**3GPP TSG-CT WG4 Meeting #96eC4-200583**

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

**Source: Ericsson**

**Title: Completion of repository data**

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

**Agenda item: 6.1.14**

**Document for: Agreement**

**1. Introduction**

-

**2. Reason for Change**

Complete repository data resource.

**3. Conclusions**

-

**4. Proposal**

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

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

##### 5.3.2.2.1 General

The following procedures using the Get service operation are supported:

- Repository Data Retrieval

- IMS Identity Data (e.g. IMS associated identities including Implicit Registration Set and Alias Group) Retrieval

- IMS Profile Data (e.g. IFCs) Retrieval

- IMS Location Data Retrieval

- IMS Registration Status Data Retrieval

- Access Data (e.g. T-ADS) Retrieval

- SRVCC Data (e.g. STN-SR) Retrieval

- Service Data (e.g. DSAI) Retrieval

- Retrieval Of Multiple Data Sets

- Shared Subscription Data Retrieval

- Trace Data Retrieval

When the feature SharedData is supported and the retrieved UE-individual data (i.e. data other than Shared Subscription Data) contain SharedDataIds, the NF service consumer shall also retrieve the shared data identified by the received shared data Ids unless the identified shared data are already available at the NF service consumer. The order of sequence of sharedDataIds within UE-individual data is significant: Individual data take precedence over shared data; shared data "SharedDataX" identified by a sharedDataId X takes precedence over shared data "SharedDataY" identified by a sharedDataId Y if X appears before Y within the list of SharedDataIds in the UE-individual data.

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

##### 5.3.2.2.2 Repository Data Retrieval

Figure 5.3.2.2.2-1 shows a scenario where the NF service consumer (IMS-AS) sends a request to the HSS to receive the UE's Repository Data for a given Service Indication. The request contains the UE's identity (/{imsUeId}), the type of the requested information (/repository-data/{serviceIndication}) and query parameters (e.g. supported-features).



Figure 5.3.2.2.2-1: Repository Data Retrieval

1. The NF service consumer (IMS-AS) sends a GET request to the resource representing the UE's Repository Data for a given Service Indication, with query parameters indicating the supported-features.

2a. On success, the HSS responds with "200 OK" with the message body containing the UE's Repository Data for the requested Service Indication as relevant for the requesting NF service consumer.

2b. If there is no valid subscription data or Repository 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 \* \* \* \*

#### 5.3.2.x Update

##### 5.3.2.x.1 General

The following procedures using the Update service operation are supported:

- Repository Data Create/Update/Delete

- STN-SR update

- SMS registration information update

- PSI activation state

##### 5.3.2.x.2 Repository Data Creation or Update

Figure 5.3.2.x.2-1 shows a scenario where the IMS-AS sends a request to the HSS to create or update the repository data for a given service indication. The request contains the UE's identity (/{imsUeId}) which shall be an IMS Public Identity, the service indication and repository data with the associated version (sequence number).

Figure 5.3.2.x.2-1: IMS AS creating or updating repository data

1. The IMS AS sends a PUT request to the resource representing the UE's Repository Data for a requested Service Indication.

The IMS AS may request the creation of the Repository Data (sequence number equal to zero) or may request the update of the Repository Data (sequence number greater than zero)

2a. On success, the HSS updates the RepositoryData resource by replacing it with the received resource information, and responds with "200 OK" or "204 No Content".

2b. If the resource does not exist (there is no repository data associated to the requested service indication), HSS stores the received Repository Data and responds with HTTP Status Code "201 created". A response body may be included to convey additional information to the NF consumer (e.g., features supported by HSS).

2c. If the operation is not authorized due to e.g IMS AS does not have the required permissions for the service indication and the operation requested, HTTP status code "403 Forbidden" should be returned including additional error information in the response body (in "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 PUT response body.

##### 5.3.2.x.3 Repository Data Deletion

Figure 5.3.2.x.3-1 shows a scenario where the IMS-AS sends a request to the HSS to delete the repository data for a given service indication. The request contains the UE's identity (/{imsUeId}) which shall be an IMS Public Identity and the service indication.



Figure 5.3.2.x.3-1: IMS AS deleting repository data

1. The IMS AS sends a DELETE request to the resource representing the UE's Repository Data for a requested Service Indication.

2a. On success, the HSS deletes the resource and responds with "204 No Content".

2b. If the repository data does not exist in the HSS, HTTP status code "404 Not Found" shall be returned including additional error information in the response body (in the "ProblemDetails" element).

2c. If the operation is not authorized due to e.g IMS AS does not have the required permissions for the service indication and operation requested, HTTP status code "403 Forbidden" should be returned including additional error information in the response body (in "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 DELETE response body.

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

#### 6.2.3.x Resource: Repository Data

##### 6.2.3.x.1 Description

This resource represents the Repository Data. It is used by the service consumer (e.g. IMS-AS) to create, retrieve, update or delete the repository data for a given service indication.

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

Resource URI: **{**apiRoot}/nhss-ims-sdm/{apiVersion}/{imsUeId}/repository-data/{serviceIndication}

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 6.1.1 |
| apiVersion | See clause 6.1.1 |
| imsUeId | Represents the IMS Public Identity (i.e. IMS Public User identity or Public Service Identity)  pattern: "^(sip\:([a-zA-Z0-9\_\-.!~\*()&=+$,;?\/]+)\@([A-Za-z0-9]+([-A-Za-z0-9]+)\.)+[a-z]{2,}|tel\:\+[0-9]{5,15})$" |
| serviceIndication | Represents the identifier of a service related data. |

##### 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 |
| 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 structures 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 |
| RepositoryData | M | 1 | 200 OK | A response body containing the Repository Data for the requested Service Indication. |
| ProblemDetails | O | 0..1 | 404 Not Found | The "cause" attribute may be used to indicate the following application error:  - USER\_NOT\_FOUND  - DATA\_NOT\_FOUND |
| ProblemDetails | O | 0..1 | 403 Forbidden | The "cause" attribute may be used to indicate one of the following application errors:  - OPERATION\_NOT\_ALLOWED |
| NOTE: In addition, common data structures as listed in table 6.1.7-1 are supported. | | | | |

###### 6.2.3.x.3.2 PUT

This method shall support the URI query parameters specified in table 6.2.3.x.3.2-1.

Table 6.2.3.x.3.2-1: 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 6.2.3.x.3.2-2 and the response data structures and response codes specified in table 6.2.3.x.3.2-3.

Table 6.2.3.x.3.2-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| RepositoryData | M | 1 | The Repository Data to be created or replaced. |

Table 6.2.3.x.3.2-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| RepositoryData | M | 1 | 201 Created | Upon success, a response body containing a representation of the created Individual RepositoryData resource shall be returned. |
| RepositoryData | M | 1 | 200 OK | Upon success, a response body containing a representation of the updated Individual RepositoryData resource shall be returned. |
| n/a |  |  | 204 No Content | Upon success, an empty response body shall be returned |
| ProblemDetails | O | 0..1 | 404 Not Found | The "cause" attribute may be used to indicate the following application error:  - USER\_NOT\_FOUND |
| ProblemDetails | O | 0..1 | 403 Forbidden | The "cause" attribute may be used to indicate one of the following application errors:  - OPERATION\_NOT\_ALLOWED |
| ProblemDetails | O | 0..1 | 409 Conflict | The "cause" attribute may be used to indicate one of the following application errors:  - OUT\_OF\_SYNC |
| ProblemDetails | O | 0..1 | 413 Payload Too Large | The "cause" attribute may be used to indicate one of the following application errors:  - TOO\_MUCH\_DATA |
| ProblemDetails | O | 0..1 | 403 Forbidden | The "cause" attribute may be used to indicate one of the following application errors:  - OPERATION\_NOT\_ALLOWED |
| NOTE: In addition, common data structures as listed in table 6.1.7-1 are supported. | | | | |

###### 6.2.3.x.3.3 DELETE

This method shall support the URI query parameters specified in table 6.2.3.x.3.3-1.

Table 6.2.3.x.3.3-1: 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 6.2.3.x.3.3-2 and the response data structures and response codes specified in table 6.2.3.x.3.3-3.

Table 6.2.3.x.3.2-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  | The request body shall be empty. |

Table 6.2.3.x.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 | Upon success, an empty response body shall be returned |
| ProblemDetails | M | 0..1 | 404 Not Found | The "cause" attribute may be used to indicate the following application error:  - USER\_NOT\_FOUND  - DATA\_NOT\_FOUND  DATA\_NOT\_FOUND indicates that no repository data exists for the requested service indication. |
| ProblemDetails | O | 0..1 | 403 Forbidden | The "cause" attribute may be used to indicate one of the following application errors:  - OPERATION\_NOT\_ALLOWED |
| NOTE: In addition, common data structures as listed in table 6.1.7-1 are supported. | | | | |

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

##### 6.2.6.2.7 Type: RepositoryData

Table 6.2.6.2.7-1: Definition of type RepositoryData

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description |
| serviceData | string | M | 1 | The Repository Data for the requested Service Indication. Base64 encoded. |
| sequenceNumber | SequenceNumber | M | 1 | The sequence number associated to the current version of Repository Data |

\* \* \* 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/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}:

put:

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

operationId: UpdateRepositoryDataServInd

tags:

- Update 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'

requestBody:

content:

application/json:

schema:

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

required: true

responses:

'201':

description: Created

content:

application/json:

schema:

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

headers:

Location:

description: 'Contains the URI of the newly created resource, according to the structure: {apiRoot}/nhss-ims-sdm/v1/{imsUeId}/repository-data/{serviceIndication}'

required: true

schema:

type: string

'200':

description: OK

content:

application/json:

schema:

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

'204':

description: No content

'400':

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

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

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

'409':

$ref: 'TS29571\_CommonData.yaml#/components/responses/409'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'500':

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

'503':

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

default:

description: Unexpected error

delete:

summary: delete the Repository Data for a Service Indication

operationId: DeleteRepositoryDataServInd

tags:

- Delete repository data

parameters:

- name: imsUeId

in: path

description: Identifier of the UE

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:

'204':

description: Expected response to a valid request

'400':

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

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'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

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

# 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 \* \* \* \*