**3GPP TSG-CT WG1 Meeting #136-eC1-22xxxx**

**E-Meeting, 12th – 20th May 2022**

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| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
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|  | **24.554** | **CR** | **0095** | **rev** | **1** | **Current version:** | **17.0.0** |  |
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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 | **X** |

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| ***Title:***  | Introducing the validity timer of the security related parameters for discovery |
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| ***Source to WG:*** | Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | C1 |
|  |  |
| ***Work item code:*** | 5G\_ProSe |  | ***Date:*** | 2022-05-04 |
|  |  |  |  |  |
| ***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 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:*** | SA3 has already indicated in TS 33.503 that the security for the UE-to-network relay discovery over PC5 interface for the control plane solution reuses the same security mechanisms used for 5G ProSe Direct Discovery over PC5, hence the same parameters can be provisioned to the UE (DUSK, DUIK, DUCK, validity timer). This can be seen in TS 33.503 clause 6.3.2 which states the following:*6.3.2 Security requirements**(…)**- For the discovery, the security requirements in subclause 6.1.2 apply.*Also from clause 6.1.3.1 in TS 33.503:*4.         The 5G DDNMF in HPLMN of the Announcing UE returns the ProSe Application Code that the Announcing UE can announce and a Discovery Key associated with it. The 5G DDNMF stores the Discovery Key with the ProSe Application Code. In addition, the 5G DDNMF provides the UE with a CURRENT\_TIME parameter, which contains the current UTC-based time at the 5G DDNMF, a MAX\_OFFSET parameter, and a Validity Timer.*Also from clause 6.1.3.2.2.1 in TS 33.503:*11.       The UE starts announcing, if the UTC-based counter provided by the system associated with the discovery slot is within the MAX\_OFFSET of the Announcing UE's ProSe clock and if the Validity Timer has not expired.*Hence it is required to introduce this validity timer that is used for the security related parameters for discovery, for both Relay UE and Remote UE.It is worth to note that, this validity timer of the security related parameters for discovery is different than the general validity timer for the configuration parameter for 5G ProSe UE-to-network relay or remote UE, because this new timer is specific for security configuration, where it can have different duration than the general validity timer. |
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| ***Summary of change:*** | Introducing the validity timer of the security related parameters for discovery for Relay UE and Remote UE when the control plane solution is used.Also clarifying that, the "security related content for 5G ProSe relay discovery" in clause 5.2.5 are used only for the control plane solution case, since in user plane solution the Relay UE and Remote UE get this information by contacting the 5G PKMF. |
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| ***Consequences if not approved:*** | Validity timer is not implemented, and misalignment with SA3 requirements that mandates having a validity timer for security related parameters for discovery. |
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| ***Clauses affected:*** | 5.2.5, 5.3.2.3, 12.2 |
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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:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

\*\*\*\*\* First change \*\*\*\*\*

### 5.2.5 Configuration parameters for 5G ProSe UE-to-network relay

The configuration parameters for the role of a ProSe UE-to-network relay UE over PC5 reference point consist of:

a) a validity timer for the validity of the configuration parameter for 5G ProSe UE-to-network relay over PC5 interface;

b) a list of PLMNs in which the UE is authorised to relay traffic for 5G ProSe layer-3 remote UEs when the UE is served by NG-RAN, and in each PLMN;

c) a list of PLMNs in which the UE is authorised to relay traffic for 5G ProSe layer-2 remote UEs when the UE is served by NG-RAN, and in each PLMN;

d) the default destination layer-2 ID(s) for sending the discovery signalling for announcement and additional information, and for receiving the discovery signalling for solicitation;

NOTE 1: Which default destination layer-2 ID is selected is up to UE implementation when there are more than one default destination layer-2 ID.

e) a User info ID for the UE-to-network relay discovery;

f) one or more relay service code(s) for the UE-to-network relay discovery, and for each relay service code:

1) security related content for 5G ProSe relay discovery that is used when the security procedure over control plane as specified in 3GPP TS 33.503 [34] is used, including a validity timer for that security related content;

2) an indication of whether the relay service code is offering 5G ProSe layer-2 or layer-3 UE-to-network relay service; and

3) for 5G ProSe layer-3 UE-to-network relay UE, a set of PDU session parameters:

i) PDU Session type;

ii) optionally, DNN;

iii) optionally, SSC Mode;

iv) optionally, S-NSSAI; and

v) optionally, access type preference;

4) for 5G ProSe layer-3 UE-to-network relay UE, security policies for UE-to-network relay direct communication:

i) the signalling integrity protection policy;

ii) the signalling ciphering policy;

iii) the user plane integrity protection policy; and

iv) the user plane ciphering policy;

g) for 5G ProSe layer-3 UE-to-network relay UE, QoS mapping rules including:

1) a mapping between a 5QI value and a 5G ProSe PQI value over PC5 for traffic relayed over the PC5 interface;

2) a PDB adjustment factor of the standardized PDB identified by the PQI; and

3) optionally, the relay service code(s) associated with the QoS mapping rule;

h) the radio parameters of the 5G ProSe UE-to-network relay discovery applicable per geographical area with an indication of whether these radio parameters are "operator managed" or "non-operator managed" when the UE is not served by NG-RAN;

i) for 5G ProSe layer-3 UE-to-network relay UE, for Ethernet and Unstructured traffic using IP type PDU session, a list of ProSe identifier(s) to ProSe application server address mapping rule. Each mapping rule contains one or more ProSe identifier(s) and IP address/FQDN and transport layer port number; and

j) the radio parameters of the 5G ProSe direct communication applicable per geographical area with an indication of whether these radio parameters are "operator managed" or "non-operator managed" when the UE is not served by NG-RAN; and

k) optionally, the ProSe key management function (PKMF) address.

The configuration parameters for the role of a 5G ProSe remote UE consist of:

a) a validity timer for the validity of the configuration parameters for 5G ProSe remote UE;

b) an indication whether the UE is authorized to use a 5G ProSe layer-3 UE-to-network relay UE;

c) a list of PLMNs in which the UE is authorized to use a 5G ProSe layer-2 UE-to-network relay UE;

d) default destination layer-2 ID(s) for sending the discovery signalling for solicitation, and for receiving the discovery signalling for announcement and additional information;

NOTE 2: Which default destination layer-2 ID is selected is up to UE implementation when there are more than one default destination layer-2 ID.

e) a User info ID for the UE-to-network relay discovery;

f) one or more relay service code(s) for the UE-to-network relay discovery, and for each relay service code:

1) security related content for 5G ProSe relay discovery that is used when the security procedure over control plane as specified in 3GPP TS 33.503 [34] is used, including a validity timer for that security related content;

2) an indication of whether the relay service code is offering 5G ProSe layer-2 or layer-3 UE-to-network relay service; and

3) for 5G ProSe remote UE using 5G ProSe layer-3 UE-to-network relays, one of the following:

i) a set of PDU session parameters for the relayed traffic without using N3IWF access:

A) PDU Session type;

B) optionally, DNN;

C) optionally, SSC Mode;

D) optionally, S-NSSAI; and

E) optionally, access type preference; or

ii) an indication of using N3IWF access for the relayed traffic;

4) for 5G ProSe remote UE using 5G ProSe layer-3 UE-to-network relays, security policies for UE-to-network relay direct communication:

i) the signalling integrity protection policy;

ii) the signalling ciphering policy;

iii) the user plane integrity protection policy; and

iv) the user plane ciphering policy;

g) the radio parameters of the 5G ProSe Relay Discovery applicable per geographical area with an indication of whether these radio parameters are "operator managed" or "non-operator managed" when the UE is not served by NG-RAN;

h) the radio parameters of the 5G ProSe direct communication applicable per geographical area with an indication of whether these radio parameters are "operator managed" or "non-operator managed" when the UE is not served by NG-RAN;

NOTE 3: Whether a frequency band is "operator managed" or "non-operator managed" in a given Geographical Area is defined by local regulations.

i) the N3IWF selection information for 5G ProSe layer-3 remote UE:

1) N3IWF identifier configuration (either FQDN or IP address); and

2) 5G ProSe layer-3 UE-to-network relays, access node selection information consists of a prioritized list of PLMNs for N3IWF selection and an indication that the selection of an N3IWF in a PLMN should be based on Tracking Area Identity FQDN or on Operator Identifier FQDN; and

j) optionally, the PKMF address.

\*\*\*\*\* Next change \*\*\*\*\*

#### 5.3.2.3 UE-requested ProSeP policy provisioning procedure accepted by the network

Handling in 3GPP TS 24.587 [18] clause 5.3.2.3 shall apply.

If new UE policies for 5G ProSe direct discovery are included in the MANAGE UE POLICY COMMAND message, the UE shall stop timer T5051 if it is running and start timer T5051 with the value included in the UE policies for 5G ProSe direct discovery, and start using the new UE policies for 5G ProSe direct discovery included in the MANAGE UE POLICY COMMAND message.

If new UE policies for 5G ProSe direct communications are included in the MANAGE UE POLICY COMMAND message, the UE shall stop timer T5052 if it is running and start timer T5052 with the value included in the UE policies for 5G ProSe direct communications, and start using the new UE policies for 5G ProSe direct communications included in the MANAGE UE POLICY COMMAND message.

If new UE policies for 5G ProSe UE-to-network relay UE are included in the MANAGE UE POLICY COMMAND message, the UE shall stop timer T5053 if it is running and start timer T5053 with the value included in the UE policies for 5G ProSe UE-to-network relay UE, and start using the new UE policies for 5G ProSe UE-to-network relay UE included in the MANAGE UE POLICY COMMAND message. If the security related parameters for discovery are included in the new UE policies for 5G ProSe UE-to-network relay UE in the MANAGE UE POLICY COMMAND message and the security procedure over control plane as specified in 3GPP TS 33.503 [34] is used, the UE shall stop timer T50xz if it is running and start timer T50xz with the value included in the security related parameters for discovery, and start using the security related parameters for discovery included in the new UE policies for 5G ProSe remote UE.

If new UE policies for 5G ProSe remote UE are included in the MANAGE UE POLICY COMMAND message, the UE shall stop timer T5054 if it is running and start timer T5054 with the value included in the UE policies for 5G ProSe remote UE, and start using the new UE policies for 5G ProSe remote UE included in the MANAGE UE POLICY COMMAND message. If the security related parameters for discovery are included in the new UE policies for 5G ProSe remote UE in the MANAGE UE POLICY COMMAND message and the security procedure over control plane as specified in 3GPP TS 33.503 [34] is used, the UE shall stop timer T50xz if it is running and start timer T50xz with the value included in the security related parameters for discovery, and start using the security related parameters for discovery included in the new UE policies for 5G ProSe remote UE.

\*\*\*\*\* Next change \*\*\*\*\*

## 12.2 Timers of provisioning of parameters for 5G ProSe configuration procedures

Timers of provisioning of parameters for 5G ProSe configuration are shown in table 12.2.1.

NOTE: Timer T5040 is defined in 3GPP TS 24.587 [18].

Table 12.2.1: Timers of provisioning of parameters for 5G ProSe configuration – UE side

| TIMER NUM. | TIMER VALUE | CAUSE OF START | NORMAL STOP | ON EXPIRY |
| --- | --- | --- | --- | --- |
| T5051 | Validity timer value for UE policies for 5G ProSe direct discovery over PC5 (see clause 5.2), which is specified in 3GPP TS 24.555 [17] clause 5.3. | Start using the new UE policies for 5G ProSe direct discovery received in MANAGE UE POLICY COMMAND message | Stop using the old UE policies for 5G ProSe direct discovery | Initiate the UE-requested ProSeP provisioning procedure(NOTE 1) |
| T5052 | Validity timer value for UE policies for 5G ProSe direct communication over PC5 (see clause 5.2), which is specified in 3GPP TS 24.555 [17] clause 5.4. | Start using the new UE policies for 5G ProSe direct communications received in MANAGE UE POLICY COMMAND message | Stop using the old UE policies for 5G ProSe direct communications | Initiate the UE-requested ProSeP provisioning procedure(NOTE 1) |
| T5053 | Validity timer value for UE policies for 5G ProSe UE-to-network relay UE (see clause 5.2), which is specified in 3GPP TS 24.555 [17] clause 5.5. | Start using the new UE policies for 5G ProSe UE-to-network relay received in MANAGE UE POLICY COMMAND message | Stop using the old UE policies for 5G ProSe UE-to-network relay | Initiate the UE-requested ProSeP provisioning procedure(NOTE 1) |
| T5054 | Validity timer value for UE policies for 5G ProSe remote UE (see clause 5.2), which is specified in 3GPP TS 24.555 [17] clause 5.6. | Start using the new UE policies for 5G ProSe Remote UE received in MANAGE UE POLICY COMMAND message | Stop using the old UE policies for 5G ProSe Remote UE | Initiate the UE-requested ProSeP provisioning procedure(NOTE 1) |
| T50xy | Validity timer value for the security related parameters at the 5G ProSe UE-to-network relay UE, used for UE-to-network relay discovery when the security procedure over control plane as specified in 3GPP TS 33.503 [34] is used (see clause 5.2), which is specified in 3GPP TS 24.555 [17] clause 5.5. | Start using the security related parameters for discovery in the new UE policies for 5G ProSe UE-to-network relay UE received in MANAGE UE POLICY COMMAND message | Stop using the security related parameters for discovery in the old UE policies for 5G ProSe UE-to-network relay UE | Consider the existing configured security related parameters for discovery as invalid |
| T50xz | Validity timer value for the security related parameters at the 5G ProSe remote UE, used for UE-to-network relay discovery when the security procedure over control plane as specified in 3GPP TS 33.503 [34] is used (see clause 5.2), which is specified in 3GPP TS 24.555 [17] clause 5.6. | Start using the security related parameters for discovery in the new UE policies for 5G ProSe remote UE received in MANAGE UE POLICY COMMAND message | Stop using the security related parameters for discovery in the old UE policies for 5G ProSe remote UE | Consider the existing configured security related parameters for discovery as invalid |
| NOTE 1: The timers expire only once. |

\*\*\*\*\* End of changes \*\*\*\*\*