**3GPP TSG CT WG3 Meeting #138 *C3-246372***

**Orlando, US, 18th – 22nd November, 2024 C3-246078**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.549** | **CR** | **0340** | **rev** | **1** | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | |
| ***Title:*** | Define the API definition clauses of the SS\_LocationHistoryInfoEvent API | | | | | | | | |
|  |  | | | | | | | | |
| ***Source to WG:*** | Huawei, CATT, Samsung | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | |
|  |  | | | | | | | | |
| ***Work item code:*** | eLSAPP | | | | |  | ***Date:*** | | 2024-11-18 |
|  |  | | | |  | |  | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | Rel-19 |
|  | *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:*** | | | The "Location history querying" functionality was defined in Rel-19 in clause 9.3.21 of TS 23.434 and led to the introduction of a new LM Server exposed API, i.e., the SS\_LocationHistoryInfoEvent API. | | | | | | |
|  | | |  | | | | | | |
| ***Summary of change:*** | | | This CR proposes to:   * Define the API definition clauses of the new SS\_LocationHistoryInfoEvent API. | | | | | | |
|  | | |  | | | | | | |
| ***Consequences if not approved:*** | | | * The above-detailed Rel-19 updates are not specified in stage 3. | | | | | | |
|  | |  | | | | | | | |
| ***Clauses affected:*** | | 7.1.4 (new clause) | | | | | | | |
|  | |  | | | | | | | |
|  | | **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 does not impact the OpenAPI descriptions of the APIs defined in this specification. | | | | | | | |
|  | |  | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | |

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

### 7.1.4 SS\_LocationHistoryInfoEvent API

#### 7.1.4.1 Introduction

The SS\_LocationHistoryInfoEvent service shall use the SS\_LocationHistoryInfoEvent API.

The API URI of the SS\_LocationHistoryInfoEvent Service API shall be:

**{apiRoot}/<apiName>/<apiVersion>**

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 6.5, i.e.:

**{apiRoot}/<apiName>/<apiVersion>/<apiSpecificSuffixes>**

with the following components:

- The {apiRoot} shall be set as described in clause 6.5.

- The <apiName>shall be "ss-lhie".

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 6.5.

NOTE: When 3GPP TS 29.122 [3] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 7.1.4, the LM Server takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

#### 7.1.4.2 Usage of HTTP

The provisions of clause 6.3 shall apply for the SS\_LocationHistoryInfoEvent API.

#### 7.1.4.3 Resources

##### 7.1.4.3.1 Overview

This clause describes the structure for the Resource URIs and the resources and methods used for the service.

Figure 7.1.4.3.1-1 depicts the resource URIs structure for the SS\_LocationHistoryInfoEvent API.



Figure 7.1.4.3.1-1: Resource URIs structure of the SS\_LocationHistoryInfoEvent API

Table 7.1.4.3.1-1 provides an overview of the resources and applicable HTTP methods for the SS\_LocationHistoryInfoEvent API.

Table 7.1.4.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| Location Tracing Configurations | /configurations | POST | Request the creation of a Location Tracing Configuration. |
| Individual Location Tracing Configuration | /configurations/{configId} | GET | Retrieve an existing "Individual Location Tracing Configuration" resource. |
| PUT | Request the update of an existing "Individual Location Tracing Configuration" resource. |
| PATCH | Request the modification of an existing "Individual Location Tracing Configuration" resource. |
| DELETE | Request the deletion of an existing "Individual Location Tracing Configuration" resource. |
| Location History Reports | /reports | GET | Retrieve location history report(s). |

##### 7.1.4.3.2 Resource: Location Tracing Configurations

###### 7.1.4.3.2.1 Description

This resource represents the collection of Location Tracing Configurations managed by the LM Server.

###### 7.1.4.3.2.2 Resource Definition

Resource URI: **{apiRoot}/ss-lhie/****<apiVersion>/configurations**

This resource shall support the resource URI variables defined in table 7.1.4.3.2.2-1.

Table 7.1.4.3.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 7.1.4.1. |

###### 7.1.4.3.2.3 Resource Standard Methods

7.1.4.3.2.3.1 POST

The HTTP POST method allows a service consumer to request the creation of a Location Tracing Configuration at the LM Server.

This method shall support the URI query parameters specified in table 7.1.4.3.2.3.1-1.

Table 7.1.4.3.2.3.1-1: URI query parameters supported by the POST method on this resource

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

This method shall support the request data structures specified in table 7.1.4.3.2.3.1-2 and the response data structures and response codes specified in table 7.1.4.3.2.3.1-3.

Table 7.1.4.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| LocTracingConfig | M | 1 | Represents the parameters to request the creation of a Location Tracing Configuration. |

Table 7.1.4.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| LocTracingConfig | M | 1 | 201 Created | Successful case. The Location Tracing Configuration is successfully created and a representation of the created "Individual Location Tracing Configuration" resource shall be returned.  An HTTP "Location" header that contains the URI of the created resource shall also be included. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

Table 7.1.4.3.2.3.1-4: Headers supported by the 201 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure:  {apiRoot}/ss-lhie/<apiVersion>/configurations/{configId} |

###### 7.1.4.3.2.4 Resource Custom Operations

There are no resource custom operations defined for this resource in this release of the specification.

##### 7.1.4.3.3 Resource: Individual Location Tracing Configuration

###### 7.1.4.3.3.1 Description

This resource represents a Location Tracing Configuration managed by the LM Server.

###### 7.1.4.3.3.2 Resource Definition

Resource URI: **{apiRoot}/ss-lhie/<apiVersion>/configurations/{configId}**

This resource shall support the resource URI variables defined in table 7.1.4.3.3.2-1.

Table 7.1.4.3.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 7.1.4.1. |
| configId | string | Represents the identifier of the "Individual Location Tracing Configuration" resource. |

###### 7.1.4.3.3.3 Resource Standard Methods

7.1.4.3.3.3.1 GET

The HTTP GET method allows a service consumer to retrieve an existing "Individual Location Tracing Configuration" resource at the LM Server.

This method shall support the URI query parameters specified in table 7.1.4.3.3.3.1-1.

Table 7.1.4.3.3.3.1-1: URI query parameters supported by the GET method on this resource

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

This method shall support the request data structures specified in table 7.1.4.3.3.3.1-2 and the response data structures and response codes specified in table 7.1.4.3.3.3.1-3.

Table 7.1.4.3.3.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 7.1.4.3.3.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| LocTracingConfig | M | 1 | 200 OK | Successful case. The requested "Individual Location Tracing Configuration" resource shall be returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

Table 7.1.4.3.3.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

Table 7.1.4.3.3.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

7.1.4.3.3.3.2 PUT

The HTTP PUT method allows a service consumer to request the update of an existing "Individual Location Tracing Configuration" resource at the LM Server.

This method shall support the URI query parameters specified in table 7.1.4.3.3.3.2-1.

Table 7.1.4.3.3.3.2-1: URI query parameters supported by the PUT method on this resource

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

This method shall support the request data structures specified in table 7.1.4.3.3.3.2-2 and the response data structures and response codes specified in table 7.1.4.3.3.3.2-3.

Table 7.1.4.3.3.3.2-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| LocTracingConfig | M | 1 | Represents the updated representation of the "Individual Location Tracing Configuration" resource. |

Table 7.1.4.3.3.3.2-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| LocTracingConfig | M | 1 | 200 OK | Successful case. The "Individual Location Tracing Configuration" resource is successfully updated and a representation of the updated resource shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Location Tracing Configuration" resource is successfully updated and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PUT method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

Table 7.1.4.3.3.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

Table 7.1.4.3.3.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

7.1.4.3.3.3.3 PATCH

The HTTP PATCH method allows a service consumer to request the modification of an existing "Individual Location Tracing Configuration" resource at the LM Server.

This method shall support the URI query parameters specified in table 7.1.4.3.3.3.3-1.

Table 7.1.4.3.3.3.3-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 7.1.4.3.3.3.3-2 and the response data structures and response codes specified in table 7.1.4.3.3.3.3-3.

Table 7.1.4.3.3.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| LocTracingConfigPatch | M | 1 | Represents the parameters to request the modification of the "Individual Location Tracing Configuration" resource. |

Table 7.1.4.3.3.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| LocTracingConfig | M | 1 | 200 OK | Successful case. The "Individual Location Tracing Configuration" resource is successfully modified and a representation of the updated resource shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Location Tracing Configuration" resource is successfully modified and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PATCH method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

Table 7.1.4.3.3.3.3-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

Table 7.1.4.3.3.3.3-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

7.1.4.3.3.3.4 DELETE

The HTTP DELETE method allows a service consumer to request the deletion of an existing "Individual Location Tracing Configuration" resource at the LM Server.

This method shall support the URI query parameters specified in table 7.1.4.3.3.3.4-1.

Table 7.1.4.3.3.3.4-1: URI query parameters supported by the DELETE method on this resource

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

This method shall support the request data structures specified in table 7.1.4.3.3.3.4-2 and the response data structures and response codes specified in table 7.1.4.3.3.3.4-3.

Table 7.1.4.3.3.3.4-2: Data structures supported by the DELETE Request Body on this resource

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

Table 7.1.4.3.3.3.4-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | Successful case. The "Individual Location Tracing Configuration" resource is successfully deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the HTTP DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

Table 7.1.4.3.3.3.4-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

Table 7.1.4.3.3.3.4-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

###### 7.1.4.3.3.4 Resource Custom Operations

There are no resource custom operations defined for this resource in this release of the specification.

##### 7.1.4.3.4 Resource: Location History Reports

###### 7.1.4.3.4.1 Description

This resource represents the collection of Location History Report(s) managed by the LM Server.

###### 7.1.4.3.4.2 Resource Definition

Resource URI: **{apiRoot}/ss-lhie/<apiVersion>/reports**

This resource shall support the resource URI variables defined in table 7.1.4.3.4.2-1.

Table 7.1.4.3.4.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 7.1.4.1. |

###### 7.1.4.3.4.3 Resource Standard Methods

7.1.4.3.4.3.1 GET

The HTTP GET method allows a service consumer to retrieve Location History Report(s) from the LM Server.

This method shall support the URI query parameters specified in table 7.1.4.3.4.3.1-1.

Table 7.1.4.3.4.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| val-ue-id | string | O | 0..1 | Contains the list of the identifier of the target VAL UE.  (NOTE) |  |
| val-user-id | string | O | 0..1 | Contains the list of the identifier of the target VAL user.  (NOTE) |  |
| val-service-id | string | O | 0..1 | Contains the identifier of the target VAL service. |  |
| req-loc-history | ReqLocHistory | O | 0..1 | Contains the requested location history filtering information. |  |
| supp-feat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 7.1.4.7.  This query parameter shall be present only when feature negotiation is required. |  |
| NOTE: These query parameters are mutually exclusive and either one of them shall be present. | | | | | |

This method shall support the request data structures specified in table 7.1.4.3.4.3.1-2 and the response data structures and response codes specified in table 7.1.4.3.4.3.1-3.

Table 7.1.4.3.4.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 7.1.4.3.4.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| LocHistoryReports | M | 1 | 200 OK | Successful case. The requested Location History Report(s), if any, shall be returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.  The response shall include a Location header field containing an alternative URI of the resource located in an alternative LM Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

Table 7.1.4.3.4.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

Table 7.1.4.3.4.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains an alternative URI of the resource located in an alternative LM Server. |

###### 7.1.4.3.4.4 Resource Custom Operations

There are no resource custom operations defined for this resource in this release of the specification.

#### 7.1.4.4 Custom Operations without associated resources

There are no custom Operations without associated resources defined for this resource in this release of the specification.

#### 7.1.4.5 Notifications

There are no notifications defined for this resource in this release of the specification.

#### 7.1.4.6 Data Model

##### 7.1.4.6.1 General

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

Table 7.1.4.6.1-1 specifies the data types defined for the SS\_LocationHistoryInfoEvent API.

Table 7.1.4.6.1-1: SS\_LocationHistoryInfoEvent API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| LocTracingConfig | 7.1.4.6.2.2 | Represents a Location Tracing Configuration. |  |
| LocTracingConfigPatch | 7.1.4.6.2.3 | Represents the parameters to request the modification of a Location Tracing Configuration. |  |
| ReqLocHistory | 7.1.4.6.2.4 | Represents the requested location history filtering information. |  |
| LocHistoryReport | 7.1.4.6.2.6 | Represents a location history report. |  |
| LocHistoryReports | 7.1.4.6.2.5 | Represents the location history report(s). |  |

Table 7.1.4.6.1-2 specifies data types re-used by the SS\_LocationHistoryInfoEvent API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the SS\_LocationHistoryInfoEvent API.

Table 7.1.4.6.1-2: SS\_LocationHistoryInfoEvent API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [3] | Represents a date and a time. |  |
| DurationSec | 3GPP TS 29.122 [3] | Represents a time duration expressed in units of seconds. |  |
| LocationArea5G | 3GPP TS 29.122 [3] | Represents a location area. |  |
| LocationInfo | 3GPP TS 29.122 [3] | Represents user location information. |  |
| LocationQoS | 3GPP TS 29.572 [31] | Represents the location QoS. |  |
| PositioningMethod | 3GPP TS 29.572 [31] | Represents the positioning method. |  |
| SupportedFeatures | 3GPP TS 29.571 [21] | Represents the list of supported feature(s) and used to negotiate the applicability of the optional features. |  |
| TriggeringCriteria | Clause 7.1.1.4.2.4 | Represents the location reporting triggering criteria. |  |

##### 7.1.4.6.2 Structured data types

###### 7.1.4.6.2.1 Introduction

This clause defines the data structures to be used in resource representations.

###### 7.1.4.6.2.2 Type: LocTracingConfig

Table 7.1.4.6.2.2-1: Definition of type LocTracingConfig

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| target | string | M | 1 | Contains the identifier of the targeted VAL UE or VAL user. |  |
| valServiceId | string | O | 0..1 | Contains the identifier of the targeted VAL service. |  |
| locArea | LocationArea5G | O | 0..1 | Contains the location area where the location tracing configuration shall apply. |  |
| locQoS | LocationQoS | O | 0..1 | Contains the requested location QoS. |  |
| triggerConds | TriggeringCriteria | O | 0..1 | Contains the triggering conditions of the location tracing configuration. |  |
| duration | DurationSec | O | 0..1 | Contains the time duration within which the location tracing configuration stays valid. |  |
| posMethod | PositioningMethod | O | 0..1 | Contains the requested positioning method. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 7.1.4.8.  This attribute shall be present only when feature negotiation is required. |  |

###### 7.1.4.6.2.3 Type: LocTracingConfigPatch

Table 7.1.4.6.2.3-1: Definition of type LocTracingConfigPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| locArea | LocationArea5G | O | 0..1 | Contains the location area where the location tracing configuration shall apply. |  |
| locQoS | LocationQoS | O | 0..1 | Contains the requested location QoS. |  |
| triggerConds | TriggeringCriteria | O | 0..1 | Contains the triggering conditions of the location tracing configuration. |  |
| duration | DurationSec | O | 0..1 | Contains the time duration within which the location tracing configuration stays valid. |  |
| posMethod | PositioningMethod | O | 0..1 | Contains the requested positioning method. |  |

###### 7.1.4.6.2.4 Type: ReqLocHistory

Table 7.1.4.6.2.4-1: Definition of type ReqLocHistory

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| locArea | LocationArea5G | C | 0..1 | Contains the location area where the location history report(s) is/are requested.  (NOTE) |  |
| time | DateTime | C | 0..1 | Contains the time at which the location history report(s) is/are requested.  (NOTE) |  |
| duration | DurationSec | C | 0..1 | Contains the time duration within which the location history report(s) is/are requested.  (NOTE) |  |
| NOTE 1: At least one of these attributes shall be present. | | | | | |

###### 7.1.4.6.2.5 Type: LocHistoryReports

Table 7.1.4.6.2.5-1: Definition of type LocHistoryReports

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| reports | array(LocHistoryReport) | M | 0..N | Contains the Location History Report(s).  If there are no Location History Report(s) fulfilling the request, this attribute shall contain an empty array. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 7.1.4.7.  This attribute shall be present only when feature negotiation is required. |  |

###### 7.1.4.6.2.6 Type: LocHistoryReport

Table 7.1.4.6.2.6-1: Definition of type LocHistoryReport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valUEs | array(string) | C | 1..N | Contains the identifier(s) of the VAL UE(s) to which the location history report is related.  (NOTE) |  |
| valUsers | array(string) | C | 1..N | Contains the identifier(s) of the VAL user(s) to which the location history report is related.  (NOTE) |  |
| locData | map(LocationInfo) | M | 1..N | Contains the location history information report.  The key of the map shall be set to the identifier of the VAL UE (among the ones provided within the "valUEs" attribute) or VAL user (among the ones provided within the "valUsers" attribute) to which the provided location history information provided within the map value is related. |  |
| timestamp | DateTime | O | 0..1 | Contains the timestamp of the location history report. |  |
| NOTE: These attributes are mutually exclusive and either one of them shall be present. | | | | | |

##### 7.1.4.6.3 Simple data types and enumerations

###### 7.1.4.6.3.1 Introduction

This clause defines simple data types and enumerations that can be referenced from data structures defined in the previous clauses.

###### 7.1.4.6.3.2 Simple data types

The simple data types defined in table 7.1.4.6.3.2-1 shall be supported.

Table 7.1.4.6.3.2-1: Simple data types

|  |  |  |  |
| --- | --- | --- | --- |
| Type Name | Type Definition | Description | Applicability |
|  |  |  |  |

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

There are no data types describing alternative data types or combinations of data types defined for this API in this release of the specification.

##### 7.1.4.6.5 Binary data

###### 7.1.4.6.5.1 Binary Data Types

Table 7.1.4.6.5.1-1: Binary Data Types

|  |  |  |
| --- | --- | --- |
| Name | Clause defined | Content type |
|  |  |  |

#### 7.1.4.7 Error Handling

##### 7.1.4.7.1 General

For the SS\_LocationHistoryInfoEvent API, error handling shall be supported as specified in clause 6.7.

In addition, the requirements in the following clauses are applicable for the SS\_LocationHistoryInfoEvent API.

##### 7.1.4.7.2 Protocol Errors

No specific protocol errors for the SS\_LocationHistoryInfoEvent API are specified.

##### 7.1.4.7.3 Application Errors

The application errors defined for the SS\_LocationHistoryInfoEvent API are listed in Table 7.1.4.7.3-1.

Table 7.1.4.7.3-1: Application errors

|  |  |  |  |
| --- | --- | --- | --- |
| Application Error | HTTP status code | Description | Applicability |
|  |  |  |  |

#### 7.1.4.8 Feature negotiation

The optional features listed in table 7.1.4.8-1 are defined for the SS\_LocationHistoryInfoEvent API. They shall be negotiated using the extensibility mechanism defined in clause 6.8.

Table 7.1.4.8-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
|  |  |  |

#### 7.1.4.9 Security

The provisions of clause 9 shall apply for the SS\_LocationHistoryInfoEvent API.

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