**3GPP TSG-CT WG3 Meeting #108-eC3-201385**

**E-Meeting, 19th – 28th February 2020 *(revision of C3-201215)***

**Source: Ericsson**

**Title: Pseudo-CR on Correct HTTP and security text**

**Spec: 3GPP TS 29.517 v1.0.1**

**Agenda item: 16.5**

**Document for: Decision**

**1. Introduction**

<Introduction part (optional)>

**2. Reason for Change**

The security text for untrusted AF is not specified, it can take similar approach as northbound APIs as defined in TS 29.122 and TS 29.522.

Only TLS is mandatory for the consumer and AF interaction. Therefore, the security text shall be updated as well.

Besides, HTTP/1.1 shall still be supported for the untrusted Naf\_EventExposure API access, which provides homogenous support for HTTP protocol over all interfaces (e.g. T8/N33) between 3GPP SCEF/NEF and external AF.

**3. Conclusions**

The openAPI specification file keeps minimum definition, additional text is added for the required definition for trusted AF.

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.517 v1.0.1.

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

# 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 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 23.501: "System Architecture for the 5G System; Stage 2".

[3] 3GPP TS 23.502: "Procedures for the 5G System; Stage 2".

[4] 3GPP TS 23.288: "Architecture enhancements for 5G System (5GS) to support network data analytics services".

[5] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

[6] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[7] IETF RFC 7540: "Hypertext Transfer Protocol Version 2 (HTTP/2)".

[8] OpenAPI: "OpenAPI 3.0.0 Specification", <https://github.com/OAI/OpenAPI-Specification/blob/master/versions/3.0.0.md>.

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

[10] IETF RFC 7807: "Problem Details for HTTP APIs".

[11] 3GPP TR 21.900: "Technical Specification Group working methods".

[12] 3GPP TS 29.523: "5G System; Policy Control Event Exposure Service; Stage 3".

[13] 3GPP TS 29.571: "5G System; Common Data Types for Service Based Interfaces Stage 3".

[14] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

[15] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

[16] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

[17] 3GPP TS 29.122: "T8 reference point for northbound Application Programming Interfaces (APIs)".

[18] 3GPP TS 29.514: "5G System; Policy Authorization Service; Stage 3".

[19] 3GPP TS 29.520: "5G System; Network Data Analytics Services; Stage 3".

[RFC5246] IETF RFC 5246, "The Transport Layer Security (TLS) Protocol Version 1.2".

[RFC7230] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing".

[RFC7231] IETF RFC 7231: "Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content".

[RFC7232] IETF RFC 7232: "Hypertext Transfer Protocol (HTTP/1.1): Conditional Requests".

[RFC7233] IETF RFC 7233: "Hypertext Transfer Protocol (HTTP/1.1): Range Requests".

[RFC7234] IETF RFC 7234: "Hypertext Transfer Protocol (HTTP/1.1): Caching".

[RFC7235] IETF RFC 7235: "Hypertext Transfer Protocol (HTTP/1.1): Authentication".

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

### 5.2.1 General

If the AF is untrusted, support of HTTP/1.1 (IETF RFC 7230 [RFC7230], IETF RFC 7231 [RFC7231], IETF RFC 7232 [RFC7232], IETF RFC 7233 [RFC7233], IETF RFC 7234 [RFC7234] and IETF RFC 7235 [RFC7235]) over TLS (IETF RFC 5246 [RFC5246]) is mandatory and support of HTTP/2 (IETF RFC 7540 [7]) over TLS (IETF RFC 5246 [RFC5246]) is recommended.

If the AF is trusted, HTTP/2, IETF RFC 7540 [7], shall be used as specified in subclause 5.2 of 3GPP TS 29.500 [5].

HTTP/2 shall be transported as specified in subclause 5.3 of 3GPP TS 29.500 [5].

The OpenAPI [8] specification of HTTP messages and content bodies for the Naf\_EventExposure is contained in Annex A.

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

## 5.9 Security

TLS (IETF RFC 5246 [RFC5246]) shall be used to support the security communication between the NF Service Consumer and the AF as defined in clause 12.3 and clause 13.1 of 3GPP TS 33.501 [14].

If the AF is trusted, as indicated in 3GPP TS 33.501 [14] and 3GPP TS 29.500 [5], the access to the Naf\_EventExposure API may be authorized by means of the OAuth 2.0 protocol (see IETF RFC 6749 [15]), based on local configuration, using the "Client Credentials" authorization grant, where the NRF (see 3GPP TS 29.510 [16]) plays the role of the authorization server.

If OAuth 2.0 is used, an NF Service Consumer, prior to consuming services offered by the Naf\_EventExposure API, shall obtain a "token" from the authorization server, by invoking the Access Token Request service, as described in 3GPP TS 29.510 [16], subclause 5.4.2.2.

NOTE: When multiple NRFs are deployed in a network, the NRF used as authorization server is the same NRF that the NF Service Consumer used for discovering the Naf\_EventExposure service.

The Naf\_EventExposure API defines a single scope "naf-eventexposure" for the entire service, and it does not define any additional scopes at resource or operation level.

If the AF is untrusted, the access to Naf\_EventExposure API shall be authorized by means of OAuth2 protocol (see IETF RFC 6749 [15]), based on local configuration, using the "Client Credentials" authorization grant. If OAuth2 is used, a NF Service Consumer (e.g. NEF), prior to consuming services offered by the Naf\_EventExposure API, shall obtain a "token" from the authorization server.

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

# A.1 General

This Annex is based on the OpenAPI 3.0.0 specification [8] and provides corresponding representations of all APIs defined in the present specification.

NOTE 1: An OpenAPIs representation embeds JSON Schema representations of HTTP message bodies.

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 the public 3GPP file server in the following locations (see clause 5B of the 3GPP TR 21.900 [11] for further information):

- [https://www.3gpp.org/ftp/Specs/archive/OpenAPI/<Release>/](https://www.3gpp.org/ftp/Specs/archive/OpenAPI/%3cRelease%3e/), and

- [https://www.3gpp.org/ftp/Specs/<Plenary>/<Release>/OpenAPI/](https://www.3gpp.org/ftp/Specs/%3cPlenary%3e/%3cRelease%3e/OpenAPI/).

NOTE x: To fetch the OpenAPI specification file after CT#86 plenary meeting for Release 16 in the above links <Plenary> must be replaced with the date the CT Plenary occurs, in the form of year-month (yyyy-mm), e.g. for CT#86 meeting <Plenary> must be replaced with value "2019-12" and <Release> must be replaced with value "Rel-16".

The security scheme defined below for the Naf\_EventExposure API shows the case when the AF is in untrusted domain and the "scopes" and "tokenUrl" are undefined. For the trusted AF, the "scopes" definition shall use "naf-eventexposure" and the "tokenUrl" definition shall use "{nrfApiRoot}/oauth2/token".

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

# A.2 Naf\_EventExposure API

openapi: 3.0.0

info:

version: 1.0.0.alpha-1

title: Naf\_EventExposure

description: |

AF Event Exposure Service.

© 2019, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

All rights reserved.

externalDocs:

description: 3GPP TS 29.517 V0.5.0; 5G System; Application Function Event Exposure Service; Stage 3.

url: http://www.3gpp.org/ftp/Specs/archive/29\_series/29.517/

servers:

- url: '{apiRoot}/naf-eventexposure/v1'

variables:

apiRoot:

default: https://example.com

description: apiRoot as defined in subclause 4.4 of 3GPP TS 29.501

security:

- {}

- oAuth2ClientCredentials: []

paths:

/subscriptions:

post:

summary: Creates a new Individual Application Event Exposure Subscription resource

operationId: PostAfEventExposureSubsc

tags:

- Application Event Subscription (Collection)

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'201':

description: Success

content:

application/json:

schema:

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

headers:

Location:

description: 'Contains the URI of the created individual application event subscription resource'

required: true

schema:

type: string

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

callbacks:

AfEventExposureNotif:

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

post:

requestBody:

required: true

content:

application/json:

schema:

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

responses:

'204':

description: No Content, Notification was succesfull

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

/subscriptions/{subscriptionId}:

get:

summary: "Reads an existing Individual Application Event Subscription"

operationId: GetAfEventExposureSubsc

tags:

- Individual Application Event Subscription (Document)

parameters:

- name: subscriptionId

in: path

description: Application Event Subscription ID

required: true

schema:

type: string

responses:

'200':

description: OK. Resource representation is returned

content:

application/json:

schema:

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

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'406':

$ref: 'TS29571\_CommonData.yaml#/components/responses/406'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

put:

summary: "Modifies an existing Individual Application Event Subscription "

operationId: PutAfEventExposureSubsc

tags:

- Individual Application Event Subscription (Document)

requestBody:

required: true

content:

application/json:

schema:

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

parameters:

- name: subscriptionId

in: path

description: Application Event Subscription ID

required: true

schema:

type: string

responses:

'200':

description: OK. Resource was succesfully modified and representation is returned

content:

application/json:

schema:

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

'204':

description: No Content. Resource was succesfully modified

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'411':

$ref: 'TS29571\_CommonData.yaml#/components/responses/411'

'413':

$ref: 'TS29571\_CommonData.yaml#/components/responses/413'

'415':

$ref: 'TS29571\_CommonData.yaml#/components/responses/415'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

delete:

summary: "Cancels an existing Individual Application Event Subscription "

operationId: DeleteAfEventExposureSubsc

tags:

- Individual Application Event Subscription (Document)

parameters:

- name: subscriptionId

in: path

description: Application Event Subscription ID

required: true

schema:

type: string

responses:

'204':

description: No Content. Resource was succesfully deleted

'400':

$ref: 'TS29571\_CommonData.yaml#/components/responses/400'

'401':

$ref: 'TS29571\_CommonData.yaml#/components/responses/401'

'403':

$ref: 'TS29571\_CommonData.yaml#/components/responses/403'

'404':

$ref: 'TS29571\_CommonData.yaml#/components/responses/404'

'429':

$ref: 'TS29571\_CommonData.yaml#/components/responses/429'

'500':

$ref: 'TS29571\_CommonData.yaml#/components/responses/500'

'503':

$ref: 'TS29571\_CommonData.yaml#/components/responses/503'

default:

$ref: 'TS29571\_CommonData.yaml#/components/responses/default'

components:

securitySchemes:

oAuth2ClientCredentials:

type: oauth2

flows:

clientCredentials:

tokenUrl: '{tokenUri}'

scopes: {}

.

description: for trusted AF, the 'naf-eventexposure' shall be used as 'scopes' and '{nrfApiRoot}/oauth2/token' shall be used as 'tokenUri'.

schemas:

AfEventExposureNotif:

type: object

properties:

notifId:

type: string

eventNotifs:

type: array

items:

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

minItems: 1

required:

- notifId

- eventNotifs

AfEventExposureSubsc:

type: object

properties:

eventSubs:

type: array

items:

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

minItems: 1

eventsRepInfo:

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

notifUri:

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

notifId:

type: string

suppFeat:

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

required:

- eventSubs

- eventsRepInfo

- notifId

- notifUri

- suppFeat

AfEventNotification:

type: object

properties:

event:

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

timeStamp:

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

svcExprcInfos:

type: array

items:

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

minItems: 1

ueMobilityInfos:

type: array

items:

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

minItems: 1

ueCommInfos:

type: array

items:

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

minItems: 1

excepInfos:

type: array

items:

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

minItems: 1

required:

- event

- timeStamp

EventsSubs:

type: object

properties:

event:

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

eventFilter:

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

required:

- event

- eventFilter

EventFilter:

type: object

properties:

gpsis:

type: array

items:

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

exterGroupIds:

type: array

items:

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

anyUeInd:

type: string

appIds:

type: array

items:

type: string

locArea:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

ServiceExperienceInfoPerApp:

type: object

properties:

appId:

type: string

svcExpPerFlows:

type: array

items:

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

minItems: 1

gpsis:

type: array

items:

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

minItems: 1

required:

- svcExpPerFlows

ServiceExperienceInfoPerFlow:

type: object

properties:

svcExprc:

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

timeIntev:

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

dnai:

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

ipTrafficFilter:

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

ethTrafficFilter:

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

SvcExperience:

type: object

properties:

mos:

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

upperRange:

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

lowerRange:

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

UeMobilityCollection:

type: object

properties:

gpsi:

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

appId:

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

ueTrajs:

type: array

items:

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

minItems: 1

required:

- appId

- ueTrajs

UeCommunicationCollection:

type: object

properties:

gpsi:

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

appId:

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

comms:

type: array

items:

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

minItems: 1

required:

- appId

- comms

UeTrajectoryCollection:

type: object

properties:

ts:

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

locArea:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/LocationArea5G'

required:

- ts

- locArea

CommunicationCollection:

type: object

properties:

startTime:

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

endTime:

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

ulVol:

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

dlVol:

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

required:

- startTime

- endTime

- ulVol

- dlVol

ExceptionInfo:

type: object

properties:

ipTrafficFilter:

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

ethTrafficFilter:

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

exceps:

type: array

items:

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

minItems: 1

# Simple data types and Enumerations

AfEvent:

anyOf:

- type: string

enum:

- SVC\_EXPERIENCE

- UE\_MOBILITY

- UE\_COMM

- EXCEPTIONS

- type: string

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