**3GPP TSG-CT WG3 Meeting #137 *C3-245126***

**Hefei, CN, 14 – 18 October, 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **29.522** | **CR** | **1366** | **rev** | **2** | **Current version:** | **18.7.0** |  |
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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:***  | Clarification for the URSP rule usage in the HPLMN and VPLMN |
|  |  |
| ***Source to WG:*** | Ericsson, Nokia |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | eUEPO |  | ***Date:*** | 2024-10-17 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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 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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)Rel-20 (Release 20)* |
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| ***Reason for change:*** | According to the clause 4.11.0a.2a.6 of TS 23.502, it clearly states while AF from VPLMN providing service parameters, these service parameters are not used by the H-PCF as generations of the URSP rules. Therefore, the urspGuidance is not used while AF interacting with NEF in the VPLMN. Such clarification is missing in stage 3 specification. |
| ***d*** |  |
| ***Summary of change:*** | Add the note in the data table for ServiceParameterData to clarify the relation between “roamUeNetDescs“ and “urspGuidance“. |
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| ***Consequences if not approved:*** | Unclear statements for urspGuidance usage and can lead to implementation errors. |
|  |  |
| ***Clauses affected:*** | 5.11.2.3.2 |
|  |  |
|  | **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 have any impact in the Open API specification. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

\*\*\* First 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; and/or

3. 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.

b) when the feature "VPLMNSpecificURSP" is supported, the "vpsUrspGuidance" attribute, where each URSP rule may contain the parameters of bullet a) above, and in addition, the description of the VPLMN(s) where the URSP rule applies within the "visitedNetDescs" attribute;

NOTE 4: The "visitedNetDescs" attribute within "vpsUrspGuidance" should be present, otherwise the provided guidance will never be applied.

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

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

b) configuration parameters for A2X communications over Uu within the "a2xParamsUu" 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 5: 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, the Ranging and sidelink positioning service parameters including:

a) configuration parameters for ranging and sidelink positioning within the "paramForRangingSlPos" 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 or UDM, 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 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.

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

##### 5.11.2.3.2 Type: ServiceParameterData

Table 5.11.2.3.2-1: Definition of type ServiceParameterData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| self | Link | C | 0..1 | Identifies the individual service parameter subscription resource URI.Shall be present by the NEF in HTTP responses that include an object of ServiceParameterData type. |  |
| dnn | Dnn | O | 0..1 | Identifies a DNN. (NOTE 2) (NOTE 3) |  |
| snssai | Snssai | O | 0..1 | Identifies an S-NSSAI. (NOTE 2) (NOTE 3) |  |
| afServiceId | string | O | 0..1 | Identifies a service on behalf of which the AF is issuing the request. (NOTE 2) (NOTE 3) |  |
| appId | string | O | 0..1 | Identifies an application identifier. (NOTE 2) |  |
| gpsi | Gpsi | O | 0..1 | Identifies GPSI. (NOTE 1) |  |
| ueIpv4 | Ipv4Addr | O | 0..1 | The IPv4 address of the served UE. (NOTE 1) |  |
| ueIpv6 | Ipv6Addr | O | 0..1 | The IPv6 address of the served UE. (NOTE 1) |  |
| ueMac | MacAddr48 | O | 0..1 | The MAC address of the served UE. (NOTE 1) |  |
| externalGroupId | ExternalGroupId | O | 0..1 | Represents a group of users. (NOTE 1) |  |
| anyUeInd | boolean | O | 0..1 | Identifies whether the service parameters apply to any non-roaming UE.- "true": the service parameters are applicable to any non-roaming UE.- "false": the service parameters are not applicable to any non-roaming UE.- Default value is "false" if omitted.(NOTE 1) (NOTE 3) |  |
| roamUeNetDescs | array(NetworkDescription) | O | 1..N | Each element identifies one (e.g., combination of MCC and MNC) or more (e.g. a MCC only) PLMN ID(s). It indicates the PLMN(s) of inbound roamers to which the provided AF guidance on VPLMN-specific URSP rules apply. (NOTE 1) (NOTE 4) | VPLMNSpecificURSP |
| subNotifEvents | array(Event) | C | 1..N | Identifies the AF subscribed event(s) notifications related to AF provisioned service parameters. | AfNotifications |
| notificationDestination | Uri | C | 0..1 | Contains the callback URI to receive the notifications from the NEF. Shall be present If "subNotifEvents" attribute is included. | AfNotifications |
| requestTestNotification | boolean | O | 0..1 | Set to true by the AF to request the NEF to send a test notification as defined in clause 5.2.5.3 of 3GPP TS 29.122 [4]. The default value is "false" if omitted. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol. | Notification\_websocket |
| paramOverPc5 | ParameterOverPc5 | O | 0..1 | Contains the V2X service parameters used over PC5 |  |
| paramOverUu | ParameterOverUu | O | 0..1 | Contains the V2X service parameters used over Uu |  |
| paramForProSeDd | ParamForProSeDd | O | 0..1 | Contains the service parameters for 5G ProSe direct discovery. | ProSe |
| paramForProSeDc | ParamForProSeDc | O | 0..1 | Contains the service parameters for 5G ProSe direct communications. | ProSe |
| paramForProSeU2NRelUe | ParamForProSeU2NRelUe | O | 0..1 | Contains the service parameters for 5G ProSe UE-to-network relay UE. | ProSe |
| paramForProSeRemUe | ParamForProSeRemUe | O | 0..1 | Contains the service parameters for 5G ProSe remote UE. | ProSe |
| paramForProSeU2URelUe | ParamForProSeU2URelUe | O | 0..1 | Contains the service parameters for 5G ProSe UE-to-UE relay UE. | ProSe\_Ph2 |
| paramForProSeEndUe | ParamForProSeEndUe | O | 0..1 | Contains the service parameters for 5G ProSe end UE. | ProSe\_Ph2 |
| paramForRangingSlPos | ParamForRangingSlPos | O | 0..1 | Contains the service parameters for ranging and sidelink positioning. | Ranging\_SL |
| urspGuidance | array(UrspRuleRequest) | O | 1..N | Contains the service parameters used to guide the URSP rule(s).(NOTE 4) | AfGuideURSP |
| vpsUrspGuidance | array(UrspRuleRequest) | O | 1..N | Contains the service parameters provided by an AF to guide the VPLMN-specific URSP rule(s). | VPLMNSpecificURSP |
| a2xParamsPc5 | A2xParamsPc5 | O | 0..1 | Contains the A2X service parameters used over PC5 reference point. | A2X |
| a2xParamsUu | A2xParamsUu | O | 0..1 | Contains the A2X service parameters used over Uu reference point. | A2X |
| tnaps | array(TnapId) | O | 1..N | Contains the TNAP ID(s) collocated with the 5G-RG(s) of a specific user. | AfGuideTNAPs |
| mtcProviderId | MtcProviderInformation | O | 0..1 | Indicates MTC provider information. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Indicates the list of Supported features used as described in clause 5.11.3.This attribute shall be provided in the POST request and in the response of successful resource creation. |  |
| NOTE 1: One of individual UE identifier (i.e. "gpsi", "ueIpv4", "ueIpv6" or "ueMac" attribute), External Group Identifier (i.e. "externalGroupId" attribute) or any UE indication (i.e. "anyUeInd" attribute), and when the feature "VPLMNSpecificURSP" is supported, or any inbound roaming UE from the indicated PLMN(s) (i.e., "roamUeNetDescs" attribute) shall be included. For V2X, Prose (when the "ProSe" and/or "ProSe\_Ph2" feature is supported), A2X (when the "A2X" feature is supported) and URSP service parameter provisioning for the HPLMN (i.e. via the "urspGuidance" attribute, see also clause 4.4.20), only "anyUeInd", "gpsi" and "externalGroupId" attributes are applicable. When the "VPLMNSpecificURSP" feature is supported, only "gpsi" and "roamUeNetDescs" attributes are applicable. The "roamUeNetDescs" attribute only applies to URSP service parameter provisioning and may be included only when the "vpsUrspGuidance" attribute is provided. When the "AfGuideTNAPs" feature is supported, when TNAP ID(s) is provisioned within the "tnaps" attribute, only "gpsi" shall be provided.NOTE 2: Either the "afServiceId" attribute, "appId" attribute or the combination of "snssai" and "dnn" attributes shall be provided. When the feature "AfGuideURSP" is supported, only the "afServiceId" attribute shall be provided for providing guidance for URSP determination. When the feature "AfGuideTNAPs" is supported, when TNAP ID(s) is provisioned within the "tnaps" attribute, only the "afServiceId" attribute shall be provided.NOTE 3: When "anyUeInd" attribute is present, "appId" attribute, "afServiceId" attribute or the combination of "snssai" attribute and "dnn" attribute shall be provided. When the feature "AfGuideURSP" is supported, only the "afServiceId" attribute shall be provided for providing guidance for URSP determination. |

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