ID awareness at RAN |
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| ***Consequences if not approved:*** | Multi-modality information ( i.e., MMSID), cannot be used by RAN, e.g., for joint admission control and QoS flow to DRB mapping.  |
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| ***Clauses affected:*** | 5.37.2 |
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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 ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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

### 5.37.2 Policy control enhancements to support multi-modal services

A multi-modal service is a communication service that consists of several data flows that relate to each other and that are subject to application coordination. The data flows can transfer different types of data (for example audio, video, positioning, haptic data) and may come from different sources(e.g. a single UE, a single device or multiple devices connected to the single UE, or multiple UEs).

For the single UE case, it is expected that those data flows are closely related and require strong application coordination for the proper execution of the multi-modal application and therefore, all those data flows are transmitted in a single PDU session.

The Nnef\_AFsessionWithQoS service allows the AF to provide, at the same time, for each data flow that belongs to the multi-modal service, a Multi-modal Service ID, the service requirements and the QoS monitoring requirements:

- The Multi-modal Service ID is an explicit indication that data flows are related to a multi-modal service. The PCF may use this information to derive the correct PCC rules and to apply appropriate QoS policies for the data flows that are part of a specific multi-modal application.

- The AF may provide QoS monitoring requirements for data flows associated to a multi-modal service to the PCF . The PCF generates the authorized QoS Monitoring policy for each data flow.

NOTE: In order to start the QoS monitoring for the data flows associated to a multi-modal service within a certain period of time, the PCF needs to receive the QoS monitoring requirements for those data flows from AF within a single request or, in case of multiple requests, within a short period of time.

In addition to the features that are provided for the case that the data flows are associated with a single UE, the following features are provided for the case where the data flows are associated with more than one UE:

- The same DNN/S-NSSAI combination for the multi-modal service should be selected by each of the involved UEs. The URSP Rule evaluation framework is used to ensure that the same DNN/S-NSSAI is selected.

- The AF should use the same Multi-modal Service ID in the interactions with the PCF(s) for all the involved UEs that relate to a multi-modal service. The PCF may take this information into account (e.g. to apply a specific QoS policy) when processing each AF request independently. The data flows contribute to the service experience, but are still valid stand-alone, as they are transmitted over separate PDU Sessions to/from the involved UEs.

- If multiple PCFs are involved, the PCFs take policy decisions according to the input provided by the AF. There is no support for policy coordination among the multiple PCFs in this Release of the specification. Policy decisions are taken by each PCF separately on a per PDU Session basis.

In order to support awareness of multi-modal services in NG-RAN, the PCF sends the received Multi-modal Service ID to the SMF within the PCC Rules. Upon reception of a PCC rule with the Multi-modal Service ID, the SMF forwards it to the NG-RAN. This information may be used by NG-RAN (e.g., for joint admission control and QoS flow to DRB mapping).

\* \* \* \* End of changes \* \* \* \*