**3GPP TSG-CT WG4 Meeting #111-e C4-224**

**E-Meeting, 18th – 26th August 2022 was C4-224353**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.503** | **CR** | **0928** | **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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Update on deregCallbackUri | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | C4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SBIProtoc17 | | | | |  | ***Date:*** | | | 2022-08-10 |
|  |  | | | |  | |  | | |  |
| ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | There is a security related scenario that if a malicious NF authorizes the Nudm\_UECM\_Get service and knows the GPSI of the attacked UE. The malicious NF sends Nudm\_UECM\_Get message to the UDM to obtain the deregCallbackUri of the UE. Then this malicious NF could notify AMF to deregister UE based on deregCallbackUri.  Since the deregCallbackUri is provided by AMF, there is no need to feedback deregCallbackUri to AMF when process Amf3GppAccessRegistration Information Retrieval, AmfNon3GppAccessRegistration Information Retrieval and SmfRegistration Information Retrieval procedure.  It proposes to clarify the deregCallbackUri shall set to a dummy URI, i.e. an URI with "http://example.com" to NF service consumer for the related Information Retrieval procedures. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | It proposes to clarify the deregCallbackUri shall set to a dummy URI, i.e. an URI with "http://example.com" to NF service consumer for the related Information Retrieval procedures. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | There are security risks if the deregCallbackUri is provided to malicious NF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.2.5.2, 5.3.2.5.3, 5.3.2.5.7, 6.2.6.2.2, 6.2.6.2.3, 6.2.6.2.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 doesn't introduce any impact in any OpenAPI files. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* Begin of Changes \* \* \* \*

##### 5.3.2.5.2 Amf3GppAccessRegistration Information Retrieval

Figure 5.3.2.5.2-1 shows a scenario where the NF service consumer (e.g. NEF) sends a request to the UDM to retrieve the UE's Amf3GppAccessRegistration Information. The request contains the UE's identity (/{ueId}) which shall be a GPSI or SUPI, the type of the requested information (/registrations/amf-3gpp-access) and query parameters (supported-features).



Figure 5.3.2.5.2-1: Requesting a UE's AMF Registration Information for 3GPP Access

1. The NF service consumer (e.g. NEF) sends a GET request to the resource representing the UE's AMF registration information for 3GPP access, with query parameters indicating the supported-features.

2. The UDM responds with "200 OK" with the message body containing the UE's Amf3GppAccessRegistration including the deregCallbackUri IE set to a dummy URI, i.e. an URI with "http://example.com".

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

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

##### 5.3.2.5.3 AmfNon3GppAccessRegistration Information Retrieval

Figure 5.3.2.5.3-1 shows a scenario where the NF service consumer (e.g. NEF) sends a request to the UDM to retrieve the UE's AmfNon3GppAccessRegistration Information. The request contains the UE's identity (/{ueId}) which shall be a GPSI or SUPI, the type of the requested information (/registrations/amf-non-3gpp-access) and query parameters (supported-features).



Figure 5.3.2.5.3-1: Requesting a UE's AMF Registration Information for non-3GPP Access

1. The NF service consumer (e.g. NEF) sends a GET request to the resource representing the UE's AMF registration information for non-3GPP access, with query parameters indicating the supported-features.

2. The UDM responds with "200 OK" with the message body containing the UE's AmfNon3GppAccessRegistration including the deregCallbackUri IE set to a dummy URI, i.e. an URI with "http://example.com".

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

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

##### 5.3.2.5.7 SmfRegistration Information Retrieval

Figure 5.3.2.5.7-1 shows a scenario where the NF service consumer (e.g. NWDAF, SMF) sends a request to the UDM to retrieve the UE's SmfRegistration Information. NF Service Consumer (e.g. SMF) may send request to UDM to retrieve SMF registration information to ensure the uniqueness of PDU Session ID if handover between EPS and EPC/ePDG. The request contains the UE's identity (/{ueId}) which shall be a GPSI or SUPI, the type of the requested information (/registration/smf-registrations) and query parameters (single-nssai, dnn, supported-features).



Figure 5.3.2.5.7-1: Requesting a UE's SMF Registration Information

1. The NF service consumer (e.g. NWDAF) sends a GET request to the resource representing the UE's SMF registration information, with query parameters indicating the single-nssai, dnn, supported-features.

2a. The UDM responds with "200 OK" with the message body containing the UE's SmfRegistrationInfo including the deregCallbackUri IE set to a dummy URI, i.e. an URI with "http://example.com".

2b. If there is no valid SMF Registration data for the UE, 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 GET response body.

\* \* \* 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.  When deregCallbackUri is provided to NF service consumer by the UDM, the value of the deregCallbackUri shall be set to a dummy URI, i.e. an URI with "http://example.com". |
| 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. |
| 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) | | | | | |

##### 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.  When deregCallbackUri is provided to NF service consumer by the UDM, the value of the deregCallbackUri shall be set to a dummy URI, i.e. an URI with "http://example.com". | |
| 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. | |
| 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. | | | | | | | |

##### 6.2.6.2.4 Type: SmfRegistration

Table 6.2.6.2.4-1: Definition of type SmfRegistration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| smfInstanceId | NfInstanceId | M | 1 | NF Instance Id of the SMF |
| smfSetId | NfSetId | C | 0..1 | This IE shall be present if the SMF belongs to a SMF SET.  If present, it indicates the NF Set ID of SMF Set. |
| supportedFeatures | SupportedFeatures | O | 0..1 | See clause 6.2.8  These are the features supported by the SMF. |
| pduSessionId | PduSessionId | M | 1 | PDU Session ID |
| singleNssai | Snssai | M | 1 | A single Network Slice Selection Assistance Information |
| dnn | Dnn | C | 0..1 | Data Network Name; shall be present if emergencyServices is false or absent.  When present, this IE shall contain the Network Identifier only. |
| emergencyServices | boolean | C | 0..1 | Indication of Emergency Services; absence indicates false. |
| pcscfRestorationCallbackUri | Uri | O | 0..1 | a URI provided by the SMF to receive (implicitly subscribed) notifications on the need for P-CSCF Restoration |
| plmnId | PlmnId | M | 1 | Serving node PLMN identity. |
| pgwFqdn | Fqdn | C | 0..1 | FQDN of the PGW in the "PGW-C+SMF", to be included for interworking with EPS. |
| pgwIpAddr | IpAddress | O | 0..1 | IP Address of the PGW in the "PGW-C+SMF", to be included for interworking with EPS. |
| epdgInd | boolean | O | 0..1 | Indicate whether access is from ePDG.  true: access from ePDG.  false or absent: not access from ePDG |
| deregCallbackUri | Uri | O | 0..1 | A URI provided by the SMF to receive (implicitly subscribed) notifications on deregistration.  The deregistration callback URI shall have unique information within SMF set to identify the UE to be deregistered.  When deregCallbackUri is provided to NF service consumer by the UDM, the value of the deregCallbackUri shall be set to a dummy URI, i.e. an URI with "http://example.com". |
| registrationReason | RegistrationReason | O | 0..1 | Indicates registration reason. |
| registrationTime | DateTime | C | 0..1 | Time of SmfRegistration.  Shall be present when used on Nudr. |
| contextInfo | ContextInfo | C | 0..1 | This IE if present may contain e.g. the headers received by the UDM along with the SmfRegistration.  Shall be absent on Nudm and may be present on Nudr. |
| pcfId | NfInstanceId | C | 0..1 | This IE shall be present if the SMF is indicated to select the same PCF instance for SM Policy Control.  When present, it indicates the PCF Identifier that serving the PDU Session/PDN Connection. |
| 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 SMF may decide to re-register at the UDM when receiving a data restoration notification containing a matching resetId. |
| udrRestartInd | boolean | O | 0..1 | May be present in request messages from the SMF to the UDM.  If present:  - true: indicates that the registration message sent by the SMF is due to a re-synchronization event, motivated by a previous reception at the SMF 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 SMF locally, after successful registration at UDM) when profiles in the SMF and in UDM/UDR were synchronized. |

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