**TSG-CT WG3 Meeting #120-e *C3-221183***

**E-Meeting, 17th – 25th February 2022**

**Source: Huawei**

**Title: Error and redirect responses of Ntsctsf\_QoSandTSCAssistance service**

**Spec: 3GPP TS 29.565 v1.1.0**

**Agenda item: 17.16**

**Document for: Decision**

**1. Introduction**

<Introduction part (optional)>

**2. Reason for Change**

Error and redirect responses of Ntsctsf\_QoSandTSCAssistance service are FFS

**3. Conclusions**

Resolve the FFS.

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.565.

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

##### 5.3.2.2.2 Initial provisioning of TSC related service information

This procedure is used to set up a TSC AF application session context for the service as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.3.2.2.2-1 illustrates the initial provisioning of TSC related service information.



Figure 5.3.2.2.2-1: Initial provisioning of TSC related service information

When a new TSC AF application session context is being established and media information for this application session context is available at the NF service consumer and the related media requires PCC control, the NF service consumer shall invoke the Ntsctsf\_QoSandTSCAssistance\_Create service operation by sending the HTTP POST request to the resource URI representing the "TSC Application Sessions" collection resource of the TSCTSF, as shown in figure 5.3.2.2.2-1, step 1.

The NF service consumer shall include the "TscAppSessionContextData" data type in the payload body of the HTTP POST request in order to request the creation of the "Individual TSC Application Session Context" resource. The "Individual TSC Application Session Context" resource and the "Events Subscription" sub-resource are created as described below.

The NF service consumer shall include in the "TscAppSessionContextData" data structure:

- the AF identifier within the "afId" attribute;

- either the IP address (IPv4 or IPv6) of the PDU session within the "ueIpAddr" attribute for IP type PDU session or the MAC address of the DS-TT port within the "ueMac" attribute for Ethernet type PDU sessions.;

Editor's Note: How to get the address of DS-TT by the NF service consumer is FFS.

- either the flow information within the "flowInfo" or "ethFlowInfo" attribute or the Application Id within the "appId" attribute;

- the QoS reference within the "qosReference" attribute;

- the URI where the TSCTSF can request to the NF service consumer to delete the "Individual TSC Application Session Context" resource within the "notifUri" attribute;

and may include:

- the DNN within the "dnn" attribute;

- the S-NSSAI within the "snssai" attribute;

- the domain identity in the "ipDomain" attribute;

- an ordered list of QoS references within the "altQosReferences" attribute;

- TSC QoS requirement within the "tscQosReq" attribute; and

- the request of the notification of certain user plane events within the "evSubsc" attribute. Within the EventsSubscReqData data structure, the NF service consumer shall include:

- the URI where the TSCTSF sends the event notification to the NF service consumer within the "notifUri" attribute;

- a Notification Correlation Identifier for the requested notifications within the "notifCorreId" attribute;

- subscribed the events within the "events" attribute;

- the usage threshold within the "usgThres" attribute if the "USAGE\_REPORT" event is subscribed; and

- QoS monitoring information within the "qosMon" attribute if the "QOS\_MONITORING" event is subscribed.

Upon the reception of this HTTP POST request, the TSCTSF shall:

* interact with the PCF by triggering a Npcf\_PolicyAuthorization\_Create request to provision the related parameters to the PCF as defined in 3GPP TS 29.514 [20];
* if the Requested 5GS delay is received from NF service consumer, calculate a Requested PDB by subtracting the UE-DS-TT residence time provided by the PCF from the Requested 5GS delay;

- if receiving a successful response from the PCF, the TSCSTF shall create an "Individual TSC Application Session Context" resource and send to the NF service consumer a "201 Created" response to the HTTP POST request, as shown in figure 5.3.2.2.2-1, step 2. If the "evSubsc" attribute is received, the "Events Subscription" sub-resource shall be created within the "Individual TSC Application Session Context" resource. The TSCTSF shall include in the "201 Created" response:

- a Location header field; and

- a "TscAppSessionContextData" data type in the payload body.

The Location header field shall contain the URI of the created "Individual TSC Application Session Context" i.e. "{apiRoot}/ntsctsf-qos-tscai/v1/tsc-app-sessions/{appSessionId}".

When "Events Subscription" sub-resource is created in this procedure, the NF service consumer shall build the sub-resource URI by adding the path segment "/events-subscription" at the end of the URI path received in the Location header field.

If the TSCTSF cannot successfully fulfil the received HTTP POST request due to the internal TSCTSF error or due to the error in the HTTP POST request, the TSCTSF shall send the HTTP error response as specified in clause 6.2.7.

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

##### 5.3.2.3.2 Modification of TSC related service information

This procedure is used to modify an existing TSC application session context as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.3.2.3.2-1 illustrates the modification of TSC related service information using HTTP PATCH method.



Figure 5.3.2.3.2-1: Modification of TSC related service information using HTTP PATCH

The NF service consumer may modify the TSC application session context information at any time and invoke the Ntsctsf\_QoSandTSCAssistance\_Update service operation by sending the HTTP PATCH request message to the resource URI representing the "Individual TSC Application Session Context" resource, as shown in figure 5.3.2.3.2-1, step 1, with the modifications to apply.

The JSON body within the PATCH request shall include the "TscAppSessionContextUpdateData" data type and shall be encoded according to "JSON Merge Patch", as defined in IETF RFC 7396 [22].

The NF service consumer may include in the "TscAppSessionContextUpdateData" data structure:

* the updated flow information within the "flowInfo" or "ethFlowInfo" attribute;
* the updated application Id within the "appId" attribute;
* the updated QoS reference within the "qosReference" attribute;
* the update URI where the TSCTSF can request to the NF service consumer to delete the "Individual TSC Application Session Context" resource within the "notifUri".
* the updated ordered list of QoS references within the "altQosReferences" attribute;
* the updated TSC QoS requirement within the "tscQosReq" attribute; and
* the updated event subscription information within the "evSubsc" attribute. Within the EventsSubscReqDataRm data structure, the NF service consumer shall include:

- the new complete list of subscribed events within the "events" attribute;

- when the NF service consumer requests to update the additional information related to an event (e.g. the NF service consumer needs to provide new thresholds to the TSCTSF in the "usgThres" attribute related to the "USAGE\_REPORT" event), the additional information within the corresponding attribute(s).

NOTE 1: Note that when the NF service consumer requests to remove an event, this event is not included in the "events" attribute.

NOTE 2: When an event is included in the "events" attribute and its related additional information is set to null, the PCF considers the subscription to this event is active, but the related procedures stop applying.

NOTE 3: When an event is removed from the "events" attribute but its related information is not set to null, the PCF considers the subscription to this event is terminated, the related additional information is removed, and the related procedures stop applying.

The NF service consumer shall remove existing event subscription information by setting to null the "evSubsc" attribute included in "TscAppSessionContextUpdateData".

NOTE 4: The "notifUri" attribute within the EventsSubscReqData data structure can be modified to request that subsequent notifications are sent to a new NF service consumer.

Upon the reception of this HTTP PATCH request, the TSCTSF shall

- if the updated Requested 5GS delay is received from NF service consumer, re-calculate a Requested PDB by subtracting the UE-DS-TT residence time provided by the PCF from the Requested 5GS delay;

- interact with the PCF by triggering a Npcf\_PolicyAuthorization\_Update request to provision the related parameters to the PCF as defined in 3GPP TS 29.514 [20];

- if receiving a successful response from the PCF, the TSCSTF shall update the "Individual TSC Application Session Context" resource and send a "200 OK" or "204 No Content" response to the HTTP POST request to the NF service consumer, as shown in figure 5.3.2.3.2-1, step 2.

If the TSCTSF cannot successfully fulfil the received HTTP PATCH request due to the internal TSCTSF error or due to the error in the HTTP PATCH request, the TSCTSF shall send the HTTP error response as specified in clause 6.2.7.

If the TSCTSF determines the received HTTP PATCH request needs to be redirected, the TSCTSF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

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

##### 5.3.2.4.2 TSC AF application session context termination

This procedure is used to terminate an AF application session context for the service as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.3.2.4.2-1 illustrates the application session context termination.



Figure 5.3.2.4.2-1: Application session context termination

When a TSC AF session is terminated, and if the TSC AF application session context was created as described in clause 5.3.2.2, the NF service consumer shall invoke the Ntsctsf\_QoSandTSCAssistance\_Delete service operation to the TSCTSF using an HTTP POST request, as shown in figure 5.3.2.4.2-1, step 1.

The NF service consumer shall set the request URI to "{apiRoot}/ntsctsf-qos-tscai/v1/tsc-app-sessions/{appSessionId}/delete".

The NF service consumer may include in the body of the HTTP POST the "EventsSubscReqData" data type with the "evSubsc" attribute indicating the corresponding list of events to subscribe to.

When the TSCTSF receives the HTTP POST request from the NF service consumer, indicating the termination of the TSC AF application session context information, the TSCTSF shall acknowledge that request by sending an HTTP response message with the corresponding status code.

If the HTTP POST request from the NF service consumer is accepted, the TSCTSF shall send to the NF service consumer:

a) if event information is reported, TSCTSF shall defer sending the response to the NF service consumer and shall immediately interact with the PCF to terminate the AF session with the event report, as specified in 3GPP TS 29.514 [20]. After receiving the event information from the PCF, the TSCTSF shall send a "200 OK" response to HTTP POST request, as shown in figure 5.3.2.4.2-1, step 2a, including in the "EventsNotification" to report to the NF service consumer;

b) otherwise, the TSCTSF shall send to the NF service consumer a "204 No Content".

Editor's Note: Error and redirection responses are FFS.

If the TSCTSF cannot successfully fulfil the received HTTP POST request due to the internal TSCTSF error or due to the error in the HTTP POST request, the TSCTSF shall send the HTTP error response as specified in clause 6.2.7.

If the TSCTSF determines the received HTTP POST request needs to be redirected, the TSCTSF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

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

##### 5.3.2.5.2 Notification about TSC application session context event

This procedure is invoked by the TSCTSF to notify the NF service consumer when a certain, previously subscribed, application session context event occurs, as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.3.2.5.2-1 illustrates the notification about TSC application session context event.



Figure 5.3.2.5.2-1: Notification about application session context event

When the TSCTSF determines that the event for the existing TSC AF application session context, to which the NF service consumer has subscribed to, occurred e.g. upon reception of an event notification for a PDU session from the PCF as described in 3GPP TS 29.514 [20], the TSCTSF shall invoke the Ntsctsf\_QoSandTSCAssistance\_Notify service operation by sending the HTTP POST request (as shown in figure 5.3.2.5.2-1, step 1) to the NF service consumer using the notification URI received in the subscription creation (or modification), as specified in subclause 5.3.2.6, and appending the "notify" segment path at the end of the URI. The TSCTSF shall provide in the body of the HTTP POST request the "EventsNotification" data type including:

- the notification correlation Id within the "notifCorreId"; and

- the list of the reported events in the "events" attribute. For each reported event, additional event information may be included.

The NF service consumer notification of other specific events using the Ntsctsf\_QoSandTSCAssistance\_Notify request is described in the related clauses.

Upon the reception of the HTTP POST request from the TSCTSF indicating that the PDU session and/or service related event occurred, the NF service consumer shall acknowledge that request by sending an HTTP response message with the corresponding status code.

If the HTTP POST request from the TSCTSF is accepted, the NF service consumer shall acknowledge the receipt of the event notification with a "204 No Content" response to HTTP POST request, as shown in figure 5.3.2.5.2-1, step 2.

If the HTTP POST request from the TSCTSF is not accepted, the NF service consumer shall indicate in the response to HTTP POST request the cause for the rejection as specified in clause 6.2.7.

If the NF service consumer determines the received HTTP POST request needs to be redirected, the NF service consumer shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [5].

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

##### 5.2.2.5.3 Notification about TSC application session context termination

This procedure is invoked by the TSCTSF to notify the NF service consumer that the TSC application session context is no longer valid, as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.2.2.5.3-1 illustrates the notification about application session context termination.



Figure 5.2.2.5.3-1: Notification about TSC application session context termination

When the TSCTSF determines that the TSF AF application session context is no longer valid, the TSC shall invoke the Ntsctsf\_QoSandTSCAssistance\_Notify service operation by sending the HTTP POST request (as shown in figure 5.2.2.5.3-1, step 1) using the notification URI received in the "Individual TSC Application Session Context" context creation, as specified in clause 5.3.2.2, and appending the "termination" segment path at the end of the URI, to trigger the NF service consumer to request the TSC application session context termination (see subclause 4.2.4.2). The TSCTSF shall provide in the body of the HTTP POST request the "TerminationInfo" data type including:

- the Individual TSC Application Session Context resource identifier related to the termination notification in the "resUri" attribute; and

- the application session context termination cause in the "termCause" attribute of the "TerminationCause" data type.

Upon the reception of the HTTP POST request from the TSCTSF requesting the TSC application session context termination, the NF service consumer shall acknowledge that request by sending an HTTP response message with the corresponding status code.

If the HTTP POST request from the TSCTSF is accepted, the NF service consumer shall acknowledge the receipt of the application session context termination request with a "204 No Content" response to HTTP POST request (as shown in figure 5.2.2.5.3-1, step 2) and shall invoke the Ntsctsf\_QoSandTSCAssistance\_Delete service operation to the TSCTSF as described in clause 5.2.2.4.

If the HTTP POST request from the TSCTSF is not accepted, the NF service consumer shall indicate in the response to HTTP POST request the cause for the rejection as specified in clause 6.2.7.

If the NF service consumer determines the received HTTP POST request needs to be redirected, the NF service consumer shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [5].

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

##### 5.3.2.6.2 Handling of subscription to events for the existing TSC application session context

This procedure is used to create a subscription to events for the existing TSC AF application session context bound to the corresponding PDU session or to modify an existing subscription, as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.3.2.6.2-1 illustrates the creation of events subscription information using HTTP PUT method.



Figure 5.3.2.6.2-1: Creation of events subscription information using HTTP PUT

Figure 5.3.2.6.2-2 illustrates the modification of events subscription information using HTTP PUT method.

Figure 5.3.2.6.2-2: Modification of events subscription information using HTTP PUT

When the NF service consumer decides to create a subscription to one or more events for the existing TSC application session context or to modify an existing subscription previously created by itself at the TSCTSF, the NF service consumer shall invoke the Ntsctsf\_QoSandTSCAssistance\_Subscribe service operation by sending the HTTP PUT request to the resource URI representing the "Events Subscription" sub-resource in the PCF, as shown in figure 5.3.2.6.2-1, step 1 and figure 5.3.2.6.2-2, step 1. The NF service consumer shall provide in the "EventsSubscReqData" data type of the body of the HTTP PUT request:

- the "events" attribute with the list of events to be subscribed; and

- the "notifUri" attribute that includes the Notification URI to indicate to the TSCTSF where to send the notification of the subscribed events if not provided before.

NOTE 1: The "notifUri" attribute within the EventsSubscReqData data structure can be modified to request that subsequent notifications are sent to a new NF service consumer.

Upon the reception of the HTTP PUT request from the NF service consumer, the PCF shall decide whether the received HTTP PUT request is accepted.

If the PCF accepted the HTTP PUT request to create a subscription to events, the PCF shall create the "Events Subscription" sub-resource and shall send the HTTP response message to the NF service consumer as shown in figure 5.3.2.6.2-1, step 2. The TSCTSF shall include in the "201 Created" response:

- a Location header field that shall contain the URI of the created "Events Subscription" sub-resource i.e. "{apiRoot}/ntsctsf-qos-tscai/v1/tsc-app-sessions/{appSessionId}/events-subscription"; and

- a response body with the "EventsSubscReqData" data type representing the created "Events Subscription" sub-resource.

If the TSCTSF accepted the HTTP PUT request to modify the events subscription, the PCF shall modify the "Events Subscription" sub-resource and shall send to the NF service consumer:

- the HTTP "204 No Content" response (as shown in figure 5.3.2.6.2-2, step 2a); or

- the HTTP "200 OK" response (as shown in figure 5.3.2.6.2-2, step 2b) including in the "EventsSubscReqData" data type the updated representation of the "Events Subscription" sub-resource.

If the HTTP POST request from the NF service consumer is not accepted, the TSCTSF shall indicate in the response to HTTP POST request the cause for the rejection as specified in clause 6.2.7.

If the TSCTSF determines the received HTTP POST request needs to be redirected, the TSCTSF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

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

##### 5.3.2.7.2 Unsubscription to events

This procedure is used to unsubscribe to all subscribed events for the existing TSC AF application session context, as defined in 3GPP TS 23.501 [2], 3GPP TS 23.502 [3] and 3GPP TS 23.503 [19].

Figure 5.3.2.7.2-1 illustrates the unsubscription to events using the HTTP DELETE method.



Figure 5.3.2.7.2-1: Removal of events subscription information using HTTP DELETE

When the NF service consumer decides to unsubscribe to all subscribed events for the existing TSC application session context, the NF service consumer shall invoke the Ntsctsf\_QoSandTSCAssistance\_Unsubscribe service operation by sending the HTTP DELETE request message to the resource URI representing the "Events Subscription" sub-resource in the TSCTSF, as shown in figure 5.3.2.7.2-1, step 1.

Upon the reception of the HTTP DELETE request message from the NF service consumer, the TSCTSF shall decide whether the received HTTP request message is accepted.

If the HTTP DELETE request message from the NF service consumer is accepted, the TSCTSF shall delete "Events Subscription" sub-resource and shall send to the NF service consumer a HTTP "204 No Content" response message. The TSCTSF may delete the existing subscription to event notifications for the related PDU session from the PCF as described in 3GPP TS 29.514 [20].

If the HTTP DELETE request from the NF service consumer is not accepted, the TSCTSF shall indicate in the response to HTTP DELETE request the cause for the rejection as specified in clause 6.2.7.

If the TSCTSF determines the received HTTP DELETE request needs to be redirected, the TSCTSF shall send an HTTP redirect response as specified in clause 6.10.9 of 3GPP TS 29.500 [4].

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

###### 6.2.3.2.3.1 POST

This method shall support the URI query parameters specified in table 6.2.3.2.3.1-1.

Table 6.2.3.2.3.1-1: URI query parameters supported by the POST method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.2.3.2.3.1-2 and the response data structures and response codes specified in table 6.2.3.2.3.1-3.

Table 6.2.3.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| TscAppSessionContextData | M | 1 | Contains the information for the creation of a new Individual TSC Application Session Context resource. |

Table 6.2.3.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| TscAppSessionContextData | M | 1 | 201 Created | The subscription was created successfully. The URI of the created resource shall be returned in the "Location" HTTP header. |
| NOTE: The manadatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply. |

Table 6.2.3.2.3.1-4: Headers supported by the 201 response code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location  | string | M | 1 | Contains the URI of the newly created resource, according to the structure:{apiRoot}/ntsctsf-qos-tscai/<apiVersion>/tsc-app-sessions /{appSessionId} |

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

###### 6.2.3.3.3.1 GET

This method shall support the URI query parameters specified in table 6.2.3.3.3.1-1.

Table 6.2.3.3.3.1-1: URI query parameters supported by the GET method on this resource

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description | Applicability |
| n/a |  |  |  |  |  |

This method shall support the request data structures specified in table 6.2.3.3.3.1-2 and the response data structures and response codes specified in table 6.2.3.3.3.1-3.

Table 6.2.3.3.3.1-2: Data structures supported by the GET Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.2.3.3.3.1-3: Data structures supported by the GET Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Responsecodes | Description |
| TscAppSessionContextData | M | 1 | 200 OK | An Individual TSC Application Sessions resource is returned successfully. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during an Individual TSC Application Sessions resource retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during an Individual TSC Application Sessions resource retrieval. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| NOTE: The manadatory HTTP error status code for the GET method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply. |

Table 6.2.3.3.3.1-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

Table 6.2.3.3.3.1-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

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

###### 6.2.3.3.3.2 PATCH

This method shall support the URI query parameters specified in table 6.2.3.3.3.2-1.

Table 6.2.3.3.3.2-1: URI query parameters supported by the PATCH method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 6.2.3.3.3.2-2 and the response data structures and response codes specified in table 6.2.3.3.3.2-3.

Table 6.2.3.3.3.2-2: Data structures supported by the PATCH Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| TscAppSessionContextUpdateData | M | 1 | Contains the modification(s) to apply to the Individual TSC Application Session Context resource. |

Table 6.2.3.3.3.2-3: Data structures supported by the PATCH Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| TscAppSessionContextData | M | 1 | 200 OK | Successful case.The Individual TSC Application Session Context resource was modified and a representation of that resource is returned. |
| n/a |  |  | 204 No Content | Successful case.The Individual TSC Application session context resource was modified. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during an Individual TSC Application Sessions resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during an Individual TSC Application Sessions resource modification. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| NOTE: In addition, the HTTP status codes which are specified as mandatory in table 5.2.7.1-1 of 3GPP TS 29.500 [4] for the PATCH method shall also apply. |

Table 6.2.3.3.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

Table 6.2.3.3.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

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

6.2.3.3.4.2.2 Operation Definition

This custom operation deletes an existing Individual TSC Application Session Context resource and the child Events Subscription sub-resource in the TSCTSF.

This operation shall support the request data structures specified in table 6.2.3.3.4.2.2-1 and the response data structure and response codes specified in table 6.2.3.3.4.2.2-2.

Table 6.2.3.3.4.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EventsSubscReqData | O | 0..1 | Events subscription information to be sent by the NF service consumer to request event notification when the Individual TSC Application Session Context resource is deleted. |

Table 6.2.3.3.4.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | Successful case.The Individual TSC Application session context resource was deleted. |
| EventsNotification | M | 1 | 200 OK | Successful case.Describes information related to the notification of events. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during an Individual TSC Application Sessions resource deletion. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during an Individual TSC Application Sessions resource deletion. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| NOTE: In addition, the HTTP status codes which are specified as mandatory in table 5.2.7.1-1 of 3GPP TS 29.500 [4] for the POST method shall also apply. |

Table 6.2.3.3.4.2.2-3: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

Table 6.2.3.3.4.2.2-4: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

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

###### 6.2.3.4.3.1 PUT

This method shall support the URI query parameters specified in table 6.2.3.4.3.1-1.

Table 6.2.3.4.3.1-1: URI query parameters supported by the PUT method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 6.2.3.4.3.1-2 and the response data structures and response codes specified in table 6.2.3.4.3.1-3.

Table 6.2.3.4.3.1-2: Data structures supported by the PUT Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EventsSubscReqData | M | 1 | Contains information for the modification of the Events Subscription sub-resource. |

Table 6.2.3.4.3.1-3: Data structures supported by the PUT Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| TscAppSessionContextData | M | 1 | 201 Created | Successful case.The Events Subscription sub-resource was created. |
| TscAppSessionContextData | M | 1 | 200 OK | Successful case.The Events Subscription sub-resource was modified. |
| n/a |  |  | 204 No Content | Successful case.The Events Subscription sub-resource was modified. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during an Events Subscription sub-resource creation. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during an Events Subscription sub-resource creation. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| NOTE: In addition, the HTTP status codes which are specified as mandatory in table 5.2.7.1-1 of 3GPP TS 29.500 [4] for the PUT method shall also apply. |

Table 6.2.3.4.3.1-4: Headers supported by the 201 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | Contains the URI of the newly created resource, according to the structure: {apiRoot}/ntsctsf-qos-tscai/<apiVersion>/tsc-app-sessions/{appSessionId}/events-subscription |

Table 6.2.3.4.3.1-5: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

Table 6.2.3.4.3.1-6: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

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

###### 6.2.3.4.3.2 DELETE

This method shall support the URI query parameters specified in table 6.2.3.4.3.2-1.

Table 6.2.3.4.3.2-1: URI query parameters supported by the DELETE method on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| n/a |  |  |  |  |

This method shall support the request data structures specified in table 6.2.3.4.3.2-2 and the response data structures and response codes specified in table 6.2.3.4.3.2-3.

Table 6.2.3.4.3.2-2: Data structures supported by the DELETE Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| n/a |  |  |  |

Table 6.2.3.4.3.2-3: Data structures supported by the DELETE Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |  | 204 No Content | Successful case.The Events Subscription sub-resource was deleted. |
| RedirectResponse | O | 0..1 | 307 Temporary Redirect | Temporary redirection, during an Events Subscription sub-resource deletion. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| RedirectResponse | O | 0..1 | 308 Permanent Redirect | Permanent redirection, during an Events Subscription sub-resource deletion. The response shall include a Location header field containing an alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| NOTE: In addition, the HTTP status codes which are specified as mandatory in table 5.2.7.1-1 of 3GPP TS 29.500 [4] for the DELETE method shall also apply. |

Table 6.2.3.4.3.2-4: Headers supported by the 307 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

Table 6.2.3.4.3.2-5: Headers supported by the 308 Response Code on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Data type | P | Cardinality | Description |
| Location | string | M | 1 | An alternative URI of the resource located in an alternative TSCTSF (service) instance. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the request is redirected. |

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

6.2.5.2.3.1 POST

This method shall support the request data structures specified in table 6.2.5.2.3.1-1 and the response data structures and response codes specified in table 6.2.5.2.3.1-1.

Table 6.2.5.2.3.1-2: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| EventsNotification | M | 1  | Provides Information about observed events. |

Table 6.1.5.2.3.1-3: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |   | 204 No Content | The event notification is received successfully. |
| RedirectResponse | O | 0..1 | 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 NF consumer (service) instance where the notification should be sent.  |
| RedirectResponse | O | 0..1 | 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 NF consumer (service) instance where the notification should be sent. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply. |

Table 6.1.5.2.3.1-4: 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 NF consumer (service) instance towards which the notification should be redirected. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the notification request is redirected |

Table 6.1.5.2.3.1-5: 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 NF consumer (service) instance towards which the notification should be redirected. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the notification request is redirected |

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

6.2.5.3.3.1 POST

This method shall support the request data structures specified in table 6.2.5.3.3.1-1 and the response data structures and response codes specified in table 6.2.5.3.3.1-1.

Table 6.2.5.3.3.1-2: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| TerminationInfo | M | 1  | Provides information about the deletion of the resource. |

Table 6.2.5.3.3.1-3: Data structures supported by the POST Response Body

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response codes | Description |
| n/a |  |   | 204 No Content | The receipt of the Notification is acknowledged. |
| RedirectResponse | O | 0..1 | 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 NF consumer (service) instance where the notification should be sent.  |
| RedirectResponse | O | 0..1 | 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 NF consumer (service) instance where the notification should be sent. |
| NOTE: The mandatory HTTP error status codes for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply. |

Table 6.1.5.2.3.1-4: 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 NF consumer (service) instance towards which the notification should be redirected. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the notification request is redirected |

Table 6.1.5.2.3.1-5: 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 NF consumer (service) instance towards which the notification should be redirected. |
| 3gpp-Sbi-Target-Nf-Id | string | O | 0..1 | Identifier of the target NF (service) instance towards which the notification request is redirected |

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

#### 6.2.7.1 General

HTTP error handling shall be supported as specified in clause 5.2.4 of 3GPP TS 29.500 [4].

For the Ntsctsf\_QoSandTSCAssistance API, HTTP error responses shall be supported as specified in clause 4.8 of 3GPP TS 29.501 [5]. Protocol errors and application errors specified in table 5.2.7.2-1 of 3GPP TS 29.500 [4] shall be supported for an HTTP method if the corresponding HTTP status codes are specified as mandatory for that HTTP method in table 5.2.7.1-1 of 3GPP TS 29.500 [4].

In addition, the requirements in the following clauses are applicable for the Ntsctsf\_QoSandTSCAssistance API.

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

#### 6.2.7.3 Application Errors

The application errors defined for the Ntsctsf\_QoSandTSCAssistance service are listed in Table 6.2.7.3-1.

Table 6.2.7.3-1: Application errors

|  |  |  |
| --- | --- | --- |
| Application Error | HTTP status code | Description |
|  |  |  |

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