**3GPP TSG- WG3 Meeting #**

**Xiamen, China, 9 - 13 October, 2023 *(Revision of C3-234xxx)***

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** | **1140** | **rev** |  | **Current version:** | **18.3.0** |  |
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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:*** | Support the management of the temporal invalidity condition | | | | | | | | | |
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| ***Source to WG:*** | Huawei, SIA | | | | | | | | | |
| ***Source to TSG:*** |  | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | GMEC | | | | |  | ***Date:*** | | | 2023-09-19 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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)* | |
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| ***Reason for change:*** | | In S2-2307741, SA2 clarifies that if the AF requested QoS information contains temporal invalidity conditions, the PCF may activate, modify, or remove PCC rules corresponding to the QoS information as needed based on the invalidity conditions.  The CR proposes to update the description of the PCC Rules procedure to support the Stage 2 requirement. | | | | | | | | |
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| ***Summary of change:*** | | Clarify that the PCC rules may impacted by the temporal invalidity condition. | | | | | | | | |
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| ***Consequences if not approved:*** | | Misalignment with Stage 2 and Stage 3 requirements. | | | | | | | | |
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| ***Clauses affected:*** | | 4.2.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 impact any OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

4.2.3.2 SM Policy Association Update request

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**Figure 4.2.3.2-1: SM Policy Association Update request**

The PCF may decide to provision policies related to an Individual SM Policy resource without obtaining a request from the NF service consumer, e.g. in response to information provided to the PCF via the Rx or N5 reference points, or in response to an internal trigger within the PCF. The PCF shall send for this purpose a POST request to the NF service consumer (e.g. SMF) using the URI"{notificationUri}/update". The payload body of the message shall contain a SmPolicyNotification data structure that contains:

- the representation of the updated policies within the "smPolicyDecision" attribute; and

- the resource URI of the Individual SM Policy resource related to the notification within the "resourceUri" attribute.

Detailed procedures related to the provisioning and enforcement of the policy decisions contained within the SmPolicyDecision data structure are provided in clause 4.2.6.

When the PCF has received from an NF service consumer (e.g., an AF) temporal invalidity condition information for a UE or group of UEs, the PCF shall evaluate the temporal invalidity condition of the AF request and may inform the SMF to install, modify or remove the corresponding PCC rule(s) and/or policy control request triggers (if applicable) according to the evaluation result.

In case of a successful update of SM policies:

- if the PCF provisioned the policy control request triggers related to access type change, RAT change or location change, a "200 OK" response code and a response body with the corresponding available information in the "UeCampingRep" data structure shall be returned in the response;

- otherwise, a "204 No Content" response code shall be returned in the response.

NOTE: When there is an ongoing procedure that collisions with the update of SM policies (e.g. during handover from 5GS to EPS) the SMF, based on operator policies, can delay the update of SM policies and return a "204 No Content" response code. In this case the SMF will process the request when the procedure is finished.

If errors occur when processing the HTTP POST request, the NF service consumer shall send an HTTP error response as specified in clause 5.7.

If the feature "ES3XX" is supported, and the NF service consumer determines the received HTTP POST request needs to be redirected, the NF service consumer shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

If the "SessionRuleErrorHandling" feature is not supported and the NF service consumer received one or more PCC rules from the PCF, but the validation of all these PCC Rules was unsuccessful, the NF service consumer shall reject the request and include in an HTTP "400 Bad Request" response message the ErrorReport data structure. Within the ErrorReport data structure, the NF service consumer shall include the "error" attribute containing the "cause" attribute of the ProblemDetails data structure set to "PCC\_RULE\_EVENT" or "PCC\_QOS\_FLOW\_EVENT" and the "ruleReports" attribute to report the PCC rule status of the affected PCC rules as defined in clause 4.2.3.16.

If the "SessionRuleErrorHandling" feature is supported and the NF service consumer received one or more PCC rules and/or session rules from the PCF but the validation of all these PCC Rules and/or session rules was unsuccessful, the NF service consumer shall reject the request and include in an HTTP "400 Bad Request" response message the ErrorReport data structure. Within the ErrorReport data structure, the NF service consumer shall include the "error" attribute containing the "cause" attribute of the ProblemDetails data structure set to "RULE\_PERMANENT\_ERROR" or "RULE\_TEMPORARY\_ERROR" and the "ruleReports" attribute to report the PCC rule status of the affected PCC rules as defined in clause 4.2.3.16 and/or the "sessRuleReports" attribute to report the session rule status of the affected session rules as defined in clause 4.2.3.20.

If in the cases above, if the "PolicyDecisionErrorHandling" feature is supported, the PCF provisioned policy decisions and/or condition data which are not referred by any PCC rules or session rules and, in addition of the report of the faulty PCC rule(s) and/or session rule(s), the NF service consumer needs to report the failed policy decisions and/or condition data, the "policyDecFailureReports" attribute shall also be provided as described in clause 4.2.3.26. Additionally, if the "ExtPolicyDecisionErrorHandling" feature is supported the NF service consumer may also provide the "invalidPolicyDecs" as described in clause 4.2.3.26.2.

If the "Ext2PolicyDecisionErrorHandling" feature is supported, the NF service consumer did not receive neither PCC rules nor session rules and received policy decision types and/or condition types which are not referred by any PCC rules or session rules, and the storage of all the policy decision types and/or condition data was unsuccessful (e.g. the policy decision could not be successfully stored due to a limitation of resources at the SMF) or there were semantical inconsistencies in the provided data, the NF service consumer shall include in an HTTP "400 Bad Request" response message the ErrorReport data structure including the "error" attribute containing the "cause" attribute of the ProblemDetails data structure set to "POL\_DEC\_ERROR" and shall behave as defined in clause 4.2.3.26.

If the "SessionRuleErrorHandling" feature is not supported and if the NF service consumer received one or more PCC rules from the PCF but the validation of some of them was unsuccessful, the NF service consumer shall include an HTTP "200 OK" status code together with one or more RuleReport data structure(s) to report the PCC rule status of the affected PCC rules as defined in clause 4.2.3.16 in the "PartialSuccessReport" data structure included in the response message. The "failureCause" attribute of the "PartialSuccessReport" shall be set to "PCC\_RULE\_EVENT" or "PCC\_QOS\_FLOW\_EVENT".

If the "SessionRuleErrorHandling" feature is supported and the NF service consumer received one or more PCC rule and/or session rules from the PCF but the validation of some of them was unsuccessful, the NF service consumer shall include an HTTP "200 OK" status code together with the "ruleReports" attribute to report the PCC rule status of the affected PCC rules as defined in clause 4.2.3.16 and/or the "sessRuleReports" attribute to report the session rule status of the affected session rules as defined in clause 4.2.3.20 in the "PartialSuccessReport" data structure included in the response message. The "failureCause" attribute of the "PartialSuccessReport" shall be set to "RULE\_PERMANENT\_ERROR" or "RULE\_TEMPORARY\_ERROR".

If the "PolicyDecisionErrorHandling" feature is supported, the NF service consumer received policy decision types and/or condition types which are not referred by any PCC rules or session rules, and the storage or validation of not all the policy decision types and/or condition data was unsuccessful, the NF service consumer shall reply with an HTTP "200 OK" response message and behave as described in clause 4.2.3.26.

If the PCF provisioned policy control request triggers and the NF service consumer needs to report partial success information, the NF service consumer may include in the "PartialSuccessReport" data structure the "ueCampingRep" attribute with the corresponding available information. When it is required to report multiple instances of the "PartialSuccessReport" data structure due to different "failureCause" values, the NF service consumer shall use only one instance of the "PartialSuccessReport" data structure to include the "ueCampingRep" attribute with the corresponding available information.

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