



Support for the Unsubscribe-To-Notifications Messages

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Feature Summary and Revision History

Summary Data

Table 1: Summary Data

Applicable Product(s) or Functional Area	SMF
Applicable Product(s) or Functional Area	SMI
Feature Default Setting	Enabled – Always-on
Related Changes in this Release	Not Applicable
Related Documentation	Not Applicable

Revision History

Table 2: Revision History

Revision Details	Release
First introduced.	2020.02.2

Feature Description

The Unified Data Management (UDM) is responsible for primarily storing the subscriber data, which SMF accesses for managing the user sessions on the network. The SMF explicitly subscribes to receive the notifications about the events that occur in the subscriber data such session terminate. When the SMF wants to stop receiving the notifications, it initiates the Unsubscribe-to-Notification messages to UDM. Upon receiving these messages, the UDM cancels the subscription by removing the notification subscription for the subscribed session.

How it Works

This section provides a brief of how the SMF and UDM interact over the Unsubscribe-to-Notifications message:

1. The NF such as SMF sends an Unsubscribe-to-Notifications request to the resource identified by the URI to the UDM. The SMF transacts the request to the UDM over the N10 interface. The Unsubscribe-to-Notifications request lets the SMF unsubscribe from notifications for a specific subscriber session. The SMF receives the URI details during the subscription creation process.

The Unsubscribe-to-Notifications request contains the 'SUPI' and 'subscriptionId' in the URI.

2. The UDM processes the request, and based on the response; it sends a response code to the SMF. For example, if the unsubscription is successful, then UDM sends 204 code. If the request is not processed, then the appropriate HTTP status code indicating the error is returned in the response body along with the additional error information.
3. The SMF is equipped to handle the timeout and failure that occurs when sending the Unsubscribe-to-Notifications messages to the UDM. In the event, the Unsubscribe-to-Notifications request fails, the SMF continues to process the corresponding sessions.

The Unsubscribe-to-Notification message is required for sessions that are hosted on the EUTRA network. They may not be a requirement for sessions that are released on the NR and WLAN network. For these access types, the SMF sends the UDM registration and deregistration messages that include subscription to notifications through implicit-unsubscribe during the deregistration.

Standards Compliance

The Support for the Unsubscribe-To-Notifications Messages feature complies with the following standards:

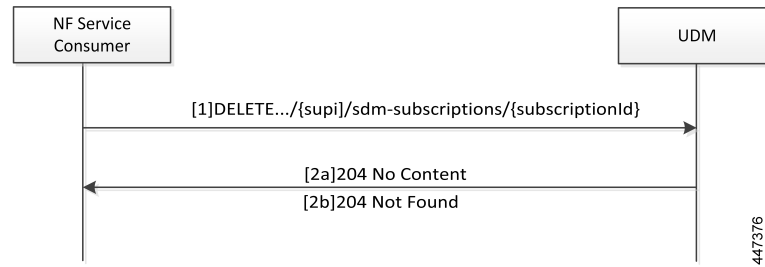
- 3GPP TS 29.503 - 5G System; Unified Data Management Services

Call Flows

This section describes the call flow for the Unsubscribe-To-Notifications message support.

Unsubscribe-to-Notifications Call Flow

This section describes the call flow on how the SMF sends a request to the UDM to unsubscribe from notifications of data changes.

Figure 1: Unsubscribe-to-Notifications Interaction with UDM**Table 3: Unsubscribe-to-Notifications Interaction Call Flow Description**

Step	Description
1	<p>The NF service consumer such as SMF sends a request to the UDM to unsubscribe from notifications. By unsubscribing, the UDM no longer sends notifications to SMF when the data modifications occur in the respective subscriber session.</p> <p>The NF service consumer sends a DELETE request to the resource identified by the URI. The NF service consumer receives the URI when the subscription gets created.</p>
2a	If the deletion of request is successful, the UDM responds with "204 No Content".
2b	<p>If the subscription is invalid, which could be due to an unknown subscriptionId value, then the HTTP status code "404 Not Found" is returned along with the additional error information in the response body (as part of the "ProblemDetails" element).</p> <p>If the request is not processed, then the appropriate HTTP status code indicating the error is returned in the DELETE response body along with the additional error information.</p>

OAM Support for the Unsubscribe-To-Notifications Messages

This section describes operations, administration, and maintenance information for this feature.

Statistics Support

The SMF maintains the following labels on the smf-rest-ep pod for monitoring the number of unsubscribe-to-notifications messages that are initiated towards UDM:

- nfType – “udm”
- messageDirection – “outbound”
- apiName – “sdm_unsubscription_req”
- nfUri – “nf_uri”
- respStatus – “response_status”

- rspCause – “response_cause”