**3GPP TSG-CT WG4 Meeting #101eC4-205599**

**E-Meeting, 03rd – 13th November 2020 (was C40295417)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.540** | **CR** | **0065** | **rev** | **1** | **Current version:** | **15.7.0** |  |
|  | | | | | | | | |
| *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** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Header check at deactivation of SMS service | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | NTT DOCOMO | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GS\_Ph1-CT | | | | |  | ***Date:*** | | | 2020-11-11 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Deactivation of SMSF by the old AMF can occur later than activation of the same SMSF by a new AMF dealing with the UE Initial Registration, depending on the timing of message arrivals from those AMFs to the SMSF.  Activation of SMSF by the new AMF occurs, e.g. for Initial Registration and for 3GPP access, 4 steps away from Nudm\_UECM\_Registration. (Nudm\_SDM\_Get, Nudm\_SDM\_Subscribe, AM policy association establishment, Activation of SMSF) When PCF AM is not used, that becomes 3 steps away. Deactivation of SMSF by the old AMF occurs 3 steps away from the Nudm\_UECM\_Registration of the new AMF. (Nudm\_UECM\_DeregistrationNotification, Nudm\_SDM\_Unsubscribe, Deactivation of SMSF) Therefore the activation timing and the deactivation timing can be close to each other.  If this situation occurs, SMSF cannot be activated for the UE, when an SMSF needs to be activated.  This happens because SMSF checks only SUPI when deactivating SMS service. This problem could be resolved if SMSF sets the "ETag" HTTP header and checks the "If-Match" HTTP header.  NOTE: [S2-2007647](https://www.3gpp.org/ftp/tsg_sa/WG2_Arch/TSGS2_141e_Electronic/Docs/S2-2007647.zip) discussed this topic. SA2 did not agree another solution, which were captured in [S2-2007648](https://www.3gpp.org/ftp/tsg_sa/WG2_Arch/TSGS2_141e_Electronic/Docs/S2-2007648.zip) and [S2-2007649](https://www.3gpp.org/ftp/tsg_sa/WG2_Arch/TSGS2_141e_Electronic/Docs/S2-2007649.zip), that would change the AMF-internal logic with regards to activation/deactivation of SMSF. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | To add that SMSF checks header when deactivating SMS service. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | There remains a systematic failure case that SMSF cannot be activated for UE, when an SMSF needs to be activated. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.2.2.2, 5.2.2.3.2, 6.1.3.3.3.1, 6.1.3.3.3.2, A.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 introduces backwards-compatible changes on the TS29540\_Nsmsf\_SMService OpenAPI specification. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revision1 : New changes added to clause 5.2.2.2.2 and 6.1.3.3.3.1. The solution now uses Etag instead of original proposal to use GUAMI as input attribute to Deactivate service operation. | | | | | | | | |

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[4] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[5] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[6] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[7] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".

[8] IETF RFC 8259: "The JavaScript Object Notation (JSON) Data Interchange Format".

[9] IETF RFC 2387: "The MIME Multipart/Related Content-type".

[10] IETF RFC 2045: "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies".

[11] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS)".

[12] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".

[13] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[14] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[15] 3GPP TS 29.510: "Network Function Repository Services; Stage 3".

[16] 3GPP TR 21.900: "Technical Specification Group working methods".

[17] IETF RFC 7807: "Problem Details for HTTP APIs".

[xx] IETF RFC 7232: "Hypertext Transfer Protocol (HTTP/1.1): Conditional Requests".

---Start of the 1st Change---

##### 

##### 6.1.2.2.x ETag

As described in IETF RFC 7232 [xx] clause 2.32, an "ETag" (entity-tag) header should be included in HTTP responses except for non-cacheable resources to allow an NF Service Consumer performing a conditional request with "If-Match" header. If it is included, it shall contain a server-generated strong validator, that allows further matching of this value (included in subsequent client requests) with a given resource representation stored in the server or in a cache.

##### 6.1.2.2.y If-Match

As described in IETF RFC 7232 [xx] clause 3.1, an NF Service Consumer may issue conditional DELETE request towards SMSF by including an "If- Match" header in HTTP requests containing an entity tags received in previous response for the same resource.

---Start of the 2nd Change---

6.1.3.3.3.1 PUT

This method creates an individual resource of UE Context for SMS in the SMSF, or updates the indicated resource of UE Context for SMS in the SMSF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.1-1.

**Table 6.1.3.3.3.1-1: URI query parameters supported by the PUT method on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.1-2 and the response data structures and response codes specified in table 6.1.3.3.3.1-3.

**Table 6.1.3.3.3.1-2: Data structures supported by the PUT Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| UeSmsContextData | M | 1 | Representation of the UE Context for SMS to be created in the SMSF, or to be updated in the SMSF. |
|  |  |  |  |

**Table 6.1.3.3.3.1-3: Data structures supported by the PUT Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response**  **codes** | **Description** |
| UeSmsContextData | M | 1 | 201 Created | This case represents the successful creation of an UE Context for SMS. |
| n/a |  |  | 204 No Content | This case represents the successful update of an UE Context for SMS. |
| ProblemDetails | M | 1 | 403 Forbidden | This case represents the failure of creation / update of an UE Context for SMS.  The "cause" attribute of the "ProblemDetails" shall be set to one of the following application error codes:  - SERVICE\_NOT\_ALLOWED, if SMS service is not allowed for the given service user; |
| ProblemDetails | M | 1 | 404 Not Found | This case represents the failure of creation / update of an UE Context for SMS.  The "cause" attribute of the "ProblemDetails" shall be set to one of the following application error codes:  - USER\_NOT\_FOUND, if the provided subscriber identifier is invalid or the service user is not found from UDM;  - CONTEXT\_NOT\_FOUND, if the UE context for SMS to be operated is invalid or not found in SMSF. |

Table 6.1.3.3.3.1-x: Headers supported by the 201 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| ETag | string | O | 0..1 | Entity Tag, containing a strong validator, as described in IETF RFC 7232 [xx], clause 2.3 |

---Start of the 3rd Change---

6.1.3.3.3.2 DELETE

This method deletes an individual resource of UE Context for SMS in the SMSF.

This method shall support the URI query parameters specified in table 6.1.3.3.3.2-1.

**Table 6.1.3.3.3.2-1: URI query parameters supported by the DELETE method on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 6.1.3.3.3.2-2 and the response data structures and response codes specified in table 6.1.3.3.3.2-3.

**Table 6.1.3.3.3.2-2: Data structures supported by the DELETE Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| n/a |  |  |  |

**Table 6.1.3.3.3.2-3: Data structures supported by the DELETE Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Response**  **codes** | **Description** |
| n/a |  |  | 204 No Content | This case represents a successful deletion of an UE Context for SMS. |
| ProblemDetails | M | 1 | 404 Not Found | This case represents an unsuccessful deletion of an UE Context for SMS.  The "cause" attribute of the "ProblemDetails" shall be set to one of the following application error codes:  - CONTEXT\_NOT\_FOUND, if the UE context for SMS to be operated is invalid or not found in SMSF. |

Table 6.1.3.3.3.2-x: Headers supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| If-Match | string | O | 0..1 | Validator for conditional requests, as described in IETF RFC 7232 [xx], clause 3.1 |

---Start of the 4th Change---

A.2 Nsmsf\_SMService API

***(… text not shown for clarity …)***

paths:

/ue-contexts/{supi}:

put:

summary: Activate SMS Service for a given UE

operationId: SMServiceActivation

tags:

- UEContext (Document)

parameters:

- name: supi

in: path

required: true

description: Subscriber Permanent Identifier (SUPI)

schema:

type: string

requestBody:

content:

application/json:

schema:

$ref: '#/components/schemas/UeSmsContextData'

required: true

responses:

'201':

description: UE Context for SMS is created in SMSF

content:

application/json:

schema:

$ref: '#/components/schemas/UeSmsContextData'

headers:

Location:

description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/nsmsf-sms/<apiVersion>/ue-contexts/{supi}'

required: true

schema:

type: string

ETag:

description: Entity Tag, containing a strong validator, as described in IETF RFC 7232, 2.3

schema:

type: string

'204':

description: UE Context for SMS is updated in SMSF

'400':

description: Invalid Service Request

content:

application/problem+json:

schema:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/ProblemDetails'

'403':

description: Unable to create/update UE Context for SMS in SMSF

content:

application/problem+json:

schema:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/ProblemDetails'

'404':

description: Unable to found subscription for service user or UE Context for SMS in SMSF

content:

application/problem+json:

schema:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/ProblemDetails'

'503':

description: Service Unavailable

content:

application/problem+json:

schema:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/ProblemDetails'

default:

description: Unexpected error

content:

application/problem+json:

schema:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/ProblemDetails'

delete:

summary: Deactivate SMS Service for a given UE

operationId: SMServiceDeactivation

tags:

- UEContext (Document)

parameters:

- name: supi

in: path

required: true

description: Subscriber Permanent Identifier (SUPI)

schema:

type: string

- name: If-Match

in: header

description: Validator for conditional requests, as described in IETF RFC 7232, 3.1

schema:

type: string

responses:

'204':

description: UE Context for SMS is deleted from SMSF

'400':

description: Invalid Service Request

content:

application/problem+json:

schema:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/ProblemDetails'

'404':

description: Unable to found UE Context for SMS in SMSF

content:

application/problem+json:

schema:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/ProblemDetails'

'503':

description: Service Unavailable

content:

application/problem+json:

schema:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/ProblemDetails'

***(… text not shown for clarity …)***

---End of the Changes---