**3GPP TSG CT WG3 Meeting #142 *C3-25xxxx***

**Goteborg, Sweden, 25 – 29 August, 2025 (Revision of C3-253285)**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.522** | **CR** | **1677** | **rev** | **1** | **Current version:** | **19.3.0** |  |
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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:*** | Correction of the applicability of Af service id and DNN and S-NSSAI | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NBI19 | | | | |  | ***Date:*** | | | 2025-7-8 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-19 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | According to TS 23.502, clause 5.2.27.2.6, there is an exclusive relation between the Af service ID and the DNN and S-NSSAI in the Ntsctsf\_TimeSynchronization\_CapsSubscribe procedure. 5.2.27.2.6 Ntsctsf\_TimeSynchronization\_CapsSubscribe operation **Service operation name:** Ntsctsf\_TimeSynchronization\_CapsSubscribe  **Description:** The AF subscribes to receive notification about time synchronization capabilities for a list of UE(s) or a group of UEs or any UE using DNN/S-NSSAI combination.  Event Filters are used to specify the conditions to match for notifying the event. If there are no conditions to match then the Event Filter is not provided. The following table describes the Event Filters supported by the service:  Table 5.2.27.2.6-1: Time Synchronization capability event filters   |  |  | | --- | --- | | Event filter | Description | | List of UE identities or External Group Identifier or Internal Group Identifier | Only the included UE identities (GPSI or SUPI) or Groups of UEs identified by an External Group Identifier/Internal Group Identifier are considered for the notification. | | PTP instance types | Supported PTP instance types as described in clause 5.27.1.4 of TS 23.501 [2]. | | Transport protocols | Supported transport protocols for PTP as described in clause 5.27.1.4 of TS 23.501 [2]. | | Supported PTP Profiles | Identifies the PTP profiles supported by 5GS for the reported UE. |   **Inputs, Required:** Either a combination of (DNN, S-NSSAI) or an AF-Service-Identifier and Notification Target Address.  In TS 29.522, the exclusive relation between the combination of DNN, SNSSAI and AF service ID is captured by the procedure handling but not in the data definition.  *and may include:*  *- either the DNN within the "dnn" attribute and the "snssai" attribute or the AF Service Identifier within the "afServiceId" attribute;*  An alignment is needed to correct this.  In addition, there is no condition that the DNN and S-NSSAI shall be present. Therefore, the conditional Precedence is not aligned with the data function neither with the description. An update is needed to correct this. | | | | | | | | |
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| ***Summary of change:*** | | Correct the exclusive applicability of the combination of DNN and S-NSSAI, and the AF service Id.  Change the Precedence from Conditional to Optional for the DNN and S-NSSAI. | | | | | | | | |
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| ***Consequences if not approved:*** | | The usage of the attributes is incorrectly specified and can lead to incorrect specification. | | | | | | | | |
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| ***Clauses affected:*** | | 5.15.4.3.2 | | | | | | | | |
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|  | | **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 has no impact on the OpenAPI. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

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

#### 4.4.24.1 Subscription and unsubscription to notification of Time Synchronization Capabilites

The procedures are used by the AF to subscribe to notifications and to explicitly cancel a previous subscription to notification of capabilities of the time synchronization service for a list of UE(s), a group of UEs or any UE using a DNN/S-NSSAI combination via the NEF.

In order to subscribe to the notification of capabilities of UE and 5GC, and availability for the time synchronization service, the AF shall send an HTTP POST rmessage to the NEF to the customized operation URI "{apiRoot}/3gpp-time-sync/v1/{afId}/subscriptions". The HTTP POST request message body shall include the TimeSyncExposureSubsc data structure that shall include:

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

1)identification of a list of individual UEs within a "gpsis" attribute;

2)indication of any UE within the "anyUeInd" attribute if DNN and S-NSSAI are provisioned; or

3)identification of a group of UE(s) via a "exterGroupId" attribute.

- subscription to event(s) notification as "subscribedEvents" attribute when the AF needs to subscribe to notifications;

- notification URI within the "subsNotifUri" attribute; and

- notification correlation Id within the "subsNotifId" attribute;

and may include:

- either the DNN within the "dnn" attribute and the SNSSAI with the "snssai" attribute or the AF Service Identifier within the "afServiceId" attribute;

NOTE 1: If neither the combination of DNN and SNSSAI nor the AF Service Identifier is provided, the NEF does not have the complete requirements to interact with the TSCTSF to invoke Ntsctsf\_TimeSynchronization\_CapsSubscribe request service operation as defined in clause 5.2.2.2.3 of 3GPP TS 29.565 [50].

- the requested event filter(s) within the "eventFilters" attribute;

- notification methods within the "notifMethod" attribute;

- maximum number of reports within the "maxReportNbr" attribute;

- expiry time within the "expiry" attribute; and

- report period within the "repPeriod" attribute.

Upon the reception of an HTTP POST request, if the AF is authorized, the NEF shall select a TSCTSF based on the local configuration or discover the TSCTSF via Nnrf\_NFDiscovery service as defined in 3GPP TS 29.510 [57] for a DNN/S-NSSAI combination, if not configured. If the DNN and the S-NSSAI is omitted in the AF request, prior the TSCTSF discovery the NEF shall determine the corresponding DNN and S-NSSAI based on the received AF Service Identifier. After the NEF obtains the TSCTSF, the NEF shall invoke the Ntsctsf\_TimeSynchronization\_CapsSubscribe request service operation as defined in clause 5.2.2.2.2 of 3GPP TS 29.565 [50] to the selected TSCTSF. If the NEF receives an error response from the TSCTSF, 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.

NOTE 2: It is assumed that there is only one TSCTSF set for a given DNN/S-NSSAI in this release of the specification.

After receiving a successful response from the TSCTSF, the NEF shall create an "Individual Time Synchronization Exposure Subscription" resource which represents the time synchronization exposure subscription request, addressed by a URI that contains the AF Identifier and a NEF-created configuration 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 "Individual Time Synchronization Exposure Subscription".

In order to update an existing subscription, the AF shall send an HTTP PUT message to the NEF targeting the resource "Individual Time Synchronization Exposure Subscription". The body of the HTTP PUT request message shall include the TimeSyncExposureSubsc data type. Upon receipt of the corresponding HTTP PUT message, if the AF is authorized by the NEF, the NEF shall interact with the TSCTSF by invoking Ntsctsf\_TimeSynchronization\_CapsSubscribe request service operation as defined in clause 5.2.2.2.3 of 3GPP TS 29.565 [50]. After receiving a successful response from the TSCTSF, the NEF shall update a resource "Individual Time Synchronization Exposure Subscription" which represents the exposure subscription, and responds to the AF with a 200 OK with TimeSyncExposureSubsc data structure or 204 No Content status code.

If the "SupportReport" feature is supported, and the Time Synchronization Exposure Subscription creation or update is rejected by the TSCTSF because the AF is not authorized or the AF requested parameters are not allowed based on UE's Time Synchronization Subscription Data as specified in 3GPP TS 29.565 [50], the NEF shall relay the received error and include in the HTTP "403 Forbidden" error response the "cause" attribute set to the "UE\_SERVICE\_NOT\_AUTHORIZED" application error.

When the NEF receives the notification of the capabilities of the time synchronization service from the TSCTSF as defined in clause 5.2.2.4.2 of 3GPP TS 29.565 [50], the NEF shall provide a notification to AF by sending HTTP POST message that includes the TimeSyncExposureSubsNotif data structure in the request body. Upon receipt of the notification, the AF shall respond with a "204 No Content" status code to confirm the received notification.

In order to delete an existing subscription, the AF shall send an HTTP DELETE message to the NEF targeting the resource "Individual Time Synchronization Exposure Subscription". The NEF shall interact with the TSCTSF by invoking the Ntsctsf\_TimeSynchronization\_CapsUnsubscribe service operation as defined in clause 5.2.2.3.2 of 3GPP TS 29.565 [50] and delete the corresponding active "Individual Time Synchronization Exposure Subscription" resource, then respond to the AF with a 204 No Content status code.

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

##### 5.15.4.3.2 Type: TimeSyncExposureSubsc

Table 5.15.4.3.2-1: Definition of type TimeSyncExposureSubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| exterGroupId | ExternalGroupId | C | 0..1 | Identifies a group of UE(s) for which the time synchronization capabilities is requested. (NOTE 1) |  |
| gpsis | array(Gpsi) | C | 1..N | Contains a list of UE for which the time synchronization capabilities is requested. (NOTE 1) |  |
| anyUeInd | boolean | C | 0..1 | Identifies whether the AF request applies to any UE (i.e. all UEs).  - "true": the AF request is applicable to any UE.  - "false": the AF request is not applicable to any UE.  - Default value is "false" if omitted.  (NOTE 1) (NOTE 2) |  |
| 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. (NOTE 2) |  |
| snssai | Snssai | O | 0..1 | Identifies an S-NSSAI. (NOTE 2) |  |
| 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). |  |
| eventFilters | array(EventFilter) | O | 1..N | Contains the filter conditions to match for notifying the event(s) of time synchronization capabilities for a list of UE(s). |  |
| subsNotifUri | Uri | M | 1 | Notification URI for time sensitive capability reporting. |  |
| subsNotifId | string | M | 1 | Notification Correlation ID assigned by the AF. |  |
| 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 AF shall not associate an expiry time for the subscription. |  |
| repPeriod | DurationSec | C | 0..1 | Is supplied for notification Method "periodic". |  |
| requestTestNotification | boolean | O | 0..1 | Indicates whether the AF requests the NEF to send a test notification.  - Set to "true" by the AF to request the NEF to send a test notification as defined in clause 5.2.5.3 of 3GPP TS 29.122 [4].  - Set to "false" by the AF not to request the NEF to send a test notification.  - Default value is "false" if omitted. | Notification\_test\_event |
| websockNotifConfig | WebsockNotifConfig | O | 0..1 | Configuration parameters to set up notification delivery over Websocket protocol. | Notification\_websocket |
| suppFeat | SupportedFeatures | C | 0..1 | Represents the list of supported features.  This attribute shall be supplied in the POST request and the response that requested the creation of an Individual Time Synchronization Subscription resource. |  |
| NOTE 1: Only one of the properties "gpsis", "anyUeInd" or "exterGroupId" shall be included.  NOTE 2 The properties of "anyUeInd" may be included only when the properties of "dnn" and "snssai" are included. | | | | | |

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