Rich Communication Suite 6.0 Endorsement of OMA SIP SIMPLE IM

Version 5.0

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1 Introduction

1.1 Overview

This document describes which sections of the OMA SIMPLE IM specification (see [OMASIMPLEIM]) are supported by Rich Communication Suite (RCS) 6.0.

For details on how this fits in the whole of RCS 6.0, please see [RCS6.0].

For easier reference, this document follows the same structure as [OMASIMPLEIM]. For that reason, the headings of the sections are citations of the headings used in [OMASIMPLEIM], within the sections they describe what part the equivalent section in [OMASIMPLEIM] 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 thereafter. For sections in which no difference with [OMASIMPLEIM] is introduced however, also the subsections are mentioned to state explicitly that they are applicable as well.

1.2 Scope

This document provides the details of the IM technology used in this release of RCS.

1.3 Definition of Terms

Term	Description
CPIM	Common Profile for Instant Messaging
HTTP	Hyper-Text Transfer Protocol
IM	Instant Messaging
IMDN	Instant Message Disposition Notification
IP	Internet Protocol
MMS	Multimedia Messaging Service
MSRP	Message Session Relay Protocol
OMA	Open Mobile Alliance
RCS	Rich Communication Suite
SDP	Session Description Protocol
SIMPLE	SIP for Instant Messaging and Presence Leveraging Extensions
SIP	Session Initiation Protocol
SMS	Short Message Service
TCP	Transmission Control Protocol
URI	Uniform Resource Identifier

1.4 Document Cross-References

Ref	Document Number	Title
1	[IR.79]	GSMA PRD IR.79 - Image Share Interoperability Specification http://www.gsma.com
2	[RCS6.0]	GSMA PRD RCC.07 – Rich Communication Suite 6.0- Advanced Communications: Services and Client Specification, Version 7.0, 21 March 2016 http://www.gsma.com/rcs/

3	[OMASIMPLEIM]	Instant Messaging using SIMPLE, Open Mobile Alliance Ltd. OMA-TS-SIMPLE_IM-V2_0-20130809-D http://member.openmobilealliance.org/ftp/public_documents/COM/IM/Permanent_documents/OMA-TS-SIMPLE_IM-V1_0-20130809-D.zip
4	[RFC3261]	SIP: Session Initiation Protocol, IETF, June 2002 http://www.rfc-editor.org/rfc/rfc3261.txt
5	[RFC3994]	Indication of Message Composition for Instant Messaging, IETF, January 2005 http://www.ietf.org/rfc/rfc3994.txt?number=3994
6	[RFC4145]	TCP-Based Media Transport in the Session Description Protocol (SDP), IETF, September 2005 http://www.ietf.org/rfc/rfc4145.txt?number=4145
7	[RFC4975]	The Message Session Relay Protocol (MSRP),IETF, September 2007 http://www.ietf.org/rfc/rfc4975.txt?number=4975
8	[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
9	[RFC5438]	Instant Message Disposition Notification (IMDN), IETF, February 2009 http://www.ietf.org/rfc/rfc5438.txt?number=5438
10	[RFC5547]	Session Description Protocol (SDP) Offer/Answer Mechanism to Enable File Transfer, IETF, May 2009 http://www.ietf.org/rfc/rfc5547.txt?number=5547
11	[RFC5627]	Using Globally Routable User Agent URIs (GRUUs) in the Session Initiation Protocol (SIP) IETF RFC http://tools.ietf.org/html/rfc5627
12	[RFC6135]	An Alternative Connection Model for the Message Session Relay Protocol, IETF, February 2011 http://www.ietf.org/rfc/rfc6135.txt?number=6135
13	[draft-ietf-simple-msrp-sessmatch]	Session Matching Update for the Message Session Relay Protocol (MSRP), IETF, April 2010 http://tools.ietf.org/id/draft-ietf-simple-msrp-sessmatch-10.txt

2 References

See chapter 1.4 above.

3 Terminology and Conventions

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

4 Introduction

NOTE   RCS supports following modes of communication.

- One-to-one session and Ad-hoc session mode messaging (chapter 4.3.1)
- Peer-to-peer Instant Messaging (IM) Session (chapter 4.3.2)
- Pager Mode (chapter 4.2.1), but only for the transmission of delivery reports and read notifications

RCS does not support the following modes of communication:
- Pager Mode (chapter 4.2.1), for all other types of content
- Large Message Mode messaging (chapter 4.2.1)

- Group Messages (chapter 4.2.2)
- Deferred Messages (chapter 4.2.3)
- Predefined session mode messaging (chapter 4.3.1)

4.1 Versioning

4.1.1 Version 1.0

No differences with [OMASIMPLEIM].

4.1.2 Version 2.0

No differences with [OMASIMPLEIM].

4.2 Pager Mode And Large Message Mode Messaging

4.2.1 General

Following differences for RCS:

- Pager Mode and Large message Mode are reserved and can be used for an implementation of the Short Message and Multimedia Messaging Services (SMS and MMS respectively) for packet-only devices.
- Pager Mode messages are used though for the specific purpose of delivering delivery reports and read notifications that are sent outside of the scope of a session. As these are small messages, there is no need for the use of Large Message mode.

4.2.2 Group Messages

Not applicable for RCS.

4.2.3 Deferred Messages

Not applicable for RCS.

As a clarification for RCS: RCS includes deferred messaging functionality for Session Mode (restricted to one-to-one sessions) which functions only in a Push based manner (see chapter 5.2.1) and is thus not related to the Deferred messaging functionality for Pager Mode and Large Message Mode messages that is defined in [OMASIMPLEIM]. As the delivery reports and read notifications are related to that chat functionality, the deferred messaging functionality for those reuses the mechanisms defined for chat.

4.3 Session Mode Messaging

No differences with [OMASIMPLEIM].

4.3.1 Session Mode Messaging as an IM conference

Only one difference with [OMASIMPLEIM]: the statement referring to pre-defined groups is not applicable for RCS, as it does not support them.

4.3.2 Peer-to-Peer IM Session

No differences with [OMASIMPLEIM].

4.3.3   Deferred Messages

No differences with [OMASIMPLEIM].

5   Common Procedures

5.1   Authenticated Originator's IM Address

No differences with [OMASIMPLEIM].

5.2   IM Service Registration

5.2.1   General

Registration will be done as described in [RCS6.0]. This means following differences with [OMASIMPLEIM]:

- In step 2, the feature tags for the other RCS use cases will be included.

As a clarification for RCS:
- In step 2a, an RCS client shall not support System Message and shall thus not include the corresponding tag in the SIP REGISTER request.
- In step 2a, an RCS client shall not support SIMPLE IM Large Message Mode and shall thus not include the corresponding tag in the SIP REGISTER request.
- In step 7 and NOTE 1, for RCS the sip.instance value will be set as described in section 2.4.2 of [RCS6.0]

5.2.2   IM Service Registration and Re-Registration

No differences with [OMASIMPLEIM].

5.2.3   IM Service De-Registration

Only one difference with [OMASIMPLEIM]: in step 2 the feature tags "+g.oma.sip-im.system-message" and '+g.oma.sip-im.large-message' are not applicable for RCS.

5.2.4   IM Service Settings Client procedure

Not applicable for RCS.

5.2.5   Device Identification in SIP requests and responses

5.2.5.1   Identifying the sending device

No differences with [OMASIMPLEIM].

As a clarifications for RCS: This behaviour corresponds to section 2.11.3 of [RCS6.0].

5.2.5.2   Identifying the recipient device

Only 2 differences with [OMASIMPLEIM]:

1. If the received request included a Referred-By header field, the Uniform Resource Identifier (URI) provided in that header field shall be used instead of the one provided as Authenticated Originator's IM Address.

2. If the GRUU related "gr=" URI parameter was received in the Contact header field of the received request, then the SIP URI value (if present) from the P-Asserted-Identity or Referred-By header field together with the "gr=" URI parameter and value shall be used to construct the public GRUU value for the original sender, to be set in the Request-URI of the generated SIP request. If no SIP URI is present then the TEL URI shall be used.

5.3   Getting Information on Client Status

No differences with [OMASIMPLEIM].

5.4   IM Server Sending System Message

Not applicable for RCS.

5.5   Display Name

Only four differences for RCS:

1. An inviting client providing a display name shall include it both in the P-Preferred-Identity header and in the From header
2. The case for a predefined group is not applicable for RCS
3. Step 1 (anonymity) of the Controlling IM Function handling is not applicable for RCS
4. The first case of step 2 of the Controlling IM Function handling (a display name from the IM Group definition) is not applicable for RCS

5.6   Warning Header

No differences with [OMASIMPLEIM].

5.7   Final Delivery Report

Not applicable for RCS as RCS clients shall not support Final Report functionality

5.8   MSRP Connection Set Up

No differences with [OMASIMPLEIM].

5.8.1   Negotiate Direction of the MSRP Connection Setup

No differences with [OMASIMPLEIM].

5.8.2   Support of Application Level Gateway

No differences with [OMASIMPLEIM]

5.9   Contribution Identifier Header

No differences with [OMASIMPLEIM].

5.10   Session-Replaces Header

No differences with [OMASIMPLEIM].

6   Procedures at the IM Server

6.1   Participating IM Functions Procedures

6.1.1   Originating Participating Function

Only one difference with [OMASIMPLEIM]: the statement referring to the conversational history function is not applicable for RCS.

6.1.1.1   General

No differences with [OMASIMPLEIM] for the general sections and the handling of the response. For the handling of the request only step 1 (checking of authenticated originator's address) applies.

6.1.1.2   IM Session

6.1.1.2.1   Determination of Session Handling

Only one difference with [OMASIMPLEIM]: Step 1 (checking of feature tag '+g.oma.sip-im.large-message') is not applicable for RCS.

6.1.1.2.2   Reception of an Initial SIP INVITE IM Session Request

No difference with [OMASIMPLEIM].

- As a clarification for RCS: IM history handling as described in step 7 of 200 "OK" response is never enabled for RCS

6.1.1.2.3   Void

No content in [OMASIMPLEIM].

6.1.1.2.4   IM Session Modification

Not supported for RCS. A session modification request will be rejected.

6.1.1.2.5   SIP SUBSCRIBE Request

Only a small difference with [OMASIMPLEIM]: in the support for IM Groups needs to be removed from the Note.

6.1.1.2.6   SIP REFER Request

Following differences with [OMASIMPLEIM]:

- Step 2 (IM Conversation History) is NOT supported by RCS.
- Step 3b is NOT supported by RCS: REFER with the Request URI set to an IM session identity and the method set to BYE.

As a clarification for RCS:

- For RCS in step 1, the IM Conversation History is never enabled.

6.1.1.2.7   SIP CANCEL Request

No differences with [OMASIMPLEIM].

6.1.1.2.8   SIP BYE Request from IM Client

No differences with [OMASIMPLEIM].

As a clarification for RCS:

- For RCS IM Conversation History is never enabled. The paragraph on history handling is, therefore, not applicable for RCS.

6.1.1.2.9   SIP Session Timer Expiry

No differences with [OMASIMPLEIM].

As a clarification for RCS:

- For RCS IM Conversation History is never enabled. The paragraph on history handling is, therefore, not applicable for RCS.

6.1.1.3   Pager Mode Messaging

6.1.1.3.1   Receiving SIP MESSAGE request

Only following differences with [OMASIMPLEIM]:
- Step 2 (use of anonymous request) is not applicable for RCS

As a clarification for RCS:
- For RCS as regular Pager Mode requests are not supported, in step 4 local policy shall be not to forward the SIP MESSAGE request.
- For RCS step 5. c. iii. only applies for a notification related to a 1-to-1 session.
- For RCS IM Conversation History is never enabled. The section on history handling is therefore not applicable for RCS.

6.1.1.4   Large Message Mode

Not applicable for RCS.

6.1.1.5   IM Service Setting Procedure

Not applicable for RCS.

6.1.2   Terminating Participating Function

Only one difference with [OMASIMPLEIM]: the statement on the Conversational History function is not applicable for RCS.

6.1.2.1   General

The general sections, step 5 and 5b are supported. Steps 1 to 4 and 5 a are not supported.

6.1.2.2   IM Session

6.1.2.2.1   Determination of Session Handling

The only difference with [OMASIMPLEIM] is that step 1a is not supported.

6.1.2.2.2   Receiving request for IM Session

Only following differences with [OMASIMPLEIM]:

- Anonymity is not supported: step 3 when receiving a request and when receiving a 200 "Ok" responses are not applicable for RCS.

As a clarification for RCS:
- The IM Server shall transparently pass any received subject header into the outgoing SIP Invite request.
- For RCS IM Conversation History is never enabled. The section on history handling (step 10 when receiving a 200 "Ok" response) is not applicable for RCS.

6.1.2.2.3 IM Session modification

Not applicable for RCS.

6.1.2.2.4 SIP CANCEL Request

No differences with [OMASIMPLEIM].

6.1.2.2.5 SIP BYE request

No differences with [OMASIMPLEIM].

As a clarification for RCS:
- For RCS IM Conversation History is never enabled. The paragraph on history handling is therefore not applicable for RCS.

6.1.2.3 Pager mode Messaging

6.1.2.3.1 Receiving SIP MESSAGE request

Only following differences with [OMASIMPLEIM]:

- The Note (on MESSAGE requests received outside the dialog of an IM Session) is not applicable for RCS.

As a clarification for RCS:
- For RCS as regular Pager Mode requests are not supported, in step 4 local policy shall be not to forward the SIP MESSAGE request.
- For RCS IM Conversation History is never enabled. Step 3 (use of history) is therefore not applicable for RCS.
- For RCS step 5. c. iii. only applies for a notification related to a 1-to-1 session.

6.1.2.4 Large Message Mode

Not applicable for RCS.

6.1.2.5 SIP Notify request

No differences with [OMASIMPLEIM].

6.1.2.6 Extended Group Advertisement

Not applicable for RCS.

6.1.3 User Plane

Only following differences with [OMASIMPLEIM]:

- In the general section, Large Message is not applicable for RCS.
- Step 1a is not applicable for RCS.

As a clarification for RCS:

- For RCS the behaviour in the NOTE on forwarding Message Session Relay Protocol (MSRP) SEND requests is highly recommended when there are no screening requirements: it minimizes buffering delays on the Participating Function.

6.1.4   Private Messages

Not applicable for RCS.

7   IM Sessions

7.1   IM Client Procedures for IM Sessions

7.1.1   Originating Client Procedures

7.1.1.1   General

Only 1 difference with [OMASIMPLEIM]:
- Anonymity is not supported: step 5 including the NOTE and step 8 when generating an initial request is not applicable for RCS.

As a clarification for RCS:
- In step 4, when setting up a Group Chat session and supporting File Transfer in a Group Chat the client shall take into account the differences and clarifications provided in [RCS6.0].
- An RCS client can include a Subject header set to a value provided by the RCS user as Subject for the chat in the IM Session invite.

7.1.1.2   Establishment of a 1-to-1 IM session

Following differences with [OMASIMPLEIM]:

- For step 3d the content type may be set differently for RCS (e.g. to enable File Transfer via HTTP [Hyper-Text Transfer Protocol])

As a clarification for RCS:

- For step 3, an RCS client shall always include a message
- For step 3c, an RCS client shall always request at least the positive-delivery notification
- For step 4a and 4b, as described in [RCS6.0] an RCS client shall always explicitly list the content types supported
- For the NOTE on accept-types, as described in [RCS6.0] an RCS client may list other types

7.1.1.3   IM Client initiates an Ad-hoc IM Conference

No differences with [OMASIMPLEIM].

As a clarification for usage of [RFC5366] in step 3:

- Only the mandatory parts of the URI-List are applicable for RCS
- RCS clients will not indicate that some contacts have to be anonymized.

As a clarification for RCS:

- In step 5, the accept-types and accept-wrapped-types attributes will be set as described in [RCS6.0]

7.1.1.4   IM Client initiates a Pre-Defined IM Conference

Not applicable for RCS.

7.1.1.5   IM Client IM Session Modification

Not applicable for RCS.

7.1.1.6   IM Client extends 1-to-1 IM Session to an Ad-hoc IM conference

No differences with [OMASIMPLEIM].

As a clarification for RCS:

- Appendix L provides a related clarification.
- In step 5, the accept-types and accept-wrapped-types attributes will be set as described in [RCS6.0]

7.1.1.7   IM Client adding IM User(s) to an IM Conference Session

Only one difference with [OMASIMPLEIM]: the section on anonymity (step 7 when receiving a request from the IM user) including the NOTE1 is not applicable for RCS.

7.1.1.8   SIP Session refresh

No differences with [OMASIMPLEIM].

7.1.1.9   IM Client rejoins an IM Conference Session

No differences with [OMASIMPLEIM].

7.1.1.10   IM Client joins a Public Conference Session

Not applicable for RCS.

7.1.1.11   IM Client subscription to the conference state event package

There are only following differences with [OMASIMPLEIM]:

- In step 2 the usage of an IM group identity is not applicable for RCS.
- Step 4 when receiving a SIP NOTIFY request (checking of the access policy) including the NOTE is not applicable for RCS.

7.1.1.12   IM Client leaving an IM Session

Only one difference with [OMASIMPLEIM]: the section on anonymity (step 3 when the participant wants to leave the session) is not applicable for RCS.

7.1.1.13   IM Client cancelling a IM Session

Only one difference with [OMASIMPLEIM]: in the first sentence, the reference to "IM Client initiates a Pre-defined IM conference" is not applicable for RCS.

7.1.1.14   IM Client removing IM User from an IM Conference Session

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

7.1.1.15   Joining an IM conference with a chat alias

This is chapter is only applicable for a pre-defined conference: Not applicable for RCS.

7.1.1.16   Ending a One-to-One IM session

No differences with [OMASIMPLEIM].

7.1.2   Terminating Client Procedures

Only two differences with [OMASIMPLEIM]:

5. In the first list, item "a" (Large Message session) is not applicable for RCS.
6. In the second section, the handling of the '+g.oma.sip-im.large-message' feature tag is not applicable for RCS.

7.1.2.1   IM Client invited to an IM session

No differences with [OMASIMPLEIM].

Following clarifications are given for RCS:

1. If a participant list according to [RFC5366] is present in the invitation, the client may communicate it to the user.
2. In step 9, for RCS session acceptance shall be done based on the client configuration parameters described in [RCS6.0].
7. In step 10, when supporting File Transfer in a Group Chat the client shall take into account the differences and clarifications provided in [RCS6.0].

7.1.2.2   IM Client receiving an IM Session Modification request

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

7.1.2.3   IM Client receiving an IM Session release request

No differences with [OMASIMPLEIM].

7.1.2.4   IM Client receiving an IM Session SIP CANCEL request

No differences with [OMASIMPLEIM].

7.1.3   User Plane

7.1.3.1   General

No differences with [OMASIMPLEIM].

7.1.3.2   Generating MSRP requests in a 1-to-1 IM Session

No differences with [OMASIMPLEIM].

As a clarification for RCS:

- For a 1-to-1 session an RCS client shall provide "*sip:anonymous@anonymous.invalid*" in the Common Profile for Instant Messaging (CPIM) From and To headers and therefore, not include a display name.
- In RCS, the mechanism that is described in the second paragraph for not rendering the content automatically will not be used.
- All RCS clients shall send UTF-8 encoded text with "text/plain" content type.
- An RCS Client shall offer the user to send non-text content using the File Transfer mechanism.
- If the content to be sent is larger than the value of the parameter for "*maximum allowed content size in 1-to-1 chat*" defined in [RCS6.0], the RCS client should inform the user indicating that it is not possible to send messages that large.
- An RCS client shall always request at least the positive-delivery notification when sending a chat message.

7.1.3.3   Generating MSRP requests in an IM conference

Only following differences with [OMASIMPLEIM]:
- Step 2 when generating an MSRP request is not applicable for RCS.
- Step 3 (handling of private messages) is applicable for RCS only for the transmission of delivery and read notifications
- Step 6 when generating an MSRP request (requesting a Final Delivery Report) is not applicable for RCS.
- The NOTE (on requesting Instant Message Disposition Notifications [IMDNs]) is not applicable for RCS

As a clarification for RCS:
- When sending a message or isComposing notification an RCS client shall provide "*sip:anonymous@anonymous.invalid*" in the CPIM To Header.
- For step 3b) the CPIM To header shall be set as described in section 2.11.3 of [RCS6.0].
- An RCS client shall include the display-name of the user (in case one is available) and the user's identity in the CPIM From header of a Message.
- For Group IM Sessions, all RCS clients shall send text with "text/plain" content type inside the CPIM wrapper.
- 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 [RCS6.0].
  Alternatively, the RCS client may offer the possibility to adapt the content to fit within the configured limit after consulting the user.

7.1.3.4   Receiving MSRP requests in an IM Session or in an IM conference

Following differences with [OMASIMPLEIM]:

- In the additional procedure 2 when receiving an MSRP request, the use of an IM Group Identity or the IM identity of the IM user (for private messaging) in the "To" header of the Message/CPIM is not applicable for RCS.
- In the additional procedure 2 when receiving an MSRP request, a message using "*sip:anonymous@anonymous.invalid*" as address in the CPIM To header shall be considered as a message that was sent to the whole group.

7.1.3.5   Sending isComposing status during IM Session

No differences with [OMASIMPLEIM]. RCS clients will send isComposing status.

As a clarification for RCS: For the NOTE, as described in [RCS6.0] an RCS client shall signal the support for the isComposing content type.

7.1.3.6   Receiving isComposing status during IM Session

No differences with [OMASIMPLEIM].

As a clarification for RCS: RCS clients shall 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).

7.2   IM Controlling Functions for IM Sessions

No differences with [OMASIMPLEIM].

7.2.1   Requests Terminating at the IM Server

7.2.1.1   General

Only 1 difference with [OMASIMPLEIM]: step 4b when sending a 200 "Ok" response (the use of an IM Group Identity) is not applicable for RCS.

7.2.1.2   Ad-hoc IM Group setup request

Only following differences with [OMASIMPLEIM]:

- Step 7 when receiving an initial SIP INVITE request (checking of the SDP parameters against the operator policy) is not applicable for RCS.
- In the NOTE below step 9 on when receiving an initial SIP INVITE request, RCS refers to [RFC5366] instead of to [draft-URI-list]

As a clarification for RCS: In step 3 when receiving an initial SIP INVITE the IM server will always deny anonymity.

7.2.1.3   Pre-defined IM Group setup request

Not applicable for RCS.

7.2.1.4   Joining Pre-defined IM Group Session request

Not applicable for RCS.

7.2.1.5   Rejoining IM Group Session request

Only following differences with [OMASIMPLEIM]:

- In step 1, a 404 Not Found is returned instead of a 403 Forbidden

- Step 3 when receiving a SIP INVITE request that includes an IM Session Identity (the checking of <max-participant-count>) is not applicable for RCS.

As a clarification for RCS:
- Step 6 when receiving a SIP INVITE request that includes an IM Session Identity (privacy handling) is not applicable for RCS.
- The IM Server performing the Controlling IM Function may save the IM Session Identity as well as the last participant list for a configurable amount of time according to Service Provider policies, after the ad-hoc Group Chat has been torn down. If a re-join request is received when there is no ongoing ad-hoc Group Chat but the IM Session Identity has been saved, the IM Server shall initiate a Group Chat as per section 7.2.2.1 and 7.2.2.2 reusing the saved IM Session Identity and last participant list instead of expecting a URI-list from the SIP INVITE request.

7.2.1.6   IM Session modification

Not applicable for RCS.

7.2.1.7   Adding Participants to IM Group Session request

No differences with [OMASIMPLEIM].

As a clarification for RCS:
- Step 2 when receiving a SIP REFER request (privacy handling) including the NOTE is not applicable for RCS.
- Step 10 when receiving a SIP REFER request (handling of a Refer-Sub header that is not present or set to true) including the NOTE is not applicable for RCS.

7.2.1.8   SIP REFER BYE request received when using IM Group session

Not applicable for RCS.

7.2.1.9   Void

No content in [OMASIMPLEIM].

7.2.1.10   SIP BYE request received in a IM Session

No differences with [OMASIMPLEIM].

7.2.1.11   SIP Session refresh procedure

No differences with [OMASIMPLEIM].

7.2.1.12   Subscribing to Participant information

Only following differences with [OMASIMPLEIM]:
- Step 2 when receiving a SIP SUBSCRIBE request (an IM Group Identity in the Request-URI) is not applicable for RCS.
- In step 4 when receiving a SIP SUBSCRIBE request, the check on the authorization of the subscriber based on the <allow-conference-state> action is not applicable for RCS.

7.2.2   Requests Initiated by the IM Server

7.2.2.1   General

Only following differences with [OMASIMPLEIM]:
- Step 4b when generating an initial SIP INVITE (the Authenticated Originator's IM Address in case of a pre-defined group) is not applicable for RCS.
- In step 5 when generating an initial SIP INVITE, the case of a Pre-defined IM Group Session is not applicable for RCS
- Step 11 (including the Note) when generating an initial SIP INVITE (the use of a "Subject" header for a pre-defined group) is not applicable for RCS.

As a clarification for RCS:
- Step 9 when generating an initial SIP INVITE (privacy handling) is not applicable for RCS.

7.2.2.2   IM Session Invitation Requests

Only following differences with [OMASIMPLEIM]:

- Step 3 in the procedure for inviting an IM user (the handling of a pre-defined group) is not applicable for RCS.
- Step 3 when receiving a 200 "Ok" response (privacy handling) is not applicable for RCS

As a clarification for RCS:

- In step 2, the list of invited participants will be sent to the invitees.

7.2.2.3   IM Session Initiation Policy

Not applicable for RCS.

7.2.2.4   Cancel of IM Session Invitation Requests

No differences with [OMASIMPLEIM].

7.2.2.5   Ending an IM Session

No differences with [OMASIMPLEIM].

7.2.2.6   IM Session Modification

Not applicable for RCS.

7.2.2.7   IM Session Adding Policy

Only one difference with [OMASIMPLEIM]: the two first paragraphs are not applicable for RCS as they concern pre-defined groups.

As a clarification for RCS: In case of an Ad-hoc IM Group chat, all participants of the group chat session are allowed to add participants to the Ad-hoc IM Session.

7.2.2.8   IM Session Release Policy

Several differences with [OMASIMPLEIM]:

- The first paragraph (the use of the rules defined in the Group definition of a pre-defined group) is not applicable for RCS.

- The second paragraph (the use of <session-active-policy> in case of a pre-defined group) is not applicable for RCS.
- The auto-release variable influencing the release policy is not applicable for RCS
- The case for a Pre-defined IM 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), 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 d, the case of a Pre-defined IM Group session is not applicable for RCS.
- In the release policy section 1 (releasing the remaining participants from the session), item f (a predefined group is deleted) is not applicable for RCS.
- In the release policy, section 2 (removing an individual participant from the IM Session) is not applicable for RCS. This includes item a (the group definition is changed in case of a Pre-defined IM Group Session).

7.2.2.9   IM Session Joining Policy

Only the following differences with [OMASIMPLEIM]:

- Only the first section from [OMASIMPLEIM] (the case of an ad-hoc group) is applicable for RCS.
- With RCS, Service Provider policy may be configured so that it is not possible for a user to re-join if the user had previously explicitly left the IM Session by sending a SIP BYE request.
- The sections on the case of a Pre-defined group based on the <join-handling>, the <age-restrictions> and <age-limit> elements in the group definition are not applicable for RCS, as is the section on the joining of the history function.

7.2.2.10   Generating a SIP NOTIFY Request

Only following differences with [OMASIMPLEIM]:

- In limitation 1 of the MIME application/conference-info+xml body, the use the IM Group Identity in case of a Pre-defined IM group Session is not applicable for RCS.
- In limitation 2/a/iii of the MIME application/conference-info+xml body, the use the identity defined in the IM Group definition in case of a Pre-defined IM group Session is not applicable for RCS.
- In limitation 2/a/iii of the MIME application/conference-info+xml body, the condition on privacy is not applicable for RCS.

7.2.2.11   Terminating the Subscription

No differences with [OMASIMPLEIM].

7.2.2.12   Removal of Participant from IM Session

No differences with [OMASIMPLEIM].

7.2.3   User Plane

No differences with [OMASIMPLEIM].

7.2.3.1   MSRP Switch

No differences with [OMASIMPLEIM].

As a clarification for RCS:
- The use of anonymity (4th bullet in [OMASIMPLEIM]) is not applicable for RCS.
- The use of private messaging (6th bullet in [OMASIMPLEIM]) is applicable for RCS only for delivery and display notifications.
- These bullets clarify existing OMA SIMPLE IM functionality and are added to the bullet list in in [OMASIMPLEIM]:

  - SHALL temporarily queue any messages sent from a participant during the conference start up 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

7.2.3.2   Chat Alias in an IM conference

Not applicable for RCS

7.2.3.3   Receiving and Sending messages in an IM Conference Server

Only following difference with [OMASIMPLEIM]: In step 2, "sip:anonymous@anonymous.invalid" shall also be considered as a valid address in the CPIM To header for distribution to the group.

As a clarification for RCS:

- Step 3 (private messages) is applicable for RCS only for delivery and display notifications
- The IM Server SHALL indicate that message larger than the "max-size" of the recipient has not been delivered by sending a 'system message' to both the sender and the intended recipient(s)
- The content of this system message is targeted for human consumption and SHALL be of content type text/plain

7.2.3.4   Receiving and Sending Private messages in an IM Conference

Only following differences with [OMASIMPLEIM]:

- In step a, the case for a predefined group and associated checking of XDM rules is not applicable for RCS

As a clarification for RCS:

- Private messages are used in RCS only for delivery and display notifications

7.2.3.5   System Messages from an IM Conference

No differences with [OMASIMPLEIM].

8   IM Pager Mode

8.1   Originating Client Procedures

No differences with [OMASIMPLEIM].

8.1.1   Sending SIP MESSAGE for Pager Mode

Only following differences with [OMASIMPLEIM]:

- When using the SIP MESSAGE method to send a disposition notification related to a message in Group Chat an RCS client shall include a Contribution-ID header field set to the same value as the Contribution-ID in the SIP INVITE request that was used to set up the session in which the Group Chat Message was received. For a SIP MESSAGE request transporting an IMDN related to a 1-to-1 Chat message no Contribution-ID shall be included.
- Step 4, including Note 1 (The use of anonymity) is not applicable for RCS.
- Steps 7, 8 and 9 (messages to more than one user, to a pre-defined group and to the participants of an on-going session) is not applicable for RCS.
- Step 10 (usage of external Content) is not applicable for RCS.
- Step 11 (requesting a delivery report) is not applicable for RCS.
- Note 2 and Note 3 are not applicable for RCS.

As a clarification for RCS:
- For RCS this support shall only be used for sending IMDNs related to Chat.

8.2   Terminating Client procedures

8.2.1   IM Client receives SIP MESSAGE

Only one difference with [OMASIMPLEIM]:

- Steps 1-6 on receipt of a SIP MESSAGE (including the Note) are not applicable for RCS because for RCS this support shall only be used for sending IMDNs related to Chat

8.3   Controlling Server procedures for Pager Mode

Not applicable for RCS.

9   IM Large Message Mode

Not applicable for RCS.

10   File Transfer

No differences with [OMASIMPLEIM].

RCS has the following restrictions on file transfer:

- One-to-Many File Transfer is only supported in a 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 supported for RCS only for resuming a failed transfer

10.1 File Transfer Setup Request

Only following differences with [OMASIMPLEIM]:

- In the general section, the requesting of files is applicable for RCS only for resume procedures.
- The procedure to send a file in an ongoing session (file transfer with a re-invite) is not applicable for RCS. The user can send a file to the participants of an ad-hoc session by using the mechanism described in [RCS6.0].
- In step 1 of the procedure to send a file in a new session the case for sending the file to a Pre-defined group is not applicable for RCS.
- Step 3 of the procedure to send a file in a new session (sending to multiple recipients) is not applicable for RCS.
- Step 4 when instructions are received to send a file in a new session (sending more than one file) is not applicable for RCS.

As a clarification for RCS:

- 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. 'render' is used to indicate an immediate display of the image during an Image Sharing session.
- 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 [RCS6.0], 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.

10.2 File Transfer Session Release

Only following differences with [OMASIMPLEIM]:

- Since only one file per session is supported, RCS clients will send new files always in separate sessions. Therefore, the use of the timer is not applicable for RCS. The procedure described will, therefore, be executed immediately once the transfer is done.
- The case where a re-INVITE with the media line set to zero is sent by the IM client when the timer expires in case there is any other media stream in the SDP (2nd bullet) is not applicable for RCS.

- The case where a re-INVITE with the media line set to zero is sent by the IM client when the timer expires in case multiple files are transferred (3rd bullet) is not applicable for RCS.

10.3 Client Receiving File Transfer Request

No differences with [OMASIMPLEIM].

10.4 Controlling Server Procedures for File Transfer

Only following differences with [OMASIMPLEIM]:

- Step 3 when receiving an initial SIP INVITE request (a request sent to a pre-defined group) is not applicable for RCS.
- The handling of an MSRP SEND request containing a Final Report header is not applicable for RCS. In the general section, the requesting of files is not applicable for RCS.

As a clarification for RCS:

- In step 2, the Controlling Server shall take into account the differences and clarifications provided in [RCS6.0]

11 Error Handling

11.1 Conference-Factory Uri Does Not Exist

No differences with [OMASIMPLEIM].

11.2 Conference Uri Does Not Exist

No differences with [OMASIMPLEIM].

12 Deferred Messaging

12.1 Procedures at the IM Client

Not applicable for RCS.

12.2 Procedures at the IM Server

Only following differences with [OMASIMPLEIM]:

- The virtual entity providing the URI-list server focus for SIP INVITE transactions is not applicable for RCS.
- The virtual SIP User Agents representing Deferred Messages are not applicable for RCS.
- The case of Deferred Standalone Messages represented by a unique URI is not applicable for RCS.
- The handling of an MSRP SEND request containing a Final Report header is not applicable for RCS. In the general section, the requesting of files is not applicable for RCS.

12.2.1 Deferred Messaging Function receiving requests from IM user

Not applicable for RCS.

12.2.2 Deferred Messaging Function terminating requests to IM user related Standalone Messages

Not applicable for RCS.

12.2.3 Deferred Messaging Function terminating requests to IM user related to 1-to-1 IM Session

12.2.3.1 Receiving SIP INVITE for deferred 1-to-1 Session

Following differences with [OMASIMPLEIM]:

- For RCS, the reference in step 2 shall be to section 12.2.3.3.
- In step 4, for RCS the accept-types and accept-wrapped-types SDP attributes shall be set based on the supported content as specified in [RCS6.0].

12.2.3.2 Delivering of Deferred Chat Messages

12.2.3.2.1 General

Following differences with [OMASIMPLEIM]:

- For RCS, in step 3, as described in [RCS6.0], the next message will be sent after receiving a provisional response to the INVITE request (including 100 Trying).
- For RCS in step 2aii remaining deferred notifications of that original sender will be sent as well.

12.2.3.2.2 Generating SIP INVITE request for Deferred Chat Message

Following differences with [OMASIMPLEIM]:
- For RCS, in step 1, the refresher parameter in the session expires header shall be set to uas.

12.2.3.3 Storage for Deferred Chat Messages and Notifications

No differences with [OMASIMPLEIM].

12.2.3.4 Delivering Stored Notifications

Following differences with [OMASIMPLEIM]:

- For RCS, in step 3 the reference shall be to section 5.2.5.2
- For RCS in step 13, the a=setup attribute shall be set to actpass

12.2.3.5 User Plane for delivery of Deferred Chat Messages and deferred notifications

12.2.3.5.1 General

No differences with [OMASIMPLEIM].

12.2.3.5.2   Generating MSRP requests in an IM Session

No differences with [OMASIMPLEIM]:

12.2.3.5.3   Receiving MSRP requests containing IMDNs

No differences with [OMASIMPLEIM].

As a clarification for RCS:

- For RCS, an already ongoing MSRP session will only be considered if it is established between the targeted device of the original sender and one of the devices of the user sending the notification.

12.2.3.5.4   Receiving MSRP requests other than IMDN

No differences with [OMASIMPLEIM].

13 Conversation History Function

Not applicable for RCS.

As a clarification for RCS: [RCS6.0] describes an alternative mechanism for the history recording.

14 System Concepts

14.1 Security

No differences with [OMASIMPLEIM].

14.1.1   General

No differences with [OMASIMPLEIM].

14.1.2   Trust Model

No differences with [OMASIMPLEIM].

14.1.3   SIP signalling security

No differences with [OMASIMPLEIM].

14.1.3.1   Integrity and confidentiality protection

No differences with [OMASIMPLEIM].

14.1.3.2   Assurance of user identity

No differences with [OMASIMPLEIM].

14.1.3.3   SIP MESSAGE Security

Not applicable for RCS.

14.1.4   User Plane security

No differences with [OMASIMPLEIM].

14.1.5 Relation between SIP Signalling and User Plane Security

No differences with [OMASIMPLEIM].

14.1.5.1 Denial of Services

No differences with [OMASIMPLEIM].

14.1.6 XDMS Security

No differences with [OMASIMPLEIM].

14.2 Authorization

No differences with [OMASIMPLEIM].

14.3 Privacy

Not applicable for RCS.

Privacy is not compatible with the conversational view. If people are on each other's contact lists, there is no reason to request privacy.

15 Timers

No differences with [OMASIMPLEIM].

14.4 Timers In The IM Server

Not applicable for RCS.

14.5 Timers In The IM Client

For Tc3 there are no differences with [OMASIMPLEIM]. Tc1 and Tc2 are not applicable for RCS.

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.   Initial Filter Criteria

Appendix not relevant for RCS.

Appendix D.   Examples Of Signalling Flows

Appendix not relevant for RCS.

Appendix E.   IM Service Settings

Appendix not relevant for RCS.

Appendix F.   OMA IM Parameter Definition And Conventions

F.1. Release Version In User-Agent And Server Headers

No differences with [OMASIMPLEIM].

F.2. Global Uri Definition And Convention

No differences with [OMASIMPLEIM].

Appendix G.   OMA Sec Group Security Threats Analysis

Appendix not relevant for RCS.

Appendix H.   Presence Information Elements And Procedures

No differences with [OMASIMPLEIM].

H.1. IM SPECIFIC PRESENCE INFORMATION ELEMENTS OVERVIEW

Only following differences with [OMASIMPLEIM]:

- In the table, the "Availability for IM Pager Mode and Large Message Mode Messaging" is not applicable for RCS.
- In the table, the "Willingness for IM Pager Mode and Large Message Mode Messaging" is not applicable for RCS.
- In the table, the "Willingness for IM Session Mode Messaging" is not applicable for RCS.
- In the table, the "Willingness for File Transfer" is not applicable for RCS.

H.1.1.   Availability for IM Pager Mode and Large Mode Messaging

Not applicable for RCS.

H.1.2.   Availability for IM Pager Mode and Large Mode Messaging

Not applicable for RCS.

H.1.3.   Availability for IM Session Mode Messaging

No differences with [OMASIMPLEIM].

As a clarification for RCS:

- The description that the <basic> sub element is set to "open" when the user registers and does not activate the incoming barring or does not decide to remain invisible is not applicable for RCS.
- The description that the <basic> sub element is set to "closed" when the user unregisters, activates the incoming barring, or decides to remain invisible is not applicable for RCS.

H.1.4.   Willingness for IM Session Mode Messaging

Not applicable for RCS.

H.1.5.   Availability for File Transfer

Only following differences with [OMASIMPLEIM]:

- The description that the <basic> sub element is set to "open" when the user registers and does not activate the incoming barring or does not decide to remain invisible is not applicable for RCS.
- The description that the <basic> sub element is set to "closed" when the user unregisters, activates the incoming barring, or decides to remain invisible is not applicable for RCS.

H.1.6.   Willingness for File Transfer

Not applicable for RCS.

H.2. IM SERVER PROCEDURES

Not applicable for RCS: Presence is maintained from the client and not checked by the IM server.

H.3. IM CLIENT PROCEDURES

Not applicable for RCS: the behaviour for a RCS client acting as a presence source and watcher is described in [RCS6.0].

H.4. IM SPECIFIC PRESENCE VALUES

No differences with [OMASIMPLEIM].

Appendix I.   The Parameters to be Provisioned For IM Service

Appendix not relevant for RCS. Configuration parameters are described in [RCS6.0].

Appendix J.   Retrieve Deferred Messages

Appendix not relevant for RCS.

Appendix K.   Saving IM Content

Appendix not relevant for RCS.

Appendix L.   Extending One To One Session to a Conference

No differences with [OMASIMPLEIM].

Appendix M.   Conference Event Package

No differences with [OMASIMPLEIM].

M.1. Extensions to the Conference Event Package Xml Schema

No differences with [OMASIMPLEIM].

Appendix N.   Emoticons

N.1. List Of Supported Emoticons

One difference with [OMASIMPLEIM]:

- :- and $ shall not be used for the "Blushing, embarrassed" emoticon. It shall instead be represented by :-$ or any of the other character sequences provided for the emoticon in [OMASIMPLEIM].

N.2. Emoticon Processing By The Clients

No differences with [OMASIMPLEIM].

N.2.1.   Emoticons in composed sent instant messages

No differences with [OMASIMPLEIM].

N.2.2.   Emoticons in received/displayed instant messages

No differences with [OMASIMPLEIM].

Appendix O.   Final Delivery Report

Appendix not relevant for RCS.

Appendix P.   Use Of Refer Method in IM

No differences with [OMASIMPLEIM]. The procedure is supported for adding a participant to a Group IM Session, see section 7.1.1.7.

Appendix Q.   IM Related Shared XDM Extensions

Appendix not relevant for RCS.

Appendix R.   Access Policy Examples

Appendix not relevant for RCS.

Appendix S.   Charging Use Cases

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 of the document for RCS 5.1. "Endorsement of OMA SIP/SIMPLE IM 1.0, RCS 5.0, version 1.0" was used as a basis Approved by DAG and PSMC	PSMC	Tom Van Pelt/ GSMA
1.0	26 Sep 2012	Added RCC.12 number		Tom Van Pelt / GSMA
1.0	18 Sep 2013	Migrate to Infocentre2 PRD template		Tom Van Pelt / GSMA
2.0	25 Sep 2013	RCS 5.1 Maintenance#2: Include agreed CR1001	RCC TF	Tom Van Pelt / GSMA
3.0	07 May 2014	First version of the document for RCS 5.2: Include approved CR1002	GSG	Tom Van Pelt / GSMA
4.0	28 Feb 2015	First version of the document for RCS 5.3: Include approved CR1003	PSMC	Tom Van Pelt / GSMA
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