**3GPP TSG-CT WG4 Meeting #111-eC4-224nnn**

**E-Meeting, 18th – 26th August 2022 *Was C4-224392***

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.503** | **CR** | **0932** | **rev** | **1** | **Current version:** | **17.7.0** |  |
|  | | | | | | | | |
| *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:*** | PEI Information | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Hewlett Packard Enterprise | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI17, UDICOM | | | | |  | ***Date:*** | | | 2022-08-09 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | PeiUpdateInfo for the EPC domain cannot be stored in the AMF 3GPP registration context of the UDR as it might not exist if the UE hasn't registered in the 5GC.  Instead, C4-224389, CR0445 to 28.505, describes a solution where the PEI of the UE is stored in its own resource that can then be updated from the HSS, non 3GPP access and 3GPP access so that the UDR always has the latest PEI stored for the UE regardless of registration status. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | How the PEI is stored in the UDR (if applicable) is updated to indicate the new resource of the Nudr. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | There is no way for the UDM to store PEI information in the UDR from the EPC for a UE that has no 3GPP-access context in 5GC, which impacts Event Exposure and Lawful Intercept services. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.2.1, 5.3.2.10.2, 6.2.3.2.4.1, 6.2.3.2.4.3.1, 6.2.6.2.2, 6.2.6.2.3, 6.2.6.2.7, 6.2.6.2.8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 29.505 CR 0445 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR does not impact any OpenAPI specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | rev1: Realigned the text to only apply IMEI(SV) to the new resource and removed the requirement that the PEI is only to be stored in the new resource. | | | | | | | | |

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

#### 5.3.2.1 Introduction

For the Nudm\_UEContextManagement service the following service operations are defined:

- Registration

- DeregistrationNotification

- Deregistration

- Get

- Update

- P-CSCF-RestorationNotification

- P-CSCF-RestorationTrigger

- AMFDeregistration

- PEI-Update

- DataRestorationNotification

- SendRoutingInfoForSM

The Nudm\_UEContextManagement Service is used by Consumer NFs (AMF, SMF, SMSF, NWDAF) to register at the UDM by means of the Registration service operation.

It is also used by the registered Consumer NFs (AMF) to get notified by means of the DeregistrationNotification service operation when UDM decides to deregister the registered consumer NF.

It is also used by the registered Consumer NFs (AMF, SMF, SMSF, NWDAF) to deregister from the UDM by means of the Deregistration service operation.

It is also used by consumer NFs (NEF, NWDAF, NSSAAF, DCCF, SMF) to retrieve registration information from the UDM by means of the Get service operation.

It is also used by the registered Consumer NFs (AMF, SMF, NWDAF) to update registration information stored at the UDM by means of the Update service operation.

It is also used by the registered Consumer NFs (AMF, SMF) to get notified by means of the P-CSCF-RestorationNotification service operation when UDM detects the need for P-CSCF restoration.

It is also used by the consumer NF (HSS) to trigger P-CSCF restoration by means of the P-CSCF-RestorationTrigger service operation.

It is also used by the consumer NF (HSS) to trigger deregistration of the registered AMF for 3GPP access by means of the AMFDeregistration service operation

It is also used by the consumer NF (HSS) to update the stored PEI in e.g. the UDR, by means of the PEI-Update service operation.

It is also used by consumer NFs to retrieve NWDAF registration information from the UDM by means of the Get service operation.

It is also used by consumer NFs to retrieve addressing information for MT SMS delivery, e.g. addressing of the IP-SM-GW, SMS Router or SMSF serving nodes in both 3GPP and non-3GPP accesses, by means of the SendRoutingInfoForSM service operation.

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

##### 5.3.2.10.2 PEI Update

Figure 5.3.2.10.2-1 shows a scenario where the HSS sends a request to the UDM to update the PEI attribute in the 3GPP Access Registration context. The request contains the UE's identity which shall be an IMSI.



Figure 5.3.2.10.2-1: PEI Update

1. The HSS sends a POST request (custom method: pei-update) to the resource representing the UE's registration for 3GPP access. This shall result in the UDM updating the stored pei attribute in e.g. the UDR.

2a. The UDM responds with "204 No Content".

2b. If the user does not exist, HTTP status code "404 Not Found" shall be returned including additional error information in the response body (in the "ProblemDetails" element).

On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the POST response body.

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

6.2.3.2.4.1 Overview

Table 6.2.3.2.4.1-1: Custom operations

|  |  |  |  |
| --- | --- | --- | --- |
| Operation Name | Custom operation URI | Mapped HTTP method | Description |
| dereg-amf | /{ueId}/registrations/amf-3gpp-access/dereg-amf | POST | Trigger AMF deregistration due to mobility from 5GC to EPC |
| pei-update | /{ueId}/registrations/amf-3gpp-access/pei-update | POST | Updates the stored PEI |
| roaming-info-update | /{ueId}/registrations/amf-3gpp-access/roaming-info-update | POST | Updates the Roaming information in the AMF 3GPP Registration context |

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

6.2.3.2.4.3.1 Description

The pei-update custom operation is used by the NF service consumer (HSS) to trigger an update of the stored PEI. For details see 3GPP TS 23.632 [32].

\* \* \* 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  These are the features supported by the AMF. |
| 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.  Absence of PEI indicates that the PEI is not available at the AMF. In this case the UDM/UDR shall not delete the PEI value stored from a previous registration.  If the UDR supports the PeiResource feature and the received PEI is of type IMEI(SV), the UDM shall also use the PeiInfo resource of the UDR to store the received PEI if it is different from the previously stored PEI or if the PeiInfo resource does not exist. |
| imsVoPs | ImsVoPs | | O | 0..1 | Indicates per UE if "IMS Voice over PS Sessions" is homogeneously supported in all TAs in the serving AMF for the current PLMN and access type, 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 absent or set to false. When present and true, the UDM+HSS is requested to cancel previous registration in SGSN, if any.  Not applicable for Nudr and Nudm\_UECM GET operation.  (NOTE 2) |
| emergencyRegistrationInd | boolean | | C | 0..1 | This IE shall be included by the AMF and set to true if the UE performs an emergency Registration.  Not applicable for Nudr and Nudm\_UECM GET operation. |
| 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.  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/SGSN (if any). Otherwise, the registered MME (if any) shall be cancelled.  Not applicable for Nudr and Nudm\_UECM GET operation. |
| urrpIndicator | boolean | | O | 0..1 | This IE indicates whether "UE\_REACHABILITY\_FOR\_SMS" event or "UE\_REACHABILITY\_FOR\_DATA" event for One-Time UE Activity notification (i.e. Max Number Of reports =1) with configuration "INDIRECT\_REPORT" 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  (NOTE 1) |
| amfEeSubscriptionId | Uri | | C | 0..1 | Shall be present if urrpIndicator is true and the UDM has subscribed (e.g. on behalf of NEF) to ReachabilityReport event for "UE Reachability for DL Traffic" at the AMF to receive One-Time UE Activity notification. It contains the subscription Id URI allocated by the AMF as received by the UDM in 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 | EpsInterworkingInfo | | C | 0..1 | This IE shall be included if the AMF has determined per APN/DNN which PGW-C+SMF is selected for EPS interworking with N26 and the AMF supports EPS interworking of non-3GPP access. 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. |
| registrationTime | DateTime | | C | 0..1 | Time of Amf3GppAccessRegistration.  Shall be present when used on Nudr. |
| vgmlcAddress | VgmlcAddress | | O | 0..1 | Address of the VGMLC |
| contextInfo | ContextInfo | | C | 0..1 | This IE if present may contain e.g. the headers received by the UDM along with the Amf3GppAccessRegistration.  Shall be absent on Nudm and may be present on Nudr |
| noEeSubscriptionInd | boolean | | O | 0..1 | This IE shall be absent on Nudr and may be present on Nudm. This indication is used by UDM to restore any possible ongoing subscription lost, as specified in clause 5.3.2.2.2.  When present, this IE shall indicate whether AMF does not have event exposure subscriptions in UE Context:  - true: No Event Exposure subscription existing in UE Context in AMF.  - false: Event Exposure subscription(s) exist in UE Context in AMF. |
| supi | Supi | | C | 0..1 | This IE may be included by the AMF in registration requests and should be included by UDM in GET responses when the corresponding GET request provided a GPSI UE identity. |
| ueReachableInd | UeReachableInd | | C | 0..1 | This IE shall be present if the UE is currently not reachable (e.g. in not allowed areas) or the UE reachability is unknown (e.g. service restriction area of the UE is not received at the AMF during initial registration).  When the UE is not reachable (and based on operator policy when the UE reachability is unknown), the UDM shall keep the urrpIndicator and amfEeSubscriptionId attributes and not generate Reachability Report for the UE.  Absence of this IE shall be interpreted as "REACHABLE". |
| reRegistrationRequired | boolean | | C | 0..1 | This IE is only applicable to Nudr interface and shall not be included over the Nudm interface.  This attribute may be included in notifications sent by the UDR to the UDM if purgeFlag is also set to true in the same notification.  When Nudr Data Change Notification is received including this attribute and the purgeFlag, both set to true, the UDM uses "REREGISTRATION\_REQUIRED" as DeregistrationReason towards AMF.  This attribute shall not be included and set to true if the adminDeregSubWithdrawn attribute is present and set to true.  Absence of this IE shall be interpreted as false. |
| adminDeregSubWithdrawn | boolean | | C | 0..1 | This IE is only applicable to Nudr interface and shall not be included over the Nudm interface.  This attribute may be included in notifications sent by the UDR to the UDM if the purgeFlag is also set to true in the same notification.  When Nudr Data Change Notification is recevied including this attribute and the purgeFlag, both set to true, the UDM uses "SUBSCRIPTION\_WITHDRAWN" as DeregistrationReason towards AMF.  This attribute shall not be included and set to true if the reRegistrationRequired attribute is present and set to true.  Absence of this IE shall be interpreted as false. |
| dataRestorationCallbackUri | | Uri | O | 0..1 | If present, it contains the URI where notifications about UDR-initiated data restoration shall be sent by UDM. |
| resetIds | array(string) | | O | 1..N | May be present in registration response messages. The AMF may decide to re-register at the UDM when receiving a data restoration notification containing a matching resetId. |
| disasterRoamingInd | boolean | | O | 0..1 | Disaster Roaming Indicator (see 3GPP TS 23.502 [3]).  When present, this IE shall be set as follows:  - true: Disaster Roaming service is applied;  - false (default): Disaster Roaming service is not applied. |
| ueMINTCapability | boolean | | O | 0..1 | This IE indicates whether the UE supports MINT:  - true: MINT is supported by the UE;  - false, or absence of this attribute: MINT is not supported. |
| sorSnpnSiSupported | boolean | | O | 0..1 | This IE may be included by the AMF in registration requests; if present, it shall contain the capability of the UE or ME to support "Steering of Roaming SNPN Selection Information" (SOR-SNPN-SI).  - true: SOR-SNPN-SI is supported  - false or absent: SOR-SNPN-SI is not supported |
| udrRestartInd | boolean | | O | 0..1 | May be present in request messages from the AMF to the UDM.  If present:  - true: indicates that the registration message sent by the AMF is due to a re-synchronization event, motivated by a previous reception at the AMF of a Data Restoration Notification from the UDM  - false (or absent): indicates that this is a normal registration message (i.e., not motivated by a data restoration notification event) |
| lastSynchronizationTime | DateTime | | O | 0..1 | This IE is only applicable to the Nudm API and shall not be used on the Nudr API.  It may only be included when "udrRestartInd" attribute is present and set to true.  When present, it contains the timestamp (previously stored by AMF locally, after successful registration at UDM) when profiles in the AMF and in UDM/UDR were synchronized. |
| NOTE 1: The urrpIndicator attribute shall only be exposed over the Nudr SBI, and it shall not be included by the AMF.  NOTE 2: Regardless of the Dual Registration Flag, the SGSN, if any, is required to be cancelled (see 3GPP TS 23.502 [3] clause 4.11.5.2) | | | | | |

\* \* \* 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  These are the features supported by the AMF. | |
| 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  Absence of PEI indicates that the PEI is not available at the AMF. In this case the UDM/UDR shall not delete the PEI value stored from a previous registration.  If the UDR supports the PeiResource feature and the received PEI is of type IMEI(SV), the UDM shall also use the PeiInfo resource of the UDR to store the received PEI if it is different from the previously stored PEI or if the PeiInfo resource does not exist. | |
| 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.  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 or "UE\_REACHABILITY\_FOR\_DATA" event for One-Time UE Activity notification (i.e. Max Number Of reports =1) with configuration "INDIRECT\_REPORT" 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 | | Uri | C | 0..1 | Shall be present if urrpIndicator is true and the UDM has subscribed (e.g. on behalf of NEF) to Reachability-Report event for "UE Reachable for DL Traffic" at the AMFto receive One-Time UE Activity notification. It contains the subscription Id URI allocated by the AMF as received by the UDM in 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. | |
| registrationTime | | DateTime | C | 0..1 | Time of AmfNon3GppAccessRegistration.  Shall be present when used on Nudr. | |
| vgmlcAddress | | VgmlcAddress | O | 0..1 | Address of the VGMLC | |
| contextInfo | | ContextInfo | C | 0..1 | This IE if present may contain e.g. the headers received by the UDM along with AmfNon3GppAccessRegistration.  Shall be absent on Nudm and may be present on Nudr. | |
| noEeSubscriptionInd | | boolean | O | 0..1 | This IE shall be absent on Nudr and may be present on Nudm. This indication is used by UDM to restore any possible ongoing subscription lost, as specified in clause 5.3.2.2.3.  When present, this IE shall indicate whether AMF does not have event exposure subscriptions in UE Context:  - true: No Event Exposure subscription existing in UE Context in AMF.  - false: Event Exposure subscription(s) exist in UE Context in AMF. | |
| supi | | Supi | C | 0..1 | This IE may be included by the AMF in registration requests and should be included by UDM in GET responses when the corresponding GET request provided a GPSI UE identity. | |
| reRegistrationRequired | boolean | | C | 0..1 | | This IE is only applicable to Nudr interface and shall not be included over the Nudm interface.  This attribute may be included in notifications sent by the UDR to the UDM if the purgeFlag is also set to true in the same notification.  When Nudr Data Change Notification is received including this attribute and the purgeFlag, both set to true, the UDM uses "REREGISTRATION\_REQUIRED" as DeregistrationReason towards AMF.  This attribute shall not be included and set to true if the adminDeregSubWithdrawn attribute is present and set to true.  Absence of this IE shall be interpreted as false. | |
| adminDeregSubWithdrawn | boolean | | C | 0..1 | | This IE is only applicable to Nudr interface and shall not be included over the Nudm interface.  This attribute may be included in notifications sent by the UDR to the UDM if the purgeFlag is also set to true in the same notification.  When Nudr Data Change Notification is recevied including this attribute and the purgeFlag, both set to true, the UDM uses "SUBSCRIPTION\_WITHDRAWN" as DeregistrationReason towards AMF.  This attribute shall not be included and set to true if the reRegistrationRequired attribute is present and set to true.  Absence of this IE shall be interpreted as false. | |
| dataRestorationCallbackUri | Uri | | O | 0..1 | | If present, it contains the URI where notifications about UDR-initiated data restoration shall be sent by UDM. | |
| resetIds | array(string) | | O | 1..N | | May be present in registration response messages. The AMF may decide to re-register at the UDM when receiving a data restoration notification containing a matching resetId. | |
| disasterRoamingInd | boolean | | O | 0..1 | | Disaster Roaming Indicator (see 3GPP TS 23.502 [3]).  When present, this IE shall be set as follows:  - true: Disaster Roaming service is applied;  - false (default): Disaster Roaming service is not applied. | |
| sorSnpnSiSupported | boolean | | O | 0..1 | | This IE may be included by the AMF in registration requests; if present, it shall contain the capability of the UE or ME to support "Steering of Roaming SNPN Selection Information" (SOR-SNPN-SI).  - true: SOR-SNPN-SI is supported  - false or absent: SOR-SNPN-SI is not supported | |
| udrRestartInd | boolean | | O | 0..1 | | May be present in request messages from the AMF to the UDM.  If present:  - true: indicates that the registration message sent by the AMF is due to a re-synchronization event, motivated by a previous reception at the AMF of a Data Restoration Notification from the UDM  - false (or absent): indicates that this is a normal registration message (i.e., not motivated by a data restoration notification event) | |
| lastSynchronizationTime | DateTime | | O | 0..1 | | This IE is only applicable to the Nudm API and shall not be used on the Nudr API.  It may only be included when "udrRestartInd" attribute is present and set to true.  When present, it contains the timestamp (previously stored by AMF locally, after successful registration at UDM) when profiles in the AMF and in UDM/UDR were synchronized. | |
| 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.  If the UDR supports the PeiResource feature and the received PEI is of type IMEI(SV), the UDM shall in addition to updating the Amf3GppAccessRegistration resource also update the PeiInfo resource of the UDR to store the received PEI if it is different from the previously stored PEI. |
| imsVoPs | ImsVoPs | O | 0..1 | Indicates per UE if "IMS Voice over PS Sessions" is homogeneously supported in all TAs in the serving AMF for the current PLMN and access type, 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.  An empty array indicates that the complete backupAmfInfo shall be deleted. |
| epsInterworkingInfo | EpsInterworkingInfo | C | 0..1 | This IE shall be included if the AMF has determined per APN/DNN which PGW-C+SMF is selected for EPS interworking with N26 and the AMF supports EPS interworking of non-3GPP access. This IE shall also be included to update the PGW-C+SMF information if the AMF selects another PGW-C+SMF for EPS interworking with N26 for the same DNN. 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. |
| ueMINTCapability | boolean | O | 0..1 | This IE indicates whether the UE supports MINT:  - true: MINT is supported by the UE;  - false: MINT is not supported. |
| 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.  If the UDR supports the PeiResource feature and the PEI is of type IMEI(SV), the UDM shall in addition to updating the AmfNon3GppAccessRegistration resource also update the PeiInfo resource of the UDR to store the received PEI if it is different from the previously stored PEI. |
| 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.  An empty array indicates that the complete backupAmfInfo shall be deleted. |
| 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. | | | | |

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