**3GPP TSG-CT WG1 Meeting #124-eC1-20XXXX**

**Electronic meeting, 2-10 June 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.502** | **CR** | **0134** | **rev** | **1** | **Current version:** | **16.3.0** |  |
|  | | | | | | | | |
| *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:*** | Access network parameters | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Motorola Mobility, Lenovo | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5WWC | | | | |  | ***Date:*** | | | 2020-06-02 |
|  |  | | | |  | |  | | |  |
| ***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 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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | SA WG2 Meeting #138E agreed that during registration to the 5GCN via trusted non-3GPP access, the UE uses an identity such as 5G-GUTI or SUCI at the time of link layer authentication and the IKE SA establishment. This modification should be reflected into TS 24.502. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Specify the UE procedure for the registration to the 5GCN via trusted non-3GPP access by:   * adding the UE identity such as 5G-GUTI or SUCI in the EAP-Response/5G-NAS message at the time of EAP-5G session initiation. * adding the NAI format of 5G-GUTI or the NAI format of SUCI at the time of IKE SA establishment. * Adding field values for AN parameters of type 5G-GUTI and SUCI. * Correcting the format of table 9.3.2.2.2.3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Since the AN parameter GUAMI and the NAI formats of 5G-GUTI and SUCI are different, 5G registration during procedure via trusted non-3GPP access fails. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.3A.2.3, 7.3A.3.1, 9.3.2.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 23.502 CR 2291 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS 23.003 CR 0580 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Next Change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 7.3A.2.3 EAP-5G session initiation

The UE and the TNGF shall exchange EAP-5G messages. The TNGF on reception of the NAI by TNAP and passed on to TNGF, shall initiate EAP-5G session by sending an EAP-Request/5G-Start message. Upon reception of an EAP-Request/5G-Start message, the UE shall send an EAP-Response/5G-NAS message encapsulated in link layer protocol packets. In the EAP-Response/5G-NAS message, the UE shall include:

a) a NAS-PDU field containing a NAS message, for example, a REGISTRATION REQUEST message; and

b) an AN-parameters field containing access network parameters, such as UE identity, selected PLMN ID, S-NSSAI and establishment cause, see 3GPP TS 23.502 [3].

The UE identity shall be 5GS mobile identity of type 5G-GUTI, if available, otherwise it shall be the 5GS mobile identity of type SUCI. The 5GS mobile identities of type 5G-GUTI and of type SUCI are specified in 3GPP TS 24.501 [4].

The TNGF on reception of EAP-Response/5G-NAS message, forwards the NAS message to the AMF.

NOTE: The TNGF is transparent to the NAS messages and as an intermediate network entity only conveys transparently the NAS messages to the AMF.

The TNAN, on reception of the NAS messages from the AMF, shall send an EAP-Request/5G-NAS message encapsulated in the link layer protocol packets towards the UE via the TNAP. In the EAP-Request/5G-NAS message, the TNGF shall include:

a) the NAS message from the AMF; and

b) an AN-parameters field contain access network parameters, such as TNGF IPv4 contact information, TNGF IPv6 contact information, or both, see 3GPP TS 23.502 [3].

The EAP-Request/5G-NAS message shall include a NAS-PDU field that contains a NAS message. Further NAS messages between the UE and the AMF, via the TNGF, shall be inserted in NAS-PDU field of an EAP-Response/5G-NAS (UE to TNGF direction) and EAP-Request/5G-NAS (TNGF to UE direction) message.

The UE, on reception of the EAP-Request/5G-NAS message including a NAS-PDU field containing a NAS message e.g. for security establishment, shall send a response with EAP-Response/5G-NAS message including a NAS-PDU field containing a NAS message related to the NAS security context to the N3IWF.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Next Change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 7.3A.3.1 IKE SA and signalling IPsec SA establishment initiation

In a trusted non-3GPP access network, once the EAP- 5G authentication is successfully complete and the UE is configured with a local IP address, the UE shall use the TNGF IP address received in the EAP-Request/5G-NAS message (see subclause 7.3A.2.3) to establish a secure connection between the UE and the TNGF over NWt to exchange NAS signalling messages with the AMF. The UE shall establish the secure connection by establishing an IKE SA and signalling IPsec SA (first child SA) by initiating the IKE\_SA\_INIT exchange and then IKE\_AUTH exchange for mutual authentication with the TNGF and NULL encryption as specified in IETF RFC 2410 [34]. The UE shall set the IDi payload of the IKE\_AUTH request message in the IKE\_AUTH exchange (see IETF RFC 7296 [6]) to the NAI format of 5G-GUTI or the NAI format of SUCI as specified in 3GPP TS 23.003 [8], depending on the employed UE identity in the EAP-Response/5G-NAS message at the time of EAP-5G session initiation according to subclause 7.3A.2.3.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Next Change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 9.3.2.2.2 EAP-Response/5G-NAS message

EAP-Response/5G-NAS message is coded as specified in figure 9.3.2.2.2-1 and table 9.3.2.2.2-1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bits | | | | | | | |  |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Octets |
| Code | | | | | | | | 1 |
| Identifier | | | | | | | | 2 |
| Length | | | | | | | | 3 - 4 |
| Type | | | | | | | | 5 |
| Vendor-Id | | | | | | | | 6 - 8 |
| Vendor-Type | | | | | | | | 9 - 12 |
| Message-Id | | | | | | | | 13 |
| Spare | | | | | | | | 14 |
| AN-parameters length | | | | | | | | 15-16 |
| AN-parameters | | | | | | | | 17 - 17+x |
| NAS-PDU length | | | | | | | | 18+x - 19+x |
| NAS-PDU | | | | | | | | 20+x - n+x |
| Extensions | | | | | | | | n+x+1 - z+x |

Figure 9.3.2.2.2-1: EAP-Response/5G-NAS message

Table 9.3.2.2.2-1: EAP-Response/5G-NAS message

|  |
| --- |
| Code field is set to 2 (decimal) as specified in IETF RFC 3748 [9] subclause 4.1 and indicates response. |
| Identifier field is set as specified in IETF RFC 3748 [9] subclause 4.1. |
| Length field is set as specified in IETF RFC 3748 [9] subclause 4.1 and indicates the length of the EAP-Response/5G-NAS message in octets. |
| Type field is set to 254 (decimal) as specified in IETF RFC 3748 [9] subclause 5.7 and indicates the expanded type. |
| Vendor-Id field is set to the 3GPP Vendor-Id of 10415 (decimal) registered with IANA under the SMI Private Enterprise Code registry. |
| Vendor-Type field is set to EAP-5G method identifier of 3 (decimal) as specified in 3GPP TS 33.402 [10] annex C. |
| Message-Id field is set to 5G-NAS-Id of 2 (decimal). |
| Spare field consists of spare bits. |
| AN-parameters length indicate the length of the AN-parameters field in octets |
| AN-parameters field is coded according to figure 9.3.2.2.2.2 and table 9.3.2.2.2.2. |
| NAS-PDU length field indicates the length of NAS-PDU field in octets. |
| NAS-PDU field contains a NAS message from the UE as specified in 3GPP TS 24.501 [4]. |
| Extensions field is an optional field and consists of spare bits. |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |  |
| AN-parameter 1 | | | | | | | | octet 17  octet a |
| AN-parameter 2 | | | | | | | | octet a+1  octet b |
| ... | | | | | | | | octet b+1  octet k |
| AN-parameter n | | | | | | | | octet k+1  octet 17+x |

Figure 9.3.2.2.2.2: AN-parameters field

Table 9.3.2.2.2.2: AN-parameters field

|  |
| --- |
| Each AN-parameter field is coded according to figure 9.3.2.2.2.1-3 and table 9.3.2.2.2.3. |
|  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |  |
| AN-parameter type | | | | | | | | octet a+1 |
| AN-parameter length | | | | | | | | octet a+2 |
| AN-parameter value | | | | | | | | octet a+3  octet b |

Figure 9.3.2.2.2.3: AN-parameter field

Table 9.3.2.2.2.3: AN-parameter field

|  |
| --- |
| The AN-parameter length field indicates the length of the AN-parameter value field. |
|  |
| The AN-parameter type field indicates the type of the AN-parameter value field. Sending entity shall not set the AN-parameter type field to a spare value. Receiving entity shall ignore any AN-parameter field with the AN-parameter type field set to a spare value. |
| The following AN-parameter type field values are specified:  - 01H (GUAMI);  - 02H (selected PLMN ID);  - 03H (requested NSSAI);  - 04H (establishment cause for non-3GPP access);  - 05H (selected NID); and  - 06H (UE identity).  All other values of the AN-parameter type field are spare. Receiving entity shall ignore an AN-parameter field with the AN-parameter type field set to a spare value. |
| When the AN-parameter type field indicates the GUAMI, the AN-parameter value field is coded as value part (as specified in 3GPP TS 24.007 [22] for type 3 information element) of GUAMI information element as specified in subclause 9.2.1. |
| When the AN-parameter type field indicates the selected PLMN ID, the AN-parameter value field is coded according to value part of PLMN ID information element as specified in subclause 9.2.3. |
| When the AN-parameter type field indicates the requested NSSAI, the AN-parameter value field is coded according to value part of NSSAI information element as specified in subclause 9.10.3.34 of 3GPP TS 24.501 [4]. |
| When the AN-parameter type field indicates the establishment cause for non-3GPP access, the AN-parameter field is coded as value part (as specified in 3GPP TS 24.007 [22] for type 3 information element) of the Establishment cause for non-3GPP access information element as specified in subclause 9.2.2. |
| When the AN-parameter type field indicates the UE identity, the AN-parameter value field is coded according to 5GS mobile identity information element for type of identity 5G-GUTI or for type of identity SUCI as specified in subclause 9.11.3.4 of 3GPP TS 24.501 [4]. |
| When the AN-parameter type field indicates the selected NID, the AN-parameter value field is coded according to the value part of the NID information element as specified in subclause 9.2.7. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of Change \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*