**3GPP TSG-CT WG1 Meeting #137-eC1-224583**

**E-Meeting, , 18th – 26th August 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.379** | **CR** | **0827** | **rev** | **-** | **Current version:** | **17.7.0** |  |
|  | | | | | | | | |
| *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 | **x** | Radio Access Network |  | Core Network | **x** |

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|  | | | | | | | | | | |
| ***Title:*** | Corrections for MCPTT private call forwarding | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Kontron Transportation France | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | eMONASTERY2 | | | | |  | ***Date:*** | | | 2022-08-03 |
|  |  | | | |  | |  | | |  |
| ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Current specification of MCPTT private call forwarding contains several errors. Some of these errors got introduced with the CR that initially added MCPTT private call forwarding to the specification , but also by changes introduced in CR 730/C1-214870. The changes introduced in CR 730/C1-214870 assumed that CR 731/C1-214877 would get agreed, but CR 731/C1-214877 never got agreed., which caused the specification of call forwarding in the current version of the specification to be inconistent This CR corrects these errors. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | - change <forwarding-list> back to <forwarding-immediate-list> in F.1.2 and F.1.3  - add another entry for <forwarding-others-list> in F.1.2 and F.1.3  - use consistent name for <forwarding-other-conditions-list> and <forwarding-other-list>  - correct forwarding to MCPTT ID in procedure of controlling function  - revert the changes introduced in CR 730 on parameters for the forwarding conditions in F.1.2 and F.1.3 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Specification of MCPTT private call forwarding remains incorrect | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.3.2.5, 11.1.1.3.2, 11.1.9.4, F1.2, F1.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

#### 6.3.2.5 Handling of the no answer timer (TNP1)

When the terminating participating MCPTT function receives a SIP INVITE request to initiate a private call:

If:

a) the <allow-call-forwarding> element exists in the MCPTT user profile document, and the value is set to "true" (see the MCPTT user profile document in 3GPP TS 24.484 [50]);

b) the <call-forwarding-on> element exists in the MCPTT user profile document, and the value is set to "true" (see the MCPTT user profile document in 3GPP TS 24.484 [50]); and

c) the <call-forwarding-condition> element exists and has a value of "no-answer" as specified in 3GPP TS 24.484 [50] set;

then:

a) the terminating participating MCPTT function shall start timer TNP1 (call forwarding no answer timer) with a timer value as described in Annex B.2.2, prior to sending out a SIP INVITE request inviting the called MCPTT user to a private call.

When the terminating participating MCPTT function receives a SIP 200 (OK) response to the SIP INVITE request, from the called MCPTT user before expiry of TNP1 (call forwarding no answer timer), then the terminating participating MCPTT function shall stop timer TNP1 (call forwarding no answer timer) and forward the SIP 200 (OK) response to the controlling MCPTT function.

After expiry of timer TNP1 (call forwarding no answer timer) the terminating participating MCPTT function:

1) if the received SIP INVITE request contained a <forwarding-other-list> element with one or more <entry> elements shall reject the "SIP INVITE request for terminating participating MCPTT function" with a SIP 403 (Forbidden) response including warning text set to "174 maximum number of allowed forwardings exceeded" in a Warning header field as specified in clause 4.4 and shall skip the rest of the steps;

2) shall generate and send a SIP CANCEL request to the called MCPTT user, according to IETF RFC3261 [24], to cancel the SIP request for which the no answer timer has been expired;

3) shall reject the "SIP INVITE request for terminating participating MCPTT function" with 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;

4) shall generate a SIP MESSAGE request as described in clause 6.3.2.6 to trigger the call forwarding of a private call and shall include in the application/vnd.3gpp.mcptt-info+xml MIME body;

a) with the <forwarding-reason> element set to a value of "no-answer"; and

5) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [4].

Upon receipt of SIP 2xx responses to the outgoing SIP MESSAGE requests, the terminating participating MCPTT function shall follow the procedures specified in 3GPP TS 24.229 [4].

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

##### 11.1.1.3.2 Terminating procedures

This clause covers both on demand session and pre-established session.

In the procedure in this clause a private call requested by an MCPTT user refers to a private call:

1) with no <call-transfer-ind> element present in the application/vnd.3gpp.mcptt-info+xml MIME body element or with a <call-transfer-ind> element present in the application/vnd.3gpp.mcptt-info+xml MIME body element and the value is set to "false"; and

2) with no <call-forwarding-ind> element present in the application/vnd.3gpp.mcptt-info+xml MIME body element or with a <call-forwarding-ind> element present in the application/vnd.3gpp.mcptt-info+xml MIME body element and the value is set to "false".

Upon receipt of a "SIP INVITE request for terminating participating MCPTT function", the participating MCPTT function:

1) if unable to process the request due to a lack of resources or a risk of congestion exists, may reject the "SIP INVITE request for terminating participating MCPTT function" with a SIP 500 (Server Internal Error) response. The participating MCPTT function may include a Retry-After header field to the SIP 500 (Server Internal Error) response as specified in IETF RFC 3261 [24], and shall not continue with the rest of the steps;

NOTE: If the received SIP INVITE request contains an emergency indication set to a value of "true", the participating MCPTT function can choose to accept the request.

2) shall check the presence of the isfocus media feature tag in the Contact header field and if it is not present then the participating MCPTT function shall reject the request with a SIP 403 (Forbidden) response with the warning text set to "104 isfocus not assigned" in a Warning header field as specified in clause 4.4, and shall not continue with the rest of the steps;

3) if the <session-type> element of the application/vnd.3gpp.mcptt-info+xml MIME body is set to "private" and the Answer-Mode Indication in the application/poc-settings+xml MIME body has not yet been received from the invited MCPTT client as defined in clause 7.3.3 or clause 7.3.4, shall reject the request with a SIP 480 (Temporarily Unavailable) response with the warning text set to "146 T-PF unable to determine the service settings for the called user" in a Warning header field as specified in clause 4.4 and shall not continue with the rest of the steps;

4) if :

a) the <allow-call-forwarding> element exists in the MCPTT user profile document, and the value is set to "true" (see the MCPTT user profile document in 3GPP TS 24.484 [50]);

b) the <call-forwarding-on> element exists in the MCPTT user profile document and the value is set to "true" (see the MCPTT user profile document in 3GPP TS 24.484 [50]); and

c) the <call-forwarding-condition> element exists in the MCPTT user profile document, and the value is set to "immediate" (see the MCPTT user profile document in 3GPP TS 24.484 [50]);

then:

a) if the <forwarding-immediate-list> element of the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request exists, shall check if the number of maximum immediate private call forwardings as specified in the <max-immediate-forwardings> element of the <anyExt> element contained in the <OnNetwork> element of the MCPTT service configuration document (see the service configuration document in 3GPP TS 24.484 [50]) has been reached. If reached, the MCPTT server shall reject the "SIP INVITE request for terminating participating MCPTT function" with a SIP 403 (Forbidden) response including warning text set to "174 maximum number of allowed forwardings exceeded" in a Warning header field as specified in clause 4.4 and shall skip the rest of the steps;

b) shall reject the "SIP INVITE request for terminating participating MCPTT function" with 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;

c) shall generate a SIP MESSAGE request as described in clause 6.3.2.6 to trigger the call forwarding of a private call and shall include in the application/vnd.3gpp.mcptt-info+xml MIME body;

i) with the <forwarding-reason> element to a value of "immediate";

d) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [4]; and

e) upon receipt of SIP 2xx response to the outgoing SIP MESSAGE requests, the participating MCPTT function shall follow the procedures specified in 3GPP TS 24.229 [4] and shall skip the rest of the steps;

5) shall use the MCPTT ID present in the <mcptt-request-uri> element of the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request to retrieve the binding between the MCPTT ID and public user identity;

6) if the binding between the MCPTT ID and public user identity does not exist and if the <allow-call-forwarding> element exists in the MCPTT user profile document, and the value is set to "true" (see the MCPTT user profile document in 3GPP TS 24.484 [50]) and if the <call-forwarding-on> element exists in the MCPTT user profile document, and the value is set to "true" (see the MCPTT user profile document in 3GPP TS 24.484 [50]) and if the <call-forwarding-condition> element exists in the MCPTT user profile document, and the value is set to "no-answer" (see the MCPTT user profile document in 3GPP TS 24.484 [50]):

a) if the incoming SIP INVITE request contains a <forwarding-other-list> element with one or more <entry> elements the MCPTT server shall reject the "SIP INVITE request for terminating participating MCPTT function" with a SIP 403 (Forbidden) response including warning text set to "174 maximum number of allowed forwardings exceeded" in a Warning header field as specified in clause 4.4 and shall skip the rest of the steps;

b) shall reject the "SIP INVITE request for terminating participating MCPTT function" with 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;

c) shall generate a SIP MESSAGE request as described in clause 6.3.2.6 to trigger the call forwarding of a private call and shall include in the application/vnd.3gpp.mcptt-info+xml MIME body;

d) shall set the <forwarding-reason> element to a value of "no-answer";

e) shall send the SIP MESSAGE request as specified to 3GPP TS 24.229 [4]; and

f) Upon receipt of SIP 2xx response to the outgoing SIP MESSAGE requests, the participating MCPTT function shall follow the procedures specified in 3GPP TS 24.229 [4] and shall skip the rest of the steps;

7) if the binding between the MCPTT ID and public user identity does not exist, then the participating MCPTT function shall reject the SIP INVITE request with a SIP 404 (Not Found) response. Otherwise, continue with the rest of the steps;

8) if the call is a private call requested by an MCPTT user and if the called user identified by the MCPTT ID is unable to participate in private calls as identified in the called user's MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) on the terminating participating MCPTT function, shall reject the "SIP INVITE request for terminating participating MCPTT function" with a SIP 403 (Forbidden) response including warning text set to "127 user not authorised to be called in private call" in a Warning header field as specified in clause 4.4;

9) if the call is a private call requested by an MCPTT user and if the <session-type> element of the application/vnd.3gpp.mcptt-info+xml MIME body is set to "private" and if the <IncomingPrivateCallList> element exists in the MCPTT user profile document with one or more <entry> elements (see the MCPTT user profile document in 3GPP TS 24.484 [50]) and:

a) if the <mcptt-calling-user-id> element of the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request does not match with one of the <entry> elements of the <IncomingPrivateCallList> element of the MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]); and

b) if configuration is not set in the MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]) that allows the MCPTT user to receive a private call by users not contained within the <entry> elements of the <IncomingPrivateCallList> element;

then:

a) shall reject the "SIP INVITE request for terminating participating MCPTT function" with a SIP 403 (Forbidden) response including warning text set to "159 user not authorised to be called by this originating user" in a Warning header field as specified in clause 4.4 and shall not continue with the rest of the steps;

10) if the call is a first-to-answer call or a private call, the received SIP INVITE request contains the <called-functional-alias-URI> element, a <functional-alias-URI> element of the application/vnd.3gpp.mcptt-info+xml MIME body and the <mcpttinfo> element containing the <mcptt-Params> element with the <call-to-functional-alias-ind> element set to "true", the <ListOfAllowedFAsToBeCalledFrom> element exists in the MCPTT user profile document with one or more <entry> elements (see the MCPTT user profile document in 3GPP TS 24.484 [50]) and:

a) if the functional-alias-URI> element of the application/vnd.3gpp.mcptt-info+xml MIME body of the incoming SIP INVITE request does not match with any of the <entry> elements of the <ListOfAllowedFAsToBeCalledFrom> element of the entry within the FunctionalAliasList element corresponding to the called functional alias of the MCPTT user profile document (see the MCPTT user profile document in 3GPP TS 24.484 [50]); and

then:

a) shall reject the "SIP INVITE request for originating participating MCPTT function" with a SIP 403 (Forbidden) response including warning text set to "172 functional alias not allowed to be called from this functional alias" in a Warning header field as specified in clause 4.4 and shall not continue with the rest of the steps;

11) if necessary, shall start timer TNP1 (call forwarding no answer timer) according to the conditions stated in clause 6.3.2.5. If the procedures in 6.3.2.5 results in a call forwarding, skip the rest of the steps in this clause.

12) shall perform the automatic commencement procedures specified in clause 6.3.2.2.5.1 and according to IETF RFC 5373 [18] if one of the following conditions are met:

a) "SIP INVITE request for terminating participating MCPTT function" contains an Answer-Mode header field with the value "Auto";

b) "SIP INVITE request for terminating participating MCPTT function" does not contain an Answer-Mode header field and the Answer-Mode Indication received in the application/poc-settings+xml MIME body received from the invited MCPTT client as per clause 7.3.3 or clause 7.3.4 is set to "auto-answer"; or

c) "SIP INVITE request for terminating participating MCPTT function" contains a Priv-Answer-Mode header field with the value "Auto"; and

13) shall perform the manual commencement procedures specified in clause 6.3.2.2.6.1 and according to IETF RFC 5373 [18] if either of the following conditions are met:

a) "SIP INVITE request for terminating participating MCPTT function" contains an Answer-Mode header field with the value "Manual";

b) "SIP INVITE request for terminating participating MCPTT function" does not contain an Answer-Mode header field and Answer-Mode Indication received in the application/poc-settings+xml MIME body received from the invited MCPTT client as per clause 7.3.3 or clause 7.3.4 is set to "manual-answer"; or

c) "SIP INVITE request for terminating participating MCPTT function" contains a Priv-Answer-Mode header field with the value "Manual".

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

#### 11.1.9.4 Controlling MCPTT function procedures

Upon receiving a:

- "SIP MESSAGE request for forwarding private call request for controlling MCPTT function"; or

- "SIP MESSAGE request for forwarding private call response for controlling MCPTT function";

the controlling MCPTT function:

1) if unable to process the request due to a lack of resources or a risk of congestion exists, may reject the SIP MESSAGE request with a SIP 500 (Server Internal Error) response. The controlling MCPTT function may include a Retry-After header field to the SIP 500 (Server Internal Error) response as specified in IETF RFC 3261 [24] and skip the rest of the steps;

2) shall reject the SIP request with a SIP 403 (Forbidden) response and not process the remaining steps if an Accept-Contact header field does not include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt";

3) if the incoming SIP MESSAGE request does not contain an application/resource-lists MIME body or contains an application/resource-lists MIME body with more than one <entry> element, shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response including warning text set to "145 unable to determine called party" in a Warning header field as specified in clause 4.4, and shall skip the rest of the steps;

4) shall generate a SIP MESSAGE request in accordance with 3GPP TS 24.229 [4] and IETF RFC 3428 [33];

5) shall include an Accept-Contact header field containing the g.3gpp.mcptt media feature tag along with the "require" and "explicit" header field parameters according to IETF RFC 3841 [6];

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

7) shall copy the contents of the application/vnd.3gpp. mcptt-info+xml MIME body in the received SIP MESSAGE request into an application/vnd.3gpp.mcptt-info+xml MIME body included in the outgoing SIP MESSAGE request;

8) if the incoming SIP MESSAGE request contains in the application/vnd.3gpp. mcptt-info+xml MIME body <call-to-functional-alias-ind> set to "true" shall identify the MCPTT ID(s) of the MCPTT user(s) that have activated the received functional alias by performing the actions specified in clause 9A.2.2.2.8:

a) if the functional alias is not activated by any MCPTT user, shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response including warning text set to "145 unable to determine called party" in a Warning header field as specified in clause 4.4, and shall skip the rest of the steps;

b) if the functional alias is activated by one MCPTT user, shall use the MCPTT ID of that user as new target MCPTT ID;

c) if the functional alias is simultaneously activated by multiple MCPTT users, shall select an appropriate MCPTT ID based on local policy. The selection of an appropriate MCPTT ID is left to implementation. The outcome of the selection includes rejection, if no suitable MCPTT ID is found:

i) if the controlling MCPTT function was unable to select an MCPTT ID, shall reject the SIP MESSAGE request with a SIP 403 (Forbidden) response including warning text set to "145 unable to determine called party" in a Warning header field as specified in clause 4.4, and shall skip the rest of the steps; and

ii) if the selection step concluded by selecting an appropriate MCPTT ID, this MCPTT ID shall be used as new target MCPTT ID;

d) shall copy the new target MCPTT ID in the MIME resources body of the incoming SIP MESSAGE request, into the <mcptt-called-party-id> element in the <mcptt-Params> element of the <mcpttinfo> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the outgoing SIP MESSAGE request; and

e) shall set <call-to-functional-alias-ind> to "false" in the application/vnd.3gpp. mcptt-info+xml MIME body of the outgoing SIP message;

9) if the incoming SIP MESSAGE request does not contain a <call-to-functional-alias-ind> element in the application/vnd.3gpp. mcptt-info+xml MIME body, or if it is present and set to "false" shall copy the MCPTT ID of the MCPTT user listed in the MIME resources body of the incoming SIP MESSAGE request, into the <mcptt-request-uri> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the outgoing SIP MESSAGE request;

10) shall set the Request-URI to the public service identity of the terminating participating MCPTT function associated to the MCPTT user identified by the MCPTT ID contained in the <mcptt-request-uri> element in the application/vnd.3gpp.mcptt-info+xml MIME body of the outgoing SIP MESSAGE request;

NOTE 1: The public service identity can identify the terminating participating MCPTT function in the primary MCPTT system or in a partner MCPTT system.

NOTE 2: If the terminating participating MCPTT function is in a partner MCPTT system in a different trust domain, then the public service identity can identify the MCPTT gateway server that acts as an entry point in the partner MCPTT system from the primary MCPTT system.

NOTE 3: If the terminating participating MCPTT function is in a partner MCPTT system in a different trust domain, then the primary MCPTT system can route the SIP request through an MCPTT gateway server that acts as an exit point from the primary MCPTT system to the partner MCPTT system

NOTE 4: How the controlling MCPTT function determines the public service identity of the terminating participating MCPTT function associated with the targeted MCPTT user or of the MCPTT gateway server in the partner MCPTT system is out of the scope of the present document.

NOTE 5: How the primary MCPTT system routes the SIP request through an exit MCPTT gateway server is out of the scope of the present document.

11) shall include a P-Asserted-Service header field with the value "urn:urn-7:3gpp-service.ims.icsi.mcptt";

12) shall copy the public user identity of the calling MCPTT user from the P-Asserted-Identity header field of the incoming SIP MESSAGE request into the P-Asserted-Identity header field of the outgoing SIP MESSAGE request; and

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

Upon receipt of SIP 2xx responses to the outgoing SIP MESSAGE requests, the controlling MCPTT function shall generate a SIP 200 (OK) response and forward the SIP 200 (OK) response to the originating participating MCPTT function.

Upon receipt of a SIP 4xx, 5xx or 6xx response to the SIP MESSAGE request, controlling MCPTT function shall forward the error response to the originating participating MCPTT function.

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

## F.1.2 XML schema

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema

xmlns:xs="http://www.w3.org/2001/XMLSchema"

targetNamespace="urn:3gpp:ns:mcpttInfo:1.0"

xmlns:mcpttinfo="urn:3gpp:ns:mcpttInfo:1.0"

elementFormDefault="qualified"

attributeFormDefault="unqualified"

xmlns:xenc="[http://www.w3.org/2001/04/xmlenc#](http://www.w3.org/2001/04/xmlenc)"

xmlns:mgktp="urn:3gpp:ns:mcpttGKTP:1.0">

<xs:import namespace="http://www.w3.org/2001/04/xmlenc#"/>

<xs:import namespace="urn:3gpp:ns:mcpttGKTP:1.0"/>

<!-- root XML element -->

<xs:element name="mcpttinfo" type="mcpttinfo:mcpttinfo-Type" id="info"/>

<xs:complexType name="mcpttinfo-Type">

<xs:sequence>

<xs:element name="mcptt-Params" type="mcpttinfo:mcptt-ParamsType" minOccurs="0"/>

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

</xs:sequence>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="mcptt-ParamsType">

<xs:sequence>

<xs:element name="mcptt-access-token" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="session-type" type="xs:string" minOccurs="0"/>

<xs:element name="mcptt-request-uri" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="mcptt-calling-user-id" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="mcptt-called-party-id" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="mcptt-calling-group-id" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="required" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="emergency-ind" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="alert-ind" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="imminentperil-ind" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="broadcast-ind" type="xs:boolean" minOccurs="0"/>

<xs:element name="mc-org" type="xs:string" minOccurs="0"/>

<xs:element name="floor-state" type="xs:string" minOccurs="0"/>

<xs:element name="associated-group-id" type="xs:string" minOccurs="0"/>

<xs:element name="originated-by" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="MKFC-GKTPs" type="mgktp:singleTypeGKTPsType" minOccurs="0"/>

<xs:element name="mcptt-client-id" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:element name="alert-ind-rcvd" type="mcpttinfo:contentType" minOccurs="0"/>

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

<xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

</xs:sequence>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:simpleType name="protectionType">

<xs:restriction base="xs:string">

<xs:enumeration value="Normal"/>

<xs:enumeration value="Encrypted"/>

</xs:restriction>

</xs:simpleType>

<xs:complexType name="contentType">

<xs:choice>

<xs:element name="mcpttURI" type="xs:anyURI"/>

<xs:element name="mcpttString" type="xs:string"/>

<xs:element name="mcpttBoolean" type="xs:boolean"/>

<xs:any namespace="##other" processContents="lax"/>

<xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

</xs:choice>

<xs:attribute name="type" type="mcpttinfo:protectionType"/>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:complexType name="anyExtType">

<xs:sequence>

<xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

</xs:complexType>

<!-- anyEXT elements – begin -->

<xs:element name="ambient-listening-type" type="mcpttinfo:ambientListeningType"/>

<xs:simpleType name="ambientListeningType">

<xs:restriction base="xs:string">

<xs:enumeration value="remote-init"/>

<xs:enumeration value="local-init"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="release-reason" type="mcpttinfo:releaseReasonType"/>

<xs:simpleType name="releaseReasonType">

<xs:restriction base="xs:string">

<xs:enumeration value="private-call-expiry"/>

<xs:enumeration value="administrator-action"/>

<xs:enumeration value="not selected for call"/>

<xs:enumeration value="call-request-for-listened-to-client"/>

<xs:enumeration value="call-request-initiated-by-listened-to-client"/>

<xs:enumeration value="authentication of the MIKEY-SAKE I\_MESSAGE failed"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="request-type" type="mcpttinfo:requestTypeType"/>

<xs:simpleType name="requestTypeType">

<xs:restriction base="xs:string">

<xs:enumeration value="private-call-call-back-request"/>

<xs:enumeration value="private-call-call-back-cancel-request"/>

<xs:enumeration value="group-selection-change-request"/>

<xs:enumeration value="remotely-initiated-group-call-request"/>

<xs:enumeration value="remotely-initiated-private-call-request"/>

<xs:enumeration value="transfer-private-call-request"/>

<xs:enumeration value="functional-alias-status-determination"/>

<xs:enumeration value="forward-private-call-request"/>

<xs:enumeration value="forward-private-call-settings-request"/>

<xs:enumeration value="forward-private-call-settings-response"/>

<xs:enumeration value="fa-group-binding-req"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="response-type" type="mcpttinfo:responseTypeType"/>

<xs:simpleType name="responseTypeType">

<xs:restriction base="xs:string">

<xs:enumeration value="private-call-call-back-response"/>

<xs:enumeration value="private-call-call-back-cancel-response"/>

<xs:enumeration value="group-selection-change-response"/>

<xs:enumeration value="remotely-initiated-group-call-response"/>

<xs:enumeration value="remotely-initiated-private-call-response"/>

<xs:enumeration value="transfer-private-call-response"/>

<xs:enumeration value="forward-private-call-response"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="urgency-ind">

<xs:simpleType>

<xs:restriction base="xs:string">

<xs:enumeration value="low"/>

<xs:enumeration value="normal"/>

<xs:enumeration value="high"/>

</xs:restriction>

</xs:simpleType>

</xs:element>

<xs:element name="time-of-request" type="xs:dateTime"/>

<xs:element name="selected-group-change-outcome" type="mcpttinfo:selectedGroupChangeOutcomeType"/>

<xs:simpleType name="selectedGroupChangeOutcomeType">

<xs:restriction base="xs:string">

<xs:enumeration value="success"/>

<xs:enumeration value="fail"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="affiliation-required" type="xs:boolean"/>

<xs:element name="remotely-initiated-call-outcome" type="mcpttinfo:remotelyInitiatedCallOutcomeType"/>

<xs:simpleType name="remotelyInitiatedCallOutcomeType">

<xs:restriction base="xs:string">

<xs:enumeration value="success"/>

<xs:enumeration value="fail"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="notify-remote-user" type="xs:boolean"/>

<xs:element name="functional-alias-URI" type="mcpttinfo:contentType"/>

<xs:element name="emergency-alert-area-ind" type="xs:boolean"/>

<xs:element name="group-geo-area-ind" type="xs:boolean"/>

<xs:element name="non-acknowledged-user" type="mcpttinfo:contentType"/>

<xs:element name="call-to-functional-alias-ind" type="xs:boolean"/>

<xs:element name="emergency-ind-rcvd" type="mcpttinfo:contentType"/>

<xs:element name="call-transfer-ind" type="xs:boolean"/>

<xs:element name="multiple-devices-ind" type="mcpttinfo:contentType"/>

<xs:element name="transfer-call-outcome" type="mcpttinfo:transferCallOutcomeType"/>

<xs:simpleType name="transferCallOutcomeType">

<xs:restriction base="xs:string">

<xs:enumeration value="success"/>

<xs:enumeration value="fail"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="called-functional-alias-URI" type="mcpttinfo:contentType"/>

<xs:element name="call-forwarding-ind" type="xs:boolean"/>

<xs:element name="forwarding-call-outcome" type="mcpttinfo:forwardingCallOutcomeType"/>

<xs:simpleType name="forwardingCallOutcomeType">

<xs:restriction base="xs:string">

<xs:enumeration value="success"/>

<xs:enumeration value="fail"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="forwarding-immediate-list" type="mcpttinfo:mcpttIdListType"/>

<xs:complexType name="mcpttIdListType">

<xs:choice minOccurs="0" maxOccurs="unbounded">

<xs:element name="entry" type="mcpttinfo:EntryType"/>

<xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:choice>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:element name="forwarding-other-list" type="mcpttinfo:mcpttIdListType"/>

<xs:complexType name="EntryType">

<xs:sequence>

<xs:element name="uri-entry" type="xs:anyURI"/>

<xs:element name="display-name" type="xs:string" minOccurs="0"/>

<xs:element name="anyExt" type="mcpttinfo:anyExtType" minOccurs="0"/>

<xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>

</xs:sequence>

<xs:anyAttribute namespace="##any" processContents="lax"/>

</xs:complexType>

<xs:element name="forwarding-reason" type="mcpttinfo:forwardingReasonType"/>

<xs:simpleType name="forwardingReasonType">

<xs:restriction base="xs:string">

<xs:enumeration value="Immediate"/>

<xs:enumeration value="No-Answer"/>

<xs:enumeration value="Manual-Input"/>

</xs:restriction>

</xs:simpleType>

<xs:element name="binding-ind" type="xs:boolean"/>

<xs:element name="binding-fa-uri" type="xs:anyURI"/>

<xs:element name="unbinding-fa-uri" type="xs:anyURI"/>

<xs:element name="replaces-header-value" type="xs:string"/>

<xs:element name="transfer-announced-ind" type="xs:boolean"/>

<!-- anyEXT elements – end -->

</xs:schema>

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

## F.1.3 Semantic

The <mcpttinfo> element is the root element of the XML document. The <mcpttinfo> element can contain subelements.

NOTE 1: The subelements of the <mcpttinfo> are validated by the <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/> particle of the <mcpttinfo> element

If the <mcpttinfo> contains the <mcptt-Params> element then:

1) the <mcptt-access-token>, <mcptt-request-uri>, <mcptt-calling-user-id>, <mcptt-called-party-id>, <mcptt-calling-group-id>, <emergency-ind>, <alert-ind>, <imminentperil-ind>, <originated-by>, <mcptt-client-id>, <functional-alias-URI>, <called-functional-alias-URI>, <non-acknowledged-user>, and <multiple-devices-ind> elements can be included with encrypted content;

2) for each element in 1) that is included with content that is not encrypted:

a) the element has the "type" attribute set to "Normal";

b) if the element is one of the following elements: <mcptt-request-uri>, <mcptt-calling-user-id>, <mcptt-called-party-id>, <mcptt-calling-group-id>, <originated-by>, <functional-alias-URI>, <called-functional-alias-URI> or <non-acknowledged-user>, then the <mcpttURI> element is included;

c) if the element is one of the following elements:<mcptt-access-token> or <mcptt-client-id>, then the <mcpttString> element is included; and

d) if the element is one of the following elements: <emergency-ind>, <alert-ind>, <alert-ind-rcvd>, <imminentperil-ind>, <emergency-ind-rcvd> or <multiple-devices-ind>, then the <mcpttBoolean> element is included;

3) for each element in 1) that is included with content that is encrypted:

a) the element has the "type" attribute set to "Encrypted";

b) the <xenc:EncryptedData> element from the "[http://www.w3.org/2001/04/xmlenc#](http://www.w3.org/2001/04/xmlenc)" namespace is included and:

i) can have a "Type" attribute can be included with a value of "<http://www.w3.org/2001/04/xmlenc#Content>";

ii) can include an <EncryptionMethod> element with the "Algorithm" attribute set to value of "http://www.w3.org/2009/xmlenc11#aes128-gcm";

iii) can include a <KeyInfo> element with a <KeyName> element containing the base 64 encoded XPK-ID; and

iv) includes a <CipherData> element with a <CipherValue> element containing the encrypted data.

NOTE 2: When the optional attributes and elements are not included within the <xenc:EncryptedData> element, the information they contain is known to sender and the receiver by other means.

If the <mcpttinfo> contains the <mcptt-Params> element then:

1) the <mcptt-access-token> can be included with the access token received during authentication procedure as described in 3GPP TS 24.482 [49];

2) the <session-type> can be included with:

a) a value of "chat" to indicate that the MCPTT client wants to join a chat group call

b) a value of "prearranged" to indicate the MCPTT client wants to make a prearranged group call;

c) a value of "private" to indicate the MCPTT client wants to make a private call;

d) a value of "first-to-answer" to indicate that the MCPTT client wants to make a first-to-answer call; or

e) a value of "ambient-listening" to indicate the MCPTT client wants to make an ambient listening call;

3) the <mcptt-request-uri> can be included with:

a) a value set to an MCPTT group ID or temporary MCPTT group ID when the <session-type> is set to a value of "prearranged" or "chat"; and

b) a value set to the MCPTT ID of the called MCPTT user when the <session-type> is set to a value of "private";

4) the <mcptt-calling-user-id> can be included, set to MCPTT ID of the originating user;

5) the <mcptt-called-party-id> can be included, set to the MCPTT ID of the terminating user;

6) the <mcptt-calling-group-id> can be included to indicate the MCPTT group identity to the terminating user;

7) the <required> can be included in a SIP 183 (Session Progress) from a non-controlling MCPTT function of an MCPTT group to inform the controlling MCPTT function that the group on the non-controlling MCPTT function has group members in the group document which are marked as <on-network-required>, as specified in 3GPP TS 24.481 [31];

8) the <emergency-ind> can be:

a) set to "true" to indicate that the call that the MCPTT client is initiating is an emergency MCPTT call; or

b) set to "false" to indicate that the MCPTT client is cancelling an emergency MCPTT call (i.e. converting it back to a non-emergency call)

9) the <alert-ind> can be:

a) set to "true" in an emergency call initiation to indicate that an alert to be sent; or

b) set to "false" when cancelling an emergency call which requires an alert to be cancelled also

10) if the <session-type> is set to "chat" or "prearranged":

a) the <imminentperil-ind> can be set to "true" to indicate that the call that the MCPTT client is initiating is an imminent peril group MCPTT call;

11) the <broadcast-ind> can be:

a) set to "true" indicates that the MCPTT client is initiating a broadcast group call; or

b) set to "false" indicates that the MCPTT client is initiating a non-broadcast group call;

12) the <mc-org> can be:

a) set to the MCPTT user's Mission Critical Organization in an emergency alert sent by the MCPTT server to terminating MCPTT clients;

13) the <floor-state> can be:

a) set to "floor-idle", if the floor is idle in a non-controlling MCPTT function; or

b) set to "floor-taken" if the floor state in a non-controlling MCPTT function is taken;

14) the <associated-group-id>:

a) if the <mcptt-request-uri> element contains a group identity then this element can include an MCPTT group ID associated with the group identity in the <mcptt-request-uri> element. E.g. if the <mcptt-request-uri> element contains a temporary group identity (TGI), then the <associated-group-id> element can contain the constituent MCPTT group ID;

15) the <originated-by>:

a) can be included, set to the MCPTT ID of the originating user of an MCPTT emergency alert when being cancelled by another authorised MCPTT user;

16) the <MKFC-GKTPs>:

a) contains a group key transport payload carrying one or more MKFC(s) and MKFC-ID(s) as described in3GPP TS 24.481 [31] clause 7.4, to be used for protection of multicast floor control signalling when the UE operates on the network;

17) the <mcptt-client-id>:

a) can be included, set to the MCPTT client ID of the MCPTT client that originated a SIP INVITE request, SIP REFER request, SIP REGISTER request, SIP PUBLISH request or SIP MESSAGE request;

18) the <alert-ind-rcvd>

a) can be set to true and included in a SIP MESSAGE to indicate that the emergency alert or cancellation was received successfully; and

19) the <anyExt> can be included with the following elements:

a) an <ambient-listening-type> element set to:

i) "remote-init" when the listening MCPTT user of an ambient listening call initiates the call; or

ii) "local-init" when the listened-to MCPTT user of an ambient listening call initiates the call;

b) a <release-reason> element set to:

i) "private-call-expiry" when the ambient listening call is release due to the expiry of the private call timer;

ii) "administrator-action" when the ambient listening call is released by an MCPTT administrator;

iii) "not selected for call" when the when a dialog is released with an MCPTT client that was not selected as the terminating client of a first-to-answer call;

iv) "call-request-for-listened-to-client" when there is a call request targeted to the listened-to client;

v) "call-request-initiated-by-listened-to-client" when there is a call request initiated by the listened-to client; or

vi) "authentication of the MIKEY-SAKE I\_MESSAGE failed" by a MCPTT client when the signature cannot be verified;

c) a <request-type> element set to:

i) "private-call-call-back-request" when a client initiates a private call call-back request;

ii) "private-call-call-back-cancel-request" when a client initiates a private call call-back cancel request;

iii) "group-selection-change-request" when a client initiates a group selection change request;

iv) "remotely-initiated-group-call-request" when a client initiates a remotely initiated group call request;

v) "remotely-initiated-private-call-request" when a client initiates a remotely initiated private call request;

vi) "transfer-private-call-request" when a client initiates a transfer private call request;

vii) "functional-alias-status-determination" when a client initiates a subscription to FA status determination request;

viii) "forward-private-call-request" when a client initiates a forward private call request; or

ix) "fa-group-binding-req" when a client initiates a request for binding of a functional alias with the MCPTT group(s) for the MCPTT user;

d) a <response-type> element set to:

i) "private-call-call-back-response" when a client responds to a private call call-back request;

ii) "private-call-call-back-cancel-response" when a client responds to a private call call-back cancel request;

iii) "group-selection-change-response" when a client responds to a group selection change request;

iv) "remotely-initiated-group-call-response" when a client responds to a remotely initiated call request;

v) "remotely-initiated-private-call-response" when a client responds to a remotely initiated private call request;

vi) "transfer-private-call-response" when a client responds to a transfer private call request;

vii) "forward-private-call-response" when a client responds to a forward private call request; or

e) an <urgency-ind> element:

i) set to a value of "low", "normal" or "high" to indicate the urgency of a private call call-back request;

f) a <time-of-request> element :

i) set to the date and time at which the private call call-back request was initiated, in the form: "YYYY-MM-DDThh:mm:ss" where:

- YYYY indicates the year;

- MM indicates the month;

- DD indicates the day;

- T indicates the start of the required time section;

- hh indicates the hour;

- mm indicates the minute; and

- ss indicates the second;

g) a <selected-group-change-outcome> element set to:

i) "success" when a client reports that it has successfully changed its selected group as requested by a received group selection change request; or

ii) "fail" when a client reports that it has failed to change its selected group as requested by a received group selection change request;

h) an <affiliation-required> element set to:

i) "true" when received by a client in a group-selection-change-request indicates that the client needs to affiliate to the specified group;

i) a <remotely-initiated-call-outcome> element set to:

i) "success" when a client reports that it has successfully initiated a call requested by a received remotely initiated call request; or

ii) "fail" when a client reports that it has failed to initiated a call triggered as requested by a received group selection change request;

j) a <notify-remote-user> element set to:

i) "true" when the remote user is to be notified of a remotely initiated call request; or

ii) "false" when the remote user is to be notified of a received remotely initiated call request;

k) a <functional-alias-URI> element set to the value of the functional alias that is used together with the "mcptt-calling-user-id";

l) an <emergency-alert-area-ind> element set to:

i) "true" when the MCPTT client has entered an emergency alert area; or

ii) "false" when the MCPTT client has exited an emergency alert area;

m) a <group-geo-area-ind> element set to:

i) "true" when the MCPTT client has entered a group geographic area; or

ii) "false" when the MCPTT client has exited a group geographic area;

n) one or more <non-acknowledged-user> elements set to the MCPTT IDs of invited members to a group call that have not sent a SIP 200 (OK) response;

o) a <call-to-functional-alias-ind> element set to:

i) "true" when the MCPTT client is using a functional alias to identify the MCPTT IDs of the potential target MCPTT users; or

ii) "false" when the MCPTT client is using MCPTT IDs to identify the potential target MCPTT users;

p) the <emergency-ind-rcvd> element set to:

i) "true" and included in a SIP MESSAGE to indicate that the in-progress emergency cancellation request was received successfully;

q) a <call-transfer-ind> element set to:

i) "true" when the MCPTT client is making a private call as a result of a call transfer; or

ii) "false" when the MCPTT client is making a normal private call;

r) a <transfer-call-outcome> element set to:

i) "success" when a client reports that it has successfully initiated a call requested by a received call transfer request; or

ii) "fail" when a client reports that it has failed to initiated a call triggered as requested by a received call transfer request;

s) a <called-functional-alias-URI> element set to the value of the functional alias to be called;

t) a <call-forwarding-ind> element set to:

i) "true" when the MCPTT client is making a private call as a result of a call forwarding; or

ii) "false" when the MCPTT client is making a normal private call;

u) a <forwarding-call-outcome> element set to:

i) "success" when a client reports that it has successfully initiated a call requested by a received call forwarding request; or

ii) "fail" when a client reports that it has failed to initiate a call triggered as requested by a received call forwarding request;

v) a <forwarding-immediate-list> element containing the list of MCPTT IDs of MCPTT users that have already been forwarded because an immediate call forwarding has occurred in the same MCPTT call;

w) a <forwarding-other-list> element containing the list of MCPTT IDs of MCPTT users that have already been forwarded because a call forwarding on "No-Answer" or "Manual-Input" has occurred in the same MCPTT call;

x) a <forwarding-reason> element set to:

i) "Immediate" for call forwarding immediate;

ii) "No-Answer" for call forwarding no answer; or

iii) "Manual-Input" for call forwarding based on manual user input;

y) a <multiple-devices-ind> element set to:

i) "true" to indicate to the client that multiple clients are registered for the MCPTT user; or

ii) "false" to indicate to the client that no other clients are registered for the MCPTT user;

z) a <binding-ind> element set to:

i) "true" when the user wants to create a binding of a particular functional alias with the specified list of MCPTT groups for the MCPTT client; or

ii) "false" when the user wants to remove a binding of a particular functional alias from the specified list of MCPTT groups for the MCPTT client;

aa) a <binding-fa-uri> element set to:

i) a URI of a functional alias that shall be bound with the specified list of MCPTT groups for the MCPTT client;

ab) a <unbinding-fa-uri> element set to:

i) a URI of a functional alias that shall be unbound from the specified list of MCPTT groups for the MCPTT client;

ac) a <transfer-announced-ind> set to:

i) "true"indicating that the call is part of an announced MCPTT call transfer; or

ii) "false" indicating that the call is not part of an announced MCPTT call transfer;

ad) a<replaces-header-value> element set to the Call-ID SIP header field value, the from-tag, and the to-tag of the MCPTT private call to be transferred. The delimiter between the Call-ID, the from-tag, and the to-tag is the semicolon (;).

Absence of the <emergency-ind>, <alert-ind> and <imminentperil-ind> in a SIP INVITE or a SIP REFER request indicates that the MCPTT client is initiating a non-emergency private call or non-emergency group call.

Absence of the <broadcast-ind> in a SIP INVITE or a SIP REFER request indicates that the MCPTT client is initiating a non-broadcast group call.

Absence of the <floor-state> in a SIP 200 (OK) response from the non-controlling MCPTT function indicates that the floor is idle.

Absence of the <call-to-functional-alias-ind> in a SIP INVITE or a SIP REFER request for a first-to-answer call indicates the use of the MCPTT IDs of the potential target MCPTT users.

Absence of the <call-transfer-ind> in a SIP INVITE or a SIP REFER request for a private call indicates that the call is not caused by a request for call transfer.

Absence of the <call-forwarding-ind> in a SIP INVITE or a SIP REFER request for a private call indicates that the call is not caused by a request for call forwarding.

Absence of the <transfer-announced-ind> in a SIP INVITE or a SIP REFER request for a private call indicates that the call is not part of a announced call transfer.

The recipient of the XML ignores any unknown element and any unknown attribute.

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