**3GPP TSG-CT3 Meeting #119-e *C3-216314***

**E-Meeting, 11th – 19th November 2021 (Revision of C3-21xxxx)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.535** | **CR** | **0014** | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Correction on Naanf\_AKMA\_ApplicationKey\_Get service operation on sending UE ID to the AKMA AF | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | China Mobile Communications Group Co.,Ltd., Huawei, Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | AKMA-CT | | | | |  | ***Date:*** | | | 2021-11-04 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | According to CR 0108 of 3GPP TS 33.535, for the AKMA AF to authorize the UE (e.g., for charging and/or service authorization purposes), a UE identifier needs to be provided to the AKMA AF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | If the AKMA AF is in operator network, the AAnF provides SUPI to the AKMA AF directly.  If the AKMA AF is outside the operator network, the AAnF provide the SUPI to the NEF. And then the NEF translates SUPI to GPSI (external ID) and sends the GPSI to AF out of operator network. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | AKMA AF may not be able to authorize the UE | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 2, 4.2.2.3.2, 5.1.4.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 33.535 CR 0108 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | The CR does not impact the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\* 1st Change \*\*\*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[4] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[5] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[6] OpenAPI: "OpenAPI Specification Version 3.0.0", https://spec.openapis.org/oas/v3.0.0.

[7] 3GPP TR 21.900: "Technical Specification Group working methods".

[8] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[9] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[10] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[11] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".

[12] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[13] IETF RFC 7807: "Problem Details for HTTP APIs".

[14] 3GPP TS 33.535: "Authentication and Key Management for Applications (AKMA) based on 3GPP credentials in the 5G System (5GS)".

[15] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[16] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[3GPP29503] 3GPP TS 29.503: "5G System; Network Exposure Function Northbound APIs; Stage 3".

\*\*\* 2st Change \*\*\*

##### 4.2.2.3.2 AKMA Application Key request

Figure 4.2.2.3.2-1 shows a scenario where the NF service consumer sends a request to the AAnF to request and get the AKMA Application Key information for the UE (as shown in 3GPP TS 33.535 [14]).



Figure 4.2.2.3.2-1: NF service consumer retrieve AKMA Application Key information

The NF service consumer shall invoke the Naanf\_AKMA\_ApplicationKey\_Get service operation to retrieve AKMA Application Key information. The NF service consumer shall send an HTTP POST request with "{apiRoot}/naanf-akma/<apiVersion>/retrieve-applicationkey" as Resource URI, as shown in figure 4.2.2.3.2-1, step 1, to request AKMA Application Key information for the UE according to the query parameter value of the "akmaAfKeyRequest" attribute.

If the AAnF cannot successfully fulfil the received HTTP POST request due to an internal error or an error in the HTTP POST request, the AAnF shall send an HTTP error response as specified in clause 5.1.7.

If the AAnF determines the received HTTP POST request needs to be redirected, the AAnF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

Upon the reception of the HTTP POST request, the AAnF shall response the "akmaAfKeyData" attribute which shall include:

- KAF as "kaf" attribute; and

- KAF expiration time as "expiry" attribute;

- SUPI as "supi" attribute.

If the requested AKMA Application Key information for the UE does not exist, the AAnF shall respond with "204 No Content".

If the NF service consumer is an NEF, and the NEF is configured (e.g. based on operator policy) to relay the UE identifier to the AF, the NEF shall invoke the Nudm\_SubscriberDataManagement service defined in 3GPP TS 29.503 [3GPP29503] to translate the SUPI to a GPSI, and then invoke the AKMA API to reply to the AF as defined in 3GPP TS 29.522 [16]. The NEF may also directly invoke the AKMA API to reply to the AF as defined in 3GPP TS 29.522 [16], e.g. if it is configured (e.g. based on operator policy) to not relay the UE identifier to the AF. If the NF service consumer is a trusted AF, The AKMA shall include SUPI in the response.

NOTE: The AAnF can not connect to the untrusted AF directly without NEF in current specification.

\*\*\* 3nd Change \*\*\*

##### 5.1.4.3.2 Operation Definition

This operation shall support the response data structures and response codes specified in tables 5.1.4.3.2-1 and 5.1.4.3.2-2.

Table 5.1.4.3.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| AkmaAfKeyRequest | M | 1 | Parameters to request to retrieve AKMA Application Key information. |

Table 5.1.4.3.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| AkmaAfKeyData | M | 1 | 200 OK | The requested AKMA Application Key information was returned successfully.(NOTE y) |
| n/a |  |  | 204 No Content | If the requested data does not exist, the AAnF shall respond with "204 No Content". |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative AAnF (service) instance. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative AAnF (service) instance. |
| NOTE x: The manadatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply.  NOTE y: When "AkmaAfKeyData" is used in current release of specification, "supi" shall be included and the “gpsi” attribute is not applicable in the current release of this specification. | | | | |

Table 5.1.4.3.2-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative AAnF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target AAnF (service) instance towards which the request is redirected. |

Table 5.1.4.3.2-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative AAnF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target AAnF (service) instance towards which the request is redirected. |

\* \* \* End of Changes \* \* \* \*