



Rich Communication Suite 5.1
Endorsement of OMA CPM 1.0 Conversation Functions
Version 1.0
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1 Introduction

1.1 Overview

This document describes which sections of the Open Mobile Alliance Converged IP (Internet Protocol) Messaging (OMA CPM) 1.0 Conversation Functions specification (see [CPMCONVFUNC]) are supported by RCS (Rich Communications Suite) 5.1.

For details on how this fits technically in the RCS 5.1 scope please see [RCS 5.1].

For easier reference, this document follows the same structure as [CPMCONVFUNC]. For that reason the headings of the sections are citations of the headings used in [CPMCONVFUNC], within the sections they describe what part the equivalent section in [CPMCONVFUNC] is supported by RCS. For sections that are not applicable in their entirety, this is mentioned at the top level of the section and the subsections are not mentioned explicitly thereafter. For sections in which no difference with [CPMCONVFUNC] is introduced however, also the subsections are mentioned to state explicitly that they are applicable as well.

This specification lists differences and clarifications for RCS compared to [CPMCONVFUNC]. The former category includes both differences in expected behaviour compared to [CPMCONVFUNC] as well as corrections in behaviour, which should disappear over time when bug fixes will be applied to [CPMCONVFUNC]. The latter category describes what options are chosen for RCS in case [CPMCONVFUNC] provides multiple possibilities and provides clarifications on how the provided functionality is expected to be used.

1.2 Scope

This document provides the details of the messaging technology used in RCS 5.1.

1.3 Definition of Terms

Term	Description
3GPP	3rd Generation Partnership Project
3GPP2	Third Generation Partnership Project 2
ABNF	Augmented Backus–Naur Form
B2BUA	Back to back user agent
CPIM	Common Presence and Instant Messaging
CPM	Converged IP Messaging
GRUU	Globally Routable User Agent URI
IARI	IMS Application Reference Identifier
ICSI	IMS Communication Service Identifier
IETF	Internet Engineering Task Force
IM	Instant Messaging
IMDN	Instant Message Disposition Notification. See [RFC5438].
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISF	Interworking Selection Function
IWF	Interworking Function
MMS	Multimedia Messaging Service
MSRP	Message Session Relay Protocol
OMA	Open Mobile Alliance
RCS	Rich Communication Suite
RFC	Request For Comments
RTCP	RTP Control Protocol
RTP	Real-time Transport Protocol

Term	Description
SDP	Session Description Protocol
SIMPLE	SIP for Instant Messaging and Presence Leveraging Extensions
SIP	Session Initiation Protocol
SLA	Service Level Agreement
SMS	Short Message Service
SVG	Scalable Vector Graphics
TCP	Transmission Control Protocol
UA	User Agent
UAC	User Agent Client
UAS	User Agent Server
URI	Uniform Resource Identifier
XDM	XML Document Management
XDMS	XML Document Management Server
XML	eXtensible Markup Language

1.4 Document Cross-References

Document	Name
[RCS 5.1]	RCS 5.1 - Advanced Communications: Services and Client Specification Version 1.0, 13 August 2012 http://www.gsma.com/rcs/
[RCS5-IMENDORS]	RCS 5.1 Endorsement of OMA SIP/SIMPLE IM 1.0, Version 1.0, 13 August 2012 http://www.gsma.com/rcs/
[CPMCONVFUNC]	CPM Conversation Functions, Open Mobile Alliance Ltd. OMA-TS-CPM_Conv_Fnct-V1_0-20101012-C http://member.openmobilealliance.org/ftp/public_documents/COM/COM-CPM/Permanent_documents/OMA-TS-CPM_Conv_Fnct-V1_0-20101012-C.zip
[SIMPLEIM]	Instant Messaging using SIMPLE, Open Mobile Alliance Ltd. OMA-TS-SIMPLE_IM-V1_0-20080903-C http://member.openmobilealliance.org/ftp/Public_documents/MWG/IM/Permanent_documents/OMA-TS-SIMPLE_IM-V1_0-20080903-C.zip
[MMS1.3Conf]	MMS Conformance Document, Open Mobile Alliance Ltd. OMA-TS-MMS-CONF-V1_3-20080128-C http://www.openmobilealliance.org/Technical/release_program/docs/MM/S/V1_3-20080128-C/OMA-TS-MMS-CONF-V1_3-20080128-C.pdf
[TS26141]	3GPP TS 26.141, IP Multimedia System (IMS) Messaging and Presence; Media formats and codecs; V9.0.0, December 2009 http://www.3gpp.org
[RFC3994]	Indication of Message Composition for Instant Messaging, IETF, January 2005 http://www.ietf.org/rfc/rfc3994.txt?number=3994
[RFC4028]	Session Timers in the Session Initiation Protocol (SIP), IETF, April 2005 http://www.ietf.org/rfc/rfc4028.txt
[RFC4145]	TCP-Based Media Transport in the Session Description Protocol (SDP), IETF, September 2005 http://www.ietf.org/rfc/rfc4145.txt?number=4145
[RFC4975]	The Message Session Relay Protocol (MSRP), IETF, September 2007 http://www.ietf.org/rfc/rfc4975.txt?number=4975
[RFC5366]	Conference Establishment using Request-contained lists in the Session Initiation Protocol (SIP), IETF, October 2008 http://www.ietf.org/rfc/rfc5366.txt?number=5366
[RFC5547]	A Session Description Protocol (SDP) Offer/Answer Mechanism to Enable File Transfer, IETF, May 2009 http://www.ietf.org/rfc/rfc5547.txt

Document	Name
[RFC6135]	Alternative Connection Model for the Message Session Relay Protocol (MSRP) IETF RFC http://tools.ietf.org/html/rfc6135
[IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10]	IETF Simple MSRP sessmatch draft version 10 http://tools.ietf.org/html/draft-ietf-simple-msrp-sessmatch-10

2 References

See chapter 1.4.

3 Terminology and Conventions

The same conventions, terminology, definitions and abbreviations used in chapter 3 of [CPMCONVFUNC] are valid for RCS. Additional abbreviations and terms specific for this document are in chapter 1.3.

4 Introduction

Note: RCS 5.1 supports the following modes of CPM-based communication

- One-to-One and One-to-Many Pager Mode Standalone messaging including interworking
- One-to-One and One-to-Many Large Message Mode Standalone Messaging including interworking
- Deferred Messaging
- File Transfer
- One-to-one session and Ad-hoc session mode messaging including interworking

RCS 5.1 does not support the following modes of CPM-based communication

- Pre-defined group messaging

Note: Support for File Transfer, One-to-One and Ad-Hoc group sessions is in RCS 5.1 also provided based on SIMPLE (SIP for Instant Messaging and Presence Leveraging Extensions) IM (Instant Messaging, see [RCS5-IMENDORS]).

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Following differences with [CPMCONVFUNC]:

- In CPM group session handling the case for pre-defined groups is not applicable for RCS
- In CPM group session handling the case for removal of participants is not applicable for RCS
- The support of continuous media types is not applicable for RCS
- User Preference Profiles are not applicable for RCS, as all users will make use of the same predefined preferences. An individual user does not have the possibility to change his preferences nor to have preferences specific for particular devices.
- Recording of messages, sessions and file transfers is not subject to the CPM/RCS user's preferences, but all messages sessions and file transfers are temporarily recorded for device synchronisation purposes. A user can decide after that to store the message, session or file transfer permanently.

5 Format of CPM Conversation Items

5.1 CPM Standalone Message

No differences with [CPMCONVFUNC].

5.2 CPM Session

Following difference with [CPMCONVFUNC]:

- The case for a pre-defined group (including the termination of the session) is not applicable for RCS

5.2.1 SDP Contents for CPM Sessions

5.2.1.1 SDP Contents when Initiating or Modifying a CPM Session

Following differences with [CPMCONVFUNC]:

- The modification of a CPM session (including the use of a CPM session modification request and the procedures for modified Session Description Protocol (SDP)) is not applicable to RCS
- The use of real-time continuous media, using RTP (Real Time Protocol) / Real Time Control Protocol) RTCP is not applicable for RCS (in combination with CPM that is) nor is the use of any other Media Stream type besides MSRP (Message Session Relay Protocol).
- The reference to [GSMA IR.92] is not applicable for RCS (in combination with CPM that is)

5.2.1.2 SDP Handling at Intermediate Nodes

Following difference with [CPMCONVFUNC]:

- The use of RCP/RTCP based media (including the reference to [RFC3550]) is not applicable for RCS

5.2.1.3 SDP Handling at Terminating Nodes

Following difference with [CPMCONVFUNC]:

- The use of real-time continuous Media, using RTP/RTCP is not applicable for RCS (in combination with CPM that is) nor is the use of any other media stream type besides MSRP.

5.3 CPM Conversation Identification

No differences with [CPMCONVFUNC].

6 Common Procedures

6.1 Authenticated Originator's CPM Address

Following differences with [CPMCONVFUNC]:

- Anonymity is not applicable for RCS
- Pre-defined group addresses are not applicable for RCS

6.2 SIP/IP Core

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- The Session Initiation Protocol (SIP)/ Internet Protocol (IP) core shall always correspond to Third Generation Partnership Project (3GPP/3GPP2) (IP Multimedia Subsystem) IMS

6.3 Display Name and Anonymity

Following differences with [CPMCONVFUNC]:

- Anonymity is not supported, therefore a RCS Client shall never include a Privacy header containing privacy type "id" nor act upon such header
- An RCS client shall include the display name in both the P-Preferred-Identity and the From header

- Predefined Groups are not supported for RCS, therefore the first priority case for the controlling function to determine the display name is not applicable for RCS

6.4 Warning Header

6.4.1 General

No differences with [CPMCONVFUNC].

6.4.2 Warning Texts

No differences with [CPMCONVFUNC].

6.5 Communicating With the ISF

Following differences with [CPMCONVFUNC]:

- The case for sending a CPM File Transfer Invitation to the ISF (Interworking Selection Function) is not applicable for RCS

As a clarification for RCS:

- The CPM Participating or CPM Controlling Function communicating with the ISF (Interworking Selection Function) will always act as a B2BUA (Back to Back User Agent). For MESSAGE requests, it is an implementation decision whether to act as a B2BUA or as a proxy.

7 Procedures at CPM Client

Following differences with [CPMCONVFUNC]:

- The ICSI (IMS Communication Service Identifier) used for identifying incoming deferred message requests will be “3gpp-service.ims.icsi.oma.cpm.deferred” rather than “3gpp-service.ims-icsi.oma.cpm.deferred”

7.1 Registering at the SIP/IP Core

Registration will be done as described in [RCS 5.1]. This means the following differences with [CPMCONVFUNC]:

- In step 2, the feature tags, ICSIs and IARIs (IMS Application Reference Identifier) for the other RCS use cases and enablers will be included.
- Step 4 is not applicable for RCS

As a clarification for RCS:

- In Step 3: the value of the sip.instance media feature tag will be set according to the setting described in [RCS 5.1]
- RCS devices need to pull Deferred CPM Messages and will thus subscribe to the “deferred-messages” event package.
- As described in [RCS 5.1], the network is not required to support the use of Globally Routable User Agent URIs (GRUUs). In that case the client will not receive any GRUUs in the response to the REGISTER request. The client shall then include the sip.instance parameter and value used in step 3 in the Contact header of non-REGISTER requests and responses.

7.2 CPM Standalone Message Handling

No differences with [CPMCONVFUNC].

7.2.1 Sending CPM Standalone Messages

7.2.1.1 Sending a Pager Mode CPM Standalone Message

Following differences with [CPMCONVFUNC]:

- Anonymity is not supported: Step 5 is not applicable for RCS

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- Pre-defined groups are not supported: Step 9 is not applicable for RCS

As clarifications for RCS:

- Multiple authenticated originators' CPM addresses may be received (see [RCS 5.1]). The address used when sending a reply shall be based on the provisioning setting described in [RCS 5.1].
- In step 8 c and step 8 d, if the group message is a reply to a previously received group message, also the addresses of the resource-list received in that previously received message will initially be added to the resource-list with the same "To" and "CC" qualifiers that were used in that previous received list. The user will have the option though to remove addresses from the list or to include additional recipients. This will provide a "reply-all" kind of functionality.

7.2.1.2 *Sending a Large Message Mode CPM Standalone Message*

Following differences with [CPMCONVFUNC]:

- In step 2: For RCS , the reference shall be to [RFC3841] instead of to [RFC38410]
- Anonymity is not supported: Step 6 is not applicable for RCS
- Pre-defined groups are not supported: Step 10 is not applicable for RCS
- In step 16, as specified in [RCS 5.1], [RFC6135] and [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-msrp-acm] and [draft-ietf-simple-msrp-sessmatch] references provided in [CPMCONVFUNC].
- In step 3, 4 and 6 of handling a 200 OK response, as specified in [RCS 5.1], [RFC6135] will be used instead of the [draft-ietf-simple-msrp-acm] reference provided in [CPMCONVFUNC].
- If an error response is received on the INVITE request, an ACK request shall be sent to acknowledge its reception
- If an error response is received on one of the MSRP SEND requests or the TCP (Transmission Control Protocol) connection used for the MSRP session is lost, no further requests shall be sent and the session shall be terminated by following the same procedure as when it had been successfully transferred.
- Once a response has been received to the BYE request that was sent the resources on the media plane shall be released

As clarifications for RCS:

- If a response different from 200 "OK" is received on the INVITE or one of the MSRP SEND requests, the user shall be informed that the message could not be delivered
- Multiple authenticated originators' CPM addresses may be received (see [RCS 5.1]). The address used when sending a reply shall be based on the provisioning setting described in [RCS 5.1].
- In step 9 c and step 9 d, if the group message is a reply to a previously received group message, also the addresses of the resource-list received in that previously received message will initially be added to the resource-list with the same "To" and "CC" qualifiers that were used in that previous received list. The user will have the option though to remove addresses from the list or to include additional recipients. This will provide a "reply-all" kind of functionality.

7.2.1.3 *Generate a CPM Standalone Message*

Following differences with [CPMCONVFUNC]:

- In Step 2, if the network supports GRUU the address shall include a pub-gruu parameter with as value the public gruu of the client. Step 3 c (the sending of CPM Standalone Message to a pre-defined group) is not applicable for RCS

7.2.1.4 *Forwarding/Including Stored Data without Downloading to the CPM Client*

Not applicable for RCS

7.2.2 Receiving CPM Standalone Messages

7.2.2.1 Receiving a Pager Mode CPM Standalone Message

No differences with [CPMCONVFUNC].

7.2.2.2 Receiving a Large Message Mode CPM Standalone Message

Following differences with [CPMCONVFUNC]:

- In step 1, also the types included in the accept-wrapped-types attribute will be checked
- In step 2c, as specified in [RCS 5.1], [RFC6135] and [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-msrp-acm] and [draft-ietf-simple-msrp-sessmatch] references provided in [CPMCONVFUNC].
- In step 2 and 5 when receiving a SIP ACK request, as specified in [RCS 5.1], [RFC6135] will be used instead of the [draft-ietf-simple-msrp-acm] reference provided in [CPMCONVFUNC].
- When receiving MSRP requests, as specified in [RCS 5.1], [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-msrp-sessmatch] reference provided in [CPMCONVFUNC].
- If the session is terminated before the complete standalone message was relayed or the TCP connection used for the MSRP session is lost before the transmission was completed, the received contents will be silently discarded
- After sending a response to a BYE request an RCS client will release the media plane resources

7.2.2.3 Handling of Received CPM Standalone Messages

Following differences with [CPMCONVFUNC]:

- Step 2 (references to an external body) is not applicable for RCS

7.2.3 Deferred CPM Message Handling

7.2.3.1 Subscribe to Deferred CPM Message Info

Following difference with [CPMCONVFUNC]:

- In step 2: the address will be a provisioned Uniform Resource Identifier (URI) rather than "CPMDeferredMsgMgmt@hostname"
- In step 4: For RCS, the reference shall be to [RFC3841] instead of to [RFC38410]

As a clarification for RCS:

- A client will send a SUBSCRIBE request as described in this section shortly after its initial registration. For as long as it remains registered, it will send no further SUBSCRIBE requests.
- For RCS, depending on device settings and situation (for instance whether or not it is roaming), the client can also immediately fetch all deferred messages rather presenting the list to the user

7.2.3.2 Handling Deferred CPM Message(s)

7.2.3.2.1 Handling Deferred CPM Message(s) before Having Received an Expiry Notification

Following differences with [CPMCONVFUNC]:

- In step 2: the address will be set to the same provisioned (Uniform Resource Identifier) URI as used in step 2 of section 7.2.3.1 rather than to "CPMDeferredMsgMgmt@<hostname>"
- Step 5 b is not applicable for RCS
- Step 6 a iii and 6 a iv are not applicable for RCS.
- In the handling of a 200 OK response, after sending the ACK, for RCS the client will not initiate the setup of the MSRP session as negotiated through the SDP, but instead send a SIP BYE request.

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- If a final response different from 200 "OK" is received on the INVITE request, the client will send an ACK request to acknowledge its reception and may try to retrieve the messages at a later time unless the response is a 488 "Not Acceptable Here" with a Warning header with the warning text set to "125 No messages"
- The handling of the SIP BYE request is not applicable for RCS

As a clarification for RCS:

- For NOTE 1: depending on Device settings and circumstances, the CPM client may also initiate the procedure automatically in case it knows that deferred messages are available

7.2.3.2.2 Retrieving CPM Standalone Message(s) after Receiving a Notification for Expiry of Deferred CPM Message(s)

Not applicable for RCS

7.2.3.3 Receiving a notification for Expiry of Deferred CPM Message

Not applicable for RCS

7.2.3.4 Notification Handling

7.2.3.4.1 Out-of-band Notifications

Not applicable for RCS

7.2.3.4.2 In-band Notifications

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- depending on Device settings and circumstances, the CPM client may also initiate the procedure to fetch all deferred messages automatically

7.2.4 Disposition Notification

No differences with [CPMCONVFUNC].

As clarifications for RCS:

- Local Device settings shall not be applicable to the sending of delivery notifications
- In case of a CPM Standalone Message to an ad-hoc group, the disposition notifications shall be aggregated in the network

7.2.4.1 Generate Delivery Notification

Following difference with [CPMCONVFUNC]:

- In step 2, the SIP MESSAGE request will include an Accept-Contact header carrying the +g.3gpp.icsi-ref media feature tag with "urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.msg" as value.
- In Step 2 c: The CPIM (Common Presence and Instant Messaging) To header will always be set to one of the authenticated originator's CPM addresses, also in case of a Large Message CPM Standalone Message

As clarifications for RCS:

- In step 2 local device settings will always allow to send delivery notifications
- Multiple authenticated originators' CPM addresses may be received (see [RCS 5.1]). The address used for sending a disposition notification shall be the SIP URI in case one is included without a user=phone parameter. Otherwise the TEL URI will be used.

7.2.4.2 Generate Read Report

Following difference with [CPMCONVFUNC]:

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- In step 2, the SIP MESSAGE request will include an Accept-Contact header carrying the +g.3gpp.icsi-ref media feature tag with "urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.msg" as value.
- The CPM client will perform these actions when the user opens the message rather than when the message is received. As a consequence it can assume that the user has seen the message and send the Read notification
- In Step 2 c: The CPIM To header will always be set to one of the authenticated originator's CPM addresses, also in case of a Large Message CPM Standalone Message

As clarifications for RCS:

- Multiple authenticated originators' CPM addresses may be received (see [RCS 5.1]). The address used for sending a disposition notification shall be the SIP URI in case one is included without a user=phone parameter. Otherwise the TEL URI will be used.

7.2.4.3 Receive Delivery Notification

No differences with [CPMCONVFUNC].

As clarifications for RCS:

- Clients should be prepared to handle delivery notifications for messages that they did not send.
- Clients should be prepared to receive multiple delivery notifications for the same message even though that is unlikely given the processing in this document

7.2.4.4 Receive Read Report

No differences with [CPMCONVFUNC].

As clarifications for RCS:

- Clients should be prepared to handle read reports for messages that they did not send.
- Clients should be prepared to receive multiple read reports for the same message even though that is unlikely given the processing in this document

7.3 CPM Session Handling

7.3.1 Initiating New CPM Sessions

7.3.1.1 Initiating a CPM 1-1 Session

Following difference with [CPMCONVFUNC]:

- In step 3: For RCS , the reference shall be to [RFC3841] instead of to [RFC38410]
- Anonymity is not supported: For RCS in Step 6 if the network supports GRUU (see section 7.1) it shall always be the public GRUU which is included. On networks where GRUU is not supported a sip.instance parameter with a value as defined in [RCS 5.1] will be included instead.
- As anonymity is not supported step 7 is not applicable for RCS.
- When a response is received to the INVITE request that differs from 200 OK, the CPM client will send an ACK request to acknowledge its reception
- Step 4 shall be done as described in the addressing section in [RCS 5.1].

As a clarifications for RCS:

- If a new INVITE request is sent to the same user before an outstanding one has been answered (see [RCS 5.1]), both INVITE requests shall use different values for the Contribution-ID.
- When a 200 OK response is received on an INVITE request from a user with whom a one-to-one CPM session is established already, an RCS client will terminate the existing session by sending a SIP BYE request. This situation may happen when multiple INVITE requests has been sent to a user and more than one of these request are answered with a 200 OK.

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- When a response is received to the INVITE request that differs from 200 OK, the user will be informed that the session could not be set-up
Note as described in chapter 7.3.2 of this document re-direction is not supported in RCS.

7.3.1.2 Initiating a CPM Group Session for a CPM Ad-hoc Group

Following difference with [CPMCONVFUNC]:

- In step 3: For RCS , the reference shall be to [RFC3841] instead of to [RFC38410]
- Anonymity is not supported: step 6 is not applicable for RCS.
- When a response is received to the INVITE request that differs from 200 OK, the CPM client will send an ACK request to acknowledge it's reception

As a clarification for usage of [RFC5366] in step 4:

- Only the mandatory parts of the URI-List are applicable for RCS
- RCS clients will not use the possibility to indicate that some contacts would be invited as "CC" or "BCC", nor will they indicate that some contacts have to be anonymized.

As a clarification for RCS:

- In step 3, when supporting File Transfer in a Group Chat the client shall take into account the differences and clarifications provided in [RCS 5.1].
- The CPM client will also subscribe for participant information after step 3 of the receipt of a 200 OK response to the INVITE request as described in section 7.3.10.1 of [CPMCONVFUNC] and this document.
- When a response is received to the INVITE request that differs from 200 OK, the user will be informed that the session could not be set-up

7.3.1.3 Initiating a CPM Group Session for a CPM pre-defined Group

Not applicable for RCS

7.3.1.4 Joining a CPM Group Session for a Join-in Group

Not applicable for RCS

7.3.2 Receiving a CPM Session Invitation

Following difference with [CPMCONVFUNC]:

- In step 5: the case for redirecting a CPM session invitation is not applicable for RCS

Following clarifications are given for RCS:

- The invited RCS device shall respond with SIP 180 to announce to inviting user that the CPM session invite has reached the invited user.
- If a participant list according to [RFC5366] is present in the invitation, the client shall communicate it to the user.
- In step 3 c, an RCS client shall correlate the CPM Address of the inviting user with the client's address book in order to derive a display name for the user
- In step 3 c: INVITE requests from other RCS users will not include a Privacy header with the value set to 'id'. Such requests may occur due to interworking with non-RCS systems though.
- In step 4: RCS clients shall subscribe the conference state event package
- In step 7, when supporting File Transfer in a Group Chat the client shall take into account the differences and clarifications provided in [RCS 5.1].

7.3.3 Extending a CPM 1-1 Session to a CPM Group Session

Following difference with [CPMCONVFUNC]:

- Anonymity is not supported: For RCS in step 4 it shall always be the public GRUU which is included
- As anonymity is not supported step 6 is not applicable for RCS.

As a clarifications for RCS:

- In step 3, when supporting File Transfer in a Group Chat the client shall take into account the differences and clarifications provided in [RCS 5.1].

- RCS clients shall subscribe the conference state event package

7.3.4 Closing a CPM Session

7.3.4.1 Closing a CPM 1-1 Session

No differences with [CPMCONVFUNC].

7.3.4.2 Leaving a CPM Group Session

Only one difference with [CPMCONVFUNC]: the section on anonymity, step 3, is not applicable for RCS.

7.3.4.3 Receiving a CPM Session Closing Request

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS no specific behaviour will be provided in case the Reason Header is set to "Call completed elsewhere".

7.3.4.4 Receiving a CPM Session Cancellation

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS no specific behaviour will be provided in case the Reason Header is set to "Call completed elsewhere".

7.3.5 Invite other Principals to existing CPM Group Session

Only two differences with [CPMCONVFUNC]:

- In step 4: For RCS , the reference shall be to [RFC3841] instead of to [RFC38410]
- the section on anonymity (step 6) including the NOTE is not applicable for RCS.

7.3.6 Remove Participants from a CPM Group Session

Not applicable for RCS: this is seen as a quite advanced use case.

7.3.7 Modifying a CPM Session

Not applicable for RCS

7.3.8 Handling a Received CPM Session Modification Request

An RCS client receiving a SIP re-INVITE request that includes a new SDP offer in the body SHALL reject the request with a SIP 488 "Not Acceptable Here" response according to the rules and procedures of SIP/IP Core and exit this procedure.

7.3.9 Media Plane Handling for CPM Sessions

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- An RCS client will support the emoticons defined in Appendix N of [SIMPLEIM]
- An RCS client will support all static and continuous media formats described in [TS26141] apart from vector graphics. As the support for the entire Scalable Vector Graphics (SVG) Tiny is optional in [TS26141] and not required for any other RCS service, the support for vector graphics in CPM sessions is optional depending on client capabilities.
- Next to plain text as described in [TS26141], an RCS client will also support Rich Text as defined in chapter 7.1.9.2.1 of [MMS1.3Conf]

7.3.9.1 MSRP-based Media Streams

Following difference with [CPMCONVFUNC]:

- Step 1 a is not applicable for 1-to-1 sessions and messages sent in an ad-hoc session. In those cases the CPIM To header will be set to "sip:anonymous@anonymous.invalid".

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- As specified in [RCS 5.1] RCS clients shall rely on [RFC6135] and [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] instead of the [draft-ietf-simple-msrp-sessmatch] reference used in [CPMCONVFUNC]
- The section on pre-defined groups (step 1 c) is not applicable for RCS.
- RCS clients will send isComposing Messages as described in [SIMPLEIM] chapter 7.1.3.4. In a 1-to-1 session these messages shall be sent without a CPIM wrapper.
- RCS clients shall support the receiving of isComposing messages as described in [SIMPLEIM] chapter 7.1.3.5
- RCS clients will signal support of isComposing content type defined in [RFC3994] in the SDP part of the SIP session setup according to [RFC4975] (together with other supported content types).

Following clarifications are given for RCS:

- In 1-to-1 sessions, the CPIM From header will be set to "sip:anonymous@anonymous.invalid".
- In ad-hoc group sessions, the CPIM From header will be set to the sending user's identity including the display name as Formal Name.
- Step 1 a is applicable for RCS in group sessions only for Delivery and Display notifications
- An RCS client can include a Content-Disposition header with the value set to Attachment in the MSRP SEND request in order to perform an in-session file transfer.
- All RCS clients shall send text with "text/plain" content type inside the cpim wrapper.
- An RCS client shall offer the user to send the content using the File Transfer mechanism if the content to be sent in a 1-to-1 chat is larger than the value of the parameter for "maximum allowed content size in 1-to-1 chat" defined in [RCS 5.1]
- An RCS client shall notify the user that the content is not possible to send in a group chat if the content to be sent is larger than the value of the parameter for "maximum allowed content size in group chat" defined in [RCS 5.1].
Alternatively, the RCS client may offer the possibility to adapt the content to fit within the configured limit after consulting the user.

7.3.9.2 RTP/RTCP-based Media Streams

Not applicable for RCS: RTP/RTCP is not used within the context of CPM

7.3.10 Participant Information

7.3.10.1 *Subscribe to Receiving CPM Group Session Participant Information*

Following differences with [CPMCONVFUNC]:

- In step 4: For RCS , the reference shall be to [RFC3841] instead of to [RFC38410]

7.3.10.2 *Receive Participant Information Notification*

Following difference with [CPMCONVFUNC]: Step 2 (comparing the Participants against the "oma_blockedcontacts" URI-List) is not applicable for RCS

7.4 CPM File Transfer

RCS has the following restrictions on file transfer:

- One-to-Many File Transfer is only supported in Group Chat
- The file transfer mechanism is not used for transfer in an ongoing session. In that case, a new dedicated file transfer session will always be set up (that is, no support for session modification).
- Only one file is sent per file transfer session.
- Only sending of files is supported for RCS. Requesting files is not part of the RCS use cases

7.4.1 CPM File Transfer Session Initiation

Following differences with [CPMCONVFUNC]:

- In step 1 the procedure for initiating a file transfer to recipient pre-defined group is not relevant for RCS. That means that the reference to chapter 7.3.1.3 is not applicable for RCS
- In step 1b: For RCS , the reference shall be to [RFC3841] instead of to [RFC38410]
- Only one file can be sent in a file transfer session. Step 1 d, 2 a and 2 b are thus not applicable for RCS
- MSRP Success Reports are not requested: The reference to it in step 2 is thus not applicable for RCS.

As clarifications for RCS:

- Step 1, is only applicable in combination with a group chat. Furthermore in that case the generated INVITE request shall comply with the differences and clarifications provided in [RCS5.1].
- Usage of the SDP attributes provided in [RFC5547] shall be identical to what is described in [IR.79] chapter 3.4. The only exception is the use of the file-disposition attribute. For File Transfer this will be set to 'attachment' or 'render' depending on the requested service. For a file transfer, 'attachment' shall be used. During an Image Sharing session, 'render' is used to indicate an immediate display of the image.
- For RCS File transfer, message/cpim wrapped MSRP requests shall not be used. The content type of the MSRP request for File Transfer shall be set in accordance to the actual content being sent.
- If the file to be transferred is larger than the value of the parameter for "maximum allowed file size for file transfer" defined in [RCS 5.1], the RCS client shall notify the user that the file is not possible to send. Alternatively, the RCS client may offer the possibility to adapt the content to fit within the configured limit after consulting the user.

7.4.2 Receiving a CPM File Transfer Request

Following differences with [CPMCONVFUNC]:

- The transfer of multiple files is not applicable for RCS. The reference to the possibility to accept more than one file in step 2 and step 3 is thus not relevant in the context of RCS.

7.4.3 CPM File Transfer Session Release

Following differences with [CPMCONVFUNC]:

- When the originating party wants to abort the transfer, it shall do so by sending a BYE request for the session
- When the receiving party wants to abort it, it shall send a BYE request as well. This will ensure consistency with cases like losing connectivity to the network.

8 Procedures at CPM Participating Function

8.1 Registration

8.1.1 No differences with [CPMCONVFUNC].Receive SIP REGISTER Notification

No differences with [CPMCONVFUNC].

8.1.2 Receive Registration Event Information Notifications

No differences with [CPMCONVFUNC].

8.1.3 Terminating the Subscription to Registration Event Information

No differences with [CPMCONVFUNC].

8.1.4 Using the Registration Event Information

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- If the stored messages for chat described in [RCS5-IMENDORS] are handled on the same server this same mechanism may be used to determine that those may be forwarded.

8.2 Procedures in the Originating Network

No differences with [CPMCONVFUNC].

8.2.1 CPM Standalone Message Handling

8.2.1.1 Handle a Pager Mode CPM Standalone Message

Following differences with [CPMCONVFUNC]:

- Step 2 (Checking of the User-Agent version) is not applicable for RCS
- Step 5 and its sub steps including the NOTE (including external content) are not applicable for RCS
- In step 6 the recording of CPM Conversation History is not dependent on user preferences controlled through XML (extensible Markup Language) Document Management (XDM). For RCS it is always enabled for normal messages. Messages containing delivery reports and display notifications won't be recorded.
- In step 7, because step 5 is not applicable for RCS, the size of the message won't be compared to the 1300 bytes limit. The message will always be sent onwards as a pager mode request.
- Step 7 a is not applicable for RCS. The sub steps are applicable though
- Step 8 and its sub steps are not applicable for RCS

As a clarification for RCS:

- This handling includes the processing of delivery and display notifications in which case the handling in section 8.2.1.3 should also be taken into account
- In step 3 RCS will never allow anonymity and thus reject all messages where it is requested
- For RCS, if a delivery notification and/or read report was requested, the originating participating function will not add its address in an IMDN-Record-Route header
- For RCS, in step 7 a ii the interworking to the ISF will be done on the following error responses unless the message is a delivery or read notification:
 - 404 "Not Found"
 - 405 "Method Not Allowed"
 - 410 "Gone"
 - 414 "Request URI Too Long"
 - 415 "Unsupported Media Type"
 - 416 "Unsupported URI Scheme"
 - 488 "Not Acceptable Here"
 - 606 "Not Acceptable"

Note: if a border element finds out that a CPM request is about to be routed to a network with which no CPM interworking agreement exists; it will have to reject the request with one of the above error responses in order to allow for a fallback to other means of delivering the message.

8.2.1.2 Handle a Large Message Mode CPM Standalone Message

Following differences with [CPMCONVFUNC]:

- Step 2 of the handling of an INVITE request (Checking of the User-Agent version) is not applicable for RCS
- In step 5 of the handling of an INVITE request, the CPM Participating function will verify that a Session-Expires header is included with the refresher parameter set to "uac". If

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this is not the case, the request will be rejected with a 403 "Forbidden" response that will include a warning header with the warning text set to "122 Function not allowed"

- In step 7 e of the handling of an INVITE request and step 4 of the handling of a 200 OK response as specified in [RCS 5.1], [RFC6135] and [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-msrp-acm] and [draft-ietf-simple-msrp-sessmatch] references provided in [CPMCONVFUNC].
- In step 7 e ii of the handling of an INVITE request and step 4 b of the handling of a 200 OK response, for RCS the MSRP URI in the SDP will be replaced with the own one rather than prepending it
- Step 8 of the handling of an INVITE request is not applicable for RCS
- For RCS, the originating participating function will start listening for the incoming MSRP session of the originating client before sending it the 200 OK response. That is before step 5 of the handling of a 200 OK response. The MSRP session towards the terminating or controlling function will be set up as soon as the ACK has been sent to the network rather than waiting for the first MSRP SEND from the originating client. That is steps 3 to 5 of the handling of an MSRP SEND request are executed already after forwarding the ACK.
- In step 6 of the handling of a 200 OK response, the recording of CPM Conversation History is not dependent on user preferences controlled through XDM. For RCS it is always enabled.
- Step 2 and its substeps in the handling of an MSRP SEND request are not applicable for RCS
- In step 4 of the handling of an MSRP SEND request as specified in [RCS 5.1], [RFC6135] will be used instead of the [draft-ietf-simple-msrp-acm] reference provided in [CPMCONVFUNC].
- For RCS, the same handling as for a SIP BYE will apply when a SIP BYE was received from the controlling or terminating participating function in which case step 3 of the handling of a SIP BYE request will be executed in the dialog towards the originating client.
- For RCS, step 3 of the handling of the BYE request will only be executed when there is no further data to send in the direction of the recipient of that BYE request.
- For RCS, when a SIP BYE is received, also the media plane will be released. This will be done in 2 phases: immediately towards the party that sent the BYE request and after the execution of step 3 in the handling of the BYE request towards the other party.

As a clarification for RCS

- In step 3 RCS will never allow anonymity and thus reject all messages where it is requested
- In case an error response is received from the ISF or an involved IWF (Interworking Function) on a SIP or MSRP request, the response will be forwarded to the client
- In Step 1 of the handling of an MSRP SEND request, for RCS the reassembly depends on Local Server Policy¹. For RCS this policy will also allow for step 6 of the handling of an MSRP SEND request to be executed for the first received chunk as soon as all CPIM headers are received and the IMDN-Record-Route header has been added to those (see below) and as soon as the MSRP headers have been completely received for all subsequent request.
- For RCS, if a delivery notification and/or read report was requested, the originating participating function will not add its address in an IMDN-Record-Route header
- For RCS the interworking to the ISF will be done when one of the following error responses is received:
 - 404 "Not Found"

¹ Several policies can be available depending on operator requirements: the specified behaviour is highly recommended when there are no screening requirements: it minimizes buffering delays on the Participating Function.

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- 405 "Method Not Allowed"
 - 410 "Gone"
 - 414 "Request URI Too Long"
 - 415 "Unsupported Media Type"
 - 416 "Unsupported URI Scheme"
 - 488 "Not Acceptable Here"
 - 606 "Not Acceptable"
 - If a MSRP error response is received, no interworking will be attempted for RCS
- Note: if a border element finds out that a CPM request is about to be routed to a network with which no CPM interworking agreement exists; it will have to reject the request with one of the above error responses in order to allow for a fallback to other means of delivering the message.

8.2.1.3 Handle a Disposition Notification

No differences with [CPMCONVFUNC].

As a clarification for RCS: For RCS, the originating participating function will cache the received message-ids and the disposition type until the original message would have expired.

8.2.2 CPM Session Handling

No differences with [CPMCONVFUNC].

As a clarification for RCS: the participating function will always stay in the media path.

8.2.2.1 Handle a CPM Session Invitation

Following differences with [CPMCONVFUNC]:

- Step 2 of the handling of an INVITE request (Checking of the User-Agent version) is not applicable for RCS
- In step 4 of the handling of an INVITE request also any recipient-list body of the original INVITE request will be included in the generated INVITE request as well as any Conversation-ID, Contribution-ID and InReplyTo-Contribution-ID headers from the original INVITE request. Next to those the INVITE request shall also carry a Supported header with the option tag "timer" and, if included in the original INVITE request, a "recipient-list-invite" tag. Furthermore a Session-Expires header with the refresher parameter set to "uac" will be included.
- For RCS, the originating participating function will start listening for the incoming MSRP session of the originating client before sending it the 200 OK response. That is before step 6 of the handling of a 200 OK response. The MSRP towards the terminating or controlling function will be set up as soon as the ACK has been sent to the network.
- Step 7 of the handling of a 200 OK response is not applicable for RCS as [RCS 5.1] defines a different mechanism for the recording of sessions.

As a clarification for RCS

- In step 3 RCS will never allow anonymity and thus reject all messages where it is requested
- In step 4 g of the handling of an INVITE request, for RCS the originating participating function will set the a=setup attribute to the value of "active"
- For RCS, in step 4 of the handling of an INVITE request any Subject header included in the original INVITE request will be included transparently in the generated request.
- Step 5 of the handling of an INVITE request (handling in case the participating function does not stay in the media path) is not applicable for RCS
- In step 1 a of the handling of a 200 OK response, for RCS the service provider policy will never allow to attempt to establish another session for the not accepted media streams

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- In step 4 of the handling of a 200 OK response, for RCS the originating participating function will set the a=setup attribute to the value of “passive” according to [RFC6135]
- For RCS the interworking to the ISF will be done when one of the following error responses is received:
 - 404 “Not Found”
 - 405 “Method Not Allowed”
 - 410 “Gone”
 - 414 “Request URI Too Long”
 - 415 “Unsupported Media Type”
 - 416 “Unsupported URI Scheme”
 - 488 “Not Acceptable Here”
 - 606 “Not Acceptable”

Note: if a border element finds out that a CPM request is about to be routed to a network with which no CPM interworking agreement exists; it will have to reject the request with one of the above error responses in order to allow for a fallback to other means of delivering the message.

8.2.2.2 Handle a Cancel Request

No differences with [CPMCONVFUNC].

8.2.2.3 Handle a SIP BYE Request

Following differences with [CPMCONVFUNC]:

- For RCS in step 1, the media plane will be released towards the sender of the BYE. Towards the other party/parties it will be released after step 2 c, 3 d or 4 b iv depending on the case
- For RCS step 2 c ii is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions.
- For RCS step 3 b is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions.
- For RCS step 4 b ii is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions

As a clarification for RCS:

- For RCS, the participating function will always work as a B2BUA
- For RCS, the service provider policy in step 4 a and 4 b will always indicate closure of the session. That means that if an IWF releases the session, the session will be terminated to all other IWFs as well.

8.2.2.4 SIP Session Timer Expiry

Following differences with [CPMCONVFUNC]:

- For RCS step 2 is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions.

As a clarification for RCS:

- For RCS, the participating function will always work as a B2BUA
- For RCS, only after a response was received on the BYE requests towards a certain party will the participating function release the media plane sessions in step 6

8.2.2.5 Handle a CPM Session Modification Request

Not Supported for RCS. A session modification request will be rejected with a 488 “Not Acceptable Here” response.

8.2.3 CPM File Transfer Handling

8.2.3.1 Handle a CPM File Transfer

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS the file transfer request will never be routed to the ISF

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- A file transfer shall never be recorded in the conversation history
- The participating function will always remain in the media path for a file transfer
- All relevant differences and clarifications described in chapter 8.2.2.1 of this document are also applicable to file transfer

8.2.3.2 *Handle a CPM File Transfer Closing Request*

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For an RCS file transfer request no IWFs will have been involved
- The participating function will always remain in the media path for a file transfer
- All relevant differences and clarifications described in chapter 8.2.2.3 of this document are also applicable to file transfer

8.3 Procedures in the Terminating Network

No differences with [CPMCONVFUNC].

8.3.1 CPM Message Handling

8.3.1.1 *Handle a Pager Mode CPM Standalone Message*

Following differences with [CPMCONVFUNC]:

- Step 1 (checking of the User-Agent version) is not applicable for RCS
- Step 3 (comparison to the “oma-blockedcontacts” URI-list) is not applicable for RCS
- The handling in step 4 will not depend on the recipient’s user preferences, but will rather follow a fixed policy which will be the same for all requests. This policy will either have
 - A rule including the <allow-delivery-and-interwork> and a <allow-offline-storage> sub-element of the action element set to “true” for the CPM enabled RCS users that also have non-CPM clients (e.g. an RCS-e 1.2 client). This rule shall not be used for delivery reports and display notifications however.
 - A rule including the <allow-offline-storage> sub-element of the action element set to “true” for the CPM enabled RCS users that have no non-CPM clients
This rule shall always apply for messages carrying delivery reports and display notifications
 - A rule including the <allow-interwork> sub-element of the action element for all non-CPM users (regardless of whether they are RCS enabled or not).
- Steps 4 a, 4 c, 4 d and 4 e are thus not applicable for RCS
- Step 5 (support for a “do not disturb” rule) is not applicable for RCS
- In step 6 used rules are not dependent on user preferences controlled through XDM. For RCS it’s always enabled for CPM users. This would be the equivalent of having a rule matching all requests with the “<allow-offline-storage>” sub-element of the “action” element set to “true”. See the described difference for step 4. This behaviour does not apply for SIP MESSAGE requests carrying a delivery or read notification
- Step 7 a i is not applicable for RCS. This means that no registered CPM client will be excluded.
- Step 7 a iii is not applicable for RCS. That is no other information sources will be consulted to decide on the delivery of the request apart from the registration information
- Step 7 a iv is not applicable for RCS. All RCS clients should have the capability to receive all CPM Standalone Messages
- Step 7 b (replacing media with a reference) is not applicable for RCS
- In step 7 e, the GRUU will be included only if the network does support GRUU and the pub-gruu is not included in the request already.
- Step 2 when no 200 OK was received is not applicable for RCS. The service provider policy will always indicate to defer the message

As a clarification for RCS

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- In step 2 RCS will never allow anonymity and thus reject all messages where it is requested
- For RCS, if a delivery notification and/or read report was requested, the terminating participating function will not add its address in an IMDN-Record-Route header
- For RCS, in step 7 a rule with only the <allow-offline-storage> sub-element of the action element is not considered to have matched in step 4
- In Step 7 a v according to service provider policy, a message may not be delivered to a client if the client is known to be roaming (based on the SIP REGISTER information obtained according to chapter 8.1) and/or the message is larger than an operator configurable limit. Furthermore if the received message included a pub-gruu in the request URI (that is it is a delivery or display notification), all clients for which those identifiers do not match will be excluded.
- As this is fixed policy which is not controlled by the clients, it is out of scope for RCS how an implementation should achieve this. It could implement this fixed policy internally in the participating function, but it might also choose to rely on the XML Document Management Server (XDMS) which would require the use of pre-provisioned documents, as they are not managed by the RCS clients.

8.3.1.2 Handle a Large Message Mode CPM Standalone Message

Following differences with [CPMCONVFUNC]:

- Step 1 (Checking of the User-Agent version) is not applicable for RCS
- Step 5 (comparison to the “oma-blockedcontacts” URI-list) is not applicable for RCS
- The handling in step 6 will not depend on the recipient’s user preferences, but will rather follow a fixed policy which will be the same for all requests. This policy will either have
 - A rule including the <allow-delivery-and-interwork> and a <allow-offline-storage> sub-element of the action element set to “true” for the CPM enabled RCS users that also have non-CPM clients (e.g. an RCS-e 1.2 client).
 - A rule including the <allow-offline-storage> sub-element of the action element set to “true” for the CPM enabled RCS users that have no non-CPM clients
 - A rule including the <allow-interwork> sub-element of the action element for all non-CPM users (regardless of whether they are RCS enabled or not).
Note: depending on implementation this last rule may be used in combination with the <allow-offline-storage> sub-element
- Steps 6 a, 6 c, 6 d and 6 e are thus not applicable for RCS
- In step 6 b i and 8 b of the handling of an INVITE request and step 2 when no 200 OK response was received also any recipient-list-history body of the original INVITE request will be included in the generated INVITE request as well as any Subject, Conversation-ID, Contribution-ID and InReplyTo-Contribution-ID headers from the original INVITE request. Next to those the INVITE request will also include a Supported header with the option tag ‘timer’ and a ‘recipient-list-invite’ tag if included in the original INVITE request. Furthermore a Session-Expires header with the refresher parameter set to “uac” in case of step 6 b i and to “uas” in case of step 8 b will be included. In step 2 when no 200 OK response was received the refresher parameter in the Session-Expires header will be set to “uac”
- In step 6 v and 8 g of the handling of an INVITE request, step 2 of the handling of a 200 OK response and step 2 e when no 200 OK response was received as specified in [RCS 5.1], [RFC6135] and [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-msrp-acm] and [draft-ietf-simple-msrp-sessmatch] references provided in [CPMCONVFUNC].
- In step 6 b v 2 and 8 g ii of the handling of an INVITE request and step 4 b of the handling of a 200 OK response, for RCS the MSRP URI in the SDP will be replaced with the own one rather than prepending it
- Step 7 (support for a “do not disturb” rule) is not applicable for RCS

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- In step 8 a, the differences and clarifications for RCS that are described to chapter 8.3.1.1 in this document are applicable as well.
- In step 8 e, the GRUU will be included only if the network does support GRUU and the pub-gruu is not included in the request already. The execution of the processing described in chapter 8.5 is not dependent on user preferences controlled through XDM. For RCS it's always enabled for CPM users. This would be the equivalent of having a rule matching all requests with the "<allow-offline-storage>" sub-element of the "action" element set to "true". See the described difference for step 6
- In the handling of a 200 OK response for RCS, the terminating participating function will start listening for the incoming MSRP session of a CPM client already before sending it the ACK request. That is before step 1 of the handling of a 200 OK response. An MSRP session towards the ISF/IWF will be set up after the ACK has been sent towards it as described in step 2.
- In the handling of a 200 OK response for RCS, in step 4 a BYE will only be generated after one was received from the originating side and all chunks received far on the user plane has been transmitted towards the sender of the 200 OK response.
- In case a BYE is received from a terminating client, the media plane resources to that recipient will be released and a 200 OK response will be sent to that client.
- Step 1 when no 200 OK was received will also apply in case BYE requests were received from all clients that originally accepted the message
- Step 2 and 3 when no 200 OK was received is not applicable for RCS. The service provider policy will always indicate to defer the message

As a clarification for RCS

- In step 2 RCS will never allow anonymity and thus reject all messages where it is requested
- In step 3, for RCS the participating function shall handle the header according to [RFC4028]
- In Step 3 of the handling of a 200 OK response, for RCS the timing of the forwarding will depend on Local Server Policy². For RCS this policy will as well as allowing the complete re-assembly of the received message before starting the forwarding also allow to forward in step 3 all chunks that have been received so far in case all CPIM headers have been received already. Otherwise with this setting of the policy forwarding should begin as soon as all CPIM headers are received. Again with this policy all further chunks will be forwarded as soon as the MSRP headers have been completely received.
- For RCS, if a delivery notification and/or read report was requested, the terminating participating function will not add its address in an IMDN-Record-Route header

8.3.1.3 Replacing Media with a Reference

Not applicable for RCS

8.3.1.4 Establish MSRP Session for Receiving Large Message Mode CPM Standalone Message

Following differences with [CPMCONVFUNC]:

- The 200 "OK" response to be generated is in response to the INVITE request received in chapter 8.3.1.2 and will contain the Conversation-ID, Contribution-ID and InReplyTo-Contribution-ID headers from the original INVITE request. Next to those also a Supported header with the option tag 'timer' and a Session-Expires header with the refresher parameter set to "uas" will be included.
- In step 2 when generating a 200 OK response in [RCS 5.1], [RFC6135] and [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-

² Several policies can be available depending on operator requirements: the specified behaviour is highly recommended when there are no screening requirements: it minimizes buffering delays on the Participating Function.

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msrp-acm] and [draft-ietf-simple-msrp-sessmatch] references provided in [CPMCONVFUNC].

- For RCS, the terminating participating function will start listening for the incoming MSRP session from the originating side already before sending a 200 OK response. That is before step 5 of the establishment of an MSRP session
- A received CANCEL request will also be forwarded to all clients and/or the ISF in case there is still an outstanding INVITE request to that entity
- For RCS step 1 of receiving a MSRP SEND will for RCS be subject to Local Server Policy³. For RCS this policy will also offer to forward immediately any received chunks to any terminating entity. That is either the ISF or a CPM client to which a session was setup for the transmission of this standalone message. This policy would allow this as soon as all CPIM headers have been received and from then on as soon as the MSRP headers are received for a certain chunk.

As a clarification for RCS:

- For RCS, if a delivery notification and/or read report was requested, the terminating participating function will not add its address in an IMDN-Record-Route header

8.3.1.5 Sending a Disposition Notification

Following differences with [CPMCONVFUNC]:

- Case 2 on when to send a disposition notification (in case the message is stored in the message storage server) is not applicable for RCS
- A disposition notification will also be generated in case one is received from one of the entities to which the message was delivered. That is either the ISF or a CPM client. In case the message was delivered to multiple endpoints a similar caching strategy will be followed as at the originating side. See chapter 8.2.1.3.
- In step 3 and 4 of the generation of a disposition notification, the authenticated originator's CPM Address of the SIP INVITE will be used in respectively the Request-URI and the CPIM To header rather than the public GRUU out of the Contact Header. If the CPIM From header of the original message included a pub-gruu it will be added to the Request-URI and the CPIM to header.

As a clarification for RCS:

- Case 1 and 3 on when to send a disposition notification are not applicable for RCS.

8.3.1.6 Defer CPM Standalone Messages

Following differences with [CPMCONVFUNC]:

- For RCS, both the behaviour in which there is a rule in which the "<action>" element includes a "<allow-push>" sub element set to "true" and the behaviour in which there is a rule in which the "<action>" element includes a "<allow-pull>" sub element set to "true" is applicable.
- Case 3 is not applicable

As a clarification for RCS:

- As this is fixed behaviour which is not controlled by the clients, it is out of scope for RCS how an implementation should achieve this. It could implement this fixed policy internally in the participating function, but it might also choose to rely on the XDMS which would require the use of pre-provisioned documents including this rule, as they are not managed by the RCS clients.

8.3.1.6.1 Storing a Deferred CPM Message in the Deferred CPM Message Queue

Following differences with [CPMCONVFUNC]:

- For a Large Message Mode request also the message size and the accept-wrapped-types as provided in the SDP will be stored.

³ Several policies can be available depending on operator requirements: the specified behaviour is highly recommended when there are no screening requirements: it minimizes buffering delays on the Participating Function.

8.3.1.6.2 *Pushing Deferred CPM Messages*

Following differences with [CPMCONVFUNC]:

- The participating function will not check whether there is a relevant “do-not-disturb” rule in the [OMA-XDM-Policy]
- When a client comes online, the do-not-disturb flag in the user preferences will not be checked
- For RCS, if a client that comes online is considered not to be suitable the message will remain deferred, allowing the client to retrieve it through pull
- For RCS, if the participating function has information that a user didn’t come online, but can receive a message provided that it is interworked, the participating function can decide to push the deferred messages to the ISF. How the participating function obtains this information is out of the scope of this document. The participating function can do this as soon as the message is deferred or later on when it finds out that the user’s capability for receiving a message that is interworked has changed.

As a clarification for RCS:

- The CPM Participating Function will not send out-of-band notifications

8.3.1.6.3 *Sending Notifications and Awaiting CPM Client Action*

Following differences with [CPMCONVFUNC]:

- The participating function will not check whether there is a relevant “do-not-disturb” rule in the [OMA-XDM-Policy]
- In step 1 for sending a notification, step 7 a v of section 8.3.1.1 will not be considered when evaluating whether a client is suitable as otherwise a message deferred due to such an operator policy cannot be retrieved. That means that all clients that are registered are considered suitable.
- In step 2 d, the value that was provisioned to the clients for “CPMDeferredMsgMgmt@<hostname>” will be set as the authenticated originator’s CPM Address rather than the address of the CPM Participating Function
- Step 3 for sending a notification is not applicable for RCS. No out-of-band notifications will be sent
- In the NOTE the case for out-of-band notifications is not applicable for RCS
- When handling a SIP INVITE request, the Request-URI is expected to be set to the value provisioned to the clients rather than to “CPMDeferredMsgMgmt@<hostname>”
- In step 2 when handling the INVITE request, the SDP shall be accepted
- Step 4 when handling a received INVITE request is not applicable for RCS
- Step 5 when handling a received INVITE request is not applicable for RCS
- The ACK request received to the response to the SIP INVITE request will be ignored.
- A BYE request received shall be process this according to the rules and procedures of [RFC3261].
- The SIP ACK or SIP BYE request can arrive at any time after step 2.
- If another SIP INVITE request is received from a different client of the same user, the participating function will decline this request by sending a 480 “Temporarily Unavailable” response.

As a clarification for RCS

- In the NOTE: for RCS only summary information will be sent

8.3.1.6.4 *Delivering Deferred CPM Messages to the Message Storage Server*

Not applicable for RCS

8.3.1.6.5 *Handle a Deferred CPM Message Information Request*

Following differences with [CPMCONVFUNC]:

- In Step 2, the response will contain an Expires header with the value of 0

- In Step 5, the NOTIFY request will include a Subscription-State header set to "terminated "

8.3.1.6.6 *Sending a Pager Mode Deferred CPM Message*

Following differences with [CPMCONVFUNC]:

- In Step 3, if the network supports GRUU the Request URI shall include a pub-gruu parameter carrying the GRUU of the targeted client.
- In Step 4, the Request URI will be set to the GRUU of the targeted client
- In Step 5, the ICSI "3gpp-service.ims.icsi.oma.cpm.msg " out of the stored Accept-Contact will not be included as the "3gpp-service.ims.icsi.oma.cpm.deferred-msg" is already there
- In step 6 the recording shall always be enabled for RCS.
- In step 9, for RCS the SIP MESSAGE request may instead be sent to the ISF if the participating function decided to push the message to the ISF after it obtained information that the recipient of the message can receive it if it is interworked. The means for the participating function to obtain this information are outside of the scope of this document.

As a clarification for RCS

- In step 6, if a delivery notification and/or read report was requested, the participating function will always add it's address in an IMDN-Record-Route header
- In step 7, the media object will never be replaced with a reference for RCS

8.3.1.6.7 *Sending a Large Message Mode Deferred CPM Message*

Following differences with [CPMCONVFUNC]:

- Also the Conversation-ID, Contribution-ID and if stored the recipient-list-history body, Subject and InReplyTo-Contribution-ID headers out of the original INVITE request will be added to the generated INVITE request.
- In Step 4, the Request URI will be set to the GRUU of the targeted client if the network supports GRUU.
- In step 7, the refresher parameter will be set to "uas"
- In step 8, also a a=accept-wrapped-types attribute will be included with the same value as the one out of the original request. Furthermore as specified in [RCS 5.1], [RFC6135] and [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-msrp-acm] and [draft-ietf-simple-msrp-sessmatch] references provided in [CPMCONVFUNC].
- In step 8 d, the size will be set to the size that was stored from the original request
- In step 9, for RCS the SIP INVITE request may instead be sent to the ISF if the participating function decided to push the message to the ISF after it obtained information that the recipient of the message can receive it if it is interworked. The means for the participating function to obtain this information are outside of the scope of this document.
- Step 3 of the handling of a 200 OK response will be done before step 2. That is the participating function will start listening for an incoming MSRP session before sending the ACK. Furthermore as specified in [RCS 5.1], [RFC6135] will be used instead of the [draft-ietf-simple-msrp-acm] reference provided in [CPMCONVFUNC].
- Before executing Step 5 of the receiving of a 200 OK response, the participating function will wait until the client has set up a MSRP session for receiving the message.
- In step 1 after the message was successfully transferred, for RCS the preference will always be to store the CPM Conversation History
- After a response was received to the BYE request send in step 2 after the message was successfully transferred, the media plane will be released.

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- If an error response is received on the INVITE request or on one of the MSRP SEND requests, the message will not be stored and remain in the deferred CPM message queue.
- If an error response is received on the INVITE request, an ACK request will be sent to acknowledge its reception
- If an error response is received on one of the MSRP SEND requests or the TCP connection used for the MSRP session is lost, a BYE request will be sent and when a response has been received to that the resources on the media plane will be released

As a clarification for RCS

- In step 4 of the handling of a 200 OK response, the media object will never be replaced with a reference for RCS
- In step 5, if a delivery notification and/or read report was requested, the participating function will always add its address in an IMDN-Record-Route header

8.3.1.6.8 Handling Deferred CPM Messages on Expiry Time

Following differences with [CPMCONVFUNC]:

- For RCS, the preference retrieved in step 1 will always be set to “discard”. As this is fixed behaviour which is not controlled by the clients, it is out of scope for RCS how an implementation should achieve this. It could implement this fixed policy internally in the participating function, but it might also choose to rely on the XDMS which would require the use of pre-provisioned documents, as they are not managed by the RCS clients.
- Step 2 a ii (sending of notifications that the deferred message was discarded) is not applicable for RCS
- Step 2 b (a user preference set to “store”) is not applicable for RCS

As a clarification for RCS:

- Step 2 a iii (sending of negative delivery reports) is not applicable for RCS as RCS clients will not request such reports

8.3.2 CPM Session Handling

No differences with [CPMCONVFUNC].

As a clarification for RCS: the participating function will always stay in the media path.

8.3.2.1 Handle a CPM Session Invitation

Following differences with [CPMCONVFUNC]:

- Step 1 of the handling of an INVITE request (Checking of the User-Agent version) is not applicable for RCS
- Step 3 of the handling of an INVITE request (comparison to the “oma-blockedcontacts” URI-list) is not applicable for RCS
- Step 4 of the handling of an INVITE request (checking of do-not-disturb rule) is not applicable for RCS
- In step 7 c of the handling of an INVITE request also any recipient-list body of the original INVITE request will be included in the generated INVITE request as well as any Conversation-ID, Contribution-ID, InReplyTo-Contribution-ID and Session-Replaces headers from the original INVITE request. Next to those the INVITE request will also include a Supported header with the option tag ‘timer’ and, if included in the original INVITE request, a ‘recipient-list-invite’ tag. Furthermore a Session-Expires header with the refresher parameter set to “uas” and a User Agent header indicating the CPM release will be included.
- In step 7 c iii of the handling of an INVITE request the a=setup attribute in the SDP will be set to the value of “passive” according to [RFC6135]
- Step 8 of the handling of an INVITE request (handling of the INVITE request when functioning as a proxy) is not applicable for RCS

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- In step 1 of the handling of the first 200 OK response when acting as a B2BUA also any Conversation-ID, Contribution-ID, and InReplyTo-Contribution-ID from the original INVITE request will be included in the response. Next to those also a Supported header with the option tag 'timer' a Session-Expires header with the refresher parameter set to the same value as the received INVITE request and a User Agent header indicating the CPM release will be included.
- In step 2 of the handling of the first 200 OK response when acting as a B2BUA the a=setup attribute in the SDP will be set to the value of "active"
- The CPM Participating function will begin to listen for an incoming MSRP session from the originating participating or controlling function before step 4 of the handling of the first 200 OK response when acting as a B2BUA
- For RCS step 5 of the handling of the first 200 OK response when acting as a B2BUA is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions
- The handling of the first 200 OK response when acting as a SIP Proxy is not applicable for RCS
- If another 200 OK response is received, an ACK will be sent to acknowledge the receipt of that response and then the session will be terminated by sending a BYE request. No action is taken on the media plane for that session.
- Step 1 when receiving a SIP Final Response other than 200 OK from all clients, is not applicable for RCS
- In step 2 when receiving a SIP Final Response other than 200 OK from all clients, the service provider policy for RCS will indicate that no interworking is done. Step 2 a is therefore not applicable for RCS
- Before forwarding a received ACK request to a 200 OK response to the client that accepted the session, the participating function will start listening for an incoming MSRP session from that client
- For RCS, if the ISF did not accept all media in the session, no attempt will be made to establish a new session for the remaining media. Steps 1 and 2 in the handling of a 200 OK response from the ISF are thus not applicable for RCS.

As a clarification for RCS

- In step 2 of the handling of an INVITE request RCS will never allow anonymity and thus reject all messages where it is requested
- In step 6 and step 7 c v of the handling of an INVITE request all registered RCS clients are considered suitable
- In Step 6 of the handling of an INVITE request the service provider policy will be to deliver the invitation through a non-CPM service in case the addressed user is not a CPM user. That is step 6 b. In case the user is a CPM user, the session invitation will be rejected. That is step 6 a.

8.3.2.2 *Handle a Cancel Request*

No differences with [CPMCONVFUNC].

8.3.2.3 *Handle a SIP BYE Request*

Following differences with [CPMCONVFUNC]:

- For RCS in step 1, the media plane will be released towards the sender of the BYE. Towards the other party/parties it will be released after step 2 c, 3 d or 4 b iv depending on the case
- For RCS step 2 c ii is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions.
- For RCS step 3 a is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions.
- For RCS step 4 b i is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions.

As a clarification for RCS:

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- For RCS, the participating function will always work as a B2BUA
- For RCS, the service provider policy in step 4 a and 4 b will always indicate closure of the session. That means that if an IWF releases the session, the session will be terminated to all other IWFs as well.

8.3.2.4 SIP Session Timer Expiry

Following differences with [CPMCONVFUNC]:

- For RCS step 2 is not applicable as [RCS 5.1] defines a different mechanism for the recording of sessions.

As a clarification for RCS:

- For RCS, the participating function will always work as a B2BUA
- For RCS, only after a response was received on the BYE requests towards a certain party will the participating function release the media plane sessions in step 6

8.3.2.5 Handle a CPM Session Modification Request

Not supported for RCS. A session modification request will be rejected with a 488 “Not Acceptable Here” response.

8.3.3 CPM File Transfer Handling

8.3.3.1 Handle a CPM File Transfer

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For RCS the file transfer request will never be routed to the ISF
- A file transfer shall never be recorded in the conversation history
- The participating function will always remain in the media path for a file transfer
- All relevant differences and clarifications described in chapter 8.3.2.1 of this document are also applicable to file transfer

8.3.3.2 Handle a CPM File Transfer Closing Request

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- For a RCS file transfer request no IWFs will have been involved

8.4 User Preferences

No differences with [CPMCONVFUNC].

As a clarification for RCS

- This section is only applicable in case an implementation chooses to rely on pre-provisioned XDM documents rather than implementing the fixed policies for RCS in the participating function itself.

8.4.1 Retrieving User Preferences

No differences with [CPMCONVFUNC].

As a clarification for RCS

- This section is only applicable in case an implementation chooses to rely on pre-provisioned XDM documents rather than implementing the fixed policies for RCS in the participating function itself.

8.5 Record CPM Conversation History

No differences with [CPMCONVFUNC].

8.5.1 Record CPM Standalone Message

No differences with [CPMCONVFUNC].

8.5.2 Record CPM Session

Not applicable for RCS as [RCS 5.1] defines a different mechanism for the recording of sessions

8.5.3 Record CPM File Transfer

No differences with [CPMCONVFUNC].

As a clarification for RCS:

- Parameters from the SDP will be stored

9 Procedures at CPM Controlling Function

Following differences with [CPMCONVFUNC]:

- In the third bullet (handling of a CPM session invitation), the procedure will rather be used for the controlling function than for the IWF
- The fourth bullet is not applicable to RCS

9.1 CPM Standalone Message Handling

9.1.1 Pager Mode CPM Standalone Message Handling

Following differences with [CPMCONVFUNC]:

- Step 2 is not applicable to RCS
- Step 4 is not applicable for RCS. Any request sent to a pre-defined group reaching the controlling function will be rejected with a 404 Not Found response. That is the execution of step 4 b without doing the related checks in step 4.
- Step 5 e is not applicable for RCS
- In step 5 g the resource-list body will not be copied from the received SIP MESSAGE request into the outgoing SIP MESSAGE request. Instead a new resource-list body will be included containing the addresses that had "To" and "CC" qualifiers in the resource-list body of the received SIP MESSAGE. In addition, those qualifiers will be copied in the resource-list body and the Require header of the outgoing MESSAGE request will not mention "recipient-list-message". Instead "recipient-list-message" will be included in the Supported Header.
- In step 6 also the conversation-ID, contribution-ID will be copied from the received SIP MESSAGE request into the outgoing SIP 202 Accepted Response and a Server header will be included

As a clarification for RCS:

- In step 3 a, for RCS anonymity will never be allowed
- For RCS, if a delivery notification and/or read report was requested, the controlling function will always add its address in an IMDN-Record-Route header in the CPIM headers of the outgoing SIP MESSAGE requests generated in step 5
- For RCS the interworking to the ISF will be done for a group member when one of the following error responses is received on the MESSAGE request sent in step 5 to that party:
 - 404 "Not Found"
 - 405 "Method Not Allowed"
 - 410 "Gone"
 - 414 "Request URI Too Long"
 - 415 "Unsupported Media Type"
 - 416 "Unsupported URI Scheme"
 - 488 "Not Acceptable Here"
 - 606 "Not Acceptable"

9.1.2 Large Message Mode CPM Standalone Message Handling

Following differences with [CPMCONVFUNC]:

RCS 5.1 Endorsement of OMA CPM 1.0 Conversation Functions

- Step 2 is not applicable to RCS
- Step 4 is not applicable for RCS. Any request reaching the controlling function will be rejected with a 404 Not Found response. That is the execution of step 4 a without doing the related checks.
- In step 5 of the handling of an INVITE request, the CPM Controlling Function will verify that a Session-Expires header is included with the refresher parameter set to "uac". If this is not the case, the request will be rejected with a 403 "Forbidden" response that will include a Warning header with the warning text set to "122 Function not allowed"
- Step 7 h is not applicable for RCS
- Step 7 k is not applicable for RCS
- In Step 7 j ii the case where privacy was requested is not applicable for RCS
- In step 7 b also the conversation-ID, contribution-ID and if applicable the Reply-To, Expires, InReplyTo-Contribution-ID and Subject headers will be copied from the received SIP INVITE request into the outgoing SIP INVITE request. Also a resource-list history body will be added to the outgoing SIP INVITE request with the addresses for which the "TO" and "CC" qualifiers were set in the received INVITE request for which also those qualifiers will be copied
- In step 7 i and step 2 when handling a 200 "OK" response as specified in [RCS 5.1], [RFC6135] and [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-msrp-acm] and [draft-ietf-simple-msrp-sessmatch] references provided in [CPMCONVFUNC].
- Step 7 k is not applicable for RCS
- The same handling for when a first 200 OK response is received will be applied in case of a prior 2xx response. Any 200 OK response following after that, would not be treated as the first 200 OK response.
- In step 1 when the first 200 OK response has been received also the conversation-ID, contribution-ID will be copied from the received SIP INVITE request into the outgoing SIP INVITE response and a User-Agent header will be included. Also Require and Supported headers with the value "timer" will be included as well as a Session-Expires header with the refresher parameter set to "uac"
- Prior to executing step 5 when the first 200 OK response has been received the CPM controlling function will start listening for incoming MSRP sessions from the party to which the response will be sent
- In Step 2 when receiving a cancel request, the reference to a pre-defined group members is not applicable to RCS, but the same handling will be applied to all members of an ad-hoc group
- On any non-2xx type of Response, the controlling function will send an ACK request immediately.
- In case for a 2xx type of response is received from one of the invited members and an ACK request from the inviting party was received and processed already, an ACK request will be generated and sent to the party that sent the 2xx response. After that Step 2 of the handling of a received ACK request will be executed towards the party that sent the 2XX type of response and any MSRP requests stored in step 2 of the handling of an MSRP SEND request will be delivered to that party.
- In step 2 a and b when handling an ACK request as specified in [RCS 5.1], [RFC6135] will be used instead of the [draft-ietf-simple-msrp-acm] reference provided in [CPMCONVFUNC].
- In step 2 a and b when handling a MSRP SEND request as specified in [RCS 5.1], [IETF-DRAFT-SIMPLE-MSRP-SESSMATCH10] will be used instead of the [draft-ietf-simple-msrp-sessmatch] reference provided in [CPMCONVFUNC].
- Step 2 of the handling of a SIP BYE request will only be executed once all remaining data has been sent to that party
- Step 3 of the handling of a SIP BYE request will only be executed after a final response was received to the BYE sent in step 2

As a clarification for RCS:

- In step 3 a, for RCS anonymity will never be allowed
- For the NOTE in step 2 handling of an MSRP SEND request, for RCS the MSRP contents received will be stored until a final SIP response to the SIP INVITE request has been received from all invited group members. A duplicate MSRP SEND request will be delivered to all group members that have responded to the INVITE request with a 2xx type of response.
- In the processing of an MSRP SEND request, the forwarding of the request won't start until the MSRP headers have been received completely and for the initial request(s) also the CPIM headers
- For RCS, if a delivery notification and/or read report was requested, the controlling function will always add its address in an IMDN-Record-Route header in the CPIM headers of the outgoing MSRP SEND requests generated in step 2 of the handling of an MSRP SEND request
- For RCS the interworking to the ISF will be done for a group member when one of the following error responses is received on the INVITE request sent in step 7 to that party:
 - 404 "Not Found"
 - 405 "Method Not Allowed"
 - 410 "Gone"
 - 414 "Request URI Too Long"
 - 415 "Unsupported Media Type"
 - 416 "Unsupported URI Scheme"
 - 488 "Not Acceptable Here"
 - 606 "Not Acceptable"

9.1.3 Disposition Notification

Following differences with [CPMCONVFUNC]:

- Rather than awaiting any remaining Instant Messaging Disposition Notifications (IMDNs), the controlling function will wait for a maximum time configured through local policy. An aggregated IMDN will either be sent at the end of this period or earlier in case all IMDNs have been received.

As a clarification for RCS:

- For RCS, the CPM controlling function will stay on the path of IMDN and aggregate the IMDNs

9.2 CPM Group Session Handling

9.2.1 CPM Group Session Initiation

Following differences with [CPMCONVFUNC]:

- In step 3 if the unsupported SDP parameters are related to the content types in accept-wrapped-types, a SIP 488 "Not Acceptable here" will only be sent in case all included content types are not acceptable. Otherwise only the unsupported ones will be removed from the SDP that is used in the further processing.
- Step 5 is not applicable for RCS. Any request sent to a pre-defined group reaching the controlling function will be rejected with a 404 "Not Found" response. That is the execution of step 5 a without doing the related checks.
- When receiving a SIP final response other than 2xx from an invited CPM group member, the CPM controlling server will not remove the inviting CPM group member from the CPM group session. No action will be taken apart from sending an ACK request to the invited CPM group member that sent the response.
- In step 1 when the first 200 OK response has been received also the conversation-ID, contribution-ID will be copied from the received SIP INVITE request into the outgoing SIP INVITE response. Also Require and Supported headers with the value "timer" will be included

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- Rather than including a SDP body based on the received SDP answer in step 2 of handling the first 200 “OK” response, the included SDP would be based on the SDP sent by the inviting CPM group member possibly updated with the restrictions imposed in step 3 of the handling of the INVITE request.
- In step 2 of handling the first 200 “OK” response the a=setup attribute in the SDP will be set to the value of “passive”.
- Before executing step 3 of handling the first 200 “OK” response, the controlling function will start listening for an incoming MSRP session from the inviting CPM group member

As a clarification for RCS:

- In step 4 a, for RCS anonymity will never be allowed
- As RCS does not support pre-defined groups, there will never be an active CPM group session yet
- In case all invited group members sent a SIP final response other than 2xx, the response sent to the inviting CPM group member will be a SIP 480 response

9.2.2 Session Cancellation Request

A CANCEL request will be treated as the CANCEL request in chapter 9.1.2 of [CPMCONVFUNC] with the clarifications given in this document. So it shall not be ignored unless a final response was sent to the inviting CPM group member already.

9.2.3 Participant Joining a CPM Group Session for a CPM Pre-defined Group

Not applicable for RCS

9.2.4 Rejoining CPM Group Session Request

Following differences with [CPMCONVFUNC]:

- In step 2, rather than checking the CPM group Rules which are not applicable for RCS, the CPM Controlling function will check
 - whether one of the authenticated originator's CPM Addresses of the joining CPM user was part of the list in the original invitation
 - whether one of the authenticated originator's CPM Addresses of the joining CPM user was added as a participant during the course of the session.
 - if configured to do so by Service Provider policy, whether the joining CPM user had not previously explicitly left the CPM Session by sending a SIP BYE request.

If the joining CPM user was not part of the original invitation or had not been successfully added or had explicitly left the CPM Session, the request will be rejected in the same way as when the group rules didn't allow the user to join.

- In Step 3, the case for a pre-defined group isn't applicable for RCS, the CPM controlling function will check the operator policy for the maximum allowed number of participants in an ad-hoc group. If that limit is already reached, the same error handling (as in case of an exceeding of the limit) of a pre-defined group will be applied.
- In step 4 if anonymity was requested, a SIP 403 "Forbidden" response including a warning header with the warning text set to “119 Anonymity not allowed” will be returned to the INVITE request
- Before executing step 5, also the SDP offer included in the INVITE request will be checked. If it contains parameters that are not acceptable according to the local server policy or none of the content-types included in it the accept-wrapped-types attribute were part of the initial invitation (see step 3 in chapter 9.2.1) the CPM Controlling Function will return a 488 “Not Acceptable Here” response
- Before executing step 5, the CPM Controlling Function will verify that a Session-Expires header is included in the INVITE request with the refresher parameter set to “uac”. If this is not the case, the request will be rejected with a 403 “Forbidden” response that will include a Warning header with the warning text set to “122 Function not allowed”
- In step 6 also Require and Supported headers with the value “timer” will be included as well as a Session-Expires header with the refresher parameter set to “uac”. In addition,

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a contact header including the CPM group session identity with the feature tag is focus and the CPM session ICSI will be included as is a User Agent header indicating the CPM release of the CPM controlling function.

- In Step 6 the response will include an SDP description based on the one received in the INVITE request where any content-types included in the accept-wrapped-types that were not part of the session (see above) will be removed from the answer. Furthermore the a=setup: attribute will be set to “passive”.
- Before executing step 7, the CPM controlling function will start to listen for an incoming MSRP session from the joining user.

As a clarification for RCS:

- The CPM Controlling Function may save the CPM Group Session Identity as well as the last participant list for a configurable amount of time according to Service Provider policies, after the CPM Ad-hoc Group Chat has been torn down. If a rejoin request is received when there is no ongoing CPM Ad-hoc Group Chat but the CPM Group Session Identity has been saved, the CPM Controlling Function shall initiate a CPM Ad-hoc Group Chat as per section 9.2.1 reusing the saved CPM Group Session Identity and last participant list instead of expecting a URI-list from the SIP INVITE request.

9.2.5 Adding Participants Request

Following differences with [CPMCONVFUNC]:

- This handling will also apply in case a REFER request is received without a “method” parameter
- Step 2 is not applicable for RCS.
- After executing step 7, the response will be sent according to the rules and procedures of the SIP/IP core

As a clarification for RCS:

- In step 3, for RCS anonymity will never be allowed

9.2.6 Removing Participant Request

Not applicable for RCS

9.2.7 Session Leaving Request

Following differences with [CPMCONVFUNC]:

- The case of a predefined group in step 4 a is not applicable for RCS
- For RCS in step 4 b it is up to local server policy whether or not to release the session in case the originator of the session leaves

As clarifications for RCS

- If in step 2, there are still media to be sent to that party, those are discarded
- The termination in step 3 is done as the termination of the subscription described in step 3 of chapter 9.2.14.3 of [CPMCONVFUNC]

9.2.8 CPM Group Session Modification

Not applicable for RCS

9.2.9 Group Session Ending Request

Following differences with [CPMCONVFUNC]:

- For RCS these variables are not defined in the XDM policy, but rather managed through a local policy of the CPM controlling function.
- The auto-release variable influencing the release policy is not applicable for RCS
- The case for a pre-defined CPM group session in the number-of-remaining-participants is not applicable for RCS.
- In the release policy section 1 (releasing the remaining participants from the session) whether in item a, the departure of the initiator from the session will trigger a release of the remaining participants from the session will, for RCS, be up to local server policy.

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- In the release policy section 1 (releasing the remaining participants from the session), item b (originator leaves in case of a predefined group) is not applicable for RCS.
- In the release policy section 1 (releasing the remaining participants from the session) in item c, the case of a pre-defined CPM group session is not applicable for RCS.

9.2.10 Create Session with a Participant

Following differences with [CPMCONVFUNC]:

- The handling will be executed also when a request was sent to add participants as described in chapter 9.2.5. In that case the term “incoming CPM Session invitation” mentioned steps 2, 3, 11 and 12 refers to the received REFER request whereas for the received SDP and the NOTE in step 13, the original INVITE request after the processing of step 3 of chapter 9.2.1 is the relevant request
- Step 7 is not applicable for RCS
- In Step 8, the a=setup: attribute in the SDP will be set to the value of “active”
- Step 9 b is not applicable for RCS
- Step 13 is not applicable for RCS. Any Subject header in the received INVITE request is passed transparently into the generated requests
- When an error response is received, an ACK request will be sent to the party that originated it in order to confirm its proper reception
- When a 200 “OK” response is received and an ACK has been received from the originator of the session, an ACK request will be sent to the party that originated the response. After that an MSRP session will be set up according to the SDP received from that party and notifications will be sent as specified in section 9.2.14.2 to notify those users that have subscribed on participant information that a new participant has joined the conversation. After that the session timer handling will be initiated to monitor the new session.
- For RCS, the case where an ACK is received on the INVITE requests send out according to this section is not applicable.

As a clarification for RCS:

- In all cases a Session-Replaces header with the contribution-ID and Conversation-ID of the original session will be included.
- In case this procedure was started by a received INVITE request, the outgoing INVITE request will include a resource-list body containing the addresses of the invited group members. “To”, “CC” and “BCC” qualifiers will not be included.
- For RCS the interworking to the ISF will be done for a group member when one of the following error responses is received on the INVITE request sent in step 7 to that party:
 - 404 “Not Found”
 - 405 “Method Not Allowed”
 - 410 “Gone”
 - 414 “Request URI Too Long”
 - 415 “Unsupported Media Type”
 - 416 “Unsupported URI Scheme”
 - 488 “Not Acceptable Here”
 - 606 “Not Acceptable Here”
- Error responses from the ISF/IWF will be treated differently from an error response from the CPM Participants. Regardless of the error type, a request will not be routed to the ISF if it has replied with an error already on that same request
- When a 200 OK response is received, a request for anonymity will never be allowed in RCS

9.2.11 Participant Removing Request

Following differences with [CPMCONVFUNC]:

- Step 3 will only be executed once a final response has been received on the BYE request

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- After step 3 also any subscription to participant information of the participant being removed from the session will be terminated

As a clarification for RCS:

- In step 3, any media which is left to be sent to that user, will be discarded.

9.2.12 Media Plane Handling

No differences with [CPMCONVFUNC]

9.2.12.1 Media Plane Handling for MSRP Sessions

Following differences with [CPMCONVFUNC]:

- The establishment of an MSRP session is done according to the descriptions in the previous chapters taking the received SDP information into account.
- When establishing the MSRP connection for RCS the CPM Controlling Function shall rely on [RFC6135] instead of on the [draft-ietf-simple-msrp-acm] reference used in [CPMCONVFUNC]

As a clarification for RCS:

- Step 3 in “Upon receiving an MSRP SEND request” will be executed as soon as the CPIM headers have been received
- If the total message size is larger than the “max-size” of a particular intended recipient(s) of the original message or contains content not supported by that recipient, the CPM controlling function shall not send the message to those intended recipient(s).
- The following clarifies existing OMA CPM functionality and are added as steps 4 and 5 respectively in [CPMCONVFUNC] in the steps under “Upon receiving an MSRP SEND request”:
 - SHALL temporarily queue any messages sent from a participant during the conference startup phase until there is a final response from all invited participants;
 - As each 200 OK is received, SHALL send to that participant all the messages temporarily queued up to that point

9.2.12.2 Media Plane Handling for RTP Sessions

Not applicable for RCS

9.2.13 Pseudonyms in a CPM Group Session

As anonymity is not allowed, for RCS only the fact that the CPM Controlling Function should maintain information about the Pseudonyms used in the session is applicable.

9.2.14 Participant Information

9.2.14.1 CPM Group Session Participant Information Request

Following differences with [CPMCONVFUNC]:

- If the SUBSCRIBE request does not contain an event header set to “conference” the request will be rejected with a SIP 489 “Bad Event” response that will include a Warning header with the warning text set to “122 Function not allowed”
- In step 1, if the Request URI does not contain a CPM group session identity the request will be rejected with SIP 404 “Not Found” response
- In step 2 is not applicable for RCS
- Step 4 is not applicable for RCS
- In step 6, the contact header will be set to the CPM group session identity
- Step 9 is not applicable for RCS as the Notify is already sent in chapter 9.2.14.2

As a clarification for RCS:

- Some throttling controlled by local server policy should be applied to the notifications sent during the initial and final phases of the group session

9.2.14.2 Sending Participant Information Notifications

Following differences with [CPMCONVFUNC]:

- In step 2 b, the <user> element will be a sub-element of a <users> element

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- In step 2 b i the case for privacy which was requested in the first 3 bullets is not applicable for RCS
- In step 2 b l the case for a pre-defined group in the 3rd bullet is not applicable for RCS
- In step 2 b i the 4th bullet is not applicable for RCS

As a clarification for RCS:

- In step 2 b iii, the value provided in the <entity> attribute in the first bullet will be the same address as the one provided in the entity attribute of the <user> element determined in step 2 b i

9.2.14.3 *Terminating the Subscription*

Following differences with [CPMCONVFUNC]:

- In step 3 a, the notification shall be generated as described in chapter 9.2.14.2 of [CPMCONVFUNC] and this document with the exception of the final step. That is sending it to the network.

As a clarification for RCS:

- In step 2, the subscription will always be terminated as described in chapter 9.2.7 and chapter 9.2.11 of [CPMCONVFUNC] and this document

9.3 CPM File Transfer Handling

No differences with [CPMCONVFUNC].

As a clarification for RCS: the Controlling Function shall take into account the differences and clarifications provided in [RCS 5.1].

APPENDIX A. Change History

Appendix not relevant for RCS: as with the other RCS documents the history table is at the end of the document.

APPENDIX B. Static Conformance Requirements

Appendix not relevant for RCS

APPENDIX C. CPM-Defined Sip Headers

C.1. Header definitions

C.1.1. Conversation-ID

No differences with [CPMCONVFUNC]

C.1.2. Contribution-ID

No differences with [CPMCONVFUNC]

C.1.3. InReplyTo-Contribution-ID

No differences with [CPMCONVFUNC]

C.1.4. Session-Replaces

No differences with [CPMCONVFUNC]

C.1.5. Message-Expires

No differences with [CPMCONVFUNC]

C.1.6. Message-UID

No differences with [CPMCONVFUNC]

C.2. ABNF for the CPM-defined SIP Headers

No differences with [CPMCONVFUNC]

APPENDIX D. Release Version in User-Agent and Server Headers

No differences with [CPMCONVFUNC]

APPENDIX E. Examples of CPM-Based Services

Appendix not relevant for RCS

APPENDIX F. The Parameters to be Provisioned for CPM Service

Appendix is not relevant for RCS. Provisioning parameters are described in [RCS 5.1].

APPENDIX G. Interoperability With OMA Simple IM Clients

Following differences with [CPMCONVFUNC]:

- The participating function will determine whether a request has to be delivered to a SIMPLE IM client based on the registration information received according to chapter 8.1 of [CPMCONVFUNC] and this document. If there is a SIMPLE IM client registered, the CPM Participating function will deliver the applicable request towards it.
- In the first bullet: the CPM Participating function shall never have to deliver a CPM Large Message Mode CPM Standalone Message to a SIMPLE IM client. The reference to the +g.oma.sip-im.large-message feature tag is thus not applicable for RCS.
- In the first bullet, if a CPM session or File Transfer needs to be delivered to a SIMPLE IM client, the values for the equivalent feature tags shown in table 2 of [CPMCONVFUNC] will be included in the outgoing INVITE request described in chapter 8.3.2.1 and 8.3.3.1 respectively. If no CPM client needs to be addressed, the CPM feature tags will not be included in the Contact and the Accept-Contact header. If there are also CPM clients to address, the INVITE request will contain both the SIMPLE IM and the CPM feature tags because standard CPM forking will be used.
- In the second bullet also a User-Agent header will be added.
- Note 1 is not applicable for RCS. All SIMPLE IM functionality used in previous RCS releases is supported when using the CPM enabler.
- In Note 2, the case for IM Messages, CPM Standalone Messages and Standalone Message disposition notifications is not applicable for RCS
- Note 3 is not applicable for RCS. A SIMPLE IM network based on RCS Release 1-3 is not able to deal with CPM requests. Towards SIMPLE IM networks the NNI for session mode and file transfer will be purely SIMPLE IM based, towards CPM based networks a CPM NNI will be used. How the network comes to the correct NNI type selection and handles a SIMPLE IM NNI in combination with CPM servers is out of scope of RCS. For large message mode and pager mode either an Short Message and Multimedia Messaging Services (SMS/MMS) NNI or a CPM based NNI is used depending on whether or not the terminating network is a CPM based network and a Service Level Agreement (SLA) covering the use of CPM between the networks is in place.
- In the first row of TABLE 2, the case for pager mode and the related CPM feature tag is not applicable for RCS.
- The second row of Table 2 (large message mode) is not applicable for RCS

As a clarification for RCS:

- The CPM participating function will offer interoperability with SIMPLE IM on those networks that offer backwards compatibility to clients prior to Release 4.
- In the second bullet, the resulting INVITE request will not contain any SIMPLE IM feature tags anymore.

APPENDIX H. CPM Feature Tags

No differences with [CPMCONVFUNC]

H.1. CPM Feature Identifiers

No differences with [CPMCONVFUNC]

H.2. CPM Client Behaviour

No differences with [CPMCONVFUNC]

H.3. Proposed Formats for CPM Feature Identifiers

No differences with [CPMCONVFUNC]

H.4. Client CPM-based Service Identification

Not applicable for RCS.

APPENDIX I. CPM Notification Formats

I.1. Deferred CPM Message Notification Format

I.1.1. Out-of-band Deferred CPM Message Notification Format

Not applicable for RCS.

I.1.2. In-band Deferred CPM Message Notification Format

No differences with [CPMCONVFUNC]

I.2. Notification Format of Deferred CPM Message After Expiry

Not applicable for RCS.

APPENDIX J. Deferred Messages Event Package Definition

No differences with [CPMCONVFUNC]

J.1. Deferred Messages Metadata

J.1.1. Structure

Following differences with [CPMCONVFUNC]:

- The case for pre-defined groups in the <recipient-list> element is not applicable for RCS

As a clarification for RCS:

- Item 1 for the <message-list> element will always be included, even if set to 0
- Item 3 for the <message-list> element is not applicable for RCS
- Item 1 for the <message > element will always be included
- Item 2 for the <message > element will always be included as this is only used for in-band requests
- Item 3 for the <message > element will always be included for a newly stored message in an in-band notification and for all messages in a notification due to a Deferred CPM Message Information request
- Item 4 for the <message > element will always be included for a newly stored message in an in-band notification and for all messages in a notification due to a Deferred CPM Message Information request
- Item 5 for the <message > element will always be included when present for a newly stored message in an in-band notification and for all messages in a notification due to a Deferred CPM Message Information request
- Item 6 for the <message > element will never be included
- Item 7 for the <message > element will always be included for a newly stored message in an in-band notification and for all messages in a notification due to a Deferred CPM Message Information request
- Item 7 b for the <message > element will always be included when item 7 is present
- Item 7 c for the <message > element will always be included when item 7 is present
- Item 7 d for the <message > element will never be included for RCS
- Item 8 for the <message > element will never be included for RCS
- Item 2 for the <recipient-list> element will never be included for RCS

APPENDIX K. Format Of Notification For Deferred CPM Message After Expiry

Appendix not relevant for RCS

DOCUMENT MANAGEMENT

Document History

Version	Date	Brief Description of Change	Approval Authority	Editor / Company
1.0	13 Aug 2012	First version for RCS 5.1 Based on the document for RCS 5.0 Approved by DAG and PSMC	PSMC	Tom Van Pelt/ GSMA

Other Information

Type	Description
Document Owner	Rich Communication Convergence Taskforce Project
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