**3GPP TSG-CT WG1 Meeting #131-eC1-214063**

**E-meeting, 19-27 August 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **24.379** | **CR** | **0723** | **rev** | **-** | **Current version:** | **17.3.1** |  |
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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 | **x** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Resolution of editor's notes on handling of call forwarding based on manual user input for automatic commencement mode | | | | | | | | | |
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| ***Source to WG:*** | Kontron Transportation France, FirstNet, Samsung | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eMONASTERY2 | | | | |  | ***Date:*** | | | 21-08-03 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | TS 24.379 corrently contains in the subclauses 11.1.1.2.1.2 and 11.1.1.2.2.2 the following Editor's Note:  Editor's Note: [eMONASTERY2, CR 0709] How the MCPTT client handles interactions with the media plane for forwarding of private MCPTT calls based on manual user input is FFS.  According to the current specification in automatic commencementg mode the called client immediately accepts an incoming call, there is no way to interfere and initiate a call forwarding. This CR proposes to keep that behaviour and allow call forwarding based on manual user input only for private calls with manual commencement. Additional text clarifies that behaviour. | | | | | | | | |
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| ***Summary of change:*** | | Editor's Notes in 11.1.1.2.1.2 and 11.1.1.2.2.2 are removed and additional text is added to clarify that call forwarding based on manual user input is only applicable for private calls with manual commencement. | | | | | | | | |
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| ***Consequences if not approved:*** | | Behaviour of call forwarding based on manual user input for private calls with automatic commencement remains unclear. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.3.2.1, 11.1.1.2.1.2, 11.1.1.2.2.2, 11.1.9.2.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

##### 6.2.3.2.1 Manual commencement mode for private calls

When performing the manual commencement mode procedures:

1) if the MCPTT user declines the MCPTT session invitation the MCPTT client shall send a SIP 480 (Temporarily Unavailable) response towards the MCPTT server with the warning text set to: "110 user declined the call invitation" in a Warning header field as specified in clause 4.4, and not continue with the rest of the steps in this clause.

The MCPTT client:

1) shall accept the SIP INVITE request and generate a SIP 180 (Ringing) response according to rules and procedures of 3GPP TS 24.229 [4];

2) shall include the option tag "timer" in a Require header field of the SIP 180 (Ringing) response;

3) shall include the g.3gpp.mcptt media feature tag in the Contact header field of the SIP 180 (Ringing) response;

4) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field of the SIP 180 (Ringing) response;

5) shall send the SIP 180 (Ringing) response to the MCPTT server; and

6) upon receiving a request from the MCPTT user to forward the MCPTT private call based on manual user input, the MCPTT client shall send a SIP 480 (Temporarily Unavailable) response including warning text set to "175 call is forwarded" in a Warning header field as specified in clause 4.4 and follow the procedures as specified in clause 11.1.9.2.1.

When sending the SIP 200 (OK) response to the incoming SIP INVITE request, the MCPTT client shall follow the procedures in clause 6.2.3.1.1.

When NAT traversal is supported by the MCPTT client and when the MCPTT client is behind a NAT, generation of SIP responses is done as specified in this clause and as specified in IETF RFC 5626 [15].

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

###### 11.1.1.2.1.2 Client terminating procedures

Upon receipt of an initial SIP INVITE request, the MCPTT client shall follow the procedures for termination of multimedia sessions in the IM CN subsystem as specified in 3GPP TS 24.229 [4] with the clarifications below.

The MCPTT client:

1) may reject the SIP INVITE request if any of the following conditions are met:

a) MCPTT client is already occupied in another session and the number of simultaneous sessions exceeds <MaxCall>, the maximum simultaneous MCPTT session for private call, as specified in TS 24.484 [50];

b) MCPTT client does not have enough resources to handle the call; or

c) any other reason outside the scope of this specification;

otherwise, continue with the rest of the steps.

NOTE 1: If the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <emergency-ind> element set to a value of "true", the participating MCPTT function can choose to accept the request.

2) if the SIP INVITE request is rejected in step 1), shall respond toward participating MCPTT function either with appropriate reject code as specified in 3GPP TS 24.229 [4] and warning texts as specified in clause 4.4.2 or with SIP 480 (Temporarily unavailable) response not including warning texts if the user is authorised to restrict the reason for failure according to <allow-failure-restriction> as specified in 3GPP TS 24.484 [50] and skip the rest of the steps of this clause;

3) if the SIP INVITE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <emergency-ind> element set to a value of "true":

a) should display to the MCPTT user an indication that this is a SIP INVITE request for an MCPTT emergency private call and:

i) should display the MCPTT ID of the originator of the MCPTT emergency private call contained in the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body; and

ii) if the <alert-ind> element is set to "true", should display to the MCPTT user an indication of the MCPTT emergency alert and associated information; and

b) if the session was established with a <session-type> of "first-to-answer"; shall temporarily save the current value of the MCPTT emergency private priority (MEPP) state;

NOTE 2: The current value of the MCPTT emergency private priority (MEPP) state needs to be temporarily saved because the MCPTT client may not be the one selected to terminate the first to answer emergency private call. Hence, the MCPTT client needs to be able to restore the MCPTT emergency private priority (MEPP) state to the saved value.

c) shall set the MCPTT emergency private priority state to "MEPP 2: in-progress" for this private call;

4) if the SDP offer of the SIP INVITE request contains an "a=key-mgmt" attribute field with a "mikey" attribute value containing a MIKEY-SAKKE I\_MESSAGE:

a) shall extract the MCPTT ID of the originating MCPTT from the initiator field (IDRi) of the I\_MESSAGE as described in 3GPP TS 33.180 [78];

b) shall convert the MCPTT ID to a UID as described in 3GPP TS 33.180 [78];

c) shall use the UID to validate the signature of the MIKEY-SAKKE I\_MESSAGE as described in 3GPP TS 33.180 [78];

d) if authentication verification of the MIKEY-SAKKE I\_MESSAGE fails, shall reject the SIP INVITE request with a SIP 488 (Not Acceptable Here) response as specified in IETF RFC 4567 [47], and include warning text set to "136 authentication of the MIKEY-SAKE I\_MESSAGE failed" in a Warning header field as specified in clause 4.4; and

e) if the signature of the MIKEY-SAKKE I\_MESSAGE was successfully validated:

i) shall extract and decrypt the encapsulated PCK using the terminating user's (KMS provisioned) UID key as described in 3GPP TS 33.180 [78]; and

ii) shall extract the PCK-ID, from the payload as specified in 3GPP TS 33.180 [78];

NOTE 3: With the PCK successfully shared between the originating MCPTT client and the terminating MCPTT client, both clients are able to use SRTP/SRTCP to create an end-to-end secure session.

5) if an end-to-end security context needs to be established and if the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request is set to "first-to-answer" then:

a) if necessary, shall instruct the key management client to request keying material from the key management server as described in 3GPP TS 33.180 [78];

b) shall use the keying material to generate a PCK as described in 3GPP TS 33.180 [78];

c) shall use the PCK to generate a PCK-ID with the four most significant bits set to "0001" to indicate that the purpose of the PCK is to protect private call communications and with the remaining twenty eight bits being randomly generated as described in 3GPP TS 33.180 [78];

d) shall encrypt the PCK to a UID associated to the MCPTT client using the MCPTT ID and KMS URI of the originator of the SIP INVITE request as determined by the procedures of clause 6.2.8.3.9 and a time related parameter as described in 3GPP TS 33.180 [78];

e) shall generate a MIKEY-SAKKE I\_MESSAGE using the encapsulated PCK and PCK-ID as specified in 3GPP TS 33.180 [78];

f) shall add the MCPTT ID of the MCPTT user to the initiator field (IDRi) of the I\_MESSAGE as described in 3GPP TS 33.180 [78]; and

NOTE 4: The initiator of the MIKEY-SAKKE I\_MESSAGE is in this case the terminating client from the perspective of the call.

g) shall sign the MIKEY-SAKKE I\_MESSAGE using the MCPTT user's signing key provided in the keying material together with a time related parameter, and add this to the MIKEY-SAKKE payload, as described in 3GPP TS 33.180 [78];

6) may check if a Resource-Priority header field is included in the incoming SIP INVITE request and may perform further actions outside the scope of this specification to act upon an included Resource-Priority header field as specified in 3GPP TS 24.229 [4];

7) may display to the MCPTT user the MCPTT ID of the inviting MCPTT user;

7A) may display to the MCPTT user the functional alias of the inviting MCPTT user, if provided;

8) if the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request is set to "first-to-answer":

a) shall notify the user of the incoming call;

b) shall not forward the first-to-answer call;

c) if the MCPTT user is busy on another call, shall send a SIP 486 (Busy Here) to the SIP INVITE request according to 3GPP TS 24.229 [4] and not continue with any further steps in this clause; and

d) if the MCPTT user does not answer the call within a time decided by the client implementation, the MCPTT client shall send a SIP 480 (Temporarily Unavailable) to the SIP INVITE request according to 3GPP TS 24.229 [4] and not continue with any further steps in this clause;

NOTE 5: In the conditions below, as the SIP layer implements the actions for commencement mode, it is assumed that the Answer-Mode or Priv-Answer-Mode header fields are set correctly in line with the setting of the <session-type> in the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request.

9) shall perform the automatic commencement procedures specified in clause 6.2.3.1.1 if one of the following conditions are met:

a) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode;

b) SIP INVITE request contains an Answer-Mode header field with the value "Auto" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode, yet the invited MCPTT client is willing to answer the call with automatic commencement mode; or

c) SIP INVITE request contains a Priv-Answer-Mode header field with the value of "Auto"; and

10) shall perform the manual commencement procedures specified in clause 6.2.3.2.1 if either of the following conditions are met:

a) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to manual commencement mode;

b) SIP INVITE request contains an Answer-Mode header field with the value "Manual" and the MCPTT service setting at the invited MCPTT client for answering the call is set to automatic commencement mode, yet the invited MCPTT client allows the call to be answered with manual commencement mode; or

c) SIP INVITE request contains a Priv-Answer-Mode header field with the value of "Manual".

Upon receiving the SIP CANCEL request cancelling a SIP INVITE request for which a dialog exists at the MCPTT client and a SIP 200 (OK) response has not yet been sent to the SIP INVITE request then the MCPTT client:

1) if the session was established with a <session-type> of "first-to-answer", may notify the MCPTT user of the cancellation of the call;

2) if a temporary MCPTT emergency private priority (MEPP) state value was saved in step 3) b) above:

a) shall restore the MCPTT emergency private priority (MEPP) state to the temporary MCPTT emergency private priority (MEPP) state value; and

b) shall discard the temporary MCPTT emergency private priority (MEPP) state value;

3) shall send a SIP 200 (OK) response to the SIP CANCEL request according to 3GPP TS 24.229 [4]; and

4) shall send a SIP 487 (Request Terminated) response to the SIP INVITE request according to 3GPP TS 24.229 [4].

Upon receiving a SIP BYE request for an established dialog, the MCPTT client:

1) if the session was established with a <session-type> of "first-to-answer" and:

a) if the received SIP BYE request contains an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcpttinfo> element containing the <mcptt-Params> element with the <release-reason> element set to a value of "not selected for call" or "authentication of the MIKEY-SAKE I\_MESSAGE failed":

i) if a temporary MCPTT emergency private priority (MEPP) state value was saved in step 3) b) above, shall restore the MCPTT emergency private priority (MEPP) state to the temporary MCPTT emergency private priority (MEPP) state value saved in step 3) b) above; and

b) may notify the MCPTT user of the release of the call; and

2) shall follow the procedures in clause 11.1.4.2.

NOTE 6: The above conditions for SIP CANCEL and SIP BYE cover the case for a first-to-answer call where the MCPTT server has already established the private call with another MCPTT client and needs to immediately cancel or release the dialogs with other MCPTT clients.

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

###### 11.1.1.2.2.2 Client terminating procedures

The MCPTT client shall follow the procedures for termination of multimedia sessions as specified in clause 11.1.1.2.1.2 with the following clarifications:

1) if the MCPTT client is targeted for a new MCPTT emergency private call, the MCPTT client receives a SIP INVITE with an application/vnd.3gpp.mcptt-info+xml MIME body with an <emergency-ind> set to a value of "true";

2) if the MCPTT client is targeted for a new normal priority MCPTT private call, the MCPTT client receives a SIP re-INVITE request rather than a SIP INVITE request; or

3) if the MCPTT client is targeted for a new MCPTT first-to-answer call, the MCPTT client receives a initial SIP INVITE request.

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

##### 11.1.9.2.1 Private call forwarding request based on manual user input procedure

The following procedure covers the case when an MCPTT user decides to forward an incoming MCPTT private call to a new target MCPTT ID or functional alias based on manual user input instead of accepting the incoming MCPTT private call. If the MCPTT user decides to forward an incoming MCPTT private call to a new target MCPTT ID or functional alias based on manual user input, the MCPTT client:

NOTE 1: Forwarding an MCPTT private call based on manual user input is only possible for manual commencement mode.

1) if:

a) the <allow-call-fwd-manual-any> element of the <ruleset> element is not present in the requesting MCPTT user's MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) or is set to a value of "false";

then:

a) should indicate to the requesting MCPTT user that the requesting MCPTT user is not authorised to initiate a private call forwarding request; and

b) shall skip the rest of the steps of the present clause;

2) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33] with the following clarifications:

a) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [4]), in a P-Preferred-Service header field according to IETF RFC 6050 [9] in the SIP MESSAGE request;

b) shall include an Accept-Contact header field with the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

c) may include a P-Preferred-Identity header field in the SIP MESSAGE request containing a public user identity as specified in 3GPP TS 24.229 [4];

d) shall include an application/vnd.3gpp.mcptt-info+xml MIME body as specified in clause F.1 with the <mcpttinfo> element containing the <mcptt-Params> element with the <anyExt> element containing:

i) the <request-type> element set to a value of "forward-private-call-request";

ii) the <mcptt-called-party-id> element set to the MCPTT ID or the functional alias to be used of the target MCPTT user;

iii) if the call is requested to be forwarded to a functional alias and the MCPTT client is aware of active functional aliases, then with the <call-to-functional-alias-ind> set to "true"; otherwise,with the <call-to-functional-alias-ind> set to "false"; and

NOTE 2: For call forwarding to an MCPTT ID the value of the <mcptt-called-party-id> is the MCPTT ID of the target user, while for call forwarding to a functional alias the value is the functional alias of the target user.

iv) the <forwarding-reason> element set to a value of "manual-input";

e) shall insert in the SIP MESSAGE request a MIME resource-lists body with the MCPTT ID of the forwarded MCPTT user, according to rules and procedures of IETF RFC 5366 [20]; and

f) shall set the Request-URI to the public service identity identifying the participating MCPTT function serving the MCPTT user;

4) shall send the SIP MESSAGE request towards the MCPTT server according to rules and procedures of 3GPP TS 24.229 [4].

NOTE 3: The SIP MESSAGE is sent towards the client of the forwarded MCPTT user. The procedure how to process this incoming SIP MESSAGE is descibed in clause 11.1.9.2.2. Clause 11.1.9.2.2 also contains references to clause 11.1.1.2.1.1 and clause 11.1.1.2.2.1 describing how to originate an MCPTT private call from the forwarded MCPTT user to the target MCPTT.

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request, should indicate to the requesting MCPTT user the failure of the sent private call forwarding request and skip the rest of the steps.

Upon receiving a "SIP MESSAGE request for forwarding private call response for terminating client", the MCPTT client:

1) shall determine the success or failure of the sent forwarding private call request from the value of the <forwarding-call-outcome> element contained in the <anyExt> element of the <mcptt-Params> element of the <mcpttinfo> element of the application/vnd.3gpp.mcptt-info+xml MIME body included in the received SIP MESSAGE request and generate and send a SIP 200 (OK) response according to rules and procedures of 3GPP TS 24.229 [4]; and

2) should indicate to the requesting MCPTT user the success or failure of the sent private call forwarding request.

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

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