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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

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y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

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1 Scope

The present document specifies the group management protocols needed to support Mission Critical Services (MCSs).

Group management applies only when the UE operates on the network.

MCSs are services that require preferential handling compared to normal telecommunication services, e.g. in support of police or fire brigade.

MCSs can be used for public safety applications and also for general commercial applications (e.g., utility companies and railways).

The present document is applicable to User Equipment (UE) supporting the group management client (GMC) functionality, to application server supporting the group management server (GMS) functionality, and to application server supporting the Mission Critical Push To Talk (MCPTT) server functionality.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2]   OMA OMA-TS-XDM_Core-V2_1-20120403-A: "XML Document Management (XDM) Specification".

[3]   OMA OMA-TS-XDM_Group-V1_1_1-20170124-A: "Group XDM Specification".

[4]   3GPP TS 23.179: "Functional architecture and information flows to support mission critical communication services".

[5]   3GPP TS 24.379: "Mission Critical Push To Talk (MCPTT) call control Protocol specification".

[6]   IETF RFC 4745: "Common Policy: A Document Format for Expressing Privacy Preferences".

[7]   3GPP TS 24.334: "Proximity-services (ProSe) User Equipment (UE) to ProSe function protocol aspects; Stage 3".

[8]   IETF RFC 1166: "Internet Numbers".

[9]   IETF RFC 5952: "A Recommendation for IPv6 Address Text Representation".

[10]   3GPP TS 24.482: "Mission Critical Services (MCS) identity management; Protocol specification".

[11]   3GPP TS 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[12]   3GPP TS 24.229: "IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".

[13]   IETF RFC 5875: "An Extensible Markup Language (XML) Configuration Access Protocol (XCAP) Diff Event Package".

[14]   IETF RFC 6050: "A Session Initiation Protocol (SIP) Extension for the Identification of Services".

[15]   void.

[16]   IETF RFC 3830: "MIKEY: Multimedia Internet KEYing".

[17]   IETF RFC 6043: "MIKEY-TICKET: Ticket-Based Modes of Key Distribution in Multimedia Internet KEYing (MIKEY)".

[18]   IETF RFC 6509: "MIKEY-SAKKE: Sakai-Kasahara Key Encryption in Multimedia Internet KEYing (MIKEY)".

[19]   OMA OMA-SUP-XSD_poc_listService-V1_0_2: "PoC - List Service", version 1.0.2.

[20]   IETF RFC 4566: "SDP: Session Description Protocol".

[21]   IETF RFC 2616: "Hypertext Transfer Protocol -- HTTP/1.1".

[22]   IETF RFC 4825: "The Extensible Markup Language (XML) Configuration Access Protocol (XCAP)".

[23]   3GPP TS 23.280: "Common functional architecture to support mission critical services; Stage 2".

[24]   3GPP TS 23.281: "Mission Critical Video (MCVideo); Stage 2".

[25]   3GPP TS 23.282: "Mission Critical Data (MCData); Stage 2".

[26]   3GPP TS 24.281: "Mission Critical Video (MCVideo) signalling control; Protocol specification".

[27]   3GPP TS 24.282: "Mission Critical Data (MCData) signalling control; Protocol specification".

[28]   IETF RFC 4826: "Extensible Markup Language (XML) Formats for Representing Resource Lists".

[29]   3GPP TS 33.180: "Security of the mission critical service".

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

MCS group: An MCPTT group, an MCVideo group or an MCData group.

MCPTT group: A group supporting the MCPTT service.

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.280 [23] apply:

>   **MC service (MCS) group identity (ID)**
>   **MC service (MCS) server**
>   **MC service (MCS) user identity (ID)**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.179 [4] apply:

>   **MCPTT group identity**
>   **MCPTT server**
>   **MCPTT service**
>   **MCPTT user identity**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.281 [24] apply:

>   **MCVideo group**
>   **MCVideo group id**
>   **MCVideo server**

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.282 [25] apply:

MCData group
MCData group id
MCData server

For the purposes of the present document, the following terms and definitions given in OMA OMA-TS-XDM_Group-V1_1_1 [3] apply:

Group
XDMC
Group XDMS

For the purposes of the present document, the following terms and definitions given in 3GPP TS 23.228 [11] apply:

Public Service Identity

For the purposes of the present document, the following terms and definitions given in 3GPP TS 33.180 [29] apply:

Group Master Key (GMK)
Group Master Key Identifier (GMK-ID)
Multicast Key for Floor Control (MKFC)
Identifier of Multicast Key for Floor Control (MKFC-ID)
Multicast Signalling Key (MuSiK)
Multicast Signalling Key Identifier (MuSiK-ID)

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

GC	General Client
GKTP	Group Key Transport Payload
GMC	Group Management Client
GMOP	Group Management OPeration
GMS	Group Management Server
HTTP	HyperText Transfer Protocol
ICSI	IMS Communication Service Identifier
ID	IDentifier
IETF	Internet Engineering Task Force
MCS	Mission Critical Service
MCSs	Mission Critical Services
MCPTT	Mission Critical Push To Talk
MIME	Multipurpose Internet Mail Extensions
OMA	Open Mobile Alliance
UE	User Equipment
URI	Uniform Resource Identifier
XDMC	XML Document Management Client
XDMS	XML Document Management Server
XML	eXtensible Markup Language

4 General

The present document enables a group management client (GMC) and a mission critical service (MCS) server to manage group documents in a group management server (GMS).

5 Functional entities

5.1 Group management client (GMC)

To be compliant with the procedures in the present document, a GMC:

- shall support the role of XCAP client as specified in IETF RFC 4825 [22];

- shall support the role of XDMC as specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

- shall support the procedure in subclause 6.2.3;

- may support the procedure in subclause 6.3.2.2.2;

- shall support the procedure in subclause 6.3.3.2.2;

- may support the procedure in subclause 6.3.4.2.2;

- may support the procedure in subclause 6.3.5.2.2;

- may support the procedure in subclause 6.3.6.2.2;

- may support the procedure in subclause 6.3.7.2.2;

- may support the procedure in subclause 6.3.8.2.2;

- may support the procedure in subclause 6.3.9.2.2;

- may support the procedure in subclause 6.3.10.2.2;

- may support the procedure in subclause 6.3.11.2.2;

- may support the procedure in subclause 6.3.12.2.2;

- shall support the procedure in subclause 6.3.13.2.1;

- may support the procedure in subclause 6.3.14.2;

- may support the procedure in subclause 6.3.15.2; and

- shall support the procedure in subclause 6.3.16.2.

5.2 Group management server (GMS)

To be compliant with the procedures in the present document, a GMS:

- shall support the role of XCAP server as specified in IETF RFC 4825 [22];

- shall support the role of Group XDMS as specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

- shall support the procedure in subclause 6.2.5;

- shall support the procedure in subclause 6.3.2.3;

- shall support the procedure in subclause 6.3.3.3;

- shall support the procedure in subclause 6.3.4.3;

- shall support the procedure in subclause 6.3.5.3;

- shall support the procedure in subclause 6.3.6.3;

- shall support the procedure in subclause 6.3.7.3;

- shall support the procedure in subclause 6.3.8.3;

- shall support the procedure in subclause 6.3.9.3;

- shall support the procedure in subclause 6.3.10.3;

- shall support the procedure in subclause 6.3.11.3;

- shall support the procedure in subclause 6.3.12.3;

- shall support the procedure in subclause 6.3.13.2.3;

- shall support the procedure in subclause 6.3.13.3;

- shall support the procedure in subclause 6.3.14.3;

- shall support the procedure in subclause 6.3.15.3; and

- shall support the procedure in subclause 6.3.16.3.

5.2A MCS server

To be compliant with the procedures in the present document, an MCS server:

- shall support the role of XCAP client as specified in IETF RFC 4825 [22];

- shall support the role of XDMC as specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

- shall support the procedure in subclause 6.2.4;

- shall support the procedure in subclause 6.3.3.2.3; and

- shall support the procedure in subclause 6.3.13.2.2.

5.3 MCPTT server

To be compliant with the procedures in the present document, an MCPTT server shall support role of an MCS server as specified in subclause 5.2A.

5.4 MCVideo server

To be compliant with the procedures in the present document, an MCVideo server shall support role of an MCS server as specified in subclause 5.2A.

5.5 MCData server

To be compliant with the procedures in the present document, an MCData server shall support role of an MCS server as specified in subclause 5.2A.

6 Procedures

6.1 Introduction

This clause specifies procedures enabling a group management client (GMC) and an MCS server to manage group documents in a group management server (GMS).

6.2 Common procedures

6.2.1 General

This subclause contains common procedures applied on HTTP signalling specified in the present document.

6.2.2 General client (GC) procedures

6.2.2.1 General

GC procedures are usable by both GMC and MCS server.

6.2.2.2 Accessing group document by group ID

In order to address an existing group document defining a group ID known by GC, the GC shall set the Request-URI of an HTTP request to a XCAP URI identifying a group document addressed by a group ID as described in subclause 7.2.10.2, where the group ID is set to the group ID known by GC and where the XCAP root URI is the XCAP root URI configured in the GC.

6.2.3 Group management client (GMC) procedures

The GMC shall send the HTTP request over a TLS connection as specified for the HTTP client in the UE in annex A of 3GPP TS 24.482 [10].

The GMC shall perform the procedures in subclause 6.2.2 specified for GC.

6.2.4 MCS server procedures

The MCS server shall send the HTTP request as specified for the HTTP client in the network entity in annex A of 3GPP TS 24.482 [10].

The MCS server shall perform the procedures in subclause 6.2.2 specified for GC.

6.2.5 Group management server (GMS) procedures

6.2.5.1 General

The GMS shall handle the HTTP request as specified for the HTTP server in annex A of 3GPP TS 24.482 [10].

The GMS server shall send the HTTP request as specified for the HTTP client in the network entity in annex A of 3GPP TS 24.482 [10].

The GMS shall be configured with own public service identity for accessing documents.

The GMS shall be configured with an authorized GMS list, containing:

a) own public service identity for accessing documents; and

b) public service identities for accessing documents of GMSs of MCS providers which are partners of the MCS provider of the GMS.

The GMS shall be configured with an authorized MCS server list, containing public service identities of MCS servers of the MCS provider of the GMS.

The GMS shall handle SIP requests and SIP responses as specified in 3GPP TS 24.229 [12].

6.2.5.2 Configuration for access to group document of another MCS provider or to MCS GKTP document of another MCS provider

The GMS shall be configured with a group ID routing database. The group ID routing database consists of mapping of a group ID of another MCS provider to:

a) an XCAP root URI of the MCS provider; and

b) a public service identity for accessing documents of the MCS provider.

6.2.5.3 Forwarding HTTP request accessing a group document of other MCS provider

If the GMS receives an HTTP request with Request-URI identifying a group document addressed by a group ID as described in subclause 7.2.10.2 and the group ID in the Request-URI identifies a group of another MCS provider, then GMS:

a) shall derive XCAP root URI of the other MCS provider using the group ID routing database as specified in subclause 6.2.5.2 and the group ID in the Request-URI;

b) shall replace the XCAP root URI of the Request URI with the derived XCAP root URI of the other MCS provider;

c) if the X-3GPP-Asserted-Identity header field is not present in the received HTTP request, shall insert an X-3GPP-Asserted-Identity header field with the identity of the sender of the HTTP request determined as specified in 3GPP TS 24.482 [10];

d) if the Authorization header field is present in the received HTTP request, shall remove the Authorization header field from the HTTP request; and

e) shall forward the HTTP request.

6.2.5.4 Authenticated identity in HTTP request

When handling an HTTP request, the GMS shall determine the identity of the sender of the HTTP request as specified in 3GPP TS 24.482 [10], and shall use the identity of the sender of the HTTP request as an authenticated identity when performing the authorization:

6.2.5.5 SIP failure case

When initiating a SIP failure response to any received SIP request, depending on operator policy, the GMS may insert a SIP Response-Source header field in accordance with the procedures in subclause 5.7.1.0 of 3GPP TS 24.229 [12], where the "role" header field parameter is set to "gms"

6.3 Group management procedures

6.3.1 General

The following procedures are defined for management of group documents:

- group document creation procedure;

- group document retrieval procedure;

- group document update procedure;

- group document deletion procedure;

- group document element creation or replacement procedure;

- group document element deletion procedure;

- group document element fetching procedure;

- group document attribute creation or replacement procedure;

- group document attribute deletion procedure;

- group document attribute fetching procedure;

- group document namespace binding fetching procedure;

- group document subscription and notification procedure;

- temporary MCS group formation procedure;

- temporary MCS group tear down procedure; and

- group document excluding group members retrieval procedure.

NOTE: CSC-3 part of MCS group affiliation procedure and CSC-3 part of MCS group de-affiliation procedure are not specified in this version of the present document.

6.3.2 Group document creation procedure

6.3.2.1 General

This procedure enables the GMC to create a group document in GMS.

6.3.2.2 Client procedures

6.3.2.2.1 General client (GC) procedures

In order to create a group document, a GC shall create an XML document of the application usage specified in subclause 7.2.1 and shall send the XML document to the network according to procedures specified in IETF RFC 4825 [22] "*Create or Replace a Document*". The GC shall set the Request-URI of the HTTP PUT request to an XCAP URI in users tree where the XUI is set to a group creation XUI configuration parameter.

6.3.2.2.2 Group management client (GMC) procedures

In order to create a group document, a GMC shall perform the procedures in subclause 6.3.2.2.1 specified for GC.

NOTE: When the GMC has not received the assigned MCS group ID from the GMS, the GMC can set empty value to the "uri" attribute of the <list-service> element of the <group> element of the XML document specified in subclause 7.2.1.

Upon reception of an HTTP 409 (Conflict) response with at least one <alt-value> element in the <uniqueness-failure> error element, the GMC may repeat procedures of the present subclause and identify the MCS group being created with an MCS Group ID indicated in an <alt-value> element.

6.3.2.3 Group management server (GMS) procedures

Upon reception of an HTTP PUT request where the Request-URI of the HTTP PUT request identifies an XML document of the application usage specified in subclause 7.2

then the GMS:

   a) shall determine the identity of the sender of the received HTTP PUT request as specified in subclause 6.2.5;

   b) if the identity of the sender of the received HTTP PUT request is not authorized to initiate group creation, shall respond with a HTTP 403 (Forbidden) response to the HTTP PUT request and shall not continue with rest of the steps;

   c) if value of the "uri" attribute of the <list-service> element of the <group> element of the XML document specified in subclause 7.2.1 of the received HTTP PUT request does not conform to local policy, shall respond with an HTTP 409 (Conflict) response to the HTTP PUT request. The <uniqueness-failure> error element shall identify the error condition. The GMS shall include at least one <alt-value> element in the <uniqueness-failure> error element, whereby each <alt-value> element contains an MCS Group ID acceptable for the GMS. The GMS shall not continue with rest of the steps; and

   d) shall support receiving an XML document of the application usage specified in subclause 7.2.1 according to procedures specified in IETF RFC 4825 [22] "*PUT Handling*" where the Request-URI of the HTTP PUT request identifies an XML document of the application usage specified in subclause 7.2.

6.3.3 Group document retrieval procedure

6.3.3.1 General

This procedure enables the GMC or the MCS server to retrieve a group document from the GMS.

6.3.3.2 Client procedures

6.3.3.2.1 General client (GC) procedures

In order to retrieve a group document, a GC shall send an HTTP GET request with the Request URI that references the document to be retrieved to the network according to procedures specified in IETF RFC 4825 [22] "*Fetch a Document*".

6.3.3.2.2 Group management client (GMC) procedures

In order to retrieve a group document, a GMC shall perform the procedures in subclause 6.3.3.2.1 specified for GC.

6.3.3.2.3 MCS server procedures

In order to retrieve a group document, an MCS server shall perform the procedures in subclause 6.3.3.2.1 specified for a GC.

6.3.3.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP GET request from a GMC according to procedures specified in IETF RFC 4825 [22] "*GET Handling*" where the Request-URI of the HTTP GET request identifies an XML document of the application usage specified in subclause 7.2.

6.3.4 Group document update procedure

6.3.4.1 General

This procedure enables the GMC to update a group document in the GMS.

6.3.4.2 Client procedures

6.3.4.2.1 General client (GC) procedures

In order to update a group document, a GC shall create an XML document of the application usage specified in subclause 7.2.1 and shall send the XML document to the network according to procedures specified in IETF RFC 4825 [22] "*Create or Replace a Document*".

6.3.4.2.2 Group management client (GMC) procedures

In order to update a group document, a GMC shall perform the procedures in subclause 6.3.4.2.1 specified for a GC.

6.3.4.3 Group management server (GMS) procedures

A GMS shall support receiving an XML document of the application usage specified in subclause 7.2.1 according to procedures specified in IETF RFC 4825 [22] "*PUT Handling*" where the Request-URI of the HTTP PUT request identifies an XML document of the application usage specified in subclause 7.2.

6.3.5 Group document deletion procedure

6.3.5.1 General

This procedure enables the GMC to delete a group document in the GMS.

6.3.5.2 Client procedures

6.3.5.2.1 General client (GC) procedures

In order to delete a group document, a GC shall send an HTTP DELETE request with the Request URI that references the document to be deleted to the network according to procedures specified in IETF RFC 4825 [22] "*Delete a Document*".

6.3.5.2.2 Group management client (GMC) procedures

In order to delete a group document, a GMC shall perform the procedures in subclause 6.3.5.2.1 specified for a GC.

6.3.5.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP DELETE request from a GMC according to procedures specified in IETF RFC 4825 [22] "*DELETE Handling*" where the Request-URI of the HTTP DELETE request identifies an XML document of the application usage specified in subclause 7.2.

6.3.6 Group document element creation or replacement procedure

6.3.6.1 General

This procedure enables the GMC to create or replace an element of a group document from the GMS.

6.3.6.2 Client procedures

6.3.6.2.1 General client (GC) procedures

In order to create or replace an element of a group document, a GC shall send an HTTP PUT request with the Request URI that references the element of the document to be created or replaced to the network according to procedures specified in IETF RFC 4825 [22] "*Create or Replace an Element*".

6.3.6.2.2 Group management client (GMC) procedures

In order to create or replace an element of a group document, a GMC shall perform the procedures in subclause 6.3.6.2.1 specified for a GC.

6.3.6.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP PUT request from a GMC according to procedures specified in IETF RFC 4825 [22] "*PUT Handling*" where the Request-URI of the HTTP PUT request identifies an element of XML document of the application usage specified in subclause 7.2.

6.3.7 Group document element deletion procedure

6.3.7.1 General

This procedure enables the GMC to delete an element of a group document from the GMS.

6.3.7.2 Client procedures

6.3.7.2.1 General client (GC) procedures

In order to delete an element of a group document, a GC shall send an HTTP DELETE request with the Request URI that references the element of the document to be deleted to the network according to procedures specified in IETF RFC 4825 [22] "*Delete an Element*".

6.3.7.2.2 Group management client (GMC) procedures

In order to delete an element of a group document, a GMC shall perform the procedures in subclause 6.3.7.2.1 specified for a GC.

6.3.7.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP DELETE request from a GMC according to procedures specified in IETF RFC 4825 [22] "*DELETE Handling*" where the Request-URI of the HTTP DELETE request identifies an element of XML document of the application usage specified in subclause 7.2.

6.3.8 Group document element fetching procedure

6.3.8.1 General

This procedure enables the GMC to fetch an element of a group document from the GMS.

6.3.8.2 Client procedures

6.3.8.2.1 General client (GC) procedures

In order to fetch an element of a group document, a GC shall send an HTTP GET request with the Request URI that references the element of the document to be fetched to the network according to procedures specified in IETF RFC 4825 [22] "*Fetch an Element*".

6.3.8.2.2 Group management client (GMC) procedures

In order to fetch an element of a group document, a GMC shall perform the procedures in subclause 6.3.8.2.1 specified for a GC.

6.3.8.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP GET request from a GMC according to procedures specified in IETF RFC 4825 [22] "*GET Handling*" where the Request-URI of the HTTP GET request identifies an element of XML document of the application usage specified in subclause 7.2.

6.3.9 Group document attribute creation or replacement procedure

6.3.9.1 General

This procedure enables the GMC to create or replace an attribute of a group document from the GMS.

6.3.9.2 Client procedures

6.3.9.2.1 General client (GC) procedures

In order to create or replace an attribute of a group document, a GC shall send an HTTP PUT request with the Request URI that references the attribute of the document to be created or replaced to the network according to procedures specified in IETF RFC 4825 [22] "*Create or Replace an Attribute*".

6.3.9.2.2 Group management client (GMC) procedures

In order to create or replace an attribute of a group document, a GMC shall perform the procedures in subclause 6.3.9.2.1 specified for a GC.

6.3.9.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP PUT request from a GMC according to procedures specified in IETF RFC 4825 [22] "*PUT Handling*" where the Request-URI of the HTTP PUT request identifies an attribute of XML document of the application usage specified in subclause 7.2.

6.3.10 Group document attribute deletion procedure

6.3.10.1 General

This procedure enables the GMC to delete an attribute of a group document from the GMS.

6.3.10.2 Client procedures

6.3.10.2.1 General client (GC) procedures

In order to delete an attribute of a group document, a GC shall send an HTTP DELETE request with the Request URI that references the attribute of the document to be deleted to the network according to procedures specified in IETF RFC 4825 [22] "*Delete an Attribute*".

6.3.10.2.2 Group management client (GMC) procedures

In order to delete an attribute of a group document, a GMC shall perform the procedures in subclause 6.3.10.2.1 specified for a GC.

6.3.10.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP DELETE request from a GMC according to procedures specified in IETF RFC 4825 [22] "*DELETE Handling*" where the Request-URI of the HTTP DELETE request identifies an attribute of XML document of the application usage specified in subclause 7.2.

6.3.11 Group document attribute fetching procedure

6.3.11.1 General

This procedure enables the GMC to fetch an attribute of a group document from the GMS.

6.3.11.2 Client procedures

6.3.11.2.1 General client (GC) procedures

In order to fetch an attribute of a group document, a GC shall send an HTTP GET request with the Request URI that references the attribute of the document to be fetched to the network according to procedures specified in IETF RFC 4825 [22] "*Fetch an Attribute*".

6.3.11.2.2 Group management client (GMC) procedures

In order to fetch an attribute of a group document, a GMC shall perform the procedures in subclause 6.3.11.2.1 specified for a GC.

6.3.11.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP GET request from a GMC according to procedures specified in IETF RFC 4825 [22] "*GET Handling*" where the Request-URI of the HTTP GET request identifies an attribute of XML document of the application usage specified in subclause 7.2.

6.3.12 Group document namespace binding fetching procedure

6.3.12.1 General

This procedure enables the GMC to fetch a namespace binding of a group document from the GMS.

6.3.12.2 Client procedures

6.3.12.2.1 General client (GC) procedures

In order to fetch a namespace binding of a group document, a GC shall send an HTTP GET request according to procedures specified in IETF RFC 4825 [22] "*Fetch Namespace Bindings*".

6.3.12.2.2 Group management client (GMC) procedures

In order to fetch a namespace binding of a group document, a GMC shall perform the procedures in subclause 6.3.12.2.1 specified for a GC.

6.3.12.3 Group management server (GMS) procedures

A GMS shall support handling an HTTP GET request from a GMC according to procedures specified in IETF RFC 4825 [22] "*GET Handling*" where the Request-URI of the HTTP GET request identifies a namespace binding of XML document of the application usage specified in subclause 7.2.

6.3.13 Group document subscription and notification procedure

6.3.13.1 General

Editor's note (WI: MCImp-eMCPTT-CT, MCImp-MCDATA-CT, MCImp-MCVIDEO-CT; CR#0008): FFS which access token should be used by GMC, particularly when UE contains GMC and MCVideo-client only, or GMC and MCData-client only, or GMC, MCVideo-client, and MCData-client only.

Editor's note (WI: MCImp-eMCPTT-CT, MCImp-MCDATA-CT, MCImp-MCVIDEO-CT; CR#0008): FFS which ICSIs are indicated in the PAS and C, particularly when UE contains GMC and MCVideo-client only, or GMC and MCData-client only, or GMC, MCVideo-client, and MCData-client only.

This procedure enables the GMC to subscribe to notification of changes of:

a) one or more MCS group documents;

b) <GKTPs> elements of one or more MCS GKTP documents; or

c) both.

This procedure enables the MCS server to subscribe to notification of changes of:

a) one or more MCS group documents.

This procedure enables the GMS owning a constituent MCS group of a temporary MCS group to subscribe to notification of changes of:

a) an MCS group document of the temporary MCS group;

b) a <GKTPs> element of an MCS GKTP document for the temporary MCS group; or

c) both.

6.3.13.2   Client procedures

6.3.13.2.1   Group management client (GMC) procedures

In order to subscribe to notification of changes of:

a) one or more MCS group documents of MCS groups identified by MCS group IDs;

b) <GKTPs> elements of one or more MCS GKTP documents for MCS groups identified by MCS group IDs; or

c) both;

a GMC shall send an initial SIP SUBSCRIBE request to the network according to the UE originating procedures specified in 3GPP TS 24.229 [12] and IETF RFC 5875 [13]. In the initial SIP SUBSCRIBE request, the GMC:

a) shall include an application/resource-lists+xml MIME body. In the application/resource-lists+xml MIME body, the GMC shall include one <entry> element for each document or element to be subscribed to, such that the "uri" attribute of the <entry> element:

1) contains a relative path reference:

A) with the base URI being equal to the XCAP root URI configured in the GMC; and

B) identifying a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is set to the MCS group ID; or

2) contains a relative path reference:

A) with the base URI being equal to the XCAP root URI configured in the GMC;

B) with the document selector identifying the MCS GKTP document as described in subclause 7.7.10 where the group ID is set to the MCS group ID; and

C) with the node selector identifying a <GKTPs> element of the MCS GKTP document;

b) shall set the Request-URI to the configured public service identity for performing subscription proxy function of the GMS;

c) shall include an application/vnd.3gpp.mcptt-info+xml MIME body with the <mcptt-access-token> element set to the value of the access token received during authentication procedure as described in 3GPP TS 24.482 [49];

d) if identity hiding is required:

1) shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [5] for MCPTT client on the application/vnd.3gpp.mcptt-info+xml MIME body and on the application/resource-lists+xml MIME body; and

2) shall include an application/mikey MIME body with the CSK as specified in 3GPP TS 24.379 [5];

e) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [12]), in a P-Preferred-Service header field according to IETF RFC 6050 [14]; and

f) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

Upon receiving a SIP NOTIFY request associated with a subscription created as result of the sent initial SIP SUBSCRIBE request:

1) if identity hiding is required, the GMC shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [5] for MCPTT client; and

2) shall handle the SIP NOTIFY request according to IETF RFC 5875 [13].

In order to re-subscribe to notification of changes of a modified list of:

a) one or more MCS group documents of MCS groups identified by MCS group IDs;

b) <GKTPs> elements of one or more MCS GKTP documents for MCS groups identified by MCS group IDs; or

c) both;

a GMC shall send a SIP re-SUBSCRIBE request to the network according to the UE originating procedures specified in 3GPP TS 24.229 [12] and IETF RFC 5875 [13]. In the SIP re-SUBSCRIBE request, the GMC:

a) shall include an application/resource-lists+xml MIME body. In the application/resource-lists+xml MIME body, the GMC shall include one <entry> element for each document or element to be subscribed to, such that the "uri" attribute of the <entry> element:

1) contains a relative path reference:

A) with the base URI being equal to the XCAP root URI configured in the GMC; and

B) identifying a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is set to the MCS group ID; or

2) contains a relative path reference:

A) with the base URI being equal to the XCAP root URI configured in the GMC;

B) with the document selector identifying the MCS GKTP document as described in subclause 7.7.10 where the group ID is set to the MCS group ID; and

C) with the node selector identifying a <GKTPs> element of the MCS GKTP document;

b) if identity hiding is required, shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [5] for MCPTT client on the application/vnd.3gpp.mcptt-info+xml MIME body and on the application/resource-lists+xml MIME body using the CSK included in the initial SIP SUBSCRIBE request; and

c) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

6.3.13.2.2 MCS server procedures

In order to subscribe to notification of changes of:

a) one or more MCS group documents of MCS groups identified by MCS group IDs;

an MCS server shall send an initial SIP SUBSCRIBE request to the network according to the originating AS procedures specified in 3GPP TS 24.229 [12] and IETF RFC 5875 [13]. In the initial SIP SUBSCRIBE request, MCS server:

a) shall include an application/resource-lists+xml MIME body. In the application/resource-lists+xml MIME body, the MCS server shall include one <entry> element for each document or element to be subscribed to, such that the "uri" attribute of the <entry> element:

1) contains a relative path reference:

A) with the base URI being equal to the XCAP root URI configured in the MCS server; and

B) identifying a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is set to the MCS group ID;

b) shall set the Request-URI to the configured public service identity for performing subscription proxy function of the GMS;

c) shall include a P-Asserted-Identity header field containing the public service identity of the MCS server;

e) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [12]), in a P-Asserted-Service header field according to IETF RFC 6050 [14]; and

f) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

Upon receiving a SIP NOTIFY request associated with a subscription created as result of the sent initial SIP SUBSCRIBE request, the MCS server shall handle the SIP NOTIFY request according to IETF RFC 5875 [13].

In order to re-subscribe to notification of changes of a modified list of:

a) one or more MCS group documents of MCS groups identified by MCS group IDs,

the MCS server shall send a SIP re-SUBSCRIBE request to the network according to the originating AS procedures specified in 3GPP TS 24.229 [12] and IETF RFC 5875 [13]. In the SIP re-SUBSCRIBE request, MCS server:

a) shall include an application/resource-lists+xml MIME body. In the application/resource-lists+xml MIME body, the MCS server shall include one <entry> element for each document or element to be subscribed to, such that the "uri" attribute of the <entry> element:

1) contains a relative path reference:

A) with the base URI being equal to the XCAP root URI configured in the MCS server; and

B) identifying a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is set to the MCS group ID; and

b) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

6.3.13.2.3 Procedure of group management server (GMS) owning a constituent MCS group acting as subscriber

In order to subscribe to notification of changes of:

a) an MCS group document of a temporary MCS group;

b) a <GKTPs> element of an MCS GKTP document for the temporary MCS group; or

c) both;

such that the temporary MCS group is identified by a MCS group ID and an MCS group owned by the GMS is a constituent MCS group of the temporary MCS group, the GMS shall send an initial SIP SUBSCRIBE request to the network according to the originating AS procedures specified in 3GPP TS 24.229 [12] and IETF RFC 5875 [13]. In the initial SIP SUBSCRIBE request, the GMS:

a) shall include an application/resource-lists+xml MIME body. In the application/resource-lists+xml MIME body, the GMS shall include one <entry> element for each document or element to be subscribed to, such that the "uri" attribute of the <entry> element:

1) contains a relative path reference:

A) with the base URI being equal to the XCAP root URI of the MCS provider of the GMS, if the MCS group ID is owned by the MCS provider of the GMS;

      B) with the base URI being derived from the group ID routing database specified in subclause 6.2.5.2 and the MCS group ID, if the MCS group ID is owned by an MCS provider other than the MCS provider of the GMS; and

      C) identifying a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is set to the MCS group ID; or

   2) contains a relative path reference

      A) with the base URI being equal to the XCAP root URI of the MCS provider of the GMS, if the MCS group ID is owned by the MCS provider of the GMS; and

      B) with the base URI being equal to derived from the group ID routing database specified in subclause 6.2.5.2 and the MCS group ID, if the MCS group ID is owned by an MCS provider other than the MCS provider of the GMS;

      C) with the document selector identifying the MCS GKTP document as described in subclause 7.7.10 where the group ID is set to the MCS group ID; and

      D) with the node selector identifying a <GKTPs> element of the MCS GKTP document;

  c) shall set the Request-URI to:

   1) own public service identity for accessing documents, if the MCS group ID is owned by the MCS provider of the GMS; and

   2) the public service identity for accessing documents of other MCS provider derived from the group ID routing database specified in subclause 6.2.5.2 and the MCS group ID, if the MCS group ID is owned by an MCS provider other than the MCS provider of the GMS;

  d) shall include a P-Asserted-Identity header field containing the own public service identity for accessing documents;

  e) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the GMS shall include the <mcptt-calling-group-id> element set to the MCS ID of the constituent MCS group;

  f) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [12]), in a P-Asserted-Service header field according to IETF RFC 6050 [14]; and

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

6.3.13.3 Group management server (GMS) procedures

6.3.13.3.1 General

The GMS procedures consist of:

  a) procedures of GMS performing the subscription proxy function; and

  b) procedures of GMS owning the MCS group.

The GMS shall be configured with own public service identity for performing subscription proxy function of the GMS.

6.3.13.3.2 Procedures of GMS performing the subscription proxy function

6.3.13.3.2.1 General

The procedures of GMS performing the subscription proxy function consist of:

  a) a GMC originated subscription proxy procedure; and

  b) a MCS server originated subscription proxy procedure; and

  c) a procedure for GMS acting as subscriber on behalf of GMC.

6.3.13.3.2.2 GMC originated subscription proxy procedure

Upon reception of an initial SIP SUBSCRIBE request:

    a) with the Event header field set to xcap-diff;

    b) with the Request-URI set to own public service identity for performing subscription proxy function of the GMS;

    c) with a P-Asserted-Identity header field not containing an identity listed in the authorized MCS server list specified in subclause 6.2.5.1 and not containing an identity listed in the authorized GMS list as specified in subclause 6.2.5.1;

    d) with an application/vnd.3gpp.mcptt-info+xml MIME body containing the <mcptt-access-token> element;

    e) with an application/resource-lists+xml MIME body; and

    f) with the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24 229 [12]), in a P-Asserted-Service header field according to IETF RFC 6050 [14];

the GMS:

    a) if an <EncryptedData> XML tag is included in the application/vnd.3gpp.mcptt-info+xml MIME body and the CSK is received in an application/mikey MIME body of the initial SIP SUBSCRIBE request, shall decrypt the application/vnd.3gpp.mcptt-info+xml MIME body;

    b) if an <EncryptedData> XML tag is included in the application/resource-lists+xml MIME body and the CSK is received in an application/mikey MIME body of the initial SIP SUBSCRIBE request, shall decrypt the application/resource-lists+xml MIME body;

    c) shall identify the originating MCPTT ID from <mcptt-access-token> element received in the application/vnd.3gpp.mcptt-info+xml MIME body and shall use the originating MCPTT ID as an authenticated identity when performing the authorization;

    d) if the authenticated identity is not authorized to subscribe to notification of changes of any resource in the application/resource-lists+xml MIME body, shall reject the request with a SIP 403 (Forbidden) response and shall not continue with rest of the steps;

    e) act as a notifier according to IETF RFC 5875 [13]. Additionally, if an XCAP URI in the "uri" attribute of the <entry> element of the application/resource-lists+xml MIME body of the initial SIP SUBSCRIBE request identifies:

        1) a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is an MCS group ID owned by an MCS provider other than the MCS provider of the GMS; or

        2) a element of an MCS GKTP document as described in subclause 7.7.10 where the group ID is an MCS group ID owned by an MCS provider other than the MCS provider of GMS;

        shall perform the procedure in subclause 6.3.13.3.2.4 for each such MCS group ID and shall interwork information of received SIP NOTIFY requests in subclause 6.3.13.3.2.4 in SIP NOTIFY requests associated with a subscription created as result of the received initial SIP SUBSCRIBE request.

Upon sending a SIP NOTIFY request associated with a subscription created as result of the received initial SIP SUBSCRIBE request, if the CSK is received in an application/mikey MIME body of the initial SIP SUBSCRIBE request, the GMS shall perform the confidentiality protection procedures and integrity protection procedures defined in 3GPP TS 24.379 [5] for MCS server.

Upon reception of a SIP re-SUBSCRIBE request:

    a) with the Event header field set to xcap-diff; and

    b) with an application/resource-lists+xml MIME body;

the GMS:

a) if an <EncryptedData> XML tag is included in the application/resource-lists+xml MIME body of the received SIP re-SUBSCRIBE request and the CSK was received in an application/mikey MIME body of the initial SIP SUBSCRIBE request, shall decrypt the application/resource-lists+xml MIME body; and

b) act as a notifier according to IETF RFC 5875 [13]. Additionally, if an XCAP URI in the "uri" attribute of the <entry> element of the application/resource-lists+xml MIME body of the SIP re-SUBSCRIBE request identifies:

    1) a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is an MCS group ID owned by an MCS provider other than the MCS provider of the GMS; or

    2) a element of an MCS GKTP document as described in subclause 7.7.10 where the group ID is an MCS group ID owned by an MCS provider other than the MCS provider of GMS;

and for which there is no related subscription established according to the subclause 6.3.13.3.2.4, shall perform the procedure in subclause 6.3.13.3.2.4 for each such MCS group ID and shall interwork information of received SIP NOTIFY requests in subclause 6.3.13.3.2.4 in SIP NOTIFY requests associated with a subscription created as result of the received initial SIP SUBSCRIBE request.

6.3.13.3.2.3 MCS server originated subscription proxy procedure

Upon reception of an initial SIP SUBSCRIBE request:

a) with the Event header field set to xcap-diff;

b) with the Request-URI set to own public service identity for performing subscription proxy function of the GMS;

c) with a P-Asserted-Identity header field containing an identity listed in the authorized MCS server list specified in subclause 6.2.5.1;

d) with an application/resource-lists+xml MIME body; and

e) with the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24 229 [12]), in a P-Asserted-Service header field according to IETF RFC 6050 [14];

the GMS shall act as a notifier according to IETF RFC 5875 [13].

Upon reception of a SIP re-SUBSCRIBE request:

a) with the Event header field set to xcap-diff; and

b) with an application/resource-lists+xml MIME body;

the GMS:

a) shall use URI of the P-Asserted-Identity header field as an authenticated identity when performing the authorization;

b) if the authenticated identity is not authorized to subscribe to notification of changes of any document or element in the application/resource-lists+xml MIME body, shall reject the request with a SIP 403 (Forbidden) response and shall not continue with rest of the steps; and

c) shall act as a notifier according to IETF RFC 5875 [13].

6.3.13.3.2.4 Procedure for GMS acting as subscriber on behalf of GMC

In order to subscribe to notification of changes of:

a) an MCS group document of an MCS group;

b) a <GKTPs> element of an MCS GKTP document for an MCS group; or

c) both;

such that the MCS group is identified by a MCS group ID owned by an MCS provider other than the MCS provider of the GMS, the GMS shall send an initial SIP SUBSCRIBE request to the network according to the originating AS procedures specified in 3GPP TS 24.229 [12] and IETF RFC 5875 [13]. In the initial SIP SUBSCRIBE request, the GMS:

   a) shall include an application/resource-lists+xml MIME body. In the application/resource-lists+xml MIME body, the GMS shall include one <entry> element for each document or element to be subscribed to, such that the "uri" attribute of the <entry> element contains XCAP URI:

     1) contains a relative path reference:

       A) with the base URI being derived from the group ID routing database specified in subclause 6.2.5.2 and the MCS group ID; and

       B) identifying a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID is set to the MCS group ID; or

     2) contains a relative path reference

       A) with the base URI being equal to the XCAP root URI of the MCS provider of the GMS;

       B) with the document selector identifying the MCS GKTP document as described in subclause 7.7.10 where the group ID is set to the MCS group ID; and

       C) with the node selector identifying a <GKTPs> element of the MCS GKTP document;

   b) shall set the Request-URI to the public service identity for accessing documents of the other MCS provider derived from the group ID routing database specified in subclause 6.2.5.2; and

   c) shall include a P-Asserted-Identity header field containing the own public service identity for accessing documents;

   d) shall include an application/vnd.3gpp.mcptt-info+xml MIME body. In the application/vnd.3gpp.mcptt-info+xml MIME body, the GMS shall include the <mcptt-calling-user-id> element set to the originating MCS ID;

   e) shall include the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24.229 [12]), in a P-Asserted-Service header field according to IETF RFC 6050 [14]; and

   f) shall include the g.3gpp.icsi-ref media feature tag containing the value of "urn:urn-7:3gpp-service.ims.icsi.mcptt" in the Contact header field.

Upon receiving a SIP NOTIFY request associated with a subscription created as result of the sent initial SIP SUBSCRIBE request, the GMS shall handle the SIP NOTIFY request according to IETF RFC 5875 [13] and shall interwork the received information in subclause 6.3.13.3.2.2.

6.3.13.3.3   Procedures of GMS owning the MCS group

Upon reception of an initial SIP SUBSCRIBE request:

   a) with the Event header field set to xcap-diff;

   b) with the Request-URI set to own public service identity for accessing documents;

   c) with a P-Asserted-Identity header field containing an identity listed in the authorized GMS list as specified in subclause 6.2.5.1;

   d) with an application/resource-lists+xml MIME body;

   e) with an application/vnd.3gpp.mcptt-info+xml MIME body; and

   f) with the ICSI value "urn:urn-7:3gpp-service.ims.icsi.mcptt" (coded as specified in 3GPP TS 24 229 [12]), in a P-Asserted-Service header field according to IETF RFC 6050 [14];

the GMS:

   a) if the <mcptt-calling-user-id> element is included in the application/vnd.3gpp.mcptt-info+xml MIME body:

     1) shall use the <mcptt-calling-user-id> element value as an authenticated identity when performing the authorization; and

2) if the authenticated identity is not authorized to subscribe to notification of changes of any document or element in the application/resource-lists+xml MIME body, shall reject the request with a SIP 403 (Forbidden) response and shall not continue with rest of the steps;

b) if the <mcptt-calling-group-id> element is included in the application/vnd.3gpp.mcptt-info+xml MIME body:

    1) when performing the authorization, shall use URI of the P-Asserted-Identity header field as an authenticated identity and shall determine that the subscription is on behalf of the identity in the <mcptt-calling-group-id> element;

    2) if the authenticated identity is not authorized to subscribe to notification of changes of any document or element in the application/resource-lists+xml MIME body, shall reject the request with a SIP 403 (Forbidden) response and shall not continue with rest of the steps; and

    3) if the MCS group ID indicated in the <mcptt-calling-group-id> element is a constituent MCS group of a temporary MCS group and the documents or elements indicated in the application/resource-lists+xml MIME body are not associated with the temporary MCS group ID, shall reject the request with a SIP 403 (Forbidden) response and shall not continue with rest of the steps; and

c) shall act as a notifier according to IETF RFC 5875 [13].

6.3.14 Temporary MCS group formation procedure

6.3.14.1 General

This procedure enables a GMC to initiate creation of a temporary MCS group by combining MCS groups.

NOTE: The temporary MCS group formation procedure does not ensure that the MCSs of the temporary MCS group are the same as MCSs of each constituent MCS group of the temporary MCS group.

6.3.14.2 Group management client (GMC) procedures

In order to form a temporary MCS group, a GMC shall send a HTTP POST request according to procedures specified in IETF RFC 2616 [21] and subclause 6.2.3. In the HTTP POST request, the GMC:

a) shall set the Request-URI to an XCAP URI:

    1) in users tree where the XUI is set to a group creation XUI configuration parameter; and

    2) with the document selector identifying the temporary MCS group to be created; and

b) shall include an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting group regroup creation specified in subclause 7.3.4.3, with a <group> element containing a group document for an MCS group. In the group document, the GMC shall include the <on-network-temporary> element according to subclause 7.2. In the <on-network-temporary> element, the GMC shall include <constituent-MCPTT-group-IDs> element according to subclause 7.2. In the <constituent-MCPTT-group-IDs> element, the GMC shall include one <constituent-MCPTT-group-ID> element according to subclause 7.2 for each MCS group to be combined.

Upon reception of an HTTP 2xx response to the sent HTTP POST request, the GMC shall consider the temporary MCS group formation as successful.

Upon reception of an HTTP 409 (Conflict) response with at least one <alt-value> element in the <uniqueness-failure> error element, the GMC may repeat procedures of the present subclause and identify the temporary MCS group being formed with an MCS Group ID indicated in an <alt-value> element.

6.3.14.3 Group management server (GMS) procedures

6.3.14.3.1 Procedure of GMS creating a temporary MCS group

Upon reception of an HTTP POST request:

a) with a Request-URI with an XCAP URI identifying a non-existing group document; and

b) with an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting group regroup creation specified in subclause 7.3.4.3;

then the GMS:

a) shall determine the identity of the sender of the received HTTP POST request as specified in subclause 6.2.5;

b) if the identity of the sender of the received HTTP POST request is not authorized to initiate temporary MCS group formation, shall respond with HTTP 403 (Forbidden) response to the HTTP POST request and shall not continue with rest of the steps;

c) if value of the "uri" attribute of the <list-service> element of the <group> element of the GMOP document requesting group regroup creation specified in subclause 7.3.4.3 of the received HTTP POST request does not conform to local policy, shall respond with an HTTP 409 (Conflict) response to the HTTP POST request. The <uniqueness-failure> error element shall identify the error condition. The GMS shall include at least one <alt-value> element in the <uniqueness-failure> error element, whereby each <alt-value> element contains a MCS Group ID acceptable for the GMS. The GMS shall not continue with rest of the steps; and

d) for each MCS group ID of an MCS group to be combined indicated in content of a <constituent-MCPTT-group-ID> element of the <constituent-MCPTT-group-IDs> element of the <on-network-temporary> element of the group document of the <group> element of the GMOP document requesting group regroup creation specified in subclause 7.3.4.3 of the received HTTP POST request:

   1) shall send a HTTP POST request according to procedures specified in IETF RFC 2616 [21] and subclause 6.2.5. In the HTTP POST request, the GMS:

      A) shall set the Request-URI to an XCAP URI:

         i) with the document selector identifying a group document addressed by a group ID as specified in subclause 7.2.10.2, where the group ID is set to the MCS group ID of the MCS group to be combined;

         ii) with the node selector identifying a <on-network-regrouped> element of the constituent MCS group such that the <on-network-regrouped> element has the "temporary-MCPTT-group-ID" attribute set to the content of the "uri" attribute of the <list-service> element of the group document included in the received HTTP POST request;

         iii) if the MCS group ID of the MCS group to be combined is owned by the MCS provider of the GMS, with the XCAP root URI of the MCS provider of the GMS; and

         iv) if the MCS group ID of the MCS group to be combined is owned by an MCS provider other than the MCS provider of the GMS, with XCAP root URI derived using the group ID routing database as specified in subclause 6.2.5.2 and the MCS group ID of the MCS group to be combined;

      B) shall set the X-3GPP-Asserted-Identity header field as specified in 3GPP TS 24.482 [10] to a public service identity of the GMS; and

      C) shall include an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting group regroup check specified in subclause 7.3.4.4 with a <on-network-regrouped> element. In the <on-network-regrouped> element, the GMS:

         i) shall set the "temporary-MCPTT-group-ID" attribute to the content of the "uri" attribute of the <list-service> element of the group document included in the received HTTP POST request;

         ii) shall set the "temporary-MCPTT-group-requestor" attribute to the identity of the sender of the received HTTP POST request;

         iii) shall include the <constituent-MCPTT-group-IDs> element set to content of the <constituent-MCPTT-group-IDs> element of <on-network-temporary> element of the <list-service> element of the group document of the MCS group included in the received HTTP POST request;

         iv) if an <on-network-group-priority> element is included in the <list-service> element of the group document included in the received HTTP POST request, shall include the <on-network-group-priority> element set to content of the <on-network-group-priority> element of the <list-service> element of the group document included in the received HTTP POST request;

    v) if a <protect-media> element is included in the <list-service> element of the group document included in the received HTTP POST request, shall include the <protect-media> element set to content of the <protect-media> element of the <list-service> element of the group document included in the received HTTP POST request;

    vi) if a <protect-floor-control-signalling> element is included in the <list-service> element of the group document included in the received HTTP POST request, shall include the <protect-floor-control-signalling> element set to content of the <protect-floor-control-signalling> element of the <list-service> element of the group document included in the received HTTP POST request; and

    vii) if a <require-multicast-floor-control-signalling> element is included in the <list-service> element of the group document included in the received HTTP POST request, shall include the <require-multicast-floor-control-signalling> element.

Upon reception of a HTTP 3xx, 4xx, or 5xx responses to a sent HTTP POST request or upon timeout, the GMS shall send a HTTP 403 (Forbidden) response to the received HTTP request and shall not continue with rest of the steps.

Upon reception of HTTP 2xx responses to all sent HTTP POST requests, the GMS:

    a) for each MCS group ID of an MCS group to be combined indicated in content of a <constituent-MCPTT-group-ID> element of the <constituent-MCPTT-group-IDs> element of the <on-network-temporary> element of the <group> element of the GMOP document requesting group regroup creation specified in subclause 7.3.4.3 of the received HTTP POST request:

    1) shall send an HTTP POST request according to procedures specified in IETF RFC 2616 [21] and subclause 6.2.5. In the HTTP POST request, the GMS:

    A) shall set the Request-URI to an XCAP URI:

    i) with the document selector identifying a group document addressed by a group ID as specified in subclause 7.2.10.2, where the group ID is set to the MCS group ID of the MCS group to be combined;

    ii) with the node selector identifying a <on-network-regrouped> element of the constituent MCS group such that the <on-network-regrouped> element has the "temporary-MCPTT-group-ID" attribute set to the content of the "uri" attribute of the <list-service> element of the group document included in the received HTTP POST request;

    iii) if the MCS group ID of the MCS group to be combined is owned by the MCS provider of the GMS, with the XCAP root URI of the MCS provider of the GMS; and

    iv) if the MCS group ID of the MCS group to be combined is owned by an MCS provider other than the MCS provider of the GMS, with XCAP root URI derived using the group ID routing database as specified in subclause 6.2.5.2 and the MCS group ID of the MCS group to be combined;

    B) shall set the X-3GPP-Asserted-Identity header field as specified in 3GPP TS 24.482 [10] to a public service identity of the GMS; and

    C) shall include an application/vnd.3gpp.GMOP+xml MIME body with a GMOP document requesting group regroup notification specified in subclause 7.3.4.5. In the GMOP document requesting group regroup notification, the GMS:

    i) shall include a <on-network-regrouped> element. In the <on-network-regrouped> element, the GMS:

    - shall set the "temporary-MCPTT-group-ID" attribute to the content of the "uri" attribute of the <list-service> element of the group document included in the received HTTP POST request;

    - shall set the "temporary-MCPTT-group-requestor" attribute to the identity of the sender of the received HTTP POST request;

    - shall include the <constituent-MCPTT-group-IDs> element set to content of the <constituent-MCPTT-group-IDs> element of <on-network-temporary> element of the <list-service> element of the group document of the MCS group included in the received HTTP POST request;

    - if an <on-network-group-priority> element is included in the <list-service> element of the group document included in the received HTTP POST request, shall include the <on-network-group-

priority> element set to content of the <on-network-group-priority> element of the <list-service> element of the group document included in the received HTTP POST request;

- if a <protect-media> element is included in the <list-service> element of the group document included in the received HTTP POST request, shall include the <protect-media> element set to content of the <protect-media> element of the <list-service> element of the group document included in the received HTTP POST request;

- if a <protect-floor-control-signalling> element is included in the <list-service> element of the group document included in the received HTTP POST request, shall include the <protect-floor-control-signalling> element set to content of the <protect-floor-control-signalling> element of the <list-service> element of the group document included in the received HTTP POST request; and

- if a <require-multicast-floor-control-signalling> element is included in the <list-service> element of the group document included in the received HTTP POST request, shall include the <require-multicast-floor-control-signalling> element.

NOTE: GMK is not included in the GMOP document requesting group regroup notification as GMK is provided only using SIP.

Upon reception of HTTP 2xx responses to all sent HTTP POST requests, the GMS shall create the group document of the temporary MCS group at the location specified by the Request-URI of the received HTTP POST request and shall send an HTTP 2xx response to the received HTTP request. In the HTTP 2xx response, the GMS shall include an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document with group regroup creation response specified in subclause 7.3.4.6 with a <temporary-group-document-ETag> element set to the current value of the entity tag for the created group document of the temporary MCS group.

6.3.14.3.2 Procedure of GMS owning an MCS group to be combined

Upon reception of an HTTP POST request:

a) with the Request-URI set to an XCAP URI identifying an existing or a non-existing <on-network-regrouped> element of an existing group document of an MCS group; and

b) with an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting group regroup check specified in subclause 7.3.4.4;

the GMS:

a) if:

1) the Request-URI identifies an existing <on-network-regrouped> element of an existing group document of an MCS group;

2) the Request-URI identifies a non-existing <on-network-regrouped> element of an existing group document defining a temporary MCS group;

3) identity indicated in the X-3GPP-Asserted-Identity header field is not listed in the authorized GMS list specified in subclause 6.2.5.1; or

4) the MIME body of the HTTP POST request is not acceptable;

then shall respond with HTTP 403 (Forbidden) response to the HTTP POST request and shall not continue with rest of the steps; and

b) shall respond with HTTP 200 (OK) response to the HTTP POST request.

Upon reception of an HTTP POST request:

a) with the Request-URI set to an XCAP URI identifying an existing or a non-existing <on-network-regrouped> element of an existing group document of an MCS group; and

b) with an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting group regroup notification specified in subclause 7.3.4.5;

the GMS:

a) if:

   1) the Request-URI identifies an existing <on-network-regrouped> element of an existing group document of an MCS group;

   2) the Request-URI identifies a non-existing <on-network-regrouped> element of an existing group document defining a temporary MCS group;

   3) identity indicated in the X-3GPP-Asserted-Identity header field is not listed in the authorized GMS list specified in subclause 6.2.5.1; or

   4) the MIME body of the HTTP POST request is not acceptable;

   then shall respond with HTTP 403 (Forbidden) response to the HTTP POST request and shall not continue with rest of the steps;

b) shall place the <on-network-regrouped> element of the GMOP document requesting group regroup notification of the HTTP POST request at the location identified by the Request-URI of the received HTTP POST request;

c) shall respond with HTTP 200 (OK) response to the HTTP POST request; and

NOTE: GMKis not included in the GMOP document requesting group regroup notification as GMK is provided only using SIP.

d) shall subscribe for changes of the MCS GKTP document of the temporary MCS Group ID indicated in the "temporary-MCPTT-group-ID" attribute of the <on-network-regrouped> element of the GMOP document requesting group regroup notification according to subclause 6.3.13.2.3.

6.3.15 Temporary MCS group tear down procedure

6.3.15.1 General

This procedure enables a GMC to initiate tear down of a temporary MCS group.

6.3.15.2 Group management client (GMC) procedures

In order to tear down a temporary MCS group, the GMC shall send an HTTP DELETE request with Request-URI with an XCAP URI identifying a group document of the temporary MCS group according to procedures specified in IETF RFC 4825 [22] "*Delete an Element*".

6.3.15.3 Group management server (GMS) procedures

6.3.15.3.1 Procedure of GMS owning the temporary MCS group

Upon reception of an HTTP DELETE request with Request-URI with an XCAP URI identifying a group document of a temporary MCS group, the GMS:

   a) for each constituent MCS group indicated in the group document indicated by Request-URI:

      1) shall send an HTTP DELETE request. In the HTTP DELETE request, the GMS:

         A) shall set the Request-URI to an XCAP URI:

            i) with the document selector identifying a group document addressed by a group ID as specified in subclause 7.2.10.2, where the group ID is set to the MCS group ID of the constituent MCS group;

            ii) with the node selector identifying a <on-network-regrouped> element of the constituent MCS group, such that the "temporary-MCPTT-group-ID" attribute of the <on-network-regrouped> element contains the temporary MCS group ID of the temporary MCS group;

            iii) if the MCS group ID of the constituent MCS group is owned by the MCS provider of the GMS, with the XCAP root URI of the MCS provider of the GMS; and

            iv) if the MCS group ID of the constituent MCS group is owned by an MCS provider other than the MCS provider of the GMS, with XCAP root URI derived using the group ID routing database as specified in subclause 6.2.5.2 and the MCS group ID of the constituent MCS group; and

B) shall set the X-3GPP-Asserted-Identity header field as specified in 3GPP TS 24.482 [10] to a public service identity of the GMS.

Upon reception of an HTTP response to all sent HTTP DELETE requests, the GMS shall remove the group document of the temporary MCS group and shall send an HTTP 2xx response to the received HTTP request.

6.3.15.3.2 Procedure of GMS owning a constituent MCS group

Upon reception of an HTTP DELETE request with Request-URI identifying a <on-network-regrouped> element of an MCS group document, the GMS:

a) if:

    1) the Request-URI identifies an existing <on-network-regrouped> element of a non-existing group document; or

    2) identity indicated in the X-3GPP-Asserted-Identity header field is not listed in the authorized GMS list specified in subclause 6.2.5.1;

    then shall respond with HTTP 403 (Forbidden) response to the HTTP DELETE request and shall not continue with rest of the steps; and

b) shall act according to according to procedures specified in IETF RFC 4825 [22] "*DELETE Handling*".

6.3.16 Group document excluding group members retrieval procedure

6.3.16.1 General

This procedure enables the GMC to retrieve a group document excluding group members from the GMS.

When the MCS user requires the group document, then the default action by the GMC is to use the procedure in subclause 6.3.16.2 to request the group document excluding the group members from the GMS. If the MCS user requires the group document including the group members, then the GMC will request the entire group document using the procedures described in subclause 6.3.3.2.1.

6.3.16.2 Group management client (GMC) procedures

In order to retrieve a group document except group members, a GMC shall send an HTTP POST request according to procedures specified in IETF RFC 2616 [21] and subclause 6.2.3. In the HTTP POST request, the GMC:

a) shall set the Request-URI to XCAP URI of the group document addressed by a group ID; and

b) shall include an application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document requesting retrieval of a group document excluding group members specified in subclause 7.3.4.2.

Upon reception of an HTTP 2xx response to the HTTP POST request such that the HTTP 2xx response contains a MIME body of the MIME type specified in subclause 7.2.6, the GMC shall consider the MIME body as the group document excluding group members.

6.3.16.3 Group management server (GMS) procedures

Upon reception of an HTTP POST request:

a) with a Request-URI set to an XCAP URI identifying a existing group document; and

b) with application/vnd.3gpp.GMOP+xml MIME body containing a GMOP document for retrieval of a group document excluding group members specified in subclause 7.3.4.2;

the GMS shall send an HTTP 2xx response to the received HTTP request. In the HTTP 2xx response, the GMS shall include a MIME body of the MIME type specified in subclause 7.2.6, containing a group document:

a) placed at location identified by the Request-URI; and

b) not including the <list> element of the <list-service> element of the <group> root element.

7 Coding

7.1 General

This clause specifies coding enabling a group management client (GMC) and an MCS server to manage group documents in a group management server (GMS).

7.2 Group coding

7.2.1 General

Group document is described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Group*".

The requirements in the remaining subclauses of the parent subclause of this subclause apply for an MCS group document, i.e. a group document containing an MCS group.

The usage of an MCS group document in an MCS service is described in 3GPP TS 24.379 [5], 3GPP TS 24.281 [26] and 3GPP TS 24.282 [27].

7.2.2 Structure

NOTE 1: An MCS group document can contain further attributes and elements from any namespaces, according to the XML schemas of the MCS group document.

NOTE 2: For historical reasons, element names or attribute names can contain "mcptt". However, such elements and such attributes can be used in any MCS (the MCPTT or an MCS which is not the MCPTT).

The group document structure is described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Structure*" with the MCS specific clarifications specified in this subclause.

The <list-service> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCS group document:

    a) shall include a "uri" attribute specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

    b) may include a <display-name> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

    c) may include a <list> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

    d) may include a <ruleset> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

    e) shall include a <supported-services> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

    g) may include a <on-network-disabled> element specified in subclause 7.2.4.2;

    h) may include a <on-network-temporary> element specified in subclause 7.2.4.2;

    i) may include zero or more <on-network-regrouped> elements specified in subclause 7.2.4.2;

    j) may include an <off-network-ProSe-layer-2-group-id> element specified in subclause 7.2.4.2;

    k) may include an <off-network-PDN-type> element specified in subclause 7.2.4.2. In the present document, the <event> element can only have the values specified by the off-network-PDN-type-value ABNF rule of table 7.2.2-1;

    l) may include an <off-network-IP-multicast-address> element specified in subclause 7.2.4.2 containing a IP multicast address. If the IP multicast address is an IPv4 address, its value is coded as a string representing the dotted-decimal format of the IPv4 address as specified in IETF RFC 1166 [8]. If the IP multicast address is an IPv6 address, its value is coded as a string representing the canonical text representation format of the IPv6 address as specified in IETF RFC 5952 [9];

    m) may include an <off-network-ProSe-relay-service-code> element specified in subclause 7.2.4.2;

    n) may include an <owner> element specified in subclause 7.2.4.2;

    o)   may include a <level-within-group-hierarchy> element specified in subclause 7.2.4.2; and

    p)   may include a <level-within-user-hierarchy> element specified in subclause 7.2.4.2.

The <list-service> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCPTT group document additionally:

    a)   may include an <on-network-invite-members> element specified in subclause 7.2.4.2;

    b)   may include a <on-network-group-priority> element specified in subclause 7.2.4.2;

    c)   may include a <on-network-max-participant-count> element specified in subclause 7.2.4.2;

    d)   may include an <off-network-ProSe-signalling-PPPP> element specified in subclause 7.2.4.2;

    e)   may include an <off-network-ProSe-emergency-call-signalling-PPPP> element specified in subclause 7.2.4.2;

    f)   may include an <off-network-ProSe-imminent-peril-call-signalling-PPPP> element specified in subclause 7.2.4.2;

    g)   may include an <off-network-ProSe-media-PPPP> element specified in subclause 7.2.4.2;

    h)   may include an <off-network-ProSe-emergency-call-media-PPPP> element specified in subclause 7.2.4.2;

    i)   may include an <off-network-ProSe-imminent-peril-call-media-PPPP> element specified in subclause 7.2.4.2;

    j)   may include a <preferred-voice-encodings> element specified in subclause 7.2.4.2;

    k)   may include an <on-network-in-progress-emergency-state-cancellation-timeout> element specified in subclause 7.2.4.2;

    l)   may include an <on-network-in-progress-imminent-peril-state-cancellation-timeout> element specified in subclause 7.2.4.2;

    m)   may include an <off-network-in-progress-emergency-state-cancellation-timeout> element specified in subclause 7.2.4.2;

    n)   may include an <off-network-in-progress-imminent-peril-state-cancellation-timeout> element specified in subclause 7.2.4.2;

    o)   may include an <on-network-hang-timer> element specified in subclause 7.2.4.2;

    p)   may include an <on-network-maximum-duration> element specified in subclause 7.2.4.2;

    q)   may include an <off-network-hang-timer> element specified in subclause 7.2.4.2;

    r)   may include an <off-network-maximum-duration> element specified in subclause 7.2.4.2;

    s)   may include an <on-network-minimum-number-to-start> element specified in subclause 7.2.4.2;

    t)   may include an <on-network-timeout-for-acknowledgement-of-required-members> element specified in subclause 7.2.4.2;

    u)   may include an <on-network-action-upon-expiration-of-timeout-for-acknowledgement-of-required-members> element specified in subclause 7.2.4.2. The <on-network-action-upon-expiration-of-timeout-for-acknowledgement-of-required-members> element can only have the values specified by the on-network-action-upon-expiration-of-timeout-for-acknowledgement-of-required-members ABNF rule of table 7.2.2-1. If a value of the <on-network-action-upon-expiration-of-timeout-for-acknowledgement-of-required-members> element is other than those specified by the defined-actions ABNF rule of table 7.2.2-1, the <on-network-action-upon-expiration-of-timeout-for-acknowledgement-of-required-members> element is interpreted as having the value specified by the abandon-action ABNF rule of table 7.2.2-1;

    v)   may include a <protect-media> element specified in subclause 7.2.4.2;

    w)   may include a <protect-floor-control-signalling> element specified in subclause 7.2.4.2;

    x)   may include a <require-multicast-floor-control-signalling> element specified in subclause 7.2.4.2;

y) may include an <off-network-queue-usage> element specified in subclause 7.2.4.2;

z) may include an <mcptt-on-network-audio-cut-in> element specified in subclause 7.2.4.2;

za) may include an <multi-talker-control> element specified in subclause 7.2.4.2;

zb) may include a <max-number-simultaneous-talkers> element specified in subclause 7.2.4.2; and

zc) may include a <audio-mixing-entity> element specified in subclause 7.2.4.2. The <audio-mixing-entity> element can only have the values specified by the audio-mixing-entity ABNF rule of table 7.2.2-1. If a value of the <audio-mixing-entity> element is other than those specified by the audio-mixing-entity ABNF rule of table 7.2.2-1, the <audio-mixing-entity> element is interpreted as having the value specified by the inNetwork-value ABNF rule of table 7.2.2-1.

The <list-service> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCVideo group document additionally:

a) may include an <mcvideo-on-network-invite-members> element specified in subclause 7.2.4.2;

b) may include an <mcvideo-on-network-maximum-duration> element specified in subclause 7.2.4.2;

c) may include an <mcvideo-protect-media> element specified in subclause 7.2.4.2;

d) may include an <mcvideo-protect-transmission-control> element specified in subclause 7.2.4.2;

e) may include an <mcvideo-preferred-audio-encodings> element specified in subclause 7.2.4.2;

f) may include an <mcvideo-preferred-video-encodings> element specified in subclause 7.2.4.2;

g) may include an <mcvideo-preferred-video-resolutions> element specified in subclause 7.2.4.2;

h) may include an <mcvideo-preferred-video-frame-rate> element specified in subclause 7.2.4.2;

i) may include an <mcvideo-urgent-real-time-video-mode> element specified in subclause 7.2.4.2;

j) may include an <mcvideo-non-urgent-real-time-video-mode> element specified in subclause 7.2.4.2;

k) may include an <mcvideo-non-real-time-video-mode> element specified in subclause 7.2.4.2;

l) may include an <mcvideo-active-real-time-video-mode> element specified in subclause 7.2.4.2;

m) may include an <mcvideo-maximum-simultaneous-mcvideo-transmitting-group-members> element specified in subclause 7.2.4;

n) may include an <mcvideo-on-network-minimum-number-to-start> element specified in subclause 7.2.4.2;

o) may include an <mcvideo-on-network-group-priority> element specified in subclause 7.2.4.2;

p) may include an <mcvideo-off-network-arbitration-approach> element specified in subclause 7.2.4.2;

q) may include an <mcvideo-off-network-maximum-simultaneous-transmissions> element specified in subclause 7.2.4.2;

r) may include an <mcvideo-off-network-ProSe-signalling-PPPP> element specified in subclause 7.2.4.2;

s) may include an <mcvideo-off-network-ProSe-emergency-call-signalling-PPPP> element specified in subclause 7.2.4.2;

t) may include an <mcvideo-off-network-ProSe-imminent-peril-call-signalling-PPPP> element specified in subclause 7.2.4.2;

u) may include an <mcvideo-off-network-ProSe-media-PPPP> element specified in subclause 7.2.4.2;

v) may include an <mcvideo-off-network-ProSe-emergency-call-media-PPPP> element specified in subclause 7.2.4.2;

w) may include an <mcvideo-off-network-ProSe-imminent-peril-call-media-PPPP> element specified in subclause 7.2.4.2;

x) may include an <mcvideo-off-network-maximum-duration> element specified in subclause 7.2.4.2;

y) may include an <mcvideo-off-network-in-progress-emergency-state-cancellation-timeout> element specified in subclause 7.2.4.2; and

z) may include an <mcvideo-off-network-in-progress-imminent-peril-state-cancellation-timeout> element specified in subclause 7.2.4.2.

The <list-service> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCData group document additionally:

a) may include an <mcdata-protect-media> element specified in subclause 7.2.4.2;

b) may include an <mcdata-protect-transmission-control> element specified in subclause 7.2.4.2;

c) may include an <mcdata-allow-short-data-service> element specified in subclause 7.2.4.2;

d) may include an <mcdata-allow-file-distribution> element specified in subclause 7.2.4.2;

e) may include an <mcdata-allow-conversation-management> element specified in subclause 7.2.4.2;

f) may include an <mcdata-allow-tx-control> element specified in subclause 7.2.4.2;

g) may include an <mcdata-allow-rx-control> element specified in subclause 7.2.4.2;

h) may include an <mcdata-allow-enhanced-status> element specified in subclause 7.2.4.2;

i) may include an <mcdata-enhanced-status-operational-values> element specified in subclause 7.2.4.2;

j) may include an <mcdata-on-network-group-priority> element specified in subclause 7.2.4.2;

k) may include an <mcdata-on-network-max-data-size-for-SDS> element specified in subclause 7.2.4.2;

l) may include an <mcdata-on-network-max-data-size-for-FD> element specified in subclause 7.2.4.2;

m) may include an <mcdata-on-network-max-data-size-auto-recv> element specified in subclause 7.2.4.2;

n) may include an <mcdata-off-network-ProSe-signalling-PPPP> element specified in subclause 7.2.4.2; and

o) may include an <mcdata-off-network-ProSe-media-PPPP> element specified in subclause 7.2.4.2.

The <list> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCS group document:

a) may include zero or more <entry> elements specified in OMA OMA-TS-XDM_Group-V1_1_1 [3].

The <entry> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCS group document:

a) shall include a "uri" attribute specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

b) may include a <display-name> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

c) may include a <user-priority> element specified in subclause 7.2.4.2;

d) may include a <user-reception-priority> element specified in subclause 7.2.4.2; and

e) may include a <participant-type> element specified in subclause 7.2.4.2.

The <entry> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCPTT group document additionally:

a) may include a <on-network-required> element specified in subclause 7.2.4.2;

b) may include an <on-network-recvonly> element specified in subclause 7.2.4.2;

c) may include a <multi-talker-allowed> element specified in subclause 7.2.4.2.

The <entry> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCVideo group document additionally:

    a)   may include an <mcvideo-on-network-required> element specified in subclause 7.2.4.2; and

    b)   shall include an <mcvideo-mcvideo-id> element specified in subclause 7.2.4.2.

The <entry> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCData group document additionally:

    a)   may include an <mcdata-max-data-in-single-request> element specified in subclause 7.2.4.2;

    b)   may include an <mcdata-max-time-in-single-request> element specified in subclause 7.2.4.2; and

    c)   shall include an <mcdata-mcdata-id> element specified in subclause 7.2.4.2.

The <ruleset> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCS group document:

    a)   may include zero or more <rule> elements specified in OMA OMA-TS-XDM_Group-V1_1_1 [3].

The <rule> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCS group document:

    a)   may include a <conditions> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3]; and

    b)   may include an <actions> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3].

The <conditions> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCS group document:

    a)   may include an <identity> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3]; and

    b)   may include an <is-list-member> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3].

The <actions> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCS group document:

    a)   may include an <on-network-allow-getting-member-list> element specified in subclause 7.2.4.2.

The <actions> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCPTT group document additionally:

    a)   may include an <allow-initiate-conference> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

    b)   may include a <join-handling> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3];

    c)   may include an <allow-MCPTT-emergency-call> element specified in subclause 7.2.4.2;

    d)   may include an <allow-imminent-peril-call> element specified in subclause 7.2.4.2;

    e)   may include an <allow-MCPTT-emergency-alert> element specified in subclause 7.2.4.2;

    f)   may include an <on-network-allow-getting-affiliation-list> element specified in subclause 7.2.4.2; and

    g)   may include an <on-network-allow-conference-state> element specified in subclause 7.2.4.2.

The <actions> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCVideo group document additionally:

    a)   may include an <mcvideo-allow-emergency-call> element specified in subclause 7.2.4.2;

    b)   may include an <mcvideo-allow-emergency-alert> element specified in subclause 7.2.4.2;

    c)   may include an <mcvideo-allow-imminent-peril-call> element specified in subclause 7.2.4.2;

    d)   may include an <mcvideo-on-network-allow-conference-state> element specified in subclause 7.2.4.2; and

    e)   may include an <mcvideo-on-network-allow-getting-affiliation-list> element specified in subclause 7.2.4.2.

The <actions> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCData group document additionally:

    a)   may include an <mcdata-on-network-allow-getting-affiliation-list> specified in subclause 7.2.4.2; and;

    b)   may include an <mcdata-allow-transmit-data-in-this-group> element specified in subclause 7.2.4.2.

The <supported-services> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCS group document:

    a)   shall include one or more <service> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3].

The MCPTT specific <service> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCPTT group document:

    a)   shall include an "enabler" attribute specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] including a string defining an enabler. The "enabler" attribute is set to the MCPTT ICSI specified in the 3GPP TS 24.379 [5]; and

    b)   shall include a <group-media> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3].

The MCVideo specific <service> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCVideo group document:

    a)   shall include an "enabler" attribute specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] including a string defining an enabler. The "enabler" attribute is set to the MCVideo ICSI specified in the 3GPP TS 24.281 [26]; and

    b)   shall include a <group-media> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3].

The MCData specific <service> element specified in OMA OMA-TS-XDM_Group-V1_1 [3] of an MCData group document:

    a)   shall include an "enabler" attribute specified in OMA OMA-TS-XDM_Group-V1_1 [3] including a string defining an enabler. The "enabler" attribute is set to one of:

        1)   the ICSI value for mission critical data (MCData) communications short data service (SDS) specified in the 3GPP TS 24.282 [27];

        2)   the ICSI value for mission critical data (MCData) communications file distribution (FD) specified in the 3GPP TS 24.282 [27]; or

        3)   the ICSI value for mission critical data (MCData) communications enhanced service (ES) specified in the 3GPP TS 24.282 [27].

The <group-media> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of the MCPTT specific <service> element of an MCPTT group document:

    a)   shall include an <mcptt-speech> element specified in subclause 7.2.4.2.

The <group-media> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of the MCVideo specific <service> element of an MCVideo group document:

    a)   shall include an <mcvideo-video-media> element specified in subclause 7.2.4.2.

The <on-network-temporary> element specified in subclause 7.2.4.2 of an MCS group document:

    a)   shall include a <constituent-MCPTT-group-IDs> element specified in subclause 7.2.4.2; and

    b)   may include an <anyExt> element specified in subclause 7.2.4.2.

The <constituent-MCPTT-group-IDs> element specified in subclause 7.2.4.2 of an MCS group document:

    a)   may include zero, or more <constituent-MCPTT-group-ID> elements specified in subclause 7.2.4.2; and

    b)   may include an <anyExt> element specified in subclause 7.2.4.2.

The <on-network-regrouped> element specified in subclause 7.2.4.2 of an MCS group document:

    a)   shall include a "temporary-MCPTT-group-ID" attribute specified in subclause 7.2.4.2;

    b)   shall include a "temporary-MCPTT-group-requestor" attribute specified in subclause 7.2.4.2;

    c)   shall include a <constituent-MCPTT-group-IDs> element specified in subclause 7.2.4.2. and

    d)   may include an <anyExt> element specified in subclause 7.2.4.2.

The <on-network-regrouped> element specified in subclause 7.2.4.2 of an MCPTT group document:

NOTE 3: MCPTT parameters defined in release 13 are included in the <on-network-regrouped> element. MCPTT parameters defined in a release later than release 13 are included in the <anyExt> element of the <on-network-regrouped> element.

    d) may include a <on-network-group-priority> element specified in subclause 7.2.4.2;

    e) may include a <protect-media> element specified in subclause 7.2.4.2;

    f) may include a <protect floor-control-signalling> element specified in subclause 7.2.4.2; and

    g) may include a <require-multicast-floor-control-signalling> element specified in subclause 7.2.4.2.

The <preferred-voice-encodings> element specified in subclause 7.2.4.2 of an MCPTT group document:

    a) shall include one or more <encoding> element specified in subclause 7.2.4.2.

The <mcvideo-preferred-audio-encodings> element specified in subclause 7.2.4.2 of an MCVideo group document:

    a) shall include one or more <encoding> element specified in subclause 7.2.4.2.

The <mcvideo-preferred-video-encodings> element specified in subclause 7.2.4.2 of an MCVideo group document:

    a) shall include one or more <encoding> element specified in subclause 7.2.4.2.

The <encoding> element specified in subclause 7.2.4.2 of an MCS group document:

    a) shall include a "name" attribute with value equal to a value of the <encoding name> field of a=rtpmap attribute as defined in IETF RFC 4566 [20].

Table 7.2.2-1: ABNF syntax of values of the elements

```
off-network-PDN-type-values = IPv4-value / IPv6-value
IPv4-value = %x49.50.76.34 ; "IPv4"
IPv6-value = %x49.50.76.36 ; "IPv6"

on-network-action-upon-expiration-of-timeout-for-acknowledgement-of-required-members
 = defined-actions / future-actions
defined-actions = proceed-action / abandon-action
proceed-action = %x70.72.6f.63.65.65.64 ; "proceed"
abandon-action = %x61.62.61.6e.64.6f.6e ; "abandon"
future-actions = 1*( ALPHA / DIGIT / "-" )

audio-mixing-entity = inUE-value / inNetwork-value
inUE-value = %x55.45 ; "UE"
inNetwork-value = %x4E.57 ; "NW"
```

Elements and attributes of the group document are defined in various namespaces. The group document refers to namespaces using prefixes specified in table 7.2.2-2.

Table 7.2.2-2: Assignment of prefixes to namespace names in group documents

Prefix	Namespace
rl	urn:ietf:params:xml:ns:resource-lists
cp	urn:ietf:params:xml:ns:common-policy
ocp	urn:oma:xml:xdm:common-policy
oxe	urn:oma:xml:xdm:extensions
mcpttgi	urn:3gpp:ns:mcpttGroupInfo:1.0
NOTE: The "urn:oma:xml:poc:list-service" namespace is the default namespace so no prefix is used for it in the group document.	

The <mcvideo-mcvideo-id> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCVideo group document

    a) shall include a "uri" attribute specified in IETF RFC 4826 [28].

The <mcdata-mcdata-id> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] of an MCData group document:

    a) shall include a "uri" attribute specified in IETF RFC 4826 [28].

<anyExt> element contains elements defined by future versions of the present document.

7.2.3 Application Unique ID

Application Unique ID is described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Application Unique ID*".

7.2.4 XML schema

7.2.4.1 General

The group document is composed according the XML schema described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*XML Schema*", and extended with extensions from the XML schema defined in subclause 7.2.4.2.

7.2.4.2 XML schema for MCS specific extensions

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema
  targetNamespace="urn:3gpp:ns:mcpttGroupInfo:1.0"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:mcpttgi="urn:3gpp:ns:mcpttGroupInfo:1.0"
  xmlns:oxe="urn:oma:xml:xdm:extensions"
  xmlns:rl="urn:ietf:params:xml:ns:resource-lists"
  elementFormDefault="qualified" attributeFormDefault="unqualified">

  <xs:import namespace="urn:oma:xml:xdm:extensions"/>
  <xs:import namespace="urn:ietf:params:xml:ns:resource-lists"/>

  <!-- MCS specific "list-service" child elements -->
  <xs:element name="on-network-disabled" type="mcpttgi:emptyType"/>
  <xs:element name="on-network-temporary" type="mcpttgi:temporaryType"/>
  <xs:element name="on-network-regrouped" type="mcpttgi:regroupedType"/>
  <xs:element name="off-network-ProSe-layer-2-group-id" type="xs:hexBinary"/>
  <xs:element name="off-network-IP-multicast-address" type="xs:string"/>
  <xs:element name="off-network-PDN-type" type="xs:string"/>
  <xs:element name="off-network-ProSe-relay-service-code" type="xs:hexBinary"/>
  <xs:element name="owner" type="xs:string"/>
  <xs:element name="level-within-group-hierarchy" type="xs:unsignedShort"/>
  <xs:element name="level-within-user-hierarchy" type="xs:unsignedShort"/>

  <!-- MCPTT specific "list-service" child elements -->
  <xs:element name="on-network-group-priority" type="mcpttgi:priorityType"/>
  <xs:element name="off-network-ProSe-signalling-PPPP" type="xs:hexBinary"/>
  <xs:element name="off-network-ProSe-emergency-call-signalling-PPPP" type="xs:hexBinary"/>
  <xs:element name="off-network-ProSe-imminent-peril-call-signalling-PPPP" type="xs:hexBinary"/>
  <xs:element name="off-network-ProSe-media-PPPP" type="xs:hexBinary"/>
  <xs:element name="off-network-ProSe-emergency-call-media-PPPP" type="xs:hexBinary"/>
  <xs:element name="off-network-ProSe-imminent-peril-call-media-PPPP" type="xs:hexBinary"/>
  <xs:element name="on-network-max-participant-count" type="xs:nonNegativeInteger"/>
  <xs:element name="on-network-invite-members" type="xs:boolean"/>
  <xs:element name="preferred-voice-encodings" type="mcpttgi:encodingsType"/>
  <xs:element name="on-network-in-progress-emergency-state-cancellation-timeout"
    type="xs:duration"/>
  <xs:element name="on-network-in-progress-imminent-peril-state-cancellation-timeout"
    type="xs:duration"/>
  <xs:element name="off-network-in-progress-emergency-state-cancellation-timeout"
    type="xs:duration"/>
  <xs:element name="off-network-in-progress-imminent-peril-state-cancellation-timeout"
    type="xs:duration"/>
  <xs:element name="on-network-hang-timer" type="xs:duration"/>
  <xs:element name="on-network-maximum-duration" type="xs:duration"/>
  <xs:element name="off-network-hang-timer" type="xs:duration"/>
  <xs:element name="off-network-maximum-duration" type="xs:duration"/>
  <xs:element name="on-network-minimum-number-to-start" type="xs:unsignedShort"/>
  <xs:element name="on-network-timeout-for-acknowledgement-of-required-members" type="xs:duration"/>
  <xs:element name="on-network-action-upon-expiration-of-timeout-for-acknowledgement-of-required-
    members" type="xs:string"/>
  <xs:element name="protect-media" type="xs:boolean"/>
  <xs:element name="protect-floor-control-signalling" type="xs:boolean"/>
  <xs:element name="require-multicast-floor-control-signalling" type="mcpttgi:emptyType"/>
```

```
  <xs:element name="off-network-queue-usage" type="xs:boolean"/>
  <xs:element name="mcptt-on-network-audio-cut-in" type="xs:boolean"/>
  <xs:element name="multi-talker-control" type="xs:boolean"/>
  <xs:element name="max-number-simultaneous-talkers" type="xs:positiveInteger"/>
  <xs:element name="audio-mixing-entity" type="xs:string"/>

  <!-- MCVideo specific "list-service" child elements -->
  <xs:element name="mcvideo-on-network-invite-members" type="xs:boolean"/>
  <xs:element name="mcvideo-on-network-maximum-duration" type="xs:duration"/>
  <xs:element name="mcvideo-protect-media" type="xs:boolean"/>
  <xs:element name="mcvideo-protect-transmission-control" type="xs:boolean"/>
  <xs:element name="mcvideo-preferred-audio-encodings" type="mcpttgi:encodingsType"/>
  <xs:element name="mcvideo-preferred-video-encodings" type="mcpttgi:encodingsType"/>
  <xs:element name="mcvideo-preferred-video-resolutions" type="xs:string"/>
  <xs:element name="mcvideo-preferred-video-frame-rate" type="xs:string"/>
  <xs:element name="mcvideo-urgent-real-time-video-mode" type="xs:boolean"/>
  <xs:element name="mcvideo-non-urgent-real-time-video-mode" type="xs:boolean"/>
  <xs:element name="mcvideo-non-real-time-video-mode" type="xs:boolean"/>
  <xs:element name="mcvideo-active-real-time-video-mode" type="xs:string"/>
  <xs:element name="mcvideo-maximum-simultaneous-mcvideo-transmitting-group-members"
    type="xs:nonNegativeInteger"/>
  <xs:element name="mcvideo-on-network-minimum-number-to-start" type="xs:unsignedShort"/>
  <xs:element name="mcvideo-on-network-group-priority" type="mcpttgi:priorityType"/>
  <xs:element name="mcvideo-off-network-arbitration-approach" type="xs:string"/>
  <xs:element name="mcvideo-off-network-maximum-simultaneous-transmissions"
    type="xs:nonNegativeInteger"/>
  <xs:element name="mcvideo-off-network-ProSe-signalling-PPPP" type="xs:hexBinary"/>
  <xs:element name="mcvideo-off-network-ProSe-emergency-call-signalling-PPPP" type="xs:hexBinary"/>
  <xs:element name="mcvideo-off-network-ProSe-imminent-peril-call-signalling-PPPP"
    type="xs:hexBinary"/>
  <xs:element name="mcvideo-off-network-ProSe-media-PPPP" type="xs:hexBinary"/>
  <xs:element name="mcvideo-off-network-ProSe-emergency-call-media-PPPP" type="xs:hexBinary"/>
  <xs:element name="mcvideo-off-network-ProSe-imminent-peril-call-media-PPPP" type="xs:hexBinary"/>
  <xs:element name="mcvideo-off-network-in-progress-emergency-state-cancellation-timeout"
    type="xs:duration"/>
  <xs:element name="mcvideo-off-network-in-progress-imminent-peril-state-cancellation-timeout"
    type="xs:duration"/>
  <xs:element name="mcvideo-off-network-maximum-duration" type="xs:duration"/>

  <!-- MCData specific "list-service" child elements -->
  <xs:element name="mcdata-protect-media" type="xs:boolean"/>
  <xs:element name="mcdata-protect-transmission-control" type="xs:boolean"/>
  <xs:element name="mcdata-allow-short-data-service" type="xs:boolean"/>
  <xs:element name="mcdata-allow-file-distribution" type="xs:boolean"/>
  <xs:element name="mcdata-allow-conversation-management" type="xs:boolean"/>
  <xs:element name="mcdata-allow-tx-control" type="xs:boolean"/>
  <xs:element name="mcdata-allow-rx-control" type="xs:boolean"/>
  <xs:element name="mcdata-allow-enhanced-status" type="xs:boolean"/>
  <xs:element name="mcdata-enhanced-status-operational-values" type="mcpttgi:enhancedStatusList"/>
  <xs:element name="mcdata-on-network-max-data-size-for-SDS" type="xs:unsignedInt"/>
  <xs:element name="mcdata-on-network-max-data-size-for-FD" type="xs:unsignedInt"/>
  <xs:element name="mcdata-on-network-max-data-size-auto-recv" type="xs:unsignedInt"/>
  <xs:element name="mcdata-on-network-group-priority" type="mcpttgi:priorityType"/>
  <xs:element name="mcdata-off-network-ProSe-signalling-PPPP" type="xs:hexBinary"/>
  <xs:element name="mcdata-off-network-ProSe-media-PPPP" type="xs:hexBinary"/>

  <!-- MCS specific "entry" child elements -->
  <xs:element name="user-priority" type="mcpttgi:priorityType"/>
  <xs:element name="user-reception-priority" type="mcpttgi:priorityType"/>
  <xs:element name="participant-type" type="xs:string"/>

  <!-- MCPTT specific "entry" child elements -->
  <xs:element name="on-network-required" type="mcpttgi:emptyType"/>
  <xs:element name="on-network-recvonly" type="mcpttgi:emptyType"/>
  <xs:element name="multi-talker-allowed" type="mcpttgi:emptyType"/>

  <!-- MCVideo specific "entry" child elements -->
  <xs:element name="mcvideo-on-network-required" type="mcpttgi:emptyType"/>
  <xs:element name="mcvideo-mcvideo-id" type="rl:entryType"/>

  <!-- MCData specific "entry" child elements -->
  <xs:element name="mcdata-max-data-in-single-request" type="xs:unsignedInt"/>
  <xs:element name="mcdata-max-time-in-single-request" type="xs:duration"/>
  <xs:element name="mcdata-mcdata-id" type="rl:entryType"/>

  <!-- MCS specific "actions" child elements -->
  <xs:element name="on-network-allow-getting-member-list" type="xs:boolean"/>
```

```
<!-- MCPTT specific "actions" child elements -->
<xs:element name="allow-MCPTT-emergency-call" type="xs:boolean"/>
<xs:element name="allow-imminent-peril-call" type="xs:boolean"/>
<xs:element name="allow-MCPTT-emergency-alert" type="xs:boolean"/>
<xs:element name="on-network-allow-getting-affiliation-list" type="xs:boolean"/>
<xs:element name="on-network-allow-conference-state" type="xs:boolean"/>

<!-- MCVideo specific "actions" child elements -->
<xs:element name="mcvideo-allow-emergency-call" type="xs:boolean"/>
<xs:element name="mcvideo-allow-emergency-alert" type="xs:boolean"/>
<xs:element name="mcvideo-allow-imminent-peril-call" type="xs:boolean"/>
<xs:element name="mcvideo-on-network-allow-conference-state" type="xs:boolean"/>
<xs:element name="mcvideo-on-network-allow-getting-affiliation-list" type="xs:boolean"/>

<!-- MCData specific "actions" child elements -->
<xs:element name="mcdata-allow-transmit-data-in-this-group" type="xs:boolean"/>
<xs:element name="mcdata-on-network-allow-getting-affiliation-list" type="xs:boolean"/>

<!-- MCPTT specific media elements -->
<xs:element name="mcptt-speech" type="oxe:extensionType"/>

<!-- MCVideo specific media elements -->
<xs:element name="mcvideo-video-media" type="oxe:extensionType"/>

<!-- MCData specific media elements -->

<!-- MCS specific complex type definitions -->

<!-- empty complex type -->
<xs:complexType name="emptyType"/>

<!-- complex type for temporary element -->
<xs:complexType name="temporaryType">
  <xs:sequence>
    <xs:element name="constituent-MCPTT-group-IDs"
      type="mcpttgi:constituentMCPTTgroupTypeIDsType"/>
    <xs:element name="anyExt" type="mcpttgi:anyExtType" minOccurs="0"/>
    <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:anyAttribute namespace="##any" processContents="lax"/>
</xs:complexType>

<!-- complex type for constituent-MCPTT-group-ID element -->
<xs:complexType name="constituentMCPTTgroupTypeIDsType">
  <xs:sequence>
    <xs:element name="constituent-MCPTT-group-ID" type="xs:anyURI" minOccurs="0"
  maxOccurs="unbounded"/>
    <xs:element name="anyExt" type="mcpttgi:anyExtType" minOccurs="0"/>
    <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:anyAttribute namespace="##any" processContents="lax"/>
</xs:complexType>

<!-- complex type for regrouped element -->
<xs:complexType name="regroupedType">
  <xs:sequence>
    <xs:element name="constituent-MCPTT-group-IDs"
      type="mcpttgi:constituentMCPTTgroupTypeIDsType"/>

    <!-- MCPTT specific extensions for regroupedType type defined in release 13 -->
    <xs:element ref="mcpttgi:on-network-group-priority" minOccurs="0"/>
    <xs:element ref="mcpttgi:protect-media" minOccurs="0"/>
    <xs:element ref="mcpttgi:protect-floor-control-signalling" minOccurs="0"/>
    <xs:element ref="mcpttgi:require-multicast-floor-control-signalling" minOccurs="0"/>
    <xs:element name="anyExt" type="mcpttgi:anyExtType" minOccurs="0"/>
    <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
  <xs:attribute name="temporary-MCPTT-group-ID" type="xs:anyURI" use="required"/>
  <xs:attribute name="temporary-MCPTT-group-requestor" type="xs:anyURI" use="required"/>
  <xs:anyAttribute namespace="##any" processContents="lax"/>
</xs:complexType>

<!-- complex type for any extensions element -->
<xs:complexType name="anyExtType">
  <xs:sequence>
    <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
```

```
    <!-- MCS specific extensions for regroupedType type -->

    <!-- MCPTT specific extensions for regroupedType type defined in a release after release 13 -->

    <!-- MCVideo specific extensions for regroupedType type -->

    <!-- MCData specific extensions for regroupedType type  -->

    <!-- MCS specific complex type definitions -->
    <!-- encodingsType complex type -->
    <xs:complexType name="encodingsType">
      <xs:sequence>
        <xs:element name="encoding" type="mcpttgi:encodingType" maxOccurs="unbounded"/>
        <xs:element name="anyExt" type="mcpttgi:anyExtType" minOccurs="0"/>
        <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
      <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <!-- encodingType complex type -->
    <xs:complexType name="encodingType">
      <xs:sequence>
        <xs:element name="anyExt" type="mcpttgi:anyExtType" minOccurs="0"/>
        <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
      <xs:attribute name="name" type="xs:string" use="required"/>
      <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <!-- simple type for priority element -->
    <xs:simpleType name="priorityType">
      <xs:restriction base="xs:unsignedShort">
        <xs:minInclusive value="0"/>
        <xs:maxInclusive value="255"/>
      </xs:restriction>
    </xs:simpleType>

    <!-- MCPTT specific complex type definitions -->

    <!-- MCVideo specific complex type definitions -->

    <!-- MCData specific complex type definitions -->

    <!-- complex type for mcdata-enhanced-status-operational-values element -->
    <xs:complexType name="enhancedStatusList">
      <xs:sequence minOccurs="0" maxOccurs="65536">
        <xs:choice>
          <xs:element name="status" type="mcpttgi:enhancedStatusType"/>
          <xs:element name="anyExt" type="mcpttgi:anyExtType" minOccurs="0"/>
          <xs:any namespace="##other" processContents="lax"/>
        </xs:choice>
      </xs:sequence>
    </xs:complexType>

    <!-- complex type for enhancedStatusType element -->
    <xs:complexType name="enhancedStatusType">
      <xs:sequence>
          <xs:element name="id" type="xs:nonNegativeInteger"/>
          <xs:element name="shortText" type="xs:mcpttgi:languageString"/>
          <xs:element name="description" type="xs:mcpttgi:languageString"/>
      </xs:sequence>
    </xs:complexType>

    <xs:complexType name="languageString">
        <xs:sequence maxOccurs="unbounded">
            <xs:element name="langType" type="xs:language"/>
            <xs:element name="langText" type="xs:string"/>
        </xs:sequence>
    </xs:complexType>

</xs:schema>
```

7.2.5 Default document namespace

The default document namespace used in evaluating URIs is described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Default Namespace*".

7.2.6 MIME type

MIME type is described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*MIME Type*".

7.2.7 Validation constraints

Validation constraints are described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Validation Constraints*", along with the validations constraints described in this subclause.

When the <on-network-invite-members> element contains a value "true" then the <on-network-maximum-duration> element shall contain a value.

When the <on-network-invite-members> element contains a value "false" then a value may be included in the <on-network-maximum-duration> element.

7.2.8 Data semantics

Data semantics are described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Data Semantics*" with the MCS specific clarifications specified in this subclause.

A group document is an MCS group document if the group document:

   a) is an MCPTT group document;

   b) is an MCData group document;

   c) is an MCVideo group document; or

   d) is any combination of the previous bullets.

A group document is an MCPTT group document only if:

   a) the <supported-services> element is present in the group document;

   b) the <service> child element of the <supported-services> element is present;

   c) the <service> element includes the "enabler" attribute set to the MCPTT ICSI specified in the 3GPP TS 24.379 [5];

   d) the <group-media> child element of the <service> element is present; and

   e) the <mcptt-speech> child element of the <group-media> element is present.

A group document is an MCVideo group document only if:

   a) the <supported-services> element is present in the group document;

   b) the <service> child element of the <supported-services> element is present;

   c) the <service> element includes the "enabler" attribute set to the MCVideo ICSI specified in the 3GPP TS 24.281 [26];

   d) the <group-media> child element of the <service> element is present; and

   e) the <mcvideo-video-media> child element of the <group-media> element is present.

A group document is an MCData group document only if:

   a) the <supported-services> element is present in the group document;

   b) the <service> child element of the <supported-services> element is present; and

c) the <service> element includes the "enabler" attribute set to:

1) the ICSI value for mission critical data (MCData) communications short data service (SDS) specified in the 3GPP TS 24.282 [27];

2) the ICSI value for mission critical data (MCData) communications file distribution (FD) specified in the 3GPP TS 24.282 [27]; or

3) the ICSI value for mission critical data (MCData) communications enhanced service (ES) specified in the 3GPP TS 24.282 [27].

If a group document includes an element not specified in subclause 7.2.2 for an MCS group document and the element has the "must-understand" attribute with value "true", then the group document shall be ignored.

If a group document includes an element not specified in subclause 7.2.2 for an MCS group document and the element:

a) does not have the "must-understand" attribute with value "true"; and

b) is not a descendant of a <conditions> element;

then the element shall be ignored.

If a group document includes an element not specified in subclause 7.2.2 for an MCS group document and the element:

a) does not have the "must-understand" attribute with value "true"; and

b) is a descendant of a <conditions> element;

then the element shall be evaluated as not known element according to IETF RFC 4745 [6].

If a group document includes an attribute not specified in subclause 7.2.2 for an MCS group and different from the "must-understand" attribute, then the attribute shall be ignored.

The possible values of the <on-network-invite-members> element in the <list-service> element of the MCPTT group document are:

a) "true" which represents the pre-arranged group in on-network MCPTT procedures; and

b) "false" which represents the chat group in on-network MCPTT procedures. This value is used when the element is not present.

NOTE 1: Presence or absence of the <invite-members> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] does not impact MCS procedures.

The <display-name> element of a <list-service> element of a group document contains the group name.

The <list> element of a <list-service> element of a group document contains the group members.

The <ruleset> element of a <list-service> element of a group document contains the authorization policy associated with this group.

The <supported-services> element of a <list-service> element of a group document contains the supported services of this group.

The "uri" attribute of a <list-service> element of a group document contains the group ID. The group ID of an MCS group document:

a) is also the MCS group identity, if the MCS group is not a temporary MCS group; and

b) is also the temporary MCS group identity, if the MCS group is a temporary MCS group.

If the MCS group document is an MCPTT group document and defines a non-temporary MCS group, the MCS group identity is also the MCPTT group ID. If the MCS group document is an MCVideo group document and defines a non-temporary MCS group, the MCS group identity is also the MCVideo group ID. If the MCS group document is an MCData group document and defines a non-temporary MCS group, the MCS group identity is also the MCData group ID.

NOTE 2: The above statements apply also when the MCS group document is of several MCSs.

If the MCS group document is an MCPTT group document and defines a temporary MCS group, the MCS group identity is also the temporary MCPTT group ID. If the MCS group document is an MCVideo group document and defines a temporary MCS group, the MCS group identity is also the temporary MCVideo group ID. If the MCS group document is an MCData group document and defines a temporary MCS group, the MCS group identity is also the temporary MCData group ID.

NOTE 3: The above rules statements also when the MCS group document is of several MCSs.

Presence of the <on-network-disabled> element in the <list-service> element of the MCS group document indicates that the MCS group is disabled in on-network procedures. Absence of the <on-network-disabled> element in the <list-service> element of the MCS group document indicates that the MCS group is enabled in on-network procedures.

Value of the <on-network-group-priority> element of the <list-service> element of the MCPTT group document indicates the priority level of the group in on-network MCPTT procedures. Higher value indicates higher priority. Absence of the <on-network-group-priority> element of the <list-service> element of the MCPTT group document indicates the lowest possible priority.

Value of the <on-network-max-participant-count> element of the <list-service> element of the MCPTT group document indicates the maximum number of participants in the MCPTT group session in on-network MCPTT procedures.

Presence of the <on-network-temporary> element in the <list-service> element of the MCS group document indicates that the MCS group is a temporary MCS group. Each <constituent-MCPTT-group-ID> child elements of the <constituent-MCPTT-group-IDs> element of the <on-network-temporary> element indicates MCS group ID of a constituent MCS group of the temporary MCS group. Absence of the <on-network-temporary> element in the <list-service> element of the MCS group document indicates that the MCS group is not a temporary MCS group.

Presence of a <on-network-regrouped> element in the <list-service> element of the MCS group document indicates that the MCS group is a constituent MCS group of a temporary MCS group with MCS Group ID indicated in the value of the "temporary-MCPTT-group-ID" attribute of the <on-network-regrouped> element. The data semantic of:

a) the <on-network-group-priority> child element;

b) the <protect-media> child element;

c) the <protect floor-control-signalling> child element; and

d) the <require-multicast-floor-control-signalling> child element;

of the <on-network-regrouped> element is the same as semantic of the corresponding elements in the <list-service> element of the MCS group document of the temporary MCS group. Each <constituent-MCPTT-group-ID> child elements of the <constituent-MCPTT-group-IDs> element of the <on-network-regrouped> element indicates MCS group ID of a constituent MCS group of the temporary MCS group. Absence of the <on-network-regrouped> element in the <list-service> element of the MCS group document indicates that the MCS group is not a constituent MCS group of a temporary MCS group.

Value of the <off-network-ProSe-layer-2-group-id> element of the <list-service> element of the MCS group document indicates the ProSe layer-2 group ID specified in 3GPP TS 24.334 [7] assigned to the MCS group for usage in the off-network procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-ProSe-layer-2-group-id> element of the <list-service> element of the MCS group document indicates that the MCS group is not to be used in off-network procedures specified in 3GPP TS 24.379 [5].

Value of the <off-network-PDN-type> element of the <list-service> element of the MCS group document indicates the IP version to be used in off-network procedures specified in 3GPP TS 24.379 [5] assigned to the MCS group for usage in the off-network procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-PDN-type> element of the <list-service> element of the MCS group document indicates that the MCS group is not to be used in off-network procedures specified in 3GPP TS 24.379 [5]. A value of the <off-network-PDN-type> element of the <list-service> element of the MCS group document other than any of the values specified in table 7.2.2-1 indicates that the MCS group is not to be used in off-network procedures specified in 3GPP TS 24.379 [5].

Value of the <off-network-IP-multicast-address> element of the <list-service> element of the MCS group document indicates the IP multicast address assigned to the MCS group for usage in the off-network procedures specified in 3GPP TS 24.379 [5]. The IP multicast address is of the IP version to be used in off-network procedures for the MCS

group. Incorrect format of the <off-network-IP-multicast-address> element of the <list-service> element of the MCS group document indicates that the MCS group is not to be used in off-network procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-IP-multicast-address> element of the <list-service> element of the MCS group document indicates that the MCS group is not to be used in off-network procedures specified in 3GPP TS 24.379 [5].

Value of the <off-network-ProSe-signalling-PPPP> element of the <list-service> element of the MCPTT group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying signalling for a call on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-ProSe-signalling-PPPP> element of the <list-service> element of the MCPTT group document indicates that a call cannot be established on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5].

Value of the <off-network-ProSe-emergency-call-signalling-PPPP> element of the <list-service> element of the MCPTT group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying signalling for an MCPTT-emergency call on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-ProSe-emergency-call-signalling-PPPP> element of the <list-service> element of the MCPTT group document indicates that an MCPTT-emergency call cannot be established on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5].

Value of the <off-network-ProSe-imminent-peril-call-signalling-PPPP> element of the <list-service> element of the MCPTT group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying signalling for an imminent peril call on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-ProSe-imminent-peril-call-signalling-PPPP> element of the <list-service> element of the MCPTT group document indicates that an imminent peril call cannot be established on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5].

Value of the <off-network-ProSe-media-PPPP> element of the <list-service> element of the MCPTT group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying media for a call on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-ProSe-media-PPPP> element of the <list-service> element of the MCPTT group document indicates that a call cannot be established on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5].

Value of the <off-network-ProSe-emergency-call-media-PPPP> element of the <list-service> element of the MCPTT group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying media for an MCPTT-emergency call on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-ProSe-emergency-call-media-PPPP> element of the <list-service> element of the MCPTT group document indicates that an MCPTT-emergency call cannot be established on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5].

Value of the <off-network-ProSe-imminent-peril-call-media-PPPP> element of the <list-service> element of the MCPTT group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying media for an imminent peril call on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-ProSe-imminent-peril-call-media-PPPP> element of the <list-service> element of the MCPTT group document indicates that an imminent peril call cannot be established on the MCPTT group in off-network MCPTT procedures specified in 3GPP TS 24.379 [5].

Value of the <mcvideo-off-network-ProSe-signalling-PPPP> element of the <list-service> element of the MCVideo group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying signalling for a call on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26]. Absence of the <mcvideo-off-network-ProSe-signalling-PPPP> element of the <list-service> element of the MCVideo group document indicates that a call cannot be established on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26].

Value of the <mcvideo-off-network-ProSe-emergency-call-signalling-PPPP> element of the <list-service> element of the MCVideo group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying signalling for an MCVideo-emergency call on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26]. Absence of the <mcvideo-off-network-ProSe-emergency-call-signalling-PPPP> element of the <list-service> element of the MCVideo group document indicates that an MCVideo-emergency call cannot be established on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26].

Value of the <mcvideo-off-network-ProSe-imminent-peril-call-signalling-PPPP> element of the <list-service> element of the MCVideo group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying signalling for an imminent peril call on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26]. Absence of the <mcvideo-off-network-ProSe-imminent-peril-call-signalling-PPPP> element of

the <list-service> element of the MCVideo group document indicates that an imminent peril call cannot be established on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26].

Value of the <mcvideo-off-network-ProSe-media-PPPP> element of the <list-service> element of the MCVideo group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying media for a call on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26]. Absence of the <mcvideo-off-network-ProSe-media-PPPP> element of the <list-service> element of the MCVideo group document indicates that a call cannot be established on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26].

Value of the <mcvideo-off-network-ProSe-emergency-call-media-PPPP> element of the <list-service> element of the MCVideo group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying media for an MCVideo-emergency call on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26]. Absence of the <mcvideo-off-network-ProSe-emergency-call-media-PPPP> element of the <list-service> element of the MCVideo group document indicates that an MCVideo-emergency call cannot be established on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26].

Value of the <mcvideo-off-network-ProSe-imminent-peril-call-media-PPPP> element of the <list-service> element of the MCVideo group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying media for an imminent peril call on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26]. Absence of the <mcvideo-off-network-ProSe-imminent-peril-call-media-PPPP> element of the <list-service> element of the MCVideo group document indicates that an imminent peril call cannot be established on the MCVideo group in off-network MCVideo procedures specified in 3GPP TS 24.281 [26].

Value of the <mcdata-off-network-ProSe-signalling-PPPP> element of the <list-service> element of the MCData group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying signalling for a call on the MCData group in off-network MCData procedures specified in 3GPP TS 24.282 [27]. Absence of the <mcdata-off-network-ProSe-signalling-PPPP> element of the <list-service> element of the MCData group document indicates that a call cannot be established on the MCData group in off-network MCData procedures specified in 3GPP TS 24.282 [27].

Value of the <mcdata-off-network-ProSe-media-PPPP> element of the <list-service> element of the MCData group document indicates the ProSe Per-Packet Priority value to be used when transmitting IP packets carrying media for a call on the MCData group in off-network MCData procedures specified in 3GPP TS 24.282 [27]. Absence of the <mcdata-off-network-ProSe-media-PPPP> element of the <list-service> element of the MCData group document indicates that a call cannot be established on the MCData group in off-network MCData procedures specified in 3GPP TS 24.282 [27].

Value of the <off-network-ProSe-relay-service-code> element of the <list-service> element of the MCS group document indicates of a ProSe relay service code specified in 3GPP TS 24.334 [7] to be used by a UE when the UE accessing a UE-to-network relay in procedures specified in 3GPP TS 24.379 [5]. Absence of the <off-network-ProSe-relay-service-code> element of the <list-service> element of the MCS group document indicates that the MCS group is not to be accessed using any procedures specified in 3GPP TS 24.379 [5] which requires support of a ProSe UE-to-network relay.

Value of the <owner> element of the <list-service> element of the MCS group document indicates the group's owner (mission critical organisation) specified in 3GPP TS 23.179 [4].

Value of the "name" attribute of the <encoding> element of the <preferred-voice-encodings> element of the <list-service> element of the MCPTT group document indicates the preferred RTP payload format to be used for voice encoding in MCPTT group sessions of the MCPTT group.

Value of the <level-within-group-hierarchy> element of the <list-service> element of the MCS group document indicates the level within group hierarchy specified in 3GPP TS 23.179 [4].

Value of the <level-within-user-hierarchy> element of the <list-service> element of the MCS group document indicates the level within user hierarchy specified in 3GPP TS 23.179 [4].

Value of the <on-network-in-progress-emergency-state-cancellation-timeout> element of the <list-service> element of the MCPTT group document indicates the timeout value for the cancellation of an in progress emergency in on-network MCPTT procedures.

Value of the <on-network-in-progress-imminent-peril-state-cancellation-timeout> element of the <list-service> element of the MCPTT group document indicates the timeout value for the cancellation of an in progress imminent-peril group call in on-network MCPTT procedures.

Value of the <off-network-in-progress-emergency-state-cancellation-timeout> element of the <list-service> element of the MCPTT group document indicates the timeout value for the cancellation of an in progress emergency in off-network MCPTT procedures.

Value of the <off-network-in-progress-imminent-peril-state-cancellation-timeout> element of the <list-service> element of the MCPTT group document indicates the timeout value for the cancellation of an in progress imminent-peril group call in off-network MCPTT procedures.

Value of the <on-network-hang-timer> element of the <list-service> element of the MCPTT group document indicates the group call hang timer specified in 3GPP TS 23.179 [4] in on-network MCPTT procedures.

Value of the <on-network-maximum-duration> element of the <list-service> element of the MCPTT group document indicates the maximum duration of group calls specified in 3GPP TS 23.179 [4] in on-network MCPTT procedures.

Value of the <off-network-hang-timer> element of the <list-service> element of the MCPTT group document indicates the group call hang timer specified in 3GPP TS 23.179 [4] in off-network MCPTT procedures.

Value of the <off-network-maximum-duration> element of the <list-service> element of the MCPTT group document indicates the maximum duration of group calls specified in 3GPP TS 23.179 [4] in off-network MCPTT procedures.

Value of the <mcvideo-off-network-in-progress-emergency-state-cancellation-timeout> element of the <list-service> element of the MCVideo group document indicates the timeout value for the cancellation of an in progress emergency in off-network MCVideo procedures.

Value of the <mcvideo-off-network-in-progress-imminent-peril-state-cancellation-timeout> element of the <list-service> element of the MCVideo group document indicates the timeout value for the cancellation of an in progress imminent-peril group call in off-network MCVideo procedures.

Value of the <mcvideo-off-network-maximum-duration> element of the <list-service> element of the MCVideo group document indicates the maximum duration of group calls specified in 3GPP TS 23.281 [24] in off-network MCVideo procedures.

Value of the <on-network-minimum-number-to-start> element of the <list-service> element of the MCPTT group document indicates the minimum number of affiliated group members acknowledging before start of audio transmission specified in 3GPP TS 23.179 [4] in on-network MCPTT procedures.

Value of the <on-network-timeout-for-acknowledgement-of-required-members> element of the <list-service> element of the MCPTT group document indicates the timeout for acknowledgement of required group members specified in 3GPP TS 23.179 [4] in on-network MCPTT procedures.

Value of the <on-network-action-upon-expiration-of-timeout-for-acknowledgement-of-required-members> element of the <list-service> element of the MCPTT group document indicates the action upon failure to receive acknowledgement from required group members before call timeout specified in 3GPP TS 23.179 [4] in on-network MCPTT procedures.

The possible values of the <protect-media> element are:

a) "true" which indicates that a GMK is required to confidentiality and integrity protect media for on-network and off-network MCPTT calls on the MCPTT group. This value is used when the element is not present; and

b) "false" which indicates that both confidentiality protection and integrity protection of media are not required for on-network and off-network MCPTT calls on the MCPTT group.

The possible values of the <protect-floor-control-signalling> element are:

a) "true" which indicates that both confidentiality protection and integrity protection of floor control signalling are required for on-network and off-network MCPTT calls on the MCPTT group. This value is used when the element is not present; and

b) "false" which indicates that both confidentiality protection and integrity protection of floor control signalling are not required for on-network and off-network MCPTT calls on the MCPTT group.

If the <protect-floor-control-signalling> element is set to "true" or when not present, then for on-network MCPTT group calls:

a) the presence of the <require-multicast-floor-control-signalling> element in the <list-service> element of the MCPTT group indicates that multicast bearers are used for floor controlling signalling for this group requiring that an MuSiK or MKFC is used to protect multicast floor control signalling;

b) the absence of the <require-multicast-floor-control-signalling> element in the <list-service> element of the MCPTT group indicates that multicast bearers are not used for floor control signalling for this group requiring that no MuSiK and no MKFC needs to be used to protect floor control signalling

NOTE 4: For on-network MCPTT group calls, in the case that the <protect-floor-control-signalling> is "true" or not present, and the <require-multicast-floor-control-signalling> is not present, then floor control protection is provided by the CSK, which is generated by the client.

NOTE 5: For off-network MCPTT group calls, a GMK is always used to protect floor control signalling.

The possible values of the <mcvideo-on-network-invite-members> element in the <list-service> element of the MCVideo group document indicates are:

a) "true" which represents the pre-arranged group in on-network MCVideo procedures; and

b) "false" which represents the chat group in on-network MCVideo procedures. This value is used when the element is not present.

NOTE 6: Presence or absence of the <invite-members> element specified in OMA OMA-TS-XDM_Group-V1_1_1 [3] does not impact MCS procedures.

Value of the <mcvideo-on-network-maximum-duration> element of the <list-service> element of the MCVideo group document indicates the maximum duration of group calls specified in 3GPP TS 23.281 [24] in on-network MCVideo procedures.

The possible values of the <mcvideo-protect-media> element are:

a) "true" which indicates that a GMK is required to confidentiality and integrity protect media for on-network and off-network MCVideo transmissions on the MCVideo group. This value is used when the element is not present; and

b) "false" which indicates that both confidentiality protection and integrity protection of media are not required for on-network and off-network MCVideo transmissions on the MCVideo group.

The possible values of the <mcvideo-protect-transmission-control> element are:

a) "true" which indicates that confidentiality and integrity protection for on-network and off-network MCVideo transmission control signalling on the MCVideo group is enabled. This value is used when the element is not present; and

b) "false" which indicates that confidentiality and integrity protection for on-network and off-network MCVideo transmission control signalling on the MCVideo group is disabled.

Value of the "name" attribute of the <encoding> element of the <mcvideo-preferred-audio-encodings> element of the <list-service> element of the MCVideo group document indicates the preferred RTP payload format to be used for audio encoding in MCVideo group sessions of the MCVideo group.

Value of the "name" attribute of the <encoding> element of the <mcvideo-preferred-video-encodings> element of the <list-service> element of the MCVideo group document indicates the preferred RTP payload format to be used for video encoding in MCVideo group sessions of the MCVideo group.

Value of the <mcvideo-preferred-video-resolutions> element of the <list-service> element of the MCVideo group document indicates in order of preference, the allowed set of video resolutions (number of horizontal pixels x number of vertical pixels) to be used in MCVideo group sessions of the MCVideo group.

Value of the <mcvideo-preferred-video-frame-rate> element of the <list-service> element of the MCVideo group document indicates in order of preference, the allowed set of video frame rates (in frames per second) to be used in MCVideo group sessions of the MCVideo group.

The possible values of the <mcvideo-urgent-real-time-video-mode> element are:

a) "true" which indicates that urgent real-time video mode is allowed for the MCVideo group.

b) "false" which indicates that urgent real-time video mode is not allowed for the MCVideo group. This value is used when the element is not present;

The possible values of the <mcvideo-non-urgent-real-time-video-mode> element are:

a) "true" which indicates that non urgent real-time video mode is allowed for the MCVideo group.

b) "false" which indicates that non urgent real-time video mode is not allowed for the MCVideo group. This value is used when the element is not present;

The possible values of the <mcvideo-non-real-time-video-mode> element are:

a) "true" which indicates that non real-time video mode is allowed for the MCVideo group.

b) "false" which indicates that non real-time video mode is not allowed for the MCVideo group. This value is used when the element is not present;

The possible values of the <mcvideo-active-real-time-video-mode> element are:

a) "urgent-real-time";

b) "non-urgent-real-time"; and

c) "non-real-time".

Value of the <mcvideo-maximum-simultaneous-mcvideo-transmitting-group-members> element of the <list-service> element of the MCVideo group document indicates the allowed maximum number of simultaneous transmitting MCVideo Group Members.

Value of the <mcvideo-on-network-minimum-number-to-start> element of the <list-service> element of the MCVideo group document indicates the minimum number of affiliated group members acknowledging before start of video transmission specified in 3GPP TS 23.281 [24] in on-network MCVideo procedures.

Value of the <mcvideo-on-network-group-priority> element of the <list-service> element of the MCVideo group document indicates the priority level of the group in on-network MCVideo procedures. Higher value indicates higher priority. Absence of the <mcvideo-on-network-group-priority> element of the <list-service> element of the MCVideo group document indicates the lowest possible priority.

The possible values of the <mcvideo-off-network-arbitration-approach> element are:

a) "single" which indicates transmission participants rely on a single participant designated as transmission arbitrator for the arbitraton of transmission requests; and

b) "self" which indicates each transmsission participant arbitrates its own transmission based on its view of the topology;

Value of the <mcvideo-off-network-maximum-simultaneous-transmission> element of the <list-service> element of the MCVideo group document indicates the allowed maximum number of simultaneous transmissions for off-network MCVideo procedures.

The possible values of the <mcdata-protect-media> element are:

a) "true" which indicates that a GDK is required to confidentiality and integrity protect media for on-network and off-network MCData transmissions on the MCData group. This value is used when the element is not present; and

b) "false" which indicates that both confidentiality protection and integrity protection of media are not required for on-network and off-network MCData transmissions on the MCData group.

The possible values of the <mcdata-protect-transmission-control> element are:

a) "true" which indicates that confidentiality and integrity protection for on-network and off-network MCData transmission control signalling on the MCData group is enabled. This value is used when the element is not present; and

b) "false" which indicates that confidentiality and integrity protection for on-network and off-network MCData transmission control signalling on the MCData group is disabled.

The possible values of <mcdata-allow-short-data-service> element are:

a) "true" which indicates that short data service is enabled for the MCData group. This value is used when the element is not present; and

b) "false" which indicates that short data service is disabled for the MCData group.

The possible values of <mcdata-allow-file-distribution> element are:

a) "true" which indicates that file distribution is enabled for the MCData group. This value is used when the element is not present; and

b) "false" which indicates that file distribution is disabled for the MCData group.

The possible values of <mcdata-allow-conversation-management> element are:

a) "true" which indicates that conversation management is enabled for the MCData group. This value is used when the element is not present; and

b) "false" which indicates that conversation management is disabled for the MCData group.

The possible values of <mcdata-allow-tx-control> element are:

a) "true" which indicates that transmission control is enabled for the MCData group. This value is used when the element is not present; and

b) "false" which indicates that transmission control is disabled for the MCData group.

The possible values of <mcdata-allow-rx-control> element are:

a) "true" which indicates that reception control is enabled for the MCData group. This value is used when the element is not present; and

b) "false" which indicates that reception control is disabled for the MCData group.

The possible values of <mcdata-allow-enhanced-status> element are:

a) "true" which indicates that enhanced status is enabled for the MCData group. This value is used when the element is not present; and

b) "false" which indicates that enhanced status is disabled for the MCData group.

Value of the <mcdata-enhanced-status-operational-values> element has a list of operational values used for the enhanced status service and two text strings used to display a meaningful message to the user. Containing list of <status> elements with minimum occurrence of 0 and maximum occurrence of 65536 with a mandatory "id" attribute that shall be set to a unique integer in the range of 0 to 65536. The value of the status elements denote the operational values used for the enhanced status service. For each status element there shall be a <shortText> element and a <description> element that can be displayed locally to the user when selecting the status value for the group, the element is not sent in the SDS message. The <shortText> element is a shorter version of the <description> element that can be used with devices with limited display capability. The <shortText> and <description> elements support multiple languages by allowing the elements to have multiple text strings, <langText> element to store the text and with a leading <langType> element to indicate the language of the text string.

Value of the <mcdata-on-network-group-priority> element of the <list-service> element of the MCData group document indicates the priority level of the group in on-network MCData procedures. Higher value indicates higher priority. Absence of the <mcdata-on-network-group-priority> element of the <list-service> element of the MCData group document indicates the lowest possible priority.

Value of the <mcdata-on-network-max-data-size-for-SDS> element indicates the maximum size of data (in bytes) that the originating MCData client is allowed to send to the MCData server for on-network SDS communications.

Value of the <mcdata-on-network-max-data-size-for-FD> element indicates the maximum size of data (in bytes) that the originating MCData client is allowed to send to the MCData server for on-network FD communications.

Value of the <mcdata-on-network-max-data-size-auto-recv> element indicates the maximum size of data (in bytes) which the MCData server always requests the terminating MCData client to automatically download for on-network FD communications using HTTP.

The "uri" attribute of a <entry> element of the MCS group document:

   a) contains the MCPTT user identity, if the MCS group is not a temporary MCS group and the MCS group is an MCPTT group;

   b) contains the MCVideo user identity, if the MCS group is not a temporary MCS group, the MCS group is not an MCPTT group and the MCS group is an MCVideo group;

   c) contains the MCData user identity, if the MCS group is not a temporary MCS group, the MCS group is not an MCPTT group, the MCS group is not an MCVideo group and the MCS group is an MCData group; and

   d) contains the MCS group identity of a constituent MCS group, if the MCS group is a temporary MCS group.

Presence of the <on-network-required> element in the <entry> element of the MCPTT group document indicates that the MCPTT group member identified by the <entry> element is a required MCPTT group member in on-network MCPTT procedures. Absence of the <on-network-required> element in the <entry> element of the MCPTT group document indicates that the MCPTT group member identified by the <entry> element is not a required MCPTT group member in on-network MCPTT procedures.

Value of the <user-priority> element in the <entry> element of the MCS group document indicates the user priority of the MCS group member identified by the <entry> element. Higher value indicates higher priority. Absence of the <user-priority> element in the <entry> element of the MCS group document indicates that the MCS group member identified by the <entry> element has the lowest possible priority.

Value of the <user-reception-priority> element in the <entry> element of the MCS group document indicates the user reception priority of the MCS group member identified by the <entry> element. Higher value indicates higher reception priority. Absence of the <user-reception-priority> element in the <entry> element of the MCS group document indicates that the MCS group member identified by the <entry> element has the lowest possible reception priority.

Value of the <participant-type> element in the <entry> element of the MCS group document indicates the participant type specified in 3GPP TS 23.179 [4] assigned to the MCS group member identified by the <entry> element. Absence of the <participant-type> element in the <entry> element of the MCS group document indicates that the MCS group member identified by the <entry> element is not assigned any participant type.

Presence of the <on-network-recvonly> element in the <entry> element of the MCPTT group document indicates that the MCPTT group member identified by the <entry> element is not allowed to send media in MCPTT group calls of the MCPTT group in on-network MCPTT procedures. Absence of the <on-network-recvonly> element in the <entry> element of the MCPTT group document indicates that the MCPTT group member identified by the <entry> element is allowed to send media in MCPTT group calls of the MCPTT group in on-network MCPTT procedures.

Presence of the <multi-talker-allowed> element in the <entry> element of the MCPTT group document indicates that the MCPTT group member identified by the <entry> element is authorized for multi-talker floor control in a MCPTT group call of the MCPTT group in on-network MCPTT procedures when the MCPTT group supports multi-talker-control. Absence of the <multi-talker-allowed> element in the <entry> element of the MCPTT group document indicates that the MCPTT group member identified by the <entry> element is not authorized for multi-talker floor control in a MCPTT group call of the MCPTT group in on-network MCPTT procedures.

Presence of the <mcvideo-on-network-required> element in the <entry> element of the MCVideo group document indicates that the MCVideo group member identified by the <entry> element is a required MCVideo group member in on-network MCVideo procedures. Absence of the <on-network-required> element in the <entry> element of the MCVideo group document indicates that the MCVideo group member identified by the <entry> element is not a required MCPTT group member in on-network MCVideo procedures.

Value of the "uri" attribute of the <mcvideo-mcvideo-id> element in the <entry> element of the MCVideo group document indicates the MCVideo user identity.

Value of the <mcdata-max-data-in-single-request> element in the <entry> element of the MCData group document indicates the maximum size of data (in bytes) that the MCData group member identified by the <entry> element can send in a single request during group communications.

Value of the <mcdata-max-time-in-single-request> element in the <entry> element of the MCData group document indicates the maximum time that the MCData group member identified by the <entry> element can transmit for in a single request during group communications.

Value of the "uri" attribute of the <mcdata-mcdata-id> element in the <entry> element of the MCData group document indicates the MCData user identity.

The <allow-MCPTT-emergency-call> element of an <actions> element of a <rule> element of the MCPTT group document indicates whether the identity matching the rule identified by the <rule> element is allowed to request an MCPTT-emergency call on the MCPTT group. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to request an MCPTT-emergency call on the MCPTT group. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to request an MCPTT-emergency call on the MCPTT group.

The <allow-imminent-peril-call> element of an <actions> element of a <rule> element of the MCPTT group document indicates whether the identity matching the rule identified by the <rule> element is allowed to request an imminent peril call on the MCPTT group. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to request an MCPTT-imminent peril call on the MCPTT group. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to request an MCPTT imminent peril call on the MCPTT group.

The <allow-MCPTT-emergency-alert> element of an <actions> element of a <rule> element of the MCPTT group document indicates whether the identity matching the rule identified by the <rule> element is allowed to request an MCPTT-emergency alert on the MCPTT group. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to request an MCPTT-emergency alert on the MCPTT group. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to request an MCPTT-emergency alert on the MCPTT group.

The <on-network-allow-getting-member-list> element of an <actions> element of a <rule> element of the MCS group document indicates whether the identity matching the rule identified by the <rule> element is allowed to get the MCS group member list of the MCS group in on-network procedures. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to get the MCS group member list of the MCS group in on-network procedures. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to get the MCS group member list of the MCS group in on-network procedures.

The <on-network-allow-getting-affiliation-list> element of an <actions> element of a <rule> element of the MCPTT group document indicates whether the identity matching the rule identified by the <rule> element is allowed to get the list of MCPTT users affiliated to the MCPTT group in on-network MCPTT procedures. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to get the list of MCPTT users affiliated to the MCPTT group in on-network MCPTT procedures. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to get the list of MCPTT users affiliated to the MCPTT group in on-network MCPTT procedures.

The <on-network-allow-conference-state> element of an <actions> element of a <rule> element of the MCPTT group document indicates whether the identity matching the rule identified by the <rule> element is allowed to subscribe to the conference event package of an MCPTT group session of the MCPTT group in on-network MCPTT procedures. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to subscribe to the conference event package of an MCPTT group session of the MCPTT group in on-network MCPTT procedures. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to subscribe to the conference event package of an MCPTT group session of the MCPTT group in on-network MCPTT procedures.

The <mcvideo-allow-emergency-call> element of an <actions> element of a <rule> element of the MCVideo group document indicates whether the identity matching the rule identified by the <rule> element is allowed to request an MCVideo-emergency call on the MCVideo group. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to request an MCVideo-emergency call on the MCVideo group. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to request an MCVideo-emergency call on the MCVideo group.

The <mcvideo-allow-imminent-peril-call> element of an <actions> element of a <rule> element of the MCVideo group document indicates whether the identity matching the rule identified by the <rule> element is allowed to request an imminent peril call on the MCVideo group. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to request an MCVideo-imminent peril call on the MCVideo group. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to request an MCVideo imminent peril call on the MCVideo group.

The <mcvideo-allow-emergency-alert> element of an <actions> element of a <rule> element of the MCVideo group document indicates whether the identity matching the rule identified by the <rule> element is allowed to request an MCVideo-emergency alert on the MCVideo group. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to request an MCVideo-emergency alert on the MCVideo group. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to request an MCVideo-emergency alert on the MCVideo group.

The <mcvideo-on-network-allow-conference-state> element of an <actions> element of a <rule> element of the MCVideo group document indicates whether the identity matching the rule identified by the <rule> element is allowed to subscribe to the conference event package of an MCVideo group session of the MCVideo group in on-network MCVideo procedures. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to subscribe to the conference event package of an MCVideo group session of the MCVideo group in on-network MCVideo procedures. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to subscribe to the conference event package of an MCVideo group session of the MCVideo group in on-network MCVideo procedures.

The <mcvideo-on-network-allow-getting-affiliation-list> element of an <actions> element of a <rule> element of the MCVideo group document indicates whether the identity matching the rule identified by the <rule> element is allowed to get the list of MCVideo users affiliated to the MCVideo group in on-network MCVideo procedures. The possible values of the element are:

a) "false" which indicates that the identity is not allowed to get the list of MCVideo users affiliated to the MCVideo group in on-network MCVideo procedures. This is the default value taken in the absence of the element.

b) "true" which indicates that the identity is allowed to get the list of MCVideo users affiliated to the MCVideo group in on-network MCVideo procedures.

The <mcdata-allow-transmit-data-in-this-group> element of an <actions> element of a <rule> element of MCData group document indicates whether the whether the identity matching the rule identified by the <rule> element is allowed to transmit data in this group. The possible values of this element are:

a) "false" which indicates that the identity is not allowed to transmit data in this group. This is the default value taken in the absence of the element.

    b) "true" which indicates that the identity is allowed to transmit data in this group.

The <mcdata-on-network-allow-getting-affiliation-list> element of an <actions> element of a <rule> element of the MCData group document indicates whether the identity matching the rule identified by the <rule> element is allowed to get the list of MCData users affiliated to the MCData group in on-network MCData procedures. The possible values of the element are:

    a) "false" which indicates that the identity is not allowed to get the list of MCData users affiliated to the MCData group in on-network MCData procedures. This is the default value taken in the absence of the element.

    b) "true" which indicates that the identity is allowed to get the list of MCData users affiliated to the MCData group in on-network MCData procedures.

The possible values of the <off-network-queue-usage> element are:

    a) "true" which indicates that the queue shall be used in off-network MCPTT procedures. This is the default value taken in the absence of the element; and

    b) "false" which indicates that the queue shall not be used in off-network MCPTT procedures.

The <mcptt-on-network-audio-cut-in> element indicates whether or not a group is configured for audio cut-in floor control. Audio cut-in floor control only applies in on-network MCPTT and has no effect in off-network MCPTT. The possible values of the element are:

    a) "true" which indicates that audio cut-in is enabled for the group; and

    b) "false" which indicates that audio cut-in is disabled for the group. This is the default value taken in the absence of the element.

The <multi-talker-control> element of the <list-service> element of the MCPTT group document indicates whether or not a MCPTT group is configured for support of multi-talker control. Multi-talker floor control only applies in on-network MCPTT and has no effect in off-network MCPTT. The possible values of the element are:

    a) "true" which indicates that multi-talker control is enabled for the group; and

    b) "false" which indicates that multi-talker control is disabled for the group. This is the default value taken in the absence of the element.

Value of the <max-number-simultaneous-talkers> element of the <list-service> element of the MCPTT group document indicates the maximum number of parallel talkers in a MCPTT group session in on-network MCPTT procedures. The default value in the absence of the element is "1".

Value of the <audio-mixing-entity> element of the <list-service> element of the MCPTT group document indicates where the audio streams are mixed in case of a MCPTT group supporting multi-talker control. Absence of the <audio-mixing-entity> element indicates that audio mixing is performed in the network.

<anyExt> element contains elements defined by future version of the present document.

7.2.9   Naming conventions

Naming conventions are described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Naming conventions*".

7.2.10   Global documents

7.2.10.1   General

Global documents are described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Global Documents*".

7.2.10.2   Group document addressed by a group ID

A group document addressed by a group ID is a group document:

    - located in a subdirectory of the global tree, with the subdirectory name specified by the byGroupID-subdirectory ANBF rule of table 7.2.10.2-1; and

    - with the document name set to the group ID.

Table 7.2.10.2-1: ABNF syntax of directory name for group documents addressed by a group ID

```
byGroupID-subdirectory = %x62.79.47.72.6f.75.70.49.44; "byGroupID"
```

7.2.11   Resource interdependencies

7.2.11.1   General

Resource interdependencies are described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Resource interdependencies*".

The presence and values of, or the absence of:

   a) the <on-network-group-priority> child element;

   b) the <protect-media> child element;

   c) the <protect floor-control-signalling> child element; and

   d) the <require-multicast-floor-control-signalling> child element;

of the <on-network-regrouped> element of the MCPTT group document of the constituent MCTTP group are the same as the presence and values of, or the absence of, the corresponding elements in the <list-service> element of the MCPTT group document of the temporary MCPTT group.

7.2.11.2   Group document addressed by a group ID

The following applies for a group document addressed by a group ID as described in subclause 7.2.10.2 where the group ID identifies a group defined in the GMS:

   a) a group document addressed by a group ID shall be associated with a group document in the users tree of a particular user which defines the group ID;

   b) a group document addressed by a group ID shall exist for each associated group document in the users tree;

   c) a group document addressed by a group ID shall have the same content as the associated group document in the users tree;

   d) GMS shall create a group document addressed by a group ID when the associated group document in the users tree is created;

   e) modification of a group document addressed by a group ID shall result in the same modification of the associated group document in the users tree; and

   f) removal of a group document addressed by a group ID shall result in removal of the associated group document in the users tree.

The following applies for a group document addressed by a group ID where the group ID identifies a group of another MCS provider:

   a) GMS forwards a XCAP request for management of a group document addressed by a group ID towards the other MCS provider.

7.2.12   Authorization policies

7.2.12.1   General

Authorization policies are described in the OMA OMA-TS-XDM_Group-V1_1_1 [3] "*Authorization policies*".

An authenticated identity is authorized to read the <group> element of an MCS group document.

An authenticated identity is authorized to read a <list-service> element of the <group> element of the MCS group document and any descendant elements of the <list-service> element:

   a) except a <list> element of the <list-service> element; and

b) except descendant elements of the <list> element of the <list-service> element;

if the authenticated identity is a member of an MCS group defined by the <list-service> element.

An authenticated identity is authorized to read a <list> element of a <list-service> element of the <group> element of an MCS group document and any descendant elements of the <list> element if:

a) the authenticated identity is a member of MCS group defined by the <list-service> element; and

b) the MCS group document contains a <rule> element:

1) with the <conditions> element evaluating to true for the authenticated identity or without the <conditions> element; and

2) with the <actions> element containing the <on-network-allow-getting-member-list> element.

An authenticated identity is authorized to read an <entry> element of a <list> element of a <list-service> element of the <group> element of the MCS group document and any descendant elements of the <entry> element if:

a) the "uri" attribute of the <entry> element contains the authenticated identity;

b) the "uri" attribute of the <mcvideo-mcvideo-id> element of the <entry> element contains the authenticated identity; or

c) the "uri" attribute of the <mcdata-mcdata-id> element of the <entry> element contains the authenticated identity.

An authenticated identity is authorized to read an MCS group document if the authenticated identity is listed in the authorized MCS server list specified in subclause 6.2.5.1.

An authenticated identity is authorized to create, read, modify and delete an MCS group document if the MCS group document is stored:

a) in users tree of the XUI equal to the authenticated identity; or

b) in users tree of the another XUI, subject to MCS service provider policy. The MCS service provider policy can specified e.g. using an appropriate access permissions document specified in OMA OMA-TS-XDM_Core-V2_1 [2], stored in the user's tree of the other XUI;

and unless precluded by other statement of this subclause.

None is authorized to create, delete, and modify a <on-network-temporary> element of a <list-service> element of the <group> element of an existing MCS group document.

None is authorized to delete a group document containing a <on-network-regrouped> element of a <list-service> element of the <group> element of an MCS group document.

An authenticated identity is authorized to create and delete a <on-network-regrouped> element in the <list-service> element of the <group> element of an existing MCS group document if the authenticated identity is in authorized GMS list specified in subclause 6.2.5.1.

An authenticated identity is authorized to subscribe to notification of changes of an MCS group document if:

1) the authenticated identity is a member of an MCS group defined by a <list-service> element of the <group> element of the MCS group document;

2) the authenticated identity is listed in the authorized MCS server list specified in subclause 6.2.5.1; or

3) the authenticated identity is listed in the authorized GMS list specified in subclause 6.2.5.1 and the subscription is on behalf of a constituent MCS group of the MCS group defined by the MCS group document.

7.2.12.2 Group document addressed by a group ID

Authorizations for management of a group document addressed by a group ID as described in subclause 7.2.10.2 are the same authorizations for management of the associated group document in the users tree.

7.3 GMOP document

7.3.1 General

The GMOP document enables performing a group management operation which cannot be expressed by HTTP GET, HTTP PUT or HTTP DELETE methods.

7.3.2 MIME type

The MIME type of the GMOP document is application/vnd.3gpp.GMOP+xml.

7.3.3 XML schema

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema
  targetNamespace="urn:3gpp:ns:mcpttGMOP:1.0"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:mcpttgi="urn:3gpp:ns:mcpttGroupInfo:1.0"
  xmlns:gmop="urn:3gpp:ns:mcpttGMOP:1.0"
  xmlns="urn:oma:xml:poc:list-service"
  elementFormDefault="qualified" attributeFormDefault="unqualified">

  <xs:import namespace="urn:3gpp:ns:mcpttGroupInfo:1.0"/>
  <xs:import namespace="urn:oma:xml:poc:list-service"/>

  <!-- root element -->
  <xs:element name="document" type="gmop:documentType"/>

  <!-- complex type for document element -->
  <xs:complexType name="documentType">
    <xs:choice>
      <xs:element name="request" type="gmop:anyExtType"/>
      <xs:element name="response" type="gmop:anyExtType"/>
      <xs:element name="indication" type="gmop:anyExtType"/>
      <xs:element name="command" type="gmop:anyExtType"/>
    </xs:choice>
  </xs:complexType>

  <!-- GMOP requests -->
  <xs:element name="get-excluding-memberlist" type="gmop:emptyType"/>
  <xs:element name="group-regroup-creation" type="gmop:group-regroup-creationType"/>
  <xs:element name="group-regroup-check" type="gmop:group-regroup-checkType"/>
  <xs:element name="group-regroup-notification" type="gmop:group-regroup-notificationType"/>

  <!-- complex type for group-regroup-creation element -->
  <xs:complexType name="group-regroup-creationType">
    <xs:sequence>
      <xs:element ref="group"/>
      <xs:element name="anyExt" type="gmop:anyExtType" minOccurs="0"/>
      <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:anyAttribute namespace="##any" processContents="lax"/>
  </xs:complexType>

  <!-- complex type for group-regroup-check element -->
  <xs:complexType name="group-regroup-checkType">
    <xs:sequence>
      <xs:element ref="mcpttgi:on-network-regrouped"/>
      <xs:element name="anyExt" type="gmop:anyExtType" minOccurs="0"/>
      <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:anyAttribute namespace="##any" processContents="lax"/>
  </xs:complexType>

  <!-- complex type for group-regroup-notification element -->
  <xs:complexType name="group-regroup-notificationType">
    <xs:sequence>
      <xs:element ref="mcpttgi:on-network-regrouped"/>
      <xs:element name="anyExt" type="gmop:anyExtType" minOccurs="0"/>
      <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:anyAttribute namespace="##any" processContents="lax"/>
  </xs:complexType>
```

```
  <!-- GMOP responses -->
  <xs:element name="group-regroup-creation-response" type="gmop:group-regroup-creation-
responseType"/>

  <!-- complex type for group-regroup-creation-response element -->
  <xs:complexType name="group-regroup-creation-responseType">
    <xs:sequence>
      <xs:element name="temporary-group-document-ETag" type="xs:string"/>
      <xs:element name="anyExt" type="gmop:anyExtType" minOccurs="0"/>
      <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
    <xs:anyAttribute namespace="##any" processContents="lax"/>
  </xs:complexType>

  <!-- GMOP indications -->

  <!-- GMOP commands -->

  <!-- complex type for empty elements -->
  <xs:complexType name="emptyType"/>

  <!-- complex type for elements containing any elements -->
  <xs:complexType name="anyExtType">
    <xs:sequence>
      <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>

</xs:schema>
```

7.3.4   Structure

7.3.4.1   General

The GMOP document shall conform to the XML schema described in subclause 7.3.3.

The <document> element specified in subclause 7.3.3 shall be the root element of the GMOP document.

The <document> element specified in subclause 7.3.3 of the GMOP document shall include one of the following:

   a) a <request> element specified in subclause 7.3.3;

   b) a <response> element specified in subclause 7.3.3.

   c) a <command> element specified in subclause 7.3.3; or

   d) a <indication> element specified in subclause 7.3.3.

<anyExt> element contains elements defined by future version of the present document.

The GMOP document can contain unknown elements or unknown attributes. Unknown elements and unknown attributes are ignored.

Elements and attributes of the GMOP document are defined in various namespaces. The GMOP document refers to namespaces using prefixes specified in table 7.3.4.1-1.

Table 7.3.4.1-1: Assignment of prefixes to namespace names in GMOP documents

Prefix	Namespace
rl	urn:ietf:params:xml:ns:resource-lists
cp	urn:ietf:params:xml:ns:common-policy
ocp	urn:oma:xml:xdm:common-policy
oxe	urn:oma:xml:xdm:extensions
mcpttgi	urn:3gpp:ns:mcpttGroupInfo:1.0
gmop	urn:3gpp:ns:mcpttGMOP:1.0
NOTE: The "urn:oma:xml:poc:list-service" namespace is the default namespace so no prefix is used for it.	

7.3.4.2 GMOP document requesting retrieval of a group document excluding group members

The GMOP document requesting retrieval of a group document excluding group members is a GMOP document according to subclause 7.3.4.1, where the <request> element includes a <get-excluding-memberlist> element specified in subclause 7.3.3.

7.3.4.3 GMOP document requesting group regroup creation

The GMOP document requesting group regroup creation is a GMOP document according to subclause 7.3.4.1, where the <request> element includes a <group-regroup-creation> element specified in subclause 7.3.3.

The <group-regroup-creation> element:

    a) shall include an <group> element specified in subclause 7.2.4; and

    b) may include an <anyExt> element specified in subclause 7.3.3.

7.3.4.4 GMOP document requesting group regroup check

The GMOP document requesting group regroup check is a GMOP document according to subclause 7.3.4.1, where the <request> element includes a <group-regroup-check> element specified in subclause 7.3.3.

The <group-regroup-check> element:

    a) shall include an <on-network-regrouped> element specified in subclause 7.2.4; and

    b) may include an <anyExt> element specified in subclause 7.3.3.

7.3.4.5 GMOP document requesting group regroup notification

The GMOP document requesting group regroup notification is a GMOP document according to subclause 7.3.4.1, where the <request> element includes a <group-regroup-notification> element specified in subclause 7.3.3.

The <group-regroup-notification> element:

    a) shall include an <on-network-regrouped> element specified in subclause 7.2.4; and

    c) may include an <anyExt> element specified in subclause 7.3.3.

7.3.4.6 GMOP document with group regroup creation response

The GMOP document with group regroup creation response is a GMOP document according to subclause 7.3.4.1, where the <response> element includes a <group-regroup-creation-response> element specified in subclause 7.3.3.

The <group-regroup-creation-response> element:

    a) shall include an <temporary-group-document-ETag> element specified in subclause 7.3.3 containing the ETag of the group document of the temporary MCS group; and

    b) may include an <anyExt> element specified in subclause 7.3.3.

7.4 Group key transport payload

7.4.1 General

The requirements in the remaining subclauses of the parent subclause of this subclause apply for encoding of group key and related parameters using IETF RFC 3830 [16] and IETF RFC 6509 [18], as specified in 3GPP TS 33.180 [29].

A GMS compliant to Release 14 of the present document does not send a group key transport payload carrying MKFC and MKFC-ID.

A GMC can receive MKFC and MKFC-ID from a GMS compliant only to Release 13 of the present document.

7.4.2 Group key transport payload structure

The group key transport payload is an I_MESSAGE as specified in IETF RFC 3830 [16] containing a GMK or an MKFC, with additional fields as specified in IETF RFC 6509 [18], composed with the following clarification:

  a) the common header payload specified in IETF RFC 3830 [16] is included and the CSB_ID field of the common header payload:

   i) for transport of the GMK, contains GUK-ID as specified in 3GPP TS 33.180 [29]; and

   ii) for transport of the MKFC, contains MKFC-ID as specified in 3GPP TS 33.180 [29];

  b) the timestamp payload specified in IETF RFC 3830 [16] is included and the TS type field of the timestamp payload is set to 'NTP-UTC';

  c) the RAND payload specified in IETF RFC 3830 [16] is included;

  d) if MCS identifiers are not protected, the IDRi payload specified in IETF RFC 6509 [18] is included and:

   1) the ID type field of the IDRi payload is set to the 'URI';

   2) if the originator of the I_MESSAGE is the GMS, the ID data field of the IDRi payload is set to the GMS's URI, consisting of the HTTP URI identifying the directory of the application unique ID as specified in subclause 7.2.3 under the XCAP root URI; and

   3) if the originator of the I_MESSAGE is an MCS server, the ID data field of the IDRi payload is set to the MCS server's URI;

  e) if MCS identifiers are protected, the ID payload with role indicator specified in IETF RFC 6043 [17] is included and:

   1) the ID role field of the ID payload is set to the 'IDRuidi' as specified in subclause 7.5.2;

   2) the ID type field of the ID payload is set to the 'Byte string';

   3) if the originator of the I_MESSAGE is the GMS, the ID data field of the ID payload is set to the UID generated from the GMS's URI as specified in 3GPP TS 33.180 [29], consisting of the HTTP URI identifying the directory of the application unique ID as specified in subclause 7.2.3 under the XCAP root URI; and

   4) if the originator of the I_MESSAGE is an MCS server, the ID data field of the ID payload is set to the MCS server's URI;

  f) if MCS identifiers are not protected, the IDRr payload specified in IETF RFC 6509 [18] is included and:

   1) the ID type field of the IDRr payload is set to the 'URI';

   2) if an MCS user is targeted, the ID data field of the IDRr payload is set to the MCS ID of the targeted MCS user;

   3) if an constituent MCS group is targeted, the ID data field of the IDRr payload is set to the MCS Group ID of the targeted constituent MCS group; and

   4) if an MCS server is targeted, the ID data field of the IDRr payload is set to the MCS server's URI;

  g) if MCS identifiers are protected, the ID payload with role indicator specified in IETF RFC 6043 [17] is included and:

   1) the ID role field of the ID payload is set to the 'IDRuidr' as specified in subclause 7.5.2;

   2) the ID type field of the ID payload is set to the 'Byte string';

   3) if an MCS user is targeted, the ID data field of the ID payload is set to the UID generated from the MCS ID of the targeted MCS user;

   4) if an constituent MCS group is targeted, the ID data field of the ID payload is set to the UID generated from the MCS Group ID of the targeted constituent MCS group; and

    5) if an MCS server is targeted, the ID data field of the ID payload is set to the MCS's server URI;

h) the IDRkmsi payload specified in IETF RFC 6509 [18] is included and:

    1) the ID type field of the IDRkmsi payload is set to the 'URI';

    2) if the originator of the I_MESSAGE is the GMS, the ID data field of the IDRkmsi payload is set to the URI of the MCS KMS used by the group management server; and

    3) if the originator of the I_MESSAGE is an MCS server, the ID data field of the IDRkmsi payload is set to the URI of the MCS KMS used by MCS server;

i) the IDRkmsr payload specified in IETF RFC 6509 [18] is included and:

    1) the ID type field of the IDRkmsr payload is set to the 'URI';

    2) if an MCS user is targeted, the ID data field of the IDRkmsr payload is set to the URI of the MCS KMS used by targeted MCS user;

NOTE: The KMS URI is stored in the group configuration data.

Editor's Note: The XML element(s) (or XML attribute(s)) in the MCPTT Group for carrying the KMS URI need to be defined.

    3) if an constituent MCS group is targeted, the ID data field of the IDRkmsr payload is set to the URI of the MCS KMS used by targeted constituent MCS group; and

    4) if an MCS server is targeted, the ID data field of the IDRkmsr payload is set to the URI of the MCS KMS used by the MCS server;

j) the SAKKE payload specified in IETF RFC 6509 [18] is included and:

    1) the SAKKE params field of the SAKKE payload is set to 'Parameter Set 1';

    2) the ID scheme field of the SAKKE payload is set to 'MCPTT-ID-scheme' as specified in subclause 7.5.3; and

    3) the SAKKE data field of the SAKKE payload contains the GMK or MKFC specified in 3GPP TS 33.180 [29];

k) the SIGN payload specified in IETF RFC 6509 [18] is included and the S type field of the SIGN payload is set to the 'ECCSI';

l) the security policy payload specified in IETF RFC 3830 [16] can be included;

m) the general extension payload specified in IETF RFC 3830 [16] with the type field set to the 'GMK-or-MKFC-associated-parameters' as specified in subcaluse 7.5.4 is included and the data field of the general extension payload contains the associated parameters of GMK or MKFC as specified in 3GPP TS 33.180 [29] figure E.6.1-1; and

n) the General extension payload specified in IETF RFC 3830 [16] with the type field set to the 'SAKKE-to-self' as specified in subcaluse 7.5.4 can be included and the data field of the general extension payload contains a SAKKE payload specified in IETF RFC 6509 [18]. In the SAKKE payload included in the general extension payload:

    1) the SAKKE params field of the SAKKE payload is set to 'Parameter Set 1';

    2) the ID scheme field of the SAKKE payload is set to 'MCPTT-SAKKE-to-self-ID-scheme' as specified in subclause 7.5.3; and

    3) the SAKKE data field of the SAKKE payload contains the GMK or MKFC specified in 3GPP TS 33.180 [29].

7.5 MIKEY parameters value assignment

7.5.1 General

The requirements in the remaining subclauses of the parent subclause of this subclause apply for assignment of 'reserved for private use' values of parameters defined in IETF RFC 3830 [16], IETF RFC 6043 [17] and IETF RFC 6509 [18].

7.5.2 ID role field assignment

NOTE: A GMC can receive MKFC and MKFC-ID only from a GMS compliant only to Release 13 of the present document.

IETF RFC 6043 [17] defines some values of the ID role field of the ID payload with role indicator as 'reserved for private use'. The table 7.5.2-1 shows usage of the 'reserved for private use' values of the ID role field of the ID payload with role indicator for usage in MCS.

Table 7.5.2-1: Usage of 'reserved for private use' values of the ID role field of the ID payload with role indicator

ID role name	ID role value	ID role descriptions
IDRuidr	240	The ID data field of an ID payload with the ID role field set to 'IDRuidr' contains UID generated from the MCS ID of an MCS user or a UID generated from the MCS Group ID of an MCS group or a UID generated from the MCS server's URI, as specified in 3GPP TS 33.180 [29].
IDRuidi	241	The ID data field of an ID payload with the ID role field set to 'IDRuidi' contains a UID generated from the GMS's URI or a UID generated from the MCS server's URI, as specified in 3GPP TS 33.180 [29].

7.5.3 ID scheme field assignment

IETF RFC 6509 [18] defines some values of the ID scheme field of the SAKKE payload as 'reserved for private use'. The table 7.5.3-1 shows usage of the 'reserved for private use' values of the ID scheme field of the SAKKE payload for usage in MCS.

Table 7.5.3-1: Usage of 'reserved for private use' values of the ID scheme field of the SAKKE payload

ID scheme name	ID scheme value	ID scheme descriptions
MCPTT-ID-scheme	240	The SAKKE data field of a SAKKE payload with the ID scheme field set to 'MCPTT-ID-scheme' contains the GMK encapsulated to the UID generated from the IDRr payload or extracted from the IDRuidr payload according to 3GPP TS 33.180 [29] subclause F.2.1.
MCPTT-SAKKE-to-self-ID-scheme	241	The SAKKE data field of a SAKKE payload with the ID scheme field set to 'MCPTT-SAKKE-to-self-ID-scheme' contains the GMK encapsulated to the UID generated from the IDRi payload or extracted from the IDRuidi payload according to 3GPP TS 33.180 [29] subclause F.2.1.

7.5.4 Type field assignment

IETF RFC 3830 [16] defines some values of the type field of the general extension payload as 'reserved for private use'. The table 7.5.4-1 shows usage of the 'reserved for private use' values of the type field of the general extension payload for usage in MCS.

Table 7.5.4-1: Usage of 'reserved for private use' values of the type field of the general extension payload

ID role name	ID role value	Descriptions
SAKKE-to-self	241	The data field of a general extension payload with the type field set to 'SAKKE-to-self' contains a SAKKE payload as specified in IETF RFC 6509 [18].
GMK-or-MKFC-associated-parameters	242	The data field of a general extension payload with the type field set to 'GMK-or-MKFC-associated-parameters' contains the associated parameters of GMK or MKFC as specified in 3GPP TS 33.180 [29] figure E.6.1-1.

7.6 Group key transport payload failure

7.6.1 General

The requirements in the remaining subclauses of the parent subclause of this subclause apply for coding of group key transport payload failure.

7.6.2 Group key transport payload structure

The group key transport payload is an Error payload as specified in IETF RFC 3830 [16].

7.7 MCS group key transport payloads (GKTP) document coding

7.7.1 General

The requirements in the remaining subclauses of the parent subclause of this subclause apply for an MCS group key transport payloads (GKTP) document.

The MCS GKTP document contains group key transport payloads for an MCS group.

The MCS GKTP document is located in the global tree, cannot be managed using XCAP and can be fetched using SIP.

An MCS GKTP document stored in a GMS compliant to Release 14 of the present document does not contain an MKFC and an MKFC-ID.

A GMC can receive an MCS GKTP document containing an MKFC and an MKFC-ID from a GMS compliant only to Release 13 of the present document.

7.7.2 Structure

The <group> element specified in OMA OMA-SUP-XSD_poc_listService-V1_0_2 [19] of an MCS GKTP document:

   a) shall be the root element; and

   b) shall include one <list-service> elements specified in OMA OMA-SUP-XSD_poc_listService-V1_0_2 [19].

The <list-service> element specified in OMA OMA-SUP-XSD_poc_listService-V1_0_2 [19] of an MCS GKTP document:

   a) shall include a "uri" attribute specified in OMA OMA-SUP-XSD_poc_listService-V1_0_2 [19]; and

   b) shall include an <GKTPs> element specified in subclause 7.7.4.2.

The <GKTPs> element specified in subclause 7.7.4.2 of an MCS GKTP document:

   a) may include an <anyExt> element specified in subclause 7.2.4.2.

The <GKTPs> element specified in subclause 7.7.4.2 of an MCS GKTP document which is associated as specified in subclause 7.7.11 with an MCS group document defining an MCPTT group additionally:

a) shall include zero or one <GMK-GKTPs> elements specified in subclause 7.7.4.2; and

b) shall include zero or one <MKFC-GKTPs> elements specified in subclause 7.7.4.2.

The <GMK-GKTPs> element specified in subclause 7.7.4.2 of an MCS GKTP document which is associated as specified in subclause 7.7.11 with an MCS group document defining an MCPTT group:

a) shall include zero or more <GKTP> elements specified in subclause 7.7.4.2; and

b) shall include zero or more <on-network-regrouped-GKTPs> elements specified in subclause 7.7.4.2; and

c) may include an <anyExt> element specified in subclause 7.2.4.2.

The <MKFC-GKTPs> element specified in subclause 7.7.4.2 of an MCS GKTP document which is associated as specified in subclause 7.7.11 with an MCS group document defining an MCPTT group:

a) shall include zero or more <GKTP> elements specified in subclause 7.7.4.2; and

b) shall include zero or more <on-network-regrouped-GKTPs> elements specified in subclause 7.7.4.2; and

c) may include an <anyExt> element specified in subclause 7.2.4.2.

The <GKTP> element specified in subclause 7.7.4.2 of an MCS GKTP document:

a) shall include an "id" attribute specified in subclause 7.7.4.2.

The <on-network-regrouped-GKTPs> element specified in subclause 7.7.4.2 of an MCS GKTP document:

a) shall include a "temporary-MCPTT-group-ID" attribute specified in subclause 7.7.4.2;

b) shall include zero or more <GKTP> elements specified in subclause 7.7.4.2; and

c) may include an <anyExt> element specified in subclause 7.2.4.2.

<anyExt> element contains elements defined by future versions of the present document.

Elements and attributes of the MCS GKTP document are defined in various namespaces. The MCS GKTP document refers to namespaces using prefixes specified in table 7.7.2-1.

Table 7.7.2-1: Assignment of prefixes to namespace names in MCS GKTP documents

Prefix	Namespace
oxe	urn:oma:xml:xdm:extensions
mgktp	urn:3gpp:ns:mcpttGKTP:1.0
NOTE:	The "urn:oma:xml:poc:list-service" namespace is the default namespace so no prefix is used for it in the MCS GKTP document.

MCS GKTP document may contain unknown elements and unknown attributes according to the XML schemas specified in subclause 7.7.4.

7.7.3   Application Unique ID

Application Unique ID is "org.3gpp.MCPTT-GKTP".

7.7.4   XML schema

7.7.4.1   General

The MCS GKTP document is composed according the XML schema specified in the OMA OMA-SUP-XSD_poc_listService-V1_0_2 [19], and extended with extensions from the XML schema defined in subclause 7.7.4.2.

7.7.4.2   XML schema for MCS specific extensions

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema
  targetNamespace="urn:3gpp:ns:mcpttGKTP:1.0"
```

```
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    xmlns:mgktp="urn:3gpp:ns:mcpttGKTP:1.0"
    elementFormDefault="qualified" attributeFormDefault="unqualified">

    <!-- MCS specific "list-service" child elements -->
    <xs:element name="GKTPs" type="mgktp:allTypeGKTPsType"/>

    <!-- complex type for GKTPs element -->
    <xs:complexType name="allTypeGKTPsType">
      <xs:sequence>
        <!-- MCPTT specific extensions for regroupedType type defined in release 13 -->
        <xs:element name="GMK-GKTPs" type="mgktp:singleTypeGKTPsType" minOccurs="0"/>
        <xs:element name="MKFC-GKTPs" type="mgktp:singleTypeGKTPsType" minOccurs="0"/>

        <xs:element name="anyExt" type="mgktp:anyExtType" minOccurs="0"/>
        <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
      <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <!-- MCS specific extensions for regroupedType type -->

    <!-- MCPTT specific extensions for regroupedType type defined in a release after release 13 -->

    <!-- MCVideo specific extensions for regroupedType type -->

    <!-- MCData specific extensions for regroupedType type  -->

    <!-- complex type for GKTPs element -->
    <xs:complexType name="singleTypeGKTPsType">
      <xs:sequence>
        <xs:element name="GKTP" type="mgktp:GKTPType" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="on-network-regrouped-GKTPs"
          type="mgktp:on-network-regrouped-GKTPsType" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="anyExt" type="mgktp:anyExtType" minOccurs="0"/>
        <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
      <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <!-- complex type for GKTP element -->
    <xs:complexType name="GKTPType">
      <xs:simpleContent>
        <xs:extension base="xs:hexBinary">
          <xs:attribute name="id" type="xs:string" use="required"/>
          <xs:anyAttribute namespace="##any" processContents="lax"/>
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>

    <!-- complex type for on-network-regrouped element -->
    <xs:complexType name="on-network-regrouped-GKTPsType">
      <xs:sequence>
        <xs:element name="GKTP" type="mgktp:GKTPType" minOccurs="0" maxOccurs="unbounded"/>
        <xs:element name="anyExt" type="mgktp:anyExtType" minOccurs="0"/>
        <xs:any namespace="##other" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
      <xs:attribute name="temporary-MCPTT-group-ID" type="xs:anyURI" use="required"/>
      <xs:anyAttribute namespace="##any" processContents="lax"/>
    </xs:complexType>

    <!-- complex type for any extensions element -->
    <xs:complexType name="anyExtType">
      <xs:sequence>
        <xs:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:complexType>

</xs:schema>
```

7.7.5   Default document namespace

The default document namespace used in evaluating URIs for MCS GKTP document is urn:oma:xml:poc:list-service specified in the OMA OMA-SUP-XSD_poc_listService-V1_0_2 [19].

7.7.6 MIME type

MIME type for MCS GKTP document is not specified.

NOTE: according to subclause 7.7.12, the MCS GKTP documents are not managed using XCAP and fetching entire MCS GKTP document or a fragment of the MCS GKTP using SIP as specified in subclause 6.3.13 and IETF RFC 5875 [13] uses application/xcap-diff+xml MIME type.

7.7.7 Validation constraints

None.

7.7.8 Data semantics

If a MCS GKTP document includes an element not specified in subclause 7.7.2 and the element has the "must-understand" attribute with value "true", then the MCS GKTP document shall be ignored.

If a MCS GKTP document includes an element not specified in subclause 7.7.2 and the element does not have the "must-understand" attribute with value "true", then the element shall be ignored.

If a MCS GKTP document includes an attribute not specified in subclause 7.7.2 and different from the "must-understand" attribute, then the attribute shall be ignored.

The "uri" attribute of a <list-service> element of a MCS GKTP document contains the MCS group ID, which is defined by a group document as specified in subclause 7.2 and located in the same XCAP server.

The <GKTPs> element of the <list-service> element of the MCS GKTP document:

- can contain a <GMK-GKTPs> element containing group key transport payloads carrying GMKs; and

- can contain a <MKFC-GKTPs> element containing group key transport payloads carrying MKFCs;

associated with the MCPTT group with the MCS group ID indicated in the "uri" attribute of a <list-service> element.

Value of a <GKTP> element of a <GMK-GKTPs> element of a <GKTPs> element of the <list-service> element of the MCS GKTP document contains a group key transport payload carrying GMK as described in subclause 7.4, indicating the GMK for protection of:

a) media; and

b) floor control signalling when the UE operates off the network;

to be used when the MCPTT group is not a constituent MCPTT group, encrypted to the MCPTT ID of the MCPTT user accessing the MCS GKTP document, according to 3GPP TS 33.180 [29], signed using the identity of the GMS.

Value of a <GKTP> element of a <MKFC-GKTPs> element of a <GKTPs> element of the <list-service> element of the MCS GKTP document contains a group key transport payload carrying MKFC as described in subclause 7.4, indicating the MKFC for protection of multicast floor control signalling when the UE operates on the network, to be used when the MCPTT group is not a constituent MCPTT group, encrypted to:

- MCPTT ID of the MCPTT user accessing the MCS GKTP document; or

- the identity of MCPTT server accessing the MCS GKTP document;

according to 3GPP TS 33.180 [29], signed using the identity of the GMS.

Value of the "id" attribute of a <GKTP> element shall be unique amongst values of all other "id" attributes in <GKTP> elements within the same parent element.

If multiple <GKTP> elements are included in a parent element, then each <GKTP> element with the parent element has a different activation time.

Value of a <GKTP> element of an <on-network-regrouped-GKTPs> element of a <GMK-GKTPs> element of a <GKTPs> element of the <list-service> element of the MCS GKTP document contains a group key transport payload carrying GMK as described in subclause 7.4, indicating the GMK for protection of:

a) media; and

b) floor control signalling when the UE operates off the network;

to be used when the MCPTT group is a constituent MCS group of the temporary MCS group with the MCS Group ID indicated in the "temporary-MCPTT-group-ID" attribute of the <on-network-regrouped-GKTPs> element, encrypted to the MCPTT ID of the MCPTT user accessing the MCS GKTP document, according to 3GPP TS 33.180 [29], signed using the identity of the GMS.

Value of a <GKTP> element of an <on-network-regrouped-GKTPs> element of a <MKFC-GKTPs> element of a <GKTPs> element of the <list-service> element of the MCS GKTP document contains a group key transport payload carrying MKFC as described in subclause 7.4, indicating the MKFC for protection of multicast floor control signalling when the UE operates on the network, to be used when the MCPTT group is a constituent MCS group of the temporary MCS group with the MCS Group ID indicated in the "temporary-MCPTT-group-ID" attribute of the <on-network-regrouped-GKTPs> element, encrypted to:

- MCPTT ID of the MCPTT user accessing the MCS GKTP document; or

- the identity of MCPTT server accessing the MCS GKTP document;

according to 3GPP TS 33.180 [29], signed using the identity of the GMS.

<anyExt> element contains elements defined by future versions of the present document.

7.7.9   Naming conventions

None.

7.7.10   Global documents

MCS GKTP documents:

- are located in a subdirectory of the global tree, with the subdirectory name specified by the byGroupID-subdirectory ANBF rule of table 7.7.10.2-1; and

- have the document name set to the group ID.

Table 7.7.10.2-1: ABNF syntax of directory name for MCS GKTP documents addressed by a group ID

```
byGroupID-subdirectory = %x62.79.47.72.6f.75.70.49.44; "byGroupID"
```

7.7.11   Resource interdependencies

The following applies for a MCS GKTP document:

a) a MCS GKTP document shall be associated with an MCS group document in the users tree of a particular user which defines the group ID;

b) a MCS GKTP document shall exist for each associated MCS group document;

c) GMS shall create a MCS GKTP document when the associated MCS group document is created; and

d) GMS shall generate the GMK(s) of the MCS GKTP document according to the presence and values of, or the absence of, the <protect-media> element, the <protect-floor-control-signalling> element and the <require-multicast-floor-control-signalling> element of the associated MCS group document.

NOTE: 3GPP TS 33.180 [29] describes how GMK(s) and MKFC(s) are generated.

7.7.12   Authorization policies

MCS GKTP documents shall not be managed using XCAP.

MCS GKTP documents can be fetched using SIP.

An authenticated identity is authorized to subscribe to notification of changes of an <GKTPs> element of an MCS GKTP document if:

a) the authenticated identity is a member of an MCS group defined by an MCS group document associated with the MCS GKTP document; or

b) the authenticated identity is listed in the authorized GMS list specified in subclause 6.2.5.1 and the subscription is on behalf of a constituent MCS group of the MCS group defined by an MCS group document associated with the MCS GKTP document.

Annex A (informative):
Signalling flows

A.1 Scope of signalling flows

This annex gives examples of signalling flows for group document management on the extensible markup language configuration access protocol (XCAP) and the session initiation protocol (SIP).

HTTP header fields and SIP header fields insignificant for the group document management are omitted.

A.2 Signalling flows for group creation

A.2.1 General

The key to interpret signalling flows:

- The MCPTT IDs of MCPTT users of the MCPTT service provider SP1 have format sip:user*<sometext>*@MCPTTSP1.example.com

- The MCPTT ID of the MCPTT user 1 of the MCPTT service provider SP1 is sip:user1@MCPTTSP1.example.com.

- The GMC-1 serves the MCPTT user 1.

- The GMC-1 is configured with the group creation XUI configuration parameter set to sip:department1@MCPTTSP1.example.com.

- The GMC-1 is configured with XCAP Root URI set to http://xcap.MCPTTSP1.example.com/path1

- The GMS-1 is deployed in MCPTT service provider SP1.

- The hostname of the GMS-1 is xcap.MCPTTSP1.example.com.

- The GMS-1 provides XCAP server at XCAP Root URI http://xcap.MCPTTSP1.example.com/path1

- MCPTT Group IDs of MCPTT groups defined by group documents stored in GMS-1 have format sip:group*<sometext>*@MCPTTSP1.example.com

- The GMS-2 is deployed in MCPTT service provider SP2.

- The hostname of the GMS-2 is xcap.MCPTTSP2.example.com.

- The GMS-2 provides XCAP server at XCAP Root URI http://xcap.MCPTTSP2.example.com/path2

- MCPTT Group IDs of MCPTT groups defined by group documents stored in GMS-2 have format sip:group*<sometext>*@MCPTTSP2.example.com

A.2.2 GMC creating a MCPTT group on behalf of MCPTT user served by the GMC

Figure A.2.2-1 shows a flow for a group management client GMC-1 creating an MCPTT group document in a group management server GMS-1.

Document name of the MCPTT group document is groupdocument1.xml.

The MCPTT group is a pre-arranged MCPTT group, which is disabled for on-network procedures, with maximum of 10 participants, with on-network-group-priority of 5, and with display name "My conference display name".

The MCPTT group members are the MCPTT user 1, a MCPTT user 2 and a MCPTT user 3. The MCPTT user 1 and the MCPTT user 2 are MCPTT group members required in on-network procedures.

The MCPTT user identity of the MCPTT user 2 is sip:user2@MCPTTSP1.example.com, and the MCPTT user identity of the MCPTT user 3 is sip:user3@MCPTTSP1.example.com. The MCPTT group document indicates a display name for each member.

The user-priority of the MCPTT user 1 is 1, the user-priority of the MCPTT user 2 is 2, and the user-priority of the MCPTT user 3 is 3.

The XUI of the MCPTT user 1 is the same as the MCPTT user identity of the MCPTT user 1.

The members of the MCPTT group are allowed to initiate the MCPTT group session, are allowed to join the MCPTT group session, are allowed to request an MCPTT-emergency call on the MCPTT group, are allowed to request an imminent peril call on the MCPTT group and are allowed to request an MCPTT-emergency alert on the MCPTT group.

The GMC-1 proposes that the MCPTT group identity of the MCPTT group is sip:GMCproposedMCPTTGroupID@MCPTTSP1.example.com, but the GMS-1 decides that the MCPTT group identity of the MCPTT group is sip:groupGMSdecidedMCPTTGroupID@MCPTTSP1.example.com.
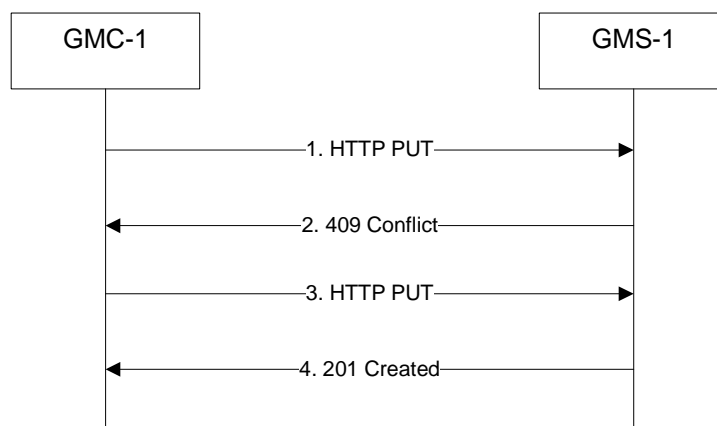
Figure A.2.2-1: GMC-1 creating a MCPTT group document in GMS-1 on behalf of user served by the GMC-1

The details of the flows are as follows:

1) GMC-1 sends an HTTP PUT request shown in table A.2.2-1 to the GMS-1.

Table A.2.2-1: first HTTP PUT request

```
PUT
http://xcap.MCPTTSP1.example.com/path1/org.openmobilealliance.groups/users/sip:department1@MC
PTTSP1.example.com/groupdocument1.xml HTTP/1.1
Host: xcap.MCPTTSP1.example.com
Content-Type: application/vnd.oma.poc.groups+xml; charset="utf-8"

<?xml version="1.0" encoding="UTF-8"?>
<group
  xmlns="urn:oma:xml:poc:list-service"
  xmlns:rl="urn:ietf:params:xml:ns:resource-lists"
  xmlns:cp="urn:ietf:params:xml:ns:common-policy"
  xmlns:ocp="urn:oma:xml:xdm:common-policy"
  xmlns:oxe="urn:oma:xml:xdm:extensions"
  xmlns:mcpttgi="urn:3gpp:ns:mcpttGroupInfo:1.0"
  >
  <list-service uri="sip:GMCproposedMCPTTGroupID@MCPTTSP1.example.com">
    <display-name xml:lang="en-us">My conference display name</display-name>
    <list>
      <entry uri="sip:user1@MCPTTSP1.example.com">
        <rl:display-name>User 1</rl:display-name>
        <mcpttgi:on-network-required/>
        <mcpttgi:user-priority>1</mcpttgi:user-priority>
      </entry>
      <entry uri="sip:user2@MCPTTSP1.example.com">
        <rl:display-name>User 2</rl:display-name>
        <mcpttgi:on-network-required/>
        <mcpttgi:user-priority>2</mcpttgi:user-priority>
```

```
        </entry>
        <entry uri="sip:user3@MCPTTSP1.example.com">
          <rl:display-name>User 3</rl:display-name>
          <mcpttgi:user-priority>3</mcpttgi:user-priority>
        </entry>
      </list>
      <mcpttgi:on-network-invite-members>true</mcpttgi:on-network-invite-members>
      <mcpttgi:on-network-max-participant-count>10</mcpttgi:on-network-max-participant-count>
      <cp:ruleset>
        <cp:rule id="a7c">
          <cp:conditions>
            <is-list-member/>
          </cp:conditions>
          <cp:actions>
            <allow-initiate-conference>true</allow-initiate-conference>
            <join-handling>true</join-handling>
            <mcpttgi:allow-MCPTT-emergency-call>true</mcpttgi:allow-MCPTT-emergency-call>
            <mcpttgi:allow-imminent-peril-call>true</mcpttgi:allow-imminent-peril-call>
            <mcpttgi:allow-MCPTT-emergency-alert>true</mcpttgi:allow-MCPTT-emergency-alert>
          </cp:actions>
        </cp:rule>
      </cp:ruleset>
      <oxe:supported-services>
       <oxe:service enabler="urn:urn-7:3gpp-service.ims.icsi.mcptt">
        <oxe:group-media>
         <mcpttgi:mcptt-speech/>
        </oxe:group-media>
       </oxe:service>
      </oxe:supported-services>
      <mcpttgi:on-network-disabled/>
      <mcpttgi:on-network-group-priority>5</mcpttgi:on-network-group-priority>
    </list-service>
  </group>
```

2) GMS-1 rejects the HTTP PUT request with HTTP 409 (Conflict) response shown in table A.2.2-2.

Table A.2.2-2: HTTP 409 (Conflict) response to HTTP PUT request

```
HTTP/1.1 409 Conflict
Content-Type: application/xcap-error+xml; charset="utf-8"

<?xml version="1.0" encoding="UTF-8"?>
<xcap-error xmlns="urn:ietf:params:xml:ns:xcap-error">
  <uniqueness-failure phrase="URI constraint violated">
    <exists field="group/list-service/@uri">
      <alt-value>sip:groupGMSdecidedMCPTTGroupID@MCPTTSP1.example.com</alt-value>
    </exists>
  </uniqueness-failure>
</xcap-error>
```

3) GMC-1 sends an HTTP PUT request to the GMS-1. The HTTP PUT request is the same as shown in table A.2.2-1 with exception of the value of the "uri" attribute of the <list-service> element of the <group> root element. The "uri" attribute contains sip:groupGMSdecidedMCPTTGroupID@MCPTTSP1.example.com.

4) GMS-1 creates the MCPTT group document so that it is accessible using the XCAP URIs

   http://xcap.MCPTTSP1.example.com/path1/org.openmobilealliance.groups/users/sip:department1@MCPTTSP1.example.com/groupdocument1.xml

   and

   http://xcap.MCPTTSP1.example.com/path1/org.openmobilealliance.groups/global/byGroupID/sip:groupGMSdecidedMCPTTGroupID@MCPTTSP1.example.com.

   GMS-1 also creates the MCPTT GKTP document at
   http://xcap.MCPTTSP1.example.com/path1/org.3gpp.MCPTT-
   GKTP/global/byGroupID/sip:groupGMSdecidedMCPTTGroupID@MCPTTSP1.example.com

   GMS-1 accepts the HTTP PUT request with HTTP 201 (Created) response.

A.2.3 GMC performing a temporary MCPTT group formation of two MCPTT groups to be combined

Figure A.2.3-1 shows a flow for a group management client GMC-1 performing formation of a temporary MCPTT group by combination of two MCPTT groups to be combined.

The temporary MCPTT group is identified by the temporary MCPTT Group ID sip:groupT@MCPTTSP1.example.com and is being created in GMS-1 under the groupdocumentT.xml document name.

The temporary MCPTT group is a pre-arranged MCPTT group.

The GMK is required to confidentiality and integrity protect media for calls on the temporary MCPTT group. Both confidentiality protection and integrity protection of floor control signalling are required for calls on the temporary MCPTT group. Multicast bearers are used for floor controlling signalling for the temporary MCPTT group.

One MCPTT group to be combined is identified by the MCPTT Group ID sip:groupA@MCPTTSP1.example.com and is owned by GMS-1.

The other MCPTT group to be combined is identified by the MCPTT Group ID sip:groupB@MCPTTSP2.example.com and is owned by GMS-2.

The GMS-1 is configured with the group ID routing database stating:

- the XCAP Root URI of sip:groupB@MCPTTSP2.example.com is http://xcap.MCPTTSP2.example.com/path2; and

- the public service identity for accessing documents of the MCPTT provider of sip:groupB@MCPTTSP2.example.com is sip:gms.MCPTTSP2.example.com.

The GMS-2 is configured with the group ID routing database stating:

- the XCAP Root URI of sip:groupT@MCPTTSP1.example.com is http://xcap.MCPTTSP1.example.com/path1; and

- the public service identity for accessing documents of the MCPTT provider of sip:groupT@MCPTTSP1.example.com is sip:gms.MCPTTSP1.example.com.
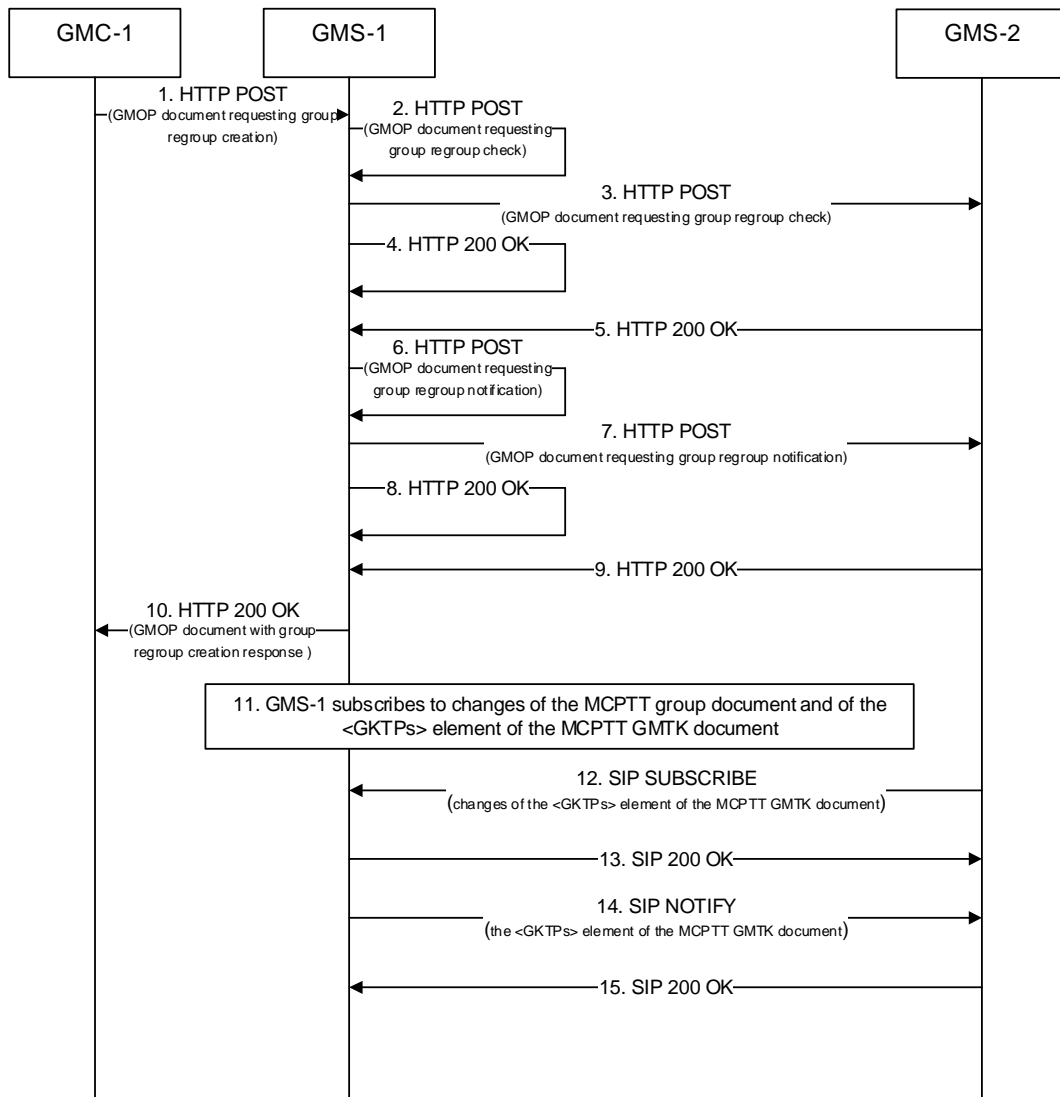
Figure A.2.3-1: GMC performing a temporary MCPTT group formation of two MCPTT groups to be combined

The details of the flows are as follows:

1) GMC-1 sends an HTTP POST request with the GMOP document requesting group regroup creation shown in table A.2.3-1 to the GMS-1.

Table A.2.3-1: 1. HTTP POST (GMOP document requesting group regroup creation)

```
POST
http://xcap.MCPTTSP1.example.com/path1/org.openmobilealliance.groups/users/sip:department1@ex
ample.com/groupdocumentT.xml HTTP/1.1
Host: xcap.MCPTTSP1.example.com
Content-Type: application/vnd.3gpp.GMOP+xml; charset="utf-8"

<?xml version="1.0" encoding="UTF-8"?>
<gmop:document
  xmlns="urn:oma:xml:poc:list-service"
  xmlns:rl="urn:ietf:params:xml:ns:resource-lists"
  xmlns:cp="urn:ietf:params:xml:ns:common-policy"
  xmlns:ocp="urn:oma:xml:xdm:common-policy"
  xmlns:oxe="urn:oma:xml:xdm:extensions"
  xmlns:mcpttgi="urn:3gpp:ns:mcpttGroupInfo:1.0"
  xmlns:gmop="urn:3gpp:ns:mcpttGMOP:1.0"
  >
```

```
     <gmop:request>
       <gmop:group-regroup-creation>
         <group>
           <list-service uri="sip:groupT@MCPTTSP1.example.com">
             <mcpttgi:on-network-invite-members>true</mcpttgi:on-network-invite-members>
             <oxe:supported-services>
              <oxe:service enabler="urn:urn-7:3gpp-service.ims.icsi.mcptt">
               <oxe:group-media>
                <mcpttgi:mcptt-speech/>
               </oxe:group-media>
              </oxe:service>
             </oxe:supported-services>
             <mcpttgi:on-network-temporary>
               <mcpttgi:constituent-MCPTT-group-IDs>
                 <mcpttgi:constituent-MCPTT-group-
ID>sip:groupA@MCPTTSP1.example.com</mcpttgi:constituent-MCPTT-group-ID>
                 <mcpttgi:constituent-MCPTT-group-
ID>sip:groupB@MCPTTSP2.example.com</mcpttgi:constituent-MCPTT-group-ID>
               </mcpttgi:constituent-MCPTT-group-IDs>
             </mcpttgi:on-network-temporary>
           </list-service>
         </group>
       </gmop:group-regroup-creation>
     </gmop:request>
</gmop:document>
```

2) GMS-1 authorizes the request as specified in subclause 6.3.14.3.1 and sends HTTP POST request with the GMOP document requesting group regroup check.

3) GMS-1 sends HTTP POST request with the GMOP document requesting group regroup check to GMS-2 as shown in table A.2.3-3.

Table A.2.3-3: 3. HTTP POST (GMOP document requesting group regroup check)

```
POST
http://xcap.MCPTTSP2.example.com/path2/org.openmobilealliance.groups/global/byGroupID/sip:gro
upB@MCPTTSP2.example.com/~~/group/list-service/mcpttgi:on-network-regrouped%5b@temporary-
MCPTT-group-
ID=%22sip:groupT@MCPTTSP1.example.com%22%5d?xmlns(mcpttgi=urn:3gpp:ns:mcpttGroupInfo:1.0)
HTTP/1.1
Host: xcap.MCPTTSP2.example.com
X-3GPP-Asserted-Identity: sip:gms.MCPTTSP1.example.com
Content-Type: application/vnd.3gpp.GMOP+xml; charset="utf-8"

<?xml version="1.0" encoding="UTF-8"?>
<gmop:document
  xmlns="urn:oma:xml:poc:list-service"
  xmlns:rl="urn:ietf:params:xml:ns:resource-lists"
  xmlns:cp="urn:ietf:params:xml:ns:common-policy"
  xmlns:ocp="urn:oma:xml:xdm:common-policy"
  xmlns:oxe="urn:oma:xml:xdm:extensions"
  xmlns:mcpttgi="urn:3gpp:ns:mcpttGroupInfo:1.0"
  xmlns:gmop="urn:3gpp:ns:mcpttGMOP:1.0"
  >
  <gmop:request>
    <gmop:group-regroup-check>
      <mcpttgi:on-network-regrouped
        temporary-MCPTT-group-ID="sip:groupT@MCPTTSP1.example.com"
        temporary-MCPTT-group-requestor="sip:user1@MCPTTSP1.example.com"
      >
        <mcpttgi:constituent-MCPTT-group-IDs>
          <mcpttgi:constituent-MCPTT-group-
ID>sip:groupA@MCPTTSP1.example.com</mcpttgi:constituent-MCPTT-group-ID>
          <mcpttgi:constituent-MCPTT-group-
ID>sip:groupB@MCPTTSP2.example.com</mcpttgi:constituent-MCPTT-group-ID>
        </mcpttgi:constituent-MCPTT-group-IDs>
      </mcpttgi:on-network-regrouped>
      <protect-media>true</protect-media>
      <protect-floor-control-signalling>true</protect-floor-control-signalling>
      <require-multicast-floor-control-signalling>true</require-multicast-floor-control-
signalling>
    </gmop:group-regroup-check>
  </gmop:request>
</gmop:document>
```

4) GMS-1 authorizes the request as specified in subclause 6.3.14.3.2 and responds with a HTTP 200 (OK) response to the HTTP POST request.

5) GMS-2 authorizes the request as specified in subclause 6.3.14.3.2 and responds with a HTTP 200 (OK) response to the HTTP POST request.

6) GMS-1 sends HTTP POST request with the GMOP document requesting group regroup notification.

7) GMS-1 sends HTTP POST request with the GMOP document requesting group regroup notification to GMS-2 as shown in table A.2.3-7.

Table A.2.3-7: 7. HTTP POST (GMOP document requesting group regroup notification)

```
POST
http://xcap.MCPTTSP2.example.com/path2/org.openmobilealliance.groups/global/byGroupID/sip:gro
upB@MCPTTSP2.example.com/~~/group/list-service/mcpttgi:on-network-regrouped%5b@temporary-
MCPTT-group-
ID=%22sip:groupT@MCPTTSP1.example.com%22%5d?xmlns(mcpttgi=urn:3gpp:ns:mcpttGroupInfo:1.0)
HTTP/1.1
Host: xcap.MCPTTSP2.example.com
X-3GPP-Asserted-Identity: sip:gms.MCPTTSP1.example.com
Content-Type: application/vnd.3gpp.GMOP+xml; charset="utf-8"

<?xml version="1.0" encoding="UTF-8"?>
<gmop:document
  xmlns="urn:oma:xml:poc:list-service"
  xmlns:rl="urn:ietf:params:xml:ns:resource-lists"
  xmlns:cp="urn:ietf:params:xml:ns:common-policy"
  xmlns:ocp="urn:oma:xml:xdm:common-policy"
  xmlns:oxe="urn:oma:xml:xdm:extensions"
  xmlns:mcpttgi="urn:3gpp:ns:mcpttGroupInfo:1.0"
  xmlns:gmop="urn:3gpp:ns:mcpttGMOP:1.0"
  >
  <gmop:request>
    <gmop:group-regroup-notification>
      <mcpttgi:on-network-regrouped
        temporary-MCPTT-group-ID="sip:groupT@MCPTTSP1.example.com"
        temporary-MCPTT-group-requestor="sip:user1@MCPTTSP1.example.com"
      >
        <mcpttgi:constituent-MCPTT-group-IDs>
          <mcpttgi:constituent-MCPTT-group-
ID>sip:groupA@MCPTTSP1.example.com</mcpttgi:constituent-MCPTT-group-ID>
          <mcpttgi:constituent-MCPTT-group-
ID>sip:groupB@MCPTTSP2.example.com</mcpttgi:constituent-MCPTT-group-ID>
        </mcpttgi:constituent-MCPTT-group-IDs>
        <protect-media>true</protect-media>
        <protect-floor-control-signalling>true</protect-floor-control-signalling>
        <require-multicast-floor-control-signalling>true</require-multicast-floor-control-
signalling>
      </mcpttgi:on-network-regrouped>
    </gmop:group-regroup-notification>
  </gmop:request>
</gmop:document>
```

8) GMS-1 authorizes the request as specified in subclause 6.3.14.3.2, place the <on-network-regrouped> element of the GMOP document requesting group regroup notification of the HTTP POST request at the location identified by the Request-URI of the received HTTP POST request and responds with a HTTP 200 (OK) response to the HTTP POST request.

9) GMS-2 authorizes the request as specified in subclause 6.3.14.3.2, place the <on-network-regrouped> element of the GMOP document requesting group regroup notification of the HTTP POST request at the location identified by the Request-URI of the received HTTP POST request and responds with a HTTP 200 (OK) response to the HTTP POST request.

10) GMS-1 creates the temporary MCPTT group document so that it is accessible using the XCAP URIs

http://xcap.MCPTTSP1.example.com/path1/org.openmobilealliance.groups/users/sip:department1@MCPTTSP1
.example.com/groupdocumentT.xml

and

http://xcap.MCPTTSP1.example.com/path1/org.openmobilealliance.groups/global/byGroupID/sip:groupT@MC
PTTSP1.example.com.

GMS-1 also creates the MCPTT GKTP document at
http://xcap.MCPTTSP1.example.com/path1/org.3gpp.MCPTT-
GKTP/global/byGroupID/sip:groupT@MCPTTSP1.example.com

GMS-1 accepts the HTTP POST request with HTTP 200 (OK) response. The HTTP 200 (OK) response includes
the GMOP document with group regroup creation response.

10) GMS-1 subscribes to changes of the <GKTPs> element of MCPTT-GKTP document of the temporary MCPTT
group, is notified about the current state and updates the MCPTT-GKTP document for the MCPTT group with
sip:groupA@MCPTTSP1.example.com MCPTT Group ID.

11) GMS-2 subscribes to changes of the <GKTPs> element of MCPTT-GKTP document of the temporary MCPTT
group as shown in table A.2.3-11.

Table A.2.3-11: 11. SIP SUBSCRIBE request

```
SUBSCRIBE sip:gms.MCPTTSP1.example.com SIP/2.0
...
Accept: application/xcap-diff+xml
Event: xcap-diff; diff-processing=no-patching
Content-Type: multipart/mixed;boundary="xyz"
P-Asserted-Identity: sip:gms.MCPTTSP2.example.com
Content-Length: ...

--xyz
Content-Type: application/resource-lists+xml

<?xml version="1.0" encoding="UTF-8"?>
<resource-lists xmlns="urn:ietf:params:xml:ns:resource-lists">
  <list>
    <entry uri="org.3gpp.MCPTT-
GKTP/global/byGroupID/sip:groupT@MCPTTSP1.example.com/~~/group/list-
service/mgktp:GKTPs?xmlns(mgktp=urn:3gpp:ns:mcpttGKTP:1.0)"/>
  </list>
</resource-lists>
--xyz
Content-Type: application/vnd.3gpp.mcptt-info+xml

<?xml version="1.0" encoding="UTF-8"?>
<mcptt-info>
  <mcptt-Params>
    <mcptt-calling-group-id>sip:groupB@MCPTTSP2.example.com</mcptt-calling-group-id>
  </mcptt-Params>
</mcptt-info>
--xyz--
```

12) GMS-1 authorizes the SIP SUBSCRIBE request and accepts it with SIP 200 (OK) response.

13) GMS-1 sends a SIP NOTIFY request with the content of the <GKTPs> element of MCPTT-GKTP document of
the temporary MCPTT group as shown in table A.2.3-13.

Table A.2.3-11: 13. SIP NOTIFY request

```
NOTIFY XXX SIP/2.0
...
Event: xcap-diff
Content-Type: application/xcap-diff+xml
Content-Length: ...

<?xml version="1.0" encoding="UTF-8"?>
<d:xcap-diff xmlns:d="urn:ietf:params:xml:ns:xcap-diff" xcap-
root="http://xcap.MCPTTSP1.example.com/path1">
  <d:element sel="org.3gpp.MCPTT-
GKTP/global/byGroupID/sip:groupT@MCPTTSP1.example.com/~~/group/list-
service/mgktp:GKTPs?xmlns(mgktp=urn:3gpp:ns:mcpttGKTP:1.0)">
    <mgktp:GKTPs>
      <mgktp:GMK-GKTPs>
        <mgktp:GKTP id="1">AAA</mgktp:GKTP>
      </mgktp:GMK-GKTPs>
```

```
   <d:element>
 </d:xcap-diff>
```

14) GMS-2 accepts the SIP NOTIFY request with SIP 200 (OK) response and updates the MCPTT-GKTP document for the MCPTT group with sip:groupB@MCPTTSP2.example.com MCPTT Group ID.

Annex B (informative): IANA registration templates

B.1 IANA registration templates for MIME types

B.1.1 application/vnd.3gpp.GMOP+xml IANA registration template

Your Name:

<MCC name>

Your Email Address:

<MCC email address>

Media Type Name:

application

Subtype name:

vnd.3gpp.GMOP+xml

Required parameters:

None

Optional parameters:

"charset" the parameter has identical semantics to the charset parameter of the "application/xml" media type as specified in section 9.1 of IETF RFC 7303.

Encoding considerations:

binary.

Security considerations:

Same as general security considerations for application/xml media type as specified in section 10 of IETF RFC 7303.

The information transported in this media type does not include active or executable content.

Mechanisms for privacy and integrity protection of protocol parameters are expected to be provided by the environment the media type operates in.

When a MIME body of the application/vnd.3gpp.GMOP+xml MIME type is transported over HTTP protocol over unsecured IP network, the integrity protection needs to be provided. Particularly, between the user agent and the entry point of the provider's network, the integrity protection is provided by TLS as described in 3GPP TS 24.482 (http://www.3gpp.org/ftp//Specs/archive/24_series/24.482/) subclause A.2.1.2.

When a MIME body of the application/vnd.3gpp.GMOP+xml MIME type is transported over SIP protocol and when required so by provider providing the "mission critical" service, the integrity protection of the MIME body needs to be provided. Particularly, the integrity protection of the MIME body is provided as described in 3GPP TS 24.379 (http://www.3gpp.org/ftp//Specs/archive/24_series/24.379/) subclause 6.6.1.3.

This media type does not include provisions for directives that institute actions on a recipient's files or other resources.

This media type does not include provisions for directives that institute actions that, while not directly harmful to the recipient, may result in disclosure of information that either facilitates a subsequent attack or else violates a recipient's privacy in any way.

This media type does not employ compression.

Interoperability considerations:

Same as general interoperability considerations for application/xml media type as specified in section 9.1 of IETF RFC 7303. Any unknown XML elements and any unknown XML attributes are to be ignored by recipient of the MIME body.

Published specification:

3GPP TS 24.481 "Mission Critical Services (MCS) group management; Protocol specification" version 13.4.0, available via http://www.3gpp.org/specs/numbering.htm.

Applications which use this media type:

Applications supporting the Mission Critical Push To Talk (MCPTT) group management as described in the published specification.

Fragment identifier considerations:

The handling in section 5 of IETF RFC 7303 applies.

Restrictions on usage:

None

Provisional registration? (standards tree only):

N/A

Additional information:

1. Deprecated alias names for this type: none

2. Magic number(s): none

3. File extension(s): none

4. Macintosh File Type Code(s): none

5. Object Identifier(s) or OID(s): none

Intended usage:

Common

Person to contact for further information:

- Name: <MCC name>

- Email: <MCC email address>

- Author/Change controller:

    i) Author: 3GPP CT1 Working Group/3GPP_TSG_CT_WG1@LIST.ETSI.ORG

    ii) Change controller: <MCC name>/<MCC email address>

Annex C (informative):
Change history

						Change history		
Date	TSG #	TSG doc	WG Doc.	CR	Rev	Subject/Comment	Old	New
2015-07						Initial proposal to CT1#92-bis	-	0.0.0
2015-07						Contains agreed P-CRs from CT1#92-bis: C1ah-150043, C1ah-150004, C1ah-150044	0.0.0	0.1.0
2015-08						Contains agreed P-CRs from CT1#93: C1-153181, C1-153182 and changes by rapporteur.	0.1.0	0.2.0
2015-08						minor fixes from the rapporteur	0.2.0	0.2.1
2015-09						specification numbers decided by CT#69 are indicated by the rapporteur	0.2.1	0.2.2
2015-10						Contains agreed P-CRs from CT1#94: C1-153717, C1-153745, C1-153753.	0.2.2	0.3.0
2015-11						Contains agreed P-CRs from CT1#95: C1-154409, C1-154593, C1-154594. Editorial fixes done and abbreviations added by the rapporteur.	0.3.0	0.4.0
2015-12	CT-70	CP-150735				Version 1.0.0 created for presentation for information	0.4.0	1.0.0
2016-01						Contains agreed P-CRs from CT1#95-BIS: C1-160018, C1-160019, C1-160020, C1-160021, C1-160023, C1-160026, C1-160030, C1-160031, C1-160032, C1-160033, C1-160367, C1-160369, C1-160467, C1-160468, C1-160469, C1-160470. Subclause renumbering and editorial fixes done by the rapporteur.	1.0.0	1.1.0
2016-02						Contains agreed P-CRs from CT1-on MCPTT and CT1#96: C1ah-160040, C1ah-160086, C1ah-160093, C1ah-160104, C1-161328, C1-161373, C1-161382, C1-161397, C1-161398, C1-161399. Subclause renumbering and editorial fixes done by the rapporteur.	1.1.0	1.2.0
2016-03	CT-71	CP-160061				Version 2.0.0 created for presentation for approval	1.2.0	2.0.0
2016-03	CT-71					Version 13.0.0 created after approval	2.0.0	13.0.0
2016-03						Editorial fixes - removal of superfluous spaces and addition of "(GC)", "(GMC)" and "(GMS)" when missing.	13.0.0	13.0.1
2016-06	CT-72	CP-160322	C1-161736	0007	-	Correction for semantic and values of group-priority and user-priority	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-162061	0001	1	Corrections for internal inconsistencies in the document	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-162375	0010	-	Correction for "the present document"	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-162399	0002	2	Corrections for managing group documents based on group ID	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-162590	0014	-	Add validations for <on-network-maximum-duration>	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-162841	0004	3	Correction for missing MCPTT group properties	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-162843	0012	1	Corrections for group document excluding group members retrieval procedure	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-162845	0015	1	Corrections for security	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-162846	0009	2	Adding security configuration to the group document	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-163047	0003	4	Corrections in the temporary MCPTT group formation procedure and the temporary MCPTT group tear down procedure	13.0.1	13.1.0
2016-06	CT-72	CP-160322	C1-163049	0013	2	Corrections for group management operations which cannot be expressed by HTTP GET, HTTP PUT or HTTP DELETE methods	13.0.1	13.1.0

						Change history	
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2016-09	CT#73	CP-160502	0011	2	F	Corrections in subscription to MCPTT group for not-routable MCPTT identities and for MCPTT signalling security	13.2.0
2016-09	CT#73	CP-160502	0016	2	F	Coding for group communication security	13.2.0
2016-09	CT#73	CP-160502	0017	1	F	Corrections in security level of temporary MCPTT group	13.2.0
2016-09	CT#73	CP-160502	0018	1	F	Corrections in temporary MCPTT group formation	13.2.0
2016-09	CT#73	CP-160502	0019		F	Corrections in application/g.3gpp.GMOP+xml IANA registration template	13.2.0

2016-09	CT#73	CP-160502	0020		F	Corrections in the flows	13.2.0
2016-09	CT#73	CP-160502	0021		F	Correction for re-grouping with MCPTT group to be combined owned by other MCPTT provider	13.2.0
2016-09	CT#73	CP-160502	0022	1	F	Correction in group key transport payloads	13.2.0
2016-09	CT#73	CP-160502	0027		F	Default document namespace correction	24.381 13.2.0
2016-12	CT#74					Change of spec number from 24.381 to 24.481 with wider scope and changed title	24.481 13.2.1
2016-12	CT#74	CP-160733	0028		F	Correcting references	13.3.0
2016-12	CT#74	CP-160733	0029		F	Corrections in syntax and semantic of MCPTT groups	13.3.0
2016-12	CT#74	CP-160733	0030	2	F	Corrections in authorization policy	13.3.0
2016-12	CT#74	CP-160733	0031	1	F	Reuse of OMA-TS-XDM_Core	13.3.0
2016-12	CT#74	CP-160733	0032	1	F	Change maximum allowed priority value based upon that allowed in service config	13.3.0
2016-12	CT#74	CP-160733	0033		F	Removal of user info ID from the group document	13.3.0
2016-12	CT#74	CP-160733	0034	1	F	Correction of use of Group key transport	13.3.0
2016-12	CT#74	CP-160733	0036	1	F	Off-network configuration parameter for queue	13.3.0
2017-03	CT#75	CP-170117	0001	2	F	Reference update for OMA-TS-XDM Group	13.4.0
2017-03	CT#75	CP-170117	0003		F	Scope alignment with TS name	13.4.0
2017-03	CT#75	CP-170117	0004	1	F	Corrections to elements, identifiers, names, steps, and labels	13.4.0
2017-03	CT#75	CP-170117	0005		F	Reference correction in IANA registration template for application/g.3gpp.GMOP+xml MIME type	13.4.0
2017-03	CT#75	CP-170205	0006		F	Correcting incorrect name of application/g.3gpp.GMOP+xml MIME type	13.4.0
2017-03	CT#75	CP-170127	0002	2	F	Reference update for 24.382 and for 24.381	14.0.0
2017-06	CT#76	CP-171114	0007	2	B	Audio cut-in configuration change	14.1.0
2017-06	CT#76	CP-171114	0008	2	B	Restructure TS 24.481 for MCVideo and MCData	14.1.0
2017-06	CT#76	CP-171113	0013		A	Reference update for OMA-TS-XDM_Group-V1_1_1	14.1.0
2017-06	CT#76	CP-171114	0015	1	F	Introduction of KMS URI	14.1.0
2017-06	CT#76					Correct numbering of references	14.1.1
2017-07						Addition of missing attachment	14.1.2
2017-09	CT#77	CP-172102	0016		F	MCVideo ID and MCData ID of member of MCS group usable in multiple MCSs	14.2.0
2017-09	CT#77	CP-172096	0018		A	IANA registration of application/vnd.3gpp.GMOP+xml MIME type	14.2.0
2017-09	CT#77	CP-172096	0020	1	A	Corrections to cross reference, coding, and labels	14.2.0
2017-09	CT#77	CP-172096	0022		A	application/vnd.3gpp.MCPTT-GKTP+xml MIME type	14.2.0
2017-09	CT#77	CP-172102	0023	2	F	Updating configuration changes related to auto-send, auto-receive updates	14.2.0
2017-09	CT#77	CP-172104	0024	1	F	Proposal for subclause 7.2.8 on identifying MCVideo group document	14.2.0
2017-12	CT#78	CP-173063	0011	4	B	Signalling security alignment	14.3.0
2017-12	CT#78	CP-173066	0025	1	F	Off-network MCVideo configurations	14.3.0
2017-12	CT#78	CP-173075	0014	5	B	Response-Source header field handling completion	15.0.0
2018-03	CT#79	CP-180072	0027	3	A	Resolution of editor's note	15.1.0
2018-06	CT#80	CP-181072	0028	1	B	Group Configuration Multi-Talker	15.2.0
2018-06	CT#80	CP-181064	0029	1	F	Modification in schema for mcdata-enhanced-status-operational-values element	15.2.0
2018-06	CT#80	CP-181055	0031	1	A	user-reception-priority attribute configuration	15.2.0
2019-03	CT#83	CP-190094	0035	3	F	Update of XML to include information string in the Enhanced Status message	15.3.0
2019-03	CT#83	CP-190097	0037	1	F	Correction for Group ID usage in group creation	15.3.0

History

Document history		
V15.2.0	June 2018	Publication
V15.3.0	April 2019	Publication