**3GPP TSG-CT WG1 Meeting #137-eC1-224770**

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

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.587** | **CR** | 0257 | **rev** | **1** | **Current version:** | **17.6.0** |  |
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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:*** | New rejection cause for UE policy provisioning reject | | | | | | | | | |
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| ***Source to WG:*** | Qualcomm Incorporated | | | | | | | | | |
| ***Source to TSG:*** | CT1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5G\_ProSe, eV2XARC, TEI18 | | | | |  | ***Date:*** | | | 2022-08-08 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The UE can send a UE POLICY PROVISIONING REQUEST for requesting V2X policy or ProSe policy. The PCF shall be able to reject the request if there is no UE policy section for the UE requested policy.  If there is no available policy at the PCF for the requested policy, then the PCF rejects the request. However, the UE is not restricted from re-requesting the V2XP or ProSeP again. If the UE repeats the request regardless of earlier rejection, this can lead unnecessary signalling.  Therefore, it is proposed to add a new cause value for rejection if there is no available policy for the UE’s request, and the UE operation once it receives the cause value.  The UE operation after receiving the cause value should take into account the fact that there can be cases when the UE shall be able to send a UE POLICY PROVISIONING REQUEST again. For example, if the UE moves, the UE might start being served by a different PCF with different configuration, and then the UE should be able to request again. E.g., if the network is non-homogenous and there are areas with some PCFs (where requesting V2XP and ProSeP is NOT supported) and with areas with some Rel-16 PCFs (where requesting V2XP is supported). In such case, if the UE is informed that a UE policy is not available for requesting in TA served by the PCF (where requesting V2XP and ProSeP is NOT supported) and then moves to TA served by Rel-16 PCF (where requesting V2XP is supported), then the UE should not be unnecessarily blocked from requesting V2XP. Also note that it is not guranteed that PCF shall send MANAGE UE POLICY COMMAND when there is an update of the UE policy (or change of availability) immediately, so the UE may stay with the lack of policies for a while even though the policy is available, which causes service interruption.  In order to avoid a complicated method to resolve the above issue, it is proposed to specify UE implementation options by taking care of the case with the best interest for the UE not requesting the policy unnecessarily frequently. For the UE abusing this flexibility, congestion control mechanism shall be applied.  For the case only a part of the requested UE policy is available at the PCF, the PCF shall send MANAGE UE POLICY COMMAND with the available policy. The UE may send another UE POLICY PROVISIONING REQUEST message for the polices that the UE hasn’t received yet. In this case, the PCF will reject the request with the new proposed cause value and the UE will not re-attempt again unless the restriction condition is released. | | | | | | | | |
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| ***Summary of change:*** | | Adding new cause value "requested UE policy not available" and elaborating on UE implementation option to re-attempt UE POLICY PROVISIONING REQUEST. | | | | | | | | |
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| ***Consequences if not approved:*** | | There is no appropriate rejection cause and no specified operation at the PCF and UE if there is no available policy. | | | | | | | | |
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| ***Clauses affected:*** | | 5.3.2.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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\*\*\*\*\*

#### 5.3.2.4 UE-requested V2X policy provisioning procedure not accepted by the network

Upon receipt and rejecting of the UE POLICY PROVISIONING REQUEST message, the PCF shall create a UE POLICY PROVISIONING REJECT message.

The PCF shall set the UPDS cause IE of the UE POLICY PROVISIONING REJECT message to indicate reason for rejecting the UE-requested V2X policy provisioning procedure.

The UPDS cause IE typically indicates one of the following UPDS cause values:

#31 request rejected, unspecified;

#32 service option not supported;

#34 service option temporarily out of order;

#35 PTI already in use;

#36 requested UE policy not available; or

#95 – 111 protocol errors.

The PCF shall transport the UE POLICY PROVISIONING REJECT message to the UE via the AMF using the procedure specified in 3GPP TS 23.502 [4].

The PCF shall set the UPDS cause IE to #36 (requested UE policy not available) if there is no available UE policy section(s) for the requested UE policy from the UE.

Upon receipt of the UE POLICY PROVISIONING REJECT message, the UE shall stop timer T5040.

If the UPDS cause value is #36 "requested UE policy not available", the UE should refrain from sending a UE POLICY PROVISIONING REQUEST message for the same UE policies that the UE has requested to the PCF until:

1) the UE is switched off;

2) the UICC with USIM application is removed; or

3) the network requested UE policy management procedure is initiated as specified in in 3GPP TS 24.501 [6], annex D.2.1.2.

NOTE: The UE can send a UE POLICY PROVISIONING REQEST message for the same UE policies that the UE has been rejected due to #36 "requested UE policy not available" based on implementation specific triggers (e.g. if the UE has not been received the UE policies from the network for a while and there is a change of tracking area, or change of PLMN, etc.).

\*\*\*\*\*SECOND CHANGE\*\*\*\*\*

### 8.3.1 UPDS cause

The purpose of the UPDS cause information element is to indicate the reason why a UPDS request is rejected.

The UPDS cause information element is coded as shown in figure 8.3.1.1 and table 8.3.1.1.

The UPDS cause is a type 3 information element with 2 octets length.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| UPDS cause IEI | | | | | | | | octet 1 |
| Cause value | | | | | | | | octet 2 |

Figure 8.3.1.1: UPDS cause information element

Table 8.3.1.1: UPDS cause information element

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cause value (octet 2) | | | | | | | | | |
|  | | | | | | | | | |
| Bits | | | | | | | | | |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
| 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 |  | Request rejected, unspecified |
| 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |  | Service option not supported |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |  | Service option temporarily out of order |
| 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |  | PTI already in use |
| 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |  | Requested UE policy not available |
| 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 |  | Semantically incorrect message |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |  | Invalid mandatory information |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |  | Message type non-existent or not implemented |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |  | Message type not compatible with the protocol state |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 |  | Information element non-existent or not implemented |
| 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |  | Conditional IE error |
| 0 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |  | Protocol error, unspecified |
|  |  |  |  |  |  |  |  |  |  |
| Any other value received by the UE shall be treated as 0010 0010, "service option temporarily out of order". Any other value received by the network shall be treated as 0110 1111, "protocol error, unspecified". | | | | | | | | | |
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\*\*\*\*\*END OF CHANGE\*\*\*\*\*