**3GPP TSG-CT WG3 Meeting #130 *C3-234xxx***

**Xiamen, China, 9 - 13 October, 2023 was C3-234349**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **29.538** | **CR** | **0037** | **rev** | **1** | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *For* ***[HE](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)******[LP](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)*** *on using this form: comprehensive instructions can be found at  <http://www.3gpp.org/Change-Requests>.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network | **x** |

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|  | | | | | | | | | | |
| ***Title:*** | Messaging Topic Events API | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | China Mobile | | | | | | | | | |
| ***Source to TSG:*** | CT3 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | 5GMARCH\_Ph2 | | | | |  | ***Date:*** | | | 2023-09-28 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The MSGS\_TopiclistEvents operations was defined in clause 9.1.1.6 in TS 23 554 and stage 2 CR S6-232870. This CR is proposed to add corresponding API definition based on stage 2 description, including operations of Messaging Topic list subscription/unsubscription/notification, and Messaging Topic subscription/unsubscription. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add API Definition for MSGS\_TopiclistEvents service | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The functionality of Messaging Topic cannot be implemented. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.x(new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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's revision history:*** | |  | | | | | | | | |

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

## 8.x MSGS\_MSGTopiclistEvent API

### 8.x.1 API URI

The MSGS\_MSGTopiclistEvent service shall use the MSGS\_MSGTopiclistEvent API.

The request URIs used in HTTP requests from the MSGin5G Server 1 towards the MSGin5G Server 2 shall have the Resource URI structure as defined in clause 7.5 with the following clarifications:

- The <apiName> shall be "msgs-topiclistevent".

- The <apiVersion> shall be "v1".

- The <apiSpecificResourceUriPart> shall be set as described in clause 8.x.2.

### 8.x.2 Resources

#### 8.x.2.1 Overview



Figure 8.x.2.1-1: Resource URI structure of the MSGS\_MSGTopiclistEvent API

Table 8.x.2.1-1 provides an overview of the resources and applicable HTTP methods.

Table 8.x.2.1-1: Resources and methods overview

|  |  |  |  |
| --- | --- | --- | --- |
| Resource name | Resource URI | HTTP method or custom operation | Description |
| Topic List Subscriptions | /topiclist-subscriptions | POST | Subscribe to a Messaging Topic list on a MSGin5G Server. |
| Individual Topic List Subscription | /topiclist-subscriptions/{subscriptionId} | POST | Individual Messaging Topic list subscription resource. |

#### 8.x.2.2 Resource: Topic List Subscriptions

##### 8.x.2.2.1 Description

This resource represents all the MSGin5G Servers that are subscribed at a given Messaging Topic on a MSGin5G Server.

##### 8.x.2.2.2 Resource Definition

Resource URI: **{apiRoot}/msgs-topiclistevent/<apiVersion>/topiclist-subscriptions**

This resource shall support the resource URI variables defined in the table 8.x.2.2.2-1.

Table 8.x.2.2.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.5 |
| apiVersion | string | See clause 8.x.1 |

##### 8.x.2.2.3 Resource Standard Methods

###### 8.x.2.2.3.1 POST

This method shall support the URI query parameters specified in table 8.x.2.2.3.1-1.

Table 8.x.2.2.3.1-1: URI query parameters supported by the POST method on this resource

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

This method shall support the request data structures specified in table 8.x.2.2.3.1-2 and the response data structures and response codes specified in table 8.x.2.2.3.1-3.

Table 8.x.2.2.3.1-2: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| TopicListSubscription | M | 1 | Messaging Topic list subscription request information. |

Table 8.x.2.2.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| TopicListSubscriptionAck | M | 1 | 201 Created | The creation of an Messaging Topic list subscription resource is confirmed.  The URI of the created resource shall be returned in the "Location" HTTP header. |
| 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] shall also apply. | | | | |

Table 8.x.2.2.3.1-4: Headers supported by the POST method on this resource

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

Table 8.x.2.2.3.1-5: 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}/msgs-topiclistevent/<apiVersion>/topiclist-subscriptions/{subscriptionId} |

#### 8.x.2.3 Resource: Individual Topic List Subscription

##### 8.x.2.3.1 Description

The Individual Topic List Subscription resource represents single Messaging Topic list subscription at a given MSGin5G Server. The resource allows an MSGin5G Server to delete Individual Topic List Subscription resource.

##### 8.x.2.3.2 Resource Definition

Resource URI: **{apiRoot}/msgs-topiclistevent/<apiVersion>/topiclist-subscriptions/{subscriptionId}**

This resource shall support the resource URI variables defined in the table 8.x.2.3.2-1.

Table 8.x.2.3.2-1: Resource URI variables for this resource

|  |  |  |
| --- | --- | --- |
| Name | Data Type | Definition |
| apiRoot | string | See clause 7.5 |
| apiVersion | string | See clause 8.x.1 |
| subscriptionId | string | The MSGin5G Server Messaging Topic list subscription resource id |

##### 8.x.2.3.3 Resource Standard Methods

###### 8.x.2.3.3.1 POST

This method shall support the URI query parameters specified in the table 8.x.2.3.3.1-1.

Table 8.x.2.3.3.1-1: URI query parameters supported by the POST method on this resource

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

This method shall support the request data structures specified in table 8.x.2.3.3.1-2 and the response data structures and response codes specified in table 8.x.2.3.3.1-3.

Table 8.x.2.3.3.1-2: Data structures supported by the POST Request Body on this resource

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

Table 8.x.2.3.3.1-3: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | Successful response. The individual MSGin5G Server Messaging Topic list subscription matching the subscriptionId is successfully deleted. |
| TopicListUnsubcriptionAck | M | 1 | 200 OK | Response of successfully handled Topic list unsubscription request with status information if subscription is not deleted. |
| 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] shall also apply. | | | | |

Table 8.x.2.3.3.1-4: Headers supported by the POST method on this resource

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

Table 8.x.2.3.3.1-5: Headers supported by the 204 response code on this resource

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

### 8.x.3 Custom Operations without associated resources

#### 8.x.3.1 Overview

The structure of the custom operation URIs of the MSGS\_MSGTopiclistEvent service is shown in Figure 8.x.3.1-1.



Figure 8.x.3.1-1: Custom operation URI structure of the MSGS\_MSGTopiclistEvent API

Table 8.x.3.1-1 provides an overview of the custom operations and applicable HTTP methods.

Table 8.x.3.1-1: Custom operations without associated resources

|  |  |  |
| --- | --- | --- |
| Custom operation URI | Mapped HTTP method | Description |
| {apiRoot}/msgs-msgtopiclistevent/<apiVersion>/request-topic-subscription | POST | Request of MSGin5G Server to deliver Messaging Topic subscription to another given MSGin5G Server. |
| {apiRoot}/msgs-msgtopiclistevent/<apiVersion>/request-topic-unsubscription | POST | Request of MSGin5G Server to deliver Messaging Topic unsubscription to another given MSGin5G Server. |

#### 8.x.3.2 Operation: request-topic-subscription

##### 8.x.3.2.1 Description

The operation is used by the MSGin5G Server to request the other MSGin5G Server to create a subscription for one or more Messaging Topic(s).

##### 8.x.3.2.2 Operation Definition

This operation shall support the request data structures shown in Table 8.x.3.2.2-1 and the response data structures and error codes specified in Tables 8.x.3.2.2-2.

Table 8.x.3.2.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| TopicSubscription | M | 1 | Information about the Messaging Topic subscription that the MSGin5G Server shall create. |

Table 8.x.3.2.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| TopicSubscriptionAck | M | 1 | 200 OK | Successful request to trigger the creation of a subscription for Messaging Topic at the MSGin5G Server. |
| NOTE: The mandatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply. | | | | |

#### 8.x.3.3 Operation: request-topic-unsubscription

##### 8.x.3.3.1 Description

The operation is used by the MSGin5G Server to request the other MSGin5G Server to remove a subscription for one or more Messaging Topic(s).

##### 8.x.3.3.2 Operation Definition

This operation shall support the request data structures shown in Table 8.x.3.3.2-1 and the response data structures and error codes specified in Tables 8.x.3.3.2-2.

Table 8.x.3.3.2-1: Data structures supported by the POST Request Body on this resource

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| TopicUnsubscription | M | 1 | Reference used to identify the Messaging Topic subscription that the MSGin5G Server shall remove. |

Table 8.x.3.3.2-2: Data structures supported by the POST Response Body on this resource

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Data type | P | Cardinality | Response  codes | Description |
| n/a |  |  | 204 No Content | Successful request to trigger the removal of a subscription for Messaging Topic(s) on the MSGin5G Server. |
| NOTE: The mandatory HTTP error status code for the POST method listed in Table 5.2.7.1-1 of 3GPP TS 29.500 [4] also apply. | | | | |

### 8.x.4 Notifications

#### 8.x.4.1 General

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

Table 8.x.4.1-1: Notifications overview

|  |  |  |  |
| --- | --- | --- | --- |
| Notification | Callback URI | HTTP method or custom operation | Description  (service operation) |
| TopicList Notification | {notificationURI} | POST | Notify about Messaging Topic list changes from MSGin5G Server. |

#### 8.x.4.2 Topiclist Notification

##### 8.x.4.2.1 Description

The Topiclist Notification is used by the MSGin5G Server to notify Messaging Topic list change events to another MSGin5G Server that has subscribed to such Messaging Topic list.

##### 8.x.4.2.2 Target URI

The Callback URI **"{notificationURI}"** shall be used with the callback URI variables defined in table 8.x.4.2.2-1.

Table 8.x.4.2.2-1: Callback URI variables

|  |  |
| --- | --- |
| Name | Definition |
| notificationURI | String formatted as URI with the Callback Uri |

##### 8.x.4.2.3 Standard Methods

###### 8.x.4.2.3.1 POST

This method shall support the request data structures specified in table 8.x.4.2.3.1-1 and the response data structures and response codes specified in table 8.x.4.2.3.1-2.

Table 8.x.4.2.3.1-1: Data structures supported by the POST Request Body

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | P | Cardinality | Description |
| TopicListNotification | M | 1 | Provides information about subscribed Messaging Topic list. |

Table 8.x.4.2.3.1-2: 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. |
| NOTE 1: 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. | | | | |

### 8.x.5 Data Model

#### 8.x.5.1 General

This clause specifies the application data model supported by the API. Data types listed in clause 7.2 apply to this API Table 8.x.5.1-1 specifies the data types defined specifically for the MSGS\_TopiclistEvent API service.

Table 8.x.5.1-1: MSGTopiclistEvent API specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Section defined | Description | Applicability |
| TopicListSubscription | 8.x.5.2.2 | The Messaging Topic list subscription request information. |  |
| TopicListSubscriptionAck | 8.x.5.2.3 | The Messaging Topic list subscription response information, indicating the subscription result. |  |
| TopicSubscription | 8.x.5.2.4 | The Messaging Topic subscription request information. |  |
| TopicSubscriptionAck | 8.x.5.2.5 | The Messaging Topic subscription response information. |  |
| TopicUnsubscription | 8.x.5.2.6 | The Messaging Topic list unsubscription request information. |  |
| TopicListNotification | 8.x.5.2.7 | The Messaging Topic list notification information, indicating changed Messaging Topics. |  |
| MessagingTopic | 8.x.5.2.8 | The individual Messaging Topic information |  |

Table 8.x.5.1-2 specifies data types re-used by the MSGS\_TopiclistEvent API service.

Table 8.x.5.1-2: Re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| Uri | 3GPP TS 29.571 [5] |  |  |

#### 8.x.5.2 Structured data types

##### 8.x.5.2.1 Introduction

##### 8.x.5.2.2 Type: TopicListSubscription

Table 8.x.5.2.2-1: Definition of type TopicListSubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | Address | M | 1 | The service identity of the MSGin5G Server which requests the Messaging Topic list subscription. |  |
| destAddr | Address | M | 1 | The service identity of the receiving MSGin5G Server. |  |
| notificationURI | Uri | M | 1 | Notification target address. |  |
| secCred | string | O | 0..1 | Security information required by the MSGin5G Server. |  |
| exprTime | DateTime | O | 0..1 | The expiration time of this subscription requested, and should be larger than 0 if included. If not included, the expiration time subjects to operator policy. |  |
| suppFeat | SupportedFeatures | C | 0..1 | This IE represents a list of Supported features as described in clause 8.x.7.  It shall be present if at least one feature defined in clause 8.x.7 is supported. |  |

##### 8.x.5.2.3 Type: TopicListUnsubscription

Table 8.x.5.2.2-1: Definition of type TopicListSubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | Address | M | 1 | The service identity of the MSGin5G Server which requests the Messaging Topic list unsubscription. |  |
| destAddr | Address | M | 1 | The service identity of the receiving MSGin5G Server. |  |
| secCred | string | O | 0..1 | Security information required by the MSGin5G Server. |  |

##### 8.x.5.2.4 Type: TopicListSubscriptionAck

Table 8.x.5.2.3-1: Definition of type TopicListSubscriptionAck

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subStat | string | M | 1 | The result of the subscription. |  |
| exprTime | DateTime | O | 0..1 | Indicates the expiration time of the subscription. |  |
| suppFeat | SupportedFeatures | C | 0..1 | This IE represents a list of Supported features as described in clause 8.x.7.  It shall be present if at least one feature defined in clause 8.x.7 is supported. |  |

##### 8.x.5.2.5 Type: TopicListUnsubscriptionAck

Table 8.x.5.2.3-1: Definition of type TopicListSubscriptionAck

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subStat | string | M | 1 | The result of the subscription. |  |

##### 8.x.5.2.6 Type: TopicSubscription

Table 8.x.5.2.4-1: Definition of type TopicSubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | string | O | 1 | The Service identifier of the originating MSGin5G Server |  |
| msgTopics | array(string) | M | 1..N | Information of Messaging Topic(s) to be subscribed |  |
| secCred | string | O | 0..1 | Security information required by the MSGin5G Server. |  |
| exprTime | DateTime | O | 0..1 | The expiration time of this subscription requested, and should be larger than 0 if included. If not included, the expiration time subjects to operator policy. |  |

##### 8.x.5.2.7 Type: TopicSubscriptionAck

Table 8.x.5.2.5-1: Definition of type TopicSubscriptionAck

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| subStat | string | M | 1 | Indicating update status of the Messaging Topic if newly created or deleted. |  |
| exprTime | DateTime | O | 0..1 | The expiration time of this subscription set by MSGin5G Server. |  |

##### 8.x.5.2.8 Type: TopicUnsubscription

Table 8.x.5.2.6-1: Definition of type TopicUnsubscription

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | string | O | 0..1 | The Service identifier of the originating MSGin5G Server. |  |
| secCred | string | O | 0..1 | Security information required by the MSGin5G Server. |  |
| msgTopics | array(string) | M | 1..N | Information of Messaging Topic(s) to be unsubscribed. |  |

##### 8.x.5.2.9 Type: TopicListNotification

Table 8.x.5.2.7-1: Definition of type TopicListNotification

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| exprTime | DateTime | O | 0..1 | The expiration time of this subscription set by MSGin5G Server. |  |
| msgTopics | array(MessagingTopic) | M | 1..N | List of Messaging Topic(s) information notified by MSGin5G Server. |  |

##### 8.x.5.2.10 Type: MessagingTopic

Table 8.x.5.2.8-1: Definition of type MessagingTopic

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| msgTopic | string | M | 1 | The identifier of the Messaging Topic. |  |
| updateStat | UpdateStatus | M | 1 | Indicating update status of the Messaging Topic if newly created or deleted. |  |

#### 8.x.5.3 Simple data types and enumerations

##### 8.x.5.3.1 Introduction

This clause defines simple data types and enumerations that can be referenced from data structures defined in the previous clauses.

##### 8.x.5.3.2 Enumeration: UpdateStatus

Table 8.x.5.3.2-1: Enumeration UpdateStatus

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| CREATED | The Messaging Topic is newly created. |  |
| DELETED | The Messaging Topic is newly deleted. |  |

### 8.x.6 Error Handling

#### 8.x.6.1 General

HTTP error handling shall be supported as specified in clause 7.7.

In addition, the requirements in the following clauses shall apply.

#### 8.x.6.2 Protocol Errors

In this Release of the specification, there are no additional protocol errors applicable for the MSGS\_MSGTopiclistEvent API.

#### 8.x.6.3 Application Errors

The application errors defined for the MSGS\_MSGTopiclistEvent API are listed in table 8.x.6.3-1.

Table 8.x.6.3-1: Application errors

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

### 8.x.7 Feature negotiation

General feature negotiation procedures are defined in clause 7.8. Table 8.x.7-1 lists the supported features for MSGS\_MSGTopiclistEvent API.

Table 8.x.7-1: Supported Features

|  |  |  |
| --- | --- | --- |
| Feature number | Feature Name | Description |
|  |  |  |

\* \* \* End of Change \* \* \* \*