**3GPP TSG-CT WG4 Meeting #99eC4-204285**

**E-Meeting, 18th – 28th August 2020**

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **29.274** | **CR** | **1991** | **rev** | **2** | **Current version:** | **16.4.0** |  |
|  |
| *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** |

|  |
| --- |
|  |
| ***Title:***  | DAPS Handover information |
|  |  |
| ***Source to WG:*** | Qualcomm Incorporated, Nokia, Nokia Shanghai Bell |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | TEI16, LTE\_feMob-Core, NR\_Mob\_enh-Core |  | ***Date:*** | 2020-08-07 |
|  |  |  |  |  |
| ***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 canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)Rel-12 (Release 12)**Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
|  |  |
| ***Reason for change:*** | SA2 has incorporated the RAN3 agreed support of S1/NG DAPS (Dual Active Protocol Stacks) handover over S1 and NG as indicated in C4-203458/S2-2004474. The stage-3 of the S1 based handover procedure need to be updated to support DAPS handover. |
|  |  |
| ***Summary of change:*** | The needed information for DAPS handover has been added to the related messages over S10: * a new Notify Source eNodeB Indication is signalled in the Forward Relocation Complete to instruct the source MME to send a Handover Success to the source eNodeB;
* the Forward Access Context Notification message is used to convey the "eNB Early Status Transfer Transparent Container"
 |
|  |  |
| ***Consequences if not approved:*** | Inter-MME S1 DAPS handover cannot be implemented |
|  |  |
| ***Clauses affected:*** | 7.3.3, 7.3.10, 8.12, 8.48 |
|  |  |
|  | **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:*** | * Updated WI code, date, summary of changes in cover sheet.
* Added Notify Source eNB Indication flag instead of EUTRAN transparent container in Forward Relocation Complete Notification.
* Added separate eNB Status Transfer Transparent Container in Forward Access Context Notification.
* Added impacted clause 8.12 and 8.48.
* Editorial fix in Clause 7.3.3.
 |

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

7.3.3 Forward Relocation Complete Notification

A Forward Relocation Complete Notification message shall be sent to the source MME/SGSN/AMF to indicate the handover has been successfully finished.

Table 7.3.3-1 specifies the presence requirements and conditions of the IEs in the message.

**Table 7.3.3-1: Information Elements in a Forward Relocation Complete Notification**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Information elements** | **P** | **Condition / Comment** | **IE Type** | **Ins.** |
| Indication Flags | C |  This IE shall be included if any of the flags are set to 1.* Idle mode Signalling Reduction Activation Indication: This flag shall be set to 1 if the message is used for inter-RAT handover and the UE has ISR capability. This flag is set to indicate to the source MME/SGSN whether it shall maintain the UE's context and whether it shall activate ISR.
* Notify Source eNB Indication: This flag shall be set to 1 if the target MME receives this indication in the Handover Notify from the target eNodeB (see clause 5.5.1.2.2a of 3GPP TS 23.401 [3]).
 | Indication | 0 |
| Private Extension | O |  | Private Extension | VS |

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

7.3.10 Forward Access Context Notification

A Forward Access Context Notification message shall be sent from the Old SGSN to the New SGSN over the S16 interface to forward the RNC contexts to the target system, or sent from the Old MME to the New MME over the S10 interface to forward the RNC/eNodeB contexts to the target system.

When the old SGSN receives the RANAP message Forward SRNS Context, the old SGSN shall send a Forward Access Context Notification message to the new SGSN. The new SGSN shall forward the message to the target RNC using the corresponding RANAP message.

When the old SGSN receives a BSSGP message PS handover Required and the acknowledged peer-to-peer LLC operation is used for the Bearer Context or when "delivery order" is set in the Bearer Context QoS profile, the old SGSN shall send a Forward Access Context Notification message with the PDU Number IE to the new SGSN. The new SGSN shall forward the message to the target RNC/ target BSS using the corresponding RANAP message only for PS handover to Iu mode.

When the old SGSN receives a BSSGP message PS handover Required from source BSS/RNC for PS handover to A/Gb mode, the value part of RAB Context IE shall be empty according to its defined minimum length.

Table 7.3.10-1 specifics the presence requirements and conditions of the IEs in the message.

**Table 7.3.10-1: Information Elements in a Forward Access Context Notification**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Information elements** | **P** | **Condition / Comment** | **IE Type** | **Ins.** |
| RAB Contexts | C | This IE shall be included for S16 only. Several IEs with this type and instance values shall be included as necessary to represent a list of Bearers.For each RAB context in the received RANAP message, the old SGSN shall include this IE in the message. | RAB Context  | 0 |
| Source RNC PDCP context Info | C | If available, the old SGSN shall include an Source RNC PDCP context info in the message. | Source RNC PDCP context Info | 0 |
| PDU Numbers | C | This IE only applies to S16. The old SGSN shall include this IE in the message if the acknowledged peer-to-peer LLC operation is used for the Bearer Context or when "delivery order" is set in the Bearer Context QoS profile in A/Gb mode to Iu/A/Gb mode PS handover. | PDU Numbers | 0 |
| E-UTRAN Transparent Container | C | This IE shall be included over S10 to contain the "eNB Status Transfer Transparent Container" as specified in 3GPP TS 36.413 [10].Container Type shall be set to 3. | F-Container | 0 |
| E-UTRAN Transparent Container | C | This IE shall be included over S10 to contain the "eNB Early Status Transfer Transparent Container" as specified in 3GPP TS 36.413 [10].Container Type shall be set to 3. | F-Container | 1 |
| Private Extension | O |  | Private Extension | VS |

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

## 8.12 Indication

Indication is coded as depicted in Figure 8.12-1.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Bits |  |
|  | Octets | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
|  | 1 | Type = 77 (decimal) |  |
|  | 2 to 3 | Length = n |  |
|  | 4 | Spare | Instance |  |
|  | 5 | DAF | DTF | HI | DFI | OI | ISRSI | ISRAI | SGWCI |  |
|  | 6 | SQCI | UIMSI | CFSI | CRSI | P | PT | SI | MSV |  |
|  | 7 | RetLoc | PBIC | SRNI | S6AF | S4AF | MBMDT | ISRAU | CCRSI |  |
|  | 8 | CPRAI | ARRL | PPOF | PPON/PPEI | PPSI | CSFBI | CLII | CPSR |  |
|  | 9 | NSI | UASI | DTCI | BDWI | PSCI | PCRI | AOSI | AOPI |  |
|  | 10 | ROAAI | EPCOSI | CPOPCI | PMTSMI | S11TF | PNSI | UNACCSI | WPMSI |  |
|  | 11 | 5GSNN26 | REPREFI | 5GSIWK | EEVRSI | LTEMUI | LTEMPI | ENBCRSI | TSPCMI |  |
|  | 12 | CSRMFI | MTEDTN | MTEDTA | N5GNMI | 5GCNRS | 5GCNRI | 5SRHOI | ETHPDN |  |
|  | 13 | Spare | Spare | Spare | Spare | Spare | NSENBI | IDFUPF | EMCI |  |
|  | 14 to (n+4) | These octet(s) is/are present only if explicitly specified |  |

Figure 8.12-1: Indication

For each message the applicable flags of the Indication IE shall be clearly specified in the individual message sub clause. The remaining flags of the Indication IE not so indicated shall be discarded by the receiver.

The receiver shall consider the value of the applicable flags as "0", if the Indication IE is applicable for the message but not included in the message by the sender.

The following bits within Octet 5 shall indicate:

- Bit 8 – DAF (Dual Address Bearer Flag): This bit shall be set when the PDN Type, determined based on UE request and subscription record, is set to IPv4v6 and all SGSNs which the UE may be handed over to are Release 8 or above supporting dual addressing, which is determined based on node pre-configuration by the operator..

- Bit 7 – DTF (Direct Tunnel Flag): This bit shall be set when the UE is in UTRAN and Direct Tunnel is selected

- Bit 6 – HI (Handover Indication): If this bit is set to 1 over S11/S4 and S5/S8 interfaces, it shall indicate a UE handover attach. This bit is applicable during the Handover from Trusted or Untrusted Non-3GPP IP Access to E-UTRAN or a Handover from Trusted or Untrusted Non-3GPP IP Access to UTRAN/GERAN procedures (see clauses 8.2, 8.6 and 16.11 of 3GPP TS 23.402 [45]), or a 5GS to EPS handover without the N26 interface (see clause 4.11.2.2 of 3GPP TS 23.502 [83]). If this bit is set to 1 over GTP based S2a interface, it shall indicate a UE handover from 3GPP access to Trusted Non-3GPP access and UE requested IP address preservation. If this bit is set to 1 over GTP based S2b interface, it shall indicate a UE handover from 3GPP access to Untrusted Non-3GPP Access and UE requested IP address preservation.

- Bit 5 – DFI (Direct Forwarding Indication): If this bit is set to 1, it shall indicate that direct data forwarding applies between the source RAN and the target RAN during an S1 based handover procedure or during an inter-system handover between 5GS and EPS.

- Bit 4 – OI (Operation Indication):

- If this bit is set to 1, it shall denote that the receiving SGW of a "Create Session Request" shall send a Modify Bearer Request immediately to the PGW. This allows the SGW to differentiate if the "Create Session Request" received on S4/S11 interface belongs to a TAU/RAU with an SGW relocation (OI = 1), or X2-based handover with SGW relocation (OI = 1) or Enhanced SRNS Relocation with SGW relocation (OI=1) or MME triggered Serving GW relocation (OI = 1) or S1-based handover with SGW relocation (OI = 0).

- It shall be set to 1 on S4/S11 interface if the SGW needs to forward the Delete Session Request message to PGW.

- Bit 3 – ISRSI (Idle mode Signalling Reduction Supported Indication): If this is set to 1, it shall indicate that the old/source SGSN/MME and the associated SGW are capable to activate ISR.

- Bit 2 – ISRAI (Idle mode Signalling Reduction Activation Indication): If this bit is set to 1, it shall indicate that the ISR is established between the MME and the S4 SGSN during a TAU/RAU without an SGW change procedure or during an Inter RAT handover without an SGW change procedure. The SGW shall retain the resources for the other CN node that has its bearer resources on the SGW reserved. The old/source SGSN/MME shall maintain the UE's contexts and activate ISR.

- Bit 1 – SGWCI (SGW Change Indication):

- If this bit is set to 1, it shall indicate that the target MME/SGSN has selected a new SGW during a TAU/RAU or handover with an SGW change procedure.

- It shall be set to 1 by the target AMF during the EPS to 5GS handover/Idle mode Mobility using N26 interface.

The following bits within Octet 6 shall indicate:

- Bit 8 – SQCI (Subscribed QoS Change Indication): If this bit is set to 1, it indicates that the subscribed QoS profile of the related PDN connection has changed in the old MME/SGSN when the UE is in ECM-IDLE state and ISR is activated. The new MME/SGSN shall trigger the Subscribed QoS Modification procedure. See 3GPP TS 23.401 [3], clause 5.3.9.2.

- Bit 7 – UIMSI (Unauthenticated IMSI): If this bit is set to 1, it indicates that the IMSI present in the message is not authenticated and is for emergency or RLOS attached UE.

- Bit 6 – CFSI (Change F-TEID support indication): if this bit is set to 1, it indicates that the SGW can change the assigned GTP-U F-TEID in the current procedure. If the SGW needs to modify the GTP-U F-TEID and the CFSI flag is set to 1 in the corresponding request message, the SGW shall include the new F-TEID in the Modify Bearer Response/Modify Access Bearers Response message.

- Bit 5 – CRSI (Change Reporting support indication): if this bit is set to 1, it indicates that the MME/S4 SGSN supports Location Change Reporting mechanism for the corresponding session.

- Bit 4 – PS (Piggybacking Supported). This bit denotes whether the MME/SGW support piggybacking feature as described in Annex F of 3GPP TS 23.401 [3]. If set to 1, it indicates that the node is capable of processing two different GTP-C messages appearing back to back in a single UDP payload.

- Bit 3 – PT (S5/S8 Protocol Type) If this bit set to 1, it shall indicate that the protocol type for the S5/S8 interface is PMIP; this bit is set to 0 to indicate that the protocol type for the S5/S8 interface is GTP.

- Bit 2 – SI (Scope Indication): If this bit is set to 1, it indicates that all bearer resources of the UE shall be released by the SGW. This flag is set in messages during TAU/RAU/Handover with SGW change /SRNS Relocation Cancel Using S4 with SGW change/Inter RAT handover Cancel procedure with SGW change/S1 Based handover Cancel procedure with SGW change.

- Bit 1 – MSV (MS Validated): If this bit is set to 1, it shall indicate that the new MME/SGSN has successfully authenticated the UE.

The following bits within Octet 7shall indicate:

- Bit 8 – RetLoc (Retrieve Location Indication Flag): if this bit is set to 1, it indicates that the PGW requests the MME/SGSN or TWAN/ePDG to provide the User Location Information.

 Bit 7 – PBIC (Propagate BBAI Information Change): if this bit is set to 1, it indicates a change in the H(e)NB local IP address and/or UDP port number, i.e. the UE moves from an (e)NB to a H(e)NB, or from one H(e)NB to another H(e)NB with the fixed network backhaul changed, or the UE moves from a H(e)NB to a (e)NB.

- Bit 6 – SRNI (SGW Restoration Needed Indication): if this bit is set to 1, it indicates that the source MME/S4-SGSN has not performed the SGW relocation procedure after the source SGW has failed with or without restart, when the source and target MME/S4-SGSN support the MME/S4-SGSN triggered SGW restoration procedure as specified in 3GPP TS 23.007 [17].

- Bit 5 – S6AF (Static IPv6 Address Flag): if this bit is set to 1, it indicates that PDP/PDN IPv6 address is static.

- Bit 4 – S4AF (Static IPv4 Address Flag): if this bit is set to 1, it indicates that PDP/PDN IPv4 address is static.

- Bit 3 – MBMDT (Management Based MDT allowed flag): if this bit is set to 1, it indicates that management based MDT is allowed.

- Bit 2 – ISRAU (ISR is activated for the UE): if this bit is set to 1, it indicates that ISR is activated for the UE before the UE moving to the new SGSN/MME.

- Bit 1 – CCRSI (CSG Change Reporting support indication): if this bit is set to 1, it indicates that the MME/S4 SGSN supports CSG Information Change Reporting mechanism for the corresponding session.

The following bits within Octet 8 shall indicate:

- Bit 8 – CPRAI (Change of Presence Reporting Area information Indication): when ISR is active if this bit is set to 1, it indicates that the Presence Reporting Area information, which is provided as a part of the Presence Reporting Area Information IE, has changed since last reported by the MME/S4-SGSN. The SGW shall ignore this flag when ISR is not active.

- Bit 7 – ARRL (Abnormal Release of Radio Link): if this bit is set to 1 by the MME, it indicates to the SGW that the access bearers are released due to an abnormal release of the radio link. Based on operator policy, this indication may be used by the SGW in subsequent decisions to trigger PDN charging pause if the PGW Pause of Charging feature has been enabled on that PDN connection.

- Bit 6 – PPOFF (PDN Pause Off Indication): if this bit is set to 1 by the SGW, it indicates to the PGW that the charging for the PDN connection shall be unpaused.

- Bit 5 – PPON (PDN Pause On Indication) / PPEI (PDN Pause Enabled Indication): if this bit is set to 1 by the SGW, it indicates to the PGW that the charging for the PDN connection shall be paused; if it is set to 1 by the PGW, it indicates that PGW enables the SGW to use the PGW Pause of Charging procedure for the PDN connection.

- Bit 4 – PPSI (PDN Pause Support Indication): if this bit is set to 1 by the SGW, it indicates that the SGW supports the PGW Pause of Charging procedure; if it is set to 1 by the PGW, it indicates that the PGW supports the PGW Pause of Charging procedure.

- Bit 3 – CSFBI (CSFB Indication): if this bit is set to 1, it indicates that the UE has been subject to CSFB.

- Bit 2 – CLII (Change of Location Information Indication): when ISR is active if this bit is set to 1, it indicates that the location information, which is provided as a part of ULI IE, has changed since last reported by the MME/S4-SGSN. The SGW shall ignore this flag when ISR is not active.

- Bit 1 – CPSR (CS to PS SRVCC indication): if this bit is set to 1, it indicates that a UTRAN/GERAN to E-UTRAN/UTRAN (HSPA) SRVCC procedure is underway and the associated message, i.e. Modify Bearer Request shall be forwarded to the PGW from the SGW as specified in 3GPP TS 23.216 [43].

The following bits within Octet 9 shall indicate:

- Bit 8 – NSI (NBIFOM Support Indication): if this bit is set to 1, it indicates to the PGW that the NBIFOM is supported (see clause 5.10 of 3GPP TS 23.161 [71]).

- Bit 7 – UASI (UE Available for Signaling Indication): if this bit is set to 1, it indicates that the UE is available for end to end signalling and that the PGW should re-attempt the pending network initiated procedure.

- Bit 6 – DTCI (Delay Tolerant Connection Indication): if this bit is set to 1, it indicates that the PDN connection is delay tolerant according to the local policies in the PGW, e.g. per APN.For this PDN connection the PGW supports receiving the rejection cause "UE is temporarily not reachable due to power saving" from the MME/SGSN via the SGW during a network initiated procedure and holding the network initiated procedure, until the PGW receives the subsequent Modify Bearer Request message with the UASI flag indicating that the UE is available for end to end signalling.

- Bit 5 – BDWI (Buffered DL Data Waiting Indication): if this bit is set to 1, it indicates that there is DL data buffered in the (old) SGW or (V-)SMF/UPF, i.e. that the new MME/SGSN shall invoke data forwarding if there is an SGW change as specified in clause 5.3.3.1A of 3GPP TS 23.401 [3] or upon idle mode mobility between 5GS and EPS with data forwarding as specified in clauses 4.11.1.3.2A, 4.11.1.3.3A, 4.23.12.2a and 4.23.12.3a of 3GPP TS 23.502 [83], and that it shall setup the user plane in conjunction with the TAU/RAU procedure for delivery of the buffered DL data to the UE.

- Bit 4 – PSCI (Pending Subscription Change Indication): If this bit is set to 1, it indicates that there is a pending report of the changed subscribed QoS profile of the related PDN connection in the old MME, so that the new MME/SGSN shall trigger the HSS Initiated Subscribed QoS Modification procedure towards the PGW. See clause 5.3.9.2 of 3GPP TS 23.401 [3].

- Bit 3 – PCRI (P-CSCF Restoration Indication): if this bit is set to 1, it indicates a request to trigger a P-CSCF restoration for the corresponding user (see 3GPP TS 23.380 [61]).

- Bit 2 – AOSI (Associate OCI with SGW node's Identity): if this bit is set to 1, it indicates that the SGW provided "SGW's Overload Control Information" which shall be associated with the node identity (i.e. FQDN or the IP address received from the DNS during the SGW selection) of the serving SGW.

- Bit 1 – AOPI (Associate OCI with PGW node's Identity): if this bit is set to 1, it indicates that the PGW provided "PGW's Overload Control Information" which shall be associated with the node identity (i.e. FQDN or the IP address received from the HSS or DNS during the PGW selection) of the serving PGW.

The following bits within Octet 10 shall indicate:

- Bit 8 – ROAAI (Release Over Any Access Indication): If this bit is set to 1, it indicates to the PGW that, if this is an NB-IFOM PDN connection, the PGW shall initiate the release of the corresponding PDN connection over the non-3GPP access over the S2a/S2b interface with the cause "Local release".

- Bit 7 – EPCOSI (Extended PCO Support Indication): If this bit is set to 1, it indicates to the receiver that the Extended PCO is supported, e.g. when the PGW is the receiver, it indicates that the UE, the MME and the SGW support Extended PCO; when the target MME is the receiver, during an inter-MME mobility, it indicates that UE and the source MME support Extended PCO.

- Bit 6 – CPOPCI (Control Plane Only PDN Connection Indication): If this bit is set to 1, it indicates that the PDN Connection is set to Control Plane Only, i.e. the user data pertaining to this PDN connection can only be transferred in NAS PDUs via the control plane.

- Bit 5 – PMTSMI (Pending MT Short Message Indication): If this bit is set to 1, it indicates to the target MME/S4-SGSN that there is one (or more) pending MT Short Message(s) in the SMS-GMSC, i.e. that the target MME/S4-SGSN shall provide its E.164 address and Diameter Identity if available to receive the MT Short message and maintain the signalling connection with the UE for a longer time to enable the retransmission of the Short Message.

- Bit 4 – S11-U Tunnel Flag (S11TF): This flag shall be set to 1 on the S11 interface if user data is transported in NAS signalling.

- Bit 3 – PNSI (Pending Network Initiated PDN Connection Signalling Indication): if this bit is set to 1, it indicates to the target MME/SGSN that there is pending network initiated PDN connection signalling for the PDN connection, i.e. the target MME/SGSN shall set UASI flag in the Create Session Request or Modify Bearer Request message to indicate to the PGW that the UE is available for end to end signalling.

- Bit 2 – UNACCSI (UE Not Authorised Cause Code Support Indication): If this bit is set to 1, it indicates that the Cause Code for "UE not authorized by OCS or external AAA Server" is supported by the S4-SGSN/MME.

- Bit 1 - WLCP PDN Connection Modification Support Indication (WPMSI): if this bit is set to 1, it indicates that the TWAN supports the WLCP PDN Connection Modification procedure. This indication is used by the P-CSCF restoration extension procedure for TWAN access (see 3GPP TS 23.380 [61]).

The following bits within Octet 11 shall indicate:

- Bit 8 – 5GSNN26 (5GS Interworking without N26 Indication): if this bit is set to 1 and the 5GS Interworking Indication (5GSIWKI) is set to 1, it indicates to the PGW-C+SMF that 5GS Interworking is supported without the N26 interface. If this bit is set to 0 and the 5GSIWKI (5GS Interworking Indication) is set to 1, it indicates to the PGW-C+SMF that 5GS Interworking is supported with the N26 interface.

- Bit 7 – REPREFI (Return Preferred Indication): This flag shall be set to 1 to indicate a preferred return of the UE to the last used EPS or 5GS PLMN at a later access change to an EPS or 5GS shared network.

- Bit 6 –5GSIWKI (5GS Interworking Indication): This flag shall be set to 1 for UEs supporting N1 mode and not restricted from interworking with 5GS by user subscription (see "5GC" bit within Core-Network-Restrictions AVP and Interworking-5GS-Indicator AVP specified in 3GPP TS 29.272 [70] and 3GPP TS 29.273 [68]) and hence access to 5GC is allowed for the PDN connection.

- Bit 5 –EEVRSI (Extended EBI Value Range Support Indication): if this bit is set to 1, it indicates that the sending GTPv2 entity supports the 15 EPS Bearers, i.e. it supports to use EPS Bearer ID with a value between '1' and '15'.

- Bit 4 –LTEMUI (LTE-M UE Indication): if this bit is set to 1, it indicates that the UE is a LTE-M UE (see 3GPP TS 23.401 [3]);

- Bit 3 – LTEMPI (LTE-M RAT Type reporting to PGW Indication): if this bit is set to 1, it indicates to the SGW to forward the LTE-M RAT type to the PGW;

- Bit 2 – ENBCRSI (eNB Change Reporting Support Indication): if this bit is set to 1, it indicates that the MME supports Macro eNodeB Change Reporting mechanism for the corresponding session.

- Bit 1 –TSPCMI (Triggering SGSN initiated PDP Context Creation/Modification Indication): if this bit is set to 1, it indicates to the S4-SGSN that in the UE\_initiated PDP Context Modification procedure, when the NBIFOM container is included, the S4-SGSN accepts the UE initiated PDP Context Modification procedure and initiates SGSN initiated PDP Context Creation/modification procedures respectively towards UE to transfer the NBIFOM container received from the PGW either in Create Bearer Request or Update Bearer Request message as specified in 3GPP TS 23.161 [71].

The following bits within Octet 12 shall indicate:

- Bit 8 – CSRMFI (Create Session Request Message Forwarded Indication): if this bit is set to 1, it indicates that the Create Session Request message has been forwarded by a PGW, and the receiving PGW shall include its PGW FQDN in the Create Session Response message if the creation of the PDN connection is accepted.

- Bit 7 – MTEDTN (MT-EDT Not Applicable): if this bit is set to 1, it indicates that MT-EDT is not applicable for the PDN connection.

- Bit 6 – MTEDTA (MT-EDT Applicable): if this bit is set to 1, it indicates that MT-EDT is applicable for the PDN connection.

- Bit 5 – N5GNMI (No 5GS N26 Mobility Indication): if this bit is set to 1, it indicates that the PDN connection cannot be moved to 5GS via N26.

- Bit 4 –5GCNRS (5GC Not Restricted Support): if this bit is set to 1, this indicates to the PGW-C+SMF that the sending node (i.e. MME or ePDG) supports setting the 5GCNRI flag. An MME or an ePDG compliant with this version of the specification shall support setting the 5GCNRI flag.

- Bit 3 –5GCNRI (5GC Not Restricted Indication): if this bit is set to 1, this indicates to the PGW-C+SMF that access to the 5GC is not restricted for the PDN connection. If the 5GCNRS bit is set to 1 and the 5GCNRI bit is set to 0, this indicates that access to the 5GC is restricted for the PDN connection. The 5GCNRI flag shall be ignored by the PGW-C+SMF if the 5GSIWKI flag is set to 1 (i.e. 5GS Interworking is supported).

- Bit 2 – 5SRHOI (5G-SRVCC HO Indication): if this bit is set to 1, it indicates the HO is used for 5G-SRVCC as specified in 3GPP TS 23.216 [43].

- Bit 1 – ETHPDN (Ethernet PDN Support Indication): if this bit is set to 1, it indicates the support of Ethernet PDN Connection.

The following bits within Octet 13 shall indicate:

- Bit 8 to 4: Spare, for future use and set to 0.

- Bit 3 – NSENBI (Notify Source eNodeB Indication): if this bit is set to 1, it indicates that the source MME shall send a Handover Success to the source eNodeB (see clause 5.5.1.2.2a of 3GPP TS 23.401 [3]).

- Bit 2 – IDFUPF (Indirect Data Forwarding with UPF Indication): if this bit is set to 1, it indicates that indirect data forwarding is required for user plane routes from/to a UPF.

- Bit 1 – EMCI (Emergency PDU Session Indication): if this bit is set to 1, it indicates the UE has emergency PDU session, as specified in 3GPP TS 23.216 [43].

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

## 8.48 Fully Qualified Container (F-Container)

Fully Qualified Container (F-Container) is coded as depicted in Figure 8.48-1.

All Spare bits are set to zeros by the sender and ignored by the receiver.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Bits |  |
|  | Octets | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
|  | 1 | Type = 118 (decimal) |  |
|  | 2 to 3 | Length = n |  |
|  | 4 | Spare | Instance |  |
|  | 5 | Spare | Container Type |  |
|  | 6 to (n+4) | F-Container field |  |

Figure 8.48-1: Full Qualified Container (F-Container)

The F-Container field shall contain one of the following information, depending of the contents of the container transported by the specific GTP Information Element:

- *transparent copy* of the corresponding IEs (see clause 8.2.2):

- the "Source to Target Transparent Container" or the "Target to Source Transparent Container" as specified in 3GPP TS 25.413 [33]; or

- the "SON Configuration Transfer" as specified in 3GPP TS 36.413 [10] or "EN-DC SON Configuration Transfer" as specified in 3GPP TS 36.413 [10]; or

- the "eNB Status Transfer Transparent Container" or eNB Early Status Transfer Transparent Container as specified in 3GPP TS 36.413 [10]; or

- "Source BSS to Target BSS Transparent Container" or "Target BSS to Source BSS Transparent Container" as specified in 3GPP TS 48.018 [34] or 3GPP TS 25.413 [33], which contains the value part of the "Source BSS to Target BSS Transparent Container" IE or the value part of the "Target BSS to Source BSS Transparent Container" IE defined in 3GPP TS 48.018 [34], i.e. octets 3 to n, excluding octet 1 (Element ID) and octet 2, 2a (Length); or

- *transparent copy* of the value part of the "NBIFOM Container" as specified in 3GPP TS 24.161 73].

- *transparent copy* of the octets of the encoded OCTET STRING of the "Source to Target Transparent Container" or the "Target to Source Transparent Container" specified in 3GPP TS 36.413 [10] and 3GPP TS 38.413 [84]; or

- *transparent copy* of the BSSGP RIM PDU as specified in 3GPP TS 48.018 [34]; or

- the Packet Flow ID, Radio Priority, SAPI, PS Handover XID parameters as specified in figure 8.42-2.

NOTE 1: Annex B.2 provides further details on the encoding of Generic Transparent Containers over RANAP, S1-AP and GTP. See also Annex C of 3GPP TS 36.413 [10] for further details on how the MME constructs the F-Container field from the Source to Target Transparent Container or Target to Source Transparent Container IEs received from S1-AP.

Container Type values are specified in Table 8.48-2.

Table 8. 48-2: Container Type values

|  |  |
| --- | --- |
| Container Types | Values (Decimal) |
| Reserved | 0 |
| UTRAN Transparent Container | 1 |
| BSS Container | 2 |
| E-UTRAN Transparent Container | 3 |
| NBIFOM Container | 4 |
| EN-DC Container | 5 |
| <spare> | 6-255 |

NOTE 2: For any other new future F-Container content types, new Container Type values may be needed, although use of RAT agnostic containers should be used whenever possible.

The BSS Container IE in the Bearer Context IE in Forward Relocation Request and Context Response messages is coded as depicted in Figure 8.48-3.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Bits |  |
|  | Octets | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
|  | 6 | Spare | PHX | SAPI | RP | PFI |  |
|  | a | Packet Flow ID |  |
|  | b | SAPI | Spare | Radio Priority |  |
|  | c | XiD parameters length |  |
|  | d to n | XiD parameters |  |

Figure 8.48-3: BSS Container

The flags PFI, RP, SAPI and PHX in octet 6 indicate the corresponding type of parameter (Packet FlowID, Radio Priority, SAPI and PS handover XID parameters) shall be present in a respective field or not. If one of these flags is set to "0", the corresponding field shall not be present at all. The Spare bit shall be set to zero by the sender and ignored by the receiver.

If PFI flag is set, Packet Flow ID shall be present in Octet a.

If RP flag is set, Radio Priority shall be present in Octet b.

If SAPI flag is set, SAPI shall be present in Octet b.

If PHX flag is set:

* XiD parameters length is present in Octet c.
* XiD parameters are present in Octet d to n.

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