**3GPP TSG-CT WG4 Meeting #96C4-200860**

**E-Meeting, 24th – 28th February 2020**

|  |
| --- |
| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **29.503** | **CR** | **0368** | **rev** | **1** | **Current version:** | **16.2.0** |  |
|  |
| *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:***  | VGMLC address registration |
|  |  |
| ***Source to WG:*** | Huawei |
| ***Source to TSG:*** | CT4 |
|  |  |
| ***Work item code:*** | 5G\_eLCS |  | ***Date:*** | 2019-12-20 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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:*** | For positioning serice in roaming scenarios, HGMLC need to be aware of VGMLC, HGMLC get the VGMLC address by Nudm\_UECM\_Get service operation, and VGMLC address is registered by Serving AMF when AMF initiates AMF registration at the registration procedure, we can see the description in step 3 of Figure 6.1.2-1: 5GC-MT-LR Procedure for the commercial location services of TS23.273. |
|  |  |
| ***Summary of change:*** | 1.Add IP address, FQDN of VGMLC in to data model Amf3GppAccessRegistration which is used as request body of AMF registration for 3GPP access service operation of UECM service.2.Add IP address, FQDN of VGMLC in to data model AmfNon3GppAccessRegistration which is used as request body of AMF registration for non 3GPP access service operation of UECM service. |
|  |  |
| ***Consequences if not approved:*** | Stage 2 solution won't be implemented. |
|  |  |
| ***Clauses affected:*** | 6.2.6.1, 6.2.6.2.2, 6.2.6.2.3, 6.2.6.2.7, 6.2.6.2.8, A.3 |
|  |  |
|  | **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 will introduce backward compatible new features in the OpenAPI specification file of Nudm\_UECM API, TS29505\_Subscription\_Data.yaml.. |
|  |  |
| ***This CR's revision history:*** | Rev:1. Add the impact in UDR API in ***Other comments:*** of cover sheet.2.Add the new attributes vgmlcAddressIpv4, vgmlcAddressIpv6, vgmlcFqdn.3.Correct the errors in UECM API, and revise the UECM API accordingly. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*The start of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

#### 6.2.6.1 General

This clause specifies the application data model supported by the API.

Table 6.2.6.1-1 specifies the structured data types defined for the Nudm\_UECM service API. For simple data types defined for the Nudm\_UECM service API see table 6.2.6.3.2-1.

Table 6.2.6.1-1: Nudm\_UECM specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| Amf3GppAccessRegistration | 6.2.6.2.2 | The complete set of information relevant to the AMF where the UE has registered via 3GPP access. |
| PurgeFlag | 6.2.6.3.2 | This flag indicates whether or not the NF has deregistered. |
| AmfNon3GppAccessRegistration | 6.2.6.2.3 | The complete set of information relevant to the AMF where the UE has registered via non 3GPP access. |
| DeregistrationData | 6.2.6.2.5 | Data sent with the Deregistration Notification |
| SmfRegistration | 6.2.6.2.4 | The complete set of information relevant to an SMF serving the UE |
| SmsfRegistration | 6.2.6.2.6 | The complete set of information relevant to the SMSF serving the UE. |
| Amf3GppAccessRegistrationModification | 6.2.6.2.7 | Contains attributes of Amf3GppAccessRegistration that can be modified using PATCH |
| AmfNon3GppAccessRegistrationModification | 6.2.6.2.8 | Contains attributes of AmfNon3GppAccessRegistration that can be modified using PATCH |
| PcscfRestorationNotification | 6.2.6.2.9 | Information sent to the AMF or SMF when P-CSCF restoration is triggered. |
| DualRegistrationFlag | 6.2.6.3.2 | Dual Registration Flag |
| TriggerRequest | 6.2.6.2.12 |  |

Table 6.2.6.1-2 specifies data types re-used by the Nudm\_uecm service API from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nudm\_uecm service API.

Table 6.2.6.1-2: Nudm\_UECM re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| Dnn | 3GPP TS 29.571 [7] | Data Network Name |
| NfInstanceId | 3GPP TS 29.571 [7] | Network Function Instance Identifier |
| PduSessionId | 3GPP TS 29.571 [7] | PDU Session ID |
| Pei | 3GPP TS 29.571 [7] | Permanent Equipment Identifier |
| ProblemDetails | 3GPP TS 29.571 [7] | Common data type used in response bodies |
| Uri | 3GPP TS 29.571 [7] | Uniform Resource Identifier |
| SupportedFeatures | 3GPP TS 29.571 [7] | see 3GPP TS 29.500 [4] clause 6.6 |
| Supi | 3GPP TS 29.571 [7] | see 3GPP TS 23.501 [2] clause 5.9.2 |
| Guami | 3GPP TS 29.571 [7] | Globally Unique AMF Identifier |
| PlmnId | 3GPP TS 29.571 [7] | PLMN Identity |
| DiameterIdentity | 3GPP TS 29.571 [7] |  |
| AccessType | 3GPP TS 29.571 [7] | Access Type |
| BackupAmfInfo | 3GPP TS 29.571 [7] | Backup AMFs |
| ServiceName | 3GPP TS 29.510 [19] |  |
| PatchResult | 3GPP TS 29.571 [7] |  |
| IPv4Addr | 3GPP TS 29.571 [7] |  |
| IPv6Addr | 3GPP TS 29.571 [7] |  |
| Fqdn | 3GPP TS 29.510 [19] |  |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 6.2.6.2.2 Type: Amf3GppAccessRegistration

Table 6.2.6.2.2-1: Definition of type Amf3GppAccessRegistration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| amfInstanceId | NfInstanceId | M | 1 | The identity the AMF uses to register in the NRF. |
| deregCallbackUri | Uri | M | 1 | A URI provided by the AMF to receive (implicitly subscribed) notifications on deregistration. The deregistration callback URI shall have unique information within AMF set to identify the UE to be deregistered. |
| guami | Guami | M | 1 | This IE shall contain the serving AMF's GUAMI. |
| ratType | RatType | M | 1 | This IE shall indicate the current RAT type of the UE. |
| supportedFeatures | SupportedFeatures | O | 0..1 | See clause 6.2.8 |
| purgeFlag | PurgeFlag | O | 0..1 | This flag indicates whether or not the AMF has deregistered. It shall not be included in the Registration service operation. |
| pei | Pei | O | 0..1 | Permanent Equipment Identifier. |
| imsVoPs | ImsVoPs | O | 0..1 | Indicates per UE if "IMS Voice over PS Sessions" is homogeneously supported in all TAs in the serving AMF, or homogeneously not supported, or if support is non-homogeneous/unknown. Absence of this attribute shall be interpreted as "non homogenous or unknown" support. |
| amfServiceNameDereg | ServiceName | O | 0..1 | When present, this IE shall contain the name of the AMF service to which the Deregistration Notification is to be sent (see clause 6.5.2.2 of 3GPP TS 29.500 [4]). |
| pcscfRestorationCallbackUri | Uri | O | 0..1 | A URI provided by the AMF to receive (implicitly subscribed) notifications on the need for P-CSCF Restoration. |
| amfServiceNamePcscfRest | ServiceName | O | 0..1 | When present, this IE shall contain the name of the AMF service to which P-CSCF Restoration Notifications are to be sent (see clause 6.5.2.2 of 3GPP TS 29.500 [4]). This IE may be included if pcscfRestorationCallbackUri is present. |
| initialRegistrationInd | boolean | C | 0..1 | This IE shall be included by the AMF and set to true if the UE performs an Initial Registration. If the UE does not perform initial registration it shall be abset or set ot false. |
| 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 first interaction with UDM.The UDM uses this attribute to do an NRF query in order to invoke later services in a backup AMF, e.g. Namf\_EventExposure. |
| drFlag | DualRegistrationFlag | O | 0..1 | Dual Registration flag. When present and true, this flag indicates that the UDM+HSS is requested not to send S6a-CLR to the registered MME (if any). Otherwise, the registered MME (if any) shall be cancelled. |
| urrpIndicator | boolean | O | 0..1 | This IE indicates whether "UE\_REACHABILITY\_FOR\_SMS" event for this user has been subscribed or not:- true: the event has been subscribed- false, or absence of this attribute: the event for this user is currently not subscribed |
| amfEeSubscriptionId | string | C | 0..1 | Shall be present if urrpIndicator is true and the UDM has subscribed to UE-reachability notification at the AMF. It contains the subscription Id allocated by the AMF as received by the UDM as part of the HTTP "Location" header of the Namf\_EventExposure\_Subscribe response.The UDM shall make use of the Nudr\_DataRepository Update service operation (see 3GPP TS 29.504 [9]) to store the amfEeSubscription Id in the UDR. |
| epsInterworkingInfo | map(EpsIwkPgw) | C | 1..N | A map (list of key-value pairs where dnn serves as key; see clause 6.1.6.1) of EpsIwkPgws.This IE shall be included if the AMF has determined per APN/DNN which PGW-C+SMF is selected for EPS interworking. For each APN/DNN, only one PGW-C+SMF shall be selected by the AMF for EPS interworking. |
| ueSrvccCapability | boolean | O | 0..1 | This IE indicates whether the UE supports 5G SRVCC:- true: 5G SRVCC is supported by the UE and AMF;- false, or absence of this attribute: 5G SRVCC is not supported. |
| nid | Nid | C | 0..1 | Network ID. Shall be present if the serving network is a SNPN. |
| registrationTime | DateTime | C | 0..1 | Time of Amf3GppAccessRegistration. Shall be present when used on Nudr. |
| vgmlcAddressIpv4 | Ipv4Addr | O | 0..1 | When present, indicates VGMLC IPv4 address. |
| vgmlcAddressIpv6 | Ipv6Addr | O | 0..1 | When present, indicates VGMLC IPv6 address. |
| vgmlcFqdn | Fqdn | O | 0..1 | When present, indicates FQDN of the VGMLC IPv6 address. |
| NOTE: The urrpIndicator attribute shall only be exposed over the Nudr SBI, and it shall not be included by the AMF. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 6.2.6.2.3 Type: AmfNon3GppAccessRegistration

Table 6.2.6.2.3-1: Definition of type AmfNon3GppAccessRegistration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| amfInstanceId | NfInstanceId | M | 1 | The identity the AMF uses to register in the NRF. |
| deregCallbackUri | Uri | M | 1 | A URI provided by the AMF to receive (implicitly subscribed) notifications on deregistration.The deregistration callback URI shall have unique information within AMF set to identify the UE to be deregistered. |
| guami | Guami | M | 1 | This IE shall contain the serving AMF's GUAMI. |
| ratType | RatType | M | 1 | This IE shall indicate the current RAT type of the UE. |
| supportedFeatures | SupportedFeatures | O | 0..1 | See clause 6.2.8 |
| purgeFlag | PurgeFlag | O | 0..1 | This flag indicates whether or not the AMF has deregistered. It shall not be included in the Registration service operation. |
| pei | Pei | O | 0..1 | Permanent Equipment Identifier |
| imsVoPs | ImsVoPs | M | 1 | Indicates per UE if "IMS Voice over PS Sessions" is supported, or not supported.The value NON\_HOMOGENEOUS\_OR\_UNKNOWN is not applicable. |
| amfServiceNameDereg | ServiceName | O | 0..1 | When present, this IE shall contain the name of the AMF service to which the Deregistration Notification is to be sent (see clause 6.5.2.2 of 3GPP TS 29.500 [4]). |
| pcscfRestorationCallbackUri | Uri | O | 0..1 | A URI provided by the AMF to receive (implicitly subscribed) notifications on the need for P-CSCF Restoration. |
| amfServiceNamePcscfRest | ServiceName | O | 0..1 | When present, this IE shall contain the name of the AMF service to which P-CSCF Restoration Notifications are to be sent (see clause 6.5.2.2 of 3GPP TS 29.500 [4]). This IE may be included if pcscfRestorationCallbackUri is present. |
| 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 first interaction with UDM.The UDM uses this attribute to do an NRF query in order to invoke later services in a backup AMF, e.g. Namf\_EventExposure. |
| urrpIndicator | boolean | O | 0..1 | This IE indicates whether "UE\_REACHABILITY\_FOR\_SMS" event for this user has been subscribed or not:- true: the event has been subscribed- false, or absence of this attribute: the event for this user is currently not subscribed |
| amfEeSubscriptionId | string | C | 0..1 | Shall be present if urrpIndicator is true and the UDM has subscribed to UE-reachability notification at the AMF. It contains the subscription Id allocated by the AMF as received by the UDM as part of the HTTP "Location" header of the Namf\_EventExposure\_Subscribe response. The UDM shall make use of the Nudr\_DataRepository Update service operation (see 3GPP TS 29.504 [9]) to store the amfEeSubscription Id in the UDR. |
| nid | Nid | C | 0..1 | Network ID. Shall be present if the serving network is a SNPN. |
| registrationTime | DateTime | C | 0..1 | Time of AmfNon3GppAccessRegistration. Shall be present when used on Nudr. |
| vgmlcAddressIpv4 | Ipv4Addr | O | 0..1 | When present, indicates VGMLC IPv4 address. |
| vgmlcAddressIpv6 | Ipv6Addr | O | 0..1 | When present, indicates VGMLC IPv6 address. |
| vgmlcFqdn | Fqdn | O | 0..1 | When present, indicates FQDN of the VGMLC IPv6 address. |
| NOTE: The urrpIndicator attribute shall only be exposed over the Nudr SBI, and it shall not be included by the AMF. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 6.2.6.2.7 Type: Amf3GppAccessRegistrationModification

This type is derived from the type Amf3GppAccessRegistration by deleting all attributes that are not subject to modification by means of the HTTP PATCH method.

Table 6.2.6.2.7-1: Definition of type Amf3GppAccessRegistrationModification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| guami | Guami | M | 1 | Guami of the AMF requesting the modification. If the MCC, MNC, AMF Region ID and AMF Set ID within the guami do not match the stored value, the modification request shall be rejected. |
| purgeFlag | PurgeFlag | O | 0..1 | This flag indicates whether or not the AMF has deregistered. It shall be included in the Deregistration service operation with a value of "TRUE".  |
| pei | Pei | O | 0..1 | Permanent Equipment Identifier.  |
| imsVoPs | ImsVoPs | O | 0..1 | Indicates per UE if "IMS Voice over PS Sessions" is homogeneously supported in all TAs in the serving AMF, or homogeneously not supported, or if support is non-homogeneous/unknown |
| backupAmfInfo | array(BackupAmfInfo) | C | 0..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 Modification of the BackupAmfInfo.The UDM uses this attribute to do an NRF query in order to invoke later services in a backup AMF, e.g. Namf\_EventExposure |
| epsInterworkingInfo | map(EpsIwkPgw) | C | 0..N | A map (list of key-value pairs where dnn serves as key; see clause 6.2.6.1) of EpsIwkPgws. This IE shall be included if the AMF has determined per APN/DNN which PGW-C+SMF is selected for EPS interworking. For each APN/DNN, only one PGW-C+SMF shall be selected by the AMF for EPS interworking. |
| ueSrvccCapability | boolean | O | 0..1 | This IE indicates whether the UE supports 5G SRVCC:- true: 5G SRVCC is supported by the UE and AMF;- false: 5G SRVCC is not supported. |
| vgmlcAddressIpv4 | Ipv4Addr | O | 0..1 | When present, indicates VGMLC IPv4 address. |
| vgmlcAddressIpv6 | Ipv6Addr | O | 0..1 | When present, indicates VGMLC IPv6 address. |
| vgmlcFqdn | Fqdn | O | 0..1 | When present, indicates FQDN of the VGMLC IPv6 address. |
| Note: Absence of optional attributes indicates: no modification. Attributes of this type are not marked "nullable: true" in the OpenAPI file as deletion of these attributes is not applicable. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

##### 6.2.6.2.8 Type: AmfNon3GppAccessRegistrationModification

This type is derived from the type AmfNon3GppAccessRegistration by deleting all attributes that are not subject to modification by means of the HTTP PATCH method.

Table 6.2.6.2.8-1: Definition of type AmfNon3GppAccessRegistrationModification

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| guami | Guami | M | 1 | Guami of the AMF requesting the modification. If the MCC, MNC, AMF Region ID and AMF Set ID within the guami do not match the stored value, the modification request shall be rejected. |
| purgeFlag | PurgeFlag | O | 0..1 | This flag indicates whether or not the AMF has deregistered. It shall be included in the Deregistration service operation with a value of "TRUE". |
| pei | Pei | O | 0..1 | Permanent Equipment Identifier |
| imsVoPs | ImsVoPs | O | 0..1 | If present indicates per UE that support of "IMS Voice over PS Sessions" has been modified to supported or not supported".The value NON\_HOMOGENEOUS\_OR\_UNKNOWN is not applicable. |
| backupAmfInfo | array(BackupAmfInfo) | C | 0..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 Modification of the BackupAmfInfo.The UDM uses this attribute to do an NRF query in order to invoke later services in a backup AMF, e.g. Namf\_EventExposure |
| vgmlcAddressIpv4 | Ipv4Addr | O | 0..1 | When present, indicates VGMLC IPv4 address. |
| vgmlcAddressIpv6 | Ipv6Addr | O | 0..1 | When present, indicates VGMLC IPv6 address. |
| vgmlcFqdn | Fqdn | O | 0..1 | When present, indicates FQDN of the VGMLC IPv6 address. |
| Note: Absence of optional attributes indicates: no modification. Attributes of this type are not marked "nullable: true" in the OpenAPI file as deletion of these attributes is not applicable. |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Next change\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## A.3 Nudm\_UECM API

openapi: 3.0.0

***(… text not shown for clarity …)***

# COMPLEX TYPES:

 Amf3GppAccessRegistration:

 type: object

 required:

 - amfInstanceId

 - deregCallbackUri

 - guami

 - ratType

 properties:

 amfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 supportedFeatures:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 purgeFlag:

 $ref: '#/components/schemas/PurgeFlag'

 pei:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Pei'

 imsVoPs:

 $ref: '#/components/schemas/ImsVoPs'

 deregCallbackUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 amfServiceNameDereg:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ServiceName'

 pcscfRestorationCallbackUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 amfServiceNamePcscfRest:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ServiceName'

 initialRegistrationInd:

 type: boolean

 guami:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 backupAmfInfo:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BackupAmfInfo'

 minItems: 1

 drFlag:

 $ref: '#/components/schemas/DualRegistrationFlag'

 ratType:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RatType'

 urrpIndicator:

 type: boolean

 amfEeSubscriptionId:

 type: string

 epsInterworkingInfo:

 type: object

 properties:

 epsIwkPgws:

 description: A map (list of key-value pairs where Dnn serves as key) of EpsIwkPgws

 type: object

 additionalProperties:

 $ref: '#/components/schemas/EpsIwkPgw'

 ueSrvccCapability:

 type: boolean

 nid:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Nid'

 registrationTime:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 vgmlcAddressIpv4:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 vgmlcAddressIpv6:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 vgmlcFqdn:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/Fqdn'

 Amf3GppAccessRegistrationModification:

 type: object

 required:

 - guami

 properties:

 guami:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 purgeFlag:

 $ref: '#/components/schemas/PurgeFlag'

 pei:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Pei'

 imsVoPs:

 $ref: '#/components/schemas/ImsVoPs'

 backupAmfInfo:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BackupAmfInfo'

 epsInterworkingInfo:

 type: object

 properties:

 epsIwkPgws:

 description: A map (list of key-value pairs where Dnn serves as key) of EpsIwkPgws

 type: object

 additionalProperties:

 $ref: '#/components/schemas/EpsIwkPgw'

 ueSrvccCapability:

 type: boolean

 nullable: true

 vgmlcAddressIpv4:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 vgmlcAddressIpv6:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 vgmlcFqdn:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/Fqdn'

 EpsIwkPgw:

 type: object

 required:

 - pgwFqdn

 - smfInstanceId

 properties:

 pgwFqdn:

 type: string

 smfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 AmfNon3GppAccessRegistration:

 type: object

 required:

 - amfInstanceId

 - imsVoPs

 - deregCallbackUri

 - guami

 - ratType

 properties:

 amfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 supportedFeatures:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 purgeFlag:

 $ref: '#/components/schemas/PurgeFlag'

 pei:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Pei'

 imsVoPs:

 $ref: '#/components/schemas/ImsVoPs'

 deregCallbackUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 amfServiceNameDereg:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ServiceName'

 pcscfRestorationCallbackUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 amfServiceNamePcscfRest:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/ServiceName'

 guami:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 backupAmfInfo:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BackupAmfInfo'

 minItems: 1

 ratType:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/RatType'

 urrpIndicator:

 type: boolean

 amfEeSubscriptionId:

 type: string

 nid:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Nid'

 registrationTime:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DateTime'

 vgmlcAddressIpv4:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 vgmlcAddressIpv6:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 vgmlcFqdn:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/Fqdn'

 AmfNon3GppAccessRegistrationModification:

 type: object

 required:

 - guami

 properties:

 guami:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Guami'

 purgeFlag:

 $ref: '#/components/schemas/PurgeFlag'

 pei:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Pei'

 imsVoPs:

 $ref: '#/components/schemas/ImsVoPs'

 backupAmfInfo:

 type: array

 items:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/BackupAmfInfo'

 vgmlcAddressIpv4:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv4Addr'

 vgmlcAddressIpv6:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Addr'

 vgmlcFqdn:

 $ref: 'TS29510\_Nnrf\_NFManagement.yaml#/components/schemas/Fqdn'

 SmfRegistration:

 type: object

 required:

 - smfInstanceId

 - pduSessionId

 - singleNssai

 - plmnId

 properties:

 smfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 supportedFeatures:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 pduSessionId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PduSessionId'

 singleNssai:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Snssai'

 dnn:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Dnn'

 emergencyServices:

 type: boolean

 pcscfRestorationCallbackUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 plmnId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 pgwFqdn:

 type: string

 epdgInd:

 type: boolean

 default: false

 deregCallbackUri:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Uri'

 registrationReason:

 $ref: '#/components/schemas/RegistrationReason'

 SmsfRegistration:

 type: object

 required:

 - smsfInstanceId

 - plmnId

 properties:

 smsfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 supportedFeatures:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/SupportedFeatures'

 plmnId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PlmnId'

 smsfMAPAddress:

 $ref: '#/components/schemas/E164Number'

 smsfDiameterAddress:

 $ref: '#/components/schemas/NetworkNodeDiameterAddress'

 DeregistrationData:

 type: object

 required:

 - deregReason

 - accessType

 properties:

 deregReason:

 $ref: '#/components/schemas/DeregistrationReason'

 accessType:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/AccessType'

 pduSessionId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/PduSessionId'

 newSmfInstanceId:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/NfInstanceId'

 PcscfRestorationNotification:

 type: object

 required:

 - supi

 properties:

 supi:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Supi'

 NetworkNodeDiameterAddress:

 type: object

 required:

 - name

 - realm

 properties:

 name:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DiameterIdentity'

 realm:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/DiameterIdentity'

 TriggerRequest:

 type: object

 required:

 - supi

 properties:

 supi:

 $ref: 'TS29571\_CommonData.yaml#/components/schemas/Supi'

 SmfRegistrationInfo:

 type: object

 required:

 - smfRegistrationList

 properties:

 smfRegistrationList:

 type: array

 items:

 $ref: '#/components/schemas/SmfRegistration'

 minItems: 1

***(… text not shown for clarity …)***

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*The end of changes\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*