**3GPP TSG-CT3 Meeting #138 *C3-246474***

**Orlando, United States, 18th Nov 2024 - 22nd Nov 2024 revision of C3-246333**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.522** | **CR** | **1464** | **rev** | **1** | **Current version:** | **19.0.0** |  |
|  | | | | | | | | |
| *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:*** | Support of handling of Payload Headers in TrafficInfluence API | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Ericsson, Vodafone, ZTE | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | UPEAS\_Ph2 | | | | |  | ***Date:*** | | | 2024-11-21 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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:*** | | As per agreed CR S2-2410812, S2-2411013 and S2-2411014:  Additional information requires in Nnef\_TrafficInfluence service to support requests for Handling of Payload Headers. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | This CR proposes to:  - define the header handling control information to be sent from AF/NEF and receive the handling of Payload Headers report as an UPF event notification via TrafficInfluence API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage-2 requirement is not supported in stage-3. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.4.7.1, 4.4.7.6(new), 5.4.2.1, 5.4.2.4 and subclauses(new), 5.4.3.1, 5.4.3.2, 5.4.3.3.2, 5.4.3.3.3, 5.4.3.3.9(new), 5.4.4, A.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **X** |  | Other core specifications | | | | TS 23.501 CR 5454 | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS 23.502 CR 4877 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS 23.503 CR 1329 | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR provides backward compatible feature updates to the Open API TrafficInfluence API. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

#### 4.4.7.1 General

In order to create a resource for the Traffic Influence to provide the information of application function influence on traffic routing, N6-LAN service function chaining(s) and/or handling of payload headers, the AF shall send an HTTP POST message to the NEF to the resource "Traffic Influence Subscription", with the request body including the TrafficInfluSub data structure as specified in clause 5.4.3.3.2.

If the feature "CommonEASDNAI" is supported, the AF may include the "tfcCorreInfo" attribute within the "TrafficInfluSub" data type. Within the "TrafficCorrelationInfo" data type, AF may include the "COMMON\_DNAI" within the "corrType" attribute to indicate that the traffic of the set of UEs associated with the same traffic correlation Id accessing the application identified by an Application Identifier or traffic filtering information should target the EAS(es) corresponding to a common DNAI from the list of DNAI(s) or include the "COMMON\_EAS" within the "corrType" attribute to indicate that the traffic of the set of UEs associated with the same traffic correlation Id accessing the application identified by an Application Identifier or traffic filtering information should target a common EAS. In the case of common EAS within the "TrafficCorrelationInfo" data type, the AF shall additionally include the common EAS address(es) within the "comEasIpv4Addr" attribute and/or "comEasIpv6Addr" attribute and/or the FQDN range corresponding to the application within the "fqdnRange" attribute. When the NEF receives traffic correlation notification from the SMF, if the NEF determines that there is currently no common EAS IP address and/or common DNAI available for the set of UEs identified by the Traffic Correlation ID or it determines that the common EAS or common DNAI needs to be re-selected, it selects a common DNAI and/or common EAS using the list of DNAI(s), EAS IP address and number of PDU sessions each SMF is serving for the set of UEs received in traffic correlation notification from the SMF. Then the NEF shall update the traffic influence data in UDR with the 5GC determined common EAS/DNAI for the set of UEs by invoking the Nudr\_DataRepository service as described in 3GPP TS 29.504 [20] and 3GPP TS 29.519 [23] and then responds by acknowledging the notification to the SMF.

NOTE 1: Common EAS selection means the common DNAI is selected.

In order to update an existing traffic influence subscription, the AF shall send an HTTP PUT message to the resource "Individual Traffic Influence Subscription", with the request body including the TrafficInfluSub data structure as specified in clause 5.4.3.3.2 requesting to update the traffic influence parameters.

In order to modify an existing traffic influence subscription, the AF shall send an HTTP PATCH message to the resource "Individual Traffic Influence Subscription", with the request body including the TrafficInfluSubPatch data structure as specified in clause 5.4.3.3.3 requesting to modify the traffic influence parameters.

In order to delete an existing traffic influence subscription, the AF shall send an HTTP DELETE message to the NEF to the resource "Individual Traffic Influence Subscription".

Upon receipt of the HTTP request from the AF, if the AF is authorized, the NEF shall perform the mapping as described in 3GPP TS 23.501 [3], and then perform as described in clause 4.4.7.2 if the request is identified by UE address or perform as described in clause 4.4.7.3 if the request is not identified by UE address.

If the EDGEAPP feature is supported and the "subscribedEvents" attribute is provided in the received HTTP POST request, and immediate reporting was requested by the AF, then user plane path management report(s) shall be included in the HTTP POST response within the "eventReports" attribute, if available. They may also be included in the HTTP PUT/PATCH response, if available.

NOTE 2: The EAS IP Replacement information and the information indicating the EAS rediscovery are not provided simultaneously.

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

#### 4.4.7.6 Handling of payload headers event notification

If the NEF receives an event notification related to handling of Payload Headers from the UPF indicating that the header handling action on payload headers were performed and the notifFlag attribute was set to true within the HeaderHandlingActionRequest data type as defined in clause 5.6.2.62 of of 3GPP TS 29.514 [7], then the NEF shall provide a event notification by sending an HTTP POST message that shall include the HeaderHandlingReport data type as defined in clause 5.4.3.3.9 to the AF identified by the Notification URI and Notification Identifier received during creation or modification of the Individual Traffic Influence Subscription resource in the notifUri attribute and in the notifId attribute received within the AfHeaderHandlingControlInfo data type as defined in clause 5.6.2.61 of 3GPP TS 29.514 [7].

Upon receipt of the event notification, the AF shall respond with a "204 No Content" status code to confirm the received UPF event notification.

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

#### 5.4.2.1 Introduction

Upon receipt of a UP management event notification from the SMF indicating the subscribed event (e.g. a DNAI has changed) is detected, the NEF shall send an HTTP POST message including the notified event to the AF.

Upon receipt of the event notification, the AF may send an HTTP POST request as acknowledgement for the UP path management event notification to inform the NEF about the result of application layer relocation.

Upon receipt of a handling of payload headers event notification from the UPF indicating the header handling action on payload headers was performed, the NEF shall send an HTTP POST message including the header handling report to the AF.

The NEF and the AF shall support the notification mechanism as described in clause 5.2.5 of 3GPP TS 29.122 [4].

Table 5.4.2.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description  (service operation) |
| Event Notification | {notificationDestination} | POST | The UP management event notification from the NEF to the AF. |
| Acknowledgement of event notification | {afAckUri} | POST | The Acknowledgement of Event Notification is used by the AF to acknowledge the NEF about handling result of the event notification. |
| Event Notification of Payload Headers | {notifUri} | POST | The handling of Payload Headers event notification from the NEF to the AF. |

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

#### 5.4.2.4 Event Notification of Payload Headers

##### 5.4.2.4.1 Description

The Event Notification of Payload Headers is used by the NEF to report the handling of payload headers events from the UPF to the AF.

##### 5.4.2.4.2 Target URI

The Callback URI **"{notifUri}"** shall be used with the callback URI variables defined in table 5.4.2.4.2-1.

Table 5.4.2.4.2-1: Callback URI variables

|  |  |  |
| --- | --- | --- |
| Name | Data type | Definition |
| notifUri | Uri | Callback reference provided by the AF during creation/modification of the header handling control information within the AfHeaderHandlingControlInfo data type as defined in table 5.6.2.61-1 of 3GPP TS 29.514 [7]. |

##### 5.4.2.4.3 Operation Definition

5.4.2.4.3.1 Notification via HTTP POST

This method shall support the request data structures specified in table 5.4.2.4.3.1-1 and the response data structures and response codes specified in table 5.4.2.4.3.1-2.

Table 5.4.2.4.3.1-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| HeaderHandlingReport | M | 1 | The event notification related to handling of payload headers events is provided by the NEF to the AF. |

Table 5.4.2.4.3.1-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| N/A |  |  | 204 No Content | The event notification is received successfully. |
| N/A |  |  | 307 Temporary Redirect | Temporary redirection, during event notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative AF where 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, during event notification. The response shall include a Location header field containing an alternative URI representing the end point of an alternative AF where 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 POST method listed in table 5.2.6-1 of 3GPP TS 29.122 [4] also apply. | | | | |

Table 5.4.2.4.3.1-3: 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 AF towards which the notification should be redirected. |

Table 5.4.2.4.3.1-4: 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 AF towards which the notification should be redirected. |

\* \* \* \* 5th Change \* \* \* \*

#### 5.4.3.1 General

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

Table 5.4.3.1-1 specifies the data types defined for the TrafficInfluence API.

Table 5.4.3.1-1: TrafficInfluence API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| **Data type** | **Clause defined** | **Description** | **Applicability** |
| AfAckInfo | 5.4.3.3.6 | Represents acknowledgement information of a traffic influence event notification. |  |
| AfResultInfo | 5.4.3.3.5 | Identifies the result of application layer handling. |  |
| AfResultStatus | 5.4.3.4.4 | Represents the status of application handling result. |  |
| EventNotification | 5.4.3.3.4 | Represents a traffic influence event notification. |  |
| HeaderHandlingReport | 5.4.3.3.9 | Represents header handling reporting events notification. | HeaderHandling |
| SubscribedEvent | 5.4.3.4.3 | Represents the type of UP path management events for which the AF requests to be notified. |  |
| TrafficInfluSub | 5.4.3.3.2 | Represents a traffic influence subscription. |  |
| TrafficInfluSubPatch | 5.4.3.3.3 | Represents parameters to request the modification of a traffic influence subscription resource. |  |
| TrafficDataSet | 5.4.3.3.7 | Represents a set of traffic filters and the corresponding N6 traffic routing requirements. | MultiTrafficInflu |
| TrafficDataSetRm | 5.4.3.3.8 | Represents a set of traffic filters and the corresponding N6 traffic routing requirements. This data type is defined in the same way as the TrafficDataSet data type, but with the OpenAPI "nullable: true" property. | MultiTrafficInflu |

\* \* \* \* 6th Change \* \* \* \*

#### 5.4.3.2 Reused data types

The data types reused by the TrafficInfluence API from other specifications are listed in table 5.4.3.2-1.

Table 5.4.3.2-1: Re-used Data Types

|  |  |  |
| --- | --- | --- |
| **Data type** | **Reference** | **Comments** |
| AfHeaderHandlingControlInfo | 3GPP TS 29.514 [7] | Represents the header handling control information. |
| Dnai | 3GPP TS 29.571 [8] | Identifies a DNAI. |
| DnaiChangeType | 3GPP TS 29.571 [8] | Describes the types of DNAI change. |
| Dnn | 3GPP TS 29.571 [8] | Identifies a DNN. |
| DurationSec | 3GPP TS 29.571 [8] | Identifies a period of time in units of seconds. |
| EasIpReplacementInfo | 3GPP TS 29.571 [8] | Represents EAS IP replacement information. |
| EthFlowDescription | 3GPP TS 29.514 [7] | Contains the Ethernet data flow information. (NOTE) |
| ExternalGroupId | 3GPP TS 29.122 [4] | External Group Identifier for a user group. |
| FlowInfo | 3GPP TS 29.122 [4] | Contains the IP data flow information. |
| GeographicalArea | Clause 5.17.3.3.4 | Identifies a geographical area. |
| Gpsi | 3GPP TS 29.571 [8] | Identifies a GPSI. |
| Ipv4Addr | 3GPP TS 29.122 [4] | Identifies an IPv4 address. |
| Ipv6Addr | 3GPP TS 29.122 [4] | Identifies an IPv6 address. |
| Ipv6Prefix | 3GPP TS 29.571 [8] | Identifies an IPv6 Prefix. |
| Link | 3GPP TS 29.122 [4] | Identifies a referenced resource. |
| MacAddr48 | 3GPP TS 29.571 [8] | Identifies a MAC address. |
| Metadata | 3GPP TS 29.571 [8] | Contains opaque information for the service functions in the N6-LAN that is provided by AF and transparently sent to UPF. |
| PlmnId | 3GPP TS 29.571 [8] | Identifies a PLMN Identifier. |
| Port | 3GPP TS 29.122 [4] | Identifies a port number. |
| ReportingInformation | 3GPP TS 29.523 [22] | Represents the event reporting requirements. |
| RouteToLocation | 3GPP TS 29.571 [8] | Describes the traffic routes to the locations of the application. |
| Snssai | 3GPP TS 29.571 [8] | Identifies the S-NSSAI. |
| SupportedFeatures | 3GPP TS 29.571 [8] | Used to negotiate the applicability of the optional features defined in table 5.4.4-1. |
| TemporalValidity | 3GPP TS 29.514 [7] | Indicates the time interval(s) during which the AF request is to be applied |
| TrafficCorrelationInfo | 3GPP TS 29.519 [23] | Contains the information for traffic correlation. |
| Uinteger | 3GPP TS 29.571 [8] | Unsigned integer. |
| UintegerRm | 3GPP TS 29.571 [8] | This data type is defined in the same way as the "Uinteger" data type, but with the OpenAPI "nullable: true" property. |
| Uri | 3GPP TS 29.122 [4] | Identifies a URI. |
| WebsockNotifConfig | 3GPP TS 29.122 [4] | Contains the configuration parameters to set up notification delivery over Websocket protocol. |
| NOTE: In order to support a set of MAC addresses with a specific range in the traffic filter, feature MacAddressRange as specified in clause 5.4.4 shall be supported. | | |

\* \* \* \* 7th Change \* \* \* \*

##### 5.4.3.3.2 Type: TrafficInfluSub

This type represents a traffic influence subscription. The same structure is used in the subscription request and subscription response.

Table 5.4.3.3.2-1: Definition of type TrafficInfluSub

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Attribute name | | Data type | | P | | Cardinality | | Description | | Applicability  (NOTE 1) | |
| afServiceId | | string | | O | | 0..1 | | Identifies a service on behalf of which the AF is issuing the request. | |  | |
| afAppId | | string | | O | | 0..1 | | Identifies an application.  (NOTE 3) | |  | |
| afTransId | | string | | O | | 0..1 | | Identifies an NEF Northbound interface transaction, generated by the AF. | |  | |
| appReloInd | | boolean | | O | | 0..1 | | Identifies whether an application can be relocated once a location of the application has been selected.  - Set to "true" if it shall be relocated.  - Set to "false" if it shall not be relocated.  - Default value is "false" if omitted. | |  | |
| dnn | | Dnn | | O | | 0..1 | | Identifies a DNN, a full DNN with both the Network Identifier and Operator Identifier, or a DNN with the Network Identifier only. | |  | |
| snssai | | Snssai | | O | | 0..1 | | Identifies an S-NSSAI. | |  | |
| externalGroupId | | ExternalGroupId | | O | | 0..1 | | Identifies a group of users.  (NOTE 2) (NOTE 6) | |  | |
| externalGroupIds | | array(ExternalGroupId) | | O | | 2..N | | List of external group identifiers associated with the subscriber.  (NOTE 2) (NOTE 6) (NOTE 7) | | FinerGranUEs | |
| extSubscCats | | array(string) | | O | | 1..N | | List of external categories associated with the subscriber.  (NOTE 8) | | FinerGranUEs | |
| anyUeInd | | boolean | | O | | 0..1 | | Identifies whether the AF request applies to any UE (i.e. all UEs).  - Set to "true": the AF request is applicable to any UE.  - Set to "false": the AF request is not applicable to any UE.  - Default value is "false" if omitted.  (NOTE 2) | |  | |
| subscribedEvents | | array(SubscribedEvent) | | O | | 1..N | | Identifies the requirement to be notified of the event(s). | |  | |
| gpsi | | Gpsi | | O | | 0..1 | | Identifies a user.  (NOTE 2) | |  | |
| ipv4Addr | | Ipv4Addr | | O | | 0..1 | | Identifies the IPv4 address.  (NOTE 2) | |  | |
| ipDomain | | string | | O | | 0..1 | | The IPv4 address domain identifier.  The attribute may only be provided if the ipv4Addr attribute is present. | |  | |
| ipv6Addr | | Ipv6Addr | | O | | 0..1 | | Identifies the IPv6 address.  (NOTE 2) | |  | |
| macAddr | | MacAddr48 | | O | | 0..1 | | Identifies the MAC address. (NOTE 2) | |  | |
| dnaiChgType | | DnaiChangeType | | O | | 0..1 | | Identifies a type of notification regarding UP path management event. | |  | |
| notificationDestination | | Link | | C | | 0..1 | | Contains the Callback URL to receive the notification from the NEF.  It shall be present if the "subscribedEvents" is present. | |  | |
| requestTestNotification | | boolean | | O | | 0..1 | | Indicates whether the AF requests the NEF to send a test notification.  - Set to "true" by the AF to request the NEF to send a test notification as defined in clause 5.2.5.3 of 3GPP TS 29.122 [4].  - Set to "false" by the AF to not to request the NEF to send a test notification.  - Default value is "false" if omitted. | | Notification\_test\_event | |
| websockNotifConfig | | WebsockNotifConfig | | O | | 0..1 | | Configuration parameters to set up notification delivery over Websocket protocol. | | Notification\_websocket | |
| self | | Link | | C | | 0..1 | | Link to the created resource.  This parameter shall be supplied by the NEF in HTTP responses that include an object of TrafficInfluSub type | |  | |
| trafficDataSets | | map(TrafficDataSet) | | O | | 2..N | | Contains multiple sets of traffic filters with the corresponding N6 traffic routing requirements.  The key of the map shall be the value of the "setId" attribute of the TrafficDataSet data type.  (NOTE 3, NOTE 11, NOTE 12, NOTE 13) | | MultiTrafficInflu | |
| trafficFilters | | array(FlowInfo) | | O | | 1..N | | Identifies IP packet filters.  (NOTE 3) | |  | |
| ethTrafficFilters | | array(EthFlowDescription) | | O | | 1..N | | Identifies Ethernet packet filters.  (NOTE 3) | |  | |
| trafficRoutes | | array(RouteToLocation) | | O | | 1..N | | Identifies the N6 traffic routing requirement.  (NOTE 9, NOTE 11) | |  | |
| sfcIdDl | | string | | O | | 0..1 | | Reference to a pre-configured steering of user traffic to service function chain in downlink.  (NOTE 5) | | SFC | |
| sfcIdUl | | string | | O | | 0..1 | | Reference to a pre-configured steering of user traffic to service function chain in uplink.  (NOTE 5) | | SFC | |
| metadata | | Metadata | | O | | 0..1 | | Contains opaque information for the service functions in the N6-LAN that is provided by AF and transparently sent to UPF. May only be provided when "sfcIdDl" and/or "sfcIdUl" are provided. | | SFC | |
| tfcCorrInd | | boolean | | O | | 0..1 | | Indication of traffic correlation.  May only be included when "externalGroupId" attribute was included within the TrafficInfluSub data type previously.  It is used to indicate that for the group of UEs, the targeted PDU sessions should be correlated by a common DNAI.  Set to "true" if it should be correlated; otherwise set to "false". Default value is "false" if omitted. (NOTE 4) (NOTE 10) | |  | |
| tfcCorreInfo | | TrafficCorrelationInfo | | O | | 0..1 | | Contains the information for traffic correlation. The "notifUri" and "notifCorrId" attributes are not applicable for "tfcCorreInfo" attribute. (NOTE 10) | | CommonEASDNAI | |
| tempValidities | | array(TemporalValidity) | | O | | 1..N | | Indicates the time interval(s) during which the AF request is to be applied. | |  | |
| validGeoZoneIds | | array(string) | | O | | 1..N | | Identifies a geographic zone that the AF request applies only to the traffic of UE(s) located in this specific zone.  This attribute is deprecated; the attribute "geoAreas" should be used instead. | |  | |
| geoAreas | | array(GeographicalArea) | | O | | 1..N | | Identifies geographical areas within which the AF request applies.  This attribute deprecates validGeoZoneIds attribute. | |  | |
| afAckInd | | boolean | | O | | 0..1 | | Identifies whether the AF acknowledgement of UP path event notification is expected.  - "true" indicates that the AF acknowledgement of UP path event is expected.  - "false" indicates that the AF acknowledgement of UP path event notification is not expected.  - Default value is "false" if omitted. | | URLLC | |
| addrPreserInd | | boolean | | O | | 0..1 | | Indicates whether UE IP address shall be preserved.  - "true" indicates that the UE IP address shall be preserved.  - "false" indicates that the UE IP address shall not preserved.  - Defalult value is "false" if omitted. | | URLLC | |
| simConnInd | | boolean | | O | | 0..1 | | Indication of whether simultaneous connectivity shall be temporarily maintained for the source and target PSA.  - "true" indicates that the temporary simultaneous connectivity shall be kept.  - "false" indicates that the temporary simultaneous connectivity shall not be kept.  - Default value is "false" if omitted. | | SimultConnectivity | |
| simConnTerm | | DurationSec | | O | | 0..1 | | Indication of the minimum time interval to be considered for inactivity of the traffic routed via the source PSA during the edge re-location procedure.  It may be included when the "simConnInd" attribute is set to true. | | SimultConnectivity | |
| maxAllowedUpLat | | Uinteger | | O | | 0..1 | | Indicates the target user plane latency in units of milliseconds. The SMF may use this value to decide whether edge relocation is needed to ensure that the user plane latency does not exceed the value. | | AF\_lantency | |
| easIpReplaceInfos | | array(EasIpReplacementInfo) | | O | | 1..N | | Contains EAS IP replacement information. | | EASIPreplacement | |
| easRedisInd | | boolean | | O | | 0..1 | | Indicates whether the EAS rediscovery is required for the application.  - "true" indicates that the EAS rediscovery is required for the application.  - "false" indicates that the EAS rediscovery is not required for the application.  - Defalult value is "false" if omitted.  The indication shall be invalid after it was applied unless it is provided again. | | EASDiscovery | |
| eventReq | | ReportingInformation | | O | | 0..1 | | Indicates the event reporting requirements.  This attribute may be provided if the "EDGEAPP" feature is supported and the "subscribedEvents" attribute is present. | | EDGEAPP | |
| eventReports | | array(EventNotification) | | C | | 1..N | | Represents user plane path management event report(s).  This attribute shall be present in an HTTP POST response if the immediate reporting indication in the "immRep" attribute within the "eventReq" attribute is set to true and the "subscribedEvents" was present in the corresponding HTTP POST request and the report(s) are available.  This attribute may also be present in an HTTP PUT or PATCH response when the report(s) are available. | | EDGEAPP | |
| candDnaiInd | | boolean | | O | | 0..1 | | Indication of reporting candidate DNAI(s). If it is included and set to "true", the candidate DNAI(s) for the PDU session need to be reported. Otherwise, the default value is "false" if omitted. | | CommonEASDNAI | |
| plmnId | | PlmnId | | O | | 0..1 | | Identifies the H-PLMN of the UE. | | HR-SBO | |
| portNumber | | Port | | O | | 0..1 | | Indicates the UDP or TCP port number associated with the UE IP address as provided in the "ipv4Addr" or "ipv6Addr" property. | | HR-SBO | |
| suppFeat | | SupportedFeatures | | C | | 0..1 | | Indicates the list of Supported features used as described in clause 5.4.4.  This attribute shall be provided in the POST request and in the response of successful resource creation. | |  | |
| hHndlgControInfo | | AfHeaderHandlingControlInfo | | O | | 0..1 | | Contains header handling control information for handling of payload headers.  (NOTE 14) | | HeaderHandling | |
| NOTE 1: Properties marked with a feature as defined in clause 5.4.4 are applicable as described in clause 5.2.7 of 3GPP TS 29.122 [4]. If no feature is indicated, the related property applies for all the features.  NOTE 2: If "HR-SBO" feature is not supported, only one of individual UE identifier (i.e. "gpsi", "macAddr", "ipv4Addr" or "ipv6Addr"), External Group Identifier (i.e. "externalGroupId" or "externalGroupIds" (is included when FinerGranUEs feature is supported)) or any UE indication "anyUeInd" shall be included. If "HR-SBO" feature is supported and the AF requests to influence traffic routing is working in HR-SBO mode in the VPLMN, only one of individual UE identifier (i.e. "gpsi", "ipv4Addr" or "ipv6Addr") or any UE indication "anyUeInd" shall be included.  NOTE 3: One of "afAppId", "trafficFilters", "ethTrafficFilters" or “trafficDataSets” shall be included.  NOTE 4: The indication of traffic correlation shall be provided only when the AF requires that all the PDU sessions related to the 5G VN group member UEs should be correlated by a common DNAI in the user plane for the traffic as described in 3GPP TS 23.501 [3], clause 5.6.7.1 and clause 5.29.  NOTE 5: When the SFC feature is supported, for the purpose of influencing service function chaining, at least one attribute shall be present.  NOTE 6: The attributes "externalGroupId" and "externalGroupIds" are mutually exclusive attributes.  NOTE 7: The AF request applies to the UE(s) that belong to all the External Group Identifiers indicated by the attribute "externalGroupIds", when included.  NOTE 8: The AF request applies to the UE(s) that belong to all the External Subscriber Categories indicated by the attribute "extSubscCats", which is included only if either "externalGroupIds" attribute is included or "externalGroupId" is included or "anyUeInd" attribute is included. If "HR-SBO" feature is supported and the AF requests to influence is working in HR-SBO mode, the "extSubscCats" attribute shall not be provided.  NOTE 9: When only one DNAI is included, and the Indication of traffic correlation within the "tfcCorrInd" attribute is available or the "corrType" attribute of the "tfcCorreInfo" includes the value "COMMON\_DNAI", the DNAI is used as common DNAI for UEs identified by AF request.  NOTE 10: The "tfcCorrInd" attribute and the "tfcCorreInfo" attribute are mutually exclusive.  NOTE 11: These attributes are mutually exclusive. Either one of them may be present.  NOTE 12: This attribute may be present only if one of "macAddr",attribute "ipv4Addr" attribute or the "ipv6Addr" attribute is provided.  NOTE 13: If this attribute is present, then the "candDnaiInd", "tfcCorrInd" and "tfcCorreInfo" attributes shall not be present.  NOTE 14: When the HeaderHandling feature is supported, for the purpose of handling payload headers, this attribute shall be present. | | | | | | | | | | | |

\* \* \* \* 8th Change \* \* \* \*

##### 5.4.3.3.3 Type: TrafficInfluSubPatch

This type represents a subscription of traffic influence parameters provided by the AF to the NEF. The structure is used for HTTP PATCH request.

Table 5.4.3.3.3-1: Definition of type TrafficInfluSubPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| appReloInd | boolean | O | 0..1 | Identifies whether an application should be relocated once a location of the application has been selected.  - "true" indicates that an application shall be relocated once a location of the application has been selected.  - "false" indicates that an application shall not be relocated once a location of the application has been selected.  (NOTE 1) |  |
| trafficDataSets | map(TrafficDataSetRm) | O | 1..N | Contains one or several set(s) of traffic filters with the corresponding N6 traffic routing requirements.  The key of the map shall be the value of the "setId" attribute of the TrafficDataSet data type. | MultiTrafficInflu |
| trafficFilters | array(FlowInfo) | O | 1..N | Identifies IP packet filters. |  |
| ethTrafficFilters | array(EthFlowDescription) | O | 1..N | Identifies Ethernet packet filters. |  |
| trafficRoutes | array(RouteToLocation) | O | 1..N | Identifies the N6 traffic routing requirement.  (NOTE 1) |  |
| sfcIdDl | string | O | 0..1 | Reference to a pre-configured steering of user traffic to service function chain in downlink. | SFC |
| sfcIdUl | string | O | 0..1 | Reference to a pre-configured steering of user traffic to service function chain in uplink. | SFC |
| metadata | Metadata | O | 0..1 | Contains opaque information for the service functions in the N6-LAN that is provided by AF and transparently sent to UPF. | SFC |
| tfcCorrInd | boolean | O | 0..1 | Indication of traffic correlation.  May only be included when "externalGroupId" attribute was included within the TrafficInfluSub data type previously.  - "true" indicates that for the group of UEs, the targeted PDU sessions should be correlated by a common DNAI.  - "false" indicates that for the group of UEs, the targeted PDU sessions should not be correlated by a common DNAI.  (NOTE 2) | CommonEASDNAI |
| tfcCorreInfo | TrafficCorrelationInfo | O | 0..1 | Contains the information for traffic correlation. The "notifUri" and "notifCorrId" attributes are not applicable for "tfcCorreInfo" attribute. (NOTE 2) | CommonEASDNAI |
| tempValidities | array(TemporalValidity) | O | 1..N | Indicates the time interval(s) during which the AF request is to be applied.  (NOTE 1) |  |
| validGeoZoneIds | array(string) | O | 1..N | Identifies a geographic zone that the AF request applies only to the traffic of UE(s) located in this specific zone.  (NOTE 1)  This attribute is deprecated; the attribute "geoAreas" should be used instead. |  |
| geoAreas | array(GeographicalArea) | O | 1..N | Identifies geographical areas within which the AF request applies. (NOTE 1)  This attribute deprecates validGeoZoneIds attribute. |  |
| afAckInd | boolean | O | 0..1 | Identifies whether the AF acknowledgement of UP path event notification is expected.  - "true" indicates that the AF acknowledgement of UP path event notification is expected.  - "false" indicates that the AF acknowledgement of UP path event notification is not expected.  (NOTE 3) | URLLC |
| addrPreserInd | boolean | O | 0..1 | Indicates whether UE IP address shall be preserved.  - "true" indicates that the UE IP address shall be preserved.  - "false" indicates that the UE IP address shall not be preserved.  (NOTE 3) | URLLC |
| simConnInd | boolean | O | 0..1 | Indication of whether simultaneous connectivity shall be temporarily maintained for the source and target PSA.  - "true" indicates that temporary simultaneous connectivity shall be kept.  - "false" indicates that the temporary simultaneous connectivity shall not be kept. | SimultConnectivity |
| simConnTerm | DurationSec | O | 0..1 | Indication of the minimum time interval to be considered for inactivity of the traffic routed via the source PSA during the edge re-location procedure. | SimultConnectivity |
| maxAllowedUpLat | UintegerRm | O | 0..1 | Indicates the target user plane latency in units of milliseconds. The SMF may use this value to decide whether edge relocation is needed to ensure that the user plane latency does not exceed the value. | AF\_latency |
| easIpReplaceInfos | array(EasIpReplacementInfo) | O | 1..N | Contains EAS IP replacement information. | EASIPreplacement |
| easRedisInd | boolean | O | 0..1 | Indicates whether the EAS rediscovery is required for the application.  - "true" indicates that the EAS rediscovery is required for the application.  - "false" indicates that the EAS rediscovery is not required for the application.  The indication shall be invalid after it was applied unless it is provided again. | EASDiscovery |
| notificationDestination | Link | O | 0..1 | Contains the Callback URL to receive the notification from the NEF. |  |
| eventReq | ReportingInformation | O | 0..1 | Indicates the event reporting requirements.  This attribute may be provided if the "EDGEAPP" feature is supported. | EDGEAPP |
| hHndlgControInfo | AfHeaderHandlingControlInfo | O | 0..1 | Contains header handling control information for handling of payload headers. | HeaderHandling |
| NOTE 1: The value of the property shall be set to NULL for removal.  NOTE 2: The "tfcCorrInd" attribute and the "tfcCorreInfo" attribute are mutually exclusive.  NOTE 3: The value of the property shall be set to NULL for removal, and in that case, the default value "false" applies. | | | | | |

\* \* \* \* 9th Change \* \* \* \*

##### 5.4.3.3.9 Type: HeaderHandlingReport

Table 5.4.3.3.9-1: Definition of type HeaderHandlingReport

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| notifId | string | M | 1 | Notification Correlation ID assigned by the NF service consumer. |  |
| repEvents | array(HeaderHandlingActionRequest) | M | 1..N | The list of reported header handling action performed on the Payload Headers. |  |

\* \* \* \* 10th Change \* \* \* \*

### 5.4.4 Used Features

The table below defines the features applicable to the TrafficInfluence API. Those features are negotiated as described in clause 5.2.7 of 3GPP TS 29.122 [4].

Table 5.4.4-1: Features used by TrafficInfluence API

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
| 1 | Notification\_websocket | The delivery of notifications over Websocket is supported as described in 3GPP TS 29.122 [4]. This feature requires that the Notification\_test\_event feature is also supported. |
| 2 | Notification\_test\_event | The testing of notification connection is supported as described in 3GPP TS 29.122 [4]. |
| 3 | URLLC | This feature indicates support of Ultra Reliable Low Latency Communication (URLLC) requirements (i.e. AF application relocation acknowledgement and UE address(es) preservation). |
| 4 | MacAddressRange | Indicates the support of a set of MAC addresses with a specific range in the traffic filter. |
| 5 | AF\_latency | This feature indicates support for Edge relocation considering user plane latency. |
| 6 | EASDiscovery | This feature indicates the support of EAS (re)discovery. |
| 7 | EASIPreplacement | This feature indicates the support of provisioning of EAS IP replacement info. |
| 8 | ExposureToEAS | This feature indicates support for the indication provided by the AF of direct event notification of QoS monitoring events from the UPF to the Local NEF or the AF in 5GC. |
| 9 | SimultConnectivity | This feature indicates support of temporary simultaneous connectivity over source and target PSA at edge relocation. |
| 10 | ULBuffering | This feature indicates support for Uplink buffering indication for edge relocation. |
| 11 | EDGEAPP | This feature controls the support of EDGE applications related functionalities (e.g. support the provisioning of event reporting requirements). |
| 12 | SFC | This feature indicates support for application function influence on service function chaining(s). |
| 13 | FinerGranUEs | This feature indicates support for handling of more granular set of UEs. |
| 14 | CommonEASDNAI | This feature controls the support of the common EAS/DNAI selection. |
| 15 | HR-SBO | This feature indicates the support of HR-SBO scenarios. |
| 16 | MultiTrafficInflu | This feature indicates the support for providing more than one set of traffic filters and the corresponding N6 traffic routing requirements for traffic influence. |
| 17 | HeaderHandling | This feature indicates the support of the header handling functionality.  This feature enables the following functionality:  - the support of provisioning of Header Handling Control information for handling of Payload Headers.  - the support of notifications on UPF events related to detection of Payload Headers or related to the actions performed on Payload Headers. |
| Feature: A short name that can be used to refer to the bit and to the feature, e.g. "Notification".  Description: A clear textual description of the feature. | | |

\* \* \* \* 11th Change \* \* \* \*

# A.2 TrafficInfluence API

openapi: 3.0.0

info:

title: 3gpp-traffic-influence

version: 1.3.0

description: |

API for AF traffic influence

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externalDocs:

description: >

3GPP TS 29.522 V18.6.0; 5G System; Network Exposure Function Northbound APIs.

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

security:

- {}

- oAuth2ClientCredentials: []

servers:

- url: '{apiRoot}/3gpp-traffic-influence/v1'

variables:

apiRoot:

default: https://example.com

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

paths:

/{afId}/subscriptions:

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

get:

summary: read all of the active subscriptions for the AF

operationId: ReadAllSubscriptions

tags:

- Traffic Influence Subscription

responses:

'200':

description: OK.

content:

application/json:

schema:

type: array

items:

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

'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: Creates a new subscription resource

operationId: CreateNewSubscription

tags:

- Traffic Influence Subscription

requestBody:

description: Request to create a new subscription resource

required: true

content:

application/json:

schema:

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

callbacks:

notificationDestination:

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

post:

requestBody: # contents of the callback message

required: true

content:

application/json:

schema:

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

callbacks:

afAcknowledgement:

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

post:

requestBody: # contents of the callback message

required: true

content:

application/json:

schema:

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

responses:

'204':

description: No Content (successful acknowledgement)

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

responses:

'204':

description: No Content (successful notification)

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

eventNotificationPayloadHeaders:

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

post:

requestBody: # contents of the callback message

required: true

content:

application/json:

schema:

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

responses:

'204':

description: No Content (successful notification)

'307':

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

'308':

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

'400':

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

'401':

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

'403':

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

'404':

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

'411':

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

'413':

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

'415':

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

'429':

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

'500':

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

'503':

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

default:

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

responses:

'201':

description: Created (Successful creation of subscription)

content:

application/json:

schema:

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

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'

/{afId}/subscriptions/{subscriptionId}:

parameters:

- name: afId

in: path

description: Identifier of the AF

required: true

schema:

type: string

- name: subscriptionId

in: path

description: Identifier of the subscription resource

required: true

schema:

type: string

get:

summary: read an active subscriptions for the SCS/AS and the subscription Id

operationId: ReadAnSubscription

tags:

- Individual Traffic Influence Subscription

responses:

'200':

description: OK (Successful get the active subscription)

content:

application/json:

schema:

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

'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: Fully updates/replaces an existing subscription resource

operationId: FullyUpdateAnSubscription

tags:

- Individual Traffic Influence Subscription

requestBody:

description: Parameters to update/replace the existing subscription

required: true

content:

application/json:

schema:

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

responses:

'200':

description: OK (Successful update of the subscription)

content:

application/json:

schema:

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

'204':

description: No Content

'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: Partially updates/replaces an existing subscription resource

operationId: PartialUpdateAnSubscription

tags:

- Individual Traffic Influence Subscription

requestBody:

required: true

content:

application/merge-patch+json:

schema:

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

responses:

'200':

description: OK. The subscription was modified successfully.

content:

application/json:

schema:

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

'204':

description: No Content

'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: Deletes an already existing subscription

operationId: DeleteAnSubscription

tags:

- Individual Traffic Influence Subscription

responses:

'204':

description: No Content (Successful deletion of the existing subscription)

'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:

TrafficInfluSub:

description: Represents a traffic influence subscription.

type: object

properties:

afServiceId:

type: string

description: Identifies a service on behalf of which the AF is issuing the request.

afAppId:

type: string

description: Identifies an application.

afTransId:

type: string

description: Identifies an NEF Northbound interface transaction, generated by the AF.

appReloInd:

type: boolean

description: >

Identifies whether an application can be relocated once a location of

the application has been selected.

dnn:

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

snssai:

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

externalGroupId:

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

externalGroupIds:

type: array

items:

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

minItems: 1

description: Each element identifies a group of users.

extSubscCats:

type: array

items:

type: string

minItems: 1

anyUeInd:

type: boolean

description: >

Identifies whether the AF request applies to any UE. This attribute shall

set to "true" if applicable for any UE, otherwise, set to "false".

subscribedEvents:

type: array

items:

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

minItems: 1

description: Identifies the requirement to be notified of the event(s).

gpsi:

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

ipv4Addr:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv4Addr'

ipDomain:

type: string

ipv6Addr:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv6Addr'

macAddr:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/MacAddr48'

dnaiChgType:

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

notificationDestination:

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

requestTestNotification:

type: boolean

description: >

Set to true by the SCS/AS to request the NEF to send a test notification

as defined in clause 5.2.5.3. Set to false or omitted otherwise.

websockNotifConfig:

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

self:

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

trafficDataSets:

type: object

additionalProperties:

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

minProperties: 2

description: >

Contains multiple sets of traffic filters with the corresponding N6 traffic

routing requirements. The key of the map shall be the value of the setId attribute of

the TrafficDataSet data structure.

trafficFilters:

type: array

items:

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

minItems: 1

description: Identifies IP packet filters.

ethTrafficFilters:

type: array

items:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/EthFlowDescription'

minItems: 1

description: Identifies Ethernet packet filters.

trafficRoutes:

type: array

items:

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

minItems: 1

description: Identifies the N6 traffic routing requirement.

sfcIdDl:

type: string

description: >

Reference to a pre-configured steering of user traffic to service function chain in

downlink.

sfcIdUl:

type: string

description: >

Reference to a pre-configured steering of user traffic to service function chain in

uplink.

metadata:

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

tfcCorrInd:

type: boolean

tempValidities:

type: array

items:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/TemporalValidity'

validGeoZoneIds:

type: array

items:

type: string

minItems: 1

description: >

Identifies a geographic zone that the AF request applies only to the traffic

of UE(s) located in this specific zone.

deprecated: true

geoAreas:

type: array

items:

$ref: 'TS29522\_AMPolicyAuthorization.yaml#/components/schemas/GeographicalArea'

minItems: 1

description: Identifies geographical areas within which the AF request applies.

afAckInd:

type: boolean

addrPreserInd:

type: boolean

simConnInd:

type: boolean

description: >

Indicates whether simultaneous connectivity should be temporarily

maintained for the source and target PSA.

simConnTerm:

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

maxAllowedUpLat:

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

easIpReplaceInfos:

type: array

items:

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

minItems: 1

description: Contains EAS IP replacement information.

easRedisInd:

type: boolean

description: >

Indicates the EAS rediscovery is required for the application if it is included

and set to "true".

eventReq:

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

eventReports:

type: array

items:

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

minItems: 1

candDnaiInd:

type: boolean

description: >

Indication of reporting candidate DNAI(s). If it is included and set to "true", the

candidate DNAI(s) for the PDU session need to be reported. Otherwise set to "false" or

omitted.

tfcCorreInfo:

$ref: 'TS29519\_Application\_Data.yaml#/components/schemas/TrafficCorrelationInfo'

plmnId:

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

portNumber:

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

suppFeat:

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

hHndlgControInfo:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/AfHeaderHandlingControlInfo'

allOf:

- oneOf:

- required: [afAppId]

- required: [trafficFilters]

- required: [ethTrafficFilters]

- required: [trafficDataSets]

- oneOf:

- required: [ipv4Addr]

- required: [ipv6Addr]

- required: [macAddr]

- required: [gpsi]

- required: [externalGroupId]

- required: [anyUeInd]

anyOf:

- not:

required: [subscribedEvents]

- required: [notificationDestination]

TrafficInfluSubPatch:

description: >

Represents parameters to request the modification of a traffic influence

subscription resource.

type: object

properties:

appReloInd:

type: boolean

description: >

Identifies whether an application can be relocated once a location of

the application has been selected.

nullable: true

trafficDataSets:

type: object

additionalProperties:

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

minProperties: 1

description: >

Contains one or several set(s) of traffic filters with the corresponding N6 traffic

routing requirements. The key of the map shall be the value of the setId attribute of

the TrafficDataSet data structure.

trafficFilters:

type: array

items:

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

minItems: 1

description: Identifies IP packet filters.

ethTrafficFilters:

type: array

items:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/EthFlowDescription'

minItems: 1

description: Identifies Ethernet packet filters.

trafficRoutes:

type: array

items:

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

minItems: 1

description: Identifies the N6 traffic routing requirement.

sfcIdDl:

type: string

description: >

Reference to a pre-configured steering of user traffic to service function chain in

downlink.

nullable: true

sfcIdUl:

type: string

description: >

Reference to a pre-configured steering of user traffic to service function chain in

uplink.

nullable: true

metadata:

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

tfcCorrInd:

type: boolean

nullable: true

tempValidities:

type: array

items:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/TemporalValidity'

minItems: 1

nullable: true

validGeoZoneIds:

type: array

items:

type: string

minItems: 1

description: >

Identifies a geographic zone that the AF request applies only to the traffic

of UE(s) located in this specific zone.

nullable: true

deprecated: true

geoAreas:

type: array

items:

$ref: 'TS29522\_AMPolicyAuthorization.yaml#/components/schemas/GeographicalArea'

minItems: 1

description: Identifies geographical areas within which the AF request applies.

nullable: true

afAckInd:

type: boolean

nullable: true

addrPreserInd:

type: boolean

nullable: true

simConnInd:

type: boolean

description: >

Indicates whether simultaneous connectivity should be temporarily maintained

for the source and target PSA.

simConnTerm:

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

maxAllowedUpLat:

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

easIpReplaceInfos:

type: array

items:

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

minItems: 1

description: Contains EAS IP replacement information.

nullable: true

easRedisInd:

type: boolean

description: >

Indicates the EAS rediscovery is required for the application if it is included

and set to "true".

notificationDestination:

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

eventReq:

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

tfcCorreInfo:

$ref: 'TS29519\_Application\_Data.yaml#/components/schemas/TrafficCorrelationInfo'

hHndlgControInfo:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/AfHeaderHandlingControlInfo'

EventNotification:

description: Represents a traffic influence event notification.

type: object

properties:

afTransId:

type: string

description: Identifies an NEF Northbound interface transaction, generated by the AF.

dnaiChgType:

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

sourceTrafficRoute:

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

subscribedEvent:

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

targetTrafficRoute:

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

sourceDnai:

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

targetDnai:

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

candidateDnais:

type: array

items:

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

minItems: 1

description: The candidate DNAI(s) for the PDU Session.

candDnaisPrioInd:

type: boolean

description: >

If provided and set to true, it indicates that the candidate DNAIs provided

in the candidateDnais attribute are in descending priority order, i.e.,

the lower the array index the higher the priority of the respective DNAI.

If omitted, the default value is false.

easRediscoverInd:

type: boolean

description: >

Indication of EAS re-discovery. If present and set to "true", it indicates the EAS

re-discovery is performed, e.g. due to change of common EAS. Default value is "false" if

omitted. May be included for event "UP\_PATH\_CHANGE".

gpsi:

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

srcUeIpv4Addr:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv4Addr'

srcUeIpv6Prefix:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

tgtUeIpv4Addr:

$ref: 'TS29122\_CommonData.yaml#/components/schemas/Ipv4Addr'

tgtUeIpv6Prefix:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/Ipv6Prefix'

ueMac:

$ref: 'TS29571\_CommonData.yaml#/components/schemas/MacAddr48'

afAckUri:

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

offloadPlmnId:

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

hDnn:

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

hSnssai:

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

suppFeatures:

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

required:

- dnaiChgType

- subscribedEvent

AfResultInfo:

description: Identifies the result of application layer handling.

type: object

properties:

afStatus:

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

trafficRoute:

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

upBuffInd:

type: boolean

description: >

If present and set to "true" it indicates that buffering of uplink traffic

to the target DNAI is needed.

easIpReplaceInfos:

type: array

items:

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

minItems: 1

description: Contains EAS IP replacement information.

required:

- afStatus

AfAckInfo:

description: Represents acknowledgement information of a traffic influence event notification.

type: object

properties:

afTransId:

type: string

ackResult:

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

gpsi:

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

required:

- ackResult

TrafficDataSet:

description: >

Represents a set of traffic filters and the corresponding N6 traffic routing requirements.

properties:

setId:

type: string

trafficFilters:

type: array

items:

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

minItems: 1

ethTrafficFilters:

type: array

items:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/EthFlowDescription'

minItems: 1

trafficRoutes:

type: array

items:

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

minItems: 1

required:

- setId

- trafficRoutes

oneOf:

- required: [trafficFilters]

- required: [ethTrafficFilters]

TrafficDataSetRm:

description: >

This data type is defined in the same way as the TrafficDataSet data, but with the OpenAPI

nullable property set to true. Removable attributes trafficFilters and ethTrafficFilters and

trafficRoutes are defined as nullable in the OpenAPI.

properties:

setId:

type: string

trafficFilters:

type: array

items:

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

minItems: 1

nullable: true

ethTrafficFilters:

type: array

items:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/EthFlowDescription'

minItems: 1

nullable: true

trafficRoutes:

type: array

items:

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

minItems: 1

nullable: true

nullable: true

required:

- setId

HeaderHandlingReport:

description: >

Represents the header handling action request.

properties:

notifId:

type: string

repEvents:

type: array

items:

$ref: 'TS29514\_Npcf\_PolicyAuthorization.yaml#/components/schemas/HeaderHandlingActionRequest'

minItems: 1

description: >

Contains multiple sets of header handling reports.

required:

- notifId

- repEvents

SubscribedEvent:

anyOf:

- type: string

enum:

- UP\_PATH\_CHANGE

- type: string

description: >

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

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

description: |

Represents the type of UP path management events for which the AF requests to be notified.

Possible values are:

- UP\_PATH\_CHANGE: The AF requests to be notified when the UP path changes for

the PDU session.

AfResultStatus:

anyOf:

- type: string

enum:

- SUCCESS

- TEMPORARY\_CONGESTION

- RELOC\_NO\_ALLOWED

- OTHER

- type: string

description: >

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

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

description: |

Represents the status of application handling result.

Possible values are:

- SUCCESS: The application layer is ready or the relocation is completed.

- TEMPORARY\_CONGESTION: The application relocation fails due to temporary congestion.

- RELOC\_NO\_ALLOWED: The application relocation fails because application relocation

is not allowed.

- OTHER: The application relocation fails due to other reason.

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