**3GPP TSG CT WG3 Meeting #138 *C3-246047***

**Orlando, US, 18 - 22 November, 2024**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **0333** | **rev** | **-** | **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)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | SS\_ADAE\_collision\_detection\_analytics API definition | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eLSAPP | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***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:*** | | CR#0037 of 23.436 agreed in SA6#62 meeting specifies SS\_ADAE\_collision\_detection\_analytics API. Thus, the definition of this API shall be done in 29.549. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | This CR introduces the SS\_ADAE\_collision\_detection\_analytics API definition. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The stage 2 requirements are not implemented in stage 3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1, 7.10.10 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 affect any OpenAPI file. | | | | | | | | |
| ***()*** | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

5GS 5G System

ADAE Application Data Analytics Enablement

A-ADRF Application layer - Analytical Data Repository Function

A-DCCF Application layer - Data Collection and Coordination Function

ADAES ADAE Server

AEF API Exposing Function

API Application Programming Interface

BDT Background Data Transfer

DS-TT Device-Side TSN Translator

JSON JavaScript Object Notation

NDS Network Domain Security

NDS/IP NDS for IP based protocols

NRM Network Resource Management

NSCE Network Slice Capability Enablement

PLMN Public Land Mobile Network

REST Representational State Transfer

SCEF Service Capability Exposure Function

SCS Service Capability Server

SEAL Service Enabler Architecture Layer for Verticals

SEALDD SEAL Data Delivery

TMGI Temporary Mobile Group Identity

TSC Time Sensitive Communication

TSN Time Sensitive Networking

UE User Equipment

VAL Vertical Application Layer

UASS UAS Application Specific Server

\* \* \* Next change \* \* \* \*

## 5.1 Introduction of SEAL services

The table 5.1-1 lists the SEAL server APIs below the service name. A service description clause for each API gives a general description of the related API.

Table 5.1-1: List of SEAL Service APIs

|  |  |  |  |
| --- | --- | --- | --- |
| Service Name | Service Operations | Operation Semantics | Consumer(s) |
| SS\_LocationReporting | Create\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| Fetch\_Location\_Report\_Trigger | Request/Response | VAL server |
| Update\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| Cancel\_Trigger\_Location\_Reporting | Request/ Response | VAL server |
| Notify\_Trigger\_Location\_Reporting | Notify | VAL server |
| SS\_LocationInfoEvent | Subscribe\_Location\_Info | Subscribe/Notify | VAL server |
| Update\_Location\_Info\_Subscription | VAL server |
| Unsubscribe\_Location\_Info | VAL server |
| Notify\_Location\_Info | VAL server |
| SS\_LocationInfoRetrieval | Obtain\_Location\_Info | Request/ Response | VAL server |
| SS\_LocationAreaInfoRetrieval | Obtain\_UEs\_Info | Request/ Response | VAL server |
| SS\_LocationMonitoring | Subscribe\_Location\_Monitoring | Subscribe/Notify | VAL server |
| Update\_Location\_Monitoring\_Subscription |
| Unsubscribe\_Location\_Monitoring |
| Notify\_Location\_Monitoring\_Events |
| SS\_LocationAreaMonitoring | Subscribe\_Location\_Area\_Monitoring | Subscribe/Notify | VAL server |
| Notify\_Location\_Area\_Monitoring\_Events |
| Update\_Location\_Area\_Monitoring\_Subscribe |
| Unsubscribe\_Location\_Area\_Monitoring |
| SS\_VALServiceAreaConfiguration | Configure\_VAL\_Service\_Area | Request/Response | VAL server |
| Obtain\_VAL\_Service\_Area | Request/Response | VAL server |
| Update\_VAL\_Service\_Area | Request/Response | VAL server |
| Delete\_VAL\_Service\_Area | Request/Response | VAL server |
| Subscribe\_VAL\_Service\_Area\_Change\_Event | Subscribe/Notify | SEAL server |
| Update\_Subscription\_VAL\_Service\_Area\_Change\_Event |
| Unsubscribe\_VAL\_Service\_Area\_Change\_Event |
| Notify\_VAL\_Service\_Area\_Change\_Event |
| SS\_GroupManagement | Query\_Group\_Info | Request/ Response | VAL server |
| Update\_Group\_Info | Request/ Response | VAL server |
| Create\_Group | Request/ Response | VAL server |
| Delete\_Group | Request/Response | VAL server |
| SS\_GroupManagementEvent | Subscribe\_Group\_Info\_Modification | Subscribe/Notify | VAL server |
| Notify\_Group\_Info\_Modification | VAL server |
| Notify\_Group\_Creation | VAL server |
| SS\_UserProfileRetrieval | Obtain\_User\_Profile | Request/ Response | VAL server |
| SS\_VALServiceData | Obtain\_VAL\_Service\_Data | Request/Response | SEAL server |
| SS\_UserProfileEvent | Subscribe\_User\_Profile\_Update | Subscribe/Notify | VAL server |
| Notify\_User\_Profile\_Update | VAL server |
| SS\_NetworkResourceAdaptation  (NOTE 3) | Reserve\_Network\_Resource | Request/Response | VAL server |
| Request\_Unicast\_Resource | Request/Response | VAL server |
| Update\_Unicast\_Resource | Request/Response | VAL server |
| Request\_Multicast\_Resource | Request/Response | VAL server |
| Notify\_UP\_Delivery\_Mode | Subscribe/Notify | VAL server |
| Discover\_TSC\_Stream\_Availability | Request/Response | VAL server |
| Create\_TSC\_Stream | Request/Response | VAL server |
| Delete\_TSC\_Stream | Request/Response | VAL server |
| Create\_MBS\_Resource | Request/Response | VAL server |
| Update\_MBS\_Resource | Request/Response | VAL server |
| Delete\_MBS\_Resource | Request/Response | VAL server |
| Activate\_MBS\_Resource | Request/Response | VAL server |
| Deactivate\_MBS\_Resource | Request/Response | VAL server |
| Reliable\_Transmission\_Request | Request/Response | e.g., SEALDD Server, VAL Server |
| Subscribe\_Unified\_Traffic\_Pattern\_and\_Monitoring\_Management | Subscribe/Notify | VAL server |
| Update\_Unified\_Traffic\_Pattern\_and\_Monitoring\_Management\_Subscription |
| Unsubscribe\_Unified\_Traffic\_Pattern\_and\_Monitoring\_Management |
| Notify\_Unified\_Traffic\_Pattern\_Update |
| SS\_EventsMonitoring | Subscribe\_Monitoring\_Events | Subscribe/Notify | VAL server |
| Notify\_Monitoring\_Events |
| SS\_Events | Subscribe\_Event | Subscribe/Notify | VAL server |
| Notify\_Event | VAL server |
| Unsubscribe\_Event | VAL server |
| Update\_Subscription | VAL server |
| SS\_KeyInfoRetrieval | Obtain\_Key\_Info | Request/Response | VAL server |
| SS\_KMParametersProvisioning | Request | Request/Response | VAL server |
| SS\_NetworkResourceMonitoring | Subscribe\_Unicast\_QoS\_Monitoring\_Data | Subscribe/Notify | VAL server |
| Unsubscribe\_Unicast\_QoS\_Monitoring\_Data | VAL server |
| Notify\_Unicast\_QoS\_Monitoring\_Data | VAL server |
| Obtain\_Unicast\_QoS\_Monitoring\_Data | Request/Response | VAL server |
| Update\_Unicast\_QoS\_Monitoring\_Subscription | VAL server |
| SS\_IdmParameterProvisioning | Provide\_Configuration | Request/Response | VAL server |
| Get\_Configuration |
| Update\_Configuration |
| Delete\_Configuration |
| SS\_ADAE\_VALPerformanceAnalytics | Subscribe\_VAL\_Performance\_Analytics | Subscribe/Notify | VAL server |
| Notify\_VAL\_Performance\_Analytics |
| Unsubscribe\_VAL\_Performance\_Analytics |
| SS\_ADAE\_SlicePerformanceAnalytics API | Subscribe\_Slice\_Performance\_Analytics | Subscribe/Notify | VAL server |
| Notify\_Slice\_Performance\_Analytics |
| Unsubscribe\_Slice\_Performance\_Analytics |
| SS\_ADAE\_Ue2UePerformanceAnalytics | UE-to-UE\_Performance\_Analytics\_Subscribe | Subscribe/Notify | VAL server |
| UE-to-UE\_Performance\_Analytics\_Notify |
| UE-to-UE\_Performance\_Analytics\_Unsubscribe |
| SS\_ADAE\_LocationAccuracyAnalytics | Subscribe\_Location\_Accuracy\_Analytics | Subscribe/Notify | VAL server |
| Notify\_Location\_Accuracy\_Analytics |
| Unsubscribe\_Location\_Accuracy\_Analytics |
| SS\_ADAE\_ServiceApiAnalytics | Subscribe\_Service\_API\_Analytics | Subscribe/Notify | VAL server |
| Notify\_Service\_API\_Analytics |
| Unsubscribe\_Service\_API\_Analytics |
| SS\_ADAE\_SliceUsagePatternAnalytics | Subscribe\_Slice\_Usage\_Pattern\_Analytics | Subscribe/Notify | VAL server, NSCE server |
| Notify\_Slice\_Usage\_Pattern\_Analytics |
| Unsubscribe\_Slice\_Usage\_Pattern\_Analytics |
| Get\_Slice\_Usage\_Stats | Request/Response | VAL server, NSCE server |
| SS\_ADAE\_EdgeLoadAnalytics | Subscribe\_Edge\_Load | Subscribe/Notify | VAL server, EAS, EES  VAL server, EAS, EES  VAL server, EAS, EES |
| Notify\_Edge\_Load |
| Unsubscribe\_Edge\_Load |
| Get\_Edge\_Load\_Data | Request/Response | VAL server, EAS, EES |
| SS\_ADAE\_CollisionDetectionAnalytics | Subscribe | Subscribe/Notify | e.g., VAL server, LM Server, UAE server, UASS |
| Notify |
| Unsubscribe |
| SS\_AADRF\_DataManagement | SS\_AADRF\_DataManagement\_Subscribe | Subscribe/Notify | ADAE server |
| SS\_AADRF\_DataManagement\_Unsubscribe |
| SS\_AADRF\_DataManagement\_Notify |
| NOTE 1: The service operations of SS\_Events API are reused by the SS\_LocationInfoEvent, SS\_LocationMonitoring, SS\_LocationAreaMonitoring, SS\_GroupManagementEvent, SS\_UserProfileEvent and SS\_EventsMonitoring for events related services.  NOTE 2: The service APIs exposed by the SEALDD Server and the corresponding service operations, operation semantics and service consumers are specified in clause 5 of 3GPP TS 29.548 [35].  NOTE 3: The "Create\_MBS\_Resource", "Update\_MBS\_Resource", "Delete\_MBS\_Resource", "Activate\_MBS\_Resource" and "Deactivate\_MBS\_Resource" service operations correspond to the stage 2 "Request\_Multicast/Broadcast\_Resource", "Update\_Multicast/Broadcast\_Resource", "Delete\_Multicast/Broadcast\_Resource", "Activate\_Multicast\_Resource" and "Deactivate\_Multicast\_Resource" service operations defined in clause 14.4.2 of 3GPP TS 23.434 [2].  NOTE 4: The service APIs exposed by the NSCE Server and the corresponding service operations, operation semantics and service consumers are specified in clause 5 of 3GPP TS 29.435 [42]. | | | |

Table 5.1-2 summarizes the corresponding APIs defined in this specification.

Table 5.1-2: API Descriptions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Service Name** | **Clause** | **Description** | **OpenAPI Specification File** | **apiName** | **Annex** |
| SS\_LocationReporting | 7.1 | Report Location Information Service. | TS29549\_SS\_LocationReporting.yaml | ss-lr | A.2 |
| SS\_GroupManagement | 7.2 | Group Management Service | TS29549\_SS\_GroupManagement.yaml | ss-gm | A.3 |
| SS\_UserProfileRetrieval | 7.3 | User Profile Retrieval Service | TS29549\_SS\_UserProfileRetrieval.yaml | ss-upr | A.4 |
| SS\_NetworkResourceAdaptation | 7.4 | Network Resource Adaptation Service | TS29549\_SS\_NetworkResourceAdaptation.yaml | ss-nra | A.5 |
| SS\_Events | 7.5 | Events Notify Service | TS29549\_SS\_Events.yaml | ss-events | A.6 |
| SS\_KeyInfoRetrieval  (NOTE 2) | 7.6 | Key Information Retrieval Service | TS29549\_SS\_KeyInfoRetrieval.yaml | ss-kir | A.7 |
| SS\_LocationAreaInfoRetrieval | 7.1 | Location Area Info Retrieval Service | TS29549\_SS\_LocationAreaInfoRetrieval.yaml | ss-lair | A.8 |
| SS\_NetworkResourceMonitoring | 7.4 | Network Resource Monitoring | TS29549\_SS\_NetworkResourceMonitoring.yaml | ss-nrm | A.10 |
| SS\_VALServiceData | 7.3 | VAL Service Data Service | TS29549\_SS\_VALServiceData.yaml | ss-vsd | A.11 |
| SS\_VALServiceAreaConfiguration | 7.1 | VAL Service Area Configuration Service | TS29549\_SS\_VALServiceAreaConfiguration.yaml | ss-vsac | A.12 |
| SS\_KMParametersProvisioning  (NOTE 3) | 7.6 | Key Management Parameters Provisioning Service | TS29549\_SS\_KMParametersProvisioning.yaml | ss-kpp | A.14 |
| SS\_ADAE\_VALPerformanceAnalytics | 7.10 | ADAE VAL performance analytics service | TS29549\_SS\_ADAE\_VALPerformanceAnalytics.yaml | ss-adae-pa | A.15 |
| SS\_ADAE\_SlicePerformanceAnalytics | 7.10 | ADAE slice specific application performance analytics service | TS29549\_SS\_ADAE\_SlicePerformanceAnalytics.yaml | ss-adae-sspa | A.16 |
| SS\_ADAE\_Ue2UePerformanceAnalytics | 7.10 | ADAE UE-to-UE PerformanceAnalytics Service | TS29549\_SS\_ADAE\_Ue2UePerformanceAnalytics.yaml | ss-adae-lruga | A.17 |
| SS\_ADAE\_LocationAccuracyAnalytics | 7.10 | ADAE location accuracy performance analytics service | TS29549\_SS\_ADAE\_LocationAccuracyAnalytics.yaml | ss-adae-laa | A.18 |
| SS\_ADAE\_ServiceApiAnalytics | 7.10 | ADAE service API analytics service | TS29549\_SS\_ADAE\_ServiceApiAnalytics.yaml | ss-adae-sa | A.19 |
| SS\_ADAE\_SliceUsagePatternAnalytics | 7.10 | ADAE slice usage pattern analytics service | TS29549\_SS\_ADAE\_SliceUsagePatternAnalytics.yaml | ss-adae-sup | A.20 |
| SS\_ADAE\_EdgeLoadAnalytics | 7.10.7 | Edge load analytics service | TS29549\_SS\_ADAE\_EdgeLoadAnalytics.yaml | ss-adae-el | A.21 |
| SS\_AADRF\_DataManagement | 7.10.8 | A-ADRF Data Management Service | TS29549\_SS\_AADRF\_DataManagement.yaml | ss-aadrf-datamanagement | A.22 |
| SS\_ADAE\_CollisionDetectionAnalytics | 7.10.10 | ADAE Collision Detection Analytics service | TS29549\_ADAE\_CollisionDetectionAnalytics.yaml | ss-adae-cda | A.24 |
| NOTE 1: The APIs exposed by the SEALDD Server are specified in clause 5 of 3GPP TS 29.548 [35].  NOTE 2: The stage 2 requirements for this API are defined in clause 5.3 of 3GPP TS 33.434 [26].  NOTE 3: The stage 2 requirements for this API are defined in clause 5.8 of 3GPP TS 33.434 [26].  NOTE 4: The APIs exposed by the NSCE Server are specified in clause 5 of 3GPP TS 29.435 [42]. | | | | | |

\* \* \* Next change \* \* \* \*

### 7.10.10 SS\_ADAE\_CollisionDetectionAnalytics

#### 7.10.10.1 Introduction

The ADAE Collision Detection Analytics service shall use the SS\_ADAE\_CollisionDetectionAnalytics.

The API URI of the SS\_ADAE\_CollisionDetectionAnalytics 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-adae-cda".

- 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 6.5, the ADAE Server takes the role of the SCEF and the service consumer takes the role of the SCS/AS.

#### 7.10.10.2 Usage of HTTP

The provisions of clause 6.3 of 3GPP TS 29.549 [15] shall apply for the SDD\_PolicyConfiguration API.

#### 7.10.10.3 Resources

##### 7.10.10.3.1 Overview

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

Figure 7.10.10.3.1-1 depicts the resource URIs structure for the SS\_ADAE\_CollisionDetectionAnalytics.

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**Figure 7.10.10.3.1-1: Resource URI structure of the SS\_ADAE\_CollisionDetectionAnalytics**

Table 7.10.10.3.1-1 provides an overview of the resources and applicable HTTP methods.

**Table 7.10.10.3.1-1: Resources and methods overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource name** | **Resource URI** | **HTTP method** | **Description** |
| Collision Detection Analytics Subscriptions | /subscriptions | POST | Create an "Individual Collision Detection Analytics Subscription" resource. |
| Individual Collision Detection Analytics Subscription | /subscriptions/{subscriptionId} | GET | Read the "Individual Collision Detection Analytics Subscription" resource. |
| DELETE | Remove the "Individual Collision Detection Analytics Subscription" resource. |

Editor's note: PUT and PATCH methods are FFS.

##### 7.10.10.3.2 Resource: Collision Detection Analytics Subscriptions

###### 7.10.10.3.2.1 Description

The "Collision Detection Analytics Subscriptions" resource collection represents the collision detection analytics subscriptions.

###### 7.10.10.3.2.2 Resource Definition

Resource URI: **{apiRoot}/ss-adae-cda/<apiVersion>/subscriptions**

This resource shall support the resource URI variables defined in the table 7.10.10.3.2.2-1.

Table 7.10.10.3.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.5 |

###### 7.10.10.3.2.3 Resource Standard Methods

7.10.10.3.2.3.1 POST

This method to subscribe to the event of the UE-to-UE session performance analytics and shall support the URI query parameters specified in table 7.10.10.3.2.3.1-1.

Table 7.10.10.3.2.3.1-1: URI query parameters supported by the POST method on this resource

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

This method shall support the request data structures specified in table 7.10.10.3.2.3.1-2 and the response data structures and response codes specified in table 7.10.10.3.2.3.1-3.

Table 7.10.10.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| CollisionDetectionSub | M | 1 | Subscription to the collision detection analytics. |

Table 7.10.10.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| CollisionDetectionSub | M | 1 | 201 Created | Subscription to the collision detection analytics is created. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

Table 7.10.10.3.2.3.1-4: 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-adae-cda/<apiVersion>/subscriptions/{subscriptionId} |

###### 7.10.10.3.2.4 Resource Custom Operations

None.

##### 7.10.10.3.3 Resource: Individual Collision Detection Analytics Subscription

###### 7.10.10.3.3.1 Description

###### 7.10.10.3.3.2 Resource Definition

Resource URI: {**apiRoot**}/**ss-adae-cda**/<**apiVersion**>/**subscriptions**/{**subscriptionId**}

This resource shall support the resource URI variables defined in table 7.10.10.3.3.2-1.

Table 7.10.10.3.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.5. |
| subscriptionId | string | Represents the identifier of an Individual Collision Detection Analytics Subscription. |

###### 7.10.10.3.3.3 Resource Standard Methods

7.10.10.3.3.3.1 GET

This operation reads the "Individual Collision Detection Analytics Subscription" resource. This method shall support the URI query parameters specified in table 7.10.10.3.3.3.1-1.

Table 7.10.10.3.3.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
|  |  |  |  |  |

This method shall support the request data structures specified in table 7.10.10.3.3.3.1-2 and the response data structures and response codes specified in table 7.10.10.3.3.3.1-3.

Table 7.10.10.3.3.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 7.10.10.3.3.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| CollisionDetectionSub | M | 1 | 200 OK | The requested "Individual Collision Detection Analytics Subscription" resource is 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 ADAE 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 ADAE 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 GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

Table 7.10.10.3.3.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE server. |

Table 7.10.10.3.3.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE server. |

7.10.10.3.3.3.2 DELETE

This operation deletes the "Individual Collision Detection Analytics Subscription" resource. This method shall support the URI query parameters specified in table 7.10.10.3.3.3.2-1.

Table 7.10.10.3.3.3.2-1: 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 7.10.10.3.3.3.2-2 and the response data structures and response codes specified in table 7.10.10.3.3.3.2-3.

Table 7.10.10.3.3.3.2-2: Data structures supported by the DELETE Request Body on this resource

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

Table 7.10.10.3.3.3.2-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | The "Individual Collision Detection Analytics Subscription" resource matching the subscriptionId is 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 ADAE 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 ADAE 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 DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [3] also apply. | | | | |

Table 7.10.10.3.3.3.2-4: Headers supported by the 307 Response Code on this resource

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

Table 7.10.10.3.3.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative ADAE server. |

7.10.10.3.3.4 Resource Custom Operations

None.

#### 7.10.10.4 Custom Operations without associated resources

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

#### 7.10.10.5 Notifications

7.10.10.5.1 General

Table 7.10.10.5.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description  (service operation) |
| Collision Detection Analytics Notification | {notifUri} | POST | Notification on collision detection analytics. |

##### 7.10.10.5.2 Collision detection analytics Notification

###### 7.10.10.5.2.1 Description

Collision detection analytics notification is to notify on the event of collision detection analytics.

###### 7.10.10.5.2.2 Notification definition

The POST method shall be used for the event notification and the callback URI shall be the one provided by the consumer during the subscription to the event.

Callback URI: **{notifUri}**

This method shall support the URI query parameters specified in table 7.10.10.5.2.2-1.

Table 7.10.10.5.2.2-1: URI query parameters supported by the POST method on this resource

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

This method shall support the request data structures specified in table 7.10.10.5.2.2-2 and the response data structures and response codes specified in table 7.10.10.5.2.2-3.

Table 7.10.10.5.2.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| CollisionDetectionNotif | M | 1 | Notification information of collision detection analytics. |

Table 7.10.10.5.2.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | Notification for the collision detection analytics is accepted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during notification.  The response shall include a Location header field containing an alternative URI representing the end point of an alternative notification destination where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during notification.  The response shall include a Location header field containing an alternative URI representing the end point of an alternative notification destination where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.7.1-1 of 3GPP TS 29.122 [3] shall also apply. | | | | |

**Table 7.10.10.5.2.2-4: Headers supported by the 307 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | An alternative URI representing the end point of an alternative notification destination towards which the notification should be redirected. |

**Table 7.10.10.5.2.2-5: Headers supported by the 308 Response Code on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Data type** | **P** | **Cardinality** | **Description** |
| Location | string | M | 1 | An alternative URI representing the end point of an alternative notification destination towards which the notification should be redirected. |

#### 7.10.10.6 Data Model

##### 7.10.10.6.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 6.2 apply to this API.

Table 7.10.10.6.1-1 specifies the data types defined specifically for the SS\_ADAE\_CollisionDetectionAnalytics service.

Table 7.10.10.6.1-1: SS\_ADAE\_CollisionDetectionAnalytics specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| TargetToAnyUeLocFilter | 7.10.10.6.2.7 | Represent the analytics filter between any VAL UEs within the given location. |  |
| CollisionDetectionFilter | 7.10.10.6.2.4 | Represent the the collision detection filtering information. |  |
| CollisionDetectionNotif | 7.10.10.6.2.3 | Represents the collision detection analytics notification. |  |
| CollisionDetectionSub | 7.10.10.6.2.2 | Represents the collision detection analytics subscription. |  |
| CollisionDetectionCriteria | 7.10.10.6.2.6 | Represents the collision detection criteria. |  |
| TargetOtherUesFilter | 7.10.10.6.2.5 | Represent the analytics filter between sets of target and other UEs within a location. |  |

Table 7.10.10.6.1-2 specifies data types re-used by the SS\_ADAE\_CollisionDetectionAnalytics service:

Table 7.10.10.6.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| AnalyticsType | Clause 7.10.1.4.2.6 | Represents the type of analytics. |  |
| DurationSec | 3GPP TS 29.122 [3] | Represents a period of time in units of seconds. |  |
| Float | 3GPP TS 29.571 [21] | Represents float attributes. |  |
| LocationArea5G | 3GPP TS 29.122 [3] | Represents location information. |  |
| MatchingDirection | 3GPP TS 29.520 [33] | Represents threshold matching direction. |  |
| ReportingInformation | 3GPP TS 29.523 [20] | Indicates the reporting requirement |  |
| SupportedFeatures | 3GPP TS 29.571 [21] | Used to negotiate the supported optional features of the API. |  |
| TimeWindow | 3GPP TS 29.122 [3] | Indicate the time window. |  |
| Uri | 3GPP TS 29.122 [3] | Indicates the notification URI. |  |
| ValTargetUe | Clause 7.3.1.4.2.3 | Indicates either VAL User ID or VAL UE ID. |  |

##### 7.10.10.6.2 Structured data types

###### 7.10.10.6.2.1 Introduction

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

###### 7.10.10.6.2.2 Type: CollisionDetectionSub

Table 7.10.10.6.2.2-1: Definition of type CollisionDetectionSub

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| analyticsType | AnalyticsType | M | 1 | Represents the type of the collision detection analytics. |  |
| analyticsId | AnalyticsIdCda | O | 0..1 | Represents the requested analytics ID. |  |
| analyticsFilt | CollisionDetectionFilter | M | 1 | Represents the analytics filter information. |  |
| colDetCriteria | CollisionDetectionCriteria | O | 0..1 | Represents the collision detection criteria. |  |
| confLevel | integer | O | 0..1 | Indicates the preferred accuracy level prediction.  This attribute shall be provided if the "analyticsType" attribute in the request is set to "PREDICTIVE".  Minimum = 0. Maximum = 100. |  |
| repReq | ReportingInformation | O | 0..1 | Represents the reporting requirements of the subscription. |  |
| notifUri | Uri | M | 1 | Represents the notification URI. |  |
| timeInterval | TimeWindow | O | 0..1 | The time interval as the start time and end time, to which the subscription is applied. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Used to negotiate the applicability of optional features.  This attribute shall be present only if feature negotiation needs to take place. |  |

###### 7.10.10.6.2.3 Type: CollisionDetectionNotif

Table 7.10.10.6.2.3-1: Definition of type CollisionDetectionNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| analyticsOutput | FFS | M | 1 | Represents the output. |  |
| analyticsId | AnalyticsIdCda | O | 0..1 | Represents the analytics ID. |  |
| confLevel | integer | C | 0..1 | Indicates the confidence of the prediction.  This attribute shall be provided if the "analyticsType" attribute in the request is set to "PREDICTIVE".  Minimum = 0. Maximum = 100. |  |

Editor’s note: the "analyticsOutput" attribute is FFS.

###### 7.10.10.6.2.4 CollisionDetectionFilter

Table 7.10.10.6.2.4-1: Definition of type CollisionDetectionFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| trgToOther | TargetOtherUesFilter | C | 0..1 | Represents the filter information for the collision detection between two sets of VAL UEs within the given area. |  |
| targetToAnyUeLoc | TargetToAnyUeLocFilter | C | 0..1 | Represents the filter information for the collision detection between any VAL UEs within the given location. |  |
| NOTE: Only one of these attributes shall be present. | | | | | |

###### 7.10.10.6.2.5 Type: TargetOtherUesFilter

Table 7.10.10.6.2.5-1: Definition of type TargetOtherUesFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| trgValServerId | string | O | 0..1 | Represents the target VAL server ID for which the analytics subscription applies. |  |
| targetUes | array(string) | M | 1..N | Represent the list of VAL UEs, whose analytics are subscribed to. |  |
| otherUes | array(string) | M | 1..N | Represent the list of any VAL UEs collision with that shall be analysed. |  |
| area | LocationArea5G | O | 0..1 | Represents the geographical or service area, to which the subscription is applied. |  |

###### 7.10.10.6.2.6 Type: CollisionDetectionCriteria

Table 7.10.10.6.2.6-1: Definition of type CollisionDetectionData

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| distance | Float | C | 0..1 | The distance in unit of meters. The collision is detected when the distance is less than given value within this attribute.  (NOTE) |  |
| NOTE: At least one of these attributes shall be provided. | | | | | |

###### 7.10.10.6.2.7 Type: TargetToAnyUeLocFilter

Table 7.10.10.6.2.7-1: Definition of type UeCollisionDetectionFilter

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| trgValServerId | string | O | 0..1 | Represents the target VAL server ID for which the analytics subscription applies. |  |
| area | LocationArea5G | M | 1 | Represents the geographical or service area, where the collision between any VAL UEs is requirested to be detected. |  |

##### 7.10.10.6.3 Simple data types and enumerations

##### 7.10.10.6.3.1 Introduction

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

##### 7.10.10.6.3.2 Simple data types

The simple data types defined in table 7.10.10.6.3.2-1 shall be supported.

Table 7.10.10.6.3.2-1: Simple data types

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

##### 7.10.10.6.3.3 Enumeration: AnalyticsIdCda

The enumeration AnalyticsIdCda represents the analytic IDs for Collision Detection Analytics. It shall comply with the provisions defined in table 7.10.10.6.3.3-1.

Table 7.10.10.6.3.3-1: Enumeration AnalyticsIdCda

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| TARGET\_WITH\_OTHER\_UES | Indicates that the requested analytics is collision detection between the sets of target and other VAL UEs within a location. |  |
| ANY\_UES\_IN\_LOC | Indicates that the requested analytics is collision detection between any VAL UEs within given location. |  |

#### 7.10.10.6.4 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.

#### 7.10.10.6.5 Binary data

##### 7.10.10.6.5.1 Binary Data Types

Table 7.10.10.6.5.1: Binary Data Types

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

#### 7.10.10.7 Error Handling

##### 7.10.10.7.1 General

For the SS\_ADAE\_CollisionDetectionAnalytics 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\_ADAE\_CollisionDetectionAnalytics API.

##### 7.10.10.7.2 Protocol Errors

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

##### 7.10.10.7.3 Application Errors

The application errors defined for SS\_ADAE\_CollisionDetectionAnalytics are listed in table 7.10.10.5.3-1.

Table 7.10.10.7.3-1: Application errors

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

#### 7.10.10.8 Feature Negotiation

The optional features in table 7.10.10.8-1 are defined for the SS\_ADAE\_CollisionDetectionAnalytics API. They shall be negotiated using the extensibility mechanism defined in clause 6.8.

Table 7.10.10.8-1: Supported Features

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

#### 7.10.10.9 Security

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

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