**3GPP TSG-CT WG3 Meeting #142 *C3-253501***

**, Sweden,**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** | **1** | **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)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | IMS Event Exposure Notification procedure | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NG\_RTC\_Ph2 | | | | |  | ***Date:*** | | | 2025-08-27 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | In previous versions of TS 29.522 CR C3-252509 was approved including some updates in chapter 4.4.47.2 and 4.4.47.3 about NEF may send some notfications to AF related to errors received for non-subscriber and subscriber specific IMS event subscriptions including an IMS Failure Cause.  For the specific case of subscriber specific IMS event susbcriptions the text in chapters 4.4.47.2 and 4.4.47.3 is stating the following:  *the NEF may send an HTTP POST request message to the AF including the ImsEENotif data structure with the list of received failure result(s) for the targeted UE(s).*  However, ImsEENotif does not include a parameter containing a list of failure results for the targeted UEs, but an IMS Failure Cause which is defined in chapter 5.43.5.2.3 as a single value string containing the failure cause provided from the IMS AS.  Hence the protocol has to be properly updated to reflect the following changes:   * Include the affected target UE Identities * Association between affected target UE Identify and IMS Failure Cause | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Update IMS Event Exposure Notification content to include the association between the affected target UE Identity and the IMS Failure Cause  Besides including the reports attribute as optional within ImsEENotif since notification with IMS Failure Cause(s) may not include reporting information. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Misalignment between IMS Event Exposure Subscription Creation and Update procedures and protocol defintion. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.43.5.1, 5.43.5.2.3, 5.43.5.2.8 and A.41. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR introduces backward compatible feature to the following APIs:  TS29522\_ImsEventExposure.yaml | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\*\*\* 1st Change \*\*\*

#### 5.43.5.1 General

This clause specifies the application data model supported by the ImsEventExposure API. Table 5.43.5.1-1 specifies the data types defined for the ImsEventExposure API.

Table 5.43.5.1-1: ImsEventExposuree API specific Data Types

|  |  |  |
| --- | --- | --- |
| Data type | Clause defined | Description |
| ImsEENotif | 5.43.5.2.3 | Represents the IMS Event Exposure Notification. |
| ImsEventReport | 5.43.5.2.6 | Represents the IMS Event Report. |
| ImsEventRequirement | 5.43.5.2.5 | Represnets the IMS Event related requirements. |
| ImsEventType | 5.43.5.3.3 | Represents the IMS Event Type. |
| ImsEESubsc | 5.43.5.2.2 | Represents the IMS Event Exposure Subscription. |
| ImsEESubscPatch | 5.43.5.2.4 | Represents the requested modifications to an IMS EE Subscription. |
| ImsEEFailureCause | 5.43.5.2.8 | Represents the IMS Event Exposure Failure Cause. |

Table 5.43.5.1-2 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 5.43.5.1-2: ImsEventExposure API re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.122 [4] | Represents a date and a time. |  |
| ImsEvent | 3GPP TS 29.571 [8] | Represents the IMS Event. |  |
| ImsEventConfiguration | 3GPP TS 29.571 [8] | Represents the IMS event configuration requirements. |  |
| ImsEventReportInfo | 3GPP TS 29.571 [8] | Represents the IMS event report information. |  |
| ImsReportingOptions | 3GPP TS 29.571 [8] | Represents the IMS reporting requirement options. |  |
| PublicIdentity | 3GPP TS 29.562 [80] | Represents the Public Identity of an IMS subscriber. |  |
| SessionId | 3GPP TS 29.571 [8] | The IMS session ID. |  |

\*\*\* 2nd Change \*\*\*

##### 5.43.5.2.3 Type: ImsEENotif

Table 5.43.5.2.3-1: Definition of type ImsEENotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subscriptionId | string | M | 1 | Contains the identifier of the subscription to which the notification is related. |  |
| sessionId | SessionId | O | 0..1 | Identifies the session ID. |  |
| reports | array(ImsEventReport) | O | 1..N | Contains the IMS event report(s). |  |
| imsFailureCauses | array(ImsFailureCause) | O | 0..1 | Contains the received failure results t ogether with the affected target UE Identities. |  |

\*\*\* 3rd Change \*\*\*

##### 5.43.5.2.8 Type: ImsFailureCause

Table 5.43.5.2.8-1: Definition of type ImsFailureCause

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| tgtUeId | PublicIdentity | C | 0..1 | Contains the identifier of the UE affected by the revocation of the IMS EE subscription.  (NOTE) |  |
| anyUeInd | boolean | C | 0..1 | Indicates whether the subscription is for any UE.  - "true" indicates that the subscription is for any UE.  When present, this attribute shall be set to "true". The presence of this attribute set to the value "false" is forbidden.  (NOTE) |  |
| imsFailureCause | string | O | 0..1 | Contains the failure cause provided by the IMS AS. |  |
| NOTE: These attributes are mutually exclusive and only one of them shall be present. | | | | | |

\*\*\* 4th Change \*\*\*

A.41 ImsEventExposure API

openapi: 3.0.0

info:

title: 3gpp-ims-ee

version: 1.0.0-alpha.3

description: |

API for IMS Event Exposure Services.

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externalDocs:

description: >

3GPP TS 29.522 V19.3.0; 5G System; Network Exposure Function Northbound APIs.

url: 'https://www.3gpp.org/ftp/Specs/archive/29\_series/29.522/'

servers:

- url: '{apiRoot}/3gpp-ims-ee/v1'

variables:

apiRoot:

default: https://example.com

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

security:

- {}

- oAuth2ClientCredentials: []

paths:

/{afId}/subscriptions:

parameters:

- name: afId

in: path

description: Represents the identifier of the AF.

required: true

schema:

type: string

get:

summary: Retrieve all the active IMS EE Subscriptions managed by the NEF.

operationId: GetImsEESubsc

tags:

- IMS EE Subscriptions (Collection)

responses:

'200':

description: >

OK. All the Individual IMS EE Subscription resource(s) managed by the NEF

are returned.

If there are no active Individual IMS EE Subscription resources at the NEF,

an empty array is returned.

content:

application/json:

schema:

type: array

items:

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

minItems: 0

'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'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'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'

post:

summary: Request the creation of a new IMS EE Subscription.

operationId: CreateImsEESubsc

tags:

- IMS EE Subscriptions (Collection)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'201':

description: >

Created. A representation of the created IMS EE Subscription resource is

returned in the response body.

content:

application/json:

schema:

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

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'

callbacks:

IMSEENotif:

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

post:

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'204':

description: >

No Content. The IMS EE Notification is successfully received and acknowledged.

'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'

/{afId}/subscriptions/{subscriptionId}:

parameters:

- name: afId

in: path

description: Represents the identifier of the AF.

required: true

schema:

type: string

- name: subscriptionId

in: path

description: >

Represents the identifier of the Individual IMS EE Subscription.

resource.

required: true

schema:

type: string

get:

summary: Retrieve an existing Individual IMS EE Subscription resource.

operationId: GetIndImsEESubsc

tags:

- Individual IMS EE Subscription (Document)

responses:

'200':

description: >

OK. The requested Individual IMS EE Subscription resource is successfully

returned in the response body.

content:

application/json:

schema:

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

'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'

'406':

$ref: 'TS29122\_CommonData.yaml#/components/responses/406'

'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'

put:

summary: Request the update of an existing Individual IMS EE Subscription resource.

operationId: UpdateIndImsEESubsc

tags:

- Individual IMS EE Subscription (Document)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'200':

description: >

OK. The Individual IMS EE Subscription resource is successfully updated and

a representation of the updated resource is returned in the response body.

content:

application/json:

schema:

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

'204':

description: >

No Content. The Individual IMS EE Subscription resource is successfully updated and

no content is returned in the response body.

'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'

patch:

summary: Request the modification of an existing Individual IMS EE Subscription resource.

operationId: ModifyIndImsEESubsc

tags:

- Individual IMS EE Subscription (Document)

requestBody:

required: true

content:

application/merge-patch+json:

schema:

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

responses:

'200':

description: >

OK. The Individual IMS EE Subscription resource is successfully modified and

a representation of the updated resource is returned in the response body.

content:

application/json:

schema:

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

'204':

description: >

No Content. The Individual IMS EE Subscription resource is successfully modified and

no content is returned in the response body.

'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'

delete:

summary: Request the deletion of an existing Individual IMS EE Subscription resource.

operationId: DeleteIndImsEESubsc

tags:

- Individual IMS EE Subscription (Document)

responses:

'204':

description: >

No Content. The Individual IMS EE Subscription resource is successfully 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:

#

# STRUCTURED DATA TYPES

#

ImsEESubsc:

description: Represents an IMS Event Exposure Subscription.

type: object

properties:

eventReqs:

type: array

items:

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

minItems: 1

imsReptReq:

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

immReports:

type: array

items:

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

minItems: 1

tgtUeIds:

type: array

items:

$ref: 'TS29562\_Nhss\_imsSDM.yaml#/components/schemas/PublicIdentity'

minItems: 1

anyUeInd:

type: boolean

enum:

- true

description: >

Identifies whether the subscription is for any UE.

true indicates that the subscription is for any UE.

When present, this attribute shall be set to true. The presence of this attribute set to

the value false is forbidden.

notifUri:

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

required:

- eventReqs

- imsReptReq

- notifUri

oneOf:

- required: [tgtUeIds]

- required: [anyUeInd]

ImsEESubscPatch:

description: Represents the requested modifications to an IMS Event Exposure Subscription.

type: object

properties:

eventReqs:

type: array

items:

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

minItems: 1

notifUri:

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

ImsEENotif:

description: Represents an IMS Event Exposure Notification.

type: object

properties:

subscriptionId:

type: string

sessionId:

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

reports:

type: array

items:

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

minItems: 1

imsFailureCause:

type: array

items:

type: '#/components/schemas/ImsEEFailureCause

description:

Contains the received failure cause results provided from the IMS AS together

with the affected target UE Identities

required:

- subscriptionId

ImsEventRequirement:

description: Represnets the IMS Event Requirements.

type: object

properties:

imsEventType:

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

imsEventConfig:

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

required:

- imsEventType

- imsEventConfig

ImsEventReport:

description: Represents an IMS Event Report.

type: object

properties:

imsEvent:

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

timeStamp:

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

eventRptInfo:

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

required:

- imsEvent

- timeStamp

ImsEECeasedSubscription:

description: Represents the cancelled EE subscriptions events.

type: object

properties:

tgtUeId:

$ref: 'TS29562\_Nhss\_imsSDM.yaml#/components/schemas/PublicIdentity'

anyUeInd:

type: boolean

enum:

- true

description: >

Identifies whether the subscription is for any UE.

imsFailureCause:

type: string

description: Contains the failure cause provided by the IMS AS or HSS.

oneOf:

- required: [tgtUeId]

- required: [anyUeInd]

#

# SIMPLE DATA TYPES

#

#

# ENUMERATIONS DATA TYPES

#

ImsEventType:

anyOf:

- type: string

enum:

- SUBSCRIBER\_SPECIFIC

- NON\_SUBSCRIBER\_SPECIFIC

- type: string

description: >

This string provides forward-compatibility with future extensions to the enumeration and

is not used to encode content defined in the present version of this API.

description: |

Represents the IMS Event Type.

Possible values are:

- SUBSCRIBER\_SPECIFIC: Indicates that the IMS Event type is Subscriber Specific for data

channel.

- NON\_SUBSCRIBER\_SPECIFIC: Indicates that the IMS Event type is Subscriber Specific for

Data channel.

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