**3GPP TSG- WG3 Meeting #**

**Online, 22 - 24 January, 2024**

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| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.549** | **CR** | **0212** | **rev** | **-** | **Current version:** | **18.4.0** |  |
|  |
| *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)*.* |
|  |

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

|  |
| --- |
|  |
| ***Title:***  | VAL performance analytics |
|  |  |
| ***Source to WG:*** | Lenovo |
| ***Source to TSG:*** | C3 |
|  |  |
| ***Work item code:*** | ADAES |  | ***Date:*** | 2023-12-01 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-18 |
|  | *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 canbe 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | TS 23.436 adds stage 2 for VAL performance analytics for the ADAE service which is a SEAL service. Stage 3 of VAL performance analytics needs to be defined. |
|  |  |
| ***Summary of change:*** | The added changes are:* Added abbreviations.
* Added new SEAL service in the table.
* Added SS\_ADAE\_VALPerformanceAnalytics API
* Added resource for individual application performance event subscription
* Modified data types for AppPerfSubs and AppPerfNoti
* Corrected numbering for the tables.
* Added exposure level requirement to AppPerfSubs as agreed in SA6#57.
* Added timeInterval to AppPerfNotif as agreed in SA6#57.
 |
|  |  |
| ***Consequences if not approved:*** | Stage 3 of SS\_ADAE\_VALPerformanceAnalytics API does not exist. |
|  |  |
| ***Clauses affected:*** | 3.2, 5.1, 5.X (new), 7.10.1.2.3 (new), 7.10.1.4.2.2, 7.10.1.4.2.3, 7.10.1.4.2.4, 7.10.1.4.2.5, 7.10.1.4.2.6, 7.10.1.4.3.6, |
|  |  |
|  | **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's revision history:*** |  |

\* \* \* 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

AEF API Exposing Function

API Application Programming Interface

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

\* \* \* 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 |
| SS\_LocationInfoEvent | Subscribe\_Location\_Info | Subscribe/Notify | 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 |
| 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 |
| 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 |
| 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\_NetworkSliceAdaptation | Request\_Network\_Slice\_Adaptation | 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 |
| SS\_ADAE\_VALPerformanceAnalytics API | Subscribe\_VAL\_Performance\_Analytics | Subscribe/Notify | VAL server, ADAE server |
| Notify\_VAL\_Performance\_Analytics |
| Unsubscribe\_VAL\_Performance\_Analytics |
| Subscribe\_VAL\_Performance\_Data\_Collection |
| Notify\_VAL\_Performance\_Data\_Collection |
| Unsubscribe\_VAL\_Performance\_Data\_Collection |
| 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]. |

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 | 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\_NetworkSliceAdaptation | 7.7 | Network Slice Adaptation Service | TS29549\_SS\_NetworkSliceAdaptation.yaml | ss-nsa | A.9 |
| 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\_ADAE\_VALPerformanceAnalytics | 7.10 | ADAE VAL performance analytics service | TS29549\_SS\_ADAE\_VALPerformanceAnalytics.yaml | ss-adaevpa | A.14 |
| NOTE: The APIs exposed by the SEALDD Server are specified in clause 5 of 3GPP TS 29.548 [35]. |

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

## 5.X Application data analytics enablement service configuration APIs

### 5.X.1 SS\_ADAE\_VALPerformanceAnalytics API

#### 5.X.1.1 Service Description

##### 5.X.1.1.1 Overview

The SS\_ ADAE\_VALPerformanceAnalytics API, as defined 3GPP TS 23.436 [38], allows:

- VAL server via ADAE-S reference point to subscribe to VAL performance analytics event; and

- ADAES to subscribe to VAL performance historic data collection event to the data producer such as the A-ADRF, the A-DCCF, the VAL server, or SEALDD server.

#### 5.X.1.2 Service Operations

##### 5.X.1.2.1 Introduction

The service operation defined for SS\_ ADAE\_VALPerformanceAnalytics API is shown in the table 5.X.1.2.1-1.

Table 5.X.1.2.1-1: Operations of the SS\_ADAE\_VALPerformanceAnalytics API

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Subscribe\_VAL\_Performance\_Analytics | This service operation is used by VAL server to subsribe to the event of the VAL performance analytics. | VAL Server |
| Notify\_VAL\_Performance\_Analytics | This service operation is used by ADAE server to notify about the VAL performance analytics. | ADAE server |
| Unsubscribe\_VAL\_Performance\_Analytics | This service operation is used by VAL server to unsubsribe from the event of the VAL performance analytics. | VAL server |
| Subscribe\_VAL\_Performance\_Data\_Collection | This service operation is used by ADAE server to subsribe to the event of the VAL performance historic data collection. | ADAE server |
| Notify\_VAL\_Performance\_Data\_Collection | This service operation is used by data producer such as A-ADRF, the A-DCCF, the VAL server, or SEALDD to subsribe to the event of the VAL performance historic data collection | Data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD |
| Unsubscribe\_VAL\_Performance\_Data\_Collection | This service operation is used by ADAE server to unsubsribe from the event of the VAL performance historic data collection. | ADAE server |

##### 5.X.1.2.2 Subscribe\_VAL\_Performance\_Analytics

###### 5.X.1.2.2.1 General

This service operation is used by the VAL server for VAL performance analytics event subscription to the ADAE server.

###### 5.X.1.2.2.2 Subscribing to VAL performance analytics event using Subscribe\_VAL\_Performance\_Analytics service operation

To subscribe to VAL performance analytics event, the VAL server shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/ss-adae-pa/<apiVersion>/application-performance" and with a body containing data type AppPerfSubs as defined in clause 7.10.1.4.2.2 with the following attributes:

1. VAL server identifier;

2. type of analytics;

3. VAL service identifier;

4. optionally, one or more VAL UEs;

5. optionally, VAL server identifier to which the VAL performance analytics subscription is applied;

6. optionally, characteristics of the data producers to be used;

7. optionally, confidence level for the VAL performance analytics;

8. optionally, the service area;

9. optionally, the time interval; and

10. optionally, the requirement whether the reporting is periodic or based on threshold.

Upon receipt of the HTTP POST request, the ADAES shall:

1. verify the identity of the VAL server and determine if the VAL server is authorized to subscribe to the VAL performance analytics event; and

2. if the VAL server:

a. is not authorized, the ADAE server shall respond to the VAL server with an appropriate error status code; or

b. is authorized, the ADAE server shall create a new "Subscription to the event of VAL performance analytics" resource and respond to the VAL server with an HTTP "201 Created" status code, including a Location header field containing the URI for the created "Subscription to the event of VAL performance analytics" and the response body including the AppPerfSubs data structure containing a representation of the created resource as defined in clause 7.10.1.2.

##### 5.X.1.2.3 Notify\_VAL\_Performance\_Analytics

###### 5.X.1.2.3.1 General

This service operation is used by the ADAE server to send notification to the VAL server with the VAL performance analytics event subscription to the ADAE server.

###### 5.X.1.2.3.2 Notifying VAL performance analytics event using Notify\_VAL\_Performance\_Analytics service operation

To notify VAL performance analytics event, the ADAE server shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/ss-adae-pa/<apiVersion>/application-performance and with a body containing data type AppPerfNotif as defined in clause 7.10.1.4.2.3 with the following attributes:

1. identity of the VAL performance analytics;

2. predictive or statistical VAL performance analytics;

3. optionally, type of analytics;

4. optionally, the confidence level for predictive analytics; and

5. optionally, the time duration for the predictive VAL performance analytics.

Upon receipt of the HTTP POST request, the VAL server shall process the event notification.

##### 5.X.1.2.4 Unsubscribe\_VAL\_Performance\_Analytics

###### 5.X.1.2.4.1 General

This service operation is used by the VAL server to unsubscribe from the VAL performance analytics event.

###### 5.X.1.2.4.2 Unsubscribing from VAL performance analytics event using Unsubscribe\_VAL\_Performance\_Analytics service operation

To unsubscribe from VAL performance analytics event, the VAL server shall send an HTTP DELETE request to the resource representing the event in the ADAE server as specified in clause 7.10.1.2.3.3.1.

Upon receiving the HTTP DELETE request, the ADAE sever shall:

1. verify the identity of the VAL server and check if the VAL server is authorized to unsubscribe from the VAL performance analytics event associated with the resource URI "{apiRoot}/ss-adae-pa/<apiVersion>/application-performance/{appPerfId}"; and

2. if the VAL server is authorized to unsubscribe from the VAL performance analytics event, the ADAE server shall delete the resource pointed by the resource URI "{apiRoot}/ss-adae-pa/<apiVersion>/application-performance/{appPerfId}".

##### 5.X.1.2.5 Subscribe\_VAL\_Performance\_Data\_Collection

###### 5.X.1.2.5.1 General

This service operation is used by the ADAE server for VAL performance data collection event subscription to the data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD.

###### 5.X.1.2.5.2 Subscribing to VAL performance data collection event using Subscribe\_VAL\_Performance\_Data\_Collection service operation

To subscribe to VAL performance historic data collection event, the ADAE server shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/ss-adae-pa/<apiVersion>/application-performance and with a body containing data type AppPerfSubs as defined in clause 7.10.1.4.2.2 with the following attributes:

1. ADAE server identifier;

2. data collection requirements;

3. optionally, analytics identifier for data collection;

4. optionally, one or more VAL UEs;

5. optionally, VAL server identifier to which the VAL performance datac collection subscription is applied;

6. optionally, characteristics of the data producers to be used;

7. optionally, the service area; and

8. optionally, the time interval.

Upon receipt of the HTTP POST request, the data producer shall:

1. verify the identity of the ADAE server and determine if the ADAE server is authorized to subscribe to the VAL performance data collention event; and

2. if the VAL server:

a. is not authorized, the data producer shall respond to the ADAE server with an appropriate error status code; or

b. is authorized, the data producer shall create a new "Subscription to the event of VAL performance data collection" resource and respond to the ADAE server with an HTTP "201 Created" status code, including a Location header fiekd containing the URI for the created "Subscription to the event of VAL performance data collection" and the response body including the AppPerfSubs data structure containing a representation of the created resource as defied in clause 7.10.1.2.

##### 5.X.1.2.6 Notify\_VAL\_Performance\_Data\_Collection

###### 5.X.1.2.6.1 General

This service operation is used by the data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD to send notification to the ADAE server with the VAL performance data collection event subscription to the data producer.

###### 5.X.1.2.6.2 Notifying VAL performance data collection event using Notify\_VAL\_Performance\_Data\_Collection service operation

To notify VAL performance data collection event, the data producer shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/ss-adae-pa/<apiVersion>/application-performance" and with a body containing data type AppPerfNotif as defined in clause 7.10.1.4.2.3 with the following attributes:

1. identity of the VAL performance data collection;

2. VAL performance data collection;

3. VAL server identifier

4. one or more VAL UEs for which the VAL performance data collection subscription applies;

5. optionally, type of data collection; and

6. optionally, analytics identifier for the VAL performance data collection event.

Upon receipt of the HTTP POST request, the ADAE server shall process the event notification.

##### 5.X.1.2.7 Unsubscribe\_VAL\_Performance\_Data-Collection

###### 5.X.1.2.7.1 General

This service operation is used by the ADAE server to unsubscribe from the VAL performance data collection event.

###### 5.X.1.2.7.2 Unsubscribing from VAL performance data collection event using Unsubscribe\_VAL\_Performance\_Data-Collection service operation

To unsubscribe from VAL performance data collection event, the ADAE server shall send an HTTP DELETE request to the resource representing the event in the data producer as specified in clause 7.10.1.2.3.3.1.

Upon receiving the HTTP DELETE request, the data producer shall:

1. verify the identity of the ADAE server and check if the ADAE server is authorized to unsubscribe from the VAL performance data collection event associated with the resource URI "{apiRoot}/ss-adae-pa/<apiVersion>/application-performance"; and

2. if the ADAE server is authorized to unsubscribe from the VAL performance data collection event, the data producer shall delete the resource pointed by the resource URI "{apiRoot}/ss-adae-pa/<apiVersion>/application-performance".

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

##### 7.10.1.2.3 Resource: Individual application performance event subscription

###### 7.10.1.2.3.1 Description

The individual application performance event subscription resource represents an individual event subscription of the VAL server or the ADAE server.

###### 7.10.1.2.3.2 Resource Definition

Resource URI: **{apiRoot}/ss-adae-pa/<apiVersion>/application-performance****/{appPerfId}**

This resource shall support the resource URI variables defined in the table 7.10.1.2.3.2-1.

Table 7.10.1.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 6.5 |
| appPerfId | string | Identifies an application performance event subscription |

###### 7.10.1.2.3.3 Resource Standard Methods

7.10.1.2.3.3.1 DELETE

This method shall support the URI query parameters specified in table 7.10.1.2.3.3.1-1.

Table 7.10.1.2.3.3.1-1: 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 7.10.1.2.3.3.1-2 and the response data structures and response codes specified in table 7.10.1.2.3.3.1-3.

Table 7.10.1.2.3.3.1-2: Data structures supported by the DELETE Request Body on this resource

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

Table 7.10.1.2.3.3.1-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | The individual application performance event subscription matching the appPerfId is deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative ADAE server or an alternative data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [3]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during resource termination. The response shall include a Location header field containing an alternative URI of the resource located in an alternative ADAE server or an alternative data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD.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 7.10.1.2.3.3.1-4: 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 or an alternative data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD. |

Table 7.10.1.2.3.3.1-5: 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 or an alternative data producer such as A-ADRF, A-DCCF, VAL server, or SEALDD. |

###### 7.10.1.2.3.4 Resource Custom Operations

None.

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

##### 7.10.1.4.1 General

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

Table 7.10.1.4.1-1 specifies the data types defined specifically for the SS\_ADAE\_VALPerformanceAnalytics API service.

Table 7.10.1.4.1-1\_SS\_ADAE\_VALPerformanceAnalytics API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| AppPerfSubs | 7.10.1.4.2.2 | Subscription to the VAL application performance analytics |  |
| AppPerfNotif | 7.10.1.4.2.3 | Notification information of the application performance analytics. |  |
| ProdProfileInfo | 7.10.1.4.2.4 | Information about the data producer's support data collection and its access to the produced data |  |
| DataCollectReq | 7.10.1.4.2.5 | Data Collection requirements |  |
| AnalyticsType | 7.10.1.4.3.3 | Type of analytics for the event of the VAL application performance analytics. |  |
| DataType | 7.10.1.4.3.4 | Type of data for the event of the VAL application performance historic logs. |  |
| ProducerType | 7.10.1.4.3.5 | Type of the data producer. |  |
| ProducerData | 7.10.1.4.3.6 | Type of the data produced by the data producer. |  |
| ProducerRole | 7.10.1.4.3.7 | The role of the data producer. |  |
| DataAbstraction | 7.10.1.4.3.8 | The level of data abstraction |  |

Table 7.10.1.4.1-2 specifies data types re-used by the SS\_ADAE\_VALPerformanceAnalytics API service:

Table 7.10.1.4.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
|  |  |  |  |
| BitRate | 3GPP TS 29.571 [21] | Represents a bit rate measurement value. |  |
|  |  |  |  |
| DateTime | 3GPP TS 29.571 [21] | Used to represent a date and time. |  |
| DurationSec | 3GPP TS 29.122 [3] | Represents a period of time in units of seconds. |  |
| ExpoLevelReq | 7.10.5.4.3.4 | Requiremet for level of exposures. |  |
| LocationArea | 3GPP TS 29.122 [3] | Represents location information. |  |
| ReportingRequirements | 7.4.2.4.2.5 | Indicates the requested requirements of reporting. |  |
| ScheduledCommunicationTime | 3GPP TS 29.122 [3] | Used to define the time frame for message filters.  |  |
| ValTargetUe | Clause 7.3.1.4.2.3 | Used to indicate either VAL User ID or VAL UE ID. |  |

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

###### 7.10.1.4.2.2 Type: AppPerfSubs

Table 7.10.1.4.2.2-1: Definition of type AppPerfSubs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscriberId | string | M | 1 | Identity of the VAL server subscribing to the VAL performace analytics event or identity of the ADAE server subscribing to the VAL performance data collection event. |  |
| analyticsType | AnalyticsType | C | 0..1 | Identity of the type of the VAL performance analytics. (NOTE 1) |  |
| valServiceId | string | C | 0..1 | The identifier of the VAL service, to which the performance analytics subscription is applied. (NOTE 1) |  |
| dataCollectReq | DataCollectReqs | C | 0..1 | Requirements for data collection. (NOTE 2) |  |
| analyticsId | string | O | 0..1 | Identity of the analytics if the subsctipion is for VAL performance data collection event. |  |
| valUeIds | array(ValTargetUe) | O | 1..N | A list of identities of one or more VAL UEs, whose performance analytics or performance data collection, are subscribed to. |  |
| valServerId | string | O | 0..1 | If the consumer is different from the VAL server, this identifier represents the VAL server, to which the VAL performance analytics subscription or VAL performance data collection subscription, is applied. |  |
| dataProdProfile | ProdProfileInfo | O | 0..1 | Characteristics of the data producer to be usedfor both cases of subscription to VAL performance analytics or VAL performance data collection. |  |
| confidenceLevel | string | O | 0..1 | Defines the confidence level for the VAL performance analytics if the VAL performance analytics is prediction.The value shall be between 0.01 and 1.00 with a step size of 0.01, represented as string.If not present, confidence level 1.00 applies.Pattern: '^[0]\.[0-9]{2}|[1.00]$' |  |
| area | LocationArea | O | 0..1 | The geographical or service area, to which the VAL performance analytics subscription or the VAL performance data collection subscription, is applied. |  |
| timeInterval | DurationSec | O | 0..1 | The time interval as the start time and end time, to which the VAL performance analytics subscription or the VAL performance data collection subscription, is applied. |  |
| dataProdIds | array(string) | O | 1..N | In case of the VAL performance data collection subscription, if the request for the data collection is routed via A-DCCF, the list of data producer IDs is needed. |  |
| expoLevelReq | ExpoLevelReq | O | 0..1 | The level of exposure requirement for the analytics, to which the VAL performance analytics subscription, applies. |  |
| NOTE 1: This attribute is mandatory if the subscription is to the event of the VAL performance analytics. This attribute is not used if the subscription is to the event of the VAL performance data collection. |
|  |
| NOTE 2: This attribute is mandatory if the subscription is to the event of the VAL performance data collection. This attribute is not used if the subscription is to the event of the VAL performance analytics. |
|  |
|  |
|  |

Editor's Note: Detailed definitions for data types are FFS.

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

###### 7.10.1.4.2.3 Type: AppPerfNotif

Table 7.10.1.4.2.3-1: Definition of type AppPerfNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| outputId | string | M | 1 | Identifier of the event output.  |  |
| dataOutput | array(string) | M | 1..N | The output is:- preditivie or statistical analytics if notifying VAL performance analytics event subscription; or- reported data if notifying VAL performance data collection event subscription. |  |
| valServerId | string | C | 1,,N | Identity of the VAL server, the data collection is related to, in the case of the notification is on the VAL performance data collection. |  |
| valUeIds | array(ValTargetUe) | C | 1..N | A list of identities of one or more VAL UEs, the data collection is related to, in the case of the notification is on the VAL performance data collection. |  |
| analyticsType | AnalyticsType | C | 0..1 | Identity of the type of the of the VAL performance analytics  |  |
| dataType | DataType | C | 0..1 | Identity of the type of the of the VAL performance historic data collection. |  |
| analyticsId | string | O | 0..1 | To identify the analytics for the data collection which may be VAL server performance nalytics or VAL session performance analytics, in the case of the notification is on the VAL performance data collection. |  |
| confidenceLevel | string | O | 0..1 | Provides accuracy level if notifying the VAL performance analytics event subscription as prediction.The value shall be between 0.01 and 1.00 with a step size of 0.01, represented as string.If not present, confidence level 1.00 applies.Pattern: '^[0]\.[0-9]{2}|[1.00]$' |  |
| timeInterval | DurationSec | O | 0..1 | The time interval as the start time and end time, to which the VAL performance analytics analytics predictive, applies.If the start time is not identified, the default value is used. |  |
|  |
|  |

Editor's Note: Detailed definitions for data types are FFS.

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

###### 7.10.1.4.2.4 Type: ProdProfileInfo

This type implements the capability of the data producer for the data production to support data collection for data analytics services.

Table 7.10.1.4.2.4-1: Definition of type ProdProfileInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| prodId | string | M | 1 | Identity of the data producer |  |
| prodType | ProducerType | M | 1 | Type of the data producer. |  |
| dataType | ProducerData | M | 1 | Type of information that can be provided by the data producer. |  |
| prodRole | ProducerRole | O | 0..1 | Role of the data producer. |  |
| origProdIds | array(string) | O | 1..N | Identifies the identity of the original data producer if the prod-role is not set to the value "ORIGINAL\_PRODUCER"or "GENERATING\_ENTITY".If the type of the data producer is that value of “A\_DCCF”, this attribute is a list of identities of data producers. |  |
| dataFresh | integer | O | 0..1 | It is set to the duration of the elapsed time after the data generated if the producer-role does not have the value "ORIGINAL\_PRODUCER"or "GENERATING\_ENTITY". |  |
| producerCap | ProducerCap | O | 0..1 | Represents data producer capability. |  |

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

###### 7.10.1.4.2.5 Type: DataCollectReqs

Table 7.10.1.4.2.5-1: Definition of type DataCollectReqs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| dataFormat | string | M | 1 | Format of the data |  |
| reporting | ReportingRequirement | M | 1 | Frequency of reporting |  |
| abstractedData | DataAbstraction | O | 0..1 | Level of abstracted values for data |  |
| accuracyLevel | string | O | 0..1 | Desired level of accuracy of the requested data.The value shall be between 0.01 and 1.00 with a step size of 0.01, represented as string.If not present, accuracy level 1.00 applies.Pattern: '^[0]\.[0-9]{2}|[1.00]$' |  |

Editor's Note: Whether this data type is needed to be moved to SS\_AADRF\_Data\_Collection API is FFS.

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

###### 7.10.1.4.2.6 Type: ProducerCap

Table 7.10.1.4.2.6-1: Definition of type ProducerCap

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| durationTime | DateTime | O | 0..1 | Duration time that the data can be stored |  |
| anonymization | boolean | O | 0..1 | True if anonymization is supported, else false |  |
| dataRate | BitRate | O | 0..1 | Rate of data generation; |  |
| schedule | ScheduledCommunicationTime | O | 0..1 | Represents scheduling |  |

Editor's Note: Whether this data type is needed to be moved to SS\_AADRF\_Data\_Collection API is FFS.

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

###### 7.10.1.4.3.6 Enumeration: ProducerData

Table 7.10.1.4.3.6-1: Enumeration ProducerData

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| PERFORMANCE\_INDICATOR | The data type of the data producer is performance indictor. |  |
| REPRODUCER\_USAGE\_DATA | The data type of the data producer is reproducer usage data. |  |
| SERVER\_LOAD\_DATA | The data type of the data producer is server load data. |  |
| APPLICATION\_PERFORMANCE | The data type of the data producer is application performance. |  |
| EDGE\_LOAD | The data type of the data producer is edge load. |  |

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