**3GPP TSG CT WG3 Meeting #138 *C3-246115***

**Orlando, US, 18 - 22 November, 2024 (Revision of C3-246xxx)**

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

|  |
| --- |
|  |
| ***Title:***  | IMS Event Exposure API definitions and data model |
|  |  |
| ***Source to WG:*** | , Ericsson |
| ***Source to TSG:*** |  |
|  |  |
| ***Work item code:*** |  |  | ***Date:*** | -11-11 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** |  |
|  | *Use one of the following categories:****F*** *(correction)****A*** *(mirror corresponding to a change in an earlier release)****B*** *(addition of feature),* ***C*** *(functional modification of feature)****D*** *(editorial modification)*Detailed explanations of the above categories canbe found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | *Use one of the following releases:Rel-8 (Release 8)Rel-9 (Release 9)Rel-10 (Release 10)Rel-11 (Release 11)…Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | As per SA2#165 agreed S2-2410974 and S2-2411188, A new NEF service, including SUBSCRIBE/UNSUBSCRIBE/NOTIFY service operations, is defined for the IMS events and event categories. Event categories include a collection of individual events.There is a need for defining the corresponding stage 3 API definitions. |
|  |  |
| ***Summary of change:*** | IMS Event Exposure API definitionand data model is defined to subscribe/unsubscribe/notify framework for IMS event exposure in NEF. |
|  |  |
| ***Consequences if not approved:*** | There is a gap between stage 2 and stage 3 for Nnef\_ImsEventExposure API definitions. |
|  |  |
| ***Clauses affected:*** | 5.39 (new) |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 23.228 CR 1409TS 23.502 CR 4872 |
| ***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:*** |  |

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

## 5.38 ImsEventExposure API

### 5.38.1 Introduction

The Nnef\_ImsEventExposure service shall use the ImsEventExposure API.

The API URI of ImsEventExposure 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 [2], i.e.:

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

with the following components:

- "apiRoot" is set as defined in clause 5.2.4 of 3GPP TS 29.122 [4].

- "apiName" shall be set to "3gpp-ims-ee".

- "apiVersion" shall be set to "v1" for the current version defined in the present document.

- The <apiSpecificSuffixes> shall be set as described in clause 5.2.4 of 3GPP TS 29.122 [4].

All resource URIs in the clauses below are defined relative to the above API URI.

### 5.38.2 Resources

#### 5.38.2.1 Overview

This clause describes the structure for the Resource URIs as shown in Figure 5.38.2.1-1 and the resources and HTTP methods used for the ImsEventExposure API.



Figure 5.38.2.1-1: Resource URI structure of the ImsEventExposure API

Table 5.38.2.1-1 provides an overview of the resources and applicable HTTP methods applicable for the ImsEventExposure API.

Table 5.38.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI (relative path under API URI) | HTTP method or custom operation | Description(service operation) |
| IMS EE Subscriptions | /{afId}/subscriptions | POST | Create a new IMS Event Exposure Subscription. |
| GET | Retreive all the active IMS Event Exposure Subscription resources. |
| Individual IMS EE Subscription | /{afId}/subscriptions/{subscriptionId} | GET | Retreive an existing " IMS EE Subscription " resource. |
| PUT | Update an existing " IMS EE Subscription " resource. |
| PATCH | Modify an existing " IMS EE Subscription" resource. |
| DELETE | Delete an existing " IMS EE Subscription " resource. |

#### 5.38.2.2 Resource: IMS EE Subscriptions

##### 5.38.2.2.1 Introduction

This resource represents all the active IMS EE Subscription managed by the NEF for a given AF.

This resource is modelled with the Collection resource archetype (see clause C.2 of 3GPP TS 29.501 [3]).

##### 5.38.2.2.2 Resource definition

Resource URL: **{apiRoot}/3gpp-ims-ee/<apiVersion>/{afId}/subscriptions**

This resource shall support the resource URL variables defined in table 5.38.2.2.2-1.

Table 5.38.2.2.2-1: Resource URL variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 5.38.1. |
| afId | string | Represents the identifier of the AF. |

##### 5.38.2.2.3 Resource Standard Methods

###### 5.38.2.2.3.1 POST

The HTTP POST method enables to request the creation of a new IMS Event Exposure Subscription at the NEF.

This method shall support the URI query parameters specified in table 5.38.2.2.3.1-1.

Table 5.38.2.2.3.1-1: 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 5.38.2.2.3.1-2 and the response data structures and response codes specified in table 5.38.2.2.3.1-3.

Table 5.38.2.2.3.1-2: Data structures supported by the POST request body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| IMSEESubsc | M | 1 | Contains the parameters to request the creation of a IMS EE Subscription at the NEF. |

Table 5.38.2.2.3.1-3: Data structures supported by the POST response body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| IMSEESubsc | M | 1 | 201 Created | Successful case. A representation of the created "IMS EE Subscription" resource is returned in the response body.The URI of the created resource shall be returned in an HTTP "Location" header. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. |

Table 5.38.2.2.3.1-4: Headers supported by the 201 response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| HTTP response header | Data type | P | Cardinality | Description |
| Location | string | M | 1 | The URI of the newly created resource, according to the structure:{apiRoot}/3gpp-ims-ee/<apiVersion>/{afId}/subscriptions/{subscriptionId} |

###### 5.38.2.2.3.2 GET

The HTTP GET method enables to retrieve all the active IMS EE Subscriptions managed by the NEF.

This method shall support the URI query parameters specified in table 5.38.2.2.3.2-1.

Table 5.38.2.2.3.2-1: URI query parameters supported by the GETmethod on this resource

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

This method shall support the request data structures specified in table 5.38.2.2.3.2-2 and the response data structures and response codes specified in table 5.38.2.2.3.2-3.

Table 5.38.2.2.3.2-2: Data structures supported by the GETRequest Body on this resource

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

Table 5.38.2.2.3.2-3-3: Data structures supported by theGET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| map(IMSEESubsc) | M | 0..N | 200 OK | Successful case. All the " IMS EE Subscription" resource(s) managed by the NEF are returned.If there are no active " IMS EE Subscription" resources at the NEF, an empty array is returned. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. |

Table 5.38.2.2.3.2-3-4: Headers supported by the 307 Response Code on this resource

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

Table 5.38.2.2.3.2-3-5: Headers supported by the 308 Response Code on this resource

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

##### 5.38.2.2.4 Resource Custom Operations

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

#### 5.38.2.3 Resource: IMS EE Subscription

##### 5.38.2.3.1 Introduction

This resource represents an " IMS EE Subscription" resource managed by the NEF.

This resource is modelled with the Document resource archetype (see clause C.1 of 3GPP TS 29.501 [3]).

##### 5.38.2.3.2 Resource Definition

Resource URL: **{apiRoot}/3gpp-ims-ee/<apiVersion>/{afId}/subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in table 5.38.2.3.2-1.

Table 5.38.2.3.2-1: Resource URL variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| apiRoot | string | See clause 5.38.1. |
| afId | string | Represents the identifier of the AF. |
| subscriptionId | string | Represents the identifier of the " IMS EE Subscription" resource. |

##### 5.38.2.3.3 Resource Standard Methods

###### 5.38.2.3.3.1 GET

The HTTP GET method enables to retrieve an existing " IMS EE Subscription" resource at the NEF.

This method shall support the URI query parameters specified in table 5.38.2.3.3.1-1.

Table 5.38.2.3.3.1-1: 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 5.38.2.3.3.1-2 and the response data structures and response codes specified in table 5.38.2.3.3.1-3.

Table 5.38.2.3.3.1-2: Data structures supported by the GET Request Body on this resource

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

Table 5.38.2.3.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| IMSEESubsc | M | 1 | 200 OK | Successful case. The requested individual "IMS EE Subscription" resource is returned in the response body. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP GET method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. |

Table 5.38.2.3.3.1-4: Headers supported by the 307 Response Code on this resource

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

Table 5.38.2.3.3.1-5: Headers supported by the 308 Response Code on this resource

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

###### 5.38.2.3.3.2 PUT

The HTTP PUT method enables to request the update of an existing " IMS EE Subscription" resource at the NEF.

This method shall support the URI query parameters specified in table 5.38.2.3.3.2-1.

Table 5.38.2.3.3.2-1: URI query parameters supported by the PUT method on this resource

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

This method shall support the request data structures specified in table 5.38.2.3.3.2-2 and the response data structures and response codes specified in table 5.38.2.3.3.2-4.

Table 5.38.2.3.3.2-2: Data structures supported by the PUT request body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| IMSEESubsc | M | 1 | Contains the updated "Individual IMS EE Subscription" resource representation. |

Table 5.38.2.3.3.2-3: Data structures supported by the PUT response body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| IMSEESubsc | M | 1 | 200 OK | Successful response. The " IMS EE Subscription" resource is successfully updated and a representation of the updated resource is returned in the response body. |
| n/a |  |  | 204 No Content | Successful response. The " IMS EE 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 target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PUT method listed in Table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. |

Table 5.38.2.3.3.2-4: Headers supported by the 307 Response Code on this resource

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

Table 5.38.2.3.3.2-5: Headers supported by the 308 Response Code on this resource

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

###### 5.38.2.3.3.3 PATCH

This method enables to request the modification of an existing " IMS EE Subscription" resource at the NEF.

This method shall support the URI query parameters specified in table 5.38.2.3.3.3-1.

Table 5.38.2.3.3.3-1: 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 5.38.2.3.3.3-2 and the response data structures and response codes specified in table 5.38.2.3.3.3-3.

Table 5.38.2.3.3.3-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| IMSEESubscPatch | M | 1 | Contains the requested modifications to the "IMS EE Subscription" resource. |

Table 5.38.2.3.3.3-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| IMSEESubsc | M | 1 | 200 OK | Successful response. The "Individual IMS EE Subscription" resource is successfully modified and a representation of the updated resource is returned in the response body. |
| n/a |  |  | 204 No Content | Successful response. The "Individual IMS EE 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 target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP PATCH method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. |

Table 5.38.2.3.3.3-4: Headers supported by the 307 Response Code on this resource

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

Table 5.38.2.3.3.3-5: Headers supported by the 308 Response Code on this resource

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

###### 5.38.2.3.3.4 DELETE

The HTTP DELETE method enables to request the deletion of an existing "Individual IMS EE Subscription" resource at the NEF.

This method shall support the URI query parameters specified in table 5.38.2.3.3.4-1.

Table 5.38.2.3.3.4-1: 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 5.38.2.3.3.4-2 and the response data structures and response codes specified in table 5.38.2.3.3.4-3.

Table 5.38.2.3.3.4-2: Data structures supported by the DELETE request body on this resource

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

Table 5.38.2.3.3.4-3: Data structures supported by the DELETE response body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | ResponseCodes | Description |
| n/a |  |  | 204 No Content | Successful response. The "Individual IMS EE Subscription" resource is successfully deleted. |
| n/a |  |  | 307 Temporary Redirect | Temporary redirection.The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| n/a |  |  | 308 Permanent Redirect | Permanent redirection.The response shall include a Location header field containing an alternative target URI of the resource located in an alternative NEF.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP DELETE method listed in Table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. |

Table 5.38.2.3.3.4-4: Headers supported by the 307 Response Code on this resource

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

Table 5.38.2.3.3.4-5: Headers supported by the 308 Response Code on this resource

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

##### 5.38.2.3.4 Resource Custom Operations

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

### 5.38.3 Custom Operations without associated resources

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

### 5.38.4 Notifications

5.38.4.1 General

Notifications shall comply to clause 5.2.5 of 3GPP TS 29.122 [4].

**Table 5.38.4.1-1: Notifications overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Notification** | **Callback URI** | **HTTP method or custom operation** | **Description****(service operation)** |
| IMS EE Notification | {notifUri} | POST | Enable the NEF to notify a previously subscribed AF on IMS Event Exposure. |

5.38.4.2 IMS EE Notification

5.38.4.2.1 Description

The IMS EE Notification is used by the NEF to report IMS EE Service-related event(s) to a previously subscribed AF.

5.38.4.2.2 Target URI

The Callback URI **"{notifUri}"** shall be used with the callback URI variables defined in table 5.38.4.2.2-1.

**Table 5.38.4.2.2-1: Callback URI variables**

|  |  |
| --- | --- |
| **Name** | **Definition** |
| notifUri | Represents the callback URI encoded as a string formatted as a URI. |

5.38.4.2.3 Operation Definition

This method shall support the request data structures specified in table 5.38.4.2.3-1 and the response data structures and response codes specified in table 5.38.4.2.3-2.

**Table 5.38.4.2.3-1: Data structures supported by the POST Request Body on this resource**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **P** | **Cardinality** | **Description** |
| array(IMSEENotif) | M | 1..N | Represents the notification of the subscribed IMS Event(s). |

**Table 5.38.4.2.3-2: Data structures supported by the POST Response Body on this resource**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| n/a |  |  | 204 No Content | Successful case. The notification is successfully received and acknowledged. |
| 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 AF towards which the notification should be sent.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| 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 AF towards which the notification should be sent.Redirection handling is described in clause 5.2.10 of 3GPP TS 29.122 [4]. |
| NOTE: The mandatory HTTP error status codes for the HTTP POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] shall also apply. |

**Table 5.38.4.2.3-3: Headers supported by the 307 Response Code on this resource**

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

**Table 5.38.4.2.3-4: Headers supported by the 308 Response Code on this resource**

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

### 5.38.5 Data Model

#### 5.38.5.1 General

This clause specifies the application data model supported by the ImsEventExposure API. Table 5.38.5.1-1 specifies the data types defined for the ImsEventExposure API.

Table 5.38.5.1-1: ImsEventExposuree API specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| IMSEESubsc | 5.38.5.2.2 | Represents the IMS Event Exposure Subscription. |
| IMSEENotif | 5.38.5.2.3 | Represents the IMS Event Expousre notification information. |
| IMSEventReport | 5.38.5.2.4 | Represents the IMS event report information relayed by the NEF. |
| IMSEventType | 5.38.5.3.3 | Represents the IMS Event Type. |
| IMSEESubscPatch | 5.38.5.2.5 | Represents the partial updates of IMS Event Exposure Subscription. |

Table 5.38.5.1-2 specifies data types re-used by the ImsEventExposure API from other specifications, including a reference to their respective specifications, and when needed, a short description of their use within the ImsEventExposure API.

Table 5.38.5.1-2: ImsEventExposure API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Gpsi | 3GPP TS 29.571 [8] | Represents a GPSI. |  |
| IpAddr | 3GPP TS 29.571 [8] | Represents an IP address. |  |
| ReportingInformation | 3GPP TS 29.523 [22] | Represents the event reporting requirements. |  |

#### 5.38.5.2 Structured data types

##### 5.38.5.2.1 Introduction

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

##### 5.38.5.2.2 Type: IMSEESubsc

Table 5.38.5.2.17-1: Definition of type IMSEESubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
|  |  |  |  |  |  |
| imsEventType | IMSEventType | M | 1 | Indicates the IMS event type (e.g., subscriber specific IMS event or non-subscriber specific IMS event). |  |
| imsEvent | IMSEvent | M | 1 | Indicates the IMS Event to be subscribed. |  |
| eventRepReq | ReportingInformation | O | 0..1 | Indicates the event reporting requirements. |  |
| tgtUeIds | array(Gpsi) | C | 1..N | Identifies the list of IMS public subscriber identifier(s) of the UE(s) for which IMS Event Exposure Service Reporting is requested.(NOTE) |  |
|  |  |  |  |  |  |
| notifUri | Uri | M | 1 | Contains the URI via which IMS EE events notifications shall be delivered. |  |
| notifId | string | M | 1 | Contains the Notification Correlation ID assigned by the AF. |  |
| NOTE: IMS Public subscriber identity is only present for subscriber specific IMS event. |

Editor’s Note: The IMSEvent data type is not specified FFS depends on SA2.

##### 5.38.5.2.3 Type: IMSEENotif

Table 5.38.5.2.3-1: Definition of type IMSEENotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notifId | string | M | 1 | Contains the Notification Correlation ID. |  |
| imsEventRpts | array(IMSEventReport) | M | 1..N | Contains the IMS event report(s). |  |

##### 5.38.5.2.4 Type: IMSEventReport

Table 5.38.5.2.4-1: Definition of type IMSEventReport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| imsEvent | IMSEvent | M | 1 | Contains the Notification Correlation ID. |  |
| timeStamp | DateTime | M | 1 | Indicates the occurred time stamp of the IMS event. |  |
| eventRptInfo | string | O | 0..1 | Indicates the IMS event report information relayed by the NEF. |  |

Editor’s Note: The IMSEvent data type is not specified FFS and waiting for SA2 updates.

##### 5.38.5.2.5 Type: IMSEESubscPatch

Table 5.38.5.2.17-1: Definition of type IMSEESubscPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| eventRepReq | ReportingInformation | O | 0..1 | Indicates the event reporting requirements. |  |
| tgtUeIds | array(Gpsi) | O | 1..N | Identifies the list of IMS public subscriber identifier(s) of the UE(s) for which IMS Event Exposure Service Reporting is requested.(NOTE) |  |
| notifUri | Uri | O | 0..1 | Contains the URI via which IMS EE events notifications shall be delivered. |  |
| notifId | string | O | 0..1 | Contains the Notification Correlation ID assigned by the AF. |  |
| NOTE: IMS Public subscriber identity is only present for subscriber specific IMS event. |

Editor’s Note: The IMSEvent data type is not specified FFS depends on SA2.

#### 5.38.5.3 Simple data types and enumerations

##### 5.38.5.3.1 Introduction

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

##### 5.38.5.3.2 Simple data types

The simple data types defined in table 5.38.5.3.2-1 shall be supported.

Table 5.38.5.3.2-1: Simple data types

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

5.38.5.3.3 Enumeration: IMSEventType

The enumeration represents the type of IMS Event of which the AF requests to be notified. It shall comply with the provisions defined in table 5.38.5.3.3-1.

**Table 5.38.5.3.3-1: Enumeration IMSEventType**

|  |  |  |
| --- | --- | --- |
| **Enumeration value** | **Description** | **Applicability** |
| SUBSCRIBER\_SPECIFIC | Indicates the IMS Event is Subscriber Specific. |  |
| NON\_SUBSCRIBER\_SPECIFIC | Indicates the IMS Event is Non-Subscriber Specific. |  |

#### 5.38.5.4 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.

### 5.38.6 Used Features

The optional features listed in table 5.38.6-1 are defined for the ImsEventExposure API. They shall be negotiated using the extensibility mechanism defined in clause 5.2.7 of 3GPP TS 29.122 [4].

Table 5.38.6-1: Features used by ImsEventExposure API

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

### 5.38.7 Error handling

#### 5.38.7.1 General

For the ImsEventExposure API, HTTP error responses shall be supported as specified in clause 5.2.6 of 3GPP TS 29.122 [4]. Protocol errors and application errors specified in clause 5.2.6 of 3GPP TS 29.122 [4] shall be supported for the HTTP status codes specified in table 5.2.6-1 of 3GPP TS 29.122 [4].

In addition, the requirements in the following clauses are applicable for the ImsEventExposure API.

#### 5.38.7.2 Protocol Errors

In this Release of the specification, there are no additional protocol errors applicable for the ImsEventExposure API.

#### 5.38.7.3 Application Errors

The application errors defined for the IMSEEService API are listed in table 5.38.7.3-1.

Table 5.38.7.3-1: Application errors

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

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