**3GPP TSG-SA4 Meeting # 108-e *S4-200539***

**2nd - 6th April 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **TS 26.501** | **CR** |  **0013** | **rev** | **-** | **Current version:** | **16.3.1** |  |
|  |
| *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:***  | CR on Domain Model for Uplink Streaming |
|  |  |
| ***Source to WG:*** | Qualcomm |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | 5GMSA |  | ***Date:*** | 03/20/2020 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-16 |
|  | *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-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | The 5GMSu procedures lack a domain model that describes the resources exposed over M1u and M5u interfaces. |
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| ***Summary of change:*** | This CR adds a domain model for uplink streaming. |
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| ***Consequences if not approved:*** | Appropriate stage 3 APIs will lack support in the stage 2 specification. |
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| ***Clauses affected:*** | 6.1, 6.1.2, 6.1.3 |
|  |  |
|  | **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:*** |  |

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| First Change |

## 6.1 General

### 6.1.1 Overview of procedures

The procedures for uplink streaming allow a system user to create, modify, establish and delete sessions. Media sessions exists between a UE and a UL 5GMSu AS. The term "Sink Configuration" refers to the provisioned parameters of an UL 5GMSu AS. The term "Source Session" refers to the provisioned parameters on the UE.

The uplink streaming procedures follow a general high-level workflow, starting from provisioningto the actual uplink streaming sessions. The egest session refers to the time during which media content is upstreamed into the 5GMSu AS. The provisioning session refers to the time, during which the 5GMSu client can upstream the media content. Interactions between the 5GMSu AF and the 5GMSu Application Provider may occur at any time, while the Provisioning Session is active.

The 5GMSu Provisioning API allows selection of Media Session Handling (M5u) and Uplink Streaming (M4u) options, including whether the media content is published to a trusted 5GMSu ASs. The 5GMSu AF offers egest session configuration options, such as a selection of potential sink 5GMSu ASs with certain capabilities, based on the Provisioning configuration. The Media Session Handling interface can be used for remote control, QoE reporting, requesting different policy and charging treatments or other network assistance services.

When the 5GMSu AF and AS are in the same DN, then the 5GMSu AF selects the 5GMSu AS. Interactions between a 5GMSu AF and a 5GMSu AS (M3u interactions) take place for 5GMS Egest (M2u) and Uplink Streaming (M4u) resource reservations. The 5GMSu AS allocates M2u and M4u resources and communicates resource identifiers back to the 5GMSu AF. The 5GMSu AF provides information about the provisioned resources (in form of resource identifiers) for Media Session Handling, 5GMS Egest and Uplink Streaming to the 5GMSu Application Provider. The resource identifiers for Media Session Handling and Uplink Streaming are needed by the 5GMSu Client to access the selected features.

When 5GMSu AF and 5GMSu AS are operated by different providers, then the M3u interface is not used and the 5GMSu AF does not provide 5GMS Egest (M2u) and Uplink Streaming (M4u) resource reservations. M3u procedures are not specified.

5GMSu Client can (in principle) start the uplink streaming by activating its uplink streaming session. The uplink streaming session for a given UE (or "for each UE") is active from the time, at which the 5GMSu Aware Application activates the transmission of an uplink streaming service until its termination.

The 5GMSu Aware Application received application metadata from the 5GMSu Application Provider before transmitting the uplink streaming media. The application metadata contains service access information, which act as entry point for the 5GMSu Client to start the uplink streaming session.The 5GMSu Client may establish a data channel with an (external) AS, which may be used to transmit remote control commands, e.g. to start an uplink streaming session.

### 6.1.2 Highlevel procedure description



Figure 6.1-1: High Level Procedure for uplink streaming

Steps

1. The 5GMSu Application Provider creates a Provisioning Session and starts provisioning the usage of the 5G Media Streaming System. During the establishment phase, the used features are negotiated and detailed configurations are exchanged. The 5GMSu Application Provider receives service access information for M5u (Media Session Handling) and, when media content reception is negotiated, service access information for M2u (Egest) and M4d (Uplink Streaming). This information is needed by the 5GMSu Client to access the service. Depending on the provisioning, only Remote Configuration information may be provided.

2. When 5GMSu AF and 5GMSu AS are operated by the same provider (e.g. the MNO), then there may be interactions between the 5GMSu AF and 5GMSu AS, e.g. to allocate 5GMSu egest and uplink streaming resources. The 5GMSu AS provides resource identifiers for the allocated resources to the 5GMSu AF, which then provides the information to the 5GMSu Application Provider. The M3u procedures between 5GMSu AF and 5GMSu AS are not specified.

3. The 5GMSu Application Provider provides the service announcement information to the 5GMSu Aware Application. Note, this may include manual entering of parameters. The service announcement include either the whole service access information (i.e. details for Media Session Handling (M5u) and for Media Streaming access (M4u)) or a remote configuration and control address (5GMSu AF URL). When a remote configuration and control is selected, the 5GMSu Client gets the services access information in a later step.

4. The 5GMSu Aware Application configures and starts the 5GMSu Client.

5. When the 5GMSu Aware Application decides to activate the streaming service transmission, the service access information is provided to the 5GMSu Client. When remote configuration and control is activated, then the 5GMSu AF configures and controls the 5GMSu Client remotely.

6. Depending on the configurations, the 5GMSu Client uses the Media Session Handling API towards the 5GMSu AF. The Media Session Handling API is used for requesting different policy and charging treatments or other network assistance services.

7. The 5GMSu Client starts the Publishing Session by activating the uplink streaming session.

8. The 5GMSu AS Publishes the content towards the 5GMSu Application Provider.

### 6.1.3 Domain model for Uplink Streaming

The M1u baseline domain model is depicted in Figure 6.1.3-1. It consists of two main sets of entities, one for M1u and one for M5u. The Uplink Provisioning Session provisions a set of configurations that will later be used by uplink streaming sessions. It consists of the following:

* Policy Templates: defines the QoS and charging policies that may be applied to provisioned uplink streaming sessions.
* QoE Reporting Configuration: configures the QoE metrics and reporting for provisioned uplink streaming sessions.
* Content Configuration: configures the allowed media formats and protocols that may be used over M2u.
* Content Processing Templates: stores a set of templates that may be used for processing uplink streamed content.
* Discovery Configuration: provides criteria for the selection of 5GMSu AS for provisioned uplink streaming sessions.

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Figure 6.1.3-1 M1u and M5u domain model