**3GPP TSG-CT WG4 Meeting #96eC4-200576**

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

**Source: Ericsson**

**Title: Completion of Server Name retrieval**

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

**Agenda item: 6.1.14**

**Document for: Agreement**

**1. Introduction**

-

**2. Reason for Change**

Complete server name information retrieval

**3. Conclusions**

-

**4. Proposal**

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

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

# 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 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[7] 3GPP TS 29.335: "User Data Repository Access Protocol over the Ud interface; Stage 3".

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

[9] OpenAPI Initiative, "OpenAPI 3.0.0 Specification", <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>

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

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

[12] IETF RFC 6902: "JavaScript Object Notation (JSON) Patch".

[13] 3GPP TS 23.003: "Numbering, addressing and identification".

[14] 3GPP TS 33.203: "Access security for IP-based services".

[15] 3GPP TS 29.503: "Unified Data Management Services; Stage 3".

[16] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces Stage 3".

[xx] IETF RFC 3261: "SIP: Session Initiation Protocol".

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

##### 5.3.2.2.x Server name 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 receive the Server Name (S-CSCF name) associated to the UE. The request contains the UE's identity (/{imsUeId}), the type of the requested information (ims-data/location-data/server-name) and query parameters (e.g. supported-features).



Figure 5.3.2.2.x-1: IMS Location Data Retrieval

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

2a. On success, the HSS responds with "200 OK" with the message body containing the IMS location information (S-CSCF name) 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 \* \* \* \*

#### 6.2.3.1 Overview



Figure 6.2.3.1-1: Resource URI structure of the Nhss\_imsSDM API



Figure 6.2.3.1-2: Resource URI structure of the Nhss\_imsSDM API

Editor's Note: The resource structure shown above is work in progress and can be changed in the future.

Table 6.2.3.1-1 provides an overview of the resources and applicable HTTP methods.

Table 6.2.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name (Archetype) | Resource URI | HTTP method or custom operation | Description |
| RepositoryData (Document) | /{imsUeId}/repository-data/ {serviceIndication} | GET | Retrieve repository data for a service indication |
| DELETE | Delete repository data for a service indication |
| PUT | Update repository data for a service indication |
| ImsAssociatedIdentities (Document) | /{imsUeId}/identities/ims-associated-identities | GET | Retrieve the UE's IMS associated identities (implicit and alias) |
| Msisdns (Document) | /{imsUeId}/identities/msisdns | GET | Retrieve the UE's MSISDNs (basic and additional) |
| PrivateIdentities (Document) | /{imsUeId}/identities/private-identities | GET | Retrieve the UE's Private Identities (IMPI and IMSI) |
| ImeiSv (Document) | /{imsUeId}/identities/imeisv | GET | Retrieve the UE's IMEISV |
| ImsProfile  (Document) | /{imsUeId}/ims-data/profile-data | GET | Retrieve the UE's subscribed Profile |
| Ifcs (Document) | /{imsUeId}/ims-data/ profile-data/ifcs | GET | Retrieve the UE's subscribed Initial Filter Criteria |
| ChargingInformation (Document) | /{imsUeId}/ims-data/ profile-data/charging-information | GET | Retrieve the UE's subscribed Charging Information |
| ServiceLevelTraceInformation (Document) | /{imsUeId}/ims-data/profile-data/service-level-trace-info | GET | Retrieve the UE's subscribed Service Level Trace Information |
| PriorityLevels (Document) | /{imsUeId}/ims-data/ profile-data/priority-levels | GET | Retrieve the UE's subscribed Service Priority Levels |
| ImsServerNameAndCaps (Document) | /{imsUeId}/ims-data/location-data | GET | Retrieve the UE's S-CSCF name and the server capabilities in IMS |
| ImsLocationData (Document) | /{imsUeId}/ims-data/location-data/server-name | GET | Retrieve the UE's S-CSCF name |
| ScscfCapabilities (Document) | /{imsUeId}/ims-data/location-data/scscf-capabilities | GET | Retrieve the UE's S-CSCF capabilities (mandatory and/or optional) |
| ImsRegistrationStatus (Document) | /{imsUeId}/ims-data/ registration-status | GET | Retrieve the UE's IMS registration status. |
| SdmSubscriptions (Collection) | /{imsUeId}/sdm-subscriptions | POST | Create a subscription |
| Individual subscription (Document) | /{imsUeId}/sdm-subscriptions/ {subscriptionId} | DELETE | Delete the subscription identified by {subscriptionId}, i.e. unsubscribe |
| PATCH | Modify the sdm-subscription identified by {subscriptionId} |
| PsLocation (Document) | /{imsUeId}/access-data/ ps-domain/location-data | GET | Retrieve the UE's location in PS domain |
| CsLocation (Document) | /{imsUeId}/access-data/ cs-domain/location-data | GET | Retrieve the UE's location in CS domain |
| PsUserState (Document) | /{imsUeId}/access-data/ ps-domain/user-state | GET | Retrieve the UE's state in PS domain |
| CsUserState (Document) | /{imsUeId}/access-data/ cs-domain/user-state | GET | Retrieve the UE's state in CS domain |
| TadsInfo (Document) | /{imsUeId}/access-data/ ps-domain/tads-info | GET | Retrieve the UE's T-ADS information |
| UeRechabilityIpSubscriptions (Collection) | /{imsUeId}/access-data/ ps-domain/ue-reach-subs | POST | Create a subscription to UE Reachability for IP |
| UeRechabilityIpIndividual subscription (Document) | /{imsUeId}/access-data/ ps-domain/ue-reach-subs/ {subscriptionId} | DELETE | Delete the subscription identified by {subscriptionId}, i.e. unsubscribe |
| IpAddress (Document) | /{imsUeId}/access-data/ ps-domain/ip-address | GET | Retrieve the UE's stored IP Address Secure Binding Information |
| Csrn  (Document) | /{imsUeId}/access-data/ cs-domain/csrn | GET | Retrieve a CSRN for the UE |
| ReferenceAccessLocation  (Document) | /{imsUeId}/access-data/wireline-domain/reference-location | GET | Retrieve the UE's subscribed Reference Access Location |
| SrvccData  (Document) | /{imsUeId}/srvcc-data | GET | Retrieve the UE's STN-SR and SRVCC capability |
| PsiActive  (Document) | /{imsUeId}/service-data/ psi-active | GET | Retrieve a PSI activation status |
| PATCH | Update a PSI activation status |
| Dsai  (Document) | /{imsUeId}/service-data/dsai | GET | Retrieve DSAI data |
| PATCH | Update DSAI data |
| SMSRegistrationInfo  (Document) | /{imsUeId}/service-data/ sms-registration-info | GET | Retrieve the SMS Registration Information (e.g. IP-SM-GW address) |
| PATCH | Updates the SMS Registration Information (e.g. IP-SM-GW address) |
| SharedData (Collection) | /shared-data | GET | Retrieve shared data |
| SharedDataSubscriptions (Collection) | /shared-data-subscriptions | POST | Create a subscription |
| SharedDataIndividual subscription (Document) | /shared-data-subscriptions/{subscriptionId} | DELETE | Delete the subscription identified by {subscriptionId}, i.e. unsubscribe |

\* \* \* 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) |
| ImsLocationData | 6.2.6.2.x1 | IMS Location Data (S\_CSCF name) |

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 Location Data

##### 6.2.3.x.1 Description

This resource represents the IMS location data. It is queried by the service consumer (e.g. AS) to retrieve the S-CSCF name stored for the user.

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

Resource URI: **{**apiRoot}/nhss-ims-sdm/{apiVersion}/{imsUeId}/ims-data/location-data/server-name

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 |
| ImsLocationData | M | 1 | 200 OK | A response body containing the S-CSCF name stored for 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: ImsLocationData

Table 6.2.6.2.x1-1: Definition of type ImsLocationData

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| scscfName | string | M | 1 | S-CSCF name assigned to the IMS subscription the UE belongs to in the form of a SIP URI, as defined in IETF RFC 3261 [xx]. |

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

## A.3 Nhss\_imsSDM API

openapi: 3.0.0

info:

version: '1.0.0'

title: 'Nhss\_imsSDM'

description: |

Nhss Subscriber Data Management Service for IMS.

© 2019, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

All rights reserved.

externalDocs:

description: 3GPP TS 29.562 Unified Data Management Services, version 16.0.0

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/location-data/server-name:

get:

summary: Retrieve the server name for the associated user

operationId: GetSserverName

tags:

- Server Name 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/ImsLocationData'

'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

ImsLocationData:

type: object

required:

- scscfName

properties:

scscfName:

type: string

# 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

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