**3GPP TSG-CT3 Meeting #112e C3-205044\_r1**

**E-Meeting, 04th – 13th November 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.508** | **CR** | **0102** | **rev** | **1** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Essential corrections and alignments | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | SBIProtoc16 | | | | |  | ***Date:*** | | | 2020-10-?? |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The following corrections and alignments are necessary:   * The "Resource URI" column of Table 5.3.1-1 should contain a "<relative URI below root>" instead of a full resource URI, as per the API TS skeleton provided in TS 29.501. * The "Notifications overview" table and the "Target URI" clause need to be updated to align with the SBI TS skeleton provided in TS 29.501. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | * Update the "Resource URI" column of Table 5.3.1-1 by replacing the full resource URI with the associated "<relative URI below root>", i.e. by removing the part "{apiRoot}/<apiName>/<apiVersion>". * Update the "Notifications overview" table and the "Target URI" clause to align with the updated SBI TS skeleton provided in TS 29.501. * Some additional editorial corrections to improve the text. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Necessary corrections are not applied. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.1.2, 4.1.3.2, 4.2.2.1, 4.2.2.2, 4.2.3.1, 4.2.3.2, 4.2.3.3, 4.2.5.1, 4.2.5.2, 5.3.1, 5.3.2.1, 5.5.1, 5.5.2.2, 5.5.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 does not impact OpenAPI specification files. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 1:   * Revert the changes on "subclause" (to "clause") to keep the existing wording. * Further align clause 5.5.2.2 and 5.5.3.2 with the SBI TS skeleton by replacing "Notification URI" by "Callback URI". * Update the changes to the resource URIs in clause 5.3.3.4.1 and clause 5.3.1 by removing the solidus. | | | | | | | | |

\* \* \* Start of changes \* \* \* \*

4.1.2 Service Architecture

The 5G System Architecture is defined in 3GPP TS 23.501 [2]. The Policy and Charging related 5G architecture is also described in 3GPP TS 29.513 [7].

The Session Management Event Exposure Service (Nsmf\_EventExposure) is part of the Nsmf service-based interface exhibited by the Session Management Function (SMF).

The known consumers of the Nsmf\_EventExposure service are:

- Network Exposure Function (NEF),

- Access and Mobility Management Function (AMF),

- Application Function (AF),

- Unified Data Management (UDM), and

- Network Data Analytics Function (NWDAF).

The PCF accesses the Session Management Event Exposure Service at the SMF via the N7 Reference point.

NOTE: The PCF can implicitly subscribe on behalf of the AF and NEF to the UP\_PATH\_CH event and/or the QOS\_MON event by including the information on AF subscription within the PCC rule.

The AMF accesses the Session Management Event Exposure Service at the SMF via the N11 Reference point.

****

**Figure 4.1.2-1: Reference Architecture for the Nsmf\_EventExposure Service; SBI representation**

****

**Figure 4.1.2-2: Reference Architecture for the Nsmf\_EventExposure Service: reference point representation**

\* \* \* Next changes \* \* \* \*

#### 4.1.3.2 NF Service Consumers

The Network Exposure Function (NEF);

- provides means to securely expose the services and capabilities provided by 3GPP network functions to e.g. 3rd parties or internal exposure.

The Access and Mobility Management function (AMF) provides:

- Registration management;

- Connection management;

- Reachability management; and

- Mobility Management.

The Application Function (AF)

- interacts with the 3GPP Core Network to provide services.

The Unified Data Management (UDM).

- has access to subscriber information, can determine the SMF serving a user based on that data, and can then subscribe to event notifications for a user (e.g. when triggered by the NEF).

The Network Data Analytics Function (NWDAF)

- collects data based on event subscription provided by AMF, SMF, PCF, UDM, AF (directly or via NEF) and OAM;

- retrieves information about NFs;

- performs on demand provision of analytics to consumers, as indicated in clause 6, 3GPP TS 23.288 [21].

\* \* \* Next changes \* \* \* \*

#### 4.2.2.1 General

The Nsmf\_EventExposure\_Notify service operation enables the SMF (i.e. (H-)SMF, V-SMF and/or I-SMF) to send notifications to NF service consumers upon the occurrence of a previously subscribed event on the related PDU session.

The following procedure using the Nsmf\_EventExposure\_Notify service operation is supported:

- notification about subscribed events.

\* \* \* Next changes \* \* \* \*

4.2.2.2 Notification about subscribed events

The present "notification about subscribed events" procedure is performed by the SMF when any of the subscribed events occur.

The following applies with respect to the detection of subscribed events:

- If:

- the SMF supports the "downlink data delivery status" feature,

- the event "downlink data delivery status" is subscribed,

- the traffic descriptors of the downlink data source have been provided for that subscription, and

- the SMF is informed that the UE corresponding to that subscription is unreachable,

- if the data is buffered at the UPF, then the SMF shall interact with the UPF to notify that the UPF buffers the downlink packets. The SMF shall include the traffic descriptor of the subscriptions in the PDR with a higher priority if the PCC is not applied to the PDUsession or derive the PDR from the PCC rule received from the PCF as defined in subclause 4.2.4.27 of 3GPP TS 29.512 [14] if the PCC is applied to the PDU session and request the UPF to report when there are corresponding buffered downlink packets or discarded packets in the UPF as defined in subclause 5.2.1 of 3GPP TS 29.244 [23]. When receiving the report from the UPF, the SMF shall determine whether that subscribed event with delivery status "DISCARDED" and/or "BUFFERED" occurred. The SMF shall determine that subscribed event with delivery status "TRANSMITTED" occurred by the fact that the related PDU session becomes ACTIVE.

- if the data is buffered at the SMF, the SMF shall determine whether that subscribed event occurred by comparing the downlink packets with the traffic descriptors received in the corresponding event subscription.

Figure 4.2.2.2-1 illustrates the notification about subscribed events.

****

**Figure 4.2.2.2-1: Notification about subscribed events**

If the SMF observes PDU Session related event(s) for which an NF service consumer has subscribed, the SMF shall send an HTTP POST request with "{notifUri}", as previously provided by the NF service consumer within the corresponding subscription, as URI and NsmfEventExposureNotification data structure as request body that shall include:

- Notification correlation ID provided by the NF service consumer during the subscription, or as provided by the PCF for implicit subscription of UP path change as defined in subclause 4.2.6.2.6.2 of 3GPP TS 29.512 [14], or as provided by the PCF for implicit subscription of QoS Monitoring as defined in subclause 4.2.3.25 of 3GPP TS 29.512 [14], as "notifId" attribute; and

- information about the observed event(s) within the "eventNotifs" attribute that shall contain for each observed event an "EventNotification" data structure that shall include:

1. the Event Trigger as "event" attribute;

2. for a UP path change notification:

a) type of notification ("EARLY" or "LATE") as "dnaiChgType" attribute;

b) source DNAI and/or target DNAI as "sourceDnai" attribute and "targetDnai" attribute if DNAI is changed, respectively (NOTE 3); and

c) if the PDU Session type is IP, for the source DNAI IP address/prefix of the UE as "sourceUeIpv4Addr" attribute or "sourceUeIpv6Prefix" attribute; and

d) if the PDU Session type is IP, for the target DNAI IP address/prefix of the UE as "targetUeIpv4Addr" attribute or "targetUeIpv6Prefix" attribute;

e) if available (NOTE 3), for the source DNAI, N6 traffic routing information related to the UE as "sourceTraRouting" attribute;

f) if available (NOTE 3), for the target DNAI, N6 traffic routing information related to the UE as "targetTraRouting" attribute; and

g) if the PDU Session type is Ethernet, the MAC address of the UE in the "ueMac" attribute;

NOTE 1: UP path change notification, i.e. DNAI change notification and/or N6 traffic routing information change notification, can be the result of an implicit subscription of the PCF on behalf of the NEF/AF as part of setting PCC rule(s) via the Npcf\_SMPolicyControl service (see subclause 4.2.6.2.6.2 of 3GPP TS 29.512 [14]).

NOTE 2: If the DNAI is not changed while the N6 traffic routing information change, the source DNAI and target DNAI are not provided.

NOTE 3: The change from the UP path status where no DNAI applies to a status where a DNAI applies indicates the activation of the related AF request and therefore only the target DNAI and N6 traffic routing information is provided in the event notification; the change from the UP path status where a DNAI applies to a status where no DNAI applies indicates the de-activation of the related AF request and therefore only the source DNAI and N6 traffic routing information is provided in the event notification.

3. for a UE IP address change:

a) added new UE IP address or prefix as "adIpv4Addr" attribute or "adIpv6Prefix" attribute, respectively; and/or

b) released UE IP address or prefix as "reIpv4Addr" attribute or "reIpv6Prefix" attribute, respectively;

4. for an access type change:

a) new access type as "accType" attribute;

5. for a PLMN Change:

a) new PLMN as "plmnId" attribute;

6. for a PDU Session Release:

a) ID of the released PDU session as "pduSeId" attribute;

b) DNN of the release PDU session as "dnn" attribute, if the "PduSessionStatus" feature is supported;

c) The type of the release PDU session as "pduSessType" attribute, if the "PduSessionStatus" feature is supported; and

d) UE IPv4 address as "ipv4Addr" attribute and/or IPv6 information (IPv6 prefix(es) or IPv6 address(es)) as "ipv6Prefixes" or "ipv6Addrs" attributes, if the released PDU session type is IP and the "PduSessionStatus" feature is supported;

7. the time at which the event was observed encoded as "timeStamp" attribute;

8. the SUPI as the "supi" attribute if the subscription applies to a group of UE(s) or any UE;

9. if available, the GPSI as the "gpsi" attribute if the subscription applies to a group of UE(s) or any UE;

10. for a Downlink Data Delivery Status:

a) the downlink data delivery status as "dddStatus" attribute;

b) the downlink data descriptors impacted by the downlink data delivery status change within the "dddTraDescriptor" attribute; and

c) for downlink data delivery status "BUFFERED". the estimated maximum waiting time as "maxWaitTime" attribute;

11. for a Communication Failure:

a) the detailed communication failure information (e.g. 5G SM cause) as "commFailure" attribute; and

12. for QoS Monitoring:

a) one or two uplink packet delays within the "ulDelays" attribute; or

b) one or two downlink packet delays within the "dlDelays" attribute; or

c) one or two round trip packet delays within the "rtDelays" attribute.

NOTE 4: QoS Monitoring notification can be the result of an implicit subscription of the PCF on behalf of the NEF/AF as part of setting PCC rule(s) via the Npcf\_SMPolicyControl service (see subclause 4.2.3.25 of 3GPP TS 29.512 [14]).

13. for a PDU Session Establishment, if the "PduSessionStatus" feature is supported:

a) ID of the established PDU session as "pduSeId" attribute;

b) DNN of the release PDU session as "dnn" attribute;

c) The type of the release PDU session as "pduSessType" attribute; and

d) UE IPv4 address as "ipv4Addr" attribute and/or IPv6 information (IPv6 prefix(es) or IPv6 address(es)) as "ipv6Prefixes" or "ipv6Addrs" attributes if available at PDU session establishment;

14. for a QFI allocation:

a) QFI of the allocated QoS Flow ID for the application as "qfi" attribute;

b) DNN of the allocated PDU session as "dnn" attribute;

c) Slice of the allocated PDU session as "snssai" attribute; and

d) The description of the application traffic as "appId", "fDescs" or "ethfDescs" attribute;

- an URI for further AF acknowledgement in the "ackUri" attribute if the SMF determines to wait for the AF acknowledgement before activating the new UP path associated with the new DNAI.

NOTE 5: Based on the indication of AF acknowledgment to be expected in the PCC rules received from the PCF and local configuration, the SMF may determine to wait for the AF acknowledgement before activating the new UP path associated with the new DNAI.

Upon the reception of an HTTP POST request with "{notifUri}" as URI and an NsmfEventExposureNotification data structure as request body, the NF service consumer shall send an HTTP "204 No Content" response for a successful processing.

If the NF service consumer is not able to handle the Notification but knows by implementation specific means that another service consumer is able to handle the notification, it shall reply with an HTTP "307 temporary redirect" error response pointing to the new NF service consumer URI. If the NF service consumer is not able to handle the Notification but another unknown service consumer could possibly handle the notification, it shall reply with an HTTP "404 Not found" error response.

NOTE 6: An AMF as service consumer can change.

If the SMF receives a "307 temporary redirect" response, the SMF shall resend the failed event notification request using the received URI in the Location header field as Notification URI. Subsequent event notifications, triggered after the failed one, shall be sent to the Notification URI provided by the NF service consumer during the corresponding subscription creation/update.

If the SMF becomes aware that a new NF service consumer is requiring notifications (e.g. via the "404 Not found" response, or via Namf\_Communication service AMFStatusChange Notifications, see 3GPP TS 29.518 [13], or via link level failures or via the Nnrf\_NFDiscovery Service (using the service name and GUAMI obtained during the creation of the subscription) to discover the other AMFs within the AMF set) specified in 3GPP TS 29.510 [12]), and the SMF knows alternate or backup IPv4 Address(es), IPv6 Address(es) or FQDN(s) where to send Notifications (e.g. via "altNotifIpv4Addrs", "altNotifIpv6Addrs" or "altNotifFqdns" attributes received when the subscription was created), the SMF shall exchange the authority part of the Notification URI with one of those addresses and shall use that URI in any subsequent communication. If the SMF received a "404 Not found" response, the SMF should resend the failed notification to that URI.

If the SMF in the VPLMN needs to send an event notification to the NEF in the HPLMN, it may normalize the event based on roaming agreements when required before provisioning the event report to the NEF of the HPLMN.

\* \* \* Next changes \* \* \* \*

#### 4.2.3.1 General

This service operation is used by an NF service consumer to subscribe to event notifications on a specific PDU Session, or for all PDU Sessions of one UE, group of UE(s) or any UE, or to modify an existing subscription.

The following procedures using the Nsmf\_EventExposure\_Subscribe service operation are supported:

- creating a new subscription;

- modifying an existing subscription.

\* \* \* Next changes \* \* \* \*

4.2.3.2 Creating a new subscription

Figure 4.2.3.2-1 illustrates the creation of a subscription.

****

**Figure 4.2.3.2-1: Creation of a subscription**

To subscribe to event notifications, the NF service consumer shall send an HTTP POST request with: "{apiRoot}/nsmf-event-exposure/v1/subscriptions/" as Resource URI and the NsmfEventExposure data structure as request body that shall include:

- if the subscription applies to events related to a single PDU session for a UE, the PDU Session ID of that PDU session as "pduSeId" attribute and the UE identification as "supi" or "gpsi" attribute;

- if the subscription applies to events not related to a single PDU session, identification of UEs to which the subscription applies via:

a) identification of a single UE by SUPI as "supi" attribute or GPSI as "gpsi" attribute;

b) identification of a group of UE(s) via a "groupId" attribute; or

c) identification of any UE via the "anyUeInd" attribute set to true;

NOTE 1: The identification of any UE does not apply for local breakout roaming scenarios where the SMF is located in the VPLMN and the NF service consumer is located in the HPLMN.

- an URI where to receive the requested notifications as "notifUri" attribute;

- a Notification Correlation Identifier assigned by the NF service consumer for the requested notifications as "notifId" attribute; and

- if the NF service consumer is an AMF, the GUAMI encoded as "guami" attribute:

- a description of the subscribed events as "eventSubs" attribute that for each event shall include:

a) an event identifier as "event" attribute; and

b) for event UP path change, whether the subscription is for early, late, or early and late notifications of UP path reconfiguration in the "dnaiChType" attribute;

and that may include:

a) for event "downlink data delivery status", the traffic descriptor(s) of the downlink data source in the "dddTraDescriptors" attribute;

b) for event "downlink data delivery status", the subscribed delivery statuses in the "dddStati" attribute; and

c) for event "QFI allocation", the application identifiers in the "appIds" attribute.

The NsmfEventExposure data structure as request body may also include:

- if the NF service consumer is an AMF:

a) the name of a service produced by the AMF that expects to receive the notifications about subscribed events encoded as "serviceName" attribute;

b) Alternate or backup IPv4 Address(es) where to send Notifications encoded as "altNotifIpv4Addrs" attribute;

c) Alternate or backup IPv6 Address(es) where to send Notifications encoded as "altNotifIpv6Addrs" attribute;

d) Alternate or backup FQDN(s) where to send Notifications encoded as "altNotifFqdns" attribute;

- A Data Network Name as "dnn" attribute;

- A single Network Slice Selection Assistance Information as "snssai" attribute;

- Immediate reporting flag as "ImmeRep" attribute;

- event notification method (periodic, one time, on event detection) as "notifMethod" attribute;

- Maximum Number of Reports as "maxReportNbr" attribute;

- Monitoring Duration as "expiry" attribute;

- Repetition Period for periodic reporting as "repPeriod" attribute;

- sampling ratio as "sampRatio" attribute; and/or

- group reporting guard time as "grpRepTime" attribute.

Upon the reception of an HTTP POST request with: "{apiRoot}/nsmf-event-exposure/v1/subscriptions/" as Resource URI and NsmfEventExposure data structure as request body, the SMF shall:

- create a new subscription;

- assign a subscription correlation ID;

- select an expiry time that is equal to or less than the expiry time potentially received in the request;

- store the subscription;

- send an HTTP "201 Created" response with NsmfEventExposure data structure as response body and a Location header field containing the URI of the created individual subscription resource, i.e. "{apiRoot}/nsmf-event-exposure/v1/subscriptions/{subId}";

- if the "ImmeRep" attribute is included and set to true in the request, the SMF shall report the current available value(s) for the subscribed event(s) as defined in subclause 4.2.3.1;

- if the sampling ratio attribute, as "sampRatio", is included in the subscription, the SMF shall select a random subset of UEs among the target UEs according to the sampling ratio and only report the event(s) related to the selected subset of UEs; and

- When the group reporting guard time attribute, as "grpRepTime", is included in the subscription, the SMF shall accumulate all the event reports for the target UEs until the group reporting guard time expires. Then the SMF shall notify the NF service consumer using the Nsmf\_EventExposure\_Notify service operation, as described in subclause 4.2.2.2.

If the SMF received an GUAMI, the SMF may subscribe to GUAMI changes using the AMFStatusChange service operation of the Namf\_Communication service specified in 3GPP TS 29.518 [13], and it may use the Nnrf\_NFDiscovery Service specified in 3GPP TS 29.510 [12] (using the obtained GUAMI and possibly service name) to query the other AMFs within the AMF set.

\* \* \* Next changes \* \* \* \*

4.2.3.3 Modifying an existing subscription

Figure 4.2.3.3-1 illustrates the modification of an existing subscription.

****

**Figure 4.2.3.3-1: Modification of an existing subscription**

To modify an existing subscription to event notifications, the NF service consumer shall send an HTTP PUT request with: "{apiRoot}/nsmf-event-exposure/v1/subscriptions/subId}" as Resource URI, where "{subId}" is the subscription correlation ID of the existing subscription, and NsmfEventExposure data structure as request body as described in subclause 4.2.3.2.

NOTE 1: An alternate NF service consumer than the one that requested the generation of the subscription resource can send the PUT. For instance, an AMF as service consumer can change.

NOTE 2: The "notifUri" attribute within the NsmfEventExposure data structure can be modified to request that subsequent notifications are sent to a new NF service consumer.

Upon the reception of an HTTP PUT request with: "{apiRoot}/nsmf-event-exposure/v1/subscriptions/{subId}" as Resource URI and NsmfEventExposure data structure as request body, the SMF shall:

- update the concerned subscription; and

- send an HTTP "200 OK" response with a response body containing a representation of the updated subscription in the NsmfEventExposure data structure.

\* \* \* Next changes \* \* \* \*

#### 4.2.5.1 General

The Nsmf\_EventExposure\_AppRelocationInfo service operation enables the NF service consumer to acknowledge the notification of subscribed events on the related PDU session from the SMF.

The following procedure using the Nsmf\_EventExposure\_AppRelocationInfo service operation is supported:

- acknowledgement of notification about subscribed events.

\* \* \* Next changes \* \* \* \*

4.2.5.2 Acknowledgement of Notification about subscribed events

Figure 4.2.5.2-1 illustrates the acknowledgement of notification about subscribed events.

****

**Figure 4.2.5.2-1: Acknowledgement of Notification about subscribed events**

In order to acknowledge the SMF of the application relocation information after the handling of a notification about UP path change event, an NF service consumer shall send an HTTP POST request to the resource URI "{ackUri}" as previously provided by the SMF in an attribute within the NsmfEventExposureNotification data during UP path change notification procedure as defined in subclause  4.2.2.2.

The request body contains the AckOfNotify data structure that shall include:

- Notification correlation ID provided by the NF service consumer during UP path change notification, as "notifId" attribute;

- an identifier of UE (i.e. SUPI or GPSI), if available and the subscription does not applies to a group of UE(s) or any UE; and

- information about the AF acknowledgement within the "ackResult" attribute that shall contain result status of the application relocation as "afStatus" attribute. If the "afStatus" attribute sets to "SUCCESS", the N6 traffic routing information associated to the target DNAI may be included as "trafficRoute" attribute. If the application relocation is not completed on time, the "afStatus" attribute shall set to the corresponding failure cause.

Upon the reception of an HTTP POST request with AckOfNotify data structure as request body, the SMF shall send an HTTP "204 No Content" response for a succesfull processing.

\* \* \* Next changes \* \* \* \*

5.3.1 Resource Structure

****

**Figure 5.3.1-1: Resource URI structure of the Nsmf\_EventExposure API**

Table 5.3.1-1 provides an overview of the resources and applicable HTTP methods.

**Table 5.3.1-1: Resources and methods overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Resource name** | **Resource URI** | **HTTP method or custom operation** | **Description** |
| SMF Notification Subscriptions | /subscriptions | POST | Create a new Individual SMF Notification Subscription resource. |
| Individual SMF Notification Subscription | /subscriptions/{subId} | GET | Read an Individual SMF Notification Subscription resource. |
| PUT | Modify an existing Individual SMF Notification Subscription resource. |
| DELETE | Delete an Individual SMF Notification Subscription resource and cancel the related subscription. |

\* \* \* Next changes \* \* \* \*

#### 5.3.2.1 Description

The SMF Notification Subscriptions resource represents the collection of subscriptions to the SMF event exposure service at a given SMF.

\* \* \* Next changes \* \* \* \*

5.5.1 General

Notifications shall comply to subclause 6.2 of 3GPP TS 29.500 [4] and subclause 4.6.2.3 of 3GPP TS 29.501 [5].

**Table 5.5.1-1: Notifications overview**

|  |  |  |  |
| --- | --- | --- | --- |
| **Notification** | **Callback URI** | **HTTP method or custom operation** | **Description (service operation)** |
| Event Notification | {notifUri} | POST | Provides information about observed events. |
| Acknowledgement of event notification | {ackUri} | POST | Provides acknowledgement of event notification |

\* \* \* Next changes \* \* \* \*

5.5.2.2 Target URI

The Callback URI **"{notifUri}"** shall be used with the callback URI variables defined in table 5.5.2.2-1.

**Table 5.5.2.2-1: Callback URI variables**

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| notifUri | Uri | The Notification Uri as assigned within the Individual SMF Notification Subscription Resource and described within the NsmfEventExposure type (see table 5.6.2.2-1). |

\* \* \* Next changes \* \* \* \*

5.5.3.2 Target URI

The Callback URI **"{ackUri}"** shall be used with the callback URI variables defined in table 5.5.3.2-1.

**Table 5.5.3.2-1: Callback URI variables**

|  |  |  |
| --- | --- | --- |
| **Name** | **Data type** | **Definition** |
| ackUri | Uri | Acknowledgement Uri as assigned during the procedure of notification about subscribed events and described within the NsmfEventExposureNotificationtype (see table 5.6.2.3-1). |

\* \* \* End of changes \* \* \* \*