**3GPP TSG-CT3 Meeting #130C3-234xxx**

**Xiamen, China, 9th – 13th October 2023 was C3-234138**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.486** | **CR** | **0097** | **rev** | **1** | **Current version:** | **18.0.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | |
| ***Title:*** | Define the API definition clauses of the VAE\_ServiceAndQoSControlInfo API | | | | | | | | |
|  |  | | | | | | | | |
| ***Source to WG:*** | Huawei, Nokia, Nokia Shanghai Bell | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | |
|  |  | | | | | | | | |
| ***Work item code:*** | V2XAPP\_Ph3 | | | | |  | ***Date:*** | | 2023-09-29 |
|  |  | | | |  | |  | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | |
| ***Reason for change:*** | | | As specified in clauses 9.20 and 10.2 of TS 23.286, in order to support the "Monitoring and control of QoS for eV2X communications" functionality, the VAE\_ServiceAndQoSControlInfo API was defined.  The stage 3 definition of this API in this specification needs hence to be started. | | | | | | |
|  | | |  | | | | | | |
| ***Summary of change:*** | | | This CR proposes to:   * Start the definition of the API clauses of the new VAE\_ServiceAndQoSControlInfo Service API. | | | | | | |
|  | | |  | | | | | | |
| ***Consequences if not approved:*** | | | * The support of the "Monitoring and control of QoS for eV2X communications" functionality is not defined in stage 3. | | | | | | |
|  | |  | | | | | | | |
| ***Clauses affected:*** | | 6.10 (new clause) | | | | | | | |
|  | |  | | | | | | | |
|  | | **Y** | | **N** |  | | |  | |
| ***Other specs*** | |  | | **X** | Other core specifications | | | TS/TR ... CR ... | |
| ***affected:*** | |  | | **X** | Test specifications | | | TS/TR ... CR ... | |
| ***(show related CRs)*** | |  | | **X** | O&M Specifications | | | TS/TR ... CR ... | |
|  | |  | | | | | | | |
| ***Other comments:*** | | This CR does not impact the OpenAPI descriptions defined in this specification. | | | | | | | |
|  | |  | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | |

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

## 6.10 VAE\_ServiceAndQoSControlInfo API

### 6.10.1 Introduction

The VAE\_ServiceAndQoSControlInfo service shall use the VAE\_ServiceAndQoSControlInfo API.

The API URI of the VAE\_ServiceAndQoSControlInfo Service API shall be:

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

The request URIs used in HTTP requests shall have the Resource URI structure defined in clause 5.2.4 of 3GPP TS 29.122 [22], i.e.:

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

with the following components:

- The {apiRoot} shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [22].

- The <apiName>shall be "vae-sqci".

- The <apiVersion> shall be "v1".

- The <apiSpecificSuffixes> shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [22].

NOTE: When 3GPP TS 29.122 [22] is referenced for the common protocol and interface aspects for API definition in the clauses under clause 6.10, the service producer (i.e. VAE Server) takes the role of the SCEF and the service consumer (i.e. VASS) takes the role of the SCS/AS.

### 6.10.2 Usage of HTTP

The provisions of clause 5.2.2 of 3GPP TS 29.122 [22] shall apply for the VAE\_ServiceAndQoSControlInfo API.

### 6.10.3 Resources

#### 6.10.3.1 Overview

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

Figure 6.10.3.1-1 depicts the resource URIs structure for the VAE\_ServiceAndQoSControlInfo API.



Figure 6.10.3.1-1: Resource URIs structure of the VAE\_ServiceAndQoSControlInfo API

Table 6.10.3.1-1 provides an overview of the resources and applicable HTTP methods for the VAE\_ServiceAndQoSControlInfo API.

Table 6.10.3.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| Service Adaptation And QoS Control Subscriptions | /subscriptions | POST | Request the creation of a Service Adaptation And QoS Control Subscription. |
| Individual Service Adaptation And QoS Control Subscription | /subscriptions/{subscriptionId} | GET | Retrieve an existing "Individual Service Adaptation And QoS Control Subscription". |
| PUT | Request the update of an existing "Individual Service Adaptation And QoS Control Subscription". |
| PATCH | Request the modification of an existing "Individual Service Adaptation And QoS Control Subscription". |
| DELETE | Request the deletion of an existing "Individual Service Adaptation And QoS Control Subscription". |

#### 6.10.3.2 Resource: Service Adaptation And QoS Control Subscriptions

##### 6.10.3.2.1 Description

This resource represents the collection of Service Adaptation And QoS Control Subscriptions managed by the VAE Server.

##### 6.10.3.2.2 Resource Definition

Resource URI: **{apiRoot}/vae-sqci/****<apiVersion>/subscriptions**

This resource shall support the resource URI variables defined in table 6.10.3.2.2-1.

Table 6.10.3.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.10.1. |

##### 6.10.3.2.3 Resource Standard Methods

###### 6.10.3.2.3.1 POST

The HTTP POST method allows a service consumer (e.g., VASS) to request the creation of a Service Adaptation And QoS Control Subscription at the VAE Server.

This method shall support the URI query parameters specified in table 6.10.3.2.3.1-1.

Table 6.10.3.2.3.1-1: 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 6.10.3.2.3.1-2 and the response data structures and response codes specified in table 6.10.3.2.3.1-3.

Table 6.10.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ServAdaptQoSCtrlSubsc | M | 1 | Represents the parameters to request the creation of a Service Adaptation And QoS Control Subscription. |

Table 6.10.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| ServAdaptQoSCtrlSubsc | M | 1 | 201 Created | Successful case. The Service Adaptation And QoS Control Subscription is successfully created and a representation of the created "Individual Service Adaptation And QoS Control Subscription" resource shall be returned.  An HTTP "Location" header that contains the resource URI of the created resource shall also be included. |
| NOTE: The mandatory HTTP error status code for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [22] shall also apply. | | | | |

Table 6.10.3.2.3.1-4: Headers supported by the 201 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure:  {apiRoot}/vae-sqci/<apiVersion>/subscriptions/{subscriptionId} |

##### 6.10.3.2.4 Resource Custom Operations

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

#### 6.10.3.3 Resource: Individual Service Adaptation And QoS Control Subscription

##### 6.10.3.3.1 Description

This resource represents a Service Adaptation And QoS Control Subscription managed by the VAE Server.

##### 6.10.3.3.2 Resource Definition

Resource URI: **{apiRoot}/vae-sqci/<apiVersion>/subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in table 6.10.3.3.2-1.

Table 6.10.3.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 6.10.1. |
| subscriptionId | string | Represents the identifier of the "Individual Service Adaptation And QoS Control Subscription" resource. |

##### 6.10.3.3.3 Resource Standard Methods

###### 6.10.3.3.3.1 GET

The HTTP GET method allows a service consumer (e.g., VASS) to retrieve an existing "Individual Service Adaptation And QoS Control Subscription" resource at the VAE Server.

This method shall support the URI query parameters specified in table 6.10.3.3.3.1-1.

Table 6.10.3.3.3.1-1: URI query parameters supported by the GET method on this resource

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

This method shall support the request data structures specified in table 6.10.3.3.3.1-2 and the response data structures and response codes specified in table 6.10.3.3.3.1-3.

Table 6.10.3.3.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 6.10.3.3.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| ServAdaptQoSCtrlSubsc | M | 1 | 200 OK | Successful case. The requested "Individual Service Adaptation And QoS Control Subscription" resource shall be returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing an alternative URI of the resource located in an alternative VAE Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| 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 VAE Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| NOTE: The mandatory HTTP error status code for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [22] shall also apply. | | | | |

Table 6.10.3.3.3.1-4: 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 VAE Server. |

Table 6.10.3.3.3.1-5: 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 VAE Server. |

###### 6.10.3.3.3.2 PUT

The HTTP PUT method allows a service consumer (e.g., VASS) to request the update of an existing "Individual Service Adaptation And QoS Control Subscription" resource at the VAE Server.

This method shall support the URI query parameters specified in table 6.10.3.3.3.2-1.

Table 6.10.3.3.3.2-1: URI query parameters supported by the PUT method on this resource

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

This method shall support the request data structures specified in table 6.10.3.3.3.2-2 and the response data structures and response codes specified in table 6.10.3.3.3.2-3.

Table 6.10.3.3.3.2-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ServAdaptQoSCtrlSubsc | M | 1 | Represents the updated representation of the "Individual Service Adaptation And QoS Control Subscription" resource. |

Table 6.10.3.3.3.2-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| ServAdaptQoSCtrlSubsc | M | 1 | 200 OK | Successful case. The "Individual Service Adaptation And QoS Control Subscription" resource is successfully updated and a representation of the updated resource shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Service Adaptation And QoS Control Subscription" resource is successfully updated and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing an alternative URI of the resource located in an alternative VAE Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| 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 VAE Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| NOTE: The mandatory HTTP error status code for the HTTP PUT method listed in table 5.2.6-1 of 3GPP TS 29.122 [22] shall also apply. | | | | |

Table 6.10.3.3.3.2-4: Headers supported by the 307 Response Code on this resource

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

Table 6.10.3.3.3.2-5: Headers supported by the 308 Response Code on this resource

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

###### 6.10.3.3.3.3 PATCH

The HTTP PATCH method allows a service consumer (e.g., VASS) to request the modification of an existing "Individual Service Adaptation And QoS Control Subscription" resource at the VAE Server.

This method shall support the URI query parameters specified in table 6.10.3.3.3.3-1.

Table 6.10.3.3.3.3-1: URI query parameters supported by the PATCH method on this resource

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

This method shall support the request data structures specified in table 6.10.3.3.3.3-2 and the response data structures and response codes specified in table 6.10.3.3.3.3-3.

Table 6.10.3.3.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| ServAdaptQoSCtrlSubscPatch | M | 1 | Represents the parameters to request the modification of the "Individual Service Adaptation And QoS Control Subscription" resource. |

Table 6.10.3.3.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| ServAdaptQoSCtrlSubsc | M | 1 | 200 OK | Successful case. The "Individual Service Adaptation And QoS Control Subscription" resource is successfully modified and a representation of the updated resource shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The "Individual Service Adaptation And QoS Control Subscription" resource is successfully modified and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing an alternative URI of the resource located in an alternative VAE Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| 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 VAE Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| NOTE: The mandatory HTTP error status code for the HTTP PATCH method listed in table 5.2.6-1 of 3GPP TS 29.122 [22] shall also apply. | | | | |

Table 6.10.3.3.3.3-4: Headers supported by the 307 Response Code on this resource

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

Table 6.10.3.3.3.3-5: Headers supported by the 308 Response Code on this resource

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

###### 6.10.3.3.3.4 DELETE

The HTTP DELETE method allows a service consumer (e.g., VASS) to request the deletion of an existing "Individual Service Adaptation And QoS Control Subscription" resource at the VAE Server.

This method shall support the URI query parameters specified in table 6.10.3.3.3.4-1.

Table 6.10.3.3.3.4-1: URI query parameters supported by the DELETE method on this resource

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

This method shall support the request data structures specified in table 6.10.3.3.3.4-2 and the response data structures and response codes specified in table 6.10.3.3.3.4-3.

Table 6.10.3.3.3.4-2: Data structures supported by the DELETE Request Body on this resource

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

Table 6.10.3.3.3.4-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | Successful case. The "Individual Service Adaptation And QoS Control Subscription" resource is successfully deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing an alternative URI of the resource located in an alternative VAE Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| 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 VAE Server.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| NOTE: The mandatory HTTP error status code for the HTTP DELETE method listed in table 5.2.6-1 of 3GPP TS 29.122 [22] shall also apply. | | | | |

Table 6.10.3.3.3.4-4: Headers supported by the 307 Response Code on this resource

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

Table 6.10.3.3.3.4-5: Headers supported by the 308 Response Code on this resource

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

##### 6.10.3.3.4 Resource Custom Operations

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

### 6.10.4 Custom Operations without associated resources

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

### 6.10.5 Notifications

#### 6.10.5.1 General

Notifications shall comply to clause 5.2.5 of 3GPP TS 29.122 [22].

Table 6.10.5.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description  (service operation) |
| Service Requirements And QoS Adaptation Notification | {notifUri} | POST | This operation enables a VAE Server to notify a previously subscribed service consumer (e.g., VASS) on service requirements and QoS adaptation. |

#### 6.10.5.2 Service Requirements And QoS Adaptation Notification

##### 6.10.5.2.1 Description

The Service Requirements And QoS Adaptation Notification is used by a VAE Server to notify a previously subscribed service consumer on service requirements and QoS adaptation.

##### 6.10.5.2.2 Target URI

The Callback URI **"{notifUri}"** shall be used with the callback URI variables defined in table 6.10.5.2.2-1.

Table 6.10.5.2.2-1: Callback URI variables

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| notifUri | Uri | String formatted as a URI containing the Callback URI.  The notification URI is provided as part of the corresponding Service Adaptation And QoS Control Subscription creation/update/modification request as defined in clause 6.10.3. |

##### 6.10.5.2.3 Standard Methods

###### 6.10.5.2.3.1 POST

This method shall support the request data structures specified in table 6.10.5.2.3.1-1 and the response data structures and response codes specified in table 6.10.5.2.3.1-2.

Table 6.10.5.2.3.1-1: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| AdaptNotif | M | 1 | Represents the Service Requirements And QoS Adaptation Notification. |

Table 6.10.5.2.3.1-2: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| AdaptNotifResp |  |  | 200 OK | Successful case. The Service Requirements And QoS Adaptation Notification is successfully received and acknowledged and the acknowledgment related information shall be returned in the response body. |
| n/a |  |  | 204 No Content | Successful case. The Service Requirements And QoS Adaptation Notification is successfully received and acknowledged and no content is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection. The response shall include a Location header field containing an alternative URI representing the end point of an alternative service consumer where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection. The response shall include a Location header field containing an alternative URI representing the end point of an alternative service consumer where the notification should be sent.  Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [22]. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [22] shall also apply. | | | | |

Table 6.10.5.2.3.1-3: 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 service consumer towards which the notification should be redirected. |

Table 6.10.5.2.3.1-4: 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 service consumer towards which the notification should be redirected. |

### 6.10.6 Data Model

#### 6.10.6.1 General

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

Table 6.10.6.1-1 specifies the data types defined for the VAE\_ServiceAndQoSControlInfo API.

Table 6.10.6.1-1: VAE\_ServiceAndQoSControlInfo API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| AckResult | 6.10.6.3.3 | Represents the acknowledgement result. |  |
| AdaptNotif | 6.10.6.2.4 | Represents a Service Requirements And QoS Adaptation Notification. |  |
| AdaptNotifResp | 6.10.6.2.5 | Represents the Service Requirements And QoS Adaptation Notification acknowledgment related information. |  |
| QoSChangeInfo | 6.10.6.2.6 | Represents the QoS change related information. |  |
| ServAdaptQoSCtrlSubsc | 6.10.6.2.2 | Represents a Service Adaptation And QoS Control Subscription. |  |
| ServAdaptQoSCtrlSubscPatch | 6.10.6.2.3 | Represents the parameters to request the modification of a Service Adaptation And QoS Control Subscription. |  |

Table 6.10.6.1-2 specifies data types re-used by the VAE\_ServiceAndQoSControlInfo API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the VAE\_ServiceAndQoSControlInfo API.

Table 6.10.6.1-2: VAE\_ServiceAndQoSControlInfo API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Uri | 3GPP TS 29.122 [22] | Represents a URI. |  |
| V2xGroupId | Clause 6.1.6.3.2 | Represents the identifier of a V2X Group. |  |
| V2xServiceId | Clause 6.1.6.3.2 | Represents the identifier of a V2X Service. |  |
| V2xUeId | Clause 6.1.6.3.2 | Represents the identifier of a V2X UE. |  |
| SupportedFeatures | 3GPP TS 29.571 [18] | Used to negotiate the applicability of the optional features. |  |

#### 6.10.6.2 Structured data types

##### 6.10.6.2.1 Introduction

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

##### 6.10.6.2.2 Type: ServAdaptQoSCtrlSubsc

Table 6.10.6.2.2-1: Definition of type ServAdaptQoSCtrlSubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| groupId | V2xGroupId | C | 0..1 | Represents the identifier of the V2X group to which the subscription is related.  (NOTE) |  |
| serviceId | V2xServiceId | C | 0..1 | Represents the identifier of the V2X Service to which the subscription is related.  (NOTE) |  |
| ueId | V2xUeId | C | 0..1 | Represents the identifier of the V2X UE to which the subscription is related.  (NOTE) |  |
| notifUri | Uri | M | 1 | Contains the URI via which notifications shall be delivered. |  |
| suppFeat | SupportedFeatures | C | 0..1 | Contains the list of supported features among the ones defined in clause 6.10.8.  This attribute shall be provided if feature negotiation shall take place. |  |
| NOTE: These attributes are mutually exclusive. Either one of them shall be present. | | | | | |

##### 6.10.6.2.3 Type: ServAdaptQoSCtrlSubscPatch

Table 6.10.6.2.3-1: Definition of type ServAdaptQoSCtrlSubscPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| groupId | V2xGroupId | C | 0..1 | Contains the identifier of the V2X group to which the subscription is related.  (NOTE) |  |
| serviceId | V2xServiceId | C | 0..1 | Contains the identifier of the V2X Service to which the subscription is related.  (NOTE) |  |
| ueId | V2xUeId | C | 0..1 | Contains the identifier of the V2X UE to which the subscription is related.  (NOTE) |  |
| NOTE: These attributes are mutually exclusive. Either one of them may be present. | | | | | |

##### 6.10.6.2.4 Type: AdaptNotif

Table 6.10.6.2.4-1: Definition of type AdaptNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscriptionId | string | M | 1 | Contain the identifier of the subscription to which the notification is related. |  |
| ueIdsList | array(V2xUeId) | M | 1 | Contains the identifier(s) of the V2X UE(s) to which the notification is related. |  |
| qosChangeInfo | QoSChangeInfo | M | 1 | Contains the actual or expected QoS change related information. |  |

##### 6.10.6.2.5 Type: AdaptNotifResp

Table 6.10.6.2.5-1: Definition of type AdaptNotifResp

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| result | AckResult | M | 1 | Contains the acknowledgement result. |  |
| ueIdsList | array(V2xUeId) | M | 1 | Contains the identifier(s) of the V2X UE(s) that shall be affected by the service requirements adaptation and/or require QoS change.  This attribute shall be present only if the "result" attribute is set to "POSITIVE". |  |

##### 6.10.6.2.6 Type: QoSChangeInfo

Table 6.10.6.2.6-1: Definition of type QoSChangeInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
|  |  |  |  |  |  |

Editor's Note: The definition/content of this data type is FFS.

#### 6.10.6.3 Simple data types and enumerations

##### 6.10.6.3.1 Introduction

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

##### 6.10.6.3.2 Simple data types

The simple data types defined in table 6.10.6.3.2-1 shall be supported.

Table 6.10.6.3.2-1: Simple data types

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

##### 6.10.6.3.3 Enumeration: AckResult

Table 6.10.6.3.3-1: Enumeration AckResult

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| POSITIVE | Indicates that the acknowledgement is positive. |  |
| NEGETIVE | Indicates that the acknowledgement is negative. |  |

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

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

#### 6.10.6.5 Binary data

##### 6.10.6.5.1 Binary Data Types

Table 6.10.6.5.1-1: Binary Data Types

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

### 6.10.7 Error Handling

#### 6.10.7.1 General

For the VAE\_ServiceAndQoSControlInfo API, HTTP error responses shall be supported as specified in clause 5.2.6 of 3GPP TS 29.122 [22]. Protocol errors and application errors specified in clause 5.2.6 of 3GPP TS 29.122 [22] shall be supported for the HTTP status codes specified in table 5.2.6-1 of 3GPP TS 29.122 [22].

In addition, the requirements in the following clauses are applicable for the VAE\_ServiceAndQoSControlInfo API.

#### 6.10.7.2 Protocol Errors

No specific protocol errors for the VAE\_ServiceAndQoSControlInfo API are specified.

#### 6.10.7.3 Application Errors

The application errors defined for the VAE\_ServiceAndQoSControlInfo API are listed in Table 6.10.7.3-1.

Table 6.10.7.3-1: Application errors

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

### 6.10.8 Feature negotiation

The optional features listed in table 6.10.8-1 are defined for the VAE\_ServiceAndQoSControlInfo API. They shall be negotiated using the extensibility mechanism defined in clause 5.2.7 of 3GPP TS 29.122 [22].

Table 6.10.8-1: Supported Features

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

### 6.10.9 Security

The provisions of clause 6 of 3GPP TS 29.122 [22] shall apply for the VAE\_ServiceAndQoSControlInfo API.

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