**3GPP TSG CT WG3 Meeting #135 *C3-243274***

**Hyderabad, IN, 27 - 31 May, 2024 (Revision of C3-24xxxx)**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.522** | **CR** | **1298** | **rev** | **-** | **Current version:** | **18.5.0** |  |
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| *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:*** | Updates error handling in ServiceParameter API | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NBI18 | | | | |  | ***Date:*** | | | 2024-05-10 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19) Rel-20 (Release 20)* | |
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| ***Reason for change:*** | | TS 29.503 clause 5.9 defined Nudm\_ServiceSpecificAuthorization Service is used by Consumer NFs (e.g. NEF) and clause 6.8.7.3 defined the related application errors, while missing the corresponding error handling procedure descriptios for the Nudm\_ServiceSpecificAuthorization service. | | | | | | | | |
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| ***Summary of change:*** | | Adding error handling procedure for interworking with the Nudm\_ServiceSpecificAuthorization service in ServiceParameter API. | | | | | | | | |
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| ***Consequences if not approved:*** | | Not aligned with the TS 29.503 defined application errors in the Nudm\_ServiceSpecificAuthorization API and missing the related error handling. | | | | | | | | |
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| ***Clauses affected:*** | | 4.4.20 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR does not impact the OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* 1st Change \* \* \* \*

### 4.4.20 Procedures for service specific parameter provisioning

These procedures are used by an AF to provide service specific parameters to the 5G system via the NEF.

In order to provision service specific parameters to the 5G system, the AF shall send an HTTP POST message to the NEF targetting the resource "Service Parameter Subscriptions", the HTTP POST request message body shall include the ServiceParameterData data structure that shall include:

- service description via one of the following:

a) a combination of DNN and S-NSSAI within the "dnn" attribute and the "snssai" attribute respectively;

b) an AF Service Identifier within the "afServiceId" attribute. In this case, the NEF may translate the received AF service identifier into a DNN and S-NSSAI combination; or

c) an application identifier within the "appId" attribute;

NOTE 1: When the feature "AfGuideURSP" is supported, the DNN, S-NSSAI and/or Application Identifier information can be provided in the "urspGuidance" attribute, hence only the "afServiceId" attribute needs to be included for providing guidance for URSP determination. When the "AfGuideTNAPs" feature is supported, and the attribute "tnaps" is included, the "appId" attribute cannot be included.

- indication of the UEs to which the subscription applies via one of the following:

a) identification of an individual UE within the "gpsi" attribute;

b) an IPv4 address of the UE within the "ueIpv4" attribute;

c) an IPv6 address of the UE within the "ueIpv6" attribute;

d) a MAC address of the UE within the "ueMac" attribute;

e) an identification of a group of UE(s) within the "externalGroupId" attribute;

NOTE 2: When the feature "PIN" is supported, AF can use "externalGroupId" attribute to indicate the external group identifier if more than one PEGC is present within the PIN. If external group identifier is not used for the PIN, then AF will indicate "gpsi" attribute in the individual request for each of the PEGC within the PIN.

f) an identification of any UE within the "anyUeInd" attribute; or

g) when the feature "VPLMNSpecificURSP" is supported, the AF is interacting with the VPLMN, and the request is to influence the determination of VPLMN-specific URSP rules for any inbound roamer from one or more PLMN(s), an identification of the PLMN IDs of the roaming UEs within the "roamUeNetDescs" attribute; and

- service parameters for at least one of the following:

1) V2X service parameters via:

a) configuration parameters for V2X communications over PC5 within the "paramOverPc5" attribute; and

b) configuration parameters for V2X communications over Uu within the "paramOverUu" attribute;

2) if the "ProSe" and/or "ProSe\_Ph2" feature(s) is/are supported, 5G ProSe service parameters via:

a) configuration parameters for 5G ProSe direct discovery within the "paramForProSeDd" attribute;

b) configuration parameters for 5G ProSe direct communication within the "paramForProSeDc" attribute; and

c) configuration parameters for 5G ProSe UE-to-network relay, including configuration parameters for 5G ProSe UE-to-network relay UE within the "paramForProSeU2NRelUe" attribute and configuration parameters for 5G ProSe remote UE within the "ParamForProSeRemUe" attribute;

d) configuration parameters for 5G ProSe UE-to-UE relay, including configuration parameters for 5G ProSe UE-to-UE relay UE within the "paramForProSeU2URelUe" attribute and configuration parameters for 5G ProSe end UE within the "ParamForProSeEndUe" attribute, only if the "ProSe\_Ph2" feature is supported;

3) if the "AfGuideURSP" feature is supported, URSP service parameters via:

a) contents for the AF guidance on URSP within the "urspGuidance" attribute, which shall include one or more URSP rule requests. Each URSP rule request may include:

1. a traffic descriptor within the "trafficDesc" attribute;

- if the "PIN" feature is supported and the provided URSP request applies to a PIN scenario, the traffic descriptor shall correspond to a PIN Identifier within the "pinId" attribute applicable for the PEGC;

2. a relative precedence within the "relatPrecedence" attribute;

3. when the feature "VPLMNSpecificURSP" is supported and the AF guidance is to influence the determination of VPLMN-specific URSP rules, the VPLMN description within the "visitedNetDescs" attribute; and/or

4. one or more route selection parameter sets within the "routeSelParamSets" attribute. Each route selection parameter set may include a precedence value within the "precedence" attribute, a DNN within the "dnn" attribute, an S-NSSAI within the "snssai" attribute, a spatial validity condition within the "spatialValidity" attribute, and if the "PduSessTypeChange" feature is also supported and the PDU Session type needs to be changed, the requested PDU Session type within the "pduSessType" attribute. If the request contains only one route selection parameter set, each of the optional attributes "dnn", "snssai", "precedence", and "spatialValidity" that is missing from the request may be complemented by the NEF based on local configuration for the provided AF service identifier. It is up to the NEF to transform the information of the "spatialValidity" attribute into a list of TAIs;

NOTE 3: If the "PIN" feature is supported and the provided URSP request applies to a PIN scenario, the DNN and S-NSSAI need to be included.

4) if the "A2X" feature is supported, A2X service parameters via:

a) configuration parameters for A2X communications over PC5 within the "a2xParamsPc5" attribute;

5) if the "AfGuideTNAPs" feature is supported, TNAP ID(s) service parameters via:

a) a list of the TNAP ID(s) collocated with the 5G-RG(s) of a specific user within the "tnaps" attribute;

NOTE 4: When the "AfGuideTNAPs" feature is supported and the AF provides the "tnaps" attribute, the service specific parameter provisioning procedure is used for the provisioning of UE location related information to be applied for SM Policy Control.

and

6) if the "Ranging\_SL" feature is supported:

a) ranging and sidelink positioning service parameters via configuration parameters for ranging and sidelink positioning within the "paramForRangingSlPos" attribute; and

b) the mapping between the Application Layer ID and the GPSI within the "mappingInfo" attribute;

and may include:

- if the "AfNotifications" feature is supported:

a) subscription to event notification of the outcome related to invocation of service parameter provisioning within the "subNotifEvents" attribute; and

b) notification URI within the "notificationDestination" attribute.

In order to update an existing service parameter subscription, the AF shall send an HTTP PUT or HTTP PATCH message to the NEF targetting the resource "Individual Service Parameter Subscription" and requesting to change the subscription. When the HTTP PUT method is used, the NF service consumer should not update attributes that do not exist in the ServiceParameterDataPatch data type, i.e. such attributes should remain unchanged compared to the initial values provided in the HTTP POST request message.

In order to delete an existing service parameter subscription, the AF shall send an HTTP DELETE message to the NEF targetting the resource "Individual Service Parameter Subscription".

In non-roaming scenarios or roaming scenarios when the AF interacts with the HPLMN, upon receipt of the HTTP request from the AF, and if the AF is authorized, the NEF shall interact with the UDM by invoking the Nudm\_SubscriberDataManagement service as described in 3GPP TS 29.503 [17] to retrieve the SUPI or Internal Group Identifier.

The NEF may, based on local configuration, complement missing service parameters. Additionally, based on operator's local policy, NEF may support service specific authorization as described in clause 4.15.6.10 in 3GPP TS 23.502 [2]. Then the NEF shall interact with the UDR to create, update or delete the associated service parameters by using the Nudr\_DataRepository service as defined in 3GPP TS 29.519 [23]. If information related to AfNotifications feature are received from the AF, the NEF shall also include the required information (e.g. "policDelivNotifUri" and "policDelivNotifCorreId" attributes in 3GPP TS 29.519 [23]) in UDR data creation if the NEF supports the DeliveryOutcome feature (as described in 3GPP TS 29.504 [4]). If the NEF receives an error response from the UDR, the NEF shall not create, update or delete the resource and shall respond to the AF with a proper error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

After receiving a successful response from the UDR, the NEF shall:

- for an HTTP POST request, create an "Individual Service Parameter Subscription" resource which represents the Service Parameter provisioning request, addressed by a URI that contains the AF Identifier and a NEF-created configuration identifier, and shall respond to the AF with a 201 Created status code, including a Location header field containing the URI for the created resource. The AF shall use the URI received in the Location header in subsequent requests to the NEF to refer to this Service Parameter Subscription;

- for an HTTP PUT or HTTP PATCH request, update the "Individual Service Parameter Subscription" resource which represents the service parameter provisioning request, and respond to the AF with a 200 OK or 204 No Content status code; and

- for an HTTP DELETE request, remove all properties of the resource and delete the corresponding active "Individual Service Parameter Subscription" resource, then respond to the AF with a 204 No Content status code.

When the NEF receives an error response from the Nudm\_ServiceSpecificAuthorization service operations, the NEF shall respond to the AF with a proper error status code. If the NEF received from the UDM an error response including a "ProblemDetails" data structure with the "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error as defined in clause 5.11.4.3.

When the NEF receives the Service Specific Authorization Update information from the UDM by Nudm\_ServiceSpecificAuthorization\_UpdateNotify service operation defined in 3GPP TS 29.503 [17], if the authorization is revoked, the NEF shall provide a notification to AF by sending HTTP POST message that include the one or more AfNotification data structure(s). Upon receipt of the notification, the AF shall respond with a "204 No Content" status code to confirm the received notification.

When the NEF receives the notification of the outcome of invocation related to AF provisioned service parameters from the PCF by Npcf\_EventExposure\_Notify service operation defined in 3GPP TS 29.523 [22], the NEF shall determine the corresponding service parameter subscription and provide a notification to AF by sending HTTP POST message that include the AfNotification data structure. Upon receipt of the notification, the AF shall respond with a "204 No Content" status code to confirm the received notification.

In the roaming scenarios when the AF interacts with the VPLMN, the interaction of the V-NEF with the UDM does not apply. The V-NEF stores in the V-UDR the service parameter information provided by the AF and receives from the V-PCF the notification of the outcome of the provisioning of the AF requested service parameters.

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