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# Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

# 1 Scope

The present document specifies the stage 3 protocol and data model for the Application Data Analytics Enablement (ADAE) Services. It provides stage 3 protocol definitions and message flows, and specifies the APIs for services offered by the ADAE Server.

The stage 2 architecture and procedures are specified in 3GPP TS 23.436 [3].

The common protocol and interface aspects for API definition are specified in clause 5.2 of 3GPP TS 29.122 [6].

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.900: "Technical Specification Group working methods".

[2] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[3] 3GPP TS 23.436: "Procedures for Application Data Analytics Enablement Service".

[4] 3GPP TS 26.531: "Data Collection and Reporting; General Description and Architecture".

[5] 3GPP TS 26.532: "Data Collection and Reporting; Protocols and Formats".

[6] 3GPP TS 29.122: "T8 reference point for Northbound APIs".

[7] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[8] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service".

[9] 3GPP TS 29.549:" Service Enabler Architecture Layer for Verticals (SEAL); Application Programming Interface (API) specification".

[10] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces".

[11] 3GPP TS 33.434: "Service Enabler Architecture Layer for Verticals (SEAL); Security Aspects".

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

[13] IETF RFC 9112: "HTTP/1.1".

[14] IETF RFC 9110: " HTTP Semantics".

[15] IETF RFC 9111: "HTTP Caching".

[16] IETF RFC 9113: "HTTP/2".

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

[18] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [2] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [2].

**ADAE client**: An entity that provides the client side functionalities corresponding to the ADAE.

**ADAE server**: An entity that provides the server side functionalities corresponding to the ADAE.

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.436 [3] apply:

**ADAE service**

**SEAL server**

**SEAL service**

**VAL application**

**VAL server**

**VAL service**

**VAL client**

**Vertical**

**Vertical application**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 26.531 [4] apply:

**data collection client**

**direct reporting**

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [2] 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 [2].

ADAE Application Data Analytics Enablement

ADAEC Application Data Analytics Enablement Client

ADAES Application Data Analytics Enablement Server

API Application Programming Interface

DC-AF Data Collection AF

DC-Client Data Collection Client

JSON JavaScript Object Notation

SEAL Service Enabler Architecture Layer

UE User Equipment

VAL Vertical Application Layer

# 4 General description

## 4.1 Overview

Application data analytics enablement service enables an application data analytics enablement client (ADAEC) and a vertical application layer (VAL) server to communicate with an application data analytics enablement server (ADAES).

# 5 Functional entities

## 5.1 Application data analytics enablement server (ADAES)

The ADAES is a functional entity with a unique identity in the PLMN and uses the provided data analytics to administer the operations and performance of one or more VAL applications.

## 5.2 Application data analytics enablement client (ADAEC)

The ADAEC is a functional entity with a unique identity and acts as the VAL application client which provides data analytics of the VAL applications.

# 6 Application data analytics enablement service API

## 6.1 General

The clause describes the procedures of the application data analytics enablement service API.

## 6.2 Application performance analytics

### 6.2.1 Service description

#### 6.2.1.1 Overview

The ADAE\_ServiceConfiguration API, as defined 3GPP TS 23.436 [3], allows the ADAES via ADAE-UU reference point to subscribe to ADAEC to the event of the VAL performance analytics.

### 6.2.2 Service Operations

#### 6.2.2.1 Introduction

The service operation defined for ADAE\_ServiceConfiguration API for application performance analytics is shown in the table 6.2.2.1-1.

Table 6.2.2.1-1: Operations for application performance analytics

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Subscribe\_VAL\_Performance\_Analytics | This service operation is used by ADAES to subscribe to the event of the VAL performance analytics. | ADAES |
| Notify\_VAL\_Performance\_Analytics | This service operation is used by ADAEC to notify about the VAL performance analytics. | ADAEC |
| Unsubscribe\_VAL\_Performance\_Analytics | This service operation is used by ADAES to unsubscribe from the event of the VAL performance analytics. | ADAES |

#### 6.2.2.2 Subscribe\_VAL\_Performance\_Analytics

##### 6.2.2.2.1 General

This service operation is used by the ADAES for VAL performance analytics event subscription to the ADAEC.

##### 6.2.2.2.2 Subscribing to VAL performance analytics event using Subscribe\_VAL\_Performance\_Analytics service operation

To subscribe to VAL performance analytics event, the ADAES shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/adae-sc/<apiVersion>/application-performance" and with a body containing data type AppPerfSub as defined in clause 7.10.1.4.2.2 of 3GPP TS 29.549 [9].

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

a) verify the identity of the ADAES and determine if the ADAES is authorized to subscribe to the VAL performance analytics event; and

b) if the ADAES:

1) is not authorized, the ADAEC shall respond to the ADAES with an appropriate error status code; or

2) is authorized, the ADAEC shall create a new "Individual application performance event subscription" resource and respond to the ADAES with an HTTP "201 Created" status code, including a Location header field containing the URI for the created "Individual application performance event subscription" and the response body including the AppPerfSub data structure containing a representation of the created resource as defined in clause 7.1.3.

#### 6.2.2.3 Notify\_VAL\_Performance\_Analytics

##### 6.2.2.3.1 General

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

##### 6.2.2.3.2 Notifying VAL performance analytics event using Notify\_VAL\_Performance\_Analytics service operation

To notify VAL performance analytics event, the ADAEC shall send an HTTP POST request with a Request-URI according to the pattern "{notifUri}" and with a body containing data type AppPerfNotif as defined in clause 7.10.1.4.2.3 of 3GPP TS 29.549 [9].

Upon receipt of the HTTP POST request, the ADAES shall respond to the ADAEC with:

a) if the request is successfully processed, a "204 No Content" status code and process the event notification; or

b) if errors occur when processing the request, an appropriate error response as specified in clause 7.1.6.

#### 6.2.2.4 Unsubscribe\_VAL\_Performance\_Analytics

##### 6.2.2.4.1 General

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

##### 6.2.2.4.2 Unsubscribing from VAL performance analytics event using Unsubscribe\_VAL\_Performance\_Analytics service operation

To unsubscribe from VAL performance analytics event, the ADAES shall send an HTTP DELETE request to the resource representing the event in the ADAES as specified in clause 7.1.3.3.

Upon receiving the HTTP DELETE request:

a) the ADAEC shall verify the identity of the ADAES and check if the ADAES is authorized to unsubscribe from the VAL performance analytics event associated with the resource URI "{apiRoot}/adae-sc/<apiVersion>/application-performance/{appPerfId}";

b) if the ADAES is authorized to unsubscribe from the VAL performance analytics event, the ADAEC shall delete the resource pointed by the resource URI "{apiRoot}/adae-sc/<apiVersion>/application-performance/{appPerfId}";

c) if the request is successfully processed, the ADAEC shall respond to the ADAES with a "204 No Content" status code; and

d) if errors occur when processing the request, the ADAEC shall respond to the ADAES with an appropriate error response as specified in clause 7.1.6.

## 6.3 UE-to-UE session performance analytics

### 6.3.1 Service description

#### 6.3.1.1 Overview

The ADAE\_ServiceConfiguration API, as defined 3GPP TS 23.436 [3], allows the ADAES via ADAE-UU reference point, to obtain the UE-to-UE session performance analytics from the ADAEC.

### 6.3.2 Service Operations

#### 6.3.2.1 Introduction

The service operation defined for ADAE\_ServiceConfiguration API for UE-to-UE session performance analytics is shown in the table 6.3.2.1-1.

Table 6.3.2.1-1: Operations for UE-to-UE session performance analytics

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Fetch\_UE2UE\_Session\_Performance\_Analytics | This service operation is used by ADAES to obtain the UE-to-UE session performance analytics. | ADAES |

#### 6.3.2.2 Fetch\_UE2UE\_Session\_Performance\_Analytics

##### 6.3.2.2.1 General

This service operation is used by the ADAES for obtaining the UE-to-UE session performance analytics from the ADAEC.

##### 6.3.2.2.2 Obtaining UE-to-UE session performance analytics using Fetch\_UE2UE\_Session\_Performance\_Analytics service operation

To obtain the UE-to-UE session performance analytics, the ADAES shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/adae-sc/<apiVersion>/ue2ue-session-performance/fetch" and with a body containing data type Ue2UePerfReq as defined in clause 7.1.5.2.2.

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

a) verify the identity of the ADAES and determine if the ADAES is authorized to obtain the UE-to-UE session performance analytics; and

b) if the ADAES:

1) is not authorized, the ADAEC shall respond to the ADAES with an appropriate error status code; or

2) is authorized, the ADAEC shall respond to the ADAES with an HTTP "200 OK" status code with the response body including the Ue2UePerfResp as defined in clause 7.1.3.3.4.2 with the following attributes:

i) UE-to-UE session performance analytics;

ii) one or more VAL UEs; and

iii) identity of the UE-to-UE session performance analytics.

## 6.4 Edge load data collection

### 6.4.1 Service description

The ADAE\_ServiceConfiguration API, as defined 3GPP TS 23.436 [3], allows the ADAES via ADAE-UU reference point to subscribe to ADAEC to the event of the edge load data collection.

### 6.4.2 Service Operations

#### 6.4.2.1 Introduction

The service operation defined for ADAE\_ServiceConfiguration API for edge load data collection is shown in the table 6.4.2.1-1.

Table 6.4.2.1-1: Operations for edge load data collection

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Subscribe\_Edge\_Load\_Data\_Collection | This service operation is used by ADAES to subscribe to the event of the edge load data collection. | ADAES |
| Notify\_Edge\_Load\_Data\_Collection | This service operation is used by ADAEC to notify about the edge load data collection. | ADAEC |
| Unsubscribe\_Edge\_Load\_Data\_Collection | This service operation is used by ADAES to unsubscribe from the edge load data collection. | ADAES |

#### 6.4.2.2 Subscribe\_Edge\_Load\_Data\_Collection

##### 6.4.2.2.1 General

This service operation is used by the ADAES for edge load data collection event subscription to the ADAEC.

##### 6.4.2.2.2 Subscribing to edge load data collection event using Subscribe\_Edge\_Load\_Data\_Collection service operation

To subscribe to edge load data collection event, the ADAES shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/adae-sc/<apiVersion>/edge-load" and with a body containing data type EdgeSub as defined in clause 7.10.7.4.2.2 of 3GPP TS 29.549 [9].

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

a) verify the identity of the ADAES and determine if the ADAES is authorized to subscribe to the edge load data collection event; and

b) if the ADAES:

1) is not authorized, the ADAEC shall respond to the ADAES with an appropriate error status code; or

2) is authorized, the ADAEC shall create a new "Individual edge load event subscription" resource and respond to the ADAES with an HTTP "201 Created" status code, including a Location header field containing the URI for the created "Individual edge load event subscription" and the response body including the EdgeSub data structure containing a representation of the created resource as defined in clause 7.1.3.

#### 6.4.2.3 Notify\_Edge\_Load\_Data\_Collection

##### 6.4.2.3.1 General

This service operation is used by the ADAEC to send notification to the ADAES with the edge load data collection event subscription to the ADAEC.

##### 6.4.2.3.2 Notifying edge load data collection event using Notify\_Edge\_Load\_Data\_Collection service operation

To notify edge load data collection event, the ADAEC shall send an HTTP POST request with a Request-URI according to the pattern "{notifUri}" and with a body containing data type EdgeNotif as defined in clause 7.10.7.4.2.3 of 3GPP TS 29.549 [9];

Upon receipt of the HTTP POST request, the ADAES shall respond to the ADAEC with:

a) if the request is successfully processed, a "204 No Content" status code and process the event notification; or

b) if errors occur when processing the request, an appropriate error response as specified in clause 7.1.6.

#### 6.4.2.4 Unsubscribe\_Edge\_Load\_Data\_Collection

##### 6.4.2.4.1 General

This service operation is used by the ADAES to unsubscribe from the edge load data collection event.

##### 6.4.2.4.2 Unsubscribing from edge load data collection event using Unsubscribe\_Edge\_Load\_Data\_Collection service operation

To unsubscribe from edge load data collection event, the ADAES shall send an HTTP DELETE request to the resource representing the event in the ADAES as specified in clause 7.1.3.6.

Upon receiving the HTTP DELETE request:

a) the ADAEC shall verify the identity of the ADAES and check if the ADAES is authorized to unsubscribe from the edge load data collection event associated with the resource URI "{apiRoot}/adae-sc/<apiVersion>/edge-load/{edgeLdId}";

b) if the ADAES is authorized to unsubscribe from the edge load data collection event, the ADAEC shall delete the resource pointed by the resource URI "{apiRoot}/adae-sc/<apiVersion>/edge-load/{edgeLdId}";

c) if the request is successfully processed, the ADAEC shall respond to the ADAES with a "204 No Content" status code; and

d) if errors occur when processing the request, the ADAEC shall respond to the ADAES with an appropriate error response as specified in clause 7.1.6.

## 6.5 Service experience performance analytics

### 6.5.1 General

The ADAE\_ServiceConfiguration API, as defined 3GPP TS 23.436 [3], allows the ADAES via ADAE-UU reference point to:

- pull from the ADAEC, the service experience information report.

### 6.5.2 Service Operations

#### 6.5.2.1 Introduction

The service operation defined for ADAE\_ServiceConfiguration API for service experience information is shown in the table 6.5.2.1-1.

Table 6.5.2.1-1: Operations for service experience information

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Pull\_Service\_Experience\_Information\_Report | This service operation is used by ADAES to pull service experience information report. | ADAES |

#### 6.5.2.2 Configure\_Triggers\_Service\_Information\_Experience\_Report

##### 6.5.2.2.1 General

This service operation is used by the ADAEC to fetch the configuration triggers from the ADAES.

##### 6.5.2.2.2 Configuring service experience information reporting using Configure\_Triggers\_Service\_Information\_Experience\_Report service operation

To fetch the configuration triggers from the ADAES, if direct DC-Client is available in the UE, the ADAEC may use the direct DC-Client services as defined in clause 4.4.2 of 3GPP TS 26.532 [5]. The ADAEC may provide below information as input parameters to the application registration procedure:

a) external application identifier specific to the ADAEC;

b) application service provider identifier specific to the ADAES;

c) callback listener of the ADAEC to receive the future response; and

d) consent for the UE identity (i.e. GPSI) to be included in data reports, sent to the DC-AF.

Upon receiving the request, the DC-AF returns "DataReportingSession" resource as defined in clause 7.3.2.1 of 3GPP TS 26.532 [5] to DC-Client in the response message and in the "reportingRule" attribute, the "DataDomain" is set to "APPLICATION\_SPECIFIC" and the "applicationSpecificRecords" container in the "DataReportingRule" shall containthe triggers as specified in the "ConfigRepTrigger" data type defined in table 6.5.2.2.2-1.

On success, the DC-Client provides the "DataReportingSession" as defined in clause 7.3.2.1 of 3GPP TS 26.532 [5] to the ADAEC.

Table 6.5.2.2.2-1: Definition of type ConfRepTrigger

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valServerIds | array(string) | M | 1..N | Identities of one or more VAL servers, for which the configuration of the service experience information report applies. |  |
| triggCrit | string | M | 1 | Information criteria about the triggers on which the service experience is information to be reported for the VAL server and is set to value "TRIGGER\_CRITERIA". |  |
| commonTriggCrit | string | O | 0..1 | Information criteria about the triggers (applicable to all VAL servers) on which the service experience information is fetched and is set to value "COMMON\_TRIGGER\_CRITERIA". |  |
| srvExpMeas | DurationSec | O | 0..1 | Information about the service experience information measurements which needs to be fetched and included in the report. If not present, by default end-to-end response time is measured. |  |
| notifyTarget | string | O | 0..1 | The target address which is notified. |  |

#### 6.5.2.3 Void

#### 6.5.2.4 Push\_Service\_Experience\_Information\_Report

##### 6.5.2.4.1 General

This service operation is used by the ADAEC to push the service experience information report to the ADAES.

##### 6.5.2.4.2 Pushing service experience information report using Push\_Service\_Experience\_Information\_Report service operation

When Direct DC-Client is available in the UE, to push the service experience information report to the ADAES based on the request from VAL client or trigger conditions meeting, the ADAEC shall:

a) create the service experience information report as defined in "SrvExpInfoRep" data type in table 7.1.5.2.7-1; and

b) invoke the "reportUeData" method as defined in clause 4.4.4 of 3GPP TS 26.532 [5] and provide "DataReport" data type as defined in clause 7.3.2.3 of 3GPP TS 26.532 [5] as input parameter with the "applicationSpecificRecords" attribute set with the "SrvExpInfoRep" data type in table 7.1.5.2.7-1.

On receiving the service experience information request, the ADAES shall process the report from ADAEC to determine/predict analytics and initiate further actions as defined in clause 8.9.2.1 of 3GPP TS 23.436 [3].

#### 6.5.2.5 Pull\_Service\_Experience\_Information\_Report

##### 6.5.2.5.1 General

This service operation is used by the ADAES to pull the service experience information report from the ADAEC.

##### 6.5.2.5.2 Pulling service experience information report using Pull\_Service\_Experience\_Information\_Report service operation

To pull the service experience information report from the ADAEC, the ADAES shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/adae-sc/<apiVersion>/service-experience/pull" and with a body containing data type PullSrvExpInfo as defined in clause 7.1.5.2.6.

Upon receipt of the HTTP POST request:

a) the ADAEC shall verify the identity of the ADAES and determine if the ADAES is authorized to pull the service experience information report; and

b) if the ADAES:

1) is not authorized, the ADAEC shall respond to the ADAES with an appropriate error status code; or

2) is authorized, the ADAEC shall respond to the ADAES with an HTTP "200 OK" status code and with a body containing data type SrvExpInfoRep as defined in clause 7.1.5.2.7.

Upon receipt of the HTTP POST request, the ADAES shall respond to the ADAEC with a "204 No Content" status code and process the report.

## 6.6 Collision detection analytics

### 6.6.1 Service description

#### 6.6.1.1 Overview

The ADAE\_ServiceConfiguration API, as defined 3GPP TS 23.436 [3], allows the ADAES via ADAE-UU reference point, to obtain the collision detection analytics from the ADAEC.

### 6.6.2 Service operations

#### 6.6.2.1 Introduction

The service operations defined for ADAE\_ServiceConfiguration API for collision detection analytics are shown in the table 6.6.2.1-1.

Table 6.6.2.1-1: Operations for collision detection analytics

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Subscribe\_Collision\_Detection | This service operation is used by ADAES to subscribe to the event collision detection. | ADAES |
| Notify\_Collision\_Detection | This service operation is used by ADAEC to notify about the collision detection analytics. | ADAEC |
| Unsubscribe\_Collision\_Detection | This service operation is used by ADAES to unsubscribe to the event collision detection. | ADAES |

#### 6.6.2.2 Subscribe\_Collision\_Detection

##### 6.6.2.2.1 General

This service operation is used by the ADAES for obtaining the collision detection analytics from the ADAEC.

##### 6.6.2.2.2 Subscribing to collision detection analytics using Subscribe\_Collision\_Detection service operation

To obtain the collision detection analytics, the ADAES shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/adae-sc/<apiVersion>/collision-detection" and with a body containing data type CollisionDetectionSub as defined in clause 7.10.10.4.2.2 of 3GPP TS 29.549 [9].

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

a) verify the identity of the ADAES and determine if the ADAES is authorized to subscribe to the collision detection analytics; and

b) if the ADAES:

1) is not authorized, the ADAEC shall respond to the ADAES with an appropriate error status code; or

2) is authorized, the ADAC shall create a new "Individual collision detection analytics subscription" resource and respond to the ADAES with an HTTP "201 Created" status code with a Location header field containing the URI for the created "Individual collision detection analytics subscription" resource and the CollisionDetectionSub data structure in the response body containing a representation of the created resource as defined in clause 7.1.3.

#### 6.6.2.3 Notify\_Collision\_Detection

##### 6.6.2.3.1 General

This service operation is used by the ADAEC to notify the ADAES about the collision detection analytics event.

##### 6.6.2.3.2 Notifying collision detection analytics using Notify\_Collision\_Detection service operation

To notify collision detection analytics, the ADAEC shall send an HTTP POST request with a Request-URI according to the pattern "{notifUri}" and with a body containing data type CollisionDetectionNotify as defined in clause 7.10.10.4.2.3 of 3GPP TS 29.549 [9].

Upon receipt of the HTTP POST request, the ADAES shall respond to the ADAEC with:

a) if the request is successfully processed, a "204 No Content" status code and process the event notification; or

b) if error occurs when processing the request, an appropriate error response as specified in clause 7.1.6.

#### 6.6.2.4 Unsubscribe\_Collision\_Detection

##### 6.6.2.4.1 General

This service operation is used by the ADAEC to unsubscribe from the collision detection analytics.

##### 6.6.2.4.2 Unsubscribing from collision detection analytics using Unsubscribe\_Collision\_Detection service operation

To unsubscribe from collision detection analytics, the ADAES shall send an HTTP DELETE request to the "Individual collision detection analytics subscription" resource as specified in clause 7.1.3.10.

Upon receiving the HTTP DELETE request:

a) the ADAEC shall verify the identity of the ADAES and check if the ADAES is authorized to unsubscribe from the collision detection analytics associated with the resource URI "{apiRoot}/adae-sc/<apiVersion>/collision-detection/{collisionDetectionId}";

b) if the ADAES is authorized to unsubscribe from the collision detection analytics, the ADAEC shall delete the resource pointed by the resource URI "{apiRoot}/adae-sc/<apiVersion>/collision-detection/{collisionDetectionId}";

c) if the request is successfully processed, the ADAEC shall respond to the ADAES with a "204 No Content" status code; and

d) if error occurs when processing the request, the ADAEC shall respond to the ADAES with an appropriate error response as specified in clause 7.1.6.

## 6.7 Location-related UE Group Analytics

### 6.7.1 Service description

#### 6.7.1.1 Overview

The ADAE\_ServiceConfiguration API, as defined 3GPP TS 23.436 [3], allows the ADAES via ADAE-UU reference point, to obtain the location-related UE group analytics from the ADAEC.

### 6.7.2 Service operations

#### 6.7.2.1 Introduction

The service operations defined for ADAE\_ServiceConfiguration API for location-related UE group analytics are shown in the table 6.7.2.1-1.

Table 6.7.2.1-1: Operations for Location-related UE Group Analytics

|  |  |  |
| --- | --- | --- |
| Service operation name | Description | Initiated by |
| Subscribe\_UE\_Group\_Location | This service operation is used by ADAES to subscribe to location-related UE group analytics. | ADAES |
| Notify\_UE\_Group\_Location | This service operation is used by ADAEC to notify about location-related UE group analytics. | ADAEC |
| Unsubscribe\_UE\_Group\_Location | This service operation is used by ADAES to unsubscribe to location-related UE group analytics. | ADAES |

#### 6.7.2.2 Subscribe\_UE\_Group\_Location

##### 6.7.2.2.1 General

This service operation is used by the ADAES for obtaining the location-related UE group analytics from the ADAEC.

##### 6.7.2.2.2 Obtaining location-related UE group analytics using Subscribe\_UE\_Group\_Location service operation

To obtain the location-related UE group analytics, the ADAES shall send an HTTP POST request with a Request-URI according to the pattern "{apiRoot}/adae-sc/<apiVersion>/ue-group-loc-analytics" and with a body containing data type LocRelUeGroupSub as defined in clause 7.10.9.4.2.2 of 3GPP TS 29.549 [9].

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

a) verify the identity of the ADAES and determine if the ADAES is authorized to obtain the location-related UE group analytics; and

b) if the ADAES:

1) is not authorized, the ADAEC shall respond to the ADAES with an appropriate error status code; or

2) is authorized, the ADAC shall create a new "Individual location-related UE group analytics subscription" resource and respond to the ADAES with an HTTP "201 Created" status code with a Location header field containing the URI of the created "Individual location-related UE group analytics subscription" resource and the LocRelUeGroupSub data structure in the response body containing a representation of the created resource as defined in clause 7.1.3.

#### 6.7.2.3 Notify\_UE\_Group\_Location

##### 6.7.2.3.1 General

This service operation is used by the ADAEC to notify the ADAES about the location-related UE group analytics event.

##### 6.7.2.3.2 Notifying location-related UE group analytics event using Notify\_UE\_Group\_Location service operation

To notify location-related UE group analytics event, the ADAEC shall send an HTTP POST request with a Request-URI according to the pattern "{notifUri}" and with a body containing data type LocRelUeGroupNotif as defined in clause 7.10.9.4.2.3 of 3GPP TS 29.549 [9].

Upon receipt of the HTTP POST request, the ADAES shall respond to the ADAEC with:

a) if the request is successfully processed, a "204 No Content" status code and process the event notification; or

b) if error occurs when processing the request, an appropriate error response as specified in clause 7.1.6.

#### 6.7.2.4 Unsubscribe\_UE\_Group\_Location

##### 6.7.2.4.1 General

This service operation is used by the ADAEC to unsubscribe from the location-related UE group analytics event.

##### 6.7.2.4.2 Unsubscribing from location-related UE group analytics event using Unsubscribe\_UE\_Group\_Location service operation

To unsubscribe from location-related UE group analytics event, the ADAES shall send an HTTP DELETE request to the "Individual location-related UE group analytics subscription" resource as specified in clause 7.1.3.12.

Upon receiving the HTTP DELETE request:

a) the ADAEC shall verify the identity of the ADAES and check if the ADAES is authorized to unsubscribe from the location-related UE group analytics event associated with the resource URI "{apiRoot}/adae-sc/<apiVersion>/ue-group-loc-analytics/{ueGroupLocId}";

b) if the ADAES is authorized to unsubscribe from the location-related UE group analytics event, the ADAEC shall delete the resource pointed by the resource URI "{apiRoot}/adae-sc/<apiVersion>/ue-group-loc-analytics/{ueGroupLocId}";

c) if the request is successfully processed, the ADAEC shall respond to the ADAES with a "204 No Content" status code; and

d) if error occurs when processing the request, the ADAEC shall respond to the ADAES with an appropriate error response as specified in clause 7.1.6.

# 7 API Definitions

## 7.1 ADAE\_ServiceConfiguration API

### 7.1.1 Introduction

The HTTP URIs used in HTTP protocol for the ADAE service shall have the resource URI structure as defined in clause 5.2.4 of 3GPP TS 29.122 [6]:

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

where:

a) {apiRoot} shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [6];

b) <apiName>shall be "adae-sc";

c) <apiVersion> shall be "v1"; and

d) <apiSpecificSuffixes> shall be set as described in clause 7.1.3.

### 7.1.2 Usage of HTTP

#### 7.1.2.1 General

For ADAE service configuration API, support of HTTP/1.1 (IETF RFC 9112 [13], IETF RFC 9110 [14] and IETF RFC 9111 [15]) over TLS is mandatory and support of HTTP/2 (IETF RFC 9113 [16]) over TLS is recommended.

A functional entity desiring to use HTTP/2 shall use the HTTP upgrade mechanism to negotiate applicable HTTP version as described in IETF RFC 9113 [16].

#### 7.1.2.2 Content type

The bodies of HTTP request and successful HTTP responses shall be encoded in JSON format (see IETF RFC 8259 [17]).

The MIME media type that shall be used within the related Content-Type header field is "application/json", as defined in IETF RFC 8259 [17].

### 7.1.3 Resources

#### 7.1.3.1 Overview

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

Figure 7.1.3.1-1 depicts the resource URI structure of the ADAE\_ServiceConfiguration API.



Figure 7.1.3.1-1: Resource URI structure of the ADAE\_ServiceConfiguration API

Table 7.1.3.1-1 provides an overview of the resources and applicable HTTP methods.

Table 7.1.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method | Description |
| Application performance event subscription | /application-performance | POST | Subscription to the VAL performance analytics event. |
| Individual application performance event subscription | /application-performance/{appPerfId} | DELETE | Deletes an individual VAL performance analytics event. |
| UE-to-UE session performance analytics | /ue2ue-session-performance/fetch | fetch  (POST) | Request for the UE-to-UE session performance analytics. |
| Edge load event subscription | /edge-load | POST | Subscription to the edge load data collection event. |
| Individual edge load event subscription | /edge-load/{edgeLdId} | DELETE | Deletes an individual edge load data collection subscription. |
| Service experience | /service-experience/pull | pull  (POST) | Pull a service experience information report. |
| Collision detection analytics subscriptions | /collision-detection | POST | Creates an individual collision detection analytics subscription. |
| Individual collision detection analytics subscription | /collision-detection/{collisionDetectionId} | DELETE | Removes the individual collision detection analytics subscription. |
| Location-related UE group analytics subscriptions | /ue-group-loc-analytics | POST | Creates an individual location-related UE group analytics subscription. |
| Individual location-related UE group analytics subscription | /ue-group-loc-analytics/{ueGroupLocId} | DELETE | Removes the individual location-related UE group analytics subscription. |

#### 7.1.3.2 Resource: Application performance event subscription

##### 7.1.3.2.1 Description

Application performance event subscription is used by the ADAES to subscribe to the ADAEC for the event of the VAL performance analytics.

##### 7.1.3.2.2 Resource definition

Resource URI: **{apiRoot}/adae-sc/<apiVersion>/application-performance**

This resource shall support the resource URI variables defined in the table 7.1.3.2.2-1.

Table 7.1.3.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |

##### 7.1.3.2.3 Resource standard methods

###### 7.1.3.2.3.1 POST

This operation is for subscription to the VAL application performance analytics and shall support the URI query parameters specified in table 7.1.3.2.3.1-1.

Table 7.1.3.2.3.1-1: 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 7.1.3.2.3.1-2and the response data structures and response codes specified in table 7.1.3.2.3.1-3.

Table 7.1.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| AppPerfSub | M | 1 | Subscription to the VAL performance analytics event |

Table 7.1.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| AppPerfSub | M | 1 | 201 Created | Subscription to the VAL performance 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 [6] shall also apply. | | | | |

Table 7.1.3.2.3.1-4: 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}/adae-sc/<apiVersion>/application-performance/{appPerfId} |

##### 7.1.3.2.4 Resource custom operations

None.

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

##### 7.1.3.3.1 Description

The individual application performance event subscription resource represents an individual event subscription of the ADAES.

##### 7.1.3.3.2 Resource Definition

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

This resource shall support the resource URI variables defined in the table 7.1.3.3.2-1.

Table 7.1.3.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |
| appPerfId | string | Identifies an application performance event subscription |

##### 7.1.3.3.3 Resource Standard Methods

##### 7.1.3.3.3.1 DELETE

This method shall support the URI query parameters specified in table 7.1.3.3.3.1-1.

Table 7.1.3.3.3.1-1: 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 7.1.3.3.3.1-2 and the response data structures and response codes specified in table 7.1.3.3.3.1-3.

Table 7.1.3.3.3.1-2: Data structures supported by the DELETE Request Body on this resource

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

Table 7.1.3.3.3.1-3: 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 application performance event subscription matching the appPerfId 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 ADAEC.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| 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 ADAEC.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [6] also apply. | | | | |

Table 7.1.3.3.3.1-4: Headers supported by the 307 Response Code on this resource

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

Table 7.1.3.3.3.1-5: Headers supported by the 308 Response Code on this resource

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

##### 7.1.3.3.4 Resource Custom Operations

None.

#### 7.1.3.4 Resource: UE-to-UE session performance analytics

##### 7.1.3.4.1 Description

This resource is used by the ADAES to request the ADAEC for the UE-to-UE session performance analytics.

##### 7.1.3.4.2 Resource definition

Resource URI: **{apiRoot}/adae-sc/<apiVersion>/ue2ue-session-performance**

This resource shall support the resource URI variables defined in the table 7.1.3.4.2-1.

Table 7.1.3.4.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |

##### 7.1.3.4.3 Resource standard methods

None

##### 7.1.3.4.4 Resource custom operations

###### 7.1.3.4.4.1 Overview

Table 7.1.3.4.4.1-1: Custom operations

|  |  |  |  |
| --- | --- | --- | --- |
| Operation name | Custom operation URI | Mapped HTTP method | Description |
| Fetch | /ue2ue-session-performance/fetch | POST | Request for the UE-to-UE session performance analytics |

###### 7.1.3.4.4.2 Fetch

This custom operation is for the ADAES to request the ADAEC the UE-to-UE session performance analytics and shall support the URI query parameters specified in table 7.1.3.4.4.2-1.

Table 7.1.3.4.4.2-1: URI query parameters supported by the POST method on this resource

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

This custom operation shall support the request data structures specified in table 7.1.3.4.4.2-2 and the response data structures and response codes specified in table 7.1.3.4.4.2-3.

Table 7.1.3.4.4.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| Ue2UePerfReq | M | 1 | ADAES requests ADAEC for the UE-to-UE session performance analytics |

Table 7.1.3.4.4.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| Ue2UePerfResp | M | 1 | 200 OK | ADAEC responses ADAES the UE-to-UE session performance analytics |
| 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 ADAEC.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| 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 ADAEC.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. | | | | |

Table 7.1.3.4.4.2-4: 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 ADAEC. |

Table 7.1.3.4.4.2-5: 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 ADAEC. |

#### 7.1.3.5 Resource: Edge load data collection event subscription

##### 7.1.3.5.1 Description

Edge load data collection event subscription is used by the ADAES to subscribe to the ADAEC for the event of the edge load data collection.

##### 7.1.3.5.2 Resource definition

Resource URI: **{apiRoot}/adae-sc/<apiVersion>/edge-load**

This resource shall support the resource URI variables defined in the table 7.1.3.5.2-1.

Table 7.1.3.5.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |

##### 7.1.3.5.3 Resource standard methods

###### 7.1.3.5.3.1 POST

This method is the ADAES to subscribe to the ADAEC for the event of the edge-load data collection and shall support the URI query parameters specified in table 7.1.3.5.3.1-1.

Table 7.1.3.5.3.1-1: 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 7.1.3.5.3.1-2 and the response data structures and response codes specified in table 7.1.3.5.3.1-3.

Table 7.1.3.5.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EdgeSub | M | 1 | Subscription to the edge load data collection event |

Table 7.1.3.5.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| EdgeSub | M | 1 | 201 Created | Subscription to the edge load data collection 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 [6] shall also apply. | | | | |

Table 7.1.3.5.2.3.1-4: 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}/adae-sc/<apiVersion>/edge-load/{edgeLdId} |

##### 7.1.3.5.4 Resource custom operations

None.

#### 7.1.3.6 Resource: Individual edge load event subscription

##### 7.1.3.6.1 Description

The individual edge load event subscription resource represents an individual event subscription of the ADAE server.

##### 7.1.3.6.2 Resource Definition

Resource URI: **{apiRoot}/adae-sc/<apiVersion>/edge-load/{edgeLdId}**

This resource shall support the resource URI variables defined in the table 7.1.3.6.2-1.

Table 7.1.3.6.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |
| edgeLdId | string | Identifies an edge load data collection event subscription |

##### 7.1.3.6.3 Resource Standard Methods

##### 7.1.3.6.3.1 DELETE

This method shall support the URI query parameters specified in table 7.1.3.6.3.1-1.

Table 7.1.3.6.3.1-1: 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 7.1.3.6.3.1-2 and the response data structures and response codes specified in table 7.1.3.6.3.1-3.

Table 7.1.3.6.3.1-2: Data structures supported by the DELETE Request Body on this resource

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

Table 7.1.3.6.3.1-3: 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 edge load data collection event subscription matching the edgeLdId 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 ADAEC.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| 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 ADAEC.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| NOTE: The mandatory HTTP error status codes for the DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [6] also apply. | | | | |

Table 7.1.3.6.3.1-4: 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 ADAEC. |

Table 7.1.3.6.3.1-5: 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 ADAEC. |

##### 7.1.3.6.4 Resource Custom Operations

None.

#### 7.1.3.7 Resource: Service experience information

##### 7.1.3.7.1 Description

The resource is used by the ADAES to:

a) pull the service experience information report from the ADAEC.

###### 7.1.3.7.3.1 Void

##### 7.1.3.7.4 Resource custom operations

###### 7.1.3.7.4.1 Overview

Table 7.1.3.7.4.1-1: Custom operations

|  |  |  |  |
| --- | --- | --- | --- |
| Operation name | Custom operation URI | Mapped HTTP method | Description |
| Pull | /service-experience/pull | POST | Pull a service experience information report |

###### 7.1.3.7.4.2 Void

###### 7.1.3.7.4.3 Operation: PULL Service Experience Information

This operation is used by the ADAES to pull the service experience information report from the ADAEC and shall support the URI query parameters specified in table 7.1.3.7.4.3-1.

Table 7.1.3.7.4.3-1: 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 7.1.3.7.4.3-2 and the response data structures and response codes specified in table 7.1.3.7.4.3-3.

Table 7.1.3.7.4.3-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| PullSrvExpInfo | M | 1 | Request for the report on the service experience information |

Table 7.1.3.7.4.3-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| SrvExpInfoRep | M | 1 | 200 OK | Successfully obtaining the report on the service experience information |
| 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 ADAEC.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| 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 ADAEC.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. | | | | |

Table 7.1.3.7.4.3-4: 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 ADAEC. |

Table 7.1.3.7.4.3-5: 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 ADAEC. |

#### 7.1.3.8 Void

#### 7.1.3.9 Resource: Collision detection analytics subscriptions

##### 7.1.3.9.1 Description

Collision detection analytics subscription is used to subscribe to the ADAEC for the collision detection events.

##### 7.1.3.9.2 Resource definition

Resource URI: **{apiRoot}/adae-sc/<apiVersion>/collision-detection**

This resource shall support the resource URI variables defined in the table 7.1.3.9.2-1.

Table 7.1.3.9.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |

##### 7.1.3.9.3 Resource standard methods

###### 7.1.3.9.3.1 POST

This method is used for the subscription to the collision detection events and shall support the URI query parameters specified in table 7.1.3.9.3.1-1.

Table 7.1.3.9.3.1-1: 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 7.1.3.9.3.1-2 and the response data structures and response codes specified in table 7.1.3.9.3.1-3.

Table 7.1.3.9.3.1-2: 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 7.1.3.9.2.3.1-3: 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 7.1.3.9.2.3.1-4: 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>/collision-detection/{collisionDetectionId} |

##### 7.1.3.9.4 Resource custom operations

None.

#### 7.1.3.10 Resource: Individual collision detection analytics subscription

##### 7.1.3.10.1 Description

The individual collision detection analytics subscription resource represents an individual subscription to the collision detection events.

##### 7.1.3.10.2 Resource Definition

Resource URI: **{apiRoot}/adae-sc/<apiVersion>/collision-detection**/{**collisionDetectionId**}

This resource shall support the resource URI variables defined in the table 7.1.3.10.2-1.

Table 7.1.3.10.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |
| collisionDetectionId | string | Represents the identifier of an Individual collision detection analytics subscription. |

##### 7.1.3.10.3 Resource Standard Methods

###### 7.1.3.10.3.1 DELETE

This method shall support the URI query parameters specified in table 7.1.3.10.3.1-1.

Table 7.1.3.10.3.1-1: 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 7.1.3.10.3.1-2 and the response data structures and response codes specified in table 7.1.3.10.3.1-3.

Table 7.1.3.10.3.1-2: Data structures supported by the DELETE Request Body on this resource

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

Table 7.1.3.10.3.1-3: 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 matching the collisionDetectionId 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 7.1.3.10.3.1-4: 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. |

Table 7.1.3.10.3.1-5: 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. |

##### 7.1.3.10.4 Resource Custom Operations

None.

#### 7.1.3.11 Resource: Location-related UE group analytics subscriptions

##### 7.1.3.11.1 Description

Location-related UE group analytics event subscription is used to subscribe to the ADAEC for the location-related UE group analytics events.

##### 7.1.3.11.2 Resource definition

Resource URI: **{apiRoot}/adae-sc/<apiVersion>/ue-group-loc-analytics**

This resource shall support the resource URI variables defined in the table 7.1.3.11.2-1.

Table 7.1.3.11.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |

##### 7.1.3.11.3 Resource standard methods

###### 7.1.3.11.3.1 POST

This method is used for the subscription to the location-related UE group analytics events and shall support the URI query parameters specified in table 7.1.3.11.3.1-1.

Table 7.1.3.11.3.1-1: 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 7.1.3.11.3.1-2 and the response data structures and response codes specified in table 7.1.3.11.3.1-3.

Table 7.1.3.11.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| LocRelUeGroupSub | M | 1 | Subscription to the location-related UE group analytics. |

Table 7.1.3.11.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| LocRelUeGroupSub | M | 1 | 201 Created | Subscription to the location-related UE group 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 7.1.3.11.2.3.1-4: 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}/adae-sc/<apiVersion>/ue-group-loc-analytics/{ueGroupLocId} |

##### 7.1.3.11.4 Resource custom operations

None.

#### 7.1.3.12 Resource: Individual location-related UE group analytics subscription

##### 7.1.3.12.1 Description

The individual location-related UE group analytics event subscription resource represents an individual subscription to the location-related UE group analytics events.

##### 7.1.3.12.2 Resource Definition

Resource URI: **{apiRoot}/adae-sc/<apiVersion>/ue-group-loc-analytics/{ueGroupLocId}**

This resource shall support the resource URI variables defined in the table 7.1.3.12.2-1.

Table 7.1.3.12.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 5.2.4 in 3GPP TS 29.122 [6] |
| ueGroupLocId | string | Represents the identifier of an Individual location-related UE group analytics subscription. |

##### 7.1.3.12.3 Resource Standard Methods

###### 7.1.3.12.3.1 DELETE

This method shall support the URI query parameters specified in table 7.1.3.12.3.1-1.

Table 7.1.3.12.3.1-1: 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 7.1.3.12.3.1-2 and the response data structures and response codes specified in table 7.1.3.12.3.1-3.

Table 7.1.3.12.3.1-2: Data structures supported by the DELETE Request Body on this resource

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

Table 7.1.3.12.3.1-3: 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 location-related UE group analytics subscription matching the ueGroupLocId 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 7.1.3.12.3.1-4: 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 ADAEC. |

Table 7.1.3.12.3.1-5: 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 ADAEC. |

##### 7.1.3.12.4 Resource Custom Operations

None.

### 7.1.4 Notifications

#### 7.1.4.1 General

Table 7.1.4.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method | Description  (service operation) |
| Application performance event notification | {notifUri} | POST | Notification for the VAL performance analytics event |
| Edge load event notification | {notifUri} | POST | Notification for the edge load data collection event |
| Service experience report event notification | {notifUri} | POST | Notification for the service experience report event |
| Collision detection analytics notification | {notifUri} | POST | Notification on collision detection analytics. |
| Location-related UE group analytics notification | {notifUri} | POST | Notification on location-related UE group analytics. |

#### 7.1.4.2 Application performance event notification

##### 7.1.4.2.1 Description

Application performance event notification is by the ADAEC to notify the ADAES, the VAL performance analytics.

##### 7.1.4.2.2 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 7.1.4.2.2-1.

Table 7.1.4.2.2-1: URI query parameters supported by the POST method on this resource

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

If the notification is on the VAL performance analytics, this method shall support the request data structures specified in table 7.1.4.2.2-2 and the response data structures and response codes specified in table 7.1.4.2.2-3.

Table 7.1.4.2.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| AppPerfNotif | M | 1 | Notification information of the VAL performance analytics. |

Table 7.1.4.2.2-3: 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 VAL performance analytics event is accepted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during event notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative ADAES where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during event notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative ADAES where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. | | | | |

Table 7.1.4.2.2-4: 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 ADAES towards which the notification should be redirected. |

Table 7.1.4.2.2-5: 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 ADAES towards which the notification should be redirected. |

#### 7.1.4.3 Edge load event notification

##### 7.1.4.3.1 Description

The edge load event notification is used by the ADAEC to notify the ADAES, the edge load data collection.

##### 7.1.4.3.2 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 7.1.4.3.2-1.

Table 7.1.4.3.2-1: URI query parameters supported by the POST method on this resource

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

If the notification is on the edge load data collection, this method shall support the request data structures specified in table 7.1.4.3.2-2 and the response data structures and response codes specified in table 7.1.4.3.2-3.

Table 7.1.4.3.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EdgeNotif | M | 1 | Notification information of edge load data collection event |

Table 7.1.4.3.2-3: 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 edge load data collection event is accepted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during event notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative ADAES where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during event notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative ADAES where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. | | | | |

Table 7.1.4.3.2-4: Headers supported by the 307 Response Code on this resource

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

Table 7.1.4.3.2-5: Headers supported by the 308 Response Code on this resource

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

#### 7.1.4.4 Service experience information report event notification

##### 7.1.4.4.1 Description

The service experience information report event notification is used by the ADAEC to notify the ADAES, the service experience information.

##### 7.1.4.4.2 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 7.1.4.4.2-1.

Table 7.1.4.4.2-1: URI query parameters supported by the POST method on this resource

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

If the notification is on the service experience information, this method shall support the request data structures specified in table 7.1.4.4.2-2 and the response data structures and response codes specified in table 7.1.4.4.2-3.

Table 7.1.4.4.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| SrvExpInfoRep | M | 1 | Notification of service experience information report |

Table 7.1.4.4.2-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a | M | 1 | 204 (No Content) | Notification of the service experience information report is accepted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection, during event notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative ADAES where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection, during event notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative ADAES where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [6]. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [6] shall also apply. | | | | |

Table 7.1.4.4.2-4: 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 ADAES towards which the notification should be redirected. |

Table 7.1.4.4.2-5: 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 ADAES towards which the notification should be redirected. |

#### 7.1.4.5 Collision detection analytics notification

##### 7.1.4.5.1 Description

The collision detection analytics notification is used by the ADAEC to notify about the collision detection events.

##### 7.1.4.5.2 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 7.1.4.5.2-1.

Table 7.1.4.5.2-1: URI query parameters supported by the POST method on this resource

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

If the notification is on the collision detection, this method shall support the request data structures specified in table 7.1.4.5.2-2 and the response data structures and response codes specified in table 7.1.4.5.2-3.

Table 7.1.4.5.2-2: 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 7.1.4.5.2-3: 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 7.1.4.5.2-4: 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 ADAES towards which the notification should be redirected. |

Table 7.1.4.5.2-5: 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 ADAES towards which the notification should be redirected. |

#### 7.1.4.6 Location-related UE group analytics notification

##### 7.1.4.6.1 Description

The location-related UE group analytics event notification is used by the ADAEC to notify about the location-related UE group analytics events.

##### 7.1.4.6.2 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 7.1.4.6.2-1.

Table 7.1.4.6.2-1: URI query parameters supported by the POST method on this resource

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

If the notification is on the location-related UE group analytics, this method shall support the request data structures specified in table 7.1.4.6.2-2 and the response data structures and response codes specified in table 7.1.4.6.2-3.

Table 7.1.4.6.2-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| LocRelUeGroupNotif | M | 1 | Notification information of location-related UE group analytics. |

Table 7.1.4.6.2-3: 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 location-related UE group 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 7.1.4.6.2-4: 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 ADAES towards which the notification should be redirected. |

Table 7.1.4.6.2-5: 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 ADAES towards which the notification should be redirected. |

### 7.1.5 Data model

#### 7.1.5.1 General

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

Table 7.1.5.1-1 specifies the data types defined for the ADAE\_ServiceConfiguration API.

Table 7.1.5.1-1: ADAE\_ServiceConfiguration API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| DataCollectReq | 7.1.5.2.9 | Contains data collection requirements. |  |
| PullSrvExpInfo | 7.1.5.2.6 | Pull an individual service experience information |  |
| SrvExpInfoRep | 7.1.5.2.7 | Response to pull an individual service experience information |  |
| Ue2UePerfReq | 7.1.5.2.2 | Request for the UE-to-UE session performance analytics |  |
| Ue2UePerfResp | 7.1.5.2.3 | Response for the UE-to-UE session performance analytics |  |
| Ue2UeRepThreshold | 7.1.5.2.8 | Represents reporting threshold. |  |

Table 7.1.5.1-2 specifies data types re-used by the ADAE\_ServiceConfiguration API service.

Table 7.1.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| AppPerfSub | 3GPP TS 29.549 [9] | Subscription to the VAL application performance analytics |  |
| AppPerfNotif | 3GPP TS 29.549 [9] | Notification information of the application performance analytics. |  |
| DurationSec | 3GPP TS 29.122 [6] | Represent the time interval between successive location reports. |  |
| EdgeSub | 3GPP TS 29.549 [9] | Subscription to the edge load analytics event |  |
| EdgeNotif | 3GPP TS 29.549 [9] | Notification information of the edge load analytics event. |  |
| LocationArea | 3GPP TS 29.122 [6] | Represents location information. |  |
| MatchingDirection | 3GPP TS 29.520 [18] | Used to indicate a threshold matching direction. |  |
| Pc5QoSPara | 3GPP TS 29.571 [10] | Represents policy data on the PC5 QoS parameters. |  |
| ReportingInformation | 3GPP TS 29.523 [8] | Indicates the reporting requirement. |  |
| SupportedFeatures | 3GPP TS 29.571 [10] | Used to negotiate the applicability of the optional features defined in table 7.1.7-1. |  |
| TimeWindow | 3GPP TS 29.122 [6] | Represents a start time and a stop time of a time window |  |
| U2UAnalytics | 3GPP TS 29.549 [9] | Indicates the list of the requested analytics. |  |
| ValTargetUe | 3GPP TS 29.549 [9] | Used to indicate either VAL User ID or VAL UE ID. |  |

#### 7.1.5.2 Structured data types

##### 7.1.5.2.1 Introduction

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

##### 7.1.5.2.2 Type: Ue2UePerfReq

Table 7.1.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| AppPerfSub | 3GPP TS 29.549 [9] | Subscription to the VAL application performance analytics |  |
| AppPerfNotif | 3GPP TS 29.549 [9] | Notification information of the application performance analytics. |  |
| CollisionDetectionNotif | 3GPP TS 29.549 [9] | Represents the collision detection analytics notification. |  |
| CollisionDetectionSub | 3GPP TS 29.549 [9] | Represents the collision detection analytics subscription. |  |
| DurationSec | 3GPP TS 29.122 [6] | Represent the time interval between successive location reports. |  |
| EdgeSub | 3GPP TS 29.549 [9] | Subscription to the edge load analytics event |  |
| EdgeNotif | 3GPP TS 29.549 [9] | Notification information of the edge load analytics event. |  |
| LocationArea | 3GPP TS 29.122 [6] | Represents location information. |  |
| LocRelUeGroupNotif | 3GPP TS 29.549 [9] | Represents the location-related UE group analytics notification. |  |
| LocRelUeGroupSub | 3GPP TS 29.549 [9] | Represents the location-related UE group analytics subscription. |  |
| MatchingDirection | 3GPP TS 29.520 [18] | Used to indicate a threshold matching direction. |  |
| Pc5QoSPara | 3GPP TS 29.571 [10] | Represents policy data on the PC5 QoS parameters. |  |
| ReportingInformation | 3GPP TS 29.523 [8] | Indicates the reporting requirement. |  |
| SupportedFeatures | 3GPP TS 29.571 [10] | Used to negotiate the applicability of the optional features defined in table 7.1.7-1. |  |
| TimeWindow | 3GPP TS 29.122 [6] | Represents a start time and a stop time of a time window |  |
| U2UAnalytics | 3GPP TS 29.549 [9] | Indicates the list of the requested analytics. |  |
| ValTargetUe | 3GPP TS 29.549 [9] | Used to indicate either VAL User ID or VAL UE ID. |  |

##### 7.1.5.2.3 Type: Ue2UePerfResp

Table 7.1.5.2.-1: Definition of type Ue2UePerfResp

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| dataOutputs | array(string) | M | 1..N | UE-to-UE session performance analytics for prediction or statistics depending on the type and on the requested QoS parameter based on the analytics event. |  |
| valUeIds | array(ValTargetUe) | M | 1..N | One or more VAL UEs, for which the UE-to-UE session performance analytics applies. |  |
| analyticsId | string | O | 0..1 | Identity of the UE-to-UE session analytics |  |
| suppFeat | SupportedFeatures | O | 0..1 | Indicates the list of supported features used as described in clause 7.1.7. |  |

##### 7.1.5.2.4 Void

##### 7.1.5.2.5 Void

##### 7.1.5.2.6 Type: PullSrvExpInfo

Table 7.1.5.2.6-1: Definition of type PullSrvExpInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valServerId | string | M | 1 | Identity of the VAL server, for which the service experience information report is requested. |  |
| valServiceId | string | O | 0..1 | Identity of the VAL service |  |

##### 7.1.5.2.7 Type: SrvExpInfoRep

Table 7.1.5.2.7-1: Definition of type SrvExpInfoRep

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| valUeId | ValTargetUe | M | 1 | Identity of VAL UE |  |
| valServerId | string | M | 1 | Identity of the VAL server, for which the service experience information report is requested. |  |
| valServiceId | string | O | 0..1 | Identity of the VAL service |  |
| timeStamp | DurationSec | O | 0..1 | Timestamp as start time and end time of the collected report |  |
| valSrvExpRep | ReportingInformation | O | 0..1 | Report on the VAL service experience information |  |

##### 7.1.5.2.8 Type: Ue2UeRepThreshold

Table 7.1.5.2.8-1: Definition of type Ue2UeRepThreshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| thrName | U2UAnalytics | M | 1 | Indicates the name of the analytics threshold. |  |
| thrValue | string | M | 1 | Indicates the value for the analytics threshold. |  |
| thrMatchDirect | MatchingDirection | M | 1 | Indicates the threshold matching direction for the analytics threshold provided in the "thrValue" attribute. |  |

##### 7.1.5.2.9 Type: DataCollectReq

Table 7.1.5.2.9-1: Definition of type DataCollectReq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| dataFormat | string | M | 1 | Indicates the format of the requested data. |  |
| repPeriod | DurationSec | O | 0..1 | Indicates the time interval between successive reportings. |  |
| abstractLevel | string | O | 0..1 | Indicates the desired level of abstraction of the requested data. |  |
| accuracyLevel | Uinteger | O | 0..1 | Indicates the desired level of accuracy of the requested data.  Minimum = 0. Maximum = 100. |  |

#### 7.1.5.3 Simple data types and enumerations

##### 7.1.5.3.1 Introduction

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

##### 7.1.5.3.2 Simple data types

None.

##### 7.1.5.3.3 Void

##### 7.1.6 Error Handling

#### 7.1.6.1 General

HTTP error handling shall be supported as specified in clause 5.2.6 of 3GPP TS 29.122 [4].

In addition, the requirements in the following clauses shall apply.

#### 7.1.6.2 Protocol Errors

In this release of the specification, there are no additional protocol errors applicable for the ADAE\_ServiceConfiguration API.

#### 7.1.6.3 Application Errors

The application errors defined for ADAE\_ServiceConfiguration API are listed in table 7.1.6.3-1.

Table 7.1.6.3-1: Application errors

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

### 7.1.7 Feature Negotiation

General feature negotiation procedures are defined in clause 5.2.7 of 3GPP TS 29.122 [6]. Table 7.1.7-1 lists the supported features for ADAE\_ServiceConfiguration API.

Table 7.1.7-1: Supported Features

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

# 8 Usage of common API framework

## 8.1 General

Usage of common API framework shall be supported by the ADAE service configuration API as described in clause 8 in 3GPP TS 29.549 [9].

# 9 Security

## 9.1 General

Usage of HTTP over TLS and the TLS profiles shall be as specified in clause 5.1.1.4 of 3GPP TS 33.434 [11].

Annex A (normative):  
OpenAPI specification

# A.1 General

This Annex specifies the formal definition of the API(s) defined in the present specification. It consists of OpenAPI specifications in YAML format.

This annex shall take precedence when being discrepant to other parts of the specification with respect to the encoding of information elements and methods within the API(s).

NOTE 2: The semantics and procedures, as well as conditions, e.g. for the applicability and allowed combinations of attributes or values, not expressed in the OpenAPI definitions but defined in other parts of the specification also apply.

Informative copies of the OpenAPI specification files contained in this 3GPP Technical Specification are available on a Git-based repository that uses the GitLab software version control system (see clause 5.3.1 of the 3GPP TS 29.501 [7] and clause 5B of the 3GPP TR 21.900 [1] for further information).

# A.2 ADAE\_ServiceConfiguration API

openapi: 3.0.0

info:

title: ADAE\_ServiceConfiguration

version: 1.1.0-alpha.1

description: |

API for ADAE service configuration.

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externalDocs:

description: >

3GPP TS 24.559 V19.0.0 Application Data Analytics Enablement Service; Stage 3.

url: https://www.3gpp.org/ftp/Specs/archive/24\_series/24.559/

security:

- {}

- oAuth2ClientCredentials: []

servers:

- url: '{apiRoot}/adae-sc/v1'

variables:

apiRoot:

default: https://example.com

description: apiRoot as defined in clause 5.2.4 of 3GPP TS 29.122.

paths:

/application-performance:

post:

description: >

Creates a new individual VAL performance analytics event subscription.

operationId: VALPerformanceSubscription

tags:

- VAL performance event subscriptions (Collection)

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_VALPerformanceAnalytics.yaml#/components/schemas/AppPerfSub'

callbacks:

notificationUri:

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

post:

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_VALPerformanceAnalytics.yaml#/components/schemas/AppPerfNotif'

responses:

'204':

description: No Content (successful notification)

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

responses:

'201':

description: VAL performance event subscription resource created successfully.

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_VALPerformanceAnalytics.yaml#/components/schemas/AppPerfSub'

headers:

Location:

description: Contains the URI of the newly created resource.

required: true

schema:

type: string

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

/application-performance/{appPerfId}:

delete:

description: Deletes an individual VAL performance event subscription.

operationId: DeleteIndValPerfEventSubsc

tags:

- Individual VAL performance event subscription

parameters:

- name: appPerfId

in: path

description: Identifier of an individual VAL performance event subscription.

required: true

schema:

type: string

responses:

'204':

description: >

The individual VAL performance subscription matching the appPerfId is deleted.

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'429':

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

'500':

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

'503':

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

default:

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

/ue2ue-session-performance/fetch:

post:

description: >

Obtain the UE-to-UE session performance analytics.

operationId: FetchUe2UeSessionPerformance

tags:

- Fetch UE-to-UE session performance analytics

requestBody:

required: true

content:

application/json:

schema:

$ref: '#/components/schemas/Ue2UePerfReq'

responses:

'200':

description: >

Successful case. The UE-to-UE session performance information is returned in

the response body.

content:

application/json:

schema:

$ref: '#/components/schemas/Ue2UePerfResp'

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

/edge-load:

post:

description: >

Creates a new individual edge load data collection event subscription.

operationId: EdgeLoadDataCollectionSubscription

tags:

- Edge load data collection event subscriptions (Collection)

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_EdgeLoadAnalytics.yaml#/components/schemas/EdgeSub'

callbacks:

notificationUri:

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

post:

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_EdgeLoadAnalytics.yaml#/components/schemas/EdgeNotif'

responses:

'204':

description: No Content (successful notification)

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

responses:

'201':

description: Edge load data collection event subscription resource created successfully.

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_EdgeLoadAnalytics.yaml#/components/schemas/EdgeSub'

headers:

Location:

description: Contains the URI of the newly created resource.

required: true

schema:

type: string

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

/edge-load/{edgeLdId}:

delete:

description: Deletes an individual edge load data collection event subscription.

operationId: DeleteIndEdgeLdDataCollectEventSubsc

tags:

- Individual edge load data collection event subscription

parameters:

- name: edgeLdId

in: path

description: Identifier of an individual edge load data collection event subscription.

required: true

schema:

type: string

responses:

'204':

description: >

The individual edge load data collection subscription matching the edgeLdId is deleted.

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'429':

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

'500':

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

'503':

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

default:

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

/service-experience/pull:

post:

description: >

ADAE server pulls service experience report from the ADAE client.

operationId: PullSrvExpReport

tags:

- Pull service experienec report

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: >

Successful case. The ADAE client provides service experience reporting to

the ADAE server.

content:

application/json:

schema:

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

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

/collision-detection:

post:

description: >

Creates an individual collision detection analytics subscription.

operationId: CollisionDetAnalyticsSubsc

tags:

- Collision detection analytics subscriptions (Collection)

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_CollisionDetectionAnalytics.yaml#/components/schemas/CollisionDetectionSub'

callbacks:

notificationUri:

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

post:

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_CollisionDetectionAnalytics.yaml#/components/schemas/CollisionDetectionNotif'

responses:

'204':

description: No Content (successful notification)

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

responses:

'201':

description: Collision detection analytics subscription resource created successfully.

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_CollisionDetectionAnalytics.yaml#/components/schemas/CollisionDetectionSub'

headers:

Location:

description: Contains the URI of the newly created resource.

required: true

schema:

type: string

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

/collision-detection/{collisionDetectionId}:

delete:

description: Removes the individual collision detection analytics subscription.

operationId: DeleteIndCollisionDetAnalyticsSubsc

tags:

- Individual collision detection analytics subscription

parameters:

- name: collisionDetectionId

in: path

description: Identifier of an individual collision detection analytics subscription.

required: true

schema:

type: string

responses:

'204':

description: >

The Individual collision detection analytics subscription matching the

collisionDetectionId is deleted.

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'429':

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

'500':

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

'503':

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

default:

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

/ue-group-loc-analytics:

post:

description: >

Creates an individual location-related UE group analytics subscription.

operationId: LocRelUeGroupSubscription

tags:

- Location-related UE group analytics subscriptions (Collection)

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_LocationRelatedUeGroupAnalytics.yaml#/components/schemas/LocRelUeGroupSub'

callbacks:

notificationUri:

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

post:

requestBody:

required: true

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_LocationRelatedUeGroupAnalytics.yaml#/components/schemas/LocRelUeGroupNotif'

responses:

'204':

description: No Content (successful notification)

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

responses:

'201':

description: >

The location-related UE group analytics subscription resource created successfully.

content:

application/json:

schema:

$ref: 'TS29549\_SS\_ADAE\_LocationRelatedUeGroupAnalytics.yaml#/components/schemas/LocRelUeGroupSub'

headers:

Location:

description: Contains the URI of the newly created resource.

required: true

schema:

type: string

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

/ue-group-loc-analytics/{ueGroupLocId}:

delete:

description: Deletes the individual location-related UE group analytics subscription.

operationId: DeleteIndLocRelUeGroupSubsc

tags:

- Individual location-related UE group analytics subscription

parameters:

- name: ueGroupLocId

in: path

description: Identifier of an individual location-related UE group analytics subscription.

required: true

schema:

type: string

responses:

'204':

description: >

The individual location-related UE group analytics subscription matching the

appPerfId is deleted.

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'429':

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

'500':

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

'503':

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

default:

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

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{tokenUrl}'

scopes: {}

schemas:

Ue2UePerfReq:

description: ADAES requests ADAEC for the UE-to-UE session performance analytics.

type: object

properties:

serverId:

type: string

description: String identifying the ADAE server

analyticsId:

type: string

description: String identifying the UE-to-UE session analytics

valUeIds:

type: array

items:

$ref: 'TS29549\_SS\_UserProfileRetrieval.yaml#/components/schemas/ValTargetUe'

minItems: 1

description: >

One or more VAL UE IDs whose UE-to-UE session performance is requested.

pc5Qos:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Pc5QoSPara'

reportConfig:

$ref: 'TS29523\_Npcf\_EventExposure.yaml#/components/schemas/ReportingInformation'

repThresholds:

description: >

Identifies reporting threshold corresponding to the analytics.

type: array

items:

$ref: '#/components/schemas/Ue2UeRepThreshold'

minItems: 1

dataAbstractReq:

description: >

Indicates whether the data abstraction is required (true) or not (false).

type: boolean

default: false

dataCollectReq:

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

area:

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

timeWindow:

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

suppFeat:

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

required:

- serverId

- valUeIds

- pc5Qos

Ue2UePerfResp:

description: >

ADAEC responds to ADAES with the UE-to-UE session performance analytics information.

type: object

properties:

dataOutputs:

type: array

items:

type: string

minItems: 1

description: >

UE-to-UE session performance analytics for prediction or statistics.

valUeIds:

type: array

items:

$ref: 'TS29549\_SS\_UserProfileRetrieval.yaml#/components/schemas/ValTargetUe'

minItems: 1

description: >

One or more VAL UE IDs whose UE-to-UE session performance has been requested.

analyticsId:

type: string

description: String identifying the UE-to-UE session analytics

suppFeat:

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

required:

- dataOutputs

- valUeIds

Ue2UeRepThreshold:

description: Identifies reporting threshold corresponding to the analytics.

type: object

properties:

thrName:

$ref: 'TS29549\_SS\_ADAE\_Ue2UePerformanceAnalytics.yaml#/components/schemas/U2UAnalytics'

thrValue:

description: Indicates the value for the analytics threshold.

type: string

thrMatchDirect:

$ref: 'TS29520\_Nnwdaf\_EventsSubscription.yaml#/components/schemas/MatchingDirection'

required:

- thrName

- thrValue

- thrMatchDirect

DataCollectReq:

description: Contains data collection requirements.

type: object

properties:

dataFormat:

description: Indicates the format of the requested data.

type: string

repPeriod:

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

abstractLevel:

description: Indicates the desired level of abstraction of the requested data.

type: string

accuracyLevel:

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

required:

- dataFormat

PullSrvExpInfo:

description: Contains VAL server and service identities.

type: object

properties:

valServerId:

type: string

valServiceId:

type: string

required:

- valServerId

SrvExpInfoRep:

description: Allows ADAEC to provide the service experience report to the ADAES.

type: object

properties:

valUeId:

$ref: 'TS29549\_SS\_UserProfileRetrieval.yaml#/components/schemas/ValTargetUe'

valServerId:

type: string

description: String identifying the VAL server the service experience report applies.

valServiceId:

type: string

description: String identifying the VAL service

timeStamp:

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

valSrvExpRep:

$ref: 'TS29523\_Npcf\_EventExposure.yaml#/components/schemas/ReportingInformation'

required:

- valUeId

- valServerId

# Simple data types and Enumerations

Annex B (informative):  
Change history

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2023-02 | CT1#140 | C1-230160 |  |  |  | Skeleton for Application Data Analytics Enablement Service | 0.0.0 |
| 2023-05 | CT1#142 | C1-233310 |  |  |  | Application data analytics enablement service abbreviations and refences | 0.1.0 |
| 2023-05 | CT1#142 | C1-234031 |  |  |  | Application data analytics enablement service functional entities | 0.1.0 |
| 2023-05 | CT1#142 | C1-234032 |  |  |  | Application data analytics enablement service procedures | 0.1.0 |
| 2023-05 | CT1#142 | [C1-234033](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_142_Bratislava/Docs/C1-234033.zip) |  |  |  | Application data analytics enablement service procedures | 0.1.0 |
| 2023-10 | CT1#144 | [C1-237009](https://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1/TSGC1_144_Xiamen/Docs/C1-237009.zip) |  |  |  | Correction of general description | 0.2.0 |
| 2023-10 | CT1#144 | C1-237962 |  |  |  | ADAES configuration API | 0.2.0 |
| 2023-10 | CT1#144 | C1-237963 |  |  |  | Application performance analytics configuration API | 0.2.0 |
| 2023-10 | CT1#144 | C1-237964 |  |  |  | Procedure for application performance analytics | 0.2.0 |
| 2023-11 | CT1#145 | C1-239589 |  |  |  | Resource review for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239666 |  |  |  | Application performance event subscription for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239672 |  |  |  | UE-to-UE session performance for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239673 |  |  |  | Edge load event subscription for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239588 |  |  |  | Service experience for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239674 |  |  |  | Application performance event notification for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239675 |  |  |  | Edge load event notification for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239586 |  |  |  | Data model for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239587 |  |  |  | Error handling for ADAE services | 0.3.1 |
| 2023-11 | CT1#145 | C1-239477 |  |  |  | Notification overview for ADAE services | 0.3.1 |
| 2024-01 | CT1#146 | C1-240300 |  |  |  | Add references | 0.4.0 |
| 2024-01 | CT1#146 | C1-240301 |  |  |  | Corrections and removal of some titles | 0.4.0 |
| 2024-01 | CT1#146 | C1-240302 |  |  |  | Restructuring of resource URI for ADAES | 0.4.0 |
| 2024-01 | CT1#146 | C1-240303 |  |  |  | Service description and operations for application performance analytics | 0.4.0 |
| 2024-01 | CT1#146 | C1-240304 |  |  |  | Service description and operations for UE-to-UE session performance analytics | 0.4.0 |
| 2024-01 | CT1#146 | C1-240305 |  |  |  | Service description and operations for edge load data collection | 0.4.0 |
| 2024-01 | CT1#146 | C1-240306 |  |  |  | Service description and operations for service-experiment | 0.4.0 |
| 2024-01 | CT1#146 | C1-240307 |  |  |  | Usage of HTTP, common API framework, and security | 0.4.0 |
| 2024-01 | CT1#146 | C1-240308 |  |  |  | ADAE service configuration OpenAPI | 0.4.0 |
| 2024-03 | CT1#147 | C1-241600 |  |  |  | Miscellaneous corrections | 0.5.0 |
| 2024-03 | CT1#147 | C1-241601 |  |  |  | Miscellaneous corrections | 0.5.0 |
| 2024-03 | CT1#147 | C1-241602 |  |  |  | OpenAPI corrections | 0.5.0 |
| 2024-03 | CT1#147 | C1-241603 |  |  |  | Description of functional entities | 0.5.0 |
| 2024-03 | CT1#147 | C1-241604 |  |  |  | Usage of HTTP | 0.5.0 |
| 2024-03 | CT1#147 | C1-241605 |  |  |  | Update the configuring triggers and PUSH service experience information report procedures | 0.5.0 |
| 2024-03 | CT#103 | CP-240251 |  |  |  | Presentation to TSG CT#103 for information and approval | 1.0.0 |
| 2024-03 | CT#103 |  |  |  |  | Approved in CT#103 | 18.0.0 |
| 2024-03 | CT#103 |  |  |  |  | YAML files that were missing in previous version included | 18.0.1 |
| 2024-06 | CT#104 | CP-241166 | 0001 | 1 | B | UE-to-UE session performance analytics request | 18.1.0 |
| 2024-06 | CT#104 | CP-241166 | 0002 | 1 | B | Supported features indication in UE-to-UE session performance analytics | 18.1.0 |
| 2024-06 | CT#104 | CP-241166 | 0003 |  | F | Support of redirections | 18.1.0 |
| 2024-06 | CT#104 | CP-241166 | 0004 |  | F | Definition of timeWindow | 18.1.0 |
| 2024-06 | CT#104 | CP-241166 | 0005 | 2 | F | Remove API definition and OPEN API for Configuring Triggers and PUSH service experience information report. | 18.1.0 |
| 2024-06 | CT#104 | CP-241273 | 0006 |  | F | Update of info and externalDocs fields | 18.1.0 |
| 2024-12 | CT#106 | CP-243271 | 0007 | 2 | B | Collision Detection Analytics | 19.0.0 |
| 2024-12 | CT#106 | CP-243241 | 0008 | 2 | B | Location-related UE Group Analytics | 19.0.0 |
| 2024-12 | CT#106 | CP-243286 | 0009 |  | F | Update of info and externalDocs fields | 19.0.0 |
| 2025-03 | CT#107 | CP-25XXXX | 0010 | 2 | F | The format of the structured URI query parameters | 19.1.0 |