**3GPP TSG-CT WG1 Meeting #123-eC1-202xxx**

**Electronic meeting, 16-24 April 2020 *was* C1-202293**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.502** | **CR** | **0126** | **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 |  |

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| ***Title:*** | Error type on failure of reserving QoS resources over non-3GPP access | | | | | | | | | |
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| ***Source to WG:*** | ZTE | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5WWC | | | | |  | ***Date:*** | | | 2020-04-18 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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)* | |
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| ***Reason for change:*** | | According to the description of the PDU session establishment and modification procedures via non-3GPP access (e.g. as specified in subclause 4.12a.5 of TS23.502), if the UE fails to reserve QoS resources over non-3GPP access for the QoS flows associated with the child SA (e.g. because the non-3GPP access network rejects the allocation of the requested bit rates), the UE shall reject the IKEv2 Child SA Request or indicate the failure in the IKEv2 Informational response.  Therefore, an error type needs to be defined to indicate the reason of the failure. | | | | | | | | |
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| ***Summary of change:*** | | Define an Error Type NO\_RESOURCES\_OVER\_N3P for the UE to indicate the failure of reserving the QoS resources over non-3GPP access for the QoS flows associated with the child SA. | | | | | | | | |
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| ***Consequences if not approved:*** | | The network is not able to deal with the response correctly (e.g. TNGF includes the list of QoS flows to the AMF) if the UE does not indicate the network with an appropriate error type. | | | | | | | | |
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| ***Clauses affected:*** | | 7.5.4, 7.6.2, 7.6.3, 9.2.4.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

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

### 7.5.4 Child SA creation procedure not accepted by the UE

If a user plane IPsec SA establishment for a PDU session is not accepted by the UE, the UE shall send a CREATE\_CHILD\_SA response message to the N3IWF for untrusted non-3GPP access and the TNGF for trusted non-3GPP access with a Notify payload with error type.

If the UE fails to reserve QoS resources over non-3GPP access for the QoS flows associated with the child SA according to the additional QoS information in the 5G\_QOS\_INFO Notify payload, the UE shall include a Notify payload with a Private Notify Message Error Type "NO\_RESOURCES\_OVER\_N3GPP" as defined in subclause 9.2.4.2 in the CREATE\_CHILD\_SA response message.

Upon receiving the CREATE\_CHILD\_SA response message with a Notify payload of error type:

- if PDU session establishment over non-3GPP access requires single user plane SA IPsec SA creation, the N3IWF for untrusted non-3GPP access and the TNGF for trusted non-3GPP access shall stop user plane SA IPsec SA creation procedure and indicate the failure for PDU session establishment over non-3GPP access.

- if PDU session establishment over non-3GPP access requires multiple user plane SA IPsec SA creation, the N3IWF for untrusted non-3GPP access and the TNGF for trusted non-3GPP access may choose to continue user plane SA IPsec SA creation procedure for other user plane IPsec SAs, or stop user plane SA IPsec SA creation procedure and indicate the failure for PDU session establishment over non-3GPP access.

If the CREATE\_CHILD\_SA request message contains a USE\_TRANSPORT\_MODE notification, the UE shall decline the request by not including USE\_TRANSPORT\_MODE notification as specified in IETF RFC 7296 [6].

\* \* \* 2nd Change \* \* \* \*

### 7.6.2 N3IWF and TNGF procedure for IPsec child SA modification

The N3IWF for untrusted non-3GPP access and the TNGF for trusted non-3GPP access shall perform the IPsec child SA modification by sending an INFORMATIONAL request message as specified in IETF RFC 7296 [6] to the UE with an 5G\_QOS\_INFO Notify payload indicating modified content associated with the IPsec child SA.

\* \* \* 3rd Change \* \* \* \*

### 7.6.3 UE procedure for IPsec child SA modification

Upon receipt of an INFORMATIONAL request message containing an 5G\_QOS\_INFO Notify payload:

a) if the content of the 5G\_QOS\_INFO Notify payload is accepted by the UE, the UE shall:

i) send an empty INFORMATIONAL response message to the N3IWF for untrusted non-3GPP access and the TNGF for trusted non-3GPP access to acknowledge the reception of the INFORMATIONAL request message; and

ii) update locally the IPsec child SA according to the content of the INFORMATIONAL request message; or

b) if the content of the 5G\_QOS\_INFO Notify payload is not accepted by the UE, the UE shall:

i) send the reason for rejecting the IPsec SA modification in the content of an INFORMATIONAL response message; and

ii) not update locally the IPsec child SA according to the content of the INFORMATIONAL request message.

If the UE fails to reserve QoS resources over non-3GPP access for the QoS flows associated with the child SA according to the additional QoS information in the 5G\_QOS\_INFO Notify payload, the UE shall include a Notify Payload with a Private Notify Message Error Type "NO\_RESOURCES\_OVER\_N3P" as defined in clause 9.2.4.2 in the INFORMATIONAL response message.

\* \* \*4th Change \* \* \* \*

#### 9.2.4.2 Private Notify Message - Error Types

The Private Notify Message Error Types defined in table 9.2.4.2-1 are error notifications which indicates an error while negotiating an IKEv2 SA or IPsec SA. Refer to table 9.2.4.2-1 for more details on what each error type means.

Table 9.2.4.2-1: Private Error Types

|  |  |  |
| --- | --- | --- |
| Notify Message | Value (in decimal) | Descriptions |
| CONGESTION | 15500 | This error type is used to indicate that the requested service was rejected because of congestion in the network. |
| NO\_RESOURCES\_OVER\_N3GPP | xxxxx | This error type is used by the UE to indicate the failure of reserving the QoS resources over non-3GPP access for the QoS flows associated with the child SA. |
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In the present specification, only the private notify message error type values between 15500 and 15599 shall be allocated to a Notify payload.

The private notify message error type values:

- between 9950 and 9999;

- between 10950 and 10999;

- between 11950 and 11999;

- between 12950 and 12999;

- between 13950 and 13999; and

- between 14950 and 14999;

shall not be allocated to a Notify payload defined in the present specification.

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