**3GPP TSG-CT WG4 Meeting #99eC4-204257**

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

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.502** | **CR** | **0376** | **rev** | **1** | **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** |

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| ***Title:*** | Qos Rules during I-SMF and V-SMF Insertion | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI16, ETSUN | | | | |  | ***Date:*** | | | 2020-08-21 |
|  |  | | | |  | |  | | |  |
| ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 3GPP TS 29.502 has specified QosRules as mandatory IE in QosFlowSetupItem data type, to carry the QosRules N1 data sent to the UE.  During SM Context transfer/Retrieve between SMFs, QosFlowSetupItem is used to carry the flow information, and it is explicitly stated that the QosRules IE is set to empty string as there is no N1 QosRules to be sent to the UE.  Similarly, during I-SMF/V-SMF insertion during UE idle mobility, the Nsmf\_PduSession\_Create operation is used by I-SMF/V-SMF to create N16/N16a association to the (H-)SMF. During these procedures, there is no QosRules N1 info to be sent to the UE and QosRules in QosFlowSetupItem should also be set to empty string. | | | | | | | | |
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| ***Summary of change:*** | | 1/ Clarify that the Qos Rules shall be set to empty string in PduSessionCreatedData during I-SMF/V-SMF insertion, where QoS Rules for the QoS flows will not be sent to the UE. | | | | | | | | |
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| ***Consequences if not approved:*** | | Unclear specification on the content in mandatory IEs during UE mobility with I-SMF/V-SMF insertion, may lead to interoperability issue during different vendors. | | | | | | | | |
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| ***Clauses affected:*** | | 6.1.6.2.10. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not require version update on any OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1  Change the description that (H-)SMF may pass the empty QosRules or Latest QosRules, when QoSRules are not to be send to the UE. | | | | | | | | |

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

##### 6.1.6.2.10 Type: PduSessionCreatedData

Table 6.1.6.2.10-1: Definition of type PduSessionCreatedData

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| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| pduSessionType | PduSessionType | M | 1 | This IE shall indicate the selected PDU type. |  |
| sscMode | string | M | 1 | This IE shall indicate the SSC mode applicable to the PDU session.  When present, it shall be encoded as one character in hexadecimal representation, taking a value of "0" to "7", representing the 3 bits of the SSC mode value of the SSC mode IE specified in clause 9.11.4.16 of 3GPP TS 24.501 [7].  Pattern: "^[0-7]$"  Example: SSC mode 3 shall be encoded as "3".  (NOTE 1). |  |
| hcnTunnelInfo | TunnelInfo | C | 0..1 | This IE shall be present for a HR PDU session, except when Control Plane CIoT 5GS Optimisation is enabled and data delivery via NEF is selected for this PDU session.  When present, this IE shall contain the N9 tunnel information of the home CN side, i.e. H-UPF. |  |
| cnTunnelInfo | TunnelInfo | C | 0..1 | This IE shall be present for a PDU session involving an I-SMF, except when Control Plane CIoT 5GS Optimisation is enabled and data delivery via NEF is selected for this PDU session.  When present, this IE shall contain the N9 tunnel information of the SMF. | DTSSA |
| additionalCnTunnelInfo | TunnelInfo | C | 0..1 | This IE shall be present if a MA-PDU session is established for a UE registered over both 3GPP access and Non-3GPP access.  When present, it shall contain additional N9 tunnel information of the UPF controlled by the H-SMF or SMF. | MAPDU |
| sessionAmbr | Ambr | C | 0..1 | This IE shall be present, except when Control Plane CIoT 5GS Optimisation is enabled for the PDU session.  When present, this IE shall contain the Session AMBR granted to the PDU session. |  |
| qosFlowsSetupList | array(QosFlowSetupItem) | C | 1..N | This IE shall be present, except when Control Plane CIoT 5GS Optimisation is enabled for the PDU session.  When present, this IE shall contain the full set of QoS flow(s) to establish for the PDU session. It shall contain at least the Qos flow associated to the default Qos rule.  If the Qos Rule(s) associated to the Qos flow have not changed thus shall not be sent to the UE, e.g. during UE mobility procedures with I-SMF insertion, the qosRules attribute in the QosFlowSetupItem may be set to the latest Qos Rule(s) associated to the Qos flow or set to an empty sting. |  |
| hSmfInstanceId | NfInstanceId | C | 0..1 | This IE shall be present for a HR PDU session. When present, it shall contain the identifier of the home SMF. |  |
| smfInstanceId | NfInstanceId | C | 0..1 | This IE shall be present for a PDU session with an I-SMF. When present, it shall contain the identifier of the SMF. | DTSSA |
| pduSessionId | PduSessionId | C | 0..1 | This IE shall be present during an EPS to 5GS Idle mode mobility or handover preparation using the N26 interface.  When present, it shall be set to the PDU Session ID. |  |
| sNssai | Snssai | C | 0..1 | This IE shall be present during an EPS to 5GS Idle mode mobility or handover using the N26 interface.  When present, it shall contain:  - the S-NSSAI assigned to the PDU session in the Home PLMN, for a HR PDU session;  - the S-NSSAI assigned to the PDU session in the serving PLMN, for a PDU session with an I-SMF. The Snssai shall overwrite the S-NSSAI earlier stored in I-SMF, if they are different. |  |
| enablePauseCharging | boolean | C | 0..1 | This IE shall be present, based on operator's policy, to enable the use of Pause of Charging for the PDU session (see clause 4.4.4 of 3GPP TS 23.502 [3]).  When present, it shall be set as follows:  - true: enable Pause of Charging;  - false (default): disable Pause of Charging. |  |
| ueIpv4Address | Ipv4Addr | C | 0..1 | This IE shall be present if the SMF assigns a UE IPv4 address to the PDU session. |  |
| ueIpv6Prefix | Ipv6Prefix | C | 0..1 | This IE shall be present if the SMF assigns a UE IPv6 prefix to the PDU session. |  |
| n1SmInfoToUe | RefToBinaryData | C | 0..1 | This IE shall be present if the SMF needs to send N1 SM information to the UE that does not need to be interpreted by the V-SMF or I-SMF. When present, this IE shall reference the n1SmInfoToUe binary data (see clause 6.1.6.4.4). |  |
| epsPdnCnxInfo | EpsPdnCnxInfo | C | 0..1 | This IE shall be present if the PDU session may be moved to EPS during its lifetime. |  |
| epsBearerInfo | array(EpsBearerInfo) | C | 1..N | This IE shall be present if the PDU session may be moved to EPS during its lifetime. |  |
| supportedFeatures | SupportedFeatures | C | 0..1 | This IE shall be present if at least one optional feature defined in clause 6.1.8 is supported. |  |
| maxIntegrityProtectedDataRate | MaxIntegrityProtectedDataRate | C | 0..1 | This IE shall be present if the upSecurity IE is present and indicates that integrity protection is preferred or required.  When present, it shall indicate the maximum integrity protected data rate for uplink.  If the maxIntegrityProtectedDataRateDl IE is absent, this IE applies to both uplink and downlink. |  |
| maxIntegrityProtectedDataRateDl | MaxIntegrityProtectedDataRate | C | 0..1 | This IE may be present if the upSecurity IE is present and indicates that integrity protection is preferred or required.  When present, it shall indicate the maximum integrity protected data rate for downlink. |  |
| alwaysOnGranted | boolean | C | 0..1 | This IE shall be present if the alwaysOnRequested IE was received in the request or if the SMF determines, based on local policy, that the PDU session needs to be established as an always-on PDU session.  When present, it shall be set as follows:  - true: always-on PDU session granted.  - false (default): always-on PDU session not granted. |  |
| gpsi | Gpsi | C | 0..1 | This IE shall be present if no GPSI IE is provided in the request, e.g. for a PDU session moved from another access or another system, and the SMF knows that a GPSI is already associated with the PDU session.  When present, it shall contain the user's GPSI associated with the PDU session. |  |
| upSecurity | UpSecurity | O | 0..1 | When present, this IE shall indicate the security policy for integrity protection and encryption for the user plane of the PDU session. |  |
| roamingChargingProfile | RoamingChargingProfile | O | 0..1 | Roaming Charging Profile selected by the HPLMN (see clauses 5.1.9.1, 5.2.1.7 and 5.2.2.12.2 of 3GPP TS 32.255 [25]). |  |
| hSmfServiceInstanceId | string | O | 0..1 | When present, this IE shall contain the serviceInstanceId of the H-SMF service instance serving the PDU session, for a HR PDU session.  This IE may be used by the V-SMF to identify PDU sessions affected by a failure or restart of the H-SMF service (see clause 6.2 of 3GPP TS 23.527 [24]). |  |
| smfServiceInstanceId | string | O | 0..1 | When present, this IE shall contain the serviceInstanceId of the SMF service instance serving the PDU session, for a PDU session with an I-SMF.  This IE may be used by the I-SMF to identify PDU sessions affected by a failure or restart of the SMF service (see clause 6.2 of 3GPP TS 23.527 [24]). | DTSSA |
| recoveryTime | DateTime | O | 0..1 | Timestamp when the SMF service instance serving the PDU session was (re)started (see clause 6.3 of 3GPP TS 23.527 [24]). |  |
| dnaiList | array(Dnai) | C | 1..N | This IE shall be present over N16a, if available and an I-SMF has been inserted into a PDU session, during the following procedures: PDU session establishment, Registration, Service Request, Xn based handover, Inter NG-RAN node N2 based handover (see clause 4.23 of 3GPP TS 23.502 [3]).  When present, it shall include the list of DNAIs of interest for the PDU session for local traffic steering at the I-SMF. | DTSSA |
| ipv6MultiHomingInd | boolean | C | 0..1 | This IE shall be present over N16a, if available and an I-SMF has been inserted into the PDU session during the following procedures: PDU session establishment, Registration, Service Request, Xn based handover, Inter NG-RAN node N2 based handover (see clause 4.23 of 3GPP TS 23.502 [3]).  When present, it shall be set as follows:  - true: IPv6 multi-homing is permitted.  - false (default): IPv6 multi-homing is not allowed. | DTSSA |
| maAcceptedInd | boolean | C | 0..1 | This IE shall be present if a request to establish a MA PDU session was accepted or if a single access PDU session was upgraded into a MA PDU session (see clauses 4.22.2 and 4.22.3 of 3GPP TS 23.502 [3]).  When present, it shall be set as follows:  - true: MA PDU session  - false (default): single access PDU session | MAPDU |
| homeProvidedChargingId | string | O | 0..1 | When present, this IE shall contain the Home provided Charging ID (see 3GPP TS 32.255 [25]). |  |
| nefExtBufSupportInd | boolean | C | 0..1 | This IE shall be present with value "true", if NEF has indicated Extended Buffering Support for mobile terminated data in SMF-NEF connection establishment response.  When present, this IE shall be set as following:  - true: Extended Buffering supported by NEF  - false (default): Extended Buffering not supported by NEF | CIOT |
| smallDataRateControlEnabled | boolean | C | 0..1 | This IE shall be present and set to "true" if small data rate control is applicable on the PDU session.  When present, it shall be set as follows:  - true: small data rate control is applicable.  - false (default): small data rate control is not applicable. | CIOT |
| NOTE 1: This IE contains information that the V-SMF or I-SMF only needs to transfer to the UE (without interpretation). It is sent as a separate IE rather than within the n1SmInfoToUE binary data because the Selected SSC mode IE is defined as a "V" IE (i.e. without a Type field) in the NAS PDU Session Establishment Accept message.  NOTE 2: In scenarios with a V-SMF/I-SMF insertion, the V-SMF/I-SMF may receive in the Create Response some IEs it has already received during the earlier SM context retrieval from the SMF (e.g. due to the condition of presence of IEs in the Create Response). In such a case, the V-SMF/I-SMF shall overwrite the IEs earlier received with the new IEs received in the Create Response. | | | | | |

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