**3GPP TSG-CT WG4 Meeting #99eC4-204xxx**

**E-Meeting, 18th – 28th August 2020 *Revision of C4-204169***

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.502** | **CR** | **0370** | **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:*** | Request Type | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI16 | | | | |  | ***Date:*** | | | 2020-07-20 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Request Type with values: initial request, existing PDU session, initial emergency request and existing emergency PDU session will be sent from the UE to the AMF during PDU session establishment procedure, which is included in RequestType IE in SmContextCreateData and PduSessionCreateData. For SmContextCreateData and PduSessionCreateData used in EPS to 5GS Idle mode mobility or handover using N26 interface, it is clearly specified the RequestType shall not be included.  Create SM Context service operation and Create service operation are extended in R16 to support, e.g. the procedues with I-SMF/V-SMF insertion, change, it is shall also be indicated that the Request Type shall not be present. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Update the description of the Request Type to indicate the value is mapped from the IE sent by UE. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Unclear definition about the Request Type in procedues with I-SMF/V-SMF insertion may lead to different implementations. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.2.2.1, 5.2.2.7.1, 6.1.6.2.2, 6.1.6.2.9 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 contribution does not change the OpenAPI. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

##### 5.2.2.2.1 General

The Create SM Context service operation shall be used to create an individual SM context, for a given PDU session, in the SMF, in the V-SMF for HR roaming scenarios, or in the I-SMF for a PDU session with an I-SMF.

It is used in the following procedures:

- UE requested PDU Session Establishment (see clauses 4.3.2 and 4.23.5.1 of 3GPP TS 23.502 [3]);

- EPS to 5GS Idle mode mobility, EPS to 5GS Idle mode mobility with data forwarding or handover using N26 interface (see clauses 4.11.1, 4.23.12.3, 4.23.12.5 and 4.23.12.7 of 3GPP TS 23.502 [3]);

- EPS to 5GS mobility without N26 interface (see clause 4.11.2.3 3GPP TS 23.502 [3]);

- Handover of a PDU session between 3GPP access and non-3GPP access, when the target AMF does not know the SMF resource identifier of the SM context used by the source AMF, e.g. when the target AMF is not in the PLMN of the N3IWF (see clause 4.9.2.3.2 of 3GPP TS 23.502 [3]), or when the UE is roaming and the selected N3IWF is in the HPLMN (see clause 4.9.2.4.2 of 3GPP TS 23.502 [3]);

- Handover from EPS to 5GC-N3IWF (see clause 4.11.3.1 of 3GPP TS 23.502 [3]);

- Handover from EPC/ePDG to 5GS (see clause 4.11.4.1 of 3GPP TS 23.502 [3]);

- Xn based or N2 based handover with I-SMF or V-SMF insertion and change (see clauses 4.23.7.3, 4.23.11 and 4.23.12 of 3GPP TS 23.502 [3]);

- UE Triggered Service Request with I-SMF insertion/change/removal or V-SMF change (see clause 4.23.4.3 of 3GPP TS 23.502 [3]);

- Registration procedure for a UE with a PDU session with I-SMF or V-SMF insertion, change and removal (see clause 4.23.3 of 3GPP TS 23.502 [3]);

- Handover from EPC/ePDG to 5GS with I-SMF insertion (see clause 4.23 of 3GPP TS 23.502 [3]);

- SMF Context Transfer procedure, LBO or no Roaming, no I-SMF (see clause 4.26.5.3 of 3GPP TS 23.502 [3]);

- I-SMF Context Transfer procedure (see clause 4.26.5.2 of 3GPP TS 23.502 [3]);

- 5G-RG requested PDU Session Establishment via W-5GAN (see clause 7.3.1 of 3GPP TS 23.316 [36]);

- FN-RG related PDU Session Establishment via W-5GAN (see clause 7.3.4 of 3GPP TS 23.316 [36]);

- Non-5G capable device behind 5G-CRG and FN-CRG requested PDU Session Establishment via W-5GAN (see clause 4.10a of 3GPP TS 23.316 [36]);

- Handover from 3GPP access/EPS to W-5GAN/5GC (see clause 7.6.4.1 of 3GPP TS 23.316 [36]).

There shall be only one individual SM context per PDU session.

The NF Service Consumer (e.g. AMF) shall create an SM context by using the HTTP POST method as shown in Figure 5.2.2.2.1-1.



Figure 5.2.2.2.1-1: SM context creation

1. The NF Service Consumer shall send a POST request to the resource representing the SM contexts collection resource of the SMF. The payload body of the POST request shall contain:

- a representation of the individual SM context resource to be created;

- the Request Type IE, if it is received from the UE for a single access PDU session and if the request refers to an existing PDU session or an existing Emergency PDU session; the Request Type IE shall not be included for a MA-PDU session establishment request; it may be included otherwise;

- the Old PDU Session ID, if it is received from the UE (i.e. for a PDU session establishment for the SSC mode 3 operation);

- the indication that the UE is inside or outside of the LADN (Local Area Data Network) service area, if the DNN corresponds to a LADN;

- the indication that a MA-PDU session is requested if a MA-PDU session is requested to be established by the UE, or the indication that the PDU session is allowed to be upgraded to a MA-PDU session if so indicated by the UE;

- the anType;

- the additionalAnType, if the UE is registered over both 3GPP and Non-3GPP accesses;

- the cpCiotEnabled IE with the value "True", if the NF service consumer (e.g. the AMF) has verified that the CIOT feature is supported by the SMF (and for a home-routed session, that it is also supported by the H-SMF), and Control Plane CIoT 5GS Optimisation is enabled for this PDU session;

- the cpOnlyInd IE with the value "True", if the PDU session shall only use Control Plane CIoT 5GS Optimisation;

- the Invoke NEF indication with the value "True" for a home-routed PDU session, if the cpCiotEnabled IE is set to "True" and data delivery via NEF is selected for the PDU session;

- a subscription for SM context status notification;

- the servingNfId identifying the serving AMF;

- trace control and configuration parameters, if trace is to be activated (see 3GPP TS 32.422 [22]);

- identifiers (i.e. FQDN or IP address) of N3 terminations at the W-AGF, TNGF or TWIF, if available;

- a subscription for DDN failure notification, if the Availability after DDN failure event is subscribed by the UDM.

For the UE requested PDU Session Establishment procedure in home routed roaming scenario (see clause 4.3.2.2.2 of 3GPP TS 23.502 [3]), the NF Service Consumer shall provide the URI of the Nsmf\_PDUSession service of the H-SMF in the hSmfUri IE and may provide the URI of the Nsmf\_PDUSession service of additional H-SMFs. The V-SMF shall try to create the PDU session using the hSmfUri IE. If due to communication failure on the N16 interface the V-SMF does not receive any response from the H-SMF, then:

- depending on operator policy, the V-SMF may try reaching the hSmfUri via an alternate path; or

- if additional H-SMF URI is provided, the V-SMF may try to create the PDU session on one of the additional H-SMF(s) provided.

For a PDU session establishment with an I-SMF (see clause 4.23.5.1 of of 3GPP TS 23.502 [3]), the NF Service Consumer shall provide the URI of the Nsmf\_PDUSession service of the SMF in the smfUri IE and may provide the URI of the Nsmf\_PDUSession service of additional SMFs. The I-SMF shall try to create the PDU session using the smfUri IE. If due to communication failure on the N16a interface the I-SMF does not receive any response from the SMF, then:

- depending on operator policy, the I-SMF may try reaching the smfUri via an alternate path; or

- if additional SMF URI is provided, the I-SMF may try to create the PDU session on one of the additional SMF(s) provided.

For the UE requested PDU Session Establishment procedure, if the AMF determines that the RAT type is NB-IoT and the UE has already 2 PDU Sessions with user plane resources activated, the AMF may continue with the PDU Session establishment and include the cpCiotEnabled IE or cpOnlyInd IE with the value "True" to the SMF as specified in clause 4.3.2.2.1 of 3GPP TS 23.502 [3].

The payload body of the POST request may further contain:

- the name of the AMF service to which SM context status notification are to be sent (see clause 6.5.2.2 of 3GPP TS 29.500 [4]), encoded in the serviceName attribute.

2a. On success, "201 Created" shall be returned, the payload body of the POST response shall contain the representation describing the status of the request and the "Location" header shall be present and shall contain the URI of the created resource. The authority and/or deployment-specific string of the apiRoot of the created resource URI may differ from the authority and/or deployment-specific string of the apiRoot of the request URI received in the POST request.  
  
If the Request Type was received in the request and set to EXISTING\_PDU\_SESSION or EXISTING\_EMERGENCY\_PDU\_SESSION (i.e. indicating that this is a UE request for an existing PDU session or an existing emergency PDU session), the SMF shall identify the existing PDU session or emergency PDU session based on the PDU Session ID; in this case, the SMF shall not create a new SM context but instead update the existing SM context and provide the representation of the updated SM context in the "201 Created" response to the NF Service Consumer.

The POST request shall be considered as colliding with an existing SM context if:

- it includes the same SUPI, or PEI for an emergency registered UE without a UICC or without an authenticated SUPI, and the same PDU Session ID as for an existing SM context; and

- this is a request to establish a new PDU session, i.e.:

- the RequestType IE is present in the request and set to INITIAL\_REQUEST or INITIAL\_EMERGENCY\_REQUEST (e.g. single access PDU session establishment request);

- the RequestType IE and the maRequestInd IE are both absent in the request (e.g. EPS to 5GS mobility); or

- the maRequestInd IE is present in the request (i.e. MA-PDU session establishment request) and the access type indicated in the request corresponds to the access type of the existing SM context.

A POST request that collides with an existing SM context shall be treated as a request for a new SM context. Before creating the new SM context, the SMF should delete the existing SM context locally and any associated resources in the UPF and PCF. See also clause 5.2.3.3.1 for the handling of requests which collide with an existing SM context. If the smContextStatusUri of the existing SM context differs from the smContextStatusUri received in the POST request, the SMF shall also send an SM context status notification (see clause 5.2.2.5) targeting the smContextStatusUri of the existing SM context to notify the release of the existing SM context. For a HR PDU session, if the H-SMF URI in the request is different from the H-SMF URI of the existing PDU session, the V-SMF should also delete the existing PDU session in the H-SMF by invoking the Release service operation (see clause 5.2.2.9). For a PDU session with an I-SMF, if the SMF URI in the request is different from the SMF URI of the existing PDU session, the I-SMF should also delete the existing PDU session in the SMF by invoking the Release service operation (see clause 5.2.2.9).

If the Request Type was received in the request and indicates this is a request for a new PDU session (i.e. INITIAL\_REQUEST) and if the Old PDU Session ID was also included in the request, the SMF shall identify the existing PDU session to release and to which the new PDU session establishment relates, based on the Old PDU Session ID.

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 (or a GPSI is received from h-SMF for a HR PDU session), the SMF shall include the GPSI in the response.

2b. If the request does not include the "UE presence in LADN service area" indication and the SMF determines that the DNN corresponds to a LADN, then the SMF shall consider that the UE is outside of the LADN service area. The SMF shall reject the request if the UE is outside of the LADN service area.

On failure, or redirection during a UE requested PDU Session Establishment, one of the HTTP status code listed in Table 6.1.3.2.3.1-3 shall be returned. For a 4xx/5xx response, the message body shall contain an SmContextCreateError structure, including:

- a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.1.3.2.3.1-3;

- N1 SM information (PDU Session Reject), if the request included N1 SM information, except if the error prevents the SMF from generating a response to the UE (e.g. invalid request format).

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

##### 5.2.2.7.1 General

The Create service operation shall be used to create an individual PDU session in the H-SMF for HR roaming scenarios, or in the SMF for PDU sessions involving an I-SMF.

It is used in the following procedures:

- UE requested PDU Session Establishment with or without an I-SMF insertion (see clauses 4.3.2.2.2 and 4.23.5.1 of 3GPP TS 23.502 [3]);

- when an I-SMF is inserted during the Registration, Service Request, Inter NG-RAN node N2 based handover, Xn based handover and Handover from EPC/ePDG to 5GS procedures (see clauses 4.23.3, 4.23.4, 4.23.7.3 and 4.23.11.2 of 3GPP TS 23.502 [3]);

- EPS to 5GS Idle mode mobility or handover using N26 interface (see clauses 4.11, 4.23.12.3, 4.23.12.5 and 4.23.12.7 of 3GPP TS 23.502 [3]);

- EPS to 5GS mobility without N26 interface (see clause 4.11.2.3 of 3GPP TS 23.502 [3]);

- Handover of a PDU session between 3GPP access and non-3GPP access, when the target AMF does not know the SMF resource identifier of the SM context used by the source AMF, e.g. when the target AMF is not in the PLMN of the N3IWF (see clause 4.9.2.3.2 of 3GPP TS 23.502 [3]);

- Handover from EPS to 5GC-N3IWF (see clause 4.11.3.1 of 3GPP TS 23.502 [3]);

- Handover from EPC/ePDG to 5GS (see clause 4.11.4.1 of 3GPP TS 23.502 [3]).

The NF Service Consumer (e.g. V-SMF or I-SMF) shall create a PDU session in the SMF (i.e. H-SMF for a HR PDU session, or SMF for a PDU session involving an I-SMF) by using the HTTP POST method as shown in Figure 5.2.2.7.1-1.



Figure 5.2.2.7.1-1: PDU session creation

1. The NF Service Consumer shall send a POST request to the resource representing the PDU sessions collection resource of the SMF. The payload body of the POST request shall contain:

- a representation of the individual PDU session resource to be created;

- the Request Type IE, if it is received from the UE for a single access PDU session and if the request refers to an existing PDU session or an existing Emergency PDU session; the Request Type shall not be included for a MA-PDU session establishment request; it may be included otherwise;

- the indication that a MA-PDU session is requested if a MA-PDU session is requested to be established by the UE, or the indication that the PDU session is allowed to be upgraded to a MA PDU session if the UE indicated so;

- the vsmfId IE or ismfId IE identifying the V-SMF or I-SMF respectively;

- the cpCiotEnabled IE with the value "True", if Control Plane CIoT 5GS Optimisation is enabled for this PDU session;

- the cpOnlyInd IE with the value "True", if the PDU session shall only use Control Plane CIoT 5GS Optimisation;

- the Invoke NEF indication with the value "True", if the cpCiotEnabled IE is set to "True" and data delivery via NEF is selected for the PDU session;

- the vcnTunnelInfo IE or icnTunnelInfo IE with the N9 tunnel information of the UPF controlled by the V-SMF or I-SMF respectively, except when Control Plane CIoT 5GS Optimisation is enabled and data delivery via NEF is selected for this PDU session;

- the additionalCnTunnelInfo IE with additional N9 tunnel information, if a MA PDU session is requested or if the PDU session is allowed to be upgraded to a MA PDU session, and if the UE is registered over both 3GPP and Non-3GPP accesses;

- the anType IE, indicating the access network type (3GPP or non-3GPP access) associated to the PDU session;

- the additionalAnType IE indicating an additional access network type associated to the PDU session, for a MA PDU session, if the UE is registered over both 3GPP and Non-3GPP accesses;

- the n9ForwardingTunnelInfo IE indicating the allocated N9 tunnel endpoints information for receiving the buffered downlink data packets, when downlink data packets are buffered at I-UPF controlled by the SMF during I-SMF insertion;

- a URI ({vsmfPduSessionUri} or {ismfPduSessionUri}) representing the PDU session resource in the V-SMF or I-SMF, for possible use by the SMF to subsequently modify or release the PDU session;

- the list of DNAIs supported by the I-SMF, for a PDU session with an I-SMF.

As specified in clause 4.3.2.2.2 of 3GPP TS 23.502 [3], the NF Service Consumer shall be able to receive an Update request before receiving the Create Response, e.g. for EPS bearer ID allocation (see clause 4.11.1.4.1 of 3GPP TS 23.502 [3]) or Secondary authorization/authentication (see clause 4.3.2.3 of 3GPP TS 23.502 [3]).

2a. On success, "201 Created" shall be returned, the payload body of the POST response shall contain:

- the representation describing the status of the request;

- the QoS flow(s) to establish for the PDU session, except when Control Plane CIoT 5GS Optimisation is enabled for this PDU session;

- the epsPdnCnxInfo IE and, for each EPS bearer, an epsBearerInfo IE, if the PDU session may be moved to EPS during its lifetime;

- a MA PDU Session Accepted indication, if a MA PDU session is established;

- the smallDataRateControlEnabled indication set to "true" if small data rate control is applicable on the PDU session;

- the "Location" header containing the URI of the created resource.

The SMF may provide alternative QoS profiles for each GBR QoS flow with Notification control enabled, to allow the NG-RAN to accept the setup of the QoS flow if the requested QoS parameters or at least one of the alternative QoS parameters sets can be fulfilled at the time of setup.

The authority and/or deployment-specific string of the apiRoot of the created resource URI may differ from the authority and/or deployment-specific string of the apiRoot of the request URI received in the POST request.

If an Update Request was sent to the NF Service Consumer before the Create Response, the URI in the "Location" header and in the hsmfPduSessionUri IE (or smfPduSessionUri IE for a PDU session with an I-SMF) of the SMF initiated Update Request shall be the same. If the Request Type was received in the request and set to EXISTING\_PDU\_SESSION or EXISTING\_EMERGENCY\_PDU\_SESSION (i.e. indicating that this is a UE request for an existing PDU session or an existing emergency PDU session), the SMF shall identify the existing PDU session or emergency PDU session based on the PDU Session ID; in this case, the SMF shall not create a new PDU session or emergency PDU session but instead update the existing PDU session or emergency PDU session and provide the representation of the updated PDU session or emergency PDU session in the response to the NF Service Consumer.

The POST request shall be considered as colliding with an existing PDU session context if:

- it includes the same SUPI, or PEI for an emergency registered UE without a UICC or without an authenticated SUPI, and the same PDU Session ID as for an existing PDU session context; and

- this is a request to establish a new PDU session, i.e.:

- the RequestType IE is present in the request and set to INITIAL\_REQUEST or INITIAL\_EMERGENCY\_REQUEST (e.g. single access PDU session establishment request);

- the RequestType IE and the maRequestInd IE are both absent in the request (e.g. EPS to 5GS mobility); or

- the maRequestInd IE is present in the request (i.e. MA-PDU session establishment request) and the access type indicated in the request corresponds to the access type of the existing PDU session context.

A POST request that collides with an existing PDU session context shall be treated as a request for a new PDU session context. Before creating the new PDU session context, the SMF should delete the existing PDU session context locally and any associated resources in the UPF and PCF. See also clause 5.2.3.3.1 for the handling of requests which collide with an existing PDU session context. If the vsmfPduSessionUri or ismfPduSessionUri of the existing PDU session context differs from the vsmfPduSessionUri or ismfPduSessionUri received in the POST request, the SMF shall also send a status notification (see clause 5.2.2.10) targeting the vsmfPduSessionUri or ismfPduSessionUri of the existing PDU session context to notify the release of the existing PDU session context.

If the Request Type was received in the request and indicates this is a request for a new PDU session (i.e. INITIAL\_REQUEST) and if the Old PDU Session ID was also included in the request, the SMF shall identify the existing PDU session to be released and to which the new PDU session establishment relates, based on the Old PDU Session ID.

The NF Service Consumer shall store any epsPdnCnxInfo and EPS bearer information received from the SMF.

If the response received from the SMF contains the alwaysOnGranted attribute set to true, the NF Service Consumer shall check and determine whether the PDU session can be established as an always-on PDU session based on local policy.

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, the SMF shall include the GPSI in the response.

2b. On failure, or redirection during a UE requested PDU Session Establishment, one of the HTTP status code listed in Table 6.1.3.5.3.1-3 shall be returned. For a 4xx/5xx response, the message body shall contain a PduSessionCreateError structure, including:

- a ProblemDetails structure with the "cause" attribute set to one of the application error listed in Table 6.1.3.5.3.1-3;

- the n1SmCause IE with the 5GSM cause that the SMF proposes the NF Service Consumer to return to the UE, if the request included n1SmInfoFromUe;

- n1SmInfoToUe with any information to be sent to the UE (in the PDU Session Establishment Reject).

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

##### 6.1.6.2.2 Type: SmContextCreateData

Table 6.1.6.2.2-1: Definition of type SmContextCreateData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| supi | Supi | C | 0..1 | This IE shall be present, except if the UE is emergency registered and UICCless.  When present, it shall contain the subscriber permanent identify. |  |
| unauthenticatedSupi | boolean | C | 0..1 | This IE shall be present if the SUPI is present in the message but is not authenticated and is for an emergency registered UE.  When present, it shall be set as follows:  - true: unauthenticated SUPI;  - false (default): authenticated SUPI. |  |
| pei | Pei | C | 0..1 | This IE shall be present if the UE is emergency registered and it is either UIClless or the SUPI is not authenticated.  For all other cases, this IE shall be present if it is available.  When present, it shall contain the permanent equipment identifier. |  |
| gpsi | Gpsi | C | 0..1 | This IE shall be present if it is available. When present, it shall contain the user's GPSI. |  |
| pduSessionId | PduSessionId | C | 0..1 | This IE shall be present, except during an EPS to 5GS Idle mode mobility or handover using the N26 interface.  When present, it shall contain the PDU Session ID. |  |
| dnn | Dnn | C | 0..1 | This IE shall be present, except during an EPS to 5GS Idle mode mobility or handover using the N26 interface.  When present, it shall contain the requested DNN; the DNN shall be the full DNN (i.e. with both the Network Identifier and Operator Identifier) for a HR PDU session, and it should be the full DNN in LBO and non-roaming scenarios. If the Operator Identifier is absent, the serving core network operator shall be assumed. |  |
| selectedDnn | Dnn | C | 0..1 | This IE shall be present, if another DNN other than the UE requested DNN is selected for this PDU session.  When present, it shall contain the selected DNN. The DNN shall be the full DNN (i.e. with both the Network Identifier and Operator Identifier) for a HR PDU session, and it should be the full DNN in LBO and non-roaming scenarios. If the Operator Identifier is absent, the serving core network operator shall be assumed. |  |
| sNssai | Snssai | C | 0..1 | This IE shall be present during the PDU session establishment procedure. In this case, it shall contain the requested S-NSSAI for the serving PLMN. This corresponds to an S-NSSAI from the allowed NSSAI.  This IE shall also be present during an EPS to 5GS idle mode mobility or handover with I-SMF/V-SMF involved using the N26 interface. In this case, it shall contain the S-NSSAI configured in the AMF for EPS interworking. |  |
| hplmnSnssai | Snssai | C | 0..1 | This IE shall be present for a roaming PDU session, except during an EPS to 5GS idle mode mobility or handover using the N26 interface.  When present, it shall contain the requested S-NSSAI for the HPLMN. This corresponds to an S-NSSAI from the Mapping Of Allowed NSSAI corresponding to the SNSSAI value included in the sNssai IE. |  |
| servingNfId | NfInstanceId | M | 1 | This IE shall contain the identifier of the serving NF (e.g. serving AMF). |  |
| guami | Guami | C | 0..1 | This IE shall contain the serving AMF's GUAMI.  It shall be included if the NF service consumer is an AMF. |  |
| serviceName | ServiceName | O | 0..1 | When present, this IE shall contain the name of the AMF service to which SM context status notifications are to be sent (see clause 6.5.2.2 of 3GPP TS 29.500 [4]). This IE may be included if the NF service consumer is an AMF. |  |
| servingNetwork | PlmnIdNid | M | 1 | This IE shall contain the serving core network operator PLMN ID and, for an SNPN, the NID that together with the PLMN ID identifies the SNPN. |  |
| requestType | RequestType | C | 0..1 | This IE shall be present if the request relates to an existing PDU session or an existing emergency PDU session, except during an EPS to 5GS idle mode mobility or handover using the N26 interface. It may be present otherwise.  When present, it shall indicate whether the request refers to a new PDU session or emergency PDU session, or to an existing PDU session or emergency PDU session.  For request sent from UE, this IE shall be set based on the Request type IE received (see clause 9.11.3.47 of 3GPP TS 24.501 [7]). |  |
| n1SmMsg | RefToBinaryData | C | 0..1 | This IE shall be present and reference the N1 SM Message binary data (see clause 6.1.6.4.2), except during an EPS to 5GS Idle mode mobility or handover using N26. |  |
| anType | AccessType | M | 1 | This IE shall indicate the Access Network Type to which the PDU session is to be associated. |  |
| additionalAnType | AccessType | C | 0..1 | This IE shall indicate the additional Access Network Type to which the PDU session is to be associated.  This IE shall be present if a MA-PDU session is requested and the UE is registered over both 3GPP access and Non-3GPP access. | MAPDU |
| ratType | RatType | C | 0..1 | This IE shall be present and indicate the RAT Type used by the UE, if available. |  |
| presenceInLadn | PresenceState | C | 0..1 | This IE shall be present if the DNN corresponds to a LADN. When present, it shall be set to "IN" or "OUT" to indicate that the UE is in or out of the LADN service area. |  |
| ueLocation | UserLocation | C | 0..1 | This IE shall contain the UE location information, if it is available. See NOTE. |  |
| ueTimeZone | TimeZone | C | 0..1 | This IE shall contain the UE Time Zone, if it is available. |  |
| addUeLocation | UserLocation | O | 0..1 | Additional UE location.  This IE may be present, if anType indicates a non-3GPP access and valid 3GPP access user location information is available.  When present, it shall contain:  - the last known 3GPP access user location; and  - the timestamp, if available, indicating the UTC time when the addUeLocation information was acquired.  (NOTE) |  |
| smContextStatusUri | Uri | M | 1 | This IE shall include the callback URI to receive notification of SM context status. |  |
| hSmfUri | Uri | C | 0..1 | This IE shall be present in HR roaming scenarios, including Indirect Communication with Delegated Discovery. When present, it shall contain the API URI of the Nsmf\_PDUSession service of the selected H-SMF. The API URI shall be formatted as specified in clause 6.1.1. |  |
| smfUri | Uri | C | 0..1 | This IE shall be present for a PDU session with an I-SMF, including Indirect Communication with Delegated Discovery. When present, it shall contain the API URI of the Nsmf\_PDUSession service of the selected SMF. The API URI shall be formatted as specified in clause 6.1.1. | DTSSA |
| oldPduSessionId | PduSessionId | C | 0..1 | This IE shall be present if this information is received from the UE.  When present, it shall contain the old PDU Session ID received from the UE. See clauses 4.3.2.2.1 and 4.3.5.2 of 3GPP TS 23.502 [3]. |  |
| pduSessionsActivateList | array(PduSessionId) | C | 1..N | This IE shall be present, during an EPS to 5GS Idle mode mobility using the N26 interface, if the UE indicated PDU session(s) to be activated in the Registration Request.  When present, it shall indicate all the PDU session(s) requested to be re-activated by the UE. |  |
| ueEpsPdnConnection | EpsPdnCnxContainer | 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 an MME/SGSN UE EPS PDN connection including the EPS bearer context(s). |  |
| hoState | HoState | C | 0..1 | This IE shall be present during an EPS to 5GS handover using N26 interface, to request the preparation of a handover of the PDU session.  When present, it shall be set as specified in clause 5.2.2.2.3. |  |
| additionalHsmfUri | array(Uri) | O | 1..N | This IE may be present in HR roaming scenarios. When present, it shall contain an array of API URI of the Nsmf\_PDUSession service of the additional H-SMFs discovered by the AMF for the given DNN, hplmnSnssai and for this PDU session. If provided, the V-SMF shall use these additional H-SMF(s) if the V-SMF is not able to receive any response from the H-SMF identified by hSmfUri.  The API URI shall be formatted as specified in clause 6.1.1. |  |
| additionalSmfUri | array(Uri) | O | 1..N | This IE may be present for a PDU session with an I-SMF. When present, it shall contain an array of API URI of the Nsmf\_PDUSession service of the additional SMFs discovered by the AMF for the given DNN, Snssai and for this PDU session. If provided, the I-SMF shall use these additional SMF(s) if the I-SMF is not able to receive any response from the SMF identified by smfUri.  The API URI shall be formatted as specified in clause 6.1.1. | DTSSA |
| pcfId | NfInstanceId | O | 0..1 | When present, this IE shall contain the identifier of the PCF selected by the AMF for the UE (for Access and Mobility Policy and/or UE Policy); it shall be the V-PCF in LBO roaming and the H-PCF in HR roaming. |  |
| pcfGroupId | NfGroupId | O | 0..1 | This IE may be present in non-roaming and HR roaming scenarios.  When present, this IE shall contain the identity of the (home) PCF group serving the UE for Access and Mobility Policy and/or UE Policy. |  |
| pcfSetId | NfSetId | O | 0..1 | When present, this IE shall contain the NF Set ID of the PCF serving the UE for Access and Mobility Policy and/or UE Policy. It shall be the V-PCF Set ID in LBO roaming and the H-PCF Set ID in HR roaming. |  |
| nrfUri | Uri | O | 0..1 | This IE may be present to indicate the NRF to use for PCF selection within the same network slice instance. When present, the SMF shall use the NRF URI to select the PCF. |  |
| supportedFeatures | SupportedFeatures | C | 0..1 | This IE shall be present if at least one optional feature defined in clause 6.1.8 is supported. |  |
| selMode | DnnSelectionMode | C | 0..1 | This IE shall be present if it is available. When present, it shall indicate whether the requested DNN corresponds to an explicitly subscribed DNN or to the usage of a wildcard subscription. |  |
| backupAmfInfo | array(BackupAmfInfo) | C | 1..N | This IE shall be included if the NF service consumer is an AMF and the AMF supports the AMF management without UDSF for the following cases:  - First interaction with SMF.  - Modification of the BackupAmfInfo. |  |
| traceData | TraceData | C | 0..1 | This IE shall be included if trace is required to be activated (see 3GPP TS 32.422 [22]). |  |
| udmGroupId | NfGroupId | O | 0..1 | When present, it shall indicate the identity of the UDM group serving the UE. |  |
| routingIndicator | string | O | 0..1 | When present, it shall indicate the Routing Indicator of the UE. |  |
| epsInterworkingInd | EpsInterworkingIndication | O | 0..1 | The AMF may provide the indication when a PGW-C+SMF is selected to serve the PDU Session.  When present, this IE shall indicate whether the PDU session may possibly be moved to EPS and whether N26 interface to be used during EPS interworking procedures.  The AMF may derive the value of the indication from different sources, like UE radio capabilities (e.g. "S1 mode supported"), UE subscription data (e.g. "Core Network Type Restriction to EPC" and "Interworking with EPS Indication" for the DNN) and configurations. |  |
| indirectForwardingFlag | boolean | C | 0..1 | The AMF shall include this indication during N26 based Handover procedure from EPS to 5GS (see 3GPP TS 23.502 [3], clause 4.11.1.2.2), to inform the SMF of the applicability or non-applicability of indirect data forwarding.  When present, it shall be set as follows:  - True: indirect data forwarding is applicable  - False: indirect data forwarding is not applicable |  |
| directForwardingFlag | boolean | C | 0..1 | The AMF shall include this indication during N26 based Handover procedure from EPS to 5GS (see 3GPP TS 23.502 [3], clause 4.11.1.2.2), to inform the SMF of the applicability or non-applicability of direct data forwarding.  When present, it shall be set as follows:  - True: direct data forwarding is applicable  - False: direct data forwarding is not applicable |  |
| targetId | NgRanTargetId | C | 0..1 | This IE shall be present in the following cases:  - during an EPS to 5GS handover preparation using the N26 interface, when the hoState IE is set to the value "PREPARING";  - during N2 based handover procedure with I-SMF or V-SMF insertion/change/removal, when hostate IE is set to the value "PREPARING".  When present, it shall contain the Target ID identifying the target RAN Node ID and TAI. In case of EPS to 5GS handover, the TAI is received in the Forward Relocation Request from the Source MME. |  |
| epsBearerCtxStatus | EpsBearerContextStatus | C | 0..1 | This IE shall be present during an EPS to 5GS idle mode mobility using the N26 interface, if received in the Registration Request from the UE.  When present, it shall be set to the value received from the UE. |  |
| cpCiotEnabled | boolean | C | 0..1 | This IE shall be present with the value "True", if  - the NF service consumer (e.g. the AMF) has verified that the CIOT feature is supported by the SMF (and for a home-routed session, that it is also supported by the H-SMF); and  - Control Plane CIoT 5GS Optimisation is enabled for the PDU session  (see 3GPP TS 23.502 [3], clauses 4.3.2.2.1 and 4.3.2.2.2).  When present, it shall be set as follows:  - True: Control Plane CIoT 5GS Optimisation is enabled.  - False (default): Control Plane CIoT 5GS Optimisation is not enabled. | CIOT |
| cpOnlyInd | boolean | C | 0..1 | This IE shall be present with the value "True", if the PDU session shall only use Control Plane CIoT 5GS Optimisation (see clause 5.31.4.1 of 3GPP TS 23.501 [2]).  When present, it shall be set as follows:  - True: the PDU session shall only use Control Plane CIoT 5GS Optimisation  - False (default): the PDU session is not constrained to only use Control Plane CIoT 5GS Optimisation. | CIOT |
| invokeNef | boolean | C | 0..1 | This IE shall be present with the value "True", if Control Plane CIoT 5GS Optimisation is enabled and data delivery via NEF is selected for the PDU session (see 3GPP TS 23.502 [3], clause 4.3.2.2.2).  When present, it shall be set as follows:  - True: Data delivery via NEF is selected.  - False (default): Data delivery via NEF is not selected. | CIOT |
| maRequestInd | boolean | C | 0..1 | This IE shall be present if a MA-PDU session is requested to be established.  When present, it shall be set as follows:  - True: a MA-PDU session is requested  - False (default): a MA-PDU session is not requested | MAPDU |
| maNwUpgradeInd | boolean | C | 0..1 | This IE shall only be present if the PDU session is allowed to be upgraded to MA PDU session (see clause 4.22.3 of 3GPP TS 23.502 [3]).  When present, it shall be set as follows:  - True: the PDU session is allowed to be upgraded to MA PDU session  - False (default): the PDU session is not allowed to be upgraded to MA PDU session  When maRequestInd is present and set to "true", this IE shall not be present. | MAPDU |
| n2SmInfo | RefToBinaryData | C | 0..1 | This IE shall be present if N2 SM Information needs to be sent to the I-SMF. | DTSSA |
| n2SmInfoType | N2SmInfoType | C | 0..1 | This IE shall be present if "n2SmInfo" attribute is present.  When present, this IE shall indicate the NG AP IE type for the NG AP SMF related IE container carried in "n2SmInfo" attribute. | DTSSA |
| n2SmInfoExt1 | RefToBinaryData | C | 0..1 | This IE shall be present if more than one N2 SM Information has been received from the AN.  When present, this IE shall reference the N2 SM Information binary data (see clause 6.1.6.4.3). | DTSSA |
| n2SmInfoTypeExt1 | N2SmInfoType | C | 0..1 | This IE shall be present if "n2SmInfoExt1" attribute is present.  When present, this IE shall indicate the NG AP IE type for the NG AP SMF related IE container carried in "n2SmInfoExt1" attribute. | DTSSA |
| smContextRef | Uri | C | 0..1 | This IE shall be present during an I-SMF or V-SMF insertion if available and during an I-SMF or V-SMF change or removal.  When present, this IE shall contain the URI of the SM Context resource in the SMF or of the SM context resource in the source I-SMF or V-SMF during an I-SMF or V-SMF insertion or during an I-SMF or V-SMF change/removal respectively. The URI shall be an absolute URI, including apiRoot (see clause 6.1.3.3.2). | DTSSA |
| upCnxState | UpCnxState | C | 0..1 | This IE shall be present to request the activation of the user plane connection of the PDU session, during a Service Request with an I-SMF insertion / change / removal, or with a V-SMF change (see clause 5.2.2.2.6). | DTSSA |
| smallDataRateStatus | SmallDataRateStatus | C | 0..1 | This IE shall be present if the small data rate control status is available in AMF, see clause 5.31.14.3 of 3GPP TS 23.501 [2] and clause 4.3.2.2.1 of 3GPP TS 23.502 [3]. | CIOT |
| apnRateStatus | ApnRateStatus | C | 0..1 | This IE shall be present if the APN rate control status is available in AMF, see clause 4.7.7.3 in 3GPP TS 23.401 [33] and clause 5.2.8.2.5 in 3GPP TS 23.502 [3]. | CIOT |
| extendedNasSmTimerInd | boolean | C | 0..1 | This IE shall be present with the value "True" if the UE supports CE mode B and use of CE mode B is not restricted according to the Enhanced Coverage Restriction information in the UE context in the AMF.  When present, it shall indicate whether extended NAS SM timers shall be used for the UE as specified in 3GPP TS 24.501 [7], as follows:  - True: extended NAS SM timers shall be used  - False (default): normal NAS SM timers shall be used. | CIOT |
| dlDataWaitingInd | boolean | C | 0..1 | This IE shall be present during an EPS to 5GS Idle mode mobility using N26 interface with data forwarding (see clause 4.11.1.3.3A of 3GPP TS 23.502 [3]), if the same indication is received from the MME in the Context Response message.  When present, it shall be set as follows:  - true: DL data needs to be sent to the UE;  - false (default): no DL data needs to be sent to the UE. | CIOT |
| ddnFailureSubs | DdnFailureSubs | C | 0..1 | This IE shall be present to subscribe the notification of the DDN Failure if the Availability after DDN failure event is subscribed by the UDM, see clause 4.15.3.2.7 of 3GPP TS 23.502 [3]. | CIOT |
| smfTransferInd | boolean | C | 0..1 | This IE shall be present during an SMF Context Transfer procedure, LBO or no Roaming, no I-SMF.  When present, it shall be set as follows:  - True: SMF Context Transfer  - False (default): Not an SMF Context Transfer | CTXTR |
| oldSmfId | NfInstanceId | C | 0..1 | This IE shall be present if smfTransferInd is set to true.  When present, it shall indicate old SMF instance identifier. | CTXTR |
| oldSmContextRef | Uri | C | 0..1 | This IE shall be present if smfTransferInd is set to true.  When present, this IE shall contain the identifier of the SM Context resource in the old SMF. | CTXTR |
| wAgfInfo | WAgfInfo | C | 0..1 | This IE shall be present, if received from the W-AGF. When present, it shall contain information about the N3 terminations of the W-AGF. The SMF may use this information when selecting the UPF. |  |
| tngfInfo | tngfInfo | C | 0..1 | This IE shall be present, if received from the TNGF. When present, it shall contain information about the N3 terminations of the TNGF. The SMF may use this information when selecting the UPF. |  |
| twifInfo | twifInfo | C | 0..1 | This IE shall be present, if received from the TWIF. When present, it shall contain information about the N3 terminations of the TWIF. The SMF may use this information when selecting the UPF. |  |
| NOTE: In shared networks, when the message is sent from the VPLMN to the HPLMN, the PLMN ID that is communicated in this IE shall be that of the selected Core Network Operator.  In shared networks, when the AMF and SMF pertain to the same PLMN, the Primary PLMN ID shall be communicated in the ECGI or NCGI to the SMF. The Core Network Operator PLMN ID shall be communicated in the TAI and the Serving Network. | | | | | |

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

##### 6.1.6.2.9 Type: PduSessionCreateData

Table 6.1.6.2.9-1: Definition of type PduSessionCreateData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| supi | Supi | C | 0..1 | This IE shall be present, except if the UE is emergency registered and UICCless.  When present, it shall contain the subscriber permanent identify. |  |
| unauthenticatedSupi | boolean | C | 0..1 | This IE shall be present if the SUPI is present in the message but is not authenticated and is for an emergency registered UE.  When present, it shall be set as follows:  - true: unauthenticated SUPI;  - false (default): authenticated SUPI. |  |
| pei | Pei | C | 0..1 | This IE shall be present if the UE is emergency registered and it is either UIClless or the SUPI is not authenticated.  For all other cases, this IE shall be present if it is available.  When present, it shall contain the permanent equipment identifier. |  |
| pduSessionId | PduSessionId | C | 0..1 | This IE shall contain the PDU Session ID, except during an EPS to 5GS Idle mode mobility or handover using the N26 interface. |  |
| dnn | Dnn | M | 1 | This IE shall contain the requested DNN. The DNN shall be the full DNN (i.e. with both the Network Identifier and Operator Identifier) for a HR PDU session, and it should be the full DNN in LBO and non-roaming scenarios. If the Operator Identifier is absent, the serving core network operator shall be assumed. |  |
| selectedDnn | Dnn | C | 0..1 | This IE shall be present, if another DNN other than the UE requested DNN is selected for this PDU session.  When present, it shall contain the selected DNN. The DNN shall be the full DNN (i.e. with both the Network Identifier and Operator Identifier) for a HR PDU session, and it should be the full DNN in LBO and non-roaming scenarios. If the Operator Identifier is absent, the serving core network operator shall be assumed. |  |
| sNssai | Snssai | C | 0..1 | This IE shall be present, except during an EPS to 5GS idle mode mobility or handover using the N26 interface.  When present, it shall contain:  - the requested S-NSSAI mapped to the HPLMN S-NSSAI by the VPLMN for a HR PDU session; or  - the requested S-NSSAI in the serving PLMN for a PDU session with an I-SMF. |  |
| vsmfId | NfInstanceId | C | 0..1 | This IE shall be present for a HR PDU session. When present, it shall contain the identifier of the V-SMF. |  |
| ismfId | 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 I-SMF. | DTSSA |
| servingNetwork | PlmnIdNid | M | 1 | This IE shall contain the serving core network operator PLMN ID and, for an SNPN, the NID that together with the PLMN ID identifies the SNPN. |  |
| requestType | RequestType | C | 0..1 | This IE shall be present if the request relates to an existing PDU session or an existing emergency PDU session, except during an EPS to 5GS idle mode mobility or handover using the N26 interface. It may be present otherwise.  When present, it shall indicate whether the request refers to a new PDU session or emergency PDU session, or to an existing PDU session or emergency PDU session.  For request sent from AMF, this IE shall be set based on the requestType received. |  |
| epsBearerId | array(EpsBearerId) | C | 1..N | This IE shall be present during an EPS to 5GS Idle mode mobility or handover preparation using the N26 interface.  When present, it shall contain the list of EPS bearer Id(s) received from the MME. |  |
| pgwS8cFteid | Bytes | 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 contain Base64-encoded characters, encoding the PGW S8 F-TEID for Control Plane as specified in Figure 8.22-1 of 3GPP TS 29.274 [16] (starting from octet 1), received from the MME. |  |
| vsmfPduSessionUri | Uri | C | 0..1 | This IE shall be present for a HR PDU session. When present, it shall include the URI representing the PDU session in the V-SMF. |  |
| ismfPduSessionUri | Uri | C | 0..1 | This IE shall be present for a PDU session with an I-SMF. When present, it shall include the URI representing the PDU session in the I-SMF. | DTSSA |
| vcnTunnelInfo | 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 visited CN side, i.e. V-UPF. |  |
| icnTunnelInfo | 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 I-UPF controlled by the I-SMF. | DTSSA |
| n9ForwardingTunnelInfo | TunnelInfo | C | 0..1 | This IE shall be present during Service Request procedures with I-SMF insertion, if buffered DL data is available at the I-UPF that is controlled by the SMF (see clause 4.23.4 in 3GPP TS 23.502 [3]).  When present, this IE shall contain the N9 tunnel information of the I-UPF controlled by the I-SMF. | DTSSA |
| additionalCnTunnelInfo | TunnelInfo | C | 0..1 | This IE shall be present if a MA PDU session is requested or if the PDU session is allowed to be upgraded to a MA PDU session, and the UE is registered over both 3GPP access and Non-3GPP access.  When present, it shall contain additional N9 tunnel information of the UPF controlled by the V-SMF or I-SMF. | MAPDU |
| anType | AccessType | M | 1 | This IE shall indicate the Access Network Type to which the PDU session is to be associated. |  |
| additionalAnType | AccessType | C | 0..1 | This IE shall indicate the additional Access Network Type to which the PDU session is to be associated.  This IE shall be present if a MA-PDU session is requested and the UE is registered over both 3GPP access and Non-3GPP access. | MAPDU |
| ratType | RatType | C | 0..1 | This IE shall be present and indicate the RAT Type used by the UE, if available. |  |
| ueLocation | UserLocation | C | 0..1 | This IE shall contain the UE location information, if it is available. See NOTE. |  |
| ueTimeZone | TimeZone | C | 0..1 | This IE shall contain the UE Time Zone, if it is available. |  |
| addUeLocation | UserLocation | O | 0..1 | Additional UE location.  This IE may be present, if anType indicates a non-3GPP access and a valid 3GPP access user location information is available.  When present, it shall contain:  - the last known 3GPP access user location; and  - the timestamp, if available, indicating the UTC time when the addUeLocation information was acquired.  See NOTE. |  |
| gpsi | Gpsi | C | 0..1 | This IE shall be present if it is available. When present, it shall contain the user's GPSI. |  |
| n1SmInfoFromUe | RefToBinaryData | C | 0..1 | This IE shall be present if the V-SMF or I-SMF has received known N1 SM information from the UE that does not need to be interpreted by the V-SMF or I-SMF. When present, this IE shall reference the n1SmInfoFromUe binary data (see clause 6.1.6.4.4). |  |
| unknownN1SmInfo | RefToBinaryData | C | 0..1 | This IE shall be present if the V-SMF or I-SMF has received unknown N1 SM information from the UE. When present, this IE shall reference the unknownN1SmInfo binary data (see clause 6.1.6.4.4). |  |
| supportedFeatures | SupportedFeatures | C | 0..1 | This IE shall be present if at least one optional feature defined in clause 6.1.8 is supported. |  |
| hPcfId | NfInstanceId | O | 0..1 | When present, this IE shall contain the identifier of the H-PCF (for a HR PDU session) selected by the AMF for the UE (for Access and Mobility Policy Control). |  |
| pcfId | NfInstanceId | O | 0..1 | When present, this IE shall contain the identifier of the PCF (for a PDU session with an I-SMF) selected by the AMF for the UE (for Access and Mobility Policy Control). | DTSSA |
| pcfGroupId | NfGroupId | O | 0..1 | When present, this IE shall contain the identity of the (home) PCF group serving the UE for Access and Mobility Policy and/or UE Policy. |  |
| pcfSetId | NfSetId | O | 0..1 | When present, it shall contain the NF Set ID of:  - the H-PCF, for a HR PDU session, or  - the PCF or V-PCF, for a PDU session with an I-SMF, in non-roaming and LBO roaming scenarios respectively  serving the UE for Access and Mobility Policy and/or UE Policy. |  |
| hoPreparationIndication | boolean | C | 0..1 | This IE shall be present during an EPS to 5GS handover preparation using the N26 interface or during N2 handover preparation with I-SMF insertion.  When present, it shall be set as follows:  - true: an EPS to 5GS handover preparation or N2 handover preparation with I-SMF is in progress; the PGW-C/SMF shall not switch the DL user plane of the PDU session yet.  - false: there is no on-going EPS to 5GS handover preparation or N2 handover preparation with I-SMF in progress. If a handover preparation was in progress, the handover has been completed. The PGW-C/SMF shall switch the DL user plane of the PDU session using the N9 tunnel information that has been received in the vcnTunnelInfo or icnTunnelInfo.  It shall be set to "true" during an EPS to 5GS handover preparation using the N26 interface or during N2 handover preparation with I-SMF insertion. |  |
| selMode | DnnSelectionMode | C | 0..1 | This IE shall be present if it is available. When present, it shall indicate whether the requested DNN corresponds to an explicitly subscribed DNN or to the usage of a wildcard subscription. |  |
| alwaysOnRequested | boolean | C | 0..1 | This IE shall be present and set to true if the UE requests to setup an always-on PDU session and this is allowed by local policy in the V-SMF or I-SMF.  When present, it shall be set as follows:  - true: request for an always-on PDU session  - false (default): not a request for an always-on PDU session |  |
| udmGroupId | NfGroupId | O | 0..1 | When present, it shall indicate the identity of the UDM group serving the UE. |  |
| routingIndicator | string | O | 0..1 | When present, it shall indicate the Routing Indicator of the UE. |  |
| epsInterworkingInd | EpsInterworkingIndication | O | 0..1 | This IE may be present if the indication has been received from AMF and is allowed to be forwarded to H-SMF by operator configuration.  When present, this IE shall indicate whether the PDU session may possibly be moved to EPS and whether N26 interface to be used during EPS interworking procedures. |  |
| vSmfServiceInstanceId | string | O | 0..1 | When present, this IE shall contain the serviceInstanceId of the V-SMF service instance serving the PDU session.  This IE may be used by the H-SMF to identify PDU sessions affected by a failure or restart of the V-SMF service (see clauses 6.2 and 6.3 of 3GPP TS 23.527 [24]). |  |
| iSmfServiceInstanceId | string | O | 0..1 | When present, this IE shall contain the serviceInstanceId of I-SMF service instance serving the PDU session.  This IE may be used by the SMF to identify PDU sessions affected by a failure or restart of the I-SMF service (see clauses 6.2 and 6.3 of 3GPP TS 23.527 [24]). | DTSSA |
| recoveryTime | DateTime | O | 0..1 | Timestamp when the V-SMF or I-SMF service instance serving the PDU session was (re)started (see clause 6.3 of 3GPP TS 23.527 [24]). |  |
| roamingChargingProfile | RoamingChargingProfile | O | 0..1 | Roaming Charging Profile applicable in the VPLMN (see clauses 5.1.9.1, 5.2.1.7 and 5.2.2.12.2 of 3GPP TS 32.255 [25]). |  |
| chargingId | string | O | 0..1 | Charging ID (see clauses 5.1.9.1 of 3GPP TS 32.255 [25]). |  |
| oldPduSessionId | PduSessionId | C | 0..1 | This IE shall be present if this information is received from the UE and the same SMF is selected for SSC mode 3.  When present, it shall contain the old PDU Session ID received from the UE. See clauses 4.3.2.2.1 and 4.3.5.2 of 3GPP TS 23.502 [3]. |  |
| epsBearerCtxStatus | EpsBearerContextStatus | C | 0..1 | This IE shall be present during an EPS to 5GS idle mode mobility using the N26 interface, if received in the Create SM Context request.  When present, it shall be set to the value received in the Create SM Context request. |  |
| amfNfId | NfInstanceId | C | 0..1 | This IE shall be present unless the PDU session is related to regulatory prioritized service.  When present, it shall contain the identifier of the serving AMF during UE-requested PDU Session Establishment Procedure. See clauses 4.3.2.2.2 of 3GPP TS 23.502 [3]. |  |
| guami | Guami | C | 0..1 | This IE shall be present if the amfNfId is present.  When present, it shall contain the serving AMF's GUAMI. |  |
| maxIntegrityProtectedDataRateUl | MaxIntegrityProtectedDataRate | C | 0..1 | This IE shall be present if it is available.  When present, it shall indicate the maximum integrity protected data rate supported by the UE for uplink. |  |
| maxIntegrityProtectedDataRateDl | MaxIntegrityProtectedDataRate | C | 0..1 | This IE shall be present if it is available.  When present, it shall indicate the maximum integrity protected data rate supported by the UE for downlink. |  |
| cpCiotEnabled | boolean | C | 0..1 | This IE shall be present with the value "True" if the "5gCiotCpEnabled" attribute is received with "True" value in SM Context Create request, indicating the Control Plane CIoT 5GS Optimisation is enabled for the PDU session (see 3GPP TS 23.502 [3], clause 4.3.2.2.2).  When present, it shall be set as follows:  - True: Control Plane CIoT 5GS Optimisation is enabled.  - False (default): Control Plane CIoT 5GS Optimisation is not enabled. | CIOT |
| cpOnlyInd | boolean | C | 0..1 | This IE shall be present with the value "True", if the PDU session shall only use Control Plane CIoT 5GS Optimisation (see clause 5.31.4.1 of 3GPP TS 23.501 [2]).  When present, it shall be set as follows:  - True: the PDU session shall only use Control Plane CIoT 5GS Optimisation  - False (default): the PDU session is not constrained to only use Control Plane CIoT 5GS Optimisation. | CIOT |
| invokeNef | boolean | C | 0..1 | This IE shall be present with value "True", if Control Plane CIoT 5GS Optimisation is enabled and data delivery via NEF is selected for the PDU session.  When present, it shall be set as follows:  - True: Data delivery via NEF is selected.  - False (default): Data delivery via NEF is not selected. | CIOT |
| maRequestInd | boolean | C | 0..1 | This IE shall be present if a MA-PDU session is requested to be established by the UE.  When present, it shall be set as follows:  - True: a MA-PDU session is requested  - False (default): a MA-PDU session is not requested | MAPDU |
| maNwUpgradeInd | boolean | C | 0..1 | This IE shall only be present if the PDU session is allowed to be upgraded to MA PDU session (see clause 4.22.3 of 3GPP TS 23.502 [3]).  When present, it shall be set as follows:  - True: the PDU session is allowed to be upgraded to MA PDU session  - False (default): the PDU session is not allowed to be upgraded to MA PDU session  When maRequestInd is present and set to "true", this IE shall not be present. | MAPDU |
| dnaiList | array(Dnai) | C | 1..N | This IE shall be present over N16a if an I-SMF is 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 supported by the I-SMF. | DTSSA |
| presenceInLadn | PresenceState | C | 0..1 | This IE shall be present during Xn based handover with I-SMF insertion, if the DNN corresponds to a LADN.  When present, it shall be set to "IN" or "OUT" to indicate that the UE is in or out of the LADN service area. | DTSSA |
| secondaryRatUsageInfo | array(SecondaryRatUsageInfo) | O | 1..N | This IE may be present to report usage data for a secondary RAT for QoS flows and/or the whole PDU session. | DTSSA |
| smallDataRateStatus | SmallDataRateStatus | C | 0..1 | This IE shall be present if the small data rate control status is received from AMF, see clause 5.31.14.3 of 3GPP TS 23.501 [2] and clause 4.3.2.2.2 of 3GPP TS 23.502 [3]. | CIOT |
| apnRateStatus | ApnRateStatus | C | 0..1 | This IE shall be present, if the APN rate control status (APN rates are shared by all PDN connections of the UE to this APN) is received from the AMF, see clause 4.7.7.3 in 3GPP TS 23.401 [33] and clause 4.11.5.3 in 3GPP TS 23.502 [3]. | CIOT |
| dlServingPlmnRateCtl | integer | C | 0..1 | This IE shall be present if Serving PLMN Rate Control for downlink data packets is enabled in the PLMN and Control Plane CIoT 5GS Optimisation is enabled for the PDU session.  When present, this IE shall contain the maximum allowed number of Downlink NAS Data PDUs per deci hour of the serving PLMN, as specified in clause 5.31.14.2 of 3GPP TS 23.501 [2].  Minimum: 10 | CIOT |
| upSecurityInfo | UpSecurityInfo | C | 0..1 | This IE shall be present if received from NG-RAN during Xn handover procedure with I-SMF Insertion (see clause 5.2.2.7.5).  When present, this IE shall contain the User Plane Security Information associated to the PDU session. See clause 9.3.1.60 of 3GPP TS 38.413 [9]. | DTSSA |
| NOTE: In shared networks, the PLMN ID that is communicated in this IE shall be that of the selected Core Network Operator. | | | | | |

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