**3GPP TSG-CT WG1 Meeting #128-eC1-21xxxx**

**Electronic meeting, 25 February – 5 March 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.501** | **CR** | **3062** | **rev** | **1** | **Current version:** | **16.7.0** |  |
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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:*** | Local IP address in TFT negotiation in 5GS for 5G-4G interworking | | | | | | | | | |
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| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GProtoc16 | | | | |  | ***Date:*** | | | 2021-02-10 |
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| ***Category:*** | **F** |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | The local IP address used as packet filter component type is supported in 4G and 5G, and also used in 4G-5G interworking. However, the support and the use of this feature is not consistent between 4G and 5G.  Based on the discussion given in disc paper C1-210987, following observations were provided:  **Observation #1. In 4G, the local IP address can only be used in the TFT as packet filter component type when both the UE and the network has negotiated to support it.**  **Observation #2. In 5G, the local IP address in QoS rules was supported since Rel-15 and can be used by the UE and the network without capability negotiation.**  **Observation #3. For 4G-5G interworking, the UE shall always deem that the network supports local IP address in TFT in 4G.**  Based on above observations, below problem was identified:  **Problem: As the UE does not support local IP address in TFT in 4G, after inter-system change from N1 mode to S1 mode, all UL/DL user data transport in 4G is not available over these mapped EPS bearer contexts including packet filter list with local IP address type in TFT.**  To resolve above problem, below proposals were provided:  **Proposal #1: The UE operating in single-registration mode in a network supporting N26 interface shall also indicate its support of Local address in TFT during the PDU session establishment procedure in 5G for a PDU session supporting interworking with EPS.**  **Proposal #2: To adopt the solution in Proposal #1 since Rel-16.**  Based on the backword compatibility considerations given in disc paper C1-210987 section 2.6, we believe this is an FASMO issue and propose to cover it since Rel-16. | | | | | | | | |
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| ***Summary of change:*** | | It proposes to capture above proposals in reason for change since Rel-16. | | | | | | | | |
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| ***Consequences if not approved:*** | | The local IP address in TFT feature cannot be used well for 5G-4G interworking. | | | | | | | | |
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| ***Clauses affected:*** | | 6.1.4.1, 6.4.1.2, 9.11.4.8 | | | | | | | | |
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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 \* \* \* \*

#### 6.1.4.1 Coordination between 5GSM and ESM with N26 interface

Interworking with EPS is supported for a PDU session, if the PDU session includes the mapped EPS bearer context(s) or has association(s) between QoS flow and mapped EPS bearer after inter-system change from S1 mode to N1 mode. The SMF shall not include any mapped EPS bearer contexts associated with a PDU session for LADN and with a PDU session which is a multi-homed IPv6 PDU session. See coding of the Mapped EPS bearer contexts IE in subclause 9.11.4.8. In an MA PDU session, the UE shall have one set of the mapped EPS bearer contexts. The network can provide the set of the mapped EPS bearer contexts of the MA PDU session via either access of the MA PDU session. In an MA PDU session, the UE shall support modification or deletion via an access of a mapped EPS bearer context of the MA PDU session created via the same or the other access.

Upon inter-system change from N1 mode to S1 mode, the UE shall create the default EPS bearer context and the dedicated EPS bearer context(s) based on the parameters of the mapped EPS bearer contexts or the associations between QoS flow and mapped EPS bearer in the PDU session, if available. The EPS bearer identity assigned for the QoS flow of the default QoS rule becomes the EPS bearer identity of the default bearer in the corresponding PDN connection. If there is no EPS bearer identity assigned to the QoS flow of the default QoS rule of a PDU session associated with 3GPP access:

a) the PDU session is not an MA PDU session established over both 3GPP access and non-3GPP access, the UE shall perform a local release of the PDU session; or

b) the PDU session is an MA PDU session established over both 3GPP access and non-3GPP access, the UE shall perform a local release of the PDU session over 3GPP access and consider that the MA PDU session is established over non-3GPP access only.

If there is no EPS bearer identity assigned to the QoS flow(s) of a PDU session associated with 3GPP access which is not associated with the default QoS rule, unless the UE is the 5G-RG and the PDU session is an MA PDU session established over 3GPP access and over wireline access, the UE shall locally delete the QoS rules and the QoS flow description(s). The UE uses the parameters from each PDU session for which interworking with EPS is supported to create corresponding default EPS bearer context and optionally dedicated EPS bearer context(s) as follows:

a) the PDU session type of the PDU session shall be mapped to the PDN type of the default EPS bearer context as follows:

1) the PDN type shall be set to "non-IP" if the PDU session type is "Unstructured";

2) the PDN type shall be set to "IPv4" if the PDU session type is "IPv4";

3) the PDN type shall be set to "IPv6" if the PDU session type is "IPv6";

4) the PDN type shall be set to "IPv4v6" if the PDU session type is "IPv4v6";

5) the PDN type shall be set to "non-IP" if the PDU session type is "Ethernet", and the UE, the network or both of them do not support Ethernet PDN type in S1 mode; and

6) the PDN type shall be set to "Ethernet" if the PDU session type is "Ethernet" and the UE and the network support Ethernet PDN type in S1 mode;

b) the PDU address of the PDU session shall be mapped to the PDN address of the default EPS bearer context as follows:

1) the PDN address of the default EPS bearer context is set to the PDU address of the PDU session, if the PDU session type is "IPv4", "IPv6" or "IPv4v6"; and

2) the PDN address of the default EPS bearer context is set to zero, if the PDU session type is "Ethernet" or "Unstructured";

c) the DNN of the PDU session shall be mapped to the APN of the default EPS bearer context;

d) the APN-AMBR and extended APN-AMBR received in the parameters of the default EPS bearer context of the mapped EPS bearer contexts shall be mapped to the APN-AMBR and extended APN-AMBR of the default EPS bearer context;

e) for each PDU session in state PDU SESSION ACTIVE, PDU SESSION MODIFICATION PENDING or PDU SESSION INACTIVE PENDING:

1) if the UE is performing an inter-system change from N1 mode to WB-S1 mode, the UE shall set the state of the mapped EPS bearer context(s) to BEARER CONTEXT ACTIVE; or

2) if the UE is performing an inter-system change from N1 mode to NB-S1 mode, for the mapped EPS bearer context corresponding to the default EPS bearer, the UE shall set the state of the mapped EPS bearer context to BEARER CONTEXT ACTIVE. Additionally, if the UE is performing an inter-system change from WB-N1 mode to NB-S1 mode, for the mapped EPS bearer context corresponding to a dedicated EPS bearer, if any, the UE shall set the state of the mapped EPS bearer context to BEARER CONTEXT INACTIVE; and

f) for any other PDU session the UE shall set the state of the mapped EPS bearer context(s) to BEARER CONTEXT INACTIVE.

Additionally, for each mapped EPS bearer context or the association between QoS flow and mapped EPS bearer in the PDU session:

a) the EPS bearer identity shall be set to the EPS bearer identity received in the mapped EPS bearer context, or the EPS bearer identity associated with the QoS flow;

b) the EPS QoS parameters shall be set to the mapped EPS QoS parameters of the EPS bearer received in the mapped EPS bearer context, or the EPS QoS parameters associated with the QoS flow;

c) the extended EPS QoS parameters shall be set to the mapped extended EPS QoS parameters of the EPS bearer received in the mapped EPS bearer context, or the extended EPS QoS parameters associated with the QoS flow; and

d) the traffic flow template shall be set to the mapped traffic flow template of the EPS bearer received in the mapped EPS bearer context, or the stored traffic flow template associated with the QoS flow, if available.

After inter-system change from N1 mode to S1 mode, the UE shall associate the PDU session identity, the S-NSSAI, and the session-AMBR with the default EPS bearer context, and for each EPS bearer context mapped from one or more QoS flows, associate the QoS rule(s) for the QoS flow(s) and the QoS flow description(s) for the QoS flow(s) with the EPS bearer context.

If the PDU session is associated with the control plane only indication and supports interworking with EPS, after inter-system change from N1 mode to S1 mode, the UE shall associate the EPS bearer context(s) of the PDN connection corresponding to the PDU session with the control plane only indication.

After inter-system change from N1 mode to S1 mode, the UE and the SMF shall maintain the PDU session type of the PDU session until the PDN connection corresponding to the PDU session is released if the UE supports non-IP PDN type and the PDU session type is "Ethernet" or "Unstructured".

After inter-system change from N1 mode to S1 mode, the UE and the SMF shall maintain the following 5GSM attributions and capabilities associated with the PDU session until the PDN connection corresponding to the PDU session is released:

a) the always-on PDU session indication;

b) the maximum number of supported packet filters;

c) the support of reflective QoS;

d) the maximum data rate per UE for user-plane integrity protection supported by the UE for uplink and the maximum data rate per UE for user-plane integrity protection supported by the UE for downlink;

e) the support of multi-homed IPv6 PDU session; and

f) if the UE is the 5G-RG and the PDU session is an MA PDU session established over 3GPP access, the PDN connection of the default EPS bearer corresponding to the MA PDU session shall be considered as a user-plane resource of the MA PDU session.

After inter-system change from N1 mode to S1 mode, the UE operating in single-registration mode in a network supporting N26 interface shall deem that the following features are supported by the network on the PDN connection corresponding to the PDU session:

a) PS data off; and

b) Local address in TFT.

If there is a QoS flow used for IMS signalling, after inter-system change from N1 mode to S1 mode, the EPS bearer associated with the QoS flow for IMS signalling becomes the EPS bearer for IMS signalling.

When the UE is provided with a new session-AMBR in the Protocol configuration options IE or Extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall discard the corresponding association(s) and associate the new value(s) with the EPS bearer context.

The network may provide the UE with one or more QoS rules by including either one QoS rules parameter, or one QoS rules with the length of two octets parameter, but not both, in the Protocol configuration options IE or Extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message. The network may provide the UE with one or more QoS flow descriptions corresponding to the EPS bearer context being modified, by including either one QoS flow descriptions parameter, or one QoS flow descriptions with the length of two octets parameter, but not both, in the Protocol configuration options IE or Extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message.

When the UE is provided with one or more QoS flow descriptions or the EPS bearer identity of an existing QoS flow description is modified in the Protocol configuration options IE or Extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall check the EPS bearer identity included in the QoS flow description; and:

a) if the EPS bearer identity corresponds to the EPS bearer context being modified or the EPS bearer identity is not included, the UE shall store the QoS flow description and all the associated QoS rules, if any, for the EPS bearer context being modified for use during inter-system change from S1 mode to N1 mode; and

b) otherwise the UE shall locally delete the QoS flow description and all the associated QoS rules, if any, and include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #84 "syntactical error in the QoS operation" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

When the UE is provided with one or more QoS rules, or one or more QoS flow descriptions in the Protocol configuration options IE or Extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall process the QoS rules sequentially starting with the first QoS rule and shall process the QoS flow descriptions sequentially starting with the first QoS flow description. The UE shall check the QoS rules and QoS flow descriptions for different types of errors as follows:

NOTE 1: If an error is detected in a QoS rule or a QoS flow description which requires sending a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause value, then the QoS rules parameter, the QoS rules with the length of two octets parameter, the QoS flow descriptions parameter and the QoS flow descriptions with the length of two octets parameter included in the Protocol configuration options IE or Extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message are discarded, if any.

NOTE 2: If the EPS bearer context modification procedure is rejected, then the QoS rules parameter, the QoS rules with the length of two octets parameter, the QoS flow descriptions parameter and the QoS flow descriptions with the length of two octets parameter included in the Protocol configuration options IE or Extended protocol configuration options IE in the MODIFY EPS BEARER CONTEXT REQUEST message are discarded, if any.

a) Semantic errors in QoS operations:

1) When the rule operation is "Modify existing QoS rule and add packet filters", "Modify existing QoS rule and replace all packet filters", "Modify existing QoS rule and delete packet filters" or "Modify existing QoS rule without modifying packet filters" on the default QoS rule and the DQR bit is set to "the QoS rule is not the default QoS rule".

2) When the rule operation is "Modify existing QoS rule and add packet filters", "Modify existing QoS rule and replace all packet filters", "Modify existing QoS rule and delete packet filters" or "Modify existing QoS rule without modifying packet filters" on a QoS rule which is not the default QoS rule and the DQR bit is set to "the QoS rule is the default QoS rule".

3) When the rule operation is "Create new QoS rule" and the DQR bit is set to "the QoS rule is the default QoS rule" when there's already a default QoS rule with different QoS rule identifier.

4) When the rule operation is "Delete existing QoS rule" on the default QoS rule.

5) When the rule operation is "Create new QoS rule", "Modify existing QoS rule and add packet filters", "Modify existing QoS rule and replace all packet filters", "Modify existing QoS rule and delete packet filters", or "Modify existing QoS rule without modifying packet filters" and two or more QoS rules associated with this PDU session would have identical precedence values.

6) When the rule operation is "Modify existing QoS rule and delete packet filters", the QoS rule is a QoS rule of a PDU session of IPv4, IPv6, IPv4v6 or Ethernet PDU session type, and the packet filter list in the resultant QoS rule is empty.

7) When the rule operation is "Create new QoS rule", and there is already an existing QoS rule with the same QoS rule identifier and the existing QoS rule is associated with a QoS flow description stored for the EPS bearer context being modified or the existing QoS rule is not associated with any QoS flow description.

8) When the rule operation is "Modify existing QoS rule and add packet filters", "Modify existing QoS rule and replace all packet filters", "Modify existing QoS rule and delete packet filters", or "Modify existing QoS rule without modifying packet filters" and there is no existing QoS rule with the same QoS rule identifier.

9) When the rule operation is "Delete existing QoS rule" and there is no existing QoS rule with the same QoS rule identifier.

10) When the flow description operation is "Create new QoS flow description" and there is already an existing QoS flow description with the same QoS flow identifier stored for the EPS bearer context being modified.

11) When the flow description operation is "Modify existing QoS flow description" and there is no existing QoS flow description with the same QoS flow identifier.

12) When the flow description operation is "Delete existing QoS flow description" and there is no existing QoS flow description with the same QoS flow identifier.

13) When the UE determines that:

i) the default EPS bearer context or a dedicated EPS bearer context is associated with one or more QoS flows and the default EPS bearer context is not associated with the default QoS rule.

ii) a dedicated EPS bearer context is associated with the default QoS rule.

14) When the rule operation is "Create new QoS rule", "Modify existing QoS rule and add packet filters", "Modify existing QoS rule and replace all packet filters", "Modify existing QoS rule and delete packet filters", "Modify existing QoS rule without modifying packet filters" or "Delete existing QoS rule" and there is already an existing QoS rule with the same QoS rule identifier associated with a QoS flow description stored for an EPS bearer context different from the EPS bearer context being modified and belonging to the same PDN connection as the EPS bearer context being modified.

15) When the flow description operation is "Create new QoS flow description", "Modify existing QoS flow description" or "Delete existing QoS flow description" and there is already an existing QoS flow description with the same QoS flow identifier stored for an EPS bearer context different from the EPS bearer context being modified and belonging to the same PDN connection as the EPS bearer context being modified.

16) When the rule operation is "Create new QoS rule", "Modify existing QoS rule and add packet filters", "Modify existing QoS rule and replace all packet filters", "Modify existing QoS rule and delete packet filters", or "Modify existing QoS rule without modifying packet filters" and the resultant QoS rule is associated with a QoS flow description stored for an EPS bearer context different from the EPS bearer context being modified.

In case 4, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #83 "semantic error in the QoS operation" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

In case 5, if the old QoS rule (i.e. the QoS rule that existed before the MODIFY EPS BEARER CONTEXT REQUEST message was received) is not the default QoS rule, the UE shall not diagnose an error, shall further process the new request and, if it was processed successfully, shall delete the old QoS rule which has identical precedence value. If the QoS rule is the default QoS rule, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #83 "semantic error in the QoS operation" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

In case 6, if the QoS rule is not the default QoS rule, the UE shall delete the QoS rule. If the QoS rule is the default QoS rule, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #83 "semantic error in the QoS operation" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

In case 7, if the existing QoS rule is not the default QoS rule and the DQR bit of the new QoS rule is set to "the QoS rule is not the default QoS rule", the UE shall not diagnose an error, further process the create request and, if it was processed successfully, delete the old QoS rule (i.e. the QoS rule that existed before the MODIFY EPS BEARER CONTEXT REQUEST message was received). If the existing QoS rule is the default QoS rule or the DQR bit of the new QoS rule is set to "the QoS rule is the default QoS rule", the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #83 "semantic error in the QoS operation" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

In case 9, the UE shall not diagnose an error, further process the delete request and, if it was processed successfully, consider the respective QoS rule as successfully deleted.

In case 10, the UE shall not diagnose an error, further process the create request and, if it was processed successfully, delete the old QoS flow description (i.e. the QoS flow description that existed before the MODIFY EPS BEARER CONTEXT REQUEST message was received).

In case 12, the UE shall not diagnose an error, further process the delete request and, if it was processed successfully, consider the respective QoS flow description as successfully deleted.

Otherwise, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #83 "semantic error in the QoS operation" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

b) Syntactical errors in QoS operations:

1) When the rule operation is "Create new QoS rule", "Modify existing QoS rule and add packet filters", "Modify existing QoS rule and replace all packet filters" or "Modify existing QoS rule and delete packet filters" and the packet filter list in the QoS rule is empty.

2) When the rule operation is "Delete existing QoS rule" or "Modify existing QoS rule without modifying packet filters" with a non-empty packet filter list in the QoS rule.

3) When the rule operation is "Modify existing QoS rule and delete packet filters" and the packet filter to be deleted does not exist in the original QoS rule.

4) Void.

5) When there are other types of syntactical errors in the coding of the QoS rules parameter, the QoS rules with the length of two octets parameter, the QoS flow descriptions parameter or the QoS flow descriptions with the length of two octets parameter, such as a mismatch between the number of packet filters subfield, and the number of packet filters in the packet filter list.

6) When, the

A) rule operation is "Create new QoS rule", "Modify existing QoS rule and add packet filters", "Modify existing QoS rule and replace all packet filters", "Modify existing QoS rule and delete packet filters" or "Modify existing QoS rule without modifying packet filters", the UE determines that there is a resulting QoS rule for a QoS flow, and there is no QoS flow description with a QFI corresponding to the QFI of the resulting QoS rule.

B) flow description operation is "Delete existing QoS flow description", and the UE determines that there is a resulting QoS rule for a QoS flow with a QFI corresponding to the QFI of the QoS flow description that is deleted (i.e. there is no associated QoS flow description with the same QFI).

7) When the flow description operation is "Create new QoS flow description" or "Modify existing QoS flow description", and the UE determines that there is a QoS flow description of a GBR QoS flow (as described in 3GPP TS 23.501 [8] table 5.7.4-1) which lacks at least one of the mandatory parameters (i.e., GFBR uplink, GFBR downlink, MFBR uplink and MFBR downlink).

In case 3 the UE shall not diagnose an error, further process the deletion request and, if no error according to items c and d was detected, consider the respective packet filter as successfully deleted.

Otherwise the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #84 "syntactical error in the QoS operation" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

c) Semantic errors in packet filters:

1) When a packet filter consists of conflicting packet filter components which would render the packet filter ineffective, i.e. no IP packet will ever fit this packet filter. How the UE determines a semantic error in a packet filter is outside the scope of the present document.

The UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #44 "semantic errors in packet filter(s)" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

d) Syntactical errors in packet filters:

1) When the rule operation is "Create new QoS rule", "Modify existing QoS rule and add packet filters" or "Modify existing QoS rule and replace all packet filters", and two or more packet filters in the resultant QoS rule would have identical packet filter identifiers.

2) When there are other types of syntactical errors in the coding of packet filters, such as the use of a reserved value for a packet filter component identifier.

In case 1, if two or more packet filters with identical packet filter identifiers are contained in the MODIFY EPS BEARER CONTEXT REQUEST message, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #45 "syntactical error in packet filter(s)" in the MODIFY EPS BEARER CONTEXT ACCEPT message. Otherwise, the UE shall not diagnose an error, further process the MODIFY EPS BEARER CONTEXT REQUEST message and, if it was processed successfully, delete the old packet filters which have the identical packet filter identifiers.

Otherwise the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #45 "syntactical error in packet filter(s)" in the MODIFY EPS BEARER CONTEXT ACCEPT message.

If the UE detects different errors in the QoS rules and QoS flow descriptions as described in this subclause which requires sending a 5GSM cause parameter in the MODIFY EPS BEARER CONTEXT ACCEPT message, the UE shall include a single 5GSM cause parameter in the MODIFY EPS BEARER CONTEXT ACCEPT message.

NOTE 3: The 5GSM cause to use cannot be different from #44 "semantic error in packet filter(s)", #45 "syntactical errors in packet filter(s)", #83 "semantic error in the QoS operation" or #84 "syntactical error in the QoS operation". The selection of a 5GSM cause is up to UE implementation.

Upon successful completion of an EPS attach procedure or tracking area updating procedure after inter-system change from N1 mode to S1 mode (see 3GPP TS 24.301 [15]), the UE shall delete any UE derived QoS rules of each PDU session which has been transferred to EPS, unless the UE is the 5G-RG and the PDU session is an MA PDU session established over 3GPP access and over wireline access. The UE and the SMF shall perform a local release of the PDU session(s) associated with 3GPP access which have not been transferred to EPS, unless the UE is the 5G-RG and the PDU session is an MA PDU session established over 3GPP access and over wireline access. The UE and the SMF shall perform a local release of QoS flow(s) which have not been transferred to EPS, of the PDU session(s) which have been transferred to EPS, unless the UE is the 5G-RG and the PDU session is an MA PDU session established over 3GPP access and over wireline access.

For PDU session(s) associated with non-3GPP access in 5GS, if present, the UE may:

a) keep some or all of these PDU sessions still associated with non-3GPP access in 5GS, if supported;

b) release some or all of these PDU sessions explicitly by initiating the UE requested PDU session release procedure(s); or

c) attempt to transfer some or all of these PDU sessions from N1 mode to S1 mode by initiating the UE requested PDN connectivity procedure(s) with the PDN CONNECTIVITY REQUEST message created as follows:

1) if the PDU session is an emergency PDU session, the request type shall be set to "handover of emergency bearer services". Otherwise the request type shall be set to "handover";

2) the PDU session type of the PDU session shall be mapped to the PDN type of the default EPS bearer context as follows:

i) the PDN type shall be set to "non-IP" if the PDU session type is "Unstructured";

ii) the PDN type shall be set to "IPv4" if the PDU session type is "IPv4";

iii) the PDN type shall be set to "IPv6" if the PDU session type is "IPv6";

iv) the PDN type shall be set to "IPv4v6" if the PDU session type is "IPv4v6";

v) the PDN type shall be set to "non-IP" if the PDU session type is "Ethernet" and the UE, the network or both of them do not support Ethernet PDN type in S1 mode; and

vi) the PDN type shall be set to "Ethernet" if the PDU session type is "Ethernet" and the UE and the network support Ethernet PDN type in S1 mode;

3) the DNN of the PDU session shall be mapped to the APN of the default EPS bearer context; and

4) the PDU session ID parameter in the PCO IE shall be set to the PDU session identity of the PDU session.

If a PDU session associated with non-3GPP access is transferred to EPS, the UE shall associate the PDU session identity with the default EPS bearer context and shall delete any UE derived QoS rules of such PDU session.

Interworking to 5GS is supported for a PDN connection, if the corresponding default EPS bearer context includes a PDU session identity, an S-NSSAI, if the PDN connection is a non-emergency PDN connection, session AMBR and one or more QoS flow descriptions received in the Protocol configuration options IE or Extended protocol configuration options IE (see 3GPP TS 24.301 [15]), or the default EPS bearer context has association with the PDU session identity, the S-NSSAI, if the PDU session is a non-emergency PDU session, the session-AMBR and one or more QoS flow descriptions after inter-system change from N1 mode to S1 mode.

For a PDN connection established in S1 mode, to enable the UE to attempt to transfer the PDN connection from S1 mode to N1 mode in case of inter-system change, the UE shall allocate a PDU session identity, indicate the allocated PDU session identity in the PDU session ID parameter in the Protocol configuration options IE of the PDN CONNECTIVITY REQUEST message and associate the allocated PDU session identity with the default EPS bearer context of the PDN connection. If an N5CW device supports 3GPP access and establishes a new PDN connection in S1 mode, the N5CW device shall refrain from allocating "PDU session identity value 15".

For a PDN connection established in S1 mode, the SMF assigning the QoS rules shall consider that the UE supports 16 packet filters for the corresponding PDU session until the UE indicates a higher number (as specified in subclause 6.4.2.2).

The network may provide the UE with one or more QoS rules by including either one QoS rules parameter, or one QoS rules with the length of two octets parameter, but not both, in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST or ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message. The network may provide the UE with one or more QoS flow descriptions corresponding to the EPS bearer context being activated, by including either one QoS flow descriptions parameter, or one QoS flow descriptions with the length of two octets parameter, but not both, in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST or ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message.

When the UE is provided with one or more QoS flow descriptions or the EPS bearer identity of an existing QoS flow description is modified in the Protocol configuration options IE or Extended protocol configuration options IE of the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST or ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the UE shall check the EPS bearer identity included in the QoS flow description; and:

a) if the EPS bearer identity corresponds to the EPS bearer context being activated or the EPS bearer identity is not included, the UE shall store the QoS flow description and all the associated QoS rules, if any, for the EPS bearer context being activated for use during inter-system change from S1 mode to N1 mode; and

b) otherwise the UE shall locally delete the QoS flow description and all the associated QoS rules, if any, and include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #84 "syntactical error in the QoS operation" in the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message.

When the UE is provided with one or more QoS rules, or one or more QoS flow descriptions in the Protocol configuration options IE or Extended protocol configuration options IE of the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST or ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the UE shall process the QoS rules sequentially starting with the first QoS rule and shall process the QoS flow descriptions sequentially starting with the first QoS flow description. The UE shall check QoS rules and QoS flow descriptions for different types of errors as follows:

NOTE 4: If an error is detected in a QoS rule or a QoS flow description which requires sending a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause value, then the QoS rules parameter, the QoS rules with the length of two octets parameter, the QoS flow descriptions parameter and the QoS flow descriptions with the length of two octets parameter included in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST or ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message are discarded, if any.

NOTE 5: If the default EPS bearer context activation procedure or the dedicated EPS bearer context activation procedure is rejected, then the QoS rules parameter, the QoS rules with the length of two octets parameter, the QoS flow descriptions parameter and the QoS flow descriptions with the length of two octets parameter included in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST or ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message are discarded, if any.

a) Semantic errors in QoS operations:

1) When the rule operation is "Create new QoS rule" and the DQR bit is set to "the QoS rule is the default QoS rule" when there's already a default QoS rule.

2) When the rule operation is received in an ACTIVATE DEFAULT EPS BEARER CONTEXT REQUEST message, the rule operation is "Create new QoS rule", and there is no rule with the DQR bit set to "the QoS rule is the default QoS rule".

3) When the rule operation is "Create new QoS rule" and two or more QoS rules associated with this PDU session would have identical precedence values.

4) When the rule operation is an operation other than "Create a new QoS rule".

5) When the flow description operation is an operation other than "Create new QoS flow description".

6) When the UE determines that:

i) the default EPS bearer context or a dedicated EPS bearer context is associated with one or more QoS flows and the default EPS bearer context is not associated with the default QoS rules.

ii) a dedicated EPS bearer context is associated with the default QoS rule.

7) When the flow description operation is received in an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the flow description operation is "Create new QoS flow description" and there is already an existing QoS flow description with the same QoS flow identifier stored for an EPS bearer context different from the EPS bearer context being activated and belonging to the same PDN connection as the EPS bearer context being activated.

8) When the rule operation is received in an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the rule operation is "Create new QoS rule" and there is already an existing QoS rule with the same QoS rule identifier stored for an EPS bearer context different from the EPS bearer context being activated and belonging to the same PDN connection as the EPS bearer context being activated.

9) When the rule operation is received in an ACTIVATE DEDICATED EPS BEARER CONTEXT REQUEST message, the rule operation is "Create new QoS rule" and the resultant QoS rule is associated with a QoS flow description stored for an EPS bearer context different from the EPS bearer context being modified.

In case 4, if the rule operation is for a non-default QoS rule, the UE shall delete the QoS rule. If the QoS rule is the default QoS rule, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #83 "semantic error in the QoS operation" in the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message.

Otherwise for all the cases above, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #83 "semantic error in the QoS operation" in the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message.

b) Syntactical errors in QoS operations:

1) When the rule operation is "Create new QoS rule", the packet filter list in the QoS rule is empty, and the QoS rule is provided for a PDN connection of PDN type IPv4, IPv6, IPv4v6 or Ethernet, or for a PDN connection of PDN type "non-IP" and there is locally available information associated with the PDN connection that is set to "Ethernet".

2) Void.

3) When there are other types of syntactical errors in the coding of the QoS rules parameter, the QoS rules with the length of two octets parameter, the QoS flow descriptions parameter or the QoS flow descriptions with the length of two octets parameter, such as a mismatch between the number of packet filters subfield, and the number of packet filters in the packet filter list.

4) When, the

A) rule operation is "Create new QoS rule", the UE determines that there is a resulting QoS rule for aQoS flow, and there is no QoS flow description with a QFI corresponding to the QFI of the resulting QoS rule.

B) flow description operation is "Delete existing QoS flow description", and the UE determines that there is a resulting QoS rule for a QoS flow with a QFI corresponding to the QFI of the QoS flow description that is deleted (i.e. there is no associated QoS flow description with the same QFI).

In case 1, case 3 or case 4, if the QoS rule is not the default QoS rule, the UE shall delete the QoS rule. If the QoS rule is the default QoS rule, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #84 "syntactical error in the QoS operation" in the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message.

c) Semantic errors in packet filters:

1) When a packet filter consists of conflicting packet filter components which would render the packet filter ineffective, i.e. no IP packet will ever fit this packet filter. How the UE determines a semantic error in a packet filter is outside the scope of the present document.

The UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #44 "semantic errors in packet filter(s)" in the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message.

d) Syntactical errors in packet filters:

1) When the rule operation is "Create new QoS rule" and two or more packet filters in the resultant QoS rule would have identical packet filter identifiers.

2) When there are other types of syntactical errors in the coding of packet filters, such as the use of a reserved value for a packet filter component identifier.

If the QoS rule is not the default QoS rule, the UE shall delete the QoS rule. If the QoS rule is the default QoS rule, the UE shall include a Protocol configuration options IE or Extended protocol configuration options IE with a 5GSM cause parameter set to 5GSM cause #45 "syntactical error in packet filter(s)" in the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message.

If the UE detects different errors in the QoS rules and QoS flow descriptions as described in this subclause which requires sending a 5GSM cause parameter in the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message, the UE shall include a single 5GSM cause parameter in the ACTIVATE DEFAULT EPS BEARER CONTEXT ACCEPT or ACTIVATE DEDICATED EPS BEARER CONTEXT ACCEPT message.

NOTE 6: The 5GSM cause to use cannot be different from #44 "semantic error in packet filter(s)", #45 "syntactical errors in packet filter(s)", #83 "semantic error in the QoS operation" or #84 "syntactical error in the QoS operation". The selection of a 5GSM cause is up to UE implementation.

Upon inter-system change from S1 mode to N1 mode, the UE uses the parameters from the default EPS bearer context of each PDN connection for which interworking to 5GS is supported to create a corresponding PDU session associated with 3GPP access as follows, unless the UE is the 5G-RG and the PDN connection is a user-plane resource of an MA PDU session:

a) the PDN type of the default EPS bearer context shall be mapped to the PDU session type of the PDU session as follows:

1) if the PDN type is "non-IP":

- the PDU session type is set to the locally available information associated with the PDN connection (either "Ethernet" or "Unstructured"), if available; or

- otherwise, the PDU session type is set to "Unstructured";

2) if the PDN type is "IPv4" the PDU session type is set to "IPv4";

3) if the PDN type is "IPv6", the PDU session type is set to "IPv6";

4) if the PDN type is "IPv4v6", the PDU session type is set to "IPv4v6"; and

5) if the PDN type is "Ethernet", the PDU session type is "Ethernet";

b) the PDN address of the default EPS bearer context shall be mapped to PDU address of the PDU session, if the PDN type is "IPv4", "IPv6" or "IPv4v6";

c) the APN of the default EPS bearer context shall be mapped to the DNN of the PDU session;

d) for each default EPS bearer context in state BEARER CONTEXT ACTIVE the UE shall set the state of the mapped PDU session to PDU SESSION ACTIVE; and

e) for any other default EPS bearer context the UE shall set the state of the mapped PDU session to PDU SESSION INACTIVE.

Additionally, the UE shall set:

a) the PDU session identity of the PDU session to the PDU session identity included by the UE in the Protocol configuration options IE or Extended protocol configuration options IE in the PDN CONNECTIVITY REQUEST message, or the PDU session identity associated with the default EPS bearer context;

b) the S-NSSAI of the PDU session to the S-NSSAI included by the network in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER REQUEST message, or the S-NSSAI associated with the default EPS bearer context, if the PDN connection is a non-emergency PDN connection;

c) the session-AMBR of the PDU session to the session-AMBR included by the network in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER REQUEST message or the MODIFY EPS BEARER CONTEXT REQUEST message, or the session-AMBR associated with the default EPS bearer context;

d) the SSC mode of the PDU session to "SSC mode 1"; and

e) the always-on PDU session indication to the always-on PDU session indication maintained in the UE, if any.

Upon inter-system change from S1 mode to N1 mode, for each PDN connection which is a user-plane resource of MA PDU session and for which interworking to 5GS is supported, the 5G-RG shall consider that the MA PDU session is established over 3GPP access and, unless the MA PDU session is established over wireline access too, the 5G-RG shall set the session-AMBR of the PDU session to the session-AMBR included by the network in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER REQUEST message or the MODIFY EPS BEARER CONTEXT REQUEST message, or the session-AMBR associated with the default EPS bearer context of the PDN connection.

Additionally, for each EPS bearer context of the PDN connection, the UE shall create QoS flow(s) each of which is associated with the QoS flow description received in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER REQUEST message, ACTIVATE DEDICATED EPS BEARER REQUEST message, and/or MODIFY EPS BEARER REQUEST message (see 3GPP TS 24.301 [15]), or the QoS flow description associated with EPS bearer context, unless:

a) the UE is the 5G-RG;

b) the PDU session is an MA PDU session which:

1) is established over wireline access; and

2) has a PDN connection as a user-plane resource; and

c) the QoS flow already exists over the wireline access.

Additionally, for each EPS bearer context of the PDN connection, the UE shall create QoS rules(s), if any, each of which is associated with the QoS rule received in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER REQUEST message, ACTIVATE DEDICATED EPS BEARER REQUEST message, or MODIFY EPS BEARER CONTEXT REQUEST message (see 3GPP TS 24.301 [15]), or the QoS rules associated with EPS bearer context, unless:

a) the UE is the 5G-RG;

b) the PDU session is an MA PDU session which:

1) is established over wireline access; and

2) has a PDN connection as a user-plane resource; and

c) the QoS rule already exists over the wireline access.

Additionally, for each PDU session which was created at inter-system change from S1 mode to N1 mode from a corresponding PDN connection of the "Ethernet" PDN type, the UE shall consider that Ethernet PDN type in S1 mode is supported by the network and the SMF shall consider that Ethernet PDN type in S1 mode is supported by the UE.

The UE and the network shall locally release the PDN connection(s) and EPS bearer(s) associated with the 3GPP access which have not been transferred to 5GS.

After inter-system change from S1 mode to N1 mode, for each QoS flow mapped from a EPS bearer context the UE shall associate the EPS bearer identity, the EPS QoS parameters, the extended EPS QoS parameters, and the traffic flow template, if available, of the EPS bearer context with the QoS flow.

After inter-system change from S1 mode to N1 mode, for each QoS flow of an MA PDU session which:

a) is established over wireline access; and

b) has a PDN connection as a user-plane resource;

such that the QoS flow was received in the Protocol configuration options IE or Extended protocol configuration options IE in the ACTIVATE DEFAULT EPS BEARER REQUEST message, ACTIVATE DEDICATED EPS BEARER REQUEST message, MODIFY EPS BEARER CONTEXT REQUEST message, ACTIVATE DEFAULT EPS BEARER REQUEST message, ACTIVATE DEDICATED EPS BEARER REQUEST message, or MODIFY EPS BEARER CONTEXT REQUEST message (see 3GPP TS 24.301 [15]), or associated with EPS bearer context, the 5G-RG shall associate the EPS bearer identity, the EPS QoS parameters, the extended EPS QoS parameters, and the traffic flow template, if available, of the EPS bearer context with the QoS flow.

If the EPS bearer context(s) of the PDN connection are associated with the control plane only indication, and the PDN connection supports interworking to 5GS, after inter-system change from S1 mode to N1 mode, the UE shall associate the PDU session corresponding to the PDN connection with the control plane only indication.

If there is an EPS bearer used for IMS signalling, after inter-system change from S1 mode to N1 mode, the QoS flow of the default QoS rule in the corresponding PDU session is used for IMS signalling.

For a PDN connection established when in S1 mode, upon the first inter-system change from S1 mode to N1 mode, the SMF shall determine the PDU session indication as specified in subclause 6.3.2.2.

When the UE is provided with one or more mapped EPS bearer contexts in the Mapped EPS bearer contexts IE of the PDU SESSION MODIFICATION COMMAND message, the UE shall process the mapped EPS bearer contexts sequentially starting with the first mapped EPS bearer context.

When the UE is provided with a new EPS bearer identity, a new EPS QoS parameters, a new extended EPS QoS parameters, a new APN-AMBR or a new extended APN-AMBR in the Mapped EPS bearer context IE of the PDU SESSION MODIFICATION COMMAND message for a QoS flow, the UE shall discard the corresponding association(s) and associate the new value(s) with the QoS flow.

When the UE is provided with a new traffic flow template in the Mapped EPS bearer contexts IE of the PDU SESSION MODIFICATION COMMAND message for a QoS flow, the UE shall check the traffic flow template for different types of TFT IE errors as specified in subclause 6.3.2.3.

When a QoS flow is deleted, the associated EPS bearer context information that are mapped from the deleted QoS flow shall be deleted from the UE and the network if there is no other existing QoS flow associated with this EPS bearer context. When the EPS bearer identity of a QoS flow is deleted, the associated EPS bearer context information that are mapped from the deleted EPS bearer identity shall be deleted from the UE and the network if there is no other existing QoS flow associated with this EPS bearer context. When an EPS bearer is released, all the associated QoS flow descriptions and QoS rules that are mapped from the released EPS bearer shall be deleted from the UE and the network.

NOTE 7: If T3584 is running or deactivated for the S-NSSAI and optionally the DNN combination, the UE is allowed to initate ESM procedures in EPS with or without APN corresponding to that DNN, and if the APN is congested in EPS, the MME can send a back-off timer for the APN to the UE as specified in 3GPP TS 24.301 [15].

For the case of handover of an existing PDU session from 3GPP access to non-3GPP access,

- upon receipt of the PDU SESSION ESTABLISHMENT ACCEPT message, the UE locally deletes the EPS bearer identities for the PDU session, if any (see subclause 6.4.1.3); and

- after successful handover, the network shall locally delete the EPS bearer identities for the PDU session, if any.

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

#### 6.4.1.2 UE-requested PDU session establishment procedure initiation

In order to initiate the UE-requested PDU session establishment procedure, the UE shall create a PDU SESSION ESTABLISHMENT REQUEST message.

NOTE 0: When IMS voice is available over either 3GPP access or non-3GPP access, the "voice centric" UE in 5GMM-REGISTERED state will receive a request from upper layers to establish the PDU session for IMS signalling, if the conditions for performing an initial registration with IMS indicated in 3GPP TS 24.229 [14] subclause U.3.1.2 are satisfied.

If the UE requests to establish a new PDU session, the UE shall allocate a PDU session ID which is not currently being used by another PDU session over either 3GPP access or non-3GPP access. If the N5CW device supports 3GPP access and requests to establish a new PDU session via 3GPP access, the N5CW device shall refrain from allocating "PDU session identity value 15". If the TWIF acting on behalf of the N5CW device requests to establish a new PDU session, the TWIF acting on behalf of the N5CW device shall allocate the "PDU session identity value 15".

The UE shall allocate a PTI value currently not used and shall set the PTI IE of the PDU SESSION ESTABLISHMENT REQUEST message to the allocated PTI value.

If the UE is registered for emergency services over the current access, the UE shall not request establishing a non-emergency PDU session over the current access. If the UE is registered for emergency services over the current access it shall not request establishing an emergency PDU session over the non-current access except if the request is for transferring the emergency PDU session to the non-current access. Before transferring an emergency PDU session from non-3GPP access to 3GPP access, or before transferring a PDN connection for emergency bearer services from untrusted non-3GPP access connected to EPC to 3GPP access, the UE shall check whether emergency services are supported in the NG-RAN cell (either an NR cell or an E-UTRA cell) on which the UE is camping.

NOTE 1: Transfer of an existing emergency PDU session or PDN connection for emergency bearer services between 3GPP access and non-3GPP access is needed e.g. if the UE determines that the current access is no longer available.

If the UE requests to establish a new emergency PDU session, the UE shall include the PDU session type IE in the PDU SESSION ESTABLISHMENT REQUEST message and shall set the IE to the IP version capability as specified in subclause 6.2.4.2.

If the UE requests to establish a new non-emergency PDU session with a DN, the UE shall include the PDU session type IE in the PDU SESSION ESTABLISHMENT REQUEST message and shall set the IE to one of the following values: the IP version capability as specified in subclause 6.2.4.2, "Ethernet" or "Unstructured" based on the URSP rules or based on UE local configuration (see 3GPP TS 24.526 [19]).

NOTE 2: When the UE initiates the UE-requested PDU session establishment procedure to transfer an existing non-IP PDN connection in the EPS to the 5GS, the UE can use locally available information associated with the PDN connection to select the PDU session type between "Ethernet" and "Unstructured".

If the UE requests to establish a new non-emergency PDU session with a DN and the UE requests an SSC mode, the UE shall set the SSC mode IE of the PDU SESSION ESTABLISHMENT REQUEST message to the SSC mode. If the UE requests to establish a PDU session of "IPv4", "IPv6" or "IPv4v6" PDU session type, the UE shall either omit the SSC mode IE or set the SSC mode IE to "SSC mode 1", "SSC mode 2", or "SSC mode 3". If the UE requests to establish a PDU session of "Ethernet" or "Unstructured" PDU session type, the UE shall either omit the SSC mode IE or set the SSC mode IE to "SSC mode 1" or "SSC mode 2". If the UE requests transfer of an existing PDN connection in the EPS to the 5GS or the UE requests transfer of an existing PDN connection in an untrusted non-3GPP access connected to the EPC to the 5GS, the UE shall set the SSC mode IE to "SSC mode 1".

If the UE requests to establish a new emergency PDU session, the UE shall set the SSC mode IE of the PDU SESSION ESTABLISHMENT REQUEST message to "SSC mode 1".

If the UE requests to establish a new PDU session with a DN, the UE may include the SM PDU DN request container IE with a DN-specific identity of the UE complying with network access identifier (NAI) format as specified in IETF RFC 7542 [37].

The UE should set the RQoS bit to "Reflective QoS supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message if the UE supports reflective QoS and:

a) the UE requests to establish a new PDU session of "IPv4", "IPv6", "IPv4v6" or "Ethernet" PDU session type;

b) the UE requests to transfer an existing PDN connection in the EPS of "IPv4", "IPv6", "IPv4v6" or "Ethernet" PDN type or of "Non-IP" PDN type mapping to "Ethernet" PDU session type, to the 5GS; or

c) the UE requests to transfer an existing PDN connection in an untrusted non-3GPP access connected to the EPC of "IPv4", "IPv6" or "IPv4v6" PDN type to the 5GS.

NOTE 3: The determination to not request the usage of reflective QoS by the UE for a PDU session is implementation dependent.

The UE shall indicate the maximum number of packet filters that can be supported for the PDU session in the Maximum number of supported packet filters IE of the PDU SESSION ESTABLISHMENT REQUEST message if:

a) the UE requests to establish a new PDU session of "IPv4", "IPv6", "IPv4v6", or "Ethernet" PDU session type, and the UE can support more than 16 packet filters for this PDU session;

b) the UE requests to transfer an existing PDN connection in the EPS of "IPv4", "IPv6", "IPv4v6", or "Ethernet" PDN type or of "Non-IP" PDN type mapping to "Ethernet" PDU session type, to the 5GS and the UE can support more than 16 packet filters for this PDU session; or

c) the UE requests to transfer an existing PDN connection in an untrusted non-3GPP access connected to the EPC of "IPv4", "IPv6" or "IPv4v6" PDN type to the 5GS and the UE can support more than 16 packet filters for this PDU session.

The UE shall include the Integrity protection maximum data rate IE in the PDU SESSION ESTABLISHMENT REQUEST message to indicate the maximum data rate per UE for user-plane integrity protection supported by the UE for uplink and the maximum data rate per UE for user-plane integrity protection supported by the UE for downlink.

The UE shall set the MH6-PDU bit to "Multi-homed IPv6 PDU session supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message if the UE supports multi-homed IPv6 PDU session and:

a) the UE requests to establish a new PDU session of "IPv6" or "IPv4v6" PDU session type; or.

b) the UE requests to transfer an existing PDN connection of "IPv6" or "IPv4v6" PDN type in the EPS or in an untrusted non-3GPP access connected to the EPC to the 5GS.

The UE shall set the EPT-S1 bit to "Ethernet PDN type in S1 mode supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message if the UE supports Ethernet PDN type in S1 mode and requests "Ethernet" PDU session type.

If the UE requests to establish a new PDU session as an always-on PDU session (e.g. because the PDU session is for TSC), the UE shall include the Always-on PDU session requested IE and set the value of the IE to "Always-on PDU session requested" in the PDU SESSION ESTABLISHMENT REQUEST message.

NOTE 4: Determining whether a PDU session is for TSC is UE implementation dependent.

If the UE has an emergency PDU session, the UE shall not perform the UE-requested PDU session establishment procedure to establish another emergency PDU session. The UE may perform the UE-requested PDU session establishment procedure to transfer an existing emergency PDU session or an existing PDN connection for emergency services.

If:

a) the UE requests to perform handover of an existing PDU session between 3GPP access and non-3GPP access;

b) the UE requests to perform transfer an existing PDN connection in the EPS to the 5GS; or

c) the UE requests to perform transfer an existing PDN connection in an untrusted non-3GPP access connected to the EPC to the 5GS;

the UE shall:

a) set the PDU session ID in the PDU SESSION ESTABLISHMENT REQUEST message and in the UL NAS TRANSPORT message to the stored PDU session ID corresponding to the PDN connection; and

b) set the S-NSSAI in the UL NAS TRANSPORT message to the stored S-NSSAI associated with the PDU session ID only if the S-NSSAI is included in the allowed NSSAI.

If the N5CW device supports 3GPP access and requests to perform handover of an existing PDU session from non-3GPP access to 3GPP access, the N5CW device shall set the PDU session ID in the PDU SESSION ESTABLISHMENT REQUEST message and in the UL NAS TRANSPORT message to "PDU session identity value 15".

If the UE is registered to a network which supports ATSSS and the UE requests to establish a new PDU session the UE may allow the network to upgrade the requested PDU session to an MA PDU session. In order to allow the network to upgrade the requested PDU session to an MA PDU session, the UE shall set "MA PDU session network upgrade allowed" in the MA PDU session information IE and shall set the request type to "initial request" in the UL NAS TRANSPORT message. If the UE is registered to a network which does not support ATSSS, the UE shall not perform the procedure to allow the network to upgrade the requested PDU session to an MA PDU session.

If the UE is registered to a network which supports ATSSS, the UE may request to establish an MA PDU session. If the UE requests to establish an MA PDU session, the UE shall set the request type to "MA PDU request" in the UL NAS TRANSPORT message. If the UE is registered to a network which does not support ATSSS, the UE shall not request to establish an MA PDU session.

When the UE is registered over both 3GPP access and non-3GPP access in the same PLMN and the UE requests to establish a new MA PDU session, the UE may provide an S-NSSAI in the UL NAS TRANSPORT message only if the S-NSSAI is included in the allowed NSSAIs of both accesses.

If the UE is registered to a network which supports ATSSS and the UE has already an MA PDU session established over one access, the UE may perform the UE-requested PDU session establishment procedure to establish user-plane resources over the other access for the MA PDU session as specified in subclause 4.22 of 3GPP TS 23.502 [9] and the S-NSSAI associated with the MA PDU session is included in the allowed NSSAI of the other access. If the UE establishes user-plane resources over the other access for the MA PDU session, the UE shall:

a) set the request type to "MA PDU request" in the UL NAS TRANSPORT message;

b) set the PDU session ID to the stored PDU session ID corresponding to the established MA PDU session in the PDU SESSION ESTABLISHMENT REQUEST message and in the UL NAS TRANSPORT message; and

c) set the S-NSSAI in the UL NAS TRANSPORT message to the stored S-NSSAI associated with the PDU session ID.

If the UE requests to establish a new MA PDU session or if the UE requests to establish a new PDU session and the UE allows the network to upgrade the requested PDU session to an MA PDU session:

a) if the UE supports ATSSS Low-Layer functionality with any steering mode as specified in subclause 5.32.6 of 3GPP TS 23.501 [8], the UE shall set the ATSSS-ST bits to "ATSSS Low-Layer functionality with any steering mode supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message;

b) if the UE supports MPTCP functionality with any steering mode and ATSSS-LL functionality with only active-standby steering mode as specified in subclause 5.32.6 of 3GPP TS 23.501 [8], the UE shall set the ATSSS-ST bits to "MPTCP functionality with any steering mode and ATSSS-LL functionality with only active-standby steering mode supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message; and

c) if the UE supports MPTCP functionality with any steering mode and ATSSS-LL functionality with any steering mode as specified in subclause 5.32.6 of 3GPP TS 23.501 [8], the UE shall set the ATSSS-ST bits to "MPTCP functionality with any steering mode and ATSSS-LL functionality with any steering mode supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message.

If the UE is registered to a network which does not support ATSSS and the UE has already an MA PDU session established over one access, the UE shall not attempt to establish user-plane resources for the MA PDU session over the network which does not support ATSSS as specified in subclause 4.22 of 3GPP TS 23.502 [9].

If the UE supports 3GPP PS data off, except for the transfer of a PDU session from non-3GPP access to 3GPP access and except for the establishment of user plane resources on the other access for the MA PDU session, the UE shall include the Extended protocol configuration options IE in the PDU SESSION ESTABLISHMENT REQUEST message and include the 3GPP PS data off UE status. The UE behaves as described in subclause 6.2.10.

If the UE supports Reliable Data Service, the UE shall include the Extended protocol configuration options IE in the PDU SESSION ESTABLISHMENT REQUEST message and include the Reliable Data Service request indicator. The UE behaves as described in subclause 6.2.15.

If the UE supports DNS over (D)TLS (see 3GPP TS 33.501 [24]), the UE shall include the extended protocol configuration options IE in the PDU SESSION ESTABLISHMENT REQUEST message and include DNS server security information indicator.

NOTE 5: Support of DNS over (D)TLS is based on the informative requirements as specified in 3GPP TS 33.501 [24].

If:

a) the PDU session type value of the PDU session type IE is set to "IPv4", "IPv6" or "IPv4v6";

b) the UE indicates "Control plane CIoT 5GS optimization supported" and "IP header compression for control plane CIoT 5GS optimization supported" in the 5GMM capability IE of the REGISTRATION REQUEST message; and

c) the network indicates "Control plane CIoT 5GS optimization supported" and "IP header compression for control plane CIoT 5GS optimization supported" in the 5GS network support feature IE of the REGISTRATION ACCEPT message;

the UE shall include the IP header compression configuration IE in the PDU SESSION ESTABLISHMENT REQUEST message.

If:

a) the PDU session type value of the PDU session type IE is set to "Ethernet";

b) the UE indicates "Control plane CIoT 5GS optimization supported" and "Ethernet header compression for control plane CIoT 5GS optimization supported" in the 5GMM capability IE of the REGISTRATION REQUEST message; and

c) the network indicates "Control plane CIoT 5GS optimization supported" and "Ethernet header compression for control plane CIoT 5GS optimization supported" in the 5GS network support feature IE of the REGISTRATION ACCEPT message;

the UE shall include the Ethernet header compression configuration IE in the PDU SESSION ESTABLISHMENT REQUEST message.

If the UE requests to establish a PDU session of "Ethernet" PDU session type and the UE supports transfer of port management information containers, the UE shall:

a) set the TPMIC bit to "Transfer of port management information containers supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message;

b) include the DS-TT Ethernet port MAC address IE in the PDU SESSION ESTABLISHMENT REQUEST message and set its contents to the MAC address of the DS-TT Ethernet port used for the PDU session;

c) if the UE-DS-TT residence time is available at the UE, include the UE-DS-TT residence time IE and set its contents to the UE-DS-TT residence time; and

d) include the Port management information container IE in the PDU SESSION ESTABLISHMENT REQUEST message.

NOTE 6: Only SSC mode 1 is supported for a PDU session which is for TSC.

If the UE supporting S1 mode supports receiving QoS rules with the length of two octets or QoS flow descriptions with the length of two octets via the extended protocol configuration options IE, the UE shall include the QoS rules with the length of two octets support indicator or the QoS flow descriptions with the length of two octets support indicator, respectively, in the extended protocol configuration options IE in the PDU SESSION ESTABLISHMENT REQUEST message.

If:

- the UE is operating in single-registration mode and has received the interworking without N26 interface indicator set to "interworking without N26 interface not supported" from the network;

- the UE supports local IP address in traffic flow aggregate description and TFT filter in S1 mode; and

- the PDU session Type requested is different from "Unstructured".

the UE shall indicate the support of local address in TFT in S1 mode in the Extended protocol configuration options IE in the PDU SESSION ESTABLISHMENT REQUEST message.

If the W-AGF acting on behalf of the FN-RG requests to establish a PDU session of "IPv6" or "IPv4v6" PDU session type, the W-AGF acting on behalf of the FN-RG may include in the PDU SESSION ESTABLISHMENT REQUEST message the Suggested interface identifier IE with the PDU session type value field set to "IPv6" and containing the interface identifier for the IPv6 link local address associated with the PDU session suggested to be allocated to the FN-RG.

The UE shall transport:

a) the PDU SESSION ESTABLISHMENT REQUEST message;

b) the PDU session ID of the PDU session being established, being handed over, being transferred, or been established as an MA PDU session;

c) if the request type is set to:

1) "initial request" or "MA PDU request" and the UE determined to establish a new PDU session or an MA PDU session based on either a URSP rule including one or more S-NSSAIs in the URSP (see subclause 6.2.9) or UE local configuration, according to subclause 4.2.2 of 3GPP TS 24.526 [19]:

i) in case of a non-roaming scenario, an S-NSSAI in the allowed NSSAI which corresponds to one of the S-NSSAI(s) in the matching URSP rule, if any to the S-NSSAI(s) in the UE local configuration or in the default URSP rule, according to the conditions given in subclause 4.2.2 of 3GPP TS 24.526 [19]; or

ii) in case of a roaming scenario:

A) one of the mapped S-NSSAI(s) which corresponds to one of the S-NSSAI(s) in the matching URSP rule, if any, or else to the S-NSSAI(s) in the UE local configuration or in the default URSP rule, according to the conditions given in subclause 4.2.2 of 3GPP TS 24.526 [19]; and

B) the S-NSSAI in the allowed NSSAI associated with the S-NSSAI in A); or

2) "existing PDU session", an S-NSSAI, which is an S-NSSAI associated with the PDU session and (if available in roaming scenarios) a mapped S-NSSAI;

d) the requested DNN, if the request type is set to "initial request" or "existing PDU session", and the UE requests a connectivity to a DNN other than the default DNN;

e) the request type which is set to:

1) "initial request", if the UE is not registered for emergency services and the UE requests to establish a new non-emergency PDU session;

2) "existing PDU session", if the UE is not registered for emergency services and the UE requests:

i) handover of an existing non-emergency PDU session between 3GPP access and non-3GPP access;

ii) transfer of an existing PDN connection for non-emergency bearer services in the EPS to the 5GS; or

iii) transfer of an existing PDN connection for non-emergency bearer services in an untrusted non-3GPP access connected to the EPC to the 5GS;

3) "initial emergency request", if the UE requests to establish a new emergency PDU session;

4) "existing emergency PDU session", if the UE requests:

i) handover of an existing emergency PDU session between 3GPP access and non-3GPP access;

ii) transfer of an existing PDN connection for emergency bearer services in the EPS to the 5GS; or

iii) transfer of an existing PDN connection for emergency bearer services in an untrusted non-3GPP access connected to the EPC to the 5GS; or

5) "MA PDU request", if:

i) the UE requests to establish an MA PDU session;

ii) the UE requests to establish user plane resources over other access of an MA PDU session established over one access only; or

iii) the 5G-RG performs inter-system change from S1 mode to N1 mode according to subclause 4.8.2.3.1 and requests transfer of a PDN connection which is a user plane resource of an MA PDU session; and

f) the old PDU session ID which is the PDU session ID of the existing PDU session, if the UE initiates the UE-requested PDU session establishment procedure upon receiving the PDU SESSION MODIFICATION COMMAND messages with the 5GSM cause IE set to #39 "reactivation requested";

using the NAS transport procedure as specified in subclause 5.4.5, and the UE shall start timer T3580 (see example in figure 6.4.1.2.1).

For bullet c), if the matching URSP rule does not have an associated S-NSSAI, or if the UE does not have any matching URSP rule and there is no S-NSSAI in the UE local configuration or in the default URSP rule, the UE shall not provide any S-NSSAI in a PDU session establishment procedure.

If the request type is set to "initial emergency request" or "existing emergency PDU session", neither DNN nor S-NSSAI is transported by the UE using the NAS transport procedure as specified in subclause 5.4.5.



Figure 6.4.1.2.1: UE-requested PDU session establishment procedure

Upon receipt of a PDU SESSION ESTABLISHMENT REQUEST message, a PDU session ID, optionally an S-NSSAI associated with (if available in roaming scenarios) a mapped S-NSSAI, optionally a DNN determined by the AMF, optionally a DNN selected by the network (if different from the DNN determined by the AMF), the request type, and optionally an old PDU session ID, the SMF checks whether connectivity with the requested DN can be established. If the requested DNN is not included, the SMF shall use the default DNN.

If the PDU session being established is a non-emergency PDU session, the request type is not set to "existing PDU session" and the PDU session authentication and authorization by the external DN is required due to local policy, the SMF shall check whether the PDU SESSION ESTABLISHMENT REQUEST message includes the SM PDU DN request container IE.

If the PDU session being established is a non-emergency PDU session, the request type is not set to "existing PDU session", the SM PDU DN request container IE is included in the PDU SESSION ESTABLISHMENT REQUEST message, the PDU session authentication and authorization by the external DN is required due to local policy and user's subscription data, and:

a) the information for the PDU session authentication and authorization by the external DN in the SM PDU DN request container IE is compliant with the local policy and user's subscription data, the SMF shall proceed with the EAP Authentication procedure specified in 3GPP TS 33.501 [24] and refrain from accepting or rejecting the PDU SESSION ESTABLISHMENT REQUEST message until the EAP Authentication procedure finalizes; or

b) the information for the PDU session authentication and authorization by the external DN in the SM PDU DN request container IE is not compliant with the local policy and user's subscription data, the SMF shall consider it as an abnormal case and proceed as specified in subclause 6.4.1.7.

If the PDU session being established is a non-emergency PDU session, the request type is not set to "existing PDU session", the SM PDU DN request container IE is not included in the PDU SESSION ESTABLISHMENT REQUEST message and the PDU session authentication and authorization by the external DN is required due to local policy and user's subscription data, the SMF shall proceed with the EAP Authentication procedure specified in 3GPP TS 33.501 [24] and refrain from accepting or rejecting the PDU SESSION ESTABLISHMENT REQUEST message until the EAP Authentication procedure finalizes.

If the SMF receives the old PDU session ID from the AMF and a PDU session exists for the old PDU session ID, the SMF shall consider that the request for the relocation of SSC mode 3 PDU session anchor with multiple PDU sessions as specified in 3GPP TS 23.502 [9] is accepted by the UE.

If the UE has set the TPMIC bit to "Transfer of port management information containers supported" in the 5GSM capability IE of the PDU SESSION ESTABLISHMENT REQUEST message and has included a DS-TT Ethernet port MAC address IE and Port management information container IE in the PDU SESSION ESTABLISHMENT REQUEST message, the SMF shall operate as specified in 3GPP TS 23.502 [9] subclause 4.3.2.2.1.

#### 9.11.4.8 Mapped EPS bearer contexts

The purpose of the mapped EPS bearer contexts information element is to indicate a set of EPS bearer contexts for a PDU session, as described in subclause 6.1.4.1.

The mapped EPS bearer contexts information element is a type 6 information element with a minimum length of 7 octet and a maximum length of 65538 octets.

The mapped EPS bearer contextsinformation element is coded as shown in figure 9.11.4.8.1, figure 9.11.4.8.2, figure 9.11.4.8.3 and table 9.11.4.8.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | |
|  | Mapped EPS bearer contexts IEI | | | | | | | | octet 1 | |
|  | Length of Mapped EPS bearer contexts contents | | | | | | | | octet 2 | |
|  | octet 3 | |
|  | Mapped EPS bearer context 1 | | | | | | | | octet 4  octet u | |
|  | Mapped EPS bearer context 2 | | | | | | | | octet u+1  octet v | |
|  | … | | | | | | | | octet v+1  octet w | |
|  | Mapped EPS bearer context n | | | | | | | | octet w+1  octet x |

Figure 9.11.4.8.1: Mapped EPS bearer contexts

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | 7 | | 6 | 5 | | 4 | | 3 | 2 | 1 |  |
|  | EPS bearer identity | | | | | | | | | | | octet 4 |
|  | Length of Mapped EPS bearer context | | | | | | | | | | | octet 5  octet 6 |
|  | Operation code | | 0  Spare | | | E bit | | Number of EPS parameters | | | | octet 7 |
|  | EPS parameters list | | | | | | | | | | | octet 8\*  octet u\* |

Figure 9.11.4.8.2: Mapped EPS bearer context

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
|  | EPS parameter identifier 1 | | | | | | | | octet 8 |
|  | Length of EPS parameter contents 1 | | | | | | | | octet 9 |
|  | EPS parameter contents 1 | | | | | | | | octet 10  octet h |
|  | EPS parameter identifier 2 | | | | | | | | octet h+1 |
|  | Length of EPS parameter contents 2 | | | | | | | | octet h+2 |
|  | EPS parameter contents 2 | | | | | | | | octet h+3  octet i |
|  | … | | | | | | | | octet i+1  octet j |
|  | EPS parameter identifier N | | | | | | | | octet j+1 |
|  | Length of EPS parameter contents N | | | | | | | | octet j+2 |
|  | EPS parameter contents N | | | | | | | | octet j+3  octet u |

Figure 9.11.4.8.3: EPS parameters list

Table 9.11.4.8.1: Mapped EPS bearer contexts information element

|  |
| --- |
| EPS bearer identity (octet 4)  Bits 5 to 8 contain the EPS bearer identity, and are coded as specified in subclause 9.3.2 of 3GPP TS 24.301 [15]. Bits 1 to 4 are spare and shall be coded as zero.  Operation code (bits 8 to 7 of octet 7) Bits 8 7  0 0 Reserved 0 1 Create new EPS bearer  1 0 Delete existing EPS bearer  1 1 Modify existing EPS bearer  Bit 6 of octet 7 is spare and shall be coded as zero.  E bit (bit 5 of octet 7)  For the "create new EPS bearer" operation, the E bit is encoded as follows:  Bit 5  0 parameters list is not included (NOTE)  1 parameters list is included  For the "modify existing EPS bearer" operation, the E bit is encoded as follows:  Bit 5  0 extension of previously provided parameters list  1 replacement of all previously provided parameters list  If the E bit is set to "parameters list is included", the number of EPS parameters field has non-zero value. If the E bit is set to "extension of previously provided parameters list" or "replacement of previously provided parameters list", the number of parameters field has non-zero value.  For the "create new EPS bearer" operation and "delete existing EPS bearer" operation, bit 5 of octet 7 is ignored.  Number of EPS parameters (bits 4 to 1 of octet 7)  The number of EPS parameters contains the binary coding for the number of EPS parameters in the EPS parameters list field. The number of EPS parameters field is encoded in bits 4 through 1 of octet 7 where bit 4 is the most significant and bit 1 is the least significant bit.  EPS parameters list (octets 8 to u)  The EPS parameters list contains a variable number of EPS parameters.  Each EPS parameter included in the EPS parameters list is of variable length and consists of:  - an EPS parameter identifier (1 octet);  - the length of the EPS parameter contents (1 octet); and - the EPS parameter contents itself (variable amount of octets).  The EPS parameter identifier field is used to identify each EPS parameter included in the EPS parameters list and it contains the hexadecimal coding of the EPS parameter identifier. Bit 8 of the EPS parameter identifier field contains the most significant bit and bit 1 contains the least significant bit. In this version of the protocol, the following EPS parameter identifiers are specified:  - 01H (Mapped EPS QoS parameters); - 02H (Mapped extended EPS QoS parameters); and  - 03H (Traffic flow template).  - 04H (APN-AMBR).  - 05H (extended APN-AMBR).  If the EPS parameters list contains an EPS parameter identifier that is not supported by the receiving entity the corresponding EPS parameter shall be discarded.  The length of EPS parameter contents field contains the binary coded representation of the length of the EPS parameter contents field. The first bit in transmission order is the most significant bit.  When the parameter identifier indicates mapped EPS QoS parameters, the length and parameter contents field are coded as specified in subclause 9.9.4.3 of 3GPP TS 24.301 [15].  When the parameter identifier indicates mapped extended EPS QoS parameters, the length and parameter contents field are coded as specified in subclause 9.9.4.30 of 3GPP TS 24.301 [15].  When the parameter identifier indicates traffic flow template, the length and parameter contents field are coded from octet 2 as shown figure 10.5.144 and table 10.5.16.2 of 3GPP TS 24.008 [12].  When the parameter identifier indicates APN-AMBR, the length and parameter contents field are coded as specified in subclause 9.9.4.2 of 3GPP TS 24.301 [15].  When the parameter identifier indicates Extended APN-AMBR, the length and parameter contents field are coded as specified in subclause 9.9.4.29 of 3GPP TS 24.301 [15]. |
| NOTE: This value shall not be used In this version of the specification. |

\* \* \* End of Change \* \* \* \*