**3GPP TSG-CT WG3 Meeting #131C3-235427**

**Chicago, USA, 9 - 13 November, 2023**

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| --- |
| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **29.538** | **CR** | **0042** | **rev** | **-** | **Current version:** | **18.3.0** |  |
|  |
| *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** |

|  |
| --- |
|  |
| ***Title:***  | IETF HTTP RFCs obsoleted by RFCs 9110, 9111, 9112 and 9113 |
|  |  |
| ***Source to WG:*** | China Mobile |
| ***Source to TSG:*** | CT3 |
|  |  |
| ***Work item code:*** | SBIProtoc18 |  | ***Date:*** | 2023-11-06 |
|  |  |  |  |  |
| ***Category:*** | **F** |  | ***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 canbe 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:*** | As indicated by C3-234018:- IETF RFC 9110 ("HTTP Semantics", published in June 2022) obsoletes RFCs 7230, 7231, 7232, 7235, 7694. - IETF RFC 9111 ("HTTP Caching", published in June 2022) obsoletes RFC 7234.- IETF RFC 9112 ("HTTP/1.1", published in June 2022) obsoletes RFC 7230.- IETF RFC 9113 ("HTTP/2", published in June 2022) obsoletes RFC 7540. |
|  |  |
| ***Summary of change:*** | * Update the HTTP references.
 |
|  |  |
| ***Consequences if not approved:*** | Reference to obsoleted RFCs. |
|  |  |
| ***Clauses affected:*** | 2, 5.3.2.2.2, 5.3.2.3.2, 5.3.2.4.2, 5.3.2.5.2, 7.3, 8.2.5.2.2, 8.2.5.2.3, 9.1.5.2.2, 9.2.5.2.2, 9.3.5.2.2 |
|  |  |
|  | **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 does not impact the OpenAPI file. |
|  |  |
| ***This CR's revision history:*** |  |

**Additional discussion(if needed):**

**Proposed changes:**

\*\*\* 1st 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 23.554: "Application architecture for MSGin5G Service".

[3] 3GPP TS 22.262: "Message Service within the 5G System".

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

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

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

[7] 3GPP TS 23.222: "Functional architecture and information flows to support Common API Framework for 3GPP Northbound APIs; Stage 2".

[8] 3GPP TS 29.222: "Common API Framework for 3GPP Northbound APIs; Stage 3".

[9] 3GPP TS 29.501: "5G System; Principles and Guidelines for Services Definition; Stage 3".

[10] IETF RFC 9112: "HTTP/1.1".

[11] IETF RFC 9110: "HTTP Semantics".

[12] Void.

[13] Void.

[14] IETF RFC 9111: "HTTP Caching".

[15] Void.

[16] IETF RFC 9113: "HTTP/2".

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

[18] 3GPP TR 21.900: "Technical Specification Group working methods".

[19] 3GPP TR 33.862: "Study on security aspects of the Message Service for MIoT over the 5G System (MSGin5G)".

[20] 3GPP TS 33.501: "Security architecture and procedures for 5G system".

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

[22] 3GPP TS 33.122: "Security Aspects of Common API Framework for 3GPP Northbound APIs".

[23] 3GPP TS 29.522: "5G System; Network Exposure Function Northbound APIs; Stage 3".

[24] 3GPP TS 29.122: "T8 reference point for northbound APIs".

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

##### 5.3.2.2.2 AS Originating MSGin5G Message Delivery



Figure 5.3.2.2.2-1: AS Originating MSGin5G Message Delivery

When the AS needs to send the message to the MSGin5G Server, the AS shall send the HTTP POST method as step 1 of the Figure 5.3.2.2.2-1.

The AS shall include ASMessageDelivery data structure in the content of the HTTP POST request.

The ASMessageDelivery data structure shall include:

- the AS Service ID within the "oriAddr" attribute;

- the Recipient Address within the "destAddr" attribute;

- the Message ID within the "msgId" attribute;

- the store and forward flag within the "stoAndFwInd" attribute; and

may include:

- the Application ID within the "appId" attribute;

- the indication whether the message delivery status report is required within the "delivStReqInd" attribute;

- the Payload within the "payload" attribute;

- the priority type within the "priority" attribute;

- the message segment flag within the "segInd" attribute;

- the message segment parameters within the "segParams" attribute, this attribute may include:

- the segmentation set identifier within the "segId" attribute;

- the total number of message segments within the "totalSegCount" attribute;

- the message segment number within the "segNumb" attribute; and

- the last segment flag within the "lastSegFlag" attribute;

- the store and forward parameters within the "stoAndFwParams" attribute, this attribute may include:

- the message expiration time within the "exprTime" attribute;

- The latency within the "latency" attribute.

When the MSGin5G Server receives the HTTP POST request from the AS, the MSGin5G Server shall make an authorization based on the information received from the AS. If the authorization is successful, the MSGin5G Server shall respond to the AS with a 200 OK message.

If errors occur when processing the HTTP POST request, the MSGin5G Server shall apply error handling procedures as specified in clause 8.2.6.

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

##### 5.3.2.3.2 AS Originating Message Delivery Status Report



Figure 5.3.2.3.2-1: AS Originating MSGin5G Delivery Report

When the AS needs to send the delivery report to the MSGin5G Server, the AS shall send the HTTP POST method as step 1 of the Figure 5.3.2.3.2-1.

The AS shall include DeliveryStatusReport data structure in the content of the HTTP POST request.

The DeliveryStatusReport data structure shall include:

- the AS Service ID within the "oriAddr" attribute;

- the Recipient Address within the "destAddr" attribute;

- the Message ID within the "msgId" attribute;

- the delivery status within the "delivSt" attribute; and

may include:

- the failure cause within the "failureCause" attribute;

When the MSGin5G Server receives the HTTP POST request from the AS, the MSGin5G Server shall make an authorization based on the information received from the AS. If the authorization is successful, the MSGin5G Server shall respond to the AS with a 200 OK message.

If errors occur when processing the HTTP POST request, the MSGin5G Server shall apply error handling procedures as specified in clause 8.2.6.

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

##### 5.3.2.4.2 UE Originating Message Delivery



Figure 5.3.2.4.2-1: Legacy 3GPP UE or Non-3GPP UE Originating MSGin5G Message Delivery

When the Legacy 3GPP Message Gateway or Non-3GPP Message Gateway (on behalf of Legacy 3GPP UE or Non-3GPP UE) needs to send the message to the MSGin5G Server, the Legacy 3GPP Message Gateway or Non-3GPP Message Gateway shall send the HTTP POST method as step 1of the Figure 5.3.2.4.2-1.

The Legacy 3GPP Message Gateway or Non-3GPP Message Gateway shall include UEMessageDelivery data structure in the content of the HTTP POST request.

The UEMessageDelivery data structure shall include:

- the Originating UE Service ID within the "oriAddr" attribute;

- the Recipient Address within the "destAddr" attribute;

- the Message ID within the "msgId" attribute; and

- the store and forward flag within the "stoAndFwInd" attribute;

and may include:

- the Application ID within the "appId" attribute;

- the Payload within the "payload" attribute;

- the indication whether the message delivery status report is required within the "delivStReqInd" attribute; and

- the message segment flag within the "segInd" attribute;

- the message segment parameters within the "segParams" attribute, this attribute may include:

- the segmentation set identifier within the "segId" attribute;

- the total number of message segments within the "totalSegCount" attribute;

- the message segment number within the "segNumb" attribute;

- the last segment flag within the "lastSegFlag" attribute;

- the store and forward parameters within the "stoAndFwParams" attribute, this attribute may include:

- the message expiration time within the "exprTime" attribute;

When the MSGin5G Server receives the HTTP POST request from the Legacy 3GPP Message Gateway or Non-3GPP Message Gateway, the MSGin5G Server shall make an authorization based on the information received from the Legacy 3GPP Message Gateway or Non-3GPP Message Gateway. If the authorization is successful, the MSGin5G Server shall respond to the Legacy 3GPP Message Gateway or Non-3GPP Message Gateway with a 200 OK message.

If errors occur when processing the HTTP POST request, the MSGin5G Server shall apply error handling procedures as specified in clause 8.2.6.

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

##### 5.3.2.5.2 UE Originating Message Delivery Status Report



Figure 5.3.2.5.2-1: Legacy 3GPP UE or Non-3GPP UE Originating MSGin5G Delivery Report

When the Message Gateway (on behalf of Legacy 3GPP UE or Non-3GPP UE) needs to send the delivery report to the MSGin5G Server, the Message Gateway shall send the HTTP POST method as step 1 of the Figure 5.3.2.5.2-1.

The Message Gateway shall include DeliveryStatusReport data structure in the content of the HTTP POST request.

The DeliveryStatusReport data structure shall include:

- the Originating UE Service ID within the "oriAddr" attribute;

- the Recipient Address within the "destAddr" attribute;

- the Message ID within the "msgId" attribute; and

- the delivery status within the "delivSt" attribute;

and may include:

- The failure cause within the "failureCause" attribute;

When the MSGin5G Server receives the HTTP POST request from the Message Gateway, the MSGin5G Server shall make an authorization based on the information received from the Message Gateway. If the authorization is successful, the MSGin5G Server shall respond to the Message Gateway with a 200 OK message.

If errors occur when processing the HTTP POST request, the MSGin5G Server shall apply error handling procedures as specified in clause 8.2.6.

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

## 7.3 Usage of HTTP

For MSGin5G APIs, support of HTTP/1.1 (IETF RFC 9110 [11], IETF RFC 9111 [14] and IETF RFC 9112 [10]) over TLS is mandatory and support of HTTP/2 (IETF RFC 9113 [16]) over TLS is recommended.

A functional entity desiring to use HTTP/2 shall use the HTTP upgrade mechanism to negotiate applicable HTTP version as described in IETF RFC 9113 [16].

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

##### 8.2.5.2.2 Type: ASMessageDelivery

Table 8.2.5.2.2-1: Definition of type ASMessageDelivery

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | Address | M | 1 | The service identity of the sending Application Server (NOTE). |  |
| destAddr | Address | M | 1 | The service identity of the receiving Legacy 3GPP UE, Non-3GPP UE or MSGin5G UE.The service identifier of the target MSGin5G Group.The service identifier of the Broadcast Service Area where the message needs to be broadcast.Indicates which Messaging Topic this message is related to. |  |
| appId | string | O | 0..1 | Identifies the application(s) for which the content is intended.This list of Application IDs IE is required when the message is sent to one or multiple Application Clients served by same MSGin5G Client. |  |
| msgId | string | M | 1 | Unique identifier of this message. |  |
| delivStReqInd | boolean | O | 0..1 | Indicates if delivery acknowledgement from the recipient is requested.Set to "true" if delivery acknowledgement from the recipient is requested. otherwise set to "false". Default value is "false". |  |
| payload | string | O | 0..1 | Payload of the message. |  |
| priority | Priority | O | 0..1 | Application priority level requested for this message. |  |
| segInd | boolean | O | 0..1 | Indicates this message is part of a segmented message.Set to "true" if the message is part of a segmented message. otherwise set to "false". Default value is "false". |  |
| segParams | MessageSegmentParameters | O | 0..1 | The message segment parameters.This IE shall be included only if the value of the message Segment Flag IE indicates that message Segment services are requested. |  |
| stoAndFwInd | boolean | M | 1 | An indicator of whether store and forward services are requested for this message.Set to "true" if it is required to store and forward services for this message. otherwise set to "false". |  |
| stoAndFwParams | StoreAndForwardParameters | O | 0..1 | Parameters used by MSGin5G Server for providing store and forward services, This IE shall be included only if the value of the Store and forward flag IE indicates that store and forward services are requested. |  |
| latency | integer | O | 0..1 | The latency requirement for the message which only applies to AS Originating MSGin5G Message. Unit: millisecond. |  |
| NOTE: Only "AS" is applicable to the addrType attribute in the Address data type to represent the originating type of message request. |

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

##### 8.2.5.2.3 Type:UEMessageDelivery

Table 8.2.5.2.3-1: Definition of type UEMessageDelivery

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | Address | M | 1 | The service identity of the sending Legacy 3GPP UE or Non-3GPP UE (NOTE). |  |
| destAddr | Address | M | 1 | The service identity of the receiving Application Server or MSGin5G UE. |  |
| appId | string | O | 0..1 | Identifies the application(s) for which the content is intended.This list of Application IDs IE is required when the message is sent to one or multiple Application Clients served by same MSGin5G Client. |  |
| msgId | string | M | 1 | Unique identifier of this message. |  |
| delivStReqInd | boolean | O | 0..1 | Indicates if delivery acknowledgement from the recipient is requested.Set to "true" if delivery acknowledgement from the recipient is requested. otherwise set to "false". Default value is "false". |  |
| payload | string | O | 0..1 | Payload of the message. |  |
| segInd | boolean | O | 0..1 | Indicates this message is part of a segmented message.Set to "true" if the message is part of a segmented message. otherwise set to "false". Default value is "false". |  |
| segParams | MessageSegmentParameters | O | 0..1 | The message segment parameters.This IE shall be included only if the value of the message Segment Flag IE indicates that message Segment services are requested. |  |
| stoAndFwInd | boolean | M | 1 | An indicator of whether store and forward services are requested for this message.Set to "true" if it is required to store and forward services for this message. otherwise set to "false". |  |
| stoAndFwParams | StoreAndForwardParameters | O | 0..1 | Parameters used by MSGin5G Server for providing store and forward services, This IE shall be included only if the value of the Store and forward flag IE indicates that store and forward services are requested. |  |
| NOTE: Only "UE" is applicable to the addrType attribute in the Address data type to represent the originating type of message request. |

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

##### 9.1.5.2.2 Type: L3gMessageDelivery

Table 9.1.5.2.2-1: Definition of type L3gMessageDelivery

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | Address | M | 1 | The service identity of the originating MSGin5G Client or the originating Application Server.This IE is copied from the associated inbound message (NOTE). |  |
| destAddr | Address | M | 1 | The service identity of the receiving entity. The receiving entity can only be Legacy 3GPP UE Service ID in MSGG\_L3GDelivery API. |  |
| appId | string | O | 0..1 | Identifies the application(s) for which the content is intended.This list of Application IDs IE is required when the message is sent to one or multiple Application Clients served by same MSGin5G Client. |  |
| msgId | string | M | 1 | Unique identifier of this message.This IE is copied from the associated inbound message request |  |
| delivStReqInd | boolean | O | 0..1 | Indicates if delivery acknowledgement from the recipient is requested.This IE is copied from the associated inbound message.Set to "true" if delivery acknowledgement from the recipient is requested. otherwise set to "false". Default value is "false". |  |
| payload | string | O | 0..1 | Payload of the message.This IE is copied from the associated inbound message. |  |
| segInd | boolean | O | 0..1 | Indicates this message is part of a segmented message.Set to "true" if the message is part of a segmented message. otherwise set to "false". Default value is "false". |  |
| segParams | MessageSegmentParameters | O | 0..1 | The message segment parameters.This IE shall be included only if the value of segInd is true to indicate that message Segment services are requested. |  |
| NOTE: The addrType in Address data type shall only include AS or UE to represent the originating of message request. |

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

##### 9.2.5.2.2 Type: N3gMessageDelivery

Table 9.2.5.2.2-1: Definition of type N3gMessageDelivery

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | Address | M | 1 | The oriAddr is the service identity of the originating MSGin5G Client or the originating Application Server.This IE is copied from the associated inbound message (NOTE). |  |
| destAddr | Address | M | 1 | The destAddr is the service identity of the receiving entity. The receiving entity can only be Non-3GPP UE Service ID in MSGG\_N3GDelivery API. |  |
| appId | string | O | 0..1 | Identifies the application(s) for which the content is intended.This list of Application IDs IE is required when the message is sent to one or multiple Application Clients served by same MSGin5G Client. |  |
| msgId | string | M | 1 | Unique identifier of this message.This IE is copied from the associated inbound message request. |  |
| delivStReqInd | boolean | O | 0..1 | Indicates if delivery acknowledgement from the recipient is requested.This IE is copied from the associated inbound message.Set to "true" if delivery acknowledgement from the recipient is requested. otherwise set to "false". Default value is "false". |  |
| payload | string | O | 0..1 | Payload of the message.This IE is copied from the associated inbound message. |  |
| segInd | boolean | O | 0..1 | Indicates this message is part of a segmented message.Set to "true" if the message is part of a segmented message. otherwise set to "false". Default value is "false". |  |
| segParams | MessageSegmentParameters | O | 0..1 | The message segment parameters.This IE shall be included only if the value of segInd is true to indicate that message Segment services are requested. |  |
| NOTE: The addrType in Address data type shall only include AS or UE to represent the originating of message request. |

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

##### 9.3.5.2.2 Type: BgMessageDelivery

Table 9.3.5.2.2-1: Definition of type BgMessageDelivery

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| oriAddr | Address | M | 1 | The service identity of the originating MSGin5G Client or the originating Application Server.This IE is copied from the associated inbound message (NOTE). |  |
| destAddr | Address | M | 1 | The service identity of the Broadcast Service Area where the message needs to be broadcast. |  |
| appId | string | O | 0..1 | Identifies the application(s) for which the content is intended.This list of Application IDs IE is required when the message is sent to one or multiple Application Clients served by same MSGin5G Client. |  |
| msgId | string | M | 1 | Unique identifier of this message.This IE is copied from the associated inbound message request |  |
| delivStReqInd | boolean | O | 0..1 | Indicates if delivery acknowledgement from the recipient is requested.This IE is copied from the associated inbound message.Set to "true" if delivery acknowledgement from the recipient is requested. otherwise set to "false". Default value is "false". |  |
| payload | string | M | 1 | Payload of the message.This IE is copied from the associated inbound message. |  |
| NOTE: The addrType in Address data type shall only include AS or UE to represent the originating of message request. |

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