**3GPP TSG-CT WG1 Meeting #131-eC1-21xxxx**

**Electronic meeting, 19-27 August 2021 (was C1-214131)**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **24.379** | **CR** | **0730** | **rev** | **1** | **Current version:** | **17.3.1** |  |
|  | | | | | | | | |
| *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:*** | MCPTT service binding – R17 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | FirstNet, Samsung | | | | | | | | | |
| ***Source to TSG:*** | C1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MCProtoc16 | | | | |  | ***Date:*** | | | 19 August 2021 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17)  Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Multiple service authorisations are not fully supported. It must be made clear that if a service authorisation for the MCPTT user exists, it is to be kept and a new set of binding information must be created.  To distinguish separate bindings, a unique value, such as the client ID, needs to be added to the registration binding.  When checking the number of maximum authorizations in subclause 7.3.3, a SIP 486 (Busy Here) message is sent to the client. That same message is not sent in the equivalent text in subclause 7.3.2.  Added the SIP REGISTER and SIP PUBLISH requests to the list of SIP messages that use mcptt-client-id.  A number of elements declared to be under the <anyEXT> element in subclause F.1.3 do not appear in the schema in subclause F.1.2. During work to create MCPTT tests in RAN5, this lack of specific declaration has created questions of the exact format of each such element. Textual descriptions of the elements are not conclusive, since they lack definition of the namespace to be used. This work is included in this CR because a new <anyExt> element is added as a result of the service binding changes. This avoids conflicting CRs covering the same subclauses. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Subclauses 7.3.2 and 7.3.3 are modified (to match approved text already in TS 24.282) to handle multiple service authorisations.  Action to send a SIP 486 (Busy Here) response towards the MCPTT client taken in subclause 7.3.3 step 3)a) is added to the parallel step 2)a) in subclause 7.3.2.  Added the mcdata-client-id to the registration binding.  Notified the client in the event that multiple bindings exist.  All <anyEXT> elements described in subclause F.1.3 are declared in the schema in subclause F.1.2.  Subclauses F.1.2 and F.1.3 are modified to add the <multiple-devices-ind> element under <anyEXT> and to provide the semantics for that element after the inclusion of all <anyExt> elements in the schema.  Subclauses F.1.2 and F.1.3 also include the changes to support the "Private Call Forwarding" CR 0731 in C1-214138. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | TS 24.379 will not properly support multiple service authorisations. Confusion in implementation and testing due to lack of specific format declaration of all elements in the mcptt-info schema. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.3.2, 7.3.3, F.1.2, F.1.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | | Changes to support TS 24.379 CR 0731 (C1-214138 and revisions) are included in subclauses F.1.2 and F.1.3 of this CR to avoid conflicting CRs covering the same subclauses. That CR and this CR must both be approved together. The .xsd file in the zip file for this CR includes all of the changes and matches the XML schema in subclause F.1.2 of this CR. | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev 1:   * Added the mcptt-client-id to the registration binding. * Removed the ' minoccurs="0" ' string from the <mcptt-client-id> element in the schema, since it must be included for registration to succeed. * Added the <multiple-devices-ind> element to the schema in F.1.2 and to the Semantics in F.1.3. * Added the SIP REGISTER and SIP PUBLISH requests to the list of SIP messages that use mcptt-client-id. | | | | | | | | |

**\* \* \* \* \* FIRST CHANGE \* \* \* \* \***

### 7.3.2 SIP REGISTER request for service authorisation

The MCPTT server shall support obtaining service authorization specific information from the SIP REGISTER request sent from the MCPTT client and included in the body of a third-party SIP REGISTER request.

NOTE 1: 3GPP TS 24.229 [4] defines how based on initial filter criteria the SIP REGISTER request sent from the UE is included in the body of the third-party SIP REGISTER request.

Upon receiving a third party SIP REGISTER request with a message/sip MIME body containing the SIP REGISTER request sent from the MCPTT client containing an application/vnd.3gpp.mcptt-info+xml MIME body with an <mcptt-access-token> element and an <mcptt-client-id> element within a message/sip MIME body of the SIP REGISTER request sent from the MCPTT client, the MCPTT server:

1) shall identify the IMS public user identity from the third-party SIP REGISTER request;

2) shall identify the MCPTT ID from the SIP REGISTER request sent from the MCPTT client and included in the message/sip MIME body of the third-party SIP REGISTER request by following the procedures in clause 7.3.1A;

2a) shall check if the number of maximum simultaneous authorizations supported for the MCPTT user as specified in the <max-simultaneous-authorizations> 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 send a SIP 486 (Busy Here) response towards the MCPTT client with the warning text set to: "164 maximum number of service authorizations reached" in a Warning header field as specified in clause 4.4, and shall not continue with the rest of the steps in this clause;

3) shall perform service authorization for the identified MCPTT ID as described in 3GPP TS 33.180 [78];

4) if service authorization was successful, shall bind the MCPTT ID and the MCPTT ID to the IMS public user identity;

4a) if service authorization was successful and if the service authorization request was from an MCPTT user who is previously MCPTT service authorized on another MCPTT client (as determined by a comparison of the received MCPTT client ID with the MCPTT client ID of existing bindings), keep the current bindings and create a new binding between the MCPTT ID and the IMS public user identity;

NOTE 2: The MCPTT server will store the binding MCPTT ID, MCPTT client ID, IMS public user identity and an identifier addressing the MCPTT server in an external database.

5) if a Resource-Share header field with the value "supported" is contained in the "message/sip" MIME body of the third-party REGISTER request, shall bind the MCPTT ID and the MCPTT client ID to the identity of the MCPTT UE contained in the "+g.3gpp.registration-token" header field parameter in the Contact header field of the incoming third-party REGISTER request; and

6) if more than one binding exists for the MCPTT ID, shall include in the SIP 200 (OK) response an application/vnd.3gpp.mcptt-info+xml MIME body as specified in annex F.1 with an <multiple-devices-ind> element containing an <mcpttBoolean> element set to the value "true".

**\* \* \* \* \* NEXT CHANGE \* \* \* \* \***

### 7.3.3 SIP PUBLISH request for service authorisation and service settings

The MCPTT server shall support obtaining service authorization specific information from a SIP PUBLISH request for MCPTT server settings.

Upon receiving a SIP PUBLISH request containing:

1) an Event header field set to the "poc-settings" value;

2) an application/poc-settings+xml MIME body; and

3) an application/vnd.3gpp.mcptt-info+xml MIME body containing an <mcptt-access-token> element and an <mcptt-client-id> element;

the MCPTT server:

1) shall identify the IMS public user identity from the P-Asserted-Identity header field;

2) shall perform the procedures in clause 7.3.1A;

3) if the procedures in clause 7.3.1A were not successful shall send a SIP 403 (Forbidden) response towards the MCPTT client with the warning text set to: "140 unable to decrypt XML content " in a Warning header field as specified in clause 4.4, and not continue with the rest of the steps in this clause;

3a) shall check if the number of maximum simultaneous authorizations supported for the MCPTT user as specified in the <max-simultaneous-authorizations> 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 send a SIP 486 (Busy Here) response towards the MCPTT client with the warning text set to: "164 maximum number of service authorizations reached" in a Warning header field as specified in clause 4.4, and shall not continue with the rest of the steps in this clause;

4) shall perform service authorization for the identified MCPTT ID as described in 3GPP TS 33.180 [78];

5) if service authorization was successful:

a) shall bind the MCPTT ID and MCPTT client ID to the IMS public user identity;

b) if the service authorization request was from an MCPTT user who is previously MCPTT service authorized on another MCPTT client (as determined by a comparison of the received MCPTT client ID with the MCPTT client ID of existing bindings), keep the current bindings and create a new binding between the MCPTT ID, MCPTT client ID and the IMS public user identity; and

c) if a Resource-Share header field with the value "supported" was included in the "message/sip" MIME body of the third-party REGISTER request, shall bind the MCPTT ID to the identity of the MCPTT UE contained in the "+g.3gpp.registration-token" header field parameter in the Contact header field of the third-party REGISTER request that contained this IMS public user identity;

NOTE 1: The MCPTT server will store the binding MCPTT ID, MCPTT client ID, IMS public user identity and an identifier addressing the MCPTT server in an external database.

6) if service authorization was not successful, shall send a SIP 403 (Forbidden) response towards the MCPTT client with the warning text set to: "101 service authorisation failed" in a Warning header field as specified in clause 4.4, and not continue with the rest of the steps in this clause;

7) shall process the SIP PUBLISH request according to rules and procedures of IETF RFC 3903 [37] and if processing of the SIP request was not successful, do not continue with the rest of the steps;

8) shall cache the received MCPTT service settings until the MCPTT service settings expiration timer expires;

9) shall send a SIP 200 (OK) response according 3GPP TS 24.229 [4] with;

a) if more than one binding exists for the MCPTT ID, an application/vnd.3gpp.mcptt-info+xml MIME body as specified in annex F.1 with a <multiple-devices-ind> element set to the value "true";

10) shall use the Answer-Mode Indication setting in the <am-settings> element of the poc-settings event package as the current Answer-Mode Indication of the MCPTT client.

11) shall download the MCPTT user profile from the MCPTT user database as defined in 3GPP TS 29.283 [73] if not already stored at the MCPTT server and use the <selected-user-profile-index> element of the poc-settings event package if included to identify the active MCPTT user profile for the MCPTT client;

NOTE 2: If the <selected-user-profile-index> element of the poc-settings event package is included then only that MCPTT user profile is needed to be downloaded from the MCPTT user database.

12) if there is no <selected-user-profile-index> element included in the poc-settings event package then if multiple MCPTT user profiles are stored at the MCPTT server or downloaded for the MCPTT user from the MCPTT user database, shall determine the pre-selected MCPTT user profile to be used as the active MCPTT user profile by identifying the MCPTT user profile (see the MCPTT user profile document in 3GPP TS 24.484 [50]) in the collection of MCPTT user profiles that contains a <Pre-selected-indication> element; and

NOTE 3: If only one MCPTT user profile is stored at the MCPTT server or only one MCPTT user profile is downloaded from the MCPTT user database, then by default this MCPTT user profile is the pre-selected MCPTT user profile.

13) if an <ImplicitAffiliations> element is contained in the <OnNetwork> element of the MCPTT user profile document with one or more <entry> elements containing an MCPTT group ID (see the MCPTT user profile document in 3GPP TS 24.484 [50]) for the served MCPTT ID, shall perform implicit affiliation as specified in clause 9.2.2.2.15

**\* \* \* \* \* 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"/>

<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: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-indication" type="mcpttinfo:urgencyIndicationType"/>

<xs:simpleType name="urgencyIndicationType">

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

<xs:enumeration value="low"/>

<xs:enumeration value="normal"/>

<xs:enumeration value="high"/>

</xs:restriction>

</xs:simpleType>

<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="xs:boolean"/>

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

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

<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-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: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:enumeration value="User-Not-Available"/>

</xs:restriction>

</xs:simpleType>

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

<xs:element name="call-forwarding-no-answer-enabled" type="xs:boolean"/>

<xs:element name="call-forwarding-user-unavailable-enabled" type="xs:boolean"/>

<xs:element name="call-forwarding-target-id" type="xs:anyURI"/>

<xs:element name="call-forwarding-target-display-name" type="xs:string"/>

<xs:element name="call-forwarding-target-is-functional-alias" type="xs:boolean"/>

<xs:element name="forwarded-by-client-ID" type="xs:anyURI"/>

<xs:element name="forwarded-by-client-display-name" type="xs:string"/>

<!-- 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>, <call-forwarding-target-ID>, <call-forwarding-target-display-name>, <forwarded-by-client-ID> and <forwarded-by-client-display-name> 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>, or <emergency-ind-rcvd>, 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; and

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) "forward-private-call-settings-request" when a client wishes to change or query the private call settings held by the participating function;

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

viii) "forward-private-call-settings-response" when a participating function provides the private call settings for a client;

e) an <urgency-indication> element:

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

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; and

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-list> element;

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

i) "Immediate" for call forwarding immediate;

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

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

iv) "User-Not-Available" for call forwarding when the user is not registered;

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

i) "true" in a SIP 200 (OK) response to indicate that more than one binding exists for the MCPTT ID;

y) a <call-forwarding-immediate-enabled> element set to:

i) "true" when the MCPTT client requests that call forwarding immediate be enabled; or

ii) "false" when the MCPTT client requests that call forwarding immediate be disabled;

z) a <call-forwarding-no-answer-enabled> element set to:

i) "true" when the MCPTT client requests that call forwarding no answer be enabled; or

ii) "false" when the MCPTT client requests that call forwarding no answer be disabled;

aa) a <call-forwarding-no-answer-enabled> element set to:

i) "true" when the MCPTT client requests that call forwarding no answer be enabled; or

ii) "false" when the MCPTT client requests that call forwarding no answer be disabled;

ab) a <call-forwarding-user-unavailable-enabled> element set to:

i) "true" when the MCPTT client requests that call forwarding when the user is not available be enabled; or

ii) "false" when the MCPTT client requests that call forwarding when the user is not available be disabled;

ac) a <call-forwarding-target-id> element that contains:

i) an MCPTT ID of a forwarded-to-client; or

ii) a functional alias;

ad) a <call-forwarding-target-display-name> element that contains a displayable string describing the "call-forwarding-target-id";

ae) a <call-forwarding-target-is-functional-alias> element set to:

i) "true" to indicate that the value of the <call-forwarding-target-id> element is a functional alias; or

i) "false" to indicate that the value of the <call-forwarding-target-id> element is an MCPTT ID;

af) a <forwarded-by-client-ID> element that contains the MCPTT ID of the forwarded-by-client; and

ag) a <forwarded-by-client-display-name> element that contains the display name associated with the MCPTT ID of the forwarded-by-client.

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.

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

**\* \* \* \* \* END CHANGES \* \* \* \* \***