**3GPP TSG-CT3 Meeting #118e C3-215058**

**E-Meeting, 11th – 15th October 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **0295** | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | Notification on the outcome of UE Policies delivery due to service specific parameter provisioning | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eEDGE\_5GC | | | | |  | ***Date:*** | | | 2021-09-21 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | SA2 has agreed on making the AF aware of the outcome of the UE Policies provisioning procedure performed by the PCF for the involved UE(s). According to the new functionality, the AF may subscribe to events related to the outcome of the UE Policy provisioning due to the invocation of Service Specific parameter provisioning procedure. This information needs to be stored in the UDR so that the PCF can recover it and notify the AF accordingly.  AF-based service parameter provisioning procedures in TS 29.513 needs to be updated according to this new requirement. | | | | | | | | |
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| ***Summary of change:*** | | Clause 5.5.8 is updated to allow the possibility for the AF to subscribe to notifications and to reflect the interactions between the PCF, the NEF and the AF to notify about the UE Policy Delivery.  Clause 5.6.2.2 is updated with a note to indicate that the AF can be notified when it previously subscribed to receive information about the outcome of UE Policy delivery. | | | | | | | | |
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| ***Consequences if not approved:*** | | Misalignment with stage 2. The AF will not be aware of the outcome of the UE Policy provisioning procedure. | | | | | | | | |
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| ***Clauses affected:*** | | 5.5.8, 5.6.2.2 | | | | | | | | |
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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's revision history:*** | |  | | | | | | | | |

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

### 5.5.8 AF-based service parameter provisioning



Figure 5.5.8-1: AF-based service parameter provisioning procedure

1. To provide service specific parameters (e.g. for URSP influence, V2X, or 5G ProSe) to a UE or a group of UEs, the AF invokes the Nnef\_ServiceParameter\_Create service operation to the NEF by sending an HTTP POST request to the "Service Parameter Subscriptions" resource.

To update existing service specific parameters, the AF invokes the Nnef\_ServiceParameter\_Update service operation by sending an HTTP PUT or PATCH request to the concerned "Individual Service Parameter Subscription" resource.

To remove existing service specific parameters, the AF invokes the Nnef\_ServiceParameter\_Delete service operation by sending an HTTP DELETE request to the concerned "Individual Service Parameter Subscription" resource.

The request may include AF subscription information to the report of the outcome of UE Policy procedure.

NOTE 1: For further details on the Nnef\_ServiceParameter\_Create/Update/Delete service operations, refer to 3GPP TS 29.522 [24].

2. Upon reception of the AF request, the NEF authorizes it and then performs the mapping of the information provided by the AF into associated information needed by the 5GC (e.g. GPSI to SUPI), as described in 3GPP TS 23.502 [3].

3-4. When receiving the Nnef\_ServiceParameter\_Create request, the NEF invokes the Nudr\_DataRepository\_Create service operation to store the received service parameters in the UDR by sending an HTTP PUT request to the "Individual Service Parameter Data" resource, and the UDR replies with a "201 Created" response (if the processing of the request is successful).

When receiving the Nnef\_ServiceParameter\_Update request, the NEF invokes the Nudr\_DataRepository\_Update service operation to request the modification of the service parameters in the UDR by sending an HTTP PUT/PATCH request to the concerned "Individual Service Parameter Data" resource, and the UDR replies with a "200 OK" or "204 No Content" response (if the processing of the request is successful).

When receiving the Nnef\_ServiceParameter\_Delete request, the NEF invokes the Nudr\_DataRepository\_Delete service operation to request the deletion of the service parameters from the UDR by sending an HTTP DELETE request to the concerned "Individual Service Parameter Data" resource, and the UDR replies with a "204 No Content" response (if the processing of the request is successful).

5. The NEF sends back an HTTP response message to the AF correspondingly.

6A. If the PCF(s) have previously subscribed to the changes of service parameters during the UE Policy Association Establishment procedure (see subclause 5.6.1), then:

6a. The UDR invokes the Nudr\_DataRepository\_Notify service operation to the PCF(s) that have subscribed to the changes of service parameters by sending an HTTP POST request to the associated callback URI(s) "{notificationUri}";

6b. The PCF(s) send back "204 No Content" response(s) to the UDR; and

6c. The PCF(s) may derive UE policies (e.g. URSP, V2X, and/or 5G ProSe policies) based on the received service parameters from the UDR, the previously received requested V2X policies and UE capabilities (e.g., V2X capabilities) from the AMF, and initiate a UE Policy Association Modification procedure (see subclause 5.6.2.2) to deliver the UE policies to the UE.

6B. Otherwise, the PCF(s) retrieve the service parameters in the UDR by invoking the Nudr\_DataRepository\_Query service operation, determine UE policies (e.g. URSP, V2X, and/or 5G ProSe policies) based on the retrieved service parameters from the UDR, the received requested V2X and/or ProSe policies and UE capabilities (e.g. V2X capabilities and/or 5G ProSe capabilities) from the AMF , and deliver the UE policies (including the determined V2XP and/or 5G ProSeP) to the UE and corresponding V2X N2 PC5 and/or ProSe N2 PC5 policy to the NG-RAN during UE Policy Association Establishment procedure (see subclause 5.6.1).

NOTE 2: For further details on the Nudr\_DataRepository\_Create/Update/Delete/Notify service operations, refer to 3GPP TS 29.504 [27] and 3GPP TS 29.519 [12].

7. If the AF subscribed to notifications about the outcome of UE Policies delivery (provision/update/removal) due to Service specific parameter provisioning the PCF invokes the Npcf\_EventExposure\_Notify service operation to inform the NEF about the outcome of the procedure by sending the HTTP POST request to the callback URI "{notifUri}".

NOTE 3: The Callback URI **"{notifUri}"** is used for both implicit and explicit subscriptions as described in 3GPP TS 29.523 [49]. Notification URI for implicit subscriptions is retrieved from UDR as described in 3GPP TS 29.519 [12].

8. The NEF sends back "204 No Content" response to the PCF.

9. When the NEF receives Npcf\_EventExposure\_Notify, the NEF performs information mapping as described in 3GPP TS 29.522 [24] and triggers the appropriate Nnef\_ServiceParameter\_Notify message.

10. The AF sends back an HTTP response message to the NEF to acknowledge the notification.

\* \* \* Second Change \* \* \*

##### 5.6.2.2.2 Non-roaming



Figure 5.6.2.2.2-1: PCF-initiated UE Policy Association Modification procedure – Non-roaming

1. The PCF receives an external trigger, e.g. the subscriber policy data of a UE is changed, the applied BDT Policy Data is changed, or subscription data for the 5G VN group data is changed, or application detection, or the PCF receives an internal trigger, e.g. operator policy is changed, to re-evaluate UE policy decision for a UE.

NOTE 1: When the external trigger affects more than one UE (e.g. when Network Performance is degraded in a network area info) the PCF will apply the next steps to all the affected active UE Policy Associations.

2-3. If the applied BDT policy Data is changed in step1, and if the corresponding transfer policy is not locally stored in the PCF, the PCF sends the HTTP GET request to the "IndividualBdtData" resource to retrieve the related Background Data Transfer policy information (i.e. Time window and Location criteria) stored in the UDR. The UDR sends an HTTP "200 OK" response to the PCF.

4. The PCF makes the policy decision including the applicable updated Policy Control Request Trigger(s) and/or updated UE Policy and/or updated V2X N2 PC5 policy, if the "V2X" feature is supported, and/or updated 5G ProSe N2 PC5 policy, if the "ProSe" feature is supported. The PCF checks if the size of determined UE policy exceeds a predefined limit the same as step 6 in subclause 5.6.1.2.

5. If the PCF decided to update the Policy Control Request Trigger(s) in step4, the V-PCF shall invoke the Npcf\_UEPolicyControl\_UpdateNotify service operation by sending an HTTP POST request to the callback URI "{notificationUri}/update".

6. The AMF sends an HTTP "204 No Content" response to the PCF.

7. If the PCF decided to update the UE policy, V2X N2 PC5 policy and/or 5G ProSe N2 PC5 policy in step 4, steps 10-13 as specified in Figure 5.6.1.2-1 are executed.

8-9. If the PCF decided to update the UE policy in step 4, steps 5-6 in subclause 5.6.2.1.2 are executed.

NOTE X: When the trigger to update the UE policy is AF-based service parameter provisioning as described in subclause 5.5.8 and the AF requested to be notified of the outcome of the UE Policy delivery, then steps 7 - 10 specified in subclause 5.5.8 are executed.

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