**3GPP TSG-CT WG3 Meeting #130 *C3-234284***

**Xiemen, China, 9 - 13 October, 2023**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.522** | **CR** | **1082** | **rev** | **-** | **Current version:** | **18.3.0** |  |
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| *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:*** | Impacts in AF influence on traffic procedures due to HR-SBO scenarios | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson, Nokia, Nokia Shanghai Bell | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | EDGE\_Ph2 | | | | |  | ***Date:*** | | | 2023-09-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | TS 23.502 have evolved the AF influence on traffic procedures in order to differentiate existing procedures from those related to HR-SBO PDU sessions. The NEF should thus be able to differentiate the procedures in order to invoke different functionality when receiving AF requests. The work is however still ongoing in SA2 and thus some aspects remain with ENs. | | | | | | | | |
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| ***Summary of change:*** | | AF influence on traffic routing clauses are changed to introduce the logic in the NEF to identify the target PLMN and identify the HR-SBO scenario.  PLMN Id and port number are introduced in the data model and in the OpenAPI. | | | | | | | | |
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| ***Consequences if not approved:*** | | Incomplete functionality. Misalignment with stage 2 specifications. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.4.7.2; 4.4.7.3; 4.4.7.5, 5.4.3.2, 5.4.3.3.2, 5.4.4, A.2. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | This CR introduces a backward compatible feature in the TrafficInfluence OpenAPI file. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**Additional discussion(if needed):**

**Proposed changes:**

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

#### 4.4.7.2 AF request identified by UE address

Upon receipt of the above AF request which is for an individual UE identified by IP or Ethernet address, if the NEF supports HR-SBO scenarios, it may determine whether the PDU session is in HR-SBO mode as described in clause 4.4.7.5 .

If the NEF deduces that the PDU session is not working in HR-SBO mode, the procedure in this clause applies. Otherwise, the procedure described in clause 4.4.7.5 shall be performed instead.

The NEF may interact with the BSF to retrieve the related PCF information by invoking the Nbsf\_Management\_Discovery service operation as described in 3GPP TS 29.521 [9]. If the NEF receives an error response from the BSF, the NEF shall not create the resource and shall respond to the AF with a proper error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

After receiving a successful response from the BSF, the NEF shall interact with the PCF by invoking the Npcf\_PolicyAuthorization service as described in 3GPP TS 29.514 [7]. After receiving a successful response from the PCF, the NEF shall:

- for the HTTP POST request, create a resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, addressed by a URI that contains the AF Identifier and an NEF-created subscription identifier, and shall respond to the AF with a 201 Created status code, including a Location header field containing the URI for the created resource. The AF shall use the URI received in the Location header in subsequent requests to the NEF to refer to this traffic influence subscription:

- for the HTTP PUT or PATCH request, update a resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, and shall responds to the AF with a 200 OK status code with the "TrafficInfluSub" data structure as response body containing the representation of the modified "Individual Traffic Influence Subscription", or an HTTP "204 No Content" response; and

- for the HTTP DELETE request, remove all properties of the resource and delete the corresponding active resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, then shall responds to the AF with a 204 No Content status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

If the NEF receives a response with an error code from the PCF, the NEF shall not create, update or delete the resource and shall respond to the AF with a proper error status code.

\*\*\* Second Change \*\*\*

#### 4.4.7.3 AF request not identified by UE address

For AF request not identified by UE address, it may target an individual UE, one or more groups of UEs or any UE.

If HR-SBO scenarios are supported by the NEF, it may determine whether the PDU session is in HR-SBO mode as described in clause 4.4.7.5.

If the NEF deduces that the PDU session is not working in HR-SBO mode, the procedure in this clause applies. Otherwise, the procedure described in clause 4.4.7.5 shall be performed instead.

For an individual UE identified by GPSI, or one or more groups of UEs identified by External Group Identifier, the NEF shall interact with the UDM by invoking the Nudm\_SubscriberDataManagement service as described in 3GPP TS 29.503 [17] to retrieve the SUPI or Internal Group Identifier.

When the feature FinerGranUEs is supported, the NEF may map the External Subscriber Category(ies) and any UE indicator, or External Subscriber Category(ies) and External Group Identifier(s) to Internal Group Identifier(s) or Internal Group Identifier(s) and Subscriber Category(ies).

NOTE: As a user can be associated with multiple Subscriber Category(ies), some values of Subscriber Category(ies) can correspond to an SLA between an application provider represented by an AF and the 5GC operator. The combination of application identifier and External Subscriber Category can also be used to refer to this SLA.

The NEF shall interact with the UDR to store the traffic influence parameters received from the AF, updated as required and mapped as applicable by invoking the Nudr\_DataRepository service as described in 3GPP TS 29.504 [20] and 3GPP TS 29.519 [23]. If the NEF receives an error response from the UDR, the NEF shall not create, update or delete the resource and shall respond to the AF with a proper error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

After receiving a successful response from the UDR, the NEF shall:

- for the HTTP POST request, create a resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, addressed by a URI that contains the AF Identifier and an NEF-created subscription identifier, and shall respond to the AF with a 201 Created status code, including a Location header field containing the URI for the created resource. The AF shall use the URI received in the Location header in subsequent requests to the NEF to refer to this traffic influence subscription;

- for the HTTP PUT or PATCH request, update a resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, and shall responds to the AF with a 200 OK status code with the "TrafficInfluSub" data structure as response body containing the representation of the modified "Individual Traffic Influence Subscription", or an HTTP "204 No Content" response; and

- for the HTTP DELETE request, delete the corresponding active resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, and shall responds to the AF with a 204 No Content status code.

\*\*\* Third Change \*\*\*

#### 4.4.7.5 Processing AF requests to influence traffic routing for HR-SBO session

If HR-SBO scenarios are supported by the NEF , upon receiving the AF request, it shall determine whether the PDU session is working in HR-SBO mode based on the availability of the information provided by the AF as follows:.

If the AF supports the "HR-SBO" feature and includes the "plmnId" attribute within the TrafficInfluSub data type, the NEF shall determine that the PDU session is working in HR-SBO mode when the PLMN of the UE is not the PLMN that the NEF belongs to.

If the NEF was not able to deduce the PLMN of the UE based on the "plmnId", the NEF shall deduce if the PDU session is working in HR-SBO mode based on the target UE information as follows:

1. If the "gpsi" attribute is received and the HPLMN of the UE is part of it, the NEF determines the HPLMN of the UE (and thus whether HR-SBO applies) from it, based on the received GPSI.
2. If the "anyUeInd" attribute is received, the NEF determines based on configuration if the PDU Session is working in HR-SBO mode.

3. If the UE address is received as part of "ipv6Addr" or "ipv4Addr" attribute and it corresponds to a private IP address, the NEF determines the HPLMN of the UE and thus whether HR-SBO applies based on configuration.

4. If the UE address is received as part of "ipv6Addr" or "ipv4Addr"attribute and it corresponds to a public IP address:

- if this public address belongs to a range NOT owned by the PLMN of the NEF, then the NEF shall obtain the HPLMN of the UE (and thus whether HR-SBO applies) based on local configuration for that range;

- otherwise, if the UE IP Address in the AF request is an IP address NATed by the PLMN that the NEF belongs to), the NEF shall deduce the PDU session is working in HR-SBO by interacting with the UPF.

NOTE 1: In this release, the HPLMN allows HR-SBO for a PDU session only if the UE IP address of the PDU Session has not been allocated in a range that may overlap with other PDU sessions to the same DNN and S-NSSAI of that HPLMN.

NOTE 2: It is assumed that the NEF is configured with the NATed IP range of its own PLMN. It is assumed that the NEF is configured based on HR-SBO roaming agreements for the DNN/S-NSSAI with the association of Public IP address ranges with an HPLMN ID, a DNN/S-NSSAI.

NOTE 3 This procedure is not supported if the AF request targets includes "externalGroupId", "externalGroupIds" or "extSubscCats" attributes within the TrafficInfluSub data type.

Editor’s Note: The details on how to use the received target UE information, DNN/S-NSSAI, and port information, how to interact with the HPLMN and/or the UPF, how to deduce the valid IP address, DNN and S-NSSAI information, and how to use those in the procedures (e.g. interaction with the V-UDR) requires further stage 2 work.

The NEF shall derive the information to be stored in the UDR.

Editor’s Note: It is FFS how the NEF derives the required UE identity information to be stored in the UDR.

After having performed the necessary mappings as described above, the NEF shall interact with the UDR to store the traffic influence parameters as described in 3GPP TS 29.504 [20] and 3GPP TS 29.519 [23].

If the NEF receives an error response from the UDR, the NEF shall not create, update or delete the resource and shall respond to the AF with a proper error status code. If the NEF received within an error response a "ProblemDetails" data structure with a "cause" attribute indicating an application error, the NEF shall relay this error response to the AF with a corresponding application error, when applicable.

After receiving a successful response from the UDR, the NEF shall:

- for the HTTP POST request, create a resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, addressed by a URI that contains the AF Identifier and an NEF-created subscription identifier, and shall respond to the AF with a 201 Created status code, including a Location header field containing the URI for the created resource. The AF shall use the URI received in the Location header in subsequent requests to the NEF to refer to this traffic influence subscription;

- for the HTTP PUT or PATCH request, update a resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, and shall responds to the AF with a 200 OK status code with the "TrafficInfluSub" data structure as response body containing the representation of the modified "Individual Traffic Influence Subscription", or an HTTP "204 No Content" response; and

- for the HTTP DELETE request, delete the corresponding active resource "Individual Traffic Influence Subscription" which represents the traffic influence subscription, and shall responds to the AF with a 204 No Content status code.

\*\*\* Fourth 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 |
| 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. |
| FqdnPatternMatchingRule | 3GPP TS 29.571 [8] | Identifies the FQDN pattern matching rule. |
| GeographicalArea | Clause 5.17.3.3.4 | Identifies a geographical area. |
| Gpsi | 3GPP TS 29.571 [8] | Identifies a GPSI. |
| IpAddr | 3GPP TS 29.571 [8] | Identifes an IP address. |
| Ipv4Addr | 3GPP TS 29.122 [4] | Identifies an IPv4 address. |
| Ipv4AddrRm | 3GPP TS 29.571 [8] | Identifies an IPv4 address. |
| Ipv6Addr | 3GPP TS 29.122 [4] | Identifies an IPv6 address. |
| Ipv6Prefix | 3GPP TS 29.571 [8] | Identifies an IPv6 Prefix. |
| Ipv6AddrRm | 3GPP TS 29.571 [8] | Identifies an IPv6 address. |
| 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. |
| 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. | | |

\*\*\* Fifth 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 can be relocated; otherwise set to "false". 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). This attribute shall set to "true" if applicable for any UE, otherwise, set to "false".  (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 | 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 or omitted otherwise. | 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 |  |
| 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) |  |
| 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 | C | 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 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.  Set to "true" if the AF acknowledge is expected; otherwise set to "false".  Default value is "false" if omitted. | URLLC |
| addrPreserInd | boolean | O | 0..1 | Indicates whether UE IP address should be preserved.  This attribute shall set to "true" if preserved, otherwise, set to "false".  Defalult value is "false" if omitted. | URLLC |
| simConnInd | boolean | O | 0..1 | Indication of simultaneous connectivity temporarily maintained for the source and target PSA. If it is included and set to "true", temporary simultaneous connectivity should be kept. The default value "false" applies, if the attribute is not present and has not been supplied previously. | 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 the EAS rediscovery is required for the application if it is included and set to "true". 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 set to "false" or 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. |  |
| 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: 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.  NOTE 3: One of "afAppId", "trafficFilters" or "ethTrafficFilters" 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.  NOTE 9: When only one DNAI is included, and the Indication of traffic correlation within the "tfcCorrInd" attribute is available or the "correType" 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 2: 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.  NOTE 3: One of "afAppId", "trafficFilters" or "ethTrafficFilters" 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.  NOTE 9: When only one DNAI is included, and the Indication of traffic correlation within the "tfcCorrInd" attribute is available or the "correType" 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. | | | | | |

\*\*\* Sixth 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. |
| 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. | | |

\*\*\* Seventh Change \*\*\*

# A.2 TrafficInfluence API

openapi: 3.0.0

info:

title: 3gpp-traffic-influence

version: 1.3.0-alpha.3

description: |

API for AF traffic influence

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externalDocs:

description: >

3GPP TS 29.522 V18.3.0; 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'

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'

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'

allOf:

- oneOf:

- required: [afAppId]

- required: [trafficFilters]

- required: [ethTrafficFilters]

- 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

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'

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'

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

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 \*\*\*