**3GPP TSG-SA3 Meeting #124 draft\_S3-253672-r1**

**Wuhan, China, 13 - 17 October 2025 merger of 3444 and 3645**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **33.328** | **CR** | **0084** | **rev** |  | **Current version:** | **19.1.0** |  |
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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 |  | Core Network | **X** |

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| ***Title:***  | Alignment of SA2 progress for Avatar communication |
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| ***Source to WG:*** | Huawei, HiSilicon, Philips International B.V. |
| ***Source to TSG:*** | S3 |
|  |  |
| ***Work item code:*** | NG\_RTC\_SEC\_Ph2 |  | ***Date:*** | 2025-10-13 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***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 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-15 (Release 15)Rel-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)* |
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| ***Reason for change:*** | 1. According to S2-2507605, DC AS is involved in the step 2 of both sending UE centric procedure (i.e., clause AC.11.3.2.1) and receiving UE centric procedure (i.e., clause AC.11.3.2.2) in TS 23.228, which means that DC AS has the knowledge of UE’s Avatar ID list.
2. According to S2-2507605 and S2-2507606, Avatar ID and associated information (e.g. associated URL) is included in the Avatar ID list and downloaded in step 1. Both Avatar ID and the associated URL can be included in the downloading Avatar representation request to download the avatar representation.
3. According to S2-2507605, if the Avatar representation is indirectly downloaded via DC AS, the request of downloading Avatar representation may be authorized by DC AS.
4. Two Avatar IDs are included in the Avatar representation downloading request, one is inside the token, and another one is outside the token. It is not clear which Avatar ID should be used for verifications.
5. In case of the receiving UE centric rendering mode, it is not clear when and where will the sending UE obtain the receiving UE ID. Considering that "UE1 performs avatar animation negotiation with the DC AS and UE2" in AC.11.3.2.2 of TS 23.228, it can be derived that the sending UE can obtain the receiving UE ID in the Avatar animation negotiation message.

The proposal is used to be aligned with procedures in SA2, and make some clarifications. |
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| ***Summary of change:*** | 1. Proposing that both BAR and DC AS shall verify whether the avatar ID provided by the sending UE is in the sending UE’s Avatar ID list.
2. Expanding the procedures of Avatar ID and the associated URL included in the downloading Avatar representation request.
3. Proposing that if the Avatar representation is indirectly downloaded via DC AS, Avatar representation downloading may also be authorized by DC AS, and the operation of which can refer to the previous paragraph. Besides that, BAR does not need to verify whether the avatar ID provided by the sending UE is in the sending UE’s Avatar ID list.
4. Clarifying that either the Avatar ID in the token or the Avatar ID in the Avatar representation downloading request can be used for verification, because they should be the same after the verification of BAR.
5. Clarifying that in case of the receiving UE centric rendering mode, the sending UE can receive the receiving UE ID from Avatar animation negotiation response message.
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| ***Consequences if not approved:*** | Misalignment with SA2 and some ambiguity. |
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| ***Clauses affected:*** | Annex R |
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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:*** |  |
|  |  |
| ***This CR's revision history:*** | S3-253444, S3-253645 |

\*\*\* 1st CHANGE \*\*\*

# Annex R (Normative): Security for IMS avatar communication

## R.1 General

This clause specifies the security for IMS avatar communication.

TS 23.228 [3], Annex AC.11, has specified the procedures for IMS avatar communication.

## R.2 Security requirements

The security requirements for the security and privacy of IMS avatar communication are:

- The 3GPP system shall support means for integrity and confidentiality protection for Avatar ID List downloading, avatar representation downloading and Avatar ID transferring.

- The 3GPP system shall support means to ensure that stored Avatar representations and Avatar-IDs are accessed and used only by authenticated and authorized entities, e.g. MF, DC AS, UEs.

## R.3 Security Procedures

The security procedures are based on the TS 23.228 [3] AC.11 procedures with the following security handling.

To prevent the sending UE from providing an Avatar ID belonging to another UE, it may be verified by BAR and DC AS whether the Avatar ID provided by the sending UE is in the sending UE’s Avatar ID list.

NOTE X: Either the Avatar ID in the token or the Avatar ID in the Avatar representation downloading request can be used for verification.

NOTE Y: The above verification is not related to DC AS based authorization for Avatar representation downloading.

The authorization of avatar representation downloading by BAR shall be based on a token mechanism. The token shall include the Avatar ID chosen by the sending UE, the UE ID of the sending UE (i.e., IMPU), one of MF ID or DC AS ID, the BAR ID, and expiration time. The avatar representation downloading request also includes the URL associated with the Avatar ID chosen by the sending UE. In case of the receiving UE centric rendering mode, if the token is generated by the sending UE, the token shall further include the receiving UE ID (i.e., IMPU). The sending UE may obtain the receiving UE ID from Avatar animation negotiation response message. After that, the sending UE shall provide the token to the receiving UE, through the established application data channel. The BAR shall verify the token as follows:

- The BAR shall verify the signature of the token.

- The BAR shall verify whether the Avatar ID in the Avatar representation downloading request matches that in the token.

- The BAR shall verify whether the UE ID of the sending UE in the Avatar representation downloading request matches that in the token.

- In the receiving UE centric rendering mode, if the token is generated by the sending UE, the BAR shall verify whether the receiving UE ID in the Avatar representation downloading request matches that in the token.

- The BAR shall check whether the MF ID or the DC AS ID in the token matches the entity sending the Avatar representation downloading request.

- The BAR shall check whether the BAR ID in the token matches its own ID.

- The BAR shall check, based on the token expiration time, whether the token is valid.

If the token verification is successful, and the URL used to download the Avatar Representation is associated with the Avatar ID (in the token or in the request), the BAR shall send the sending UE's Avatar representation to the MF or DC AS.

If the Avatar representation is indirectly downloaded via DC AS, Avatar representation downloading may also be authorized by DC AS, and the operation of which can refer to the previous paragraph.

The e2DCe or e2e media plane protection mechanism in clause 5 shall be reused for authentication, integrity and confidentiality protection between UE and MF, UE and DC AS for Avatar ID list downloading and avatar representation downloading, Avatar ID transfer via BDC/ADC. The security specification in Annex P.1 shall be reused for security of aspects of SBA in IMS media control interface, to protect SBA communication between MF/DCSF and DC AS/BAR. The security specification in TS 33.501 [11], clause 12 shall be reused for protection of the NEF – AF interface, to protect communication between DCSF and DC AS if the DC AS is deployed outside of operator’s domain.

In a receiving UE centric rendering mode, the receiving UE should delete the avatar representation of the sending UE after the avatar communication session is over.

NOTE 1: This can mitigate the situation of the receiving UE from using the avatar representation of the sending UE in a sending UE centric procedure after a receiving UE centric avatar session where receiving UE receives the avatar representation of the sending UE for rendering.

\*\*\* END OF CHANGES \*\*\*