**3GPP TSG-CT WG4 Meeting #96eC4-200928**

**E-Meeting, 17th – 28th February 2020 (was C4-200894)**

**Source: Ericsson**

**Title: Completion of S-CSCF deregistration notification**

**Spec: 3GPP TS 29.562 v0.3.0**

**Agenda item: 6.1.14**

**Document for: Agreement**

**1. Introduction**

-

**2. Reason for Change**

Complete S-CSCF deregistration notification procedure

**3. Conclusions**

-

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.562 v0.3.0.

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

##### 5.2.2.3.2 HSS initiated Deregistration

Figure 5.2.2.3.2-1 shows a scenario where the HSS notifies the registered NF about the deregistration of one or more IMS Public Identities (see also 3GPP TS 23.228 [6] clause 5.3.2.2.1). The request contains the callback URI for deregistration notification as received by the HSS during registration, and Deregistration Data.



Figure 5.2.2.3.2-1: HSS initiated NF Deregistration

1. The HSS determines the need to deregister one or more public identities and sends a POST request to the callbackReference as provided by the NF service consumer (S-CSCF) during the registration

NOTE:. The callbackReference identifies a public identity or an IRS or a Wildcarded PSI that shall be deregistered.

HSS includes DeregistrationData with the Deregistration Reason that triggered the notification and additional information about the public identities that shall be deregistered such as:

* Private Identity of the public identity to be deregisterred
* if several Private Identities with all associated Public Identities need to be deregistered, the AssociatedPrivateIdentities.

1. On success, the NF service consumer responds with "204 No Content" or with “200 OK” including additional information about the deregistration result such as:

* Associated Private Identities: it contains all Private Identities that have been deregistered together with the one in the Private User Identity received in the request.
* Identities with Emergency Registration: This information element indicates a list of pairs of private and public user identities which have not been de-registered due to emergency registration.

On failure, the appropriate HTTP status code indicating the error shall be returned and appropriate additional error information should be returned in the POST response body.

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

### 6.1.5 Notifications

#### 6.1.5.1 General

#### 6.1.5.2 Deregistration Notification

The POST method shall be used for Deregistration Notifications and the URI shall be as provided during the registration procedure.

Resource URI: {callbackReference}

Support of URI query parameters is specified in table 6.1.5.2-1.

Table 6.1.5.2-1: URI query parameters supported by the POST method

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

Support of request data structures is specified in table 6.1.5.2-2 and of response data structures and response codes is specified in table 6.1.5.2-3.

Table 6.1.5.2-2: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| DeregistrationData | M | 1 | Includes Deregistration Reason and identities to be deregistered |

Table 6.1.5.2-3: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | Upon success, an empty response body shall be returned. |
| DeregistrationData |  |  | 200 OK | Upon success or partial success, DeregistrationData shall be returned including additional information about the result of the procedure. |
| ProblemDetails | M | 1 | 404 Not Found | The "cause" attribute shall be set to the following application error:  - CONTEXT\_NOT\_FOUND |
| NOTE: In addition common data structures as listed in table 6.1.7-1 are supported. | | | | |

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

##### 6.1.6.2.x Type: DeregistratonData

Table 6.1.6.2.3-1: Definition of type AuthorizationResponse

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| deregReason | DeregistrationReason | M | 1 | Indicates the reason for the deregistration. |  |
| impi | Impi | M | 1 | Contains the IMS Private User Identity known by the SCSCF. |  |
| associatedImpis | Array(Impi) | O | 0..N | Associated IMS private Identities in the subscription that are deregistered.  This attribute may be present in responses, otherwise, it shall be absent. |  |
| emergencyRegisteredIdentities | array(EmergencyRegisteredIdentity) | O | 1..N | A list of pairs of private and public user identities which have not been de-registered due to emergency registration.  This attribute may be present in responses, otherwise, it shall be absent. |  |

##### 6.1.6.2.x Type: DeregistrationReason

Table 6.1.6.2.3-1: Definition of type DeregistrationReason

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| reasonCode | DeregistrationReasonCode | M | 1 | Defines the reason for the network initiated de-registration |  |
| reasonText | string | O | 0..1 | Contains textual information to inform the user about the reason for a de-registration |  |

##### 6.1.6.2.x Type: EmergencyRegisteredIdentity

Table 6.1.6.2.3-1: Definition of type EmergencyRegisteredIdentity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| impi | Impi | M | 1 | IMS Private User Identity |  |
| impu | Impu | M | 1 | IMS Public User Identity |  |

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

##### 6.1.6.3.x Enumeration: DeregistrationReasonCode

The enumeration DeregistrationReasonCode indicates the reason for the network initiated de-registration.

Table 6.1.6.3.x-1: Enumeration DeregistrationReasonCode

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| "PERMANENT\_TERMINATION" | The HSS indicates to the S-CSCF that the S-CSCF will no longer be assigned to the Public Identity and associated implicitly registered/unregistered Public Identities (if any) for the Private Identity(ies) indicated in the request (e.g. due to an IMS subscription cancellation, or modification, or a removal of IP-address secure binding information when GIBA is used). |  |
| "NEW\_SERVER\_ASSIGNED" | The HSS indicates to the S-CSCF that a new S-CSCF has been allocated to the IMS Subscription e.g. because the previous assigned S-CSCF was unavailable during a registration procedure. The S-CSCF shall remove all information for all of the Public Identities indicated in the request. |  |
| "SERVER\_CHANGE" | The HSS indicates to the S-CSCF that the de-registration is requested to force the selection of new S-CSCF to assign to the IMS Subscription (e.g. when the S-CSCF capabilities are changed in the HSS or when the S-CSCF indicates that it has not enough memory for the updated User Profile). If the S-CSCF does not indicate in the response all the associated Private Identities, the HSS shall repeat this request for each of the remaining Private Identities in the IMS Subscription that are known to the S-CSCF. The S-CSCF should start the network initiated de-registration towards the user, i.e. all registrations within the IMS Subscription are de-registered and the user is asked to re-register to all existing registrations. |  |
| “REMOVE\_S-CSCF” | The HSS indicates to the S-CSCF that the S-CSCF will no longer be assigned to an unregistered Public Identity(ies) (i.e registered as a consequence of an originating or terminating request or there is a S-CSCF keeping the user profile stored) for a given IMS Subscription. |  |

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

## A.2 Nhss\_imsUECM API

openapi: 3.0.0

info:

version: '1.0.0'

title: 'Nhss\_imsUECM'

description: |

Nhss Subscriber Data Management Service for IMS.

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externalDocs:

description: 3GPP TS 29.562 Unified Data Management Services, version 0.3.0

url: 'http://www.3gpp.org/ftp/Specs/archive/29\_series/29.562/'

servers:

- url: '{apiRoot}/nhss-ims-uecm/v1'

variables:

apiRoot:

default: https://example.com

description: apiRoot as defined in clause 4.4 of 3GPP TS 29.501.

security:

- oAuth2ClientCredentials:

- nhss-ims-uecm

- {}

paths:

/{impu}/authorize:

post:

summary: Authorize IMS Identities to register in the network or establish multimedia sessions and return CSCF location if it is stored

operationId: Authorize

tags:

- Authorize Ims identities

parameters:

- name: impu

in: path

description: Public identity of the user.

required: true

schema:

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

requestBody:

content:

application/json:

schema:

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

required: true

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

'400':

description: Bad Request

content:

application/problem+json:

schema:

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

'403':

description: Forbidden

content:

application/problem+json:

schema:

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

'404':

description: Not found

content:

application/problem+json:

schema:

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

'500':

description: Internal Server Error

content:

application/problem+json:

schema:

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

default:

description: Unexpected error

callbacks:

deregistrationeNotification:

'{request.body#/deregCallbackUri}':

post:

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'204':

description: Successful Notification response

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

description: Unexpected error

components:

schemas:

# COMPLEX TYPES:

AuthorizationRequest:

description: Ims authorization request data

type: object

required:

- authorizationType

properties:

impi:

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

authorizationType:

description: authorization type

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

visitedNetworkIdentifier:

type: string

emergencyIndicator:

type: boolean

supportedFeatures:

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

AuthorizationResponse:

description: Ims Registration authorization information result

type: object

properties:

authorizationResult:

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

cscfServerName:

type: string

DeregistrationData:

type: object

required:

- deregReason

- impi

properties:

deregReason:

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

impi:

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

associatedImpis:

type: array

items:

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

emergencyRegisteredIdentities:

type: array

items:

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

minItems: 1

EmergencyRegisteredIdentity:

type: object

required:

- impi

- impu

properties:

impi:

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

impu:

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

DeregistrationReason:

type: object

required:

- reasonCode

- reasonText

properties:

reasonCode:

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

reasonText:

type: string

# SIMPLE TYPES

Impu:

type: string

Impi:

type: string

# ENUMS:

AuthorizationType:

anyOf:

- type: string

enum:

- REGISTRATION

- DEREGISTRATION

- type: string

AuthorizationResult:

anyOf:

- type: string

enum:

- FIRST\_REGISTRATION

- SUBSEQUENT\_REGISTRATION

- type: string

DeregistrationReasonCode:

anyOf:

- type: string

enum:

- PERMANENT\_TERMINATION

- NEW\_SERVER\_ASSIGNED

- REMOVE\_S-CSCF

- SERVER\_CHANGE

- type: string

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