**3GPP TSG-CT WG1 Meeting #133e-bisC1-22abcd**

**E-meeting, 17-21 Jauary 2022 (was C1-220277)**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.193** | **CR** | **0081** | **rev** | **1** | **Current version:** | **17.3.0** |  |
|  | | | | | | | | |
| *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:*** | Addition of UE assistance data termination procedure supervision | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, Nokia, Nokia Shanghai Bell, ZTE, Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | ATSSS\_Ph2 | | | | |  | ***Date:*** | | | 2022-01-10 |
|  |  | | | |  | |  | | |  |
| ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | It is proposed to add supervision of the UE assistance data termination procedure so that the UE can retry informing the UPF of traffic distribution under UE assistance, if messages are lost. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | UE retransmission timer of receiving a PMFP UAT COMPLETE message.  UE retransmission behavior at retransmission timer timeout. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UPF may not be informed of UE change in traffic distribution under UE assistance. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.4.a, 5.4.a.1, 5.4.a.2, 5.4.9.3 (new), 5.4.9.x (new), 6.2.1.b, 6.2.1.b.1, 6.2.1.c, 6.2.1.c.1, 7.2, 8.3.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

### 5.4.9 UE assistance data termination procedure

#### 5.4.9.1 General

The purpose of the UE assistance data termination procedure is to enable the UE to inform the UPF that the UE assistance data operation is terminated and the UE performs UL traffic distribution according to load balancing percentages of the ATSSS rule received from the network.

If the UE decides to terminate the UE assistance data operation and instead use the percentages indicated in the load balancing steering mode of the ATSSS rules, the UE sends a PMFP UAT command message to the UPF.

NOTE: It is based on UE implementation how the UE decides to terminate applying UL traffic distribution different from the percentages indicated in the load balancing steering mode of the ATSSS rules.

Editor's note [ATSSS\_Ph2, CR#0064]: Whether the UE uses the percentages of the SDF traffic transmitted over 3GPP access and non-3GPP access indicated in the load balancing steering mode or the percentages of the load balancing steering mode (not SDF) is FFS.

#### 5.4.9.2 UE assistance data termination procedure initiation

In order to initiate a UE assistance data termination procedure over an access of an MA PDU session, the UE shall:

a) allocate an EPTI value as specified in clause 5.4.2.2;

b) create a PMF UAT COMMAND message; and

c) set the EPTI IE of the PMFP UAT COMMAND message to the allocated EPTI value.

Upon sending the PMFP UAT COMMAND message the UE shall start a timer T10x.



Figure 5.4.9.1-1: UE assistance data termination procedure

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

#### 5.4.9.3 UE assistance data termination received by the network

On receipt of a PMFP UAT command message, the UPF shall remove the DL steering information, if created for a previous UE assistance data operation, and shall perform DL traffic distribution according to the load balancing percentages without UE assistance operation. Furthermore, the UPF shall create a PMFP UAT COMPLETE message. In the PMFP UAT COMPLETE message, the UPF shall set the EPTI IE to the EPTI value in the PMFP UAT COMMAND message. The UPF shall send the PMFP UAT COMPLETE message over the access of the MA PDU session via which the PMFP UAT COMMAND message was received.

Upon reception of a PMFP UAT COMPLETE message with the same EPTI as the allocated EPTI value, the UE shall stop the timer T10x.

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

#### 5.4.9.x Abnormal cases in the UE

The following abnormal cases can be identified:

a) Expiry of the timer T10x

The UE shall, on the first, second, third and fourth expiry of the timer T10x, retransmit the PMFP UAT COMMAND message and shall reset and start timer T10x. On the fifth expiry of timer T10x, the UE shall abort the procedure.

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

#### 6.2.1.11 PMFP UAT command

##### 6.2.1.11.1 Message definition

The PMFP UAT COMMAND message is sent by the UE to the UPF in order to terminate the UE assistance operation to the UPF.

See table 6.2.1.11.1-1.

Message type: PMFP UAT COMMAND

Significance: dual

Direction: UE to network

Table 6.2.1.11.1-1: PMFP UAT COMMAND message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | PMFP UAT command message identity | Message type  6.2.2.1 | M | V | 1 |
|  | EPTI | Extended procedure transaction identity  6.2.2.2 | M | V | 2 |

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

#### 6.2.1.12 PMFP UAT complete

##### 6.2.1.12.1 Message definition

The PMFP UAT COMPLETE message is sent by the UPF to the UE.

See table 6.2.1.12.1-1.

Message type: PMFP UAT COMPLETE

Significance: dual

Direction: network to UE

Table 6.2.1.12.1-1: PMFP UAT COMPLETE message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | PMFP UAT complete message identity | Message type  6.2.2.1 | M | V | 1 |
|  | EPTI | Extended procedure transaction identity  6.2.2.2 | M | V | 2 |

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

## 7.2 Timers of performance measurement function (PMF) protocol (PMFP)

Timers of PMFP are shown in table 7.2-1 and table 7.2-2.

Table 7.2-1: Timers of PMFP – UE side

| TIMER NUM. | | TIMER VALUE | | CAUSE OF START | | NORMAL STOP | | ON  THE  1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T101 | | 1s | | Transmission of the first PMFP ECHO REQUEST message | | A PMFP ECHO RESPONSE message received for each sent PMFP ECHO REQUEST message | | Abort of the procedure. | |
| T102 | | NOTE 2 | | Transmission of PMFP ACCESS REPORT message | | PMFP ACKNOWLEDGEMENT message with the same EPTI is received | | Retransmission of PMFP ACCESS REPORT message | |
| T103 | | 1s | | Transmission of PMFP PLR COUNT REQUEST message | | PMFP PLR COUNT RESPONSE message with the same EPTI is received | | Abort of the procedure. | |
| T104 | | 1s | | Transmission of PMFP PLR REPORT REQUEST message | | PMFP PLR REPORT RESPONSE message with the same EPTI is received | | Abort of the procedure. | |
| T10x | | 1s | | Transmission of PMFP UAT COMMAND message | | PMFP UAT COMPLETE message with the same EPTI is received | | Retransmission of PMFP UAT COMMAND message | |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: Initial timer value is 500 milliseconds. The timer value doubles after each timer expiry, until set to 4 seconds. | | | | | | | | | |

Table 7.2-2: Timers of PMFP – UPF side

| TIMER NUM. | | TIMER VALUE | | CAUSE OF START | | NORMAL STOP | | ON  THE  1st, 2nd, 3rd, 4th EXPIRY (NOTE 1) | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T201 | | NOTE 2 | | Transmission of the first PMFP ECHO REQUEST message | | A PMFP ECHO RESPONSE message received for each sent PMFP ECHO REQUEST message | | Abort of the procedure. | |
| T203 | | 1s | | Transmission of PMFP PLR COUNT REQUEST message | | PMFP PLR COUNT RESPONSE message with the same EPTI is received | | Abort of the procedure. | |
| T204 | | 1s | | Transmission of PMFP PLR REPORT REQUEST message | | PMFP PLR REPORT RESPONSE message with the same EPTI is received | | Abort of the procedure. | |
| NOTE 1: Typically, the procedures are aborted on the fifth expiry of the relevant timer. Exceptions are described in the corresponding procedure description.  NOTE 2: The value of this timer is network dependent. | | | | | | | | | |

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

### 8.3.1 Extended procedure transaction identity (EPTI)

The following network procedures shall apply for handling an unknown, erroneous, or unforeseen EPTI received in a PMFP message:

a) In case the network receives a PMFP ECHO RESPONSE message in which the EPTI value does not match any EPTI in use, the network shall ignore the PMFP message.

The following UE procedures shall apply for handling an unknown, erroneous, or unforeseen EPTI received in a PMFP message:

a) In case the UE receives a PMFP ECHO RESPONSE message, a PMFP UAT COMPLETE message or a PMFP ACKNOWLEDGEMENT message in which the EPTI value does not match any EPTI in use, the UE shall ignore the PMFP message.

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