**3GPP TSG-CT WG1 Meeting #137-eC1-22xxxx**

**E-Meeting, 18th – 26th August 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.554** | **CR** | **0132** | **rev** | **1** | **Current version:** | **17.1.0** |  |
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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 | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Replace 5G PRUK ID with PRUK ID | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | CT1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_ProSe | | | | |  | ***Date:*** | | | 2022-08-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
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| ***Reason for change:*** | | According to TS 33.503, "PRUK ID" and "5GPRUK ID" are represented the identity of the PRUK in UP based security procedure and CP based security procedure respectively. "5G PRUK ID" is not a consistent terminology with TS 33.503.  In this specification, "PRUK ID" represents:  - "5GPRUK ID" during the security procedure over control plane as specified in 6.3.3.3 of 33.503; and  - "PRUK ID" during the security procedure over user plane as specified in 6.3.3.2 of 33.503.  Hence, it proposes to use "PRUK ID" in this specification. | | | | | | | | |
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| ***Summary of change:*** | | Replace 5G PRUK ID with PRUK ID. | | | | | | | | |
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| ***Consequences if not approved:*** | | Unclear description due to inconsistent terminology | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.2.2.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

\* \* \* First Change \* \* \* \*

#### 7.2.2.3 5G ProSe direct link establishment procedure accepted by the target UE

Upon receipt of a PROSE DIRECT LINK ESTABLISHMENT REQUEST message, if the target UE accepts this request, the target UE shall uniquely assign a PC5 link identifier, create a 5G ProSe direct link context.

If the PROSE DIRECT LINK ESTABLISHMENT REQUEST message is for 5G ProSe direct communication between the 5G ProSe remote UE and the 5G ProSe UE-to-network relay UE, the target UE decrypts the encrypted relay service code and PRUK ID, if received, using the DUIK, DUSK, or DUCK with the associated encrypted bitmask used for 5G ProSe UE-to-network relay discovery and verifies if the relay service code matches with the one that the target UE has sent during 5G ProSe UE-to-network relay discovery procedure.

If the 5G ProSe direct link establishment procedure is not for direct communication between the 5G ProSe remote UE and the 5G ProSe UE-to-network relay UE, the target UE may initiate 5G ProSe direct link authentication procedure as specified in clause 7.2.12 and shall initiate 5G ProSe direct link security mode control procedure as specified in clause 7.2.10.

If the 5G ProSe direct link establishment procedure is for direct communication between the 5G ProSe remote UE and the 5G ProSe UE-to-network relay UE, the target UE shall proceed with either the security procedure over control plane or the security procedure over user plane as specified in 3GPP TS 33.503 [34].

The target UE shall set the source layer-2 ID and the destination layer-2 ID as specified in clause 7.2.12 and clause 7.2.10, and store the corresponding source layer-2 ID for unicast communication and the destination layer-2 ID for unicast communication in the 5G ProSe direct link context.

If:

a) the target user info IE is included in the PROSE DIRECT LINK ESTABLISHMENT REQUEST message and this IE includes the target UE's application layer ID; or

b) the target user info IE is not included in the PROSE DIRECT LINK ESTABLISHMENT REQUEST message and the target UE is interested in the ProSe application(s) identified by the ProSe identifier IE in the PROSE DIRECT LINK ESTABLISHMENT REQUEST message;

then the target UE shall either:

a) identify an existing KNRP based on the KNRP ID included in the PROSE DIRECT LINK ESTABLISHMENT REQUEST message; or

b) if KNRP ID is not included in the PROSE DIRECT LINK ESTABLISHMENT REQUEST message, the target UE does not have an existing KNRP for the KNRP ID included in PROSE DIRECT LINK ESTABLISHMENT REQUEST message or the target UE wishes to derive a new KNRP, derive a new KNRP. This may require performing one or more 5G ProSe direct link authentication procedures as specified in clause 7.2.12.

NOTE 1: How many times the 5G ProSe direct link authentication procedure needs to be performed to derive a new KNRP depends on the authentication method used.

After an existing KNRP was identified or a new KNRP was derived, the target UE shall initiate a 5G ProSe direct link security mode control procedure as specified in clause 7.2.10.

Upon successful completion of the 5G ProSe direct link security mode control procedure, in order to determine whether the PROSE DIRECT LINK ESTABLISHMENT REQUEST message can be accepted or not, in case of IP communication, the target UE checks whether there is at least one common IP address configuration option supported by both the initiating UE and the target UE.

Before sending the PROSE DIRECT LINK ESTABLISHMENT ACCEPT message to the 5G ProSe remote UE, the target UE acting as a 5G ProSe layer-3 UE-to-network relay UE shall inform the lower layer to initiate the UE requested PDU session establishment procedure as specified in 3GPP TS 24.501 [11] if:

1) the PDU session for relaying the service associated with the RSC has not been established yet; or

2) the PDU session for relaying the service associated with the RSC has been established but the PDU session type is Unstructured.

If the target UE accepts the 5G ProSe direct link establishment procedure, the target UE shall create a PROSE DIRECT LINK ESTABLISHMENT ACCEPT message. The target UE:

a) shall include the source user info set to the target UE's application layer ID received from upper layers;

b) shall include PQFI(s), the corresponding PC5 QoS parameters and optionally the ProSe identifier(s) that the target UE accepts, if the target UE is not acting as a 5G ProSe layer-2 UE-to-network relay UE;

c) may include the PC5 QoS rule(s) if the target UE is not acting as a 5G ProSe layer-2 UE-to-network relay UE;

d) shall include an IP address configuration IE set to one of the following values if IP communication is used and the target UE is not acting as a 5G ProSe layer-2 UE-to-network relay UE:

1) "DHCPv4 server" if only IPv4 address allocation mechanism is supported by the target UE, i.e., acting as a DHCPv4 server; or

2) "IPv6 router" if only IPv6 address allocation mechanism is supported by the target UE, i.e., acting as an IPv6 router; or

3) "DHCPv4 server & IPv6 Router" if both IPv4 and IPv6 address allocation mechanism are supported by the target UE; or

4) "address allocation not supported" if neither IPv4 nor IPv6 address allocation mechanism is supported by the target UE and the target UE is not acting as a 5G ProSe layer-3 UE-to-network relay UE;

NOTE 2: The UE doesn't include an IP address configuration IE nor a link local IPv6 address IE, if Ethernet or Unstructured data unit type is used for communication.

e) shall include a link local IPv6 address IE formed locally based on IETF RFC 4862 [16] if IP address configuration IE is set to "address allocation not supported", the received PROSE DIRECT LINK SECURITY MODE COMPLETE message included a link local IPv6 address IE and the target UE is neither acting as a 5G ProSe layer-2 UE-to-network relay UE nor acting as a 5G ProSe layer-3 relay UE; and

f) shall include the configuration of UE PC5 unicast user plane security protection based on the agreed user plane security policy, as specified in 3GPP TS 33.503 [34].

After the PROSE DIRECT LINK ESTABLISHMENT ACCEPT message is generated, the target UE shall pass this message to the lower layers for transmission along with the initiating UE's layer-2 ID for unicast communication and the target UE's layer-2 ID for unicast communication and shall start timer T5090 if at least one of ProSe identifiers for the 5G ProSe direct links satisfies the privacy requirements as specified in clause 5.2.4 and clause 5.2.5.

NOTE 3: Two UEs negotiate the PC5 DRX configuration in the AS layer, and the PC5 DRX parameter values are configured per pair of source and destination Layer-2 IDs in the AS layer, as specified in 3GPP TS 38.300 [21].

After sending the PROSE DIRECT LINK ESTABLISHMENT ACCEPT message, the target UE shall provide the following information along with the layer-2 IDs to the lower layer, which enables the lower layer to handle the coming PC5 signalling or traffic data:

a) the PC5 link identifier self-assigned for this 5G ProSe direct link;

b) PQFI(s) and its corresponding PC5 QoS parameters, if available; and

c) an indication of activation of the PC5 unicast user plane security protection for the 5G ProSe direct link, if applicable.

If the target UE accepts the 5G ProSe direct link establishment request and the 5G ProSe direct link is established not for 5G ProSe direct communication between the 5G ProSe remote UE and the 5G ProSe UE-to-network relay UE, then the target UE may perform the PC5 QoS flow establishment over 5G ProSe direct link as specified in clause 7.2.7. If the 5G ProSe direct link is established for 5G ProSe direct communication between the 5G ProSe layer-3 remote UE and the 5G ProSe layer-3 UE-to-network relay UE, then the target UE may perform the PC5 QoS flow establishment over 5G ProSe direct link as specified in clause 8.2.6.

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