**3GPP TSG CT WG3 Meeting #137 *C3-245xxx***

**Hefei, CN, 14th – 18th October, 2024 was C3-245173**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **0021** | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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** |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | |
| ***Title:*** | Support the storage, retrieval and management of the same Application Data by multiple SEALDD Servers | | | | | | | | |
|  |  | | | | | | | | |
| ***Source to WG:*** | Huawei, Nokia | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | |
|  |  | | | | | | | | |
| ***Work item code:*** | SEALDD\_Ph2 | | | | |  | ***Date:*** | | 2024-10-07 |
|  |  | | | |  | |  | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | |  |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | |
| ***Reason for change:*** | | | As defined in clause 9.5.2.1 of TS 23.433, the data storage functionality is enhanced to support the provisioning of the application data identifier for a data storage to enable to uniquely identify a data storage across multiple SEALDD Servers. | | | | | | |
|  | | |  | | | | | | |
| ***Summary of change:*** | | | This CR proposes to:   * Address the above-detailed stage 2 requirements. | | | | | | |
|  | | |  | | | | | | |
| ***Consequences if not approved:*** | | | * The above-detailed stage 2 requirements are not specified in stage 3. | | | | | | |
|  | |  | | | | | | | |
| ***Clauses affected:*** | | 6.2.6.1, 6.2.6.2.2, 6.2.6.3.2, 6.2.8, A.3 | | | | | | | |
|  | |  | | | | | | | |
|  | | **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 a backwards compatible new feature to the OpenAPI description of the SDD\_DataStorage API defined in this specification. | | | | | | | |
|  | |  | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | |

\* \* \* \* Start of changes \* \* \* \*

# 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 29.122: "T8 reference point for Northbound Application Programming Interfaces (APIs)".

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

[4] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[5] 3GPP TR 21.900: "Technical Specification Group working methods".

[6] 3GPP TS 23.434: "Service Enabler Architecture Layer for Verticals (SEAL); Functional architecture and information flows".

[7] 3GPP TS 23.433: "Service Enabler Architecture Layer for Verticals (SEAL); Data Delivery enabler for vertical applications".

[8] 3GPP TS 23.222: "Common API Framework for 3GPP Northbound APIs; Stage 2".

[9] 3GPP TS 29.222: "Common API Framework for 3GPP Northbound APIs; Stage 3".

[10] 3GPP TS 33.122: "Security aspects of Common API Framework (CAPIF) for 3GPP northbound APIs".

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

[12] IETF RFC 9113: "HTTP/2".

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

[14] IETF RFC 9457: "Problem Details for HTTP APIs".

[15] 3GPP TS 29.549: "Service Enabler Architecture Layer for Verticals (SEAL); Application Programming Interface (API) specification; Stage 3".

[16] 3GPP TS 29.508: "5G System; Session Management Event Exposure Service; Stage 3".

[17] 3GPP TS 29.558: "Enabling Edge Applications; Application Programming Interface (API) specification; Stage 3".

[18] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces; Stage 3".

[19] 3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

[20] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

[21] IETF RFC 4122: "A Universally Unique IDentifier (UUID) URN Namespace".

\* \* \* \* Next changes \* \* \* \*

#### 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 SDD\_DataStorage API.

Table 6.2.6.1-1: SDD\_DataStorage API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| AccessCtrlPolicy | 6.2.6.2.6 | Represents the data access control policy. |  |
| AppDataId | 6.2.6.3.2 | Represents identifier of a stored application data that uniquely identifies the stored application data in multiple SEALDD Servers. | SEALDD\_2 |
| DataAccessRight | 6.2.6.3.4 | Represents the data access right. |  |
| DataAccessStats | 6.2.6.2.9 | Represents data access statistics. |  |
| DataDelNotif | 6.2.6.2.13 | Represents a SEALDD Data Storage Delivery Notification. |  |
| DataDelReq | 6.2.6.2.14 | Represents a SEALDD Data Storage Delivery request. |  |
| DataDelSubsc | 6.2.6.2.11 | Represents a SEALDD Data Storage Delivery Subscription. |  |
| DataDelSubscPatch | 6.2.6.2.12 | Represents the requested modification to a SEALDD Data Storage Delivery Subscription. |  |
| DataMngtEvent | 6.2.6.3.5 | Represents the Data Management and/or Status Information events. |  |
| DataMngtNotif | 6.2.6.2.8 | Represents a SEALDD Data Management and/or Status Information Notification. |  |
| DataMngtStats | 6.2.6.2.10 | Represents data management statistics. |  |
| DataMngtSubsc | 6.2.6.2.7 | Represents the stored data management and/or status information subscription related information. |  |
| DataStorage | 6.2.6.2.2 | Represents a SEALDD Data Storage. |  |
| DataStoragePatch | 6.2.6.2.5 | Represents the requested modification to a SEALDD Data Storage. |  |
| DataStorageReq | 6.2.6.4.1 | Represents a SEALDD Data Storage creation or reservation request. |  |
| DelConnEstabReq | 6.2.6.2.15 | Represents a SEALDD Data Storage Delivery connection establishment request. |  |
| DelConnEstabResp | 6.2.6.2.16 | Represents the response to a SEALDD Data Storage Delivery connection establishment request. |  |
| EntityName | 6.2.6.3.3 | Represents the name of a SEALDD entity. |  |
| ReservReqData | 6.2.6.2.3 | Represents a Data Storage reservation request. |  |
| ReservRespData | 6.2.6.2.4 | Represents a Data Storage reservation response. |  |

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

Table 6.2.6.1-2: SDD\_DataStorage API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Bytes | 3GPP TS 29.122 [4] | Represents a sequence of bytes. |  |
| ConnInfo | 6.1.6.2.4 | Represents SEALDD Data transmission connection information. |  |
| DateTime | 3GPP TS 29.122 [2] | Represents a date and a time. |  |
| DateTimeRo | 3GPP TS 29.122 [2] | Represents a date and a time with the read-only property. |  |
| DurationSec | 3GPP TS 29.122 [2] | Represents a time duration in seconds. |  |
| ProblemDetails | 3GPP TS 29.122 [2] | Represents error related information. |  |
| SupportedFeatures | 3GPP TS 29.571 [18] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |
| TransportProtocol | 3GPP TS 29.558 [17] | Represents the transport layer protocol. |  |
| Uinteger | 3GPP TS 29.571 [18] | Represents an unsigned integer. |  |
| Uri | 3GPP TS 29.122 [2] | Represents a URI. |  |

\* \* \* \* Next changes \* \* \* \*

##### 6.2.6.2.2 Type: DataStorage

Table 6.2.6.2.2-1: Definition of type DataStorage

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| data | Bytes | M | 1 | Contains the stored application data. |  |
| ctrlPolicies | array(AccessCtrlPolicy) | O | 1..N | Contains the Storage of policy(ies) for controlling the access to the data. |  |
| expTime | DateTime | O | 0..1 | Contains the expiration time of the stored data. |  |
| mngtSubsc | DataMngtSubsc | O | 0..1 | Contains the stored data management and/or status information subscription related information. |  |
| appDataId | AppDataId | O | 0..1 | Contains the application-level identifier of the stored data, assigned by the service consumer. | SEALDD\_2 |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.2.8.  This attribute shall be present only when feature negotiation needs to take place. |  |

\* \* \* \* Next changes \* \* \* \*

##### 6.2.6.3.2 Simple data types

The simple data types defined in table 6.2.6.3.2-1 shall be supported.

Table 6.2.6.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
| AppDataId | string | Represents identifier of a stored application data that uniquely identifies the stored application data in multiple SEALDD Servers.  This identifier shall be generated either based on the identifier of the service consumer that assigns it or using the Universally Unique Identifier (UUID) version 4 as described in IETF RFC 4122 [21]. | SEALDD\_2 |

\* \* \* \* Next changes \* \* \* \*

### 6.2.8 Feature negotiation

The optional features listed in table 6.2.8-1 are defined for the SDD\_DataStorage API. They shall be negotiated using the extensibility mechanism defined in clause 6.8 of 3GPP TS 29.549 [15].

Table 6.2.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| **Feature number** | **Feature Name** | **Description** |
| 1 | SEALDD\_2 | This feature indicates the support of the first set of enhancements to the SEAL Data Delivery Enabler Layer.  Within this feature, the following enhancements are covered:  - Support the provisioning of the application data identifier for a data storage to enable to uniquely identify a data storage across multiple SEALDD Servers. |

\* \* \* \* Next changes \* \* \* \*

# A.3 SDD\_DataStorage API

openapi: 3.0.0

info:

title: SEALDD Server Data Storage Service

version: 1.0.0

description: |

SEALDD Server Data Storage Service.

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externalDocs:

description: >

3GPP TS 29.548 V18.1.0; Service Enabler Architecture Layer for Verticals (SEAL);

SEAL Data Delivery (SEALDD) Server Services; Stage 3.

url: https://www.3gpp.org/ftp/Specs/archive/29\_series/29.548/

servers:

- url: '{apiRoot}/sdd-ds/v1'

variables:

apiRoot:

default: https://example.com

description: apiRoot as defined in clause 6.5 of 3GPP TS 29.549

security:

- {}

- oAuth2ClientCredentials: []

paths:

/storages:

get:

summary: Retrieve one or several existing Individual Data Storage resource(s).

operationId: GetDataStorages

tags:

- Data Storages (Collection)

parameters:

- name: storage-ids

in: query

description: Contains the identifier(s) of the targeted Data Storage resource(s).

required: false

schema:

type: array

items:

type: string

minItems: 1

- name: supp-feats

in: query

description: Contains the list of supported features.

required: false

schema:

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

responses:

'200':

description: >

OK. The requested Individual Data Storage resource shall be returned.

content:

application/json:

schema:

type: array

items:

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

minItems: 0

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

post:

summary: Request the creation of a Data Storage.

operationId: CreateDataStorage

tags:

- Data Storages (Collection)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'201':

description: >

Created. The Data Storage is successfully created and a representation of the created

Individual Data Storage resource shall be returned.

content:

application/json:

schema:

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

headers:

Location:

description: >

Contains the URI of the created Individual Data Storage resource.

required: true

schema:

type: string

'200':

description: >

OK. The Data Storage resource is successfully reserved and Data Storage resource

reservation related information shall be returned.

content:

application/json:

schema:

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

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

callbacks:

DataMngtNotif:

'{$request.body#/notifUri}':

post:

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'204':

description: >

No Content. The Data Management and or Status Information Notification is

successfully received and acknowledged.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

/storages/{storageId}:

parameters:

- name: storageId

in: path

description: >

Represents the identifier of the Individual Data Storage resource.

required: true

schema:

type: string

get:

summary: Retrieve an existing Individual Data Storage resource.

operationId: GetIndDataStorage

tags:

- Individual Data Storage (Document)

responses:

'200':

description: >

OK. The requested Individual Data Storage resource shall be returned.

content:

application/json:

schema:

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

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

put:

summary: Request the update of an existing Individual Data Storage resource.

operationId: UpdateIndDataStorage

tags:

- Individual Data Storage (Document)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: >

OK. The Individual Data Storage resource is successfully updated and a representation

of the updated resource shall be returned in the response body.

content:

application/json:

schema:

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

'204':

description: >

No Content. The Individual Data Storage resource is successfully updated and no content

is returned in the response body.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

patch:

summary: Request the modification of an existing Individual Data Storage resource.

operationId: ModifyIndDataStorage

tags:

- Individual Data Storage (Document)

requestBody:

required: true

content:

application/merge-patch+json:

schema:

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

responses:

'200':

description: >

OK. The Individual Data Storage resource is successfully modified and a representation

of the updated resource shall be returned in the response body.

content:

application/json:

schema:

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

'204':

description: >

No Content. The Individual Data Storage resource is successfully modified and no content

is returned in the response body.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

delete:

summary: Request the deletion of an existing Individual Data Storage resource.

operationId: DeleteIndDataStorage

tags:

- Individual Data Storage (Document)

responses:

'204':

description: >

No Content. The Individual Data Storage resource is successfully deleted.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

/subscriptions:

post:

summary: Request the creation of a Data Storage Delivery Subscription.

operationId: CreateDataDelSubsc

tags:

- Data Storage Delivery Subscriptions (Collection)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'201':

description: >

Created. The Data Storage Delivery Subscription is successfully created and a

representation of the created Individual Data Storage Delivery Subscription resource

shall be returned.

content:

application/json:

schema:

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

headers:

Location:

description: >

Contains the URI of the created Individual Data Storage Delivery Subscription

resource.

required: true

schema:

type: string

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

callbacks:

DataDelNotif:

'{$request.body#/notifUri}':

post:

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'204':

description: >

No Content. The Data Storage Delivery Notification is successfully received

and acknowledged.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

/subscriptions/{subscriptionId}:

parameters:

- name: subscriptionId

in: path

description: >

Represents the identifier of the Individual Data Storage Delivery Subscription resource.

resource.

required: true

schema:

type: string

get:

summary: Retrieve an existing Individual Data Storage Delivery Subscription resource.

operationId: GetIndDataDelSubsc

tags:

- Individual Data Storage Delivery Subscription (Document)

responses:

'200':

description: >

OK. The requested Individual Data Storage Delivery Subscription resource shall be

returned.

content:

application/json:

schema:

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

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

put:

summary: Request the update of an existing Individual Data Storage Delivery Subscription resource.

operationId: UpdateIndDataDelSubsc

tags:

- Individual Data Storage Delivery Subscription (Document)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: >

OK. The Individual Data Storage Delivery Subscription resource is successfully

updated and a representation of the updated resource shall be returned in the

response body.

content:

application/json:

schema:

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

'204':

description: >

No Content. The Individual Data Storage Delivery Subscription resource is successfully

updated and no content is returned in the response body.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

patch:

summary: Request the modification of an existing Individual Data Storage Delivery Subscription resource.

operationId: ModifyIndDataDelSubsc

tags:

- Individual Data Storage Delivery Subscription (Document)

requestBody:

required: true

content:

application/merge-patch+json:

schema:

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

responses:

'200':

description: >

OK. The Individual Data Storage Delivery Subscription resource is successfully modified

and a representation of the updated resource shall be returned in the response body.

content:

application/json:

schema:

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

'204':

description: >

No Content. The Individual Data Storage Delivery Subscription resource is successfully

modified and no content is returned in the response body.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

delete:

summary: Request the deletion of an existing Individual Data Storage Delivery Subscription resource.

operationId: DeleteIndDataDelSubsc

tags:

- Individual Data Storage Delivery Subscription (Document)

responses:

'204':

description: >

No Content. The Individual Data Storage Delivery Subscription resource is successfully

deleted.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

/request-del:

post:

summary: Enables a service consumer to request SEALDD data storage delivery.

operationId: DataDeliveryRequest

tags:

- SEALDD Data Storage Delivery Request

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'204':

description: >

No Content. The SEALDD Data Storage delivery request is successfully received and

processed.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

/establish-del-conn:

post:

summary: Enables a service consumer to request SEALDD data storage delivery connection establishment.

operationId: EstablishDelConn

tags:

- SEALDD Data Storage Delivery Connection Establishment Request

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: >

OK. The SEALDD Data Storage delivery connection establishment request is successfully

received and processed, and SEALDD Data Storage delivery connection establishment

related information shall be returned in the response body.

content:

application/json:

schema:

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

'204':

description: >

No Content. The SEALDD Data Storage delivery connection establishment request is

successfully received and processed.

'307':

$ref: 'TS29122\_CommonData.yaml#/components/responses/307'

'308':

$ref: 'TS29122\_CommonData.yaml#/components/responses/308'

'400':

$ref: 'TS29122\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29122\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29122\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29122\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29122\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29122\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29122\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29122\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29122\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29122\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29122\_CommonData.yaml#/components/responses/default'

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{tokenUrl}'

scopes: {}

schemas:

#

# STRUCTURED DATA TYPES

#

DataStorage:

description: >

Represents a SEALDD Data Storage.

type: object

properties:

data:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Bytes'

ctrlPolicies:

type: array

items:

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

minItems: 1

expTime:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

mngtSubsc:

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

appDataId:

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

suppFeat:

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

required:

- data

ReservReqData:

description: >

Represents a Data Storage reservation request.

type: object

properties:

valServiceId:

type: string

dataLength:

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

suppFeat:

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

required:

- valServiceId

ReservRespData:

description: >

Represents a Data Storage reservation response.

type: object

properties:

resourceAddr:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

required:

- resourceAddr

DataStoragePatch:

description: >

Represents the requested modifications to a SEALDD Data Storage.

type: object

properties:

data:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Bytes'

ctrlPolicies:

type: array

items:

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

minItems: 1

expTime:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTime'

mngtSubsc:

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

AccessCtrlPolicy:

description: >

Represents the data access control policy.

type: object

properties:

entityName:

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

entityId:

type: string

rights:

type: array

items:

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

minItems: 1

required:

- rights

anyOf:

- required: [entityName]

- required: [entityId]

DataMngtSubsc:

description: >

Represents the stored data management and/or status information subscription related

information.

type: object

properties:

events:

type: array

items:

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

minItems: 1

notifUri:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

repPeriodicity:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/DurationSec'

required:

- events

- notifUri

DataMngtNotif:

description: >

Represents a SEALDD Data Management and/or Status Information Notification.

type: object

properties:

storageId:

type: string

events:

type: array

items:

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

minItems: 1

accessStats:

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

mngtStats:

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

required:

- storageId

- events

anyOf:

- required: [accessStats]

- required: [mngtStats]

DataAccessStats:

description: >

Represents data access statistics.

type: object

properties:

genAccessStats:

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

detAccessStats:

type: object

additionalProperties:

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

minProperties: 1

description: >

Represents the data access statistics of the stored data detailed per consumer SEALDD

entity. It contains how many times the stored data was accessed (i.e., retrieved or

updated) per SEALDD entity.

The key of the map shall be the name of the SEALDD entity, encoded using the EntityName

data type as specified in clause 6.2.6.3.3, to which the data access statistics provided

within the map value are

related.

anyOf:

- required: [genAccessStats]

- required: [detAccessStats]

DataMngtStats:

description: >

Represents data management statistics.

type: object

properties:

genMngtStats:

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

detMngtStats:

type: object

additionalProperties:

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

minProperties: 1

description: >

Represents the data management statistics of the stored data detailed per consumer

SEALDD entity. It contains how many times the stored data was accessed for management

purposes (i.e., data update) per SEALDD entity.

The key of the map shall be the name of the SEALDD entity, encoded using the EntityName

data type as specified in clause 6.2.6.3.3, to which the data management statistics

provided within the map value are related.

anyOf:

- required: [genMngtStats]

- required: [detMngtStats]

DataDelSubsc:

description: >

Represents a SEALDD Data Storage Delivery Subscription.

type: object

properties:

notifUri:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

expTime:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/DateTimeRo'

suppFeat:

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

required:

- notifUri

DataDelSubscPatch:

description: >

Represents the requested modification to a SEALDD Data Storage Delivery Subscription.

type: object

properties:

notifUri:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Uri'

DataDelNotif:

description: >

Represents a SEALDD Data Storage Delivery Notification.

type: object

properties:

subscriptionId:

type: string

data:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Bytes'

storageId:

type: string

required:

- subscriptionId

oneOf:

- required: [data]

- required: [storageId]

DataDelReq:

description: >

Represents a SEALDD Data Storage Delivery request.

type: object

properties:

targetId:

type: string

sealddServId:

type: string

storageId:

type: string

data:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Bytes'

suppFeat:

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

required:

- targetId

oneOf:

- required: [data]

- required: [storageId]

DelConnEstabReq:

description: >

Represents a SEALDD Data Storage Delivery connection establishment request.

type: object

properties:

targetId:

type: string

ddServerConnInfo:

$ref: 'TS29548\_SDD\_Transmission.yaml#/components/schemas/ConnInfo'

transProtoc:

type: array

items:

$ref: 'TS29558\_Eees\_EASRegistration.yaml#/components/schemas/TransportProtocol'

minItems: 1

suppFeat:

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

required:

- targetId

DelConnEstabResp:

description: >

Represents the response to a SEALDD Data Storage Delivery connection establishment request.

type: object

properties:

ddServerConnInfo:

$ref: 'TS29548\_SDD\_Transmission.yaml#/components/schemas/ConnInfo'

transProtoc:

$ref: 'TS29558\_Eees\_EASRegistration.yaml#/components/schemas/TransportProtocol'

suppFeat:

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

# SIMPLE DATA TYPES

#

AppDataId:

description: >

Represents identifier of a stored application data that uniquely identifies the stored

application data in different SEALDD Servers.

type: string

#

# ENUMERATIONS

#

EntityName:

anyOf:

- type: string

enum:

- SEALDD\_SERVER

- SEALDD\_CLIENT

- VAL\_SERVER

- type: string

description: >

This string provides forward-compatibility with future extensions to the enumeration

and is not used to encode content defined in the present version of this API.

description: |

Represents the name of a SEALDD entity.

Possible values are:

- SEALDD\_SERVER: Indicates the SEALDD Server.

- SEALDD\_CLIENT: Indicates the SEALDD Client.

- VAL\_SERVER: Indicates the VAL Server.

DataAccessRight:

anyOf:

- type: string

enum:

- RETRIEVE

- UPDATE

- DELETE

- type: string

description: >

This string provides forward-compatibility with future extensions to the enumeration

and is not used to encode content defined in the present version of this API.

description: |

Represents the data access rights.

Possible values are:

- RETRIEVE: Indicates that the access right is data storage retrieval.

- UPDATE: Indicates that the access right is data storage update.

- DELETE: Indicates that the access right is data storage deletion.

DataMngtEvent:

anyOf:

- type: string

enum:

- DATA\_ACCESS\_STATISTICS

- DATA\_MNGT\_STATISTICS

- type: string

description: >

This string provides forward-compatibility with future extensions to the enumeration

and is not used to encode content defined in the present version of this API.

description: |

Represents the Data Management and (or) Status Information events.

Possible values are:

- DATA\_ACCESS\_STATISTICS: Indicates that the Data Management Event is data access statistics

(i.e., how often the stored data is accessed).

- DATA\_MNGT\_STATISTICS: Indicates that the Data Management Event is data management

statistics (i.e., how often the stored data is managed).

# Data types describing alternative data types or combinations of data types:

#

DataStorageReq:

description: Represents a SEALDD Data Storage creation or reservation request.

oneOf:

- $ref: '#/components/schemas/DataStorage'

- $ref: '#/components/schemas/ReservReqData'

\* \* \* \* End of changes \* \* \* \*