**3GPP TSG-CT WG4 Meeting #96eC4-200573**

**E-Meeting, 17th – 28th February 2020**

**Source: Ericsson**

**Title: Completion of Registration Status retrieval**

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

**Agenda item: 6.1.14**

**Document for: Agreement**

**1. Introduction**

-

**2. Reason for Change**

Complete IMs registration status retrieval

**3. Conclusions**

-

**4. Proposal**

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

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

##### 5.3.2.2.x IMS registration status retrieval

Figure 5.3.2.2.x-1 shows a scenario where the NF service consumer (e.g. AS) sends a request to the HSS to IMS registration status of a user. The request contains the UE's identity (/{imsUeId}), the type of the requested information (ims-data/registration-status) and query parameters (e.g. supported-features).



Figure 5.3.2.2.x-1: IMS Registration Status Retrieval

1. The NF service consumer (e.g. AS) sends a GET request to the resource representing the UE's IMS registration status with query parameters indicating the supported-features.

2a. On success, the HSS responds with "200 OK" with the message body containing the IMS registration status (e.g. unregistered) as relevant for the service consumer.

2b. If there is no valid data for the UE, HTTP status code "404 Not Found" shall be returned and it should include additional error information in the response body (in the "ProblemDetails" element).

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

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

#### 6.2.6.1 General

This clause specifies the application data model supported by the API.

Table 6.2.6.1-1 specifies the data types defined for the Nhss\_imsSDM service API.

Table 6.2.6.1-1: Nhss\_imsSDM specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| ScscfCapabilityList | 6.2.6.2.2 | Information about mandatory and optional S-CSCF capabilities |
| ImsProfileData | 6.2.6.2.4 | User's IMS profile data |
| RepositoryData | 6.2.6.2.7 | Repository Data for the requested Service Indication |
| MsisdnList | 6.2.6.2.8 | List of MSISDNs associated to the IMS public Identity |
| PublicIdentities | 6.2.6.2.9 | IMS Public Identities which belong to the same Implicit Registration Set (if any) than the requested IMS Public Identity |
| PublicIdentity | 6.2.6.2.10 | IMS Public Identity and the related data (Alias Group Id, IRS default indication, Identity Type) |
| ImsRegistrationStatus | 6.2.6.2.x1 | Registration status of the user. |

Table 6.2.6.1-2 specifies data types re-used by the Nhss\_imsSDM service API from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nhss\_imsSDM.

Table 6.2.6.1-2: Nhss\_imsSDM re-used Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Reference | Comments |
| Uri | 3GPP TS 29.571 [16] | Uniform Resource Identifier |
| SupportedFeatures | 3GPP TS 29.571 [16] | see 3GPP TS 29.500 [4] clause 6.6 |

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

#### 6.2.3.x Resource: IMS Registration Status

##### 6.2.3.x.1 Description

This resource represents the IMS Registration Status. It is queried by the service consumer (e.g. AS) to retrieve the IMS registration status of the user.

##### 6.2.3.x.2 Resource Definition

Resource URI: **{**apiRoot}/nhss-ims-sdm/{apiVersion}/{imsUeId}/ims-data/registration-status

This resource shall support the resource URI variables defined in table 6.2.3.x.2-1.

Table 6.2.3.x.2-1: Resource URI variables for this resource

|  |  |
| --- | --- |
| Name | Definition |
| apiRoot | See clause 6.2.1 |
| apiVersion | See clause 6.2.1 |
| imsUeId | Represents the IMS Public Identity (i.e. IMS Public User identity or Public Service Identity)  pattern: "^(sip\:([a-zA-Z0-9\_\-.!~\*()&=+$,;?\/]+)\@([A-Za-z0-9]+([-A-Za-z0-9]+)\.)+[a-z]{2,}|tel\:\+[0-9]{5,15})$" |

##### 6.2.3.x.3 Resource Standard Methods

###### 6.2.3.x.3.1 GET

This method shall support the URI query parameters specified in table 6.2.3.x.3.1-1.

Table 6.2.3.x.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| supported-features | SupportedFeatures | O | 0..1 | see 3GPP TS 29.500 [4] clause 6.6 |  |

This method shall support the request data structures specified in table 6.2.3.x.3.1-2 and the response data structure and response codes specified in table 6.2.3.x.3.1-3.

Table 6.2.3.x.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 6.2.3.x.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| ImsRegistrationStatus | M | 1 | 200 OK | A response body containing the IMS registration status of the user. |
| ProblemDetails | O | 0..1 | 404 Not Found | The "cause" attribute may be used to indicate one of the following application errors:  - USER\_NOT\_FOUND  - DATA\_NOT\_FOUND  DATA\_NOT\_FOUND indicates the user has not performed yet any IMS registration. |
| ProblemDetails | O | 0..1 | 403 Forbidden | The "cause" attribute may be used to indicate the following application error:  - OPERATION\_NOT\_ALLOWED |
| NOTE: In addition, common data structures as listed in table xx are supported. | | | | |

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

##### 6.2.6.2.x1 Type: ImsRegistrationStatus

Table 6.2.6.2.x1-1: Definition of type ImsRegistrationStatus

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| imsUserStatus | ImsRegistrationState | M | 1 | It contains the most registered state of the user, as described in 3GPP TS 29.328 [xx], clause 7.6.3. |

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

##### 6.2.6.3.x Enumeration: ImsRegistrationState

The enumeration ImsRegistrationState represents the IMs status of the user or Public Identity. It shall comply with the provisions defined in table 6.2.6.3.x-1

Table 6.2.6.3.x-1: Enumeration ImsRegistrationState

|  |  |
| --- | --- |
| Enumeration value | Description |
| "REGISTERED" | The identity is explicitly registered by the user. |
| "NOT\_REGISTERED" | The identity is not registered. |
| "AUTHENTICATION\_PENDING" | The identity initiated a registration and its authentication is ongoing (authentication pending flag is set). |
| "REGISTERED\_UNREG\_SERVICES" | The identity is not registered but has an S-CSCF assigned. |
| NOTE: See clause 3.1 for more details on the IMS registration states and terms. | | |

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

## A.3 Nhss\_imsSDM API

openapi: 3.0.0

info:

version: '1.0.0.alpha-1'

title: 'Nhss\_imsSDM'

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-sdm/v1'

variables:

apiRoot:

default: https://example.com

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

security:

- oAuth2ClientCredentials:

- nhss-ims-sdm

- {}

paths:

/{imsUeId}/ims-data/registration-status:

get:

summary: Retrieve the registration status of a user

operationId: GetRegistrationStatus

tags:

- Registration Status retrieval

parameters:

- name: imsUeId

in: path

description: IMS Identity

required: true

schema:

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

- name: supported-features

in: query

description: Supported Features

schema:

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

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

'404':

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

'405':

$ref: 'TS29571\_CommonData.yaml#/components/responses/405'

'500':

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

'503':

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

'504':

$ref: 'TS29571\_CommonData.yaml#/components/responses/504'

default:

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

/{imsUeId}/ims-data/location-data/scscf-capabilities:

get:

summary: Retrieve the S-CSCF capabilities for the associated IMS subscription

operationId: GetScscfCapabilities

tags:

- Retrieval of the S-CSCF capabilities for the IMS subscription

parameters:

- name: imsUeId

in: path

description: IMS Identity

required: true

schema:

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

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

'404':

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

'405':

$ref: 'TS29571\_CommonData.yaml#/components/responses/405'

'500':

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

'503':

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

'504':

$ref: 'TS29571\_CommonData.yaml#/components/responses/504'

default:

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

/{imsUeId}/repository-data/{serviceIndication}:

get:

summary: Retrieve the repository data associated to an IMPU and service indication

operationId: GetRepositoryDataServInd

tags:

- Repository data

parameters:

- name: imsUeId

in: path

description: IMS Identity

required: true

schema:

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

- name: serviceIndication

in: path

description: Identifier of a service related data

required: true

schema:

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

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

'400':

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

'404':

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

'405':

$ref: 'TS29571\_CommonData.yaml#/components/responses/405'

'500':

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

'503':

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

default:

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

/{imsUeId}/identities/msisdns:

get:

summary: retrieve the Msisdns associated to requested identity

operationId: GetMsisdns

tags:

- Retrieval of the associated Msisdns

parameters:

- name: imsUeId

in: path

description: IMS Identity

required: true

schema:

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

- name: privateId

in: query

description: Private identity

schema:

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

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

'400':

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

'404':

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

'405':

$ref: 'TS29571\_CommonData.yaml#/components/responses/405'

'500':

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

'503':

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

default:

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

/{imsUeId}/identities/ims-associated-identities:

get:

summary: Retrieve the associated identities to the IMS public identity included in the service request

operationId: GetImsAssocIds

tags:

- Retrieval of associated IMS public identities

parameters:

- name: imsUeId

in: path

description: IMS Public Identity

required: true

schema:

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

responses:

'200':

description: Expected response to a valid request

content:

application/json:

schema:

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

'400':

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

'404':

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

'405':

$ref: 'TS29571\_CommonData.yaml#/components/responses/405'

'500':

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

'503':

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

default:

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

components:

schemas:

# COMPLEX TYPES:

ScscfCapabilityList:

type: object

properties:

mandatoryCapabilityList:

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

optionalCapabilityList:

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

anyOf:

- required: [mandatoryCapabilityList]

- required: [optionalCapabilityList]

Capabilities:

type: array

items:

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

minItems: 1

uniqueItems: true

RepositoryData:

type: object

required:

- serviceData

- sequenceNumber

properties:

sequenceNumber:

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

serviceData:

type: string

format: byte

MsisdnList:

type: object

required:

- basicMsisdn

properties:

basicMsisdn:

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

additionalMsisdns:

type: array

minItems: 1

items:

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

PublicIdentities:

type: object

required:

- publicIdentities

properties:

publicIdentities:

type: array

items:

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

minItems: 1

uniqueItems: true

PublicIdentity:

type: object

required:

- imsPublicId

- identityType

properties:

imsPublicId:

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

identityType:

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

irsIsDefault:

type: boolean

aliasGroupId:

type: integer

ImsRegistrationStatus:

type: object

required:

- imsUserStatus

properties:

imsUserStatus:

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

# SIMPLE TYPES:

Capability:

type: integer

ImsUeId:

type: string

pattern: '^sip\:([a-zA-Z0-9\_\-.!~\*()&=+$,;?\/]+)\@([A-Za-z0-9]+([-A-Za-z0-9]+)\.)+[a-z]{2,}$|^tel\:\+[0-9]{5,15}$'

SequenceNumber:

type: integer

minimum: 0

ServiceIndication:

type: string

Msisdn:

type: string

pattern: '[0-9]{5,15}$'

PrivateId:

type: string

ImsPublicId:

type: string

pattern: '^(sip\:([a-zA-Z0-9\_\-.!~\*()&=+$,;?\/]+)\@([A-Za-z0-9]+([-A-Za-z0-9]+)\.)+[a-z]{2,}|tel\:\+[0-9]{5,15})$'

# ENUMS:

IdentityType:

anyOf:

- type: string

enum:

- DISTINCT\_IMPU

- DISTINCT\_PSI

- WILDCARDED\_IMPU

- WILDCARDED\_PSI

- type: string

ImsRegistrationState:

anyOf:

- type: string

enum:

- REGISTERED

- NOT\_REGISTERED

- AUTHENTICATION\_PENDING

- REGISTERED\_UNREG\_SERVICES

- type: string

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