**3GPP TSG-SA WG4 Meeting** #**132 S4-250966**

**Fukuoka, Japan, 19-23 May 2025**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.512** | **pCR** | **0088** | **rev** |  | **Current version:** | **18.5.0** |  |
|  | | | | | | | | |
| *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:*** |  | | | | | | | | | |
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| ***Source to WG:*** | Nokia | | | | | | | | | |
| ***Source to TSG:*** | S4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AMD\_PRO-MED | | | | |  | ***Date:*** | | | 2025-05-13 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***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)* | |
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| ***Reason for change:*** | | [S4-250585](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_131-bis-e/Docs/S4-250585.zip) contribution implements recommendations on topic of multi-access media delivery. It is endorsed. Following this, in the CR, we propose new modifications to be added to TS 26.512. | | | | | | | | |
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| ***Summary of change:*** | | This CR proposes new text Configurations and settings API for Multi-Access media delivery using ATSSS. | | | | | | | | |
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| ***Consequences if not approved:*** | | Proposed objectives will not be met. | | | | | | | | |
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| ***Clauses affected:*** | |  | | | | | | | | |
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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:*** | |  | | | | | | | | |
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| ***This CR's revision history:*** | | [S4-250585](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_131-bis-e/Docs/S4-250585.zip) proposed initial contents in SA4#131-bis-e.  [S4-250698](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_131-bis-e/Docs/S4-250698.zip) was endorsed as basis of further work which was merged from [S4-250585](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_131-bis-e/Docs/S4-250585.zip) and [S4-250505](https://www.3gpp.org/ftp/tsg_sa/WG4_CODEC/TSGS4_131-bis-e/Docs/S4-250505.zip). | | | | | | | | |

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| 1st Change |

### 4.6.2 Procedures for Progressive Download Session

This procedure is used by a 5GMSd Client to establish a Progressive Download session via the M4d interface. In order to establish such a session, the 5GMSd AS shall host an 3GP/MP4 file as defined in TS 26.247 [4]. The 3GP/MP4 URL is known to the Media Player (in this case a progressive download player), typically by using M8d.

The Media Player may use multiple access networks available on the UE to connect to a reference point M4d service location on the 5GMSd AS.

The Media Player receives a URL from the 5GMSd-Aware Application through M7d by methods defined in clause 13. The Media Player shall send an HTTP GET message to the 5GMSd AS including the URL of the 3GP/MP4 resource. On success, the 5GMSd AS shall respond with a 200 (OK) message that includes the requested 3GP/MP4 resource.

Additional procedures for reactions to different HTTP status codes are provided in TS 26.247 [4].



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| 3rd Change |

### 13.2.5 Notifications and error events

Table 13.2.5-1 provides a list of notification events that are provided by the Media Player to 5GMSd-Aware Applications at reference point M7d and to the Media Session Handler at reference point M11d. Every notification and error event is disambiguated by a media delivery session identifier.

Table 13.2.5-1: Media Player Notification events

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| Status | Definition | Payload |
| AST\_IN\_FUTURE | Triggered when playback will not start yet as the MPD's availabilityStartTime is in the future. | Media delivery session identifier, Time before playback will start. |
| AVAILABLE\_MEDIA\_CHANGED | The list of available media has changed. | Media delivery session identifier, Media type:  - video  - audio  - subtitle  - all |
| BUFFER\_EMPTY | Triggered when the media playback platform's buffer state changes to stalled. | Media delivery session identifier, Media Type |
| BUFFER\_LOADED | Triggered when the media playback platform's buffer state changes to loaded. | Media delivery session identifier, Media Type |
| CAN\_PLAY | Sent when enough data is available that the media can be played. | Media delivery session identifier |
| MANIFEST\_LOADED | Triggered when the manifest load is complete | Media delivery session identifier |
| METRIC\_ADDED | Triggered every time a new metric is added. | Media delivery session identifier |
| METRIC\_CHANGED | Triggered every time a metric value changes. | Media delivery session identifier,  Metric identifier |
| METRIC\_UPDATED | Triggered when the configuration of a metric is updated. | Media delivery session identifier,  Metric identifier |
| METRICS\_CHANGED | Triggered whenever there is a change to the overall metrics. | Media delivery session identifier |
| OPERATION\_POINT\_CHANGED | Triggered whenever there is a change of a Service Operation Point parameter. | Media delivery session identifier,  External reference identifier of currently selected Service Operation Point. |
| PLAYBACK\_ENDED | Sent when media playback completes normally. | Media delivery session identifier |
| PLAYBACK\_ERROR | Sent when an error occurs during media playback. The element's error attribute contains more information. | Media delivery session identifier,  Error reason (see table 13.2.5‑2). |
| PLAYBACK\_PAUSED | Sent when media playback is paused. | Media delivery session identifier |
| PLAYBACK\_PLAYING | Sent when the media begins to play (either for the first time, after having been paused, or after ending and then restarting). | Media delivery session identifier |
| PLAYBACK\_SEEKED | Sent when a media playback seek operation completes. | Media delivery session identifier |
| PLAYBACK\_SEEKING | Sent when a media playback seek operation begins. | Media delivery session identifier |
| PLAYBACK\_STALLED | Sent when the media playback platform reports stalled. | Media delivery session identifier |
| PLAYBACK\_STARTED | Sent when playback of the media starts after having been paused; that is, when playback is resumed after a prior pause event. | Media delivery session identifier |
| PLAYBACK\_WAITING | Sent when the media playback has stopped because of a temporary lack of data. | Media delivery session identifier |
| SERVICE\_DESCRIPTION\_SELECTED | sent when the DASH client has selected a service description. | Media delivery session identifier |
| SERVICE\_DESCRIPTION\_CHANGED | Sent when the DASH client has changed a service description. | Media delivery session identifier |
| SERVICE\_DESCRIPTION\_VIOLATED | Provides notification that the service description parameters are currently not met. | Media delivery session identifier,  Parameters of service description that are not met |
| SOURCE\_INITIALIZED | Triggered when the source is set up and ready. | Media delivery session identifier |
| DOWNLOAD\_STARTED | Sent when a non-real-time content download begins. | Media delivery session identifier |
| DOWNLOAD\_COMPLETED | Sent when a non-real-time content download is complete. | Media delivery session identifier |
| DOWNLOAD\_ERROR | Send when an error occurs during non-real-time content download | Media delivery session identifier,  Error reason (see table 13.2.5‑2). |
| MULTI-ACCESS\_DELIVERY\_ESTABLISHED | Triggered when a multi-access media delivery connection is set up and ready | Media delivery session identifier,  Multi-access connection status |
| MULTI-ACCESS\_DELIVERY\_CHANGED | Triggered when the multi-access media delivery connection status changes. | Media delivery session identifier, Multi-access connection status |
| MULTIPATH\_‌DELIVERY\_‌ESTABLISHED | Triggered when a multipath media delivery connection is set up and ready | Media delivery session identifier,  Multi-path connection status |
| MULTIPATH\_‌DELIVERY\_‌CHANGED | Triggered when the multipath media delivery connection status changes. | Media delivery session identifier, Multi-path connection status |

Table 13.2.5-2 provides a list of error reasons that are indicated for notifications of type PLAYBACK\_ERROR and DOWNLOAD\_ERROR.

Table 13.2.5-2: Media Player Error reasons

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| Error reason | Definition |
| ERROR\_MEDIA\_ENTRY\_NOT\_FOUND | The Media Entry Point resource requested by the Media Player could not be located. |
| ERROR\_CONTENT\_NOT\_FOUND | Other content requested by the Media Player could not be located. |
| ERROR\_MEDIA\_PLAYBACK | There is an error from the media playback platform buffer. |
| ERROR\_INVALID\_MEDIA\_ENTRY | The Media Entry Point resource supplied is not syntactically valid. |
| ERROR\_INACCESSIBLE\_MEDIA\_TIME | The media time requested in a seek operation is not accessible in the current media presentation. |
| ERROR\_UNSUPPORTED\_PROFILE | The profile of the media presentation described by the Media Entry Point resource is not supported by the media playback platform. |
| ERROR\_DOWNLOAD\_DEADLINE\_MISSED | The download of content did not complete before the requested deadline and the incomplete download has been discarded. |
| ERROR\_MULTI-ACCESS\_‌DELIVERY\_‌UNAVAILABLE | The configured multi-access media delivery (see clause 13.2.4) is not supported by the Media Player or is not supported by the Media AS. |
| ERROR\_MULTIPATH\_‌DELIVERY\_‌UNAVAILABLE | The configured multipath media delivery (see clause 13.2.4) is not supported by the Media Player, or is not supported by the Media AS. |

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| End of change |