**3GPP TSG-CT WG3 Meeting #117eC3-214144**

**E-Meeting, 18th – 27th August 2021**

**Source: Huawei, Nokia, Nokia Shanghai Bell**

**Title: Ntsctsf\_TimeSynchronization\_CapsSubscribe service operation**

**Spec: 3GPP TS 29.abc**

**Agenda item: 17.16**

**Document for: Decision**

**1. Introduction**

<Introduction part (optional)>

**2. Reason for Change**

Ntsctsf\_TimeSynchronization\_CapsSubscribe service operation needs to be specified.

**3. Conclusions**

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.abc.

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

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

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

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

[4] 3GPP TS 29.500: "5G System; Technical Realization of Service Based Architecture; Stage 3".

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

[6] OpenAPI: "OpenAPI Specification Version 3.0.0", <https://spec.openapis.org/oas/v3.0.0>.

[7] 3GPP TR 21.900: "Technical Specification Group working methods".

[8] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

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

[10] 3GPP TS 29.510: "5G System; Network Function Repository Services; Stage 3".

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

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

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

[x] 3GPP TS 29.519: "5G System; Usage of the Unified Data Repository service for Policy Control Data, Application Data and Structured Data for Exposure; Stage 3".

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

[z] 3GPP TS 29.508: "5G System; Session Management Event Exposure Service; Stage 3".

[a] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

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

#### 5.2.2.2 Ntsctsf\_TimeSynchronization\_CapsSubscribe

##### 5.2.2.2.1 General

This service operation is used by an NF service consumer to subscribe to notification of capability of time synchronization service for a list of UEs.

The following procedures using the Ntsctsf\_TimeSynchronization\_CapsSubscribe service operation are supported:

- creating a new subscription.

##### 5.2.2.2.2 Creating a new subscription

Figure 5.2.2.2.2-1 illustrates the creation of a subscription.



Figure 5.2.2.2.2-1: Creation of a subscription

To subscribe the notification of the capability of time synchronization service, the NF service consumer shall send an HTTP POST message to the TSCTSF to the URI "{apiRoot}/ntsctsf-time-sync/<apiVersion>/subscriptions". The HTTP POST message shall include the TimeSyncExposureSubsc data structure as request body. The TimeSyncExposureSubsc data structure shall include:

- the indication of the UEs to which the time synchronization capabilities is requested via:

- identification of a list of individual UEs within a "supis" attribute;

- indication of any UE within the "anyUeInd" attribute; or

- identification of a group of UE(s) within the "interGroupId" attribute.

- subscription to event(s) notification as "evSubsc" attribute;

- notification URI within the "subsNotifUri" attribute;

- notification correlation Id within the "subsNotifId" attribute;

and my include:

* DNN with the "dnn" attribute;
* S-NSSAI with the "snssai";
* notification methods within the "notifMethods" attribute
* maximum number of reports within the "maxReportNbr" attribute;
* expiry time withinthe "expiry" attribute; and
* report period within the "repPeriod" attribute.

Editor's note: Whether GPSI and external group ID are included in the request is FFS.

Upon receipt of the HTTP request from the NF service consumer, if the request is authorized, the TSCTSF 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;

- interact with the UDR to store the request information in the UDR by using the Nudr\_DataRepository service as defined in 3GPP TS 29.519 [x].

Editor's note: Interaction with the UDR is FFS.

- send an HTTP "201 Created" response with TimeSyncExposureSubsc data structure as response body and a Location header field containing the URI of the created individual subscription resource, i.e. "{apiRoot}/ntsctsf-time-sync/<apiVersion>/subscriptions/{subcriptionId}".

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

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

#### 6.1.6.1 General

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

Table 6.1.6.1-1 specifies the data types defined for the Ntsctsf\_TimeSynchronization service based interface protocol.

Table 6.1.6.1-1: Ntsctsf\_TimeSynchronization specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| TimeSyncExposureSubsc | 6.1.6.2.2 | Contains the parameters for the subscription to notification of capability of time synchronization service |  |

Table 6.1.6.1-2 specifies data types re-used by the Ntsctsf\_TimeSynchronization service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Ntsctsf\_TimeSynchronization service based interface.

Table 6.1.6.1-2: Ntsctsf\_TimeSynchronization re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| DateTime | 3GPP TS 29.571 [y] | String with format "date-time" as defined in OpenAPI Specification [6]. |  |
| Dnn | 3GPP TS 29.571 [y] | The DNN the user is connected to. |  |
| DurationSec | 3GPP TS 29.571 [y] | Identifies a period of time in units of seconds. |  |
| GroupId | 3GPP TS 29.571 [y] | Identifies a group of internal globally unique ID. |  |
| NotificationMethod | 3GPP TS 29.508 [z] | Indicates the method of notification. |  |
| Snssai | 3GPP TS 29.571 [y] | Identifies the S-NSSAI. |  |
| SubscribedEvent | 3GPP TS 29.522 [a] | Indicates the subscribed event. |  |
| Supi | 3GPP TS 29.571 [y] | The identification of the user (i.e. IMSI, NAI). |  |
| SupportedFeatures | 3GPP TS 29.571 [y] | Used to negotiate the applicability of the optional features defined in table 5.8-1. |  |
| Uinteger | 3GPP TS 29.571 [y] | Unsigned integer. |  |
| Uri | 3GPP TS 29.571 [y] | Identifies a referenced resource. |  |

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

##### 6.1.6.2.2 Type: TimeSyncExposureSubsc

Table 6.1.6.2.2-1: Definition of type TimeSyncExposureSubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| supis | array(Supi | C | 1..N | Subscription Permanent Identifier. |  |
| interGrpId | GroupId | C | 0.1 | The internal Group Id(s). |  |
| anyUeInd | boolean | C | 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". |  |
| notifMethod | NotificationMethod | O | 0..1 | If "notifMethod" is not supplied, the default value "ON\_EVENT\_DETECTION" applies. |  |
| 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. |  |
| afServiceId | string | O | 0..1 | Identifies a service on behalf of which the AF is issuing the request. |  |
| subscribedEvents | array(SubscribedEvent) | O | 1..N | Identifies the requirement to be notified of the event(s). |  |
| subsNotifUri | Uri | M | 1 | Notification URI for time sensitive capability reporting. |  |
| subsNotifId | string | M | 1 | Notification Correlation ID assigned by the NF service consumer. |  |
| maxReportNbr | Uinteger | O | 0..1 | If omitted, there is no limit. |  |
| expiry | DateTime | C | 0..1 | This attribute indicates the expiry time of the subscription, after which the NEF shall not send any event notifications and the subscription becomes invalid. It may be included in an event subscription request and may be included in an event subscription response based on operator policies. If an expiry time was included in the request, then the expiry time returned in the response should be less than or equal to that value. If the expiry time is not included in the response, the NF service consumer shall not associate an expiry time for the subscription. |  |
| repPeriod | DurationSec | C | 0..1 | Is supplied for notification Method "periodic". |  |
| suppFeat | SupportedFeatures | C | 0..1 | Represents the features supported by the NF service consumer. This parameter shall be supplied by the NF service consumer in the POST request and the response that requested the creation of an Individual Time Synchronization Subscription resource. |  |

Editor's note: Whether GPSI and external group ID are included in the request is FFS.

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