**3GPP TSG-CT WG1 Meeting #134-eC1-221532**

**E-Meeting, 17th – 25th February 2022**

**Source: Samsung**

**Title: Pseudo-CR on constrained device procedure to send message**

**Spec: 3GPP TS 24.538 v0.3.0**

**Agenda item: 17.2.30**

**Document for: Decision**

**1. Introduction**

This pCR introduces the procedure for constrained device (without MSGin5G client) to send message.

**2. Reason for Change**

In stage#2 specification, TS 23.554, clause 8.11.4 has been specified which describes constrained device (without MSGin5G client) sending messaging using gateway UE.

It is required to specify stage#3 procedure for this procedure.

**3. Proposal**

It is proposed to agree the following changes to 3GPP TS 24.538 v0.3.0.

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

##### 6.4.2.2.x Constrained device sending message using gateway UE

Upon receiving a request from a user to send the message, the application client:

a) may generate the MSGin5G Constrained device message according to clause 8.1.2. In the MSGin5G Constrained device message:

i) shall set the Message type IE to "SEND MESSAGE REQUEST";

ii) if require message is of point-to-point message type:

1) shall set Target address IE to the address of the recipient; and

2) shall set the End-to-end send message type IE to "Point-to-point";

iii) if require message is of group message type:

1) shall set Target address IE to the group identity; and

2) shall set the End-to-end send message type IE to "Group";

iv) if require message is of point-to-application message type:

1) shall set Target address IE to the address of the application server; and

2) shall set the End-to-end send message type IE to "Point-to-application";

NOTE 1: For Target address IE, application Client provides the information for MSGin5G Client-1 to generate the Recipient UE Service ID/AS Service ID/Group Service ID in the MSGin5G message.

v) shall set the Application ID to application id of the application client;

vi) shall set the Payload IE to the application content of the message to send to the recipient;

vii) if delivery status is required, shall set the Delivery status IE to the "DELIVERY STATUS REQUIRED"; and

viii) shall set the Message ID IE to the unique identity of this message; and

b) shall send the message as specified in clause z.

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

##### 6.4.2.1.x Gateway MSGin5G UE receiving request to send message from constrained device

Upon receiving MSGin5G Constrained device message with Message type IE set to "SEND MESSAGE REQUEST", the MSGin5G client in Gateway UE shall construct and send CoAP message as specified in clause 6.4.1.1.2.

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

# 8 MSGin5G Constrained device message formats

## 8.1 Functional definitions and contents

### 8.1.1 General

The following clauses describe the MSGin5G Constrained device message formats functional definition and contents. The standard format of a MONP message and the encoding rules for each type of information element as documented in Annex I of 3GPP TS 24.379 [r24379] is used to describe MSGin5G Constrained device message formats message and information elements.

### 8.1.2 MSGin5G Constrained device message formats

#### 8.1.2.1 Message definition

This message is used between application client (of MSGin5G UE-2) and MSGin5G client (of MSGin5G UE-1) to send request, response or acknowledgement. The Message Type IE identifies the request, response, or acknowledgement. For contents of the message see Table 8.1.2.1-1.

Message type: MSGin5G Constrained device message

Direction: UE to other UE

Table 8.1.2.1-1: MSGin5G Constrained device message content

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| IEI | Information Element | Type/Reference | Presence | Format | Length |
|  | Message Type | Message Type  8.2.2 | M | V | 1 |
|  | Target address | Target ID 8.2.3 | M | LV-E | 3-x |
|  | Application ID | Application ID 8.2.4 | M | LV-E | 3-x |
|  | Message ID | Message ID 8.2.5 | M | V | 16 |
| X | Reply-to message ID | Reply-to message ID  8.2.6 | O | TV | 17 |
| Z | Payload | Payload Data  8.2.7 | O | TLV-E | 4-x |
| A | Cause | Cause  8.2.8 | O | TLV-E | 3-x |
| B | Delivery status required | Delivery status  8.2.9 | O | TV | 1 |
| C | Priority type | Priority type  8.2.10 | O | TV | 1 |
| D | End-to-end send message type | E2E Message type  8.2.11 | O | TV | 1 |

## 8.2 General message format and information elements coding

### 8.2.1 General

### 8.2.2 Message type

The purpose of the Message type information element is to identify the type of the message.

The value part of the Message type information element is coded as shown in Table 8.2.2-1.

The Message type information element is a type 3 information element with a length of 1 octet.

Table 8.2.2-1: Message types

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Bits | | | | | | | |  |  |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |  |
|  |  |  |  |  |  |  |  |  |  |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  | SEND MESSAGE REQUEST |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |  | SEND MESSAGE RESPONSE |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |  | RECEIVE MESSAGE REQUEST |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |  | RECEIVE MESSAGE RESPONSE |
| 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |  | DELIVERY REPORT REQUEST |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |  | DELIVERY REPORT RESPONSE |
|  |  |  |  |  |  |  |  |  |  |
| All other values are reserved. | | | | | | | | | |

### 8.2.3 Target ID

The Target ID information element is used to indicate address of target recipient or target group while sending message from constrained device. The same information element is used to indicate address of originator while receiving message for constrained device.

The Target ID information element is coded as shown in Figure 8.2.3-1 and Table 8.2.3-1.

The Target ID information element is a type 6 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Length of Target ID contents | | | | | | | | octet 1 |
|  | | | | | | | | octet 2 |
|  | | | | | | | | octet 3 |
| Target ID contents | | | | | | | |  |
|  | | | | | | | | octet n |

Figure 8.2.3-1: Target ID information element

Table 8.2.3-1: Target ID information element

|  |
| --- |
| Target ID is contained in octet 3 to octet n; Max value of 65535 octets. |
|  |
|  |

### 8.2.4 Application ID

The purpose of the Application ID information element is to uniquely identify the application for which the payload is intended.

The Application ID information element is coded as shown in figure 8.2.4-1 and table 8.2.4-1

The Application ID information element is a type 3 information element with a length of 2 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Application ID IEI | | | | | | | | octet1 |
| Application ID value | | | | | | | | octet 2 |

Figure 8.2.4-1: Application ID value

Table 8.2.4-1: Application ID value

|  |
| --- |
| Application ID value (octet 1)  The Application ID contains a number that uniquely identifies the destination application. |

### 8.2.5 Message ID

The Message ID information element uniquely identifies a message.

The Message ID information element is coded as shown in Figure 8.2.5-1 and Table 8.2.5-1.

The Message ID information element is a type 3 information element with a length of 16 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Message ID value | | | | | | | | octet 1  octet 16 |

Figure 8.2.5-1: Message ID value

Table 8.2.5-1: Message ID value

|  |
| --- |
| Message ID value (octet 1 to 16)  The Message ID contains a number uniquely identifying a message. The value is a universally unique identifier as specified in IETF RFC 4122 [r4122]. |

### 8.2.6 Reply-to message ID

The Reply-to message ID information element is used to associate a message within a conversation that is a reply to an existing message in a conversation.

The Reply-to message ID information element is coded as shown in Figure 8.2.6-1 and Table 8.2.6-1.

The Reply-to message ID information element is a type 3 information element with a length of 17 octets.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Reply-to message ID IEI | | | | | | | | octet 1 |
| Reply-to message ID value | | | | | | | | octet 2  octet 17 |

Figure 8.2.6-1: Reply-to message ID value

Table 8.2.6-1: Reply-to message ID value

|  |
| --- |
| Reply-to message ID value (octet 2 to 17)  The Reply-to message ID contains a number uniquely identifying a message. The value is a universally unique identifier as specified in IETF RFC 4122 [r4122]. |

### 8.2.7 Payload Data

The Payload data information element is used to send application specific message;

The Payload data information element is coded as shown in Figure 8.2.7-1 and Table 8.2.7-1.

The Payload data information element is a type 6 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Payload data IEI | | | | | | | | octet 1 |
| Length of Payload data contents | | | | | | | | octet 2 |
|  | | | | | | | | octet 3 |
|  | | | | | | | | octet 4 |
| Payload data contents | | | | | | | |  |
|  | | | | | | | | octet n |

Figure 8.2.7-1: Payload data information element

Table 8.2.7-1: Payload data information element

|  |
| --- |
| Payload data is contained in octet 4 to octet n; Max value of 65535 octets. |
|  |
|  |

### 8.2.8 Cause

The Cause information element is used to provide short cause of the failure;

The Cause information element is coded as shown in Figure 8.2.8-1 and Table 8.2.8-1.

The Cause information element is a type 6 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Cause data IEI | | | | | | | | octet 1 |
| Length of Cause data contents | | | | | | | | octet 2 |
|  | | | | | | | | octet 3 |
| Cause data contents | | | | | | | |  |
|  | | | | | | | | octet 127 |

Figure 8.2.8-1: Cause information element

Table 8.2.8-1: Cause information element

|  |
| --- |
| Cause data is contained in octet 3 to octet n; Max value of 127 octets. |
|  |
|  |

### 8.2.9 Delivery status

The purpose of the delivery status information element is to identify whether delivery status is required from the receiver or not.

The value part of the delivery status information element is coded as shown in Figure 8.2.9-1 and Table 8.2.9-1.

The delivery status information element is a type 1 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Delivery status IEI | | | | delivery status value | | | | octet 1 |

Figure 8.2.9-1: Delivery status type

Table 8.2.9-1: Delivery status type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Delivery status value (octet 1) | | | | |
| Bits | | | | |
| 4 | 3 | 2 | 1 |  |
| 0 | 0 | 0 | 0 | DELIVERY STATUS NOT REQUIRED |
| 0 | 0 | 0 | 1 | DELIVERY STATUS REQUIRED |
|  | | | | |
| All other values are reserved. | | | | |

### 8.2.10 Priority type

The purpose of the priority type information element is to identify application level priority of the received message.

The value part of the priority type information element is coded as shown in Figure 8.2.10-1 and Table 8.2.10-1.

The priority type information element is a type 1 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| Priority type IEI | | | | Priority type value | | | | octet 1 |

Figure 8.2.10-1: Priority type type

Table 8.2.10-1: Priority type type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Priority type value (octet 1) | | | | |
| Bits | | | | |
| 4 | 3 | 2 | 1 |  |
| 0 | 0 | 0 | 0 | LOW |
| 0 | 0 | 0 | 1 | MEDIUM |
| 0 | 0 | 1 | 0 | HIGH |
|  | | | | |
| All other values are reserved. | | | | |

### 8.2.11 E2E Message type

The purpose of the E2E Message type information element is to identify type of outgoing message.

The value part of the E2E Message type information element is coded as shown in Figure 8.2.11-1 and Table 8.2.11-1.

The E2E Message type information element is a type 1 information element.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  |
| E2E Message type IEI | | | | E2E Message type value | | | | octet 1 |

Figure 8.2.11-1: E2E Message type type

Table 8.2.11-1: E2E Message type

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| E2E Message type value (octet 1) | | | | |
| Bits | | | | |
| 4 | 3 | 2 | 1 |  |
| 0 | 0 | 0 | 0 | Point-to-point |
| 0 | 0 | 0 | 1 | Group |
| 0 | 0 | 1 | 0 | Point-to-application |
| 0 | 0 | 1 | 1 | Broadcast |
| 0 | 1 | 0 | 0 | Application-to-point |
|  | | | | |
| All other values are reserved. | | | | |

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