**3GPP TSG-CT WG4 Meeting #111-eC4-224422**

**E-Meeting, 18th – 26th August 2022** *Revision of C4-224076*

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.244** | **CR** | **0651** | **rev** | **1** | **Current version:** | **17.5.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Redundant PLLSSM and FSSM flags | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5MBS | | | | |  | ***Date:*** | | | 2022-07-26 |
|  |  | | | |  | |  | | |  |
| ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Clause 5.34.2.2 specifies two flags that give identical instructions to the MB-UPF:   * a PLLSSM (Provide Low Layer Source Specific Multicast address) indication in the MBSN4mbReq-Flags **IE to request the MB-UPF to provide a lower layer SSM address…, if multicast transport applies over N3mb or N19mb**; * a Create FAR IE to provision a FAR (associated with the PDR including the above PDI or Traffic EndPoint ID) with the Apply Action set to "FSSM" with an **MBS Multicast Parameters IE, when multicast transport is used over N3mb or N19mb**…   The exact usage of these flags during different procedure however are not specified clear enough. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Scenarios are explicitly specified when PLLSSM flag is set, while FSSM flag is not and also vice versa. Also, a typo is corrected in Table 7.5.2.1-4 at the end of the text that defines JMBSSM flag conditions. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Ambiguity remains in the specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.34.2.2, 7.5.2.1, 8.2.208. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Rev1: In clauses 5.34.2.2 and 8.2.208 and also in Table 7.5.2.1-4, the removed PLLSSM flag is restored. Instead, clarificatios are added to these clauses. Cover sheet is updated. | | | | | | | | |

\* \* \* First Change \* \* \* \*

#### 5.34.2.2 Instructing the MB-UPF to forward MBS data using multicast and/or unicast transport

When the MB-SMF receives an MBS Session Create Request from a NEF/MBSF to configure an MBS session, the MB-SMF shall select an MB-UPF and request that MB-UPF to allocate relevant user plane resource for the MBS session, or for the MBS session and MBS Service Area for a location dependent MBS service; to do so, the MB-SMF shall send a PFCP Session Establishment Request message to the MB-UPF to setup a PFCP session for the MBS Session, or for the MBS session and MBS Service Area for a location dependent MBS service, including the following information in the PFCP Session Establishment Request message:

- the MBS Session Identifier identifying the MBS session (i.e. TMGI or SSM address);

- the Area Session ID, for a location dependent MBS service;

- a JMBSSM (Join MBS Session SSM) indication in the MBSN4mbReq-Flags IE to request the MB-UPF to join the multicast tree towards the Source Specific Multicast (SSM) address information provided by AF/AS or MBSTF for the MBS Session where the SSM is provided in the IP Multicast Addressing Info IE in the corresponding downlink PDR, if multicast transport applies over N6mb or Nmb9 (i.e. if no N6mb or Nmb9 ingress tunnel is requested to be allocated);

- a PLLSSM (Provide Low Layer Source Specific Multicast address) indication in the MBSN4mbReq-Flags IE to request the MB-UPF to provide a lower layer SSM address (i.e. multicast destination address and related source IP address) and a GTP-U Common Tunnel EndPoint Identifier (C-TEID), if multicast transport applies over N3mb or N19mb. During restoration procedures however the MB-SMF shall not set the PLLSSM flag (see clause 8.2.2 in 3GPP TS 23.527 [40]);

- for each MBS QoS flow:

- a Create PDR IE to provision a downlink PDR with PDI or a Create Tunnel Endpoint IE containing either:

- a "Local Ingress Tunnel" IE with the CHOOSE bit set to "1" to request the MB-UPF to allocate an ingress tunnel for unicast transport over N6mb or Nmb9; or

- an IP Multicast Addressing Info IE to request the MB-UPF to retrieve the MBS session data from the IP Multicast Address, when using multicast transport over N6mb or Nmb9.

NOTE: A single ingress tunnel address is assigned, when using unicast transport over N6mb or Nmb9, regardless of the number of MBS QoS flows.

- a Create QER IE to provision a QER (associated with the PDR including the above PDI or Traffic EndPoint ID) instructing the MB-UPF to insert the QFI of the MBS QoS flow in user plane packets and possibly requesting the MB-UPF to apply specific QoS treatments; the IQFISN (Insert DL MBS QFI Sequence Number) flag in the Create QER IE shall be set to "1" to request the MB-UPF to insert the DL MBS QFI Sequence Number in the PDU session container in user plane packets;

- a Create FAR IE to provision a FAR (associated with the PDR including the above PDI or Traffic EndPoint ID). For an MBS session using multicast transport over N3mb or N19mb, the Apply Action shall be set to "DROP". During the restoration procedures however (see clause 8.2.2 in 3GPP TS 23.527 [40]) the Apply Action shall be set to "FSSM" and the MBS Multicast Parameters IE shall be present to forward the packets to the already allocated low layer SSM address..

The MBS Session Identifier, Area Session ID (for a location dependent MBS service) and the MBSN4mbReq-Flags are included in the group IE "MBS Session N4mb Control Information" at the PFCP message level.

The MB-UPF shall return the allocated ingress tunnel information in the Created PDR IE or Created Traffic Endpoint IE and provide the Low Layer SSM address if requested.

For an MBS session using unicast transport over N3mb or N19mb, when one or more NG-RAN node(s) and/or PSA UPF(s) provides a downlink GTP-U F-TEID (i.e. IP address and tunnel endpoint identifier) to receive the MBS session data, the MB-SMF shall send a PFCP Session Modification Request message to change the FAR with the Apply-Action set to "MBSU" together with one or more Add MBS Unicast Parameters to instruct the MB-UPF to forward and replicate MBS Session data towards the one or more GTP-U DL tunnels terminating at the NG-RAN(s) and/or PSA UPF(s).

For an MBS session using multicast transport over N3mb or N19mb, if the "FSSM" flag is set in the Apply Action, the MB-UPF shall forward the MBS session data using the Low Layer Source Specific Multicast address (i.e. destination IP multicast address and related source IP address) and C-TEID it allocated to the MBS session by MB-UPF.

Both the "FSSM" and "MBSU" flags shall be set in the Apply-Action IE if the MB-UPF is requested to forward MBS data using both multicast and unicast transport over N3mb or N19mb.

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

### 7.5.2 PFCP Session Establishment Request

#### 7.5.2.1 General

The PFCP Session Establishment Request shall be sent over the Sxa, Sxb, Sxc, N4 and N4mb interface by the CP function to establish a new PFCP session context in the UP function.

Table 7.5.2.1-1: Information Elements in a PFCP Session Establishment Request

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Information elements | | P | | Condition / Comment | | Appl. | | | | | IE Type |
| Sxa | Sxb | Sxc | N4 | N4mb |
| Node ID | | M | | This IE shall contain the unique identifier of the sending Node. | | X | X | X | X | X | Node ID |
| CP F-SEID | | M | | This IE shall contain the unique identifier allocated by the CP function identifying the session. | | X | X | X | X | X | F-SEID |
| Create PDR | | M | | This IE shall be present for at least one PDR to be associated to the PFCP session.  Several IEs with the same IE type may be present to represent multiple PDRs.  See Table 7.5.2.2-1. | | X | X | X | X | X | Create PDR |
| Create FAR | | M | | This IE shall be present for at least one FAR to be associated to the PFCP session.  Several IEs with the same IE type may be present to represent multiple FARs.  See Table 7.5.2.3-1. | | X | X | X | X | X | Create FAR |
| Create URR | | C | | This IE shall be present if a measurement action shall be applied to packets matching one or more PDR(s) of this PFCP session.  Several IEs within the same IE type may be present to represent multiple URRs.  See Table 7.5.2.4-1. | | X | X | X | X | FFS | Create URR |
| Create QER | | C | | This IE shall be present if a QoS enforcement or QoS marking action shall be applied to packets matching one or more PDR(s) of this PFCP session.  Several IEs within the same IE type may be present to represent multiple QERs.  See Table 7.5.2.5-1. | | - | X | X | X | X | Create QER |
| Create BAR | | O | | When present, this IE shall contain the buffering instructions to be applied by the UP function to any FAR of this PFCP session set with the Apply Action requesting the packets to be buffered and with a BAR ID IE referring to this BAR. See table 7.5.2.6-1. | | X | - | - | X | - | Create BAR |
| Create Traffic Endpoint | | C | | This IE may be present if the UP function has indicated support of PDI optimization.  Several IEs within the same IE type may be present to represent multiple Traffic Endpoints.  See Table 7.5.2.7-1. | | X | X | X | X | X | Create Traffic Endpoint |
| PDN Type | | C | | This IE shall be present if the PFCP session is setup for an individual PDN connection or PDU session (see clause 5.2.1).  When present, this IE shall indicate whether this is an IP or non-IP PDN connection/PDU session or, for 5GC, an Ethernet PDU session. See NOTE 3. | | X | X | - | X | - | PDN Type |
| SGW-C FQ-CSID | | C | | This IE shall be included according to the requirements in clause 23 of 3GPP TS 23.007 [24]. | | X | X | - | - | - | FQ-CSID |
| MME FQ-CSID | | C | | This IE shall be included when received on the S11 interface or on S5/S8 interface according to the requirements in clause 23 of 3GPP TS 23.007 [24]. | | X | X | - | - | - | FQ-CSID |
| PGW-C/SMF FQ-CSID | | C | | This IE shall be included according to the requirements in clause 23 of 3GPP TS 23.007 [24] and clause 4.6 of 3GPP TS 23.527 [40]. | | X | X | - | X | - | FQ-CSID |
| ePDG FQ-CSID | | C | | This IE shall be included according to the requirements in clause 23 of 3GPP TS 23.007 [24]. | | - | X | - | - | - | FQ-CSID |
| TWAN FQ-CSID | | C | | This IE shall be included according to the requirements in clause 23 of 3GPP TS 23.007 [24]. | | - | X | - | - | - | FQ-CSID |
| User Plane Inactivity Timer | | O | | This IE may be present to request the UP function to send a User Plane Inactivity Report when no user plane packets are received for this PFCP session for a duration exceeding the User Plane Inactivity Timer.  When present, it shall contain the duration of the inactivity period after which a User Plane Inactivity Report shall be generated. | | - | X | X | X | X | User Plane Inactivity Timer |
| User ID | | O | | This IE may be present, based on operator policy. It shall only be sent if the UP function is in a trusted environment.  See NOTE 1. | | X | X | X | X | - | User ID |
| Trace Information | | O | | When present, this IE shall contain the trace instructions to be applied by the UP function for this PFCP session. | X | X | X | X | - | Trace Information | |
| APN/DNN | | O | | This IE may be present, if related functionalities in the UP function require the APN/DNN information. See NOTE 2. | X | X | - | X | X | APN/DNN | |
| Create MAR | | C | | This IE shall be present for a N4 session established for a MA PDU session.  Several IEs with the same IE type may be present to represent multiple MARs.  See Table 7.5.2.8-1. | - | - | - | X | - | Create MAR | |
| PFCPSEReq-Flags | | C | | This IE shall be included if at least one of the flags is set to "1".  - RESTI (Restoration Indication): this bit shall be set to "1" if the CP function re-establishes an existing PFCP session and the allocation of GTP-U F-TEID and/or UE IP address is performed by the UP function. (NOTE 4)  - SUMPC (Stop Usage Measurement to Pause Charging): the CP function, e.g. PGW-C or (H-)SMF, shall set this flag if the usage measurement for the URRs which are applicable for charging (i.e. with the "ASPOC" flag set to "1") shall be stopped in the UP function. | X | X | - | X | - | PFCPSEReq-Flags | |
| Create Bridge Info for TSC | | C | | This IE shall be present for a PFCP session established for TSC to request the UPF to provide Bridge information for TSC. | - | - | - | X | - | Create Bridge Info for TSC | |
| Create SRR | | O | | This IE may be present to request the UPF to detect and report events not related to specific PDRs.  Several IEs within the same IE type may be present to represent multiple SRRs.  See Table 7.5.2.9-1. | - | - | - | X | - | Create SRR | |
| Provide ATSSS Control Information | | C | | This IE shall be present for N4 session establishment for a MA PDU session.  When present, this IE shall contain the required ATSSS functionalities for this MA PDU session.  See Table 7.5.2.10-1. | - | - | - | X | - | Provide ATSSS Control Information | |
| Recovery Time Stamp | | O | | This IE may be included to contain the time stamp when the CP function was started. (See clause 19A of 3GPP TS 23.007 [24].) | X | X | X | X | - | Recovery Time Stamp | |
| S-NSSAI | | O | | This IE may be present, if related functionalities in the UP function require the S-NSSAI information. (NOTE 2, NOTE 5)  When present, it shall indicate the S-NSSAI of the PDU session or MBS session. | - | - | - | X | X | S-NSSAI | |
| Provide RDS configuration information | | O | | When present, this IE shall contain the RDS configuration information to be applied by the UP function for this PFCP session. | - | X | - | X | - | Provide RDS configuration information | |
| RAT Type | | O | | This IE may be present to provide the UP Function the current RAT Type for the PDN connection/PDU session to which this PFCP Session is corresponding for statistics purpose if the PFCP session is not established for a MA PDU session. | X | X | - | X | - | RAT Type | |
| L2TP Tunnel Information | | C | | This IE shall be present if L2TP tunnel information is received from an AAA server, e.g. Radius/Diameter server or if it is configured in the CP function.  Several IE with the same IE type may be present to provide L2TP Tunnel Information for alternative LNS. | - | X | - | X | - | L2TP Tunnel Information | |
| L2TP Session Information | | C | | This IE shall be present to include the information to establish a L2TP session, if an L2TP session needs to be established for this PFCP session. | - | X | - | X | - | L2TP Session Information | |
| Group Id | | O | | This IE may be included by the CP function to indicate the group identifier to which the PFCP session pertains (see clause 5.22). | - | X | - | X | - | Group Id | |
| MBS Session N4mb Control Information | | M | | This IE shall identify the MBS session, or the MBS session and Area Session ID for a location dependent MBS service, and it may contain further control information for the MB-UPF. | - | - | - | - | X | MBS Session N4mb Control Information | |
| MBS Session N4 Control Information | | C | | This IE shall be included if the correspond PDU session shall be associated with an MBS session, or with an MBS session and Area Session ID for a location dependent MBS service.  Several IEs with the same IE type may be present to provide N4 control information for several MBS sessions, e.g., when the UE requests to join several MBS sessions. | - | - | - | X | - | MBS Session N4 Control Information | |
| DSCP to PPI Control Information | | O | | This IE may be present if the UPF is required to insert the Paging Policy Indicator (PPI) in the GTP-U PDU Session Container extension header of outgoing GTP-U packets (encapsulating payload packets) based on the DSCP in the TOS/Traffic Class field in the IP header of payload packet and if the UPF supports the EPPPI feature as specified in clause 5.36.2.  Several IEs with the same IE type may be present to provide different DSCP to PPI Control Information for different set of QFI(s). | - | - | - | X | - | DSCP to PPI Control Information | |
| NOTE 1: This can be used for troubleshooting problems in the UP function affecting a subscriber.  NOTE 2: The CP function may provide additional information (e.g. APN/DNN, S-NSSAI) to the UP function, e.g. used by the forwarding rules pre-defined in UP function (some forwarding rules are APN specific), used by the UP function for performance measurement, used by the UP function for resource management, or used by the UPF to include a proper User plane node/Bridge ID in the response message during a PFCP session establishment for a PDU session for TSC.  NOTE 3: The SGW-C may set PDN type as Non-IP for an Ethernet PDN to allow interworking with a legacy SGW-U.  NOTE 4: The UP function shall accept the CP function allocated GTP-U F-TEID and/or UE IP address in the PFCP Session Establishment Request message with the RESTI flag set to "1", if the requested GTP-U F-TEID and/or UE IP address are available. If the GTP-U F-TEID or UE IP address provided by the CP function is not available at the UP function, the UP function shall reject the PFCP Session Establishment Request with the cause "PFCP session restoration failure due to requested resource not available" (see clause 8.2.1).  NOTE 5: A UPF shall support allocating resources using the Network Instance IE and the UPF may additionally support allocating resources using the Network Instance IE and S-NSSAI IE (see clause 5.35). | | | | | | | | | | | |

Table 7.5.2.1-2: L2TP Tunnel Information IE in the PFCP Session Establishment Request message

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Octet 1 and 2 |  | L2TP Tunnel Information IE Type = 276 (decimal) | | | | | | |
| Octets 3 and 4 |  | Length = n | | | | | | |
| Information elements | P | Condition / Comment | Appl. | | | | | IE Type |
| Sxa | Sxb | Sxc | N4 | N4mb |
| LNS Address | M | This IE shall be present to include the Tunnel Server Endpoint, i.e. LNS IP address. | - | X | - | X | - | LNS Address |
| Tunnel Password | O | This IE may be present to include the password to be used to authenticate to a remote server. | - | X | - | X | - | Tunnel Password |
| Tunnel Preference | C | This IE shall be present if multiple L2TP Tunnel Information IEs are included in the message.  If present this IE indicates the order in which the L2TP Tunnel Information IEs shall be used when trying to establish the L2TP session. | - | X | - | X | - | Tunnel Preference |

Table 7.5.2.1-3: L2TP Session Information IE in the PFCP Session Establishment Request message

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Octet 1 and 2 |  | L2TP Session Information IE Type = 277 (decimal) | | | | | | |
| Octets 3 and 4 |  | Length = n | | | | | | |
| Information elements | P | Condition / Comment | Appl. | | | | | IE Type |
| Sxa | Sxb | Sxc | N4 | N4mb |
| Calling Number | O | This IE may be present, e.g. to include an MSISDN of the UE. | - | X | - | X | - | Calling Number |
| Called Number | O | This IE may be present, e.g. to include an APN/DNN. | - | X | - | X | - | Called Number |
| Maximum Receive Unit | O | This IE may be present to include Maximum Receive Unit for LCP/PPP which may be set to the value of the MTU received from the UE or may be configured in the CP function. | - | X | - | X | - | Maximum Receive Unit |
| L2TP Session Indications | C | This IE shall be present if the CP function requests the UP function to get a UE IP Address, and/or DNS server information, and/or NBNS server information from the LNS. | - | X | - | X | - | L2TP session Indications |
| L2TP User Authentication | O | This IE may be present to include the authentication information to be used during L2TP session establishment. | - | X | - | X | - | L2TP User Authentication |
| NOTE: The Tunnel Password and L2TP User Authentication IE are transferred with plain text, a Network Domain Security/IP based security mechanism may be deployed between the CP function and the UP function if required by the local policies. | | | | | | | | |

Table 7.5.2.1-4: MBS Session N4mb Control Information IE within PFCP Session Establishment Request

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Octet 1 and 2 |  | MBS Session N4mb Control Information IE Type = 300 (decimal) | | | | | | |
| Octets 3 and 4 |  | Length = n | | | | | | |
| Information elements | P | Condition / Comment | Appl. | | | | | IE Type |
| Sxa | Sxb | Sxc | N4 | N4mb |
| MBS Session Identifier | M |  | - | - | - | - | X | MBS Session Identifier |
| Area Session ID | C | This IE shall be present for a location dependent MBS service. When present, it shall contain the Area Session ID, which together with the MBS Session Identifier, uniquely identify the service area part of the content data of the MBS service. | - | - | - | - | X | Area Session ID |
| MBSN4mbReq-Flags | C | This IE shall be included if at least one of the flags is set to "1".  - PLLSSM (Provide Lower Layer SSM): the MB-SMF shall set this flag to "1" to request the MB-UPF to allocate a LL SSM (i.e. multicast destination address and related source IP address) and a GTP-U Common Tunnel EndPoint Identifier (C-TEID), if multicast transport is used over N3mb and/or N19mb. See clause 5.34.2.2.  - JMBSSM (Join MBS Session SSM): the MB-SMF shall set this flag to "1" to request the MB-UPF to join the multicast tree towards the Source Specific Multicast (SSM) address information provided by AF/AS or MBSTF for the MBS Session, if multicast transport is used over N6mb or Nmb9.  - MBS RESTI (MBS Restoration Indication): this bit shall be set to "1" if the MB-SMF re-establishes an existing PFCP session. (NOTE) | - | - | - | - | X | MBSN4mbReq-Flags |
| Multicast Transport Information for N3mb and/or N19mb | C | This IE shall be present during the restoration of a PFCP session of an MBS session after an MB-UPF restart, as defined in clause 8.2.2 of 3GPP TS 23.527 [40].  When present, it shall include the low layer source specific multicast address information (i.e. multicast destination address and related source IP address) and the GTP-U Common Tunnel EndPoint Identifier (C-TEID) that the MB-SMF requests the MB-UPF to allocate for multicast transport over N3mb and/or N19mb, if possible.  (NOTE) | - | - | - | - | X | Multicast Transport Information |
| NOTE: The MB-UPF shall accept the MB-SMF allocated N3mb/N19mb and/or the N6mb/Nmb9 address in the PFCP Session Establishment Request message with the MBS RESTI flag set to "1", if the requested addresses are available. If one requested address is not available at the MB-UPF, the MB-UPF shall reject the PFCP Session Establishment Request with the cause "PFCP session restoration failure due to requested resource not available" (see clause 8.2.1). | | | | | | | | |

Table 7.5.2.1-5: MBS Session N4 Control Information IE within PFCP Session Establishment Request

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Octet 1 and 2 |  | MBS Session N4 Control Information IE Type = 310 (decimal) | | | | | | |
| Octets 3 and 4 |  | Length = n | | | | | | |
| Information elements | P | Condition / Comment | Appl. | | | | | IE Type |
| Sxa | Sxb | Sxc | N4 | N4mb |
| MBS Session Identifier | M |  | - | - | - | X | - | MBS Session Identifier |
| Area Session ID | C | This IE shall be present for a location dependent MBS service. When present, it shall contain the Area Session ID, which together with the MBS Session Identifier, uniquely identify the service area part of the content data of the MBS service. | - | - | - | X | - | Area Session ID |
| Multicast Transport Information | C | This IE shall be present to include a low layer source specific multicast address information (i.e. multicast destination address and related source IP address) and a GTP-U Common Tunnel EndPoint Identifier (C-TEID) which was allocated by the MB-UPF, if IP multicast transport is used over N19mb. | - | - | - | X | - | Multicast Transport Information |

Table 7.5.2.1-6: DSCP to PPI Control Information IE within PFCP Session Establishment Request

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Octet 1 and 2 |  | DSCP to PPI Control Information IE Type = 316 (decimal) | | | | | | |
| Octets 3 and 4 |  | Length = n | | | | | | |
| Information elements | P | Condition / Comment | Appl. | | | | | IE Type |
| Sxa | Sxb | Sxc | N4 | N4mb |
| DSCP to PPI Mapping Information | M | This IE shall be present to instruct the UPF to insert the corresponding PPI for the downlink GTP-U packet, where the DSCP of its payload packet is matching one of DSCP codes in the DSCP to PPI Mapping Information.  Several IEs with the same IE type may be present to provide different DSCP to PPI mapping information. | - | - | - | X | - | DSCP to PPI Mapping Information |
| QFI | O | This IE may be present to request the UPF to only insert PPI for those packets pertain to the requested QoS flow(s).  Several IEs with the same IE type may be present to provide a list of QFIs.  (NOTE 1) | - | - | - | X | - | QFI |
| NOTE 1: The absence of QFI(s) indicates that insertion of the corresponding PPI shall be applied for all DL packets (matching the DSCP(s) of the DSCP to PPI Mapping Information IE) pertaining to all QoS flows of the PFCP session. | | | | | | | | |

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

### 8.2.208 MBSN4mbReq-Flags

The MBSN4mbReq-Flags IE indicates flags applicable to the PFCP Session Establishment Request. It is coded as depicted in Figure 8.2.208-1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Bits | | | | | | | |  |
|  | Octets | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
|  | 1 to 2 | Type = 307 (decimal) | | | | | | | |  |
|  | 3 to 4 | Length = n | | | | | | | |  |
|  | 5 | Spare | | | | | MBS RESTI | JMBSSM | PLLSSM |  |
|  | 6 to (n+4) | These octet(s) is/are present only if explicitly specified | | | | | | | |  |

Figure 8.2.208-1: MBSN4mbReq-Flags

The following bits within Octet 5 shall indicate:

- Bit 1 – PLLSSM (Provide Lower Layer SSM): if this bit is set to "1", it indicates that the MB-UPF shall allocate a lower layer SSM (i.e. multicast destination address and related source IP address) and a GTP-U Common Tunnel EndPoint Identifier (C-TEID) in the Multicast Transport Address IE. See clause 5.34.2.2.

- Bit 2 – JMBSSM (Join MBS Session SSM): if this bit is set to "1", it indicates that the MB-UPF shall join the multicast tree towards the Source Specific Multicast (SSM) address information provided by AF/AS or MBSTF for the MBS Session.

- Bit 3 – MBS RESTI (MBS Restoration Indication): if this bit is set to "1", it indicates to the MB-UPF that the PFCP session to be established is to restore an existing PFCP session of an MBS session.

- Bit 4 to 8 – Spare, for future use, shall be set to "0" by the sender and discarded by the receiver.

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