RCS Universal Profile Corrections and Clarifications

Version 2.5

16 December 2019

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1 Introduction

1.1 Overview

When issues are found or items are found to be misunderstood in a version of the Rich Communication Services (RCS) Universal Profile document or in a document defining the transition from a Pre-Universal Profile RCS implementation or in a document referred by these documents, then a solution for the issue or the clarification shall be described in the current document rather than in an update of the affected document. In a next version of the RCS Universal Profile, these solutions will be covered in updated specifications where relevant. The current document only covers such solutions for issues and clarifications. New and evolved functionality will be provided through new releases of the RCS Universal Profile.

This means that a release of the RCS Universal Profile will have a stable feature set documented via the relevant version of the RCS Universal Profile Service Definition Document (SDD) the versions of the Permanent Reference Documents (PRDs) referred to by the SDD and the current document. Once a release has been published, all those documents will be stable for the purpose of that release except the current document which given its nature may be updated frequently.

1.1.1 Structure of the document

The document contains a top level section for each document for which items for correction or clarification need to be documented.

For every item an indication is provided on which version(s) of the RCS Universal Profile it is applicable.

NOTE: When a later release of the RCS Universal Profile is not mentioned, that does not necessarily mean that the behaviour is changed. It may be that the behaviour is described in the updates of the specifications relevant for that release.

Every item is also numbered using the following format: ID-<docnumber>-<version>-<sequence number>. Where the <docnumber> is the document number (e.g. “RCC.71”), <version> is the version of the document where the issue to be resolved was found (e.g. “1.0” for an item covering [RCC.71-UP1.0], “7.0” for an item covering [RCC.07-v7.0]) and <sequence> is a monotonously increasing sequence number for items applying to that document.

Each item is assigned one of the following types:

- Requirement

  Introduces new mandatory behaviour that will be included in future updates of the specifications relevant for the RCS Universal Profile, if still relevant. It may add on to what is already described in the documents relevant for the mentioned version of the RCS Universal Profile or replace what is described there. This behaviour is considered to be an integral part of the RCS Universal Profile versions mentioned; that is, it is treated in the same way as the behaviour described in the other documents relevant for those RCS Universal Profile versions.

To allow implementations to adapt to this change in the definition of the profile, a grace period of 3 months from the mentioned publication date is allowed where implementations that do not implement the change are still considered compliant. Given that the change aims to resolve an issue that was discovered, it is highly recommended that implementations adapt as soon as possible after the publication.

- Clarification

  Provides further background on functionality already described in the documents relevant for the RCS Universal Profile versions mentioned to improve understanding. This may end up in future revisions of the specification.

- Recommendation

  Includes some suggestions on how the functionality required in the latest version of the RCS specification can be implemented.

1.2 Scope

This document is a complement to the RCS Universal Profile and definitions of transitions from pre-Universal Profile RCS implementations towards the RCS Universal Profile.

1.3 Abbreviations

Term	Description
FT	File Transfer
FToHTTP	File Transfer over HyperText Transfer Protocol
HTTP	HyperText Transfer Protocol
IM	Instant Messaging
IMSI	International Mobile Subscriber Identity
kbps	Kilobit per second
MSISDN	Mobile Subscriber Integrated Services Digital Network Number
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority, registry available at http://www.openmobilealliance.org
OTP	One-Time Password
POSIX	Portable Operating System Interface
PRD	Permanent Reference Document
RCS	Rich Communication Services
SDD	Service Definition Document
SIM	Subscriber Identity Module
SIMPLE	Session Initiation Protocol for Instant Messaging and Presence Leveraging Extensions
SIP	Session Initiation Protocol
SMS	Short Message Service
URL	Uniform Resource Locator
XML	eXtensible Markup Language

1.4 References

Ref	Doc Number	Title
[1]	[RCC.71-UP1.0]	GSMA PRD RCC.71, RCS Universal Profile Service Definition Document, Version 1.0, 16 November 2016 http://www.gsma.com/
[2]	[RCC.71-UP2.0]	GSMA PRD RCC.71, RCS Universal Profile Service Definition Document, Version 2.0, 28 June 2017 http://www.gsma.com/
[3]	[RCC.71v2.1-UP2.0]	GSMA PRD RCC.71, RCS Universal Profile Service Definition Document, Version 2.1, 21 December 2017 http://www.gsma.com/
[4]	[RCC.71v2.2-UP2.2]	GSMA PRD RCC.71, RCS Universal Profile Service Definition Document, Version 2.2, 16 May 2018 http://www.gsma.com/
[5]	[RCC.71v2.3-UP2.3]	GSMA PRD RCC.71, RCS Universal Profile Service Definition Document, Version 2.3, 6 December 2019 http://www.gsma.com/
[6]	[RCC.07-v7.0]	GSMA PRD RCC.07, Rich Communication Suite 6.0 Advanced Communications Services and Clients specification, Version 7.0, 21 March 2016 http://www.gsma.com/
[7]	[RCC.07-v8.0]	GSMA PRD RCC.07, Rich Communication Suite 7.0 Advanced Communications Services and Client Specification, Version 8.0, 28 June 2017 http://www.gsma.com/
[8]	[RCC.07-v9.0]	GSMA PRD RCC.07, Rich Communication Suite 8.0 Advanced Communications Services and Client Specification, Version 9.0, 16 May 2018 http://www.gsma.com/
[9]	[RCC.07-v10.0]	GSMA PRD RCC.07, Rich Communication Suite 9.0 Advanced Communications Services and Client Specification, Version 10.0, 06 December 2018 http://www.gsma.com/
[10]	[RCC.07-v11.0]	GSMA PRD RCC.07, Rich Communication Suite Advanced Communications Services and Client Specification, Version 11.0, 16 October 2019 http://www.gsma.com/
[11]	[RCC.09-v6.0]	GSMA PRD RCC.09, Rich Communication Suite 6.0 Endorsement of OMA CPM 2.1 Message Store, Version 6.0, 21 March 2016 http://www.gsma.com/
[12]	[RCC.11-v5.0]	GSMA PRD RCC.11, Rich Communication Suite 6.0 Endorsement of OMA CPM 2.1 Conversation Functions, Version 5.0, 21 March 2016 http://www.gsma.com/

Ref	Doc Number	Title
[13]	[RCC.11-v6.0]	GSMA PRD RCC.11, Rich Communication Suite 7.0 Endorsement of OMA CPM 2.2 Conversation Functions, Version 6.0, 28 June 2017 http://www.gsma.com/
[14]	[RCC.11-v7.0]	GSMA PRD RCC.11, Rich Communication Suite Endorsement of OMA CPM 2.2 Conversation Functions, Version 7.0, 16 May 2018 http://www.gsma.com/
[15]	[RCC.11-v8.0]	GSMA PRD RCC.11, Rich Communication Suite Endorsement of OMA CPM 2.2 Conversation Functions, Version 8.0, 06 December 2018
[16]	[RCC.12-v5.0]	GSMA PRD RCC.12, Rich Communication Suite 6.0 Endorsement of OMA SIP SIMPLE IM, Version 5.0, 21 March 2016 http://www.gsma.com/
[17]	[RCC.14-v3.0]	GSMA PRD RCC.14, Service Provider Device Configuration, Version 3.0, 21 March 2016 http://www.gsma.com/
[18]	[RCC.14-v5.0]	GSMA PRD RCC.14, Service Provider Device Configuration, Version 5.0, 28 June 2017 http://www.gsma.com/
[19]	[RCC.14-v6.0]	GSMA PRD RCC.14, Service Provider Device Configuration, Version 6.0, 06 December 2018 http://www.gsma.com/
[20]	[RCC.15-v2.0]	GSMA PRD RCC.15, IMS Device Configuration and Supporting Services, Version 2.0, 21 March 2016 http://www.gsma.com/
[21]	[RCC.15-v4.0]	GSMA PRD RCC.15, IMS Device Configuration and Supporting Services, Version 4.0, 28 June 2017 http://www.gsma.com/
[22]	[RCC.20-v2.0]	GSMA PRD RCC.20, Enriched Calling Technical Specification, Version 2.0, 21 March 2016 http://www.gsma.com/
[23]	[RCC.20-v3.0]	GSMA PRD RCC.20, Enriched Calling Technical Specification, Version 3.0, 28 June 2017 http://www.gsma.com/
[24]	[RCC.20-v5.0]	GSMA PRD RCC.20, Enriched Calling Technical Specification, Version 5.0, 06 December 2018 http://www.gsma.com/
[25]	[RCC.20-v6.0]	GSMA PRD RCC.20, Enriched Calling Technical Specification, Version 6.0, 16 October 2019
[26]	[RCC.64-v1.0]	GSMA PRD RCC.64, OMA SIMPLE IM to OMA CPM transition guidelines, Version 1.0, 26 January 2017 http://www.gsma.com/
[27]	[IR.51-v5.0]	GSMA PRD IR.51, IMS Profile for Voice, Video and SMS over untrusted Wi-Fi access, Version 5.0, 23 May 2017 http://www.gsma.com/

Ref	Doc Number	Title
[28]	[PRD-IR.92]	GSMA PRD IR.92 - “IMS Profile for Voice and SMS” http://www.gsma.com/
[29]	[PRD-IR.94]	GSMA PRD IR.94 - “IMS Profile for Conversational Video Service” http://www.gsma.com/
[30]	[IR.94-v12.0]	GSMA PRD IR.94, IMS Profile for Conversational Video Service, Version 12.0, 12 June 2017 http://www.gsma.com/
[31]	[3GPP TS 24.109]	3GPP TS 24.109 Release 10, 3rd Generation Partnership Project; Bootstrapping interface (Ub) and network application function interface (Ua); Protocol details http://www.3gpp.org
[32]	[3GPP TS 24.229]	3GPP TS 24.229 Release 10, 3rd Generation Partnership Project; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) http://www.3gpp.org
[33]	[3GPP TS 33.220]	3GPP TS 33.220 Release 10, 3rd Generation Partnership Project; Generic Authentication Architecture (GAA);Generic Bootstrapping Architecture (GBA) http://www.3gpp.org
[34]	[RFC2119]	“Key words for use in RFCs to Indicate Requirement Levels”, S. Bradner, March 1997. Available at http://www.ietf.org/rfc/rfc2119.txt
[35]	[RFC2617]	"HTTP Authentication: Basic and Digest Access Authentication", J. Franks et al, June 1999, Available at http://www.ietf.org/rfc/rfc2617.txt
[36]	[RFC3261]	"SIP: Session Initiation Protocol", June 2002 Available at http://tools.ietf.org/html/rfc3261
[37]	[RFC3840]	“Indicating User Agent Capabilities in the Session Initiation Protocol (SIP)”, J. Rosenberg et al, August 2004, Available at http://www.ietf.org/rfc/rfc3840.txt
[38]	[RFC3862]	"Common Presence and Instant Messaging (CPIM): Message Format", August 2004, Available at http://www.ietf.org/rfc/rfc3862.txt
[39]	[RFC3986]	“Uniform Resource Identifier (URI): Generic Syntax”, January 2005. Available at http://www.ietf.org/rfc/rfc3986.txt
[40]	[RFC5322]	"Internet Message Format", October 2008 Available at http://tools.ietf.org/html/rfc5322
[41]	[RFC5438]	"Instant Message Disposition Notification (IMDN)", February 2009, Available at http://tools.ietf.org/html/rfc5438
[42]	[RFC5724]	"URI Scheme for Global System for Mobile Communications (GSM) Short Message Service (SMS)", January 2010, Available at http://tools.ietf.org/html/rfc5724
[43]	[RFC7233]	Hypertext Transfer Protocol (HTTP/1.1): Range Requests IETF RFC http://tools.ietf.org/html/rfc7233
[44]	[HTML4.0]	HTML 4.01 Specification https://www.w3.org/

Ref	Doc Number	Title
[45]	[POSIX]	IEEE Standard for Information Technology—Portable Operating System Interface IEEE Std 1003.1, 2013 Edition
[46]	[CPM-MSGSTOR-REST]	OMA-TS-CPM_Message_Store_Using_RESTFul_API-V1_0-20170516-D http://www.openmobilealliance.org
[47]	[CPMCONVFUNC]	CPM Conversation Functions, Open Mobile Alliance Ltd. OMA-TS-CPM_Conv_Fnct-V2_2-20181025-D http://member.openmobilealliance.org/ftp/Public_documents/COM/COM-CPM/Permanent_documents/OMA-TS-CPM_Conversation_Function-V2_2-20181025-D.zip
[48]	[RCS-CPM-CONVFUNC-ENDORS]	GSMA PRD RCC.11 RCS Endorsement of OMA CPM 2.2 Conversation Functions, Version 9.0, 16 October 2019 http://www.gsma.com/

1.5 Conventions

"The key words "must", "must not", "required", "shall", "shall not", "should", "should not", "recommended", "may", and "optional" in this document are to be interpreted as described in [RFC2119]."

2 Clarifications and Issue Solutions for RCS Universal Profile

2.1 RCC.71 Version 1.0

This section contains solutions for issues found in [RCC.71-UP1.0].

2.1.1 ID_RCC.71_1.0_1: Modifying a Contact

ID	ID_RCC.71_1.0_1
Title	Modifying a Contact
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 3.2
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

2.1.1.1 Expected Behaviour

Modifying an existing contact's telephone number or adding a telephone number to a Contact shall be considered to be equivalent to adding a new contact from the perspective of R3-3-3-1 of [RCC.71-UP1.0].

2.1.2 ID_RCC.71_1.0_2: Max Group Chat Size

ID	ID_RCC.71_1.0_2
Title	Max Group Chat Size
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 6.2 and Annex C
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

2.1.2.1 Issue Description

Annex C of [RCC.71-UP1.0] wrongly indicates that the MAX_AD-HOC_GROUP_SIZE is set to an aligned value of 50, whereas R6-1-4 of [RCC.71-UP1.0] states that the Service Provider shall allow 100 users to participate in a Group Chat.

2.1.2.2 Expected Behaviour

The aligned value for MAX_AD-HOC_GROUP_SIZE in table 50 of Annex C of [RCC.71-UP1.0] shall be 100.

2.1.3 ID_RCC.71_1.0_3: Network Fallback Capability

ID	ID_RCC.71_1.0_3
Title	Network Fallback Capability
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Sections 5.3.2 and 5.3.4
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

2.1.3.1 Issue Description

Section 5.3.2 of [RCC.71-UP1.0] indicates that it is mandatory for networks to indicate support for one of the network fallback mechanisms while section 5.3.4.1 of [RCC.71-UP1.0] indicates that there are no additional procedures if the network supports the network fallback delivery assurance procedure.

2.1.3.2 Expected Behaviour

The following text shall replace the procedures for handling a Session Initiation Protocol (SIP) INVITE request for a 1-to-1 Chat defined in section 5.3.4.1 of [RCC.71-UP1.0].

The following procedures shall be implemented:

- When handling an SIP INVITE request for a 1-to-1 Chat session, the messaging server in the originating network shall add either the message revocation or the

network interworking feature tag defined in Table 9 of [RCC.71-UP1.0] in the Contact header field of the SIP INVITE request sent towards the terminating client based on the chat fallback mechanism that is supported.

- When handling an SIP INVITE request for a 1-to-1 Chat session, the messaging server in the terminating network shall add either the message revocation or the network interworking feature tag defined in Table 9 of [RCC.71-UP1.0] in the Contact header field of every SIP 200 OK response to the SIP INVITE request sent towards the originating client.

2.1.4 ID_RCC.71_1.0_4: Resize video files before transferring

ID	ID_RCC.71_1.0_4
Title	Resize video files before transferring
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 7.3.4
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

2.1.4.1 Issue Description

To improve the experience when transferring video files, it should be possible to resize a video at point of send within the Chat window that the File Transfer belongs to.

2.1.4.2 Expected Behaviour

In section 7.3 of [RCC.71-UP1.0], instead of stating in R7-24-18 that US7-6 and its requirement R7-6-1 shall be implemented locally on the device, R7-24-18 is modified as shown here. The technical realization of the similar requirement for File Transfer during a Call is implicitly updated in the same way since it references section 7.3 in [RCC.71-UP1.0].

R7-24-18 For the requirement R7-6-1 of user story US7-6, videos shall be optimised and resized to facilitate a faster transfer experience during a call (i.e. “low file size” as the default selection). The recommended approach is to resize the video by modifying the resolution:

- The default resolution shall be 480p encoded at 1200 kilobit per second (kbps).
- The resulting size shall be compared to FT WARN SIZE and FT MAX SIZE. The UI shall act correspondingly if the values are reached.

For a pre-recorded video:

- If the resolution is higher than 480p but the file is smaller than FT WARN SIZE the UI warns the user about the resolution of the video.
- If the resolution is higher than 480p and the file is higher than FT WARN SIZE but smaller than FT_MAX_SIZE then the UI warns the user about the resolution and the size.

- If the resolution is higher than 480p and the file is higher than FT MAX SIZE then the UI warns the user about the size and forces the compression or aborts the transfer.

For a live video recording:

- Recording at the default resolution of 480p encoded at 1200 kbps is done. When the FT WARN SIZE is reached, the recording is stopped automatically.

The video resizing itself shall happen before the File Transfer to the recipient is initiated.

2.1.5 ID_RCC.71_1.0_5: Sample HTTP Content Server response body

ID	ID_RCC.71_1.0_5
Title	Sample HTTP Content Server response body
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 7.3.2.7.1
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	02.06.2017
Superseded by	

2.1.5.1 Issue Description

The Sample HTTP Content Server response body in Table 35 of section 7.3.2.7.1 of [RCC.71-UP1.0] does not escape the ampersand character (&).

2.1.5.2 Expected Behaviour

Table 35 in section 7.3.2.7.1 of [RCC.71-UP1.0] is replaced by the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<file xmlns="urn:gsma:params:xml:ns:rcs:rcs:fthttp"
    xmlns:e="urn:gsma:params:xml:ns:rcs:rcs:up:fthttpext">
    <file-info type="thumbnail">
        <file-size>82</file-size>
        <content-type>image/jpeg</content-type>
        <data url="https://ftcontentserver.rcs.mnc001.mcc262.pub.3gppnetwork.org/..."
            until="2017-04-22T19:30:00Z"/>
    </file-info>
        <file-info type="file">
        <file-size>32464</file-size>
        <file-name>example.jpg</file-name>
        <content-type>image/jpeg</content-type>
        <data
            url="https://ftcontentserver.rcs.mnc001.mcc262.pub.3gppnetwork.org/...?t=image%2Fjpeg&amp;s
            =32464&amp;e=20170422T193000Z"
            until="2017-04-22T19:30:00Z"/>
        <e:branded-url>https://www.operator.com/...</e:branded-url>
    </file-info>
</file>
```

2.1.6 ID_RCC.71_1.0_6: "geo" URI Label encoding

ID	ID_RCC.71_1.0_6
Title	"geo" URI Label encoding
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 5.3.6.3
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	02.06.2017
Superseded by	

2.1.6.1 Issue Description

The description of the label extension of the RFC5870 "geo" URI in section 5.3.6.3 of [RCC.71-UP1.0] lacks a definition of the character encoding of the value.

2.1.6.2 Expected Behaviour

The value of the "rcs-l" extension parameter defined in section 5.3.6.3 of [RCC.71-UP1.0] shall be encoded via UTF-8 character encoding.

Example "geo" URI with parameter extension:

```
geo:50.7311865,7.0914591;u=10.3;rcs-l=The%20Quiet%20Man%20%F0%9F%8D%BB
```

2.1.7 ID_RCC.71_1.0_7: Full Store and Forward configuration parameters

ID	ID_RCC.71_1.0_7
Title	Full Store and Forward configuration parameters
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Annex C
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	02.06.2017
Superseded by	

2.1.7.1 Issue Description

There is a requirement in Annex C of [RCC.71-UP1.0] to supply the configuration parameters GROUP CHAT FULL STORE FORWARD and GROUP CHAT INVITE ONLY FULL STORE FORWARD with a fixed value "0". These configuration parameters are not supported in of [RCC.07-v7.0].

2.1.7.2 Expected Behaviour

The entries of the configuration parameters GROUP CHAT FULL STORE FORWARD and GROUP CHAT INVITE ONLY FULL STORE FORWARD are removed from Table 50 of Annex C of [RCC.71-UP1.0].

2.1.8 ID_RCC.71_1.0_8: GEOLOCATION TEXT MAX LENGTH aligned value

ID	ID_RCC.71_1.0_8
Title	GEOLOCATION TEXT MAX LENGTH aligned value
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Annex C
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	02.06.2017
Superseded by	

2.1.8.1 Issue Description

The aligned value of the configuration parameter GEOLOCATION TEXT MAX LENGTH in Annex C of [RCC.71-UP1.0] exceeds the maximum value of the configuration parameter in Table 81 of [RCC.07-v7.0].

2.1.8.2 Expected Behaviour

The aligned value of the configuration parameter GEOLOCATION TEXT MAX LENGTH in Annex C of [RCC.71-UP1.0] shall be “200”.

2.1.9 ID_RCC.71_1.0_9: Group Chat Subject and Icon technical implementation

ID	ID_RCC.71_1.0_9
Title	Technical Implementation of Group Chat Subject and Icon
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 6.3.2
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	02.06.2017
Superseded by	

2.1.9.1 Issue Description

The technical implementation in R6-29-2 through R6-29-6 of [RCC.71-UP1.0] does not satisfy the requirements for the management of subject and icon of User Story US6-2 of [RCC.71-UP1.0].

2.1.9.2 Expected Behaviour

The technical implementation described in R6-29-2 of [RCC.71-UP1.0] shall be replaced by the following:

The requirement R6-2-1 shall be implemented as follows:

- When initiating a Group Chat or when invited to a Group Chat, the client shall process the subject of the Group Chat Conversation as defined in section

3.4.4.1.1 of [RCC.07-v7.0]. The client shall store the assigned value of the subject locally with the Group Chat conversation.

- If the client invites new participants to a Group Chat it shall send the subject value initially assigned to the Group Chat as defined in section 3.4.4.1.2 of [RCC.07-v7.0].
- If the client re-starts a Group Chat via the procedure defined in section 3.4.4.1.7 of [RCC.07-v7.0], then it shall add a subject header in the SIP INVITE with the value initially assigned to the Group Chat.
- If the client is re-invited to an existing Group Chat as defined in section 3.4.4.1.7 of [RCC.07-v7.0], then the client shall ignore the subject header field contained in the SIP INVITE.
- When initiating a Group Chat, the client shall set the icon of the Group Chat locally. The selected icon shall not be transmitted to the participants of the Group Chat.

The technical implementation described in R6-29-4 of [RCC.71-UP1.0] is replaced by the following:

The requirement R6-2-3 shall be implemented locally on the client.

The technical implementation described in R6-29-6 of [RCC.71-UP1.0] is replaced by the following:

For requirement R6-2-5, if the subject is changed by the user for a Group Chat conversation, then the client shall keep the initial value of the subject stored with the Group Chat to be able to satisfy the procedures described in the technical implementation in R6-29-2. If the icon of a Group Chat is changed by the user for a Group Chat conversation, then the client shall not transmit the selected icon to the participants of the Group Chat.

2.1.10 ID_RCC.71_1.0_10: Audio Message support in FT fallback

ID	ID_RCC.71_1.0_10
Title	Audio Message support in FT fallback
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 7.3.2.4 and 8.3
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	02.06.2017
Superseded by	

2.1.10.1 Issue Description

In [RCC.71-UP1.0], an Audio Message received by SMS resulting from a fallback procedure is handled as any other file and is just rendered as a regular File Transfer. However, it would be a better experience if the Client could handle it specifically as an audio message: displaying the duration of the message and allowing it to be played directly in the messaging application.

2.1.10.2 Expected Behaviour

When the originating client decides to fall back to SMS for a File Transfer, in addition to the procedures defined for any file in section 7.3.2.4 of [RCC.71-UP1.0], if the file is a RCS Recorded Audio Message, then the client shall modify the URL to be sent via SMS in the following way:

- generate a “d” parameter as defined in the table below, using the value extracted from the “playing-length” element contained in the data element of the file-info element of the original message for which fallback to SMS applies, and append it to the URL using HTML form encoding respecting the definitions of [RFC3986].

Parameter	Type	Value
d	Integer	Playing length in seconds of the Audio Message

Table 1: Audio Message HTTP URL parameters for File Transfer fallback

On reception of such SMS message, the presence of a “d” parameter is the indication for the client that the file is a RCS Recorded Audio Message that can be played directly from the Chat application upon user action.

2.1.11 ID_RCC.71_1.0_11: In-Call Geolocation Push Technology

ID	ID_RCC.71_1.0_11
Title	In-Call Geolocation Push Technology
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 12.7.2.5 [RCC.07-v7.0] Section 3.10.4
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	02.06.2017
Superseded by	

2.1.11.1 Issue Description

Section 12.7.2.5 of [RCC.71-UP1.0] and section 3.10.4 of [RCC.07-v7.0] state that location sharing during a call should be done using CPM File Transfer while outside of a call the RCS Chat service would be used to transfer such a location. Given that this would be the only use case for CPM File Transfer in the RCS Universal Profile, this may create issues in the networks and clients.

2.1.11.2 Expected Behaviour

An RCS Universal Profile Client shall use the procedure defined in section 3.10.4.1.2 of [RCC.07-v7.0] also for transferring the location during a call.

To provide backward compatibility with older versions of RCS though, the client shall still support the procedure in section 3.10.4.1.1.2 of [RCC.07-v7.0] for receiving the location from the other party in the call. This sharing session shall be automatically accepted.

The technical implementation described in R12-24-35 of [RCC.71-UP1.0] shall therefore be replaced by the following:

> For requirement R12-22-2, an RCS Chat Message is used to convey the location information during a voice call following the procedure described in section 3.10.4.1.2 of [RCC.07-v7.0], but next to that during a call it shall also be supported to receive location information using CPM File Transfer as described in section 3.10.4.1.1.2 of [RCC.07-v7.0] to provide backward compatibility to older clients. For Geolocation Push fallback scenarios during a voice call, the procedures described in section 5.3 of [RCC.71-UP1.0] shall apply.

The technical implementation described in R12-24-37 of [RCC.71-UP1.0] is therefore replaced by the following:

> Requirement R12-22-4 shall be implemented locally on the device.

2.1.12 ID_RCC.71_1.0_12: Blacklist Handling

ID	ID_RCC.71_1.0_12
Title	Blacklist Handling
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 18.3.1
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

2.1.12.1 Issue Description

The client procedure for blacklist handling for 1-to-1 Chat messaging defined in section 3.3.4.1.1 of [RCC.07-v7.0] is not applicable for Universal Profile 1.0.

2.1.12.2 Expected Behaviour

The technical implementation described in requirement R18-17-13-1 of [RCC.71-UP1.0] shall be replaced by the following:

R18-17-13-1:

If the originator address is contained in the client local blacklist, the receiving client shall accept incoming requests for sessions and messages related for 1-to-1 or 1-to-Many Messaging services via the procedures defined for the technical enablers in section 5.3 of [RCC.71-UP1.0]. For 1-to-1 Chat, the procedure defined in section 3.3.4.1.1 [RCC.07-v7.0] is not applicable.

In this case, the client shall perform the procedures for reception of the message as defined for the corresponding service, including the procedures for delivery reporting. The client shall not notify the user and discard incoming messages. Consequently, the client procedures for sending of display notification is not applicable for incoming messages.

2.1.13 ID_RCC.71_1.0_13: Parameter encoding in HTTP URL for File Transfer fallback

ID	ID_RCC.71_1.0_13
Title	Parameter encoding in HTTP URL for File Transfer fallback
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Sections 7.3.2.4, 7.3.2.5.1 and 7.3.2.5.2
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

2.1.13.1 Issue Description

The definitions of parameters of the HTTP URL for File Transfer fallback provided in section 7.3.2.4 of [RCC.71-UP1.0] and the client processing of URLs contained in the HTTP content body defined in sections 7.3.2.5.1 and 7.3.2.5.1 of [RCC.71-UP1.0] lack clarity on the applied encoding rules.

2.1.13.2 Expected Behaviour

Parameters of the HTTP URL for File Transfer fallback are encoded using the application/x-www-form-urlencoded format as defined in [HTML4.0]. This definition shall replace the term "HTML form encoding" used in section 7.3.2.4 of [RCC.71-UP1.0].

In section 7.3.2.5.1 of [RCC.71-UP1.0], when sending a file to recipient with no File Transfer capability, the client shall not use the value of the "branded-url" element or the value of the "url" attribute of the HTTP content body literally but the URL contained in the respective element or attribute by removing escaping. For an example of the encoding of an URL in an xml attribute with escaping of the "&" character refer to ID_RCC.71_1.0_5: Sample HTTP Content Server response body.

In section 7.3.2.5.2 of [RCC.71-UP1.0], for the procedures for File Transfer fallback, the client shall not use the value of the "url" attribute of the HTTP content body literally but the URL contained in the attribute by removing escaping. For an example of the encoding of an URL in an xml attribute with escaping of the "&" character refer to ID_RCC.71_1.0_5: Sample HTTP Content Server response body. When adding parameters to the URL, the client shall append attributes to the query part of the URL using the application/x-www-form-urlencoded format as defined in [HTML4.0]. If no query part is present, the client shall add one first.

2.1.14 ID_RCC.71_1.0_14: Master Switch Behaviour

ID	ID_RCC.71_1.0_14
Title	Master Switch Behaviour
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 18.31

Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

2.1.14.1 Issue Description

R18-17-2 of [RCC.71-UP1.0] refers to RCS client modes that are no longer used in [RCC.07-v7.0] to which it refers. Furthermore, the procedures do not take into account whether the registration is shared with VoLTE.

2.1.14.2 Expected Behaviour

R18-17-2 of [RCC.71-UP1.0] shall be replaced with the following:

> The technical implementation of the requirements of US18-1 of [RCC.71-UP1.0] regarding Master Switch shall be provided by client via the following procedures:
>
> - If the user changes the value of the "Master Switch" from "ON" to "OFF", the client shall send a HTTP client configuration request with the "vers" parameter defined in [RCC.14-v3.0] set to the value stored for the local client configuration and the "rcs_state" parameter defined in [RCC.07-v7.0] to "-4". The client shall expect configuration server responses as defined for client configuration requests with positive integer values in the "vers" request parameter as defined in [RCC.14-v3.0] and process is accordingly. The client shall keep the lasts client configuration data locally stored.
> - If the validity of the configuration XML document expires or it receives a network request for client configuration as defined in section 3 of [RCC.14-v3.0] and the "Master Switch" is set to "OFF", then the clients shall send a HTTP client configuration request only if the current configuration XML document includes settings for services that are not affected by the “Master Switch” (e.g. VoLTE). In such a HTTP client configuration request the client shall set the "rcs_state" parameter defined in [RCC.07-v7.0] to "-4". If all services included in the current configuration XML document are affected by the “Master Switch”, the client shall not send a HTTP client configuration request. In all cases, the client shall keep the configuration data for services affected by the “Master Switch” locally stored.
> - If the user changes the value of the "Master Switch" from "OFF" to "ON" then the client shall send a HTTP client configuration request with the "vers" parameter defined in [RCC.14-v3.0] and the "rcs_state" parameter defined in [RCC.07-v7.0] to the version of the configuration XML document corresponding to the locally stored client configuration.
> - If the user changes the value of the "Master Switch" from "ON" to "OFF" and the client is not registered for VoLTE/VoWiFi then it shall terminate existing sessions and cancel existing requests for RCS services. Otherwise, the client shall terminate existing sessions and cancel existing requests only for services other than IP Voice Calls and IP Video Call and SMS over IP (see also section 2.9.1.4 of [RCC.07-v7.0]).
> - If the user changes the value of the "Master Switch" from "ON" to "OFF" and the client is registered for VoLTE/VoWiFi and the client is configured to share a

registration between RCS and Multimedia Telephony, then the client shall re-register in IMS with only the relevant ICSI and feature tags of [PRD-IR.92], [PRD-IR.94] respectively. Otherwise, the client shall de-register from the IMS for the registration related to the RCS services.

- If the user changes the value of the "Master Switch" from "OFF" to "ON" and the client is not registered for any of the IP Voice Call, IP Video Call or SMS over IP, then the client shall register in IMS for any supported and active RCS services.
- If the user changes the value of the "Master Switch" from "OFF" to "ON", and the client is registered for any of the IP Voice Call, IP Video Call or SMS over IP, then it shall re-register in IMS according to section 2.4.1 of [RCC.07-v7.0] to add the feature tags of any supported and active RCS services according to configuration.
- If the "Master Switch" is set to "OFF" and the client is registered in IMS for any of the IP Voice Call, IP Video Call or SMS over IP and
  - it receives an OPTIONS request it shall respond with 200 OK but no RCS feature tags in the contact header
  - it receives an INVITE or MESSAGE request with RCS feature tags in the accept-contact header, it shall respond with 480 Temporarily Unavailable.
- If the "Master Switch" is set to "OFF", and Backup & Restore as defined in section 9 of [RCC.71-UP1.0] is enabled then the client shall not synchronise with the common message store if a trigger as defined in section 4.1.6.8 of [RCC.07-v7.0] applies.
- If the user changes the value of the "Master Switch" from "ON" to "OFF", the RCS client shall log-out from a session with the Common Message Store.
- If the user changes the value of the "Master Switch" from "OFF" to "ON" and Backup & Restore as defined in section 9 of [RCC.71-UP1.0] is enabled then the RCS client shall take this as a trigger for synchronization with the Common Message Store.

2.1.15 ID_RCC.71_1.0_15: Message Revoke Clarification

ID	ID_RCC.71_1.0_15
Title	Message Revoke Clarification
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 5.3.5
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

2.1.15.1 Issue Description

The Conversation-ID and Contribution-ID header fields are not relevant for MessageRevoke and MessageRevokeResponse, so the procedures to set them need to be relaxed. In addition, the P-Preferred/Asserted-Service header needs to be set.

2.1.15.2 Expected Behaviour

The following clarifications shall apply to the steps under the fifth bullet in section 5.3.5 of [RCC.71-UP1.0]:

- Step 4 applies to the P-Preferred-Identity header;
- Step 7 applies to the MessageRevoke request, not the MessageRevokeResponse request;
- Step 9 shall be replaced with: shall include a Conversation-ID header and a Contribution-ID header and shall
    - if available, include the same Conversation-ID and Contribution-ID header field values that were used for the message being revoked; otherwise
    - generate and include new Conversation-ID and Contribution-ID header field values;
- a new step shall be added before step 10: shall include a P-Preferred-Service header with the CPM ICSI for Session Mode Messaging;

The following clarifications shall apply to the steps under the sixth bullet in section 5.3.5 of [RCC.71-UP1.0]:

- Step 4 applies to the P-Preferred-Identity header;
- Step 8 shall be replaced with: shall include a Conversation-ID header and a Contribution-ID header and shall
    - if available, include the same Conversation-ID and Contribution-ID header field values that were used for the message being revoked; otherwise
    - generate and include new Conversation-ID and Contribution-ID header field values;
- a new step shall be added before step 9: shall include a P-Preferred-Service header with the CPM ICSI for Session Mode Messaging.

2.1.16 ID_RCC.71_1.0_16: Configuration Document usage

ID	ID_RCC.71_1.0_16
Title	Configuration Document usage
Type	Requirement
Related spec and section	[RCC.71-UP1.0] Section 5.3.5
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.09.2018
Superseded by	

2.1.16.1 Issue Description

Based on interoperability testing, mistakes in the configuration document structure are fairly common and documents regularly include parameters for which inclusion adds no value.

2.1.16.2 Expected Behaviour

Table 2 provides an example configuration document for Universal Profile 1.0.

```
<?xml version="1.0"?>
<wap-provisioningdoc version="1.1">
  <characteristic type="VERS">
    <parm name="version" value="1"/>
    <parm name="validity" value="X"/>
  </characteristic>
  <characteristic type="TOKEN">
    <parm name="token" value="XXX"/>
  </characteristic>
  <characteristic type="APPLICATION">
    <parm name="AppID" value="ap2001"/>
    <parm name="Name" value="IMS Settings"/>
    <parm name="AppRef" value="IMS-Settings"/>
    <characteristic type="ConRefs">
      <characteristic type="Refs">
        <parm name="ConRef" value="dummy.apn"/>
      </characteristic>
    </characteristic>
    <parm name="PDP_ContextOperPref" value="0"/>
    <parm name="Timer_T1" value="2000"/>
    <parm name="Timer_T2" value="16000"/>
    <parm name="Timer_T4" value="17000"/>
    <parm name="Private_User_Identity" value="+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
    <characteristic type="Public_User_Identity_List">
      <characteristic type="Public_user_identities">
        <parm name="Public_User_Identity1"
value="sip:+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      </characteristic>
    </characteristic>
    <parm name="Home_network_domain_name" value="ims.mnc008.mcc123.pub.3gppnetwork.org"/>
    <characteristic type="Ext">
      <parm name="endUserConfReqId" value="sip:euc@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      <characteristic type="transportProto">
        <parm name="psSignalling" value="SIPoTCP"/>
        <parm name="psMedia" value="MSRP"/>
        <parm name="psRTMedia" value="RTP"/>
        <parm name="psSignallingRoaming" value="SIPoTCP"/>
        <parm name="psMediaRoaming" value="MSRP"/>
        <parm name="psRTMediaRoaming" value="RTP"/>
        <parm name="wifiSignalling" value="SIPoTLS"/>
        <parm name="wifiMedia" value="MSRPoTLS"/>
        <parm name="wifiRTMedia" value="RTP"/>
      </characteristic>
      <parm name="rcsVolteSingleRegistration" value="0"/>
      <characteristic type="Ext"/>
    </characteristic>
    <characteristic type="ICSI_List"/>
    <characteristic type="LBO_P-CSCF_Address">
      <characteristic type="LBO_P-CSCF_Addresses">
        <parm name="Address1" value="rcs.ims.mnc008.mcc123.pub.3gppnetwork.org"/>
```

```
      <parm name="AddressType1" value="FQDN"/>
    </characteristic>
  </characteristic>
  <parm name="Keep_Alive_Enabled" value="1"/>
  <parm name="RegRetryBaseTime" value="30"/>
  <parm name="RegRetryMaxTime" value="1800"/>
  <characteristic type="APPAUTH">
    <parm name="AuthType" value="Digest"/>
    <parm name="Realm" value="ims.mnc008.mcc123.pub.3gppnetwork.org"/>
    <parm name="UserName" value="+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
    <parm name="UserPwd" value="12346789"/>
  </characteristic>
</characteristic>
<characteristic type="APPLICATION">
  <parm name="AppID" value="ap2002"/>
  <parm name="Name" value="RCS settings"/>
  <parm name="AppRef" value="RCS-Settings"/>
  <characteristic type="IMS">
    <parm name="To-AppRef" value="IMS-Settings"/>
  </characteristic>
  <characteristic type="SERVICES">
    <parm name="presencePrfl" value="0"/>
    <parm name="ChatAuth" value="1"/>
    <parm name="GroupChatAuth" value="1"/>
    <parm name="ftAuth" value="0"/>
    <parm name="standaloneMsgAuth" value="1"/>
    <parm name="geolocPullAuth" value="0"/>
    <parm name="geolocPushAuth" value="1"/>
    <parm name="vsAuth" value="1"/>
    <parm name="isAuth" value="0"/>
    <parm name="rcsIPVoiceCallAuth" value="0"/>
    <parm name="rcsIPVideoCallAuth" value="0"/>
    <parm name="IR94VideoAuth" value="0"/>
    <parm name="composerAuth" value="1"/>
    <parm name="sharedMapAuth" value="1"/>
    <parm name="sharedSketchAuth" value="1"/>
    <parm name="postCallAuth" value="1"/>
    <parm name="IR51VoiceAuth" value="0"/>
    <parm name="IR51VideoAuth" value="0"/>
    <characteristic type="Ext">
      <characteristic type="DataOff">
        <parm name="rcsMessagingDataOff" value="1"/>
        <parm name="fileTransferDataOff" value="1"/>
        <parm name="smsoIPDataOff" value="1"/>
        <parm name="mmsDataOff" value="1"/>
        <parm name="contentShareDataOff" value="1"/>
        <parm name="volteDataOff" value="1"/>
        <parm name="ir94DataOff" value="1"/>
        <parm name="rcsIPVideoDataOff" value="1"/>
        <parm name="provisioningDataOff" value="1"/>
        <characteristic type="Ext"/>
      </characteristic>
    </characteristic>
  </characteristic>
  <characteristic type="PRESENCE">
    <characteristic type="VIPCONTACTS"/>
    <characteristic type="Ext"/>
  </characteristic>
```

```
    <characteristic type="XDMS">
      <characteristic type="Ext"/>
    </characteristic>
    <characteristic type="SUPL">
      <parm name="TextMaxLength" value="200"/>
      <characteristic type="Ext"/>
    </characteristic>
    <characteristic type="IM">
      <parm name="imMsgTech" value="1"/>
      <parm name="imCapAlwaysON" value="1"/>
      <parm name="imCapNonRCS" value="0"/>
      <characteristic type="GroupChatNonRCSWhitelist"/>
      <parm name="AutAccept" value="1"/>
      <parm name="imSessionStart" value="0"/>
      <parm name="AutAcceptGroupChat" value="1"/>
      <parm name="TimerIdle" value="330"/>
      <parm name="MaxSize" value="8192"/>
      <parm name="ChatRevokeTimer" value="300"/>
      <parm name="ftWarnSize" value="102400"/>
      <parm name="MaxSizeFileTr" value="102400"/>
      <parm name="MaxSizeFileTrIncoming" value="0"/>
      <parm name="ftAutAccept" value="1"/>
      <parm name="ftHTTPCSURI"
value="https://ftcontentserver.rcs.mnc008.mcc123.pub.3gppnetwork.org/content/"/>
      <parm name="ftHTTPCSUser" value="+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      <parm name="ftHTTPCSPwd" value="123456789"/>
      <parm name="ftDefaultMech" value="HTTP"/>
      <parm name="ftHTTPFallback" value="1"/>
      <characteristic type="Ext"/>
      <parm name="pres-srv-cap" value="0"/>
      <parm name="deferred-msg-func-uri" value="sip:foo@bar"/>
      <parm name="max_adhoc_group_size" value="100"/>
      <parm name="conf-fcty-uri" value="sip:Conference-
Factory@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      <parm name="exploder-uri" value="sip:exploder@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      <parm name="conv-hist-func-uri" value="sip:foo@bar"/>
      <parm name="deferred-msg-func-uri" value="sip:foo@bar"/>
      <parm name="msg-store-uri" value="sip:foo@bar"/>
    </characteristic>
    <characteristic type="CPM">
      <characteristic type="StandaloneMsg">
        <parm name="MaxSize" value="1048576"/>
      </characteristic>
      <characteristic type="Ext"/>
    </characteristic>
    <characteristic type="CAPDISCOVERY">
      <parm name="disableInitialAddressBookScan" value="0"/>
      <parm name="pollingPeriod" value="0"/>
      <parm name="pollingRatePeriod" value="0"/>
      <parm name="pollingRate" value="0"/>
      <parm name="capInfoExpiry" value="2592000"/>
      <parm name="nonRCScapInfoExpiry" value="2592000"/>
      <parm name="defaultDisc" value="0"/>
      <characteristic type="CapDiscoveryWhiteList">
        <characteristic type="CapDiscoveryAllowedPrefixes">
          <parm name="Prefix1" value="!^(\+|00)(?!(32))\d*"/>
          <parm name="Prefix2" value="!^(0|0032|\+32)4(5|6|7|8|9)\d{7}"/>
       </characteristic>
```

```
    </characteristic>
    <characteristic type="Ext"/>
   </characteristic>
   <characteristic type="APN">
    <characteristic type="EXT"/>
   </characteristic>
   <characteristic type="OTHER">
    <parm name="allowVSSave" value="0"/>
    <parm name="MaxTimeVideoShare" value="600"/>
    <parm name="callComposerTimerIdle" value="180"/>
    <characteristic type="Ext"/>
   </characteristic>
   <characteristic type="SERVICEPROVIDEREXT"/>
   <characteristic type="UX">
    <parm name="messagingUX" value="0"/>
    <parm name="userAliasAuth" value="1"/>
    <parm name="videoAndEnCallUX" value="0"/>
    <parm name="IR51SwitchUx" value="0"/>
    <parm name="msgFBDefault" value="0"/>
    <parm name="ftFBDefault" value="0"/>
    <parm name="callLogsBearerDiffer" value="0"/>
    <characteristic type="Ext"/>
   </characteristic>
   <characteristic type="clientControl">
    <parm name="reconnectGuardTimer" value="100"/>
    <parm name="cfsTrigger" value="0"/>
    <parm name="max1toManyRecipients" value="100"/>
    <parm name="1toManySelectedTech" value="0"/>
    <parm name="displayNotificationSwitch" value="0"/>
    <parm name="ftMax1ToManyRecipients" value="100"/>
    <parm name="serviceAvailabilityInfoExpiry" value="60"/>
    <characteristic type="Ext"/>
   </characteristic>
  </characteristic>
</wap-provisioningdoc>
```

Table 2: Example Universal Profile 1.0 Configuration document

The following should be noted about this example:

- Most importantly that this is just an example
  - Some values have been arbitrarily chosen and this is therefore not intended to reflect a configuration for an actual deployment
  - Many services are enabled (e.g. Standalone Messaging) to allow reflecting the location of the configuration parameters related to those services in the example. That doesn't reflect any expectation with regards to them being enabled in actual deployments.
  - It reflects a configuration with separate registrations using SIP OPTIONS for capability discovery because that is a common deployment and other choices would add more parameters without much additional example value.
- While parameters with their value set to the default value defined for that parameter are included for illustrative purposes, doing so is not recommended for actual deployments because it would require more resources in client and network to

transmit and process the document and because it creates more possibilities for mistakes.

- The following aspects from this example are specifically highlighted:
  - Only one entry is included in the Public_User_Identity_List because additional entries wouldn't be used. The client would learn about any additional IMPUs through the P-Associated-URI header field in the response to the SIP REGISTER request and use those as defined in section 2.5.3.3 of [RCC.07-v7.0].
  - For the CapDiscoveryAllowedPrefixes it is recommended to work with regular expressions as shown in the example, especially for allowing international numbers to avoid that the list becomes unmanageably large when more interconnects are added.
  - The position of the rcsVolteSingleRegistration parameter.

2.2 RCC.71 Version 2.0 and Version 2.1

This section contains solutions for issues found in [RCC.71-UP2.0]. Any issue found in [RCC.71-UP2.0] also applies to [RCC.71v2.1-UP2.0].

2.2.1 ID_RCC.71_2.0_1: Voice and Video Control Parameters

ID	ID_RCC.71_2.0_1
Title	Voice and Video Control Parameters
Type	Requirement
Related spec and section	[RCC.71-UP2.0] Sections 10.3.2, 10.3.3, 11.3.2, 12.3, 18.3.1, Annex C
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

2.2.1.1 Issue Description

The client configuration parameters to control IR.51 voice and video and IR.94 video of the RCS services tree are replaced by the standard mechanism described in IR.51 and IR.94.

2.2.1.2 Expected Behaviour

The technical implementation of user stories and requirements shall be changed as follows:

Section 10.3.2 of [RCC.71-UP2.0]:

- In Table 15 of [RCC.71-UP2.0], RCS usage of the configuration parameter IR51 SWITCH UX, the configuration parameter becomes mandatory and relevant if the configuration parameter Media_type_restriction_policy defined in section B.3 of [IR.51-v5.0] enables Voice and/or Video over EPC integrated Wi-Fi. The reference to the configuration parameters PROVIDE IR51 VOICE and PROVIDE IR51 VIDEO is not applicable.

- In Table 15, the configuration parameter CALL LOGS BEARER DIFFERENTIATION is applicable when the configuration parameter Media_type_restriction_policy defined in section B.3 of [IR.51-v5.0] enables Voice over EPC integrated Wi-Fi. The reference to the configuration parameter PROVIDE IR51 VOICE is not applicable.

Section 10.3.3 of [RCC.71-UP2.0]:

- Requirement R10-15-7 is replaced by the following:
  Requirement R10-4-1 shall be fulfilled by configuring the configuration parameter Media_type_restriction_policy defined in section B.3 of [IR.51-v5.0]

- Requirement R10-15-9 is replaced by the following:
  Requirements R10-5-1, R10-5-2 and R10-5-3 shall be fulfilled based on the configuration parameter Media_type_restriction_policy defined in section B.3 of [IR.51-v5.0] and IR51 SWITCH UX parameter defined in section 10.3.2.

Section 11.3.2 of [RCC.71-UP2.0]:

- For Requirement R11-18-5, the IR.94 conversational video is enabled/disabled by configuring the configuration parameter Media_type_restriction_policy defined in section C.3 of [IR.94-v12.0]. The reference to the configuration parameter PROVIDE IR94 VIDEO is not applicable.

- Requirement R11-18-7 is replaced by the following:
  Requirement R11-4-1 is fulfilled based on the configuration parameter Media_type_restriction_policy defined in section B.3 of [IR.51-5.0].

Section 12.3 of [RCC.71-UP2.0]:

- For Requirement R12-1-5-1, to enable Video over LTE, the RCS Service Provider shall use the configuration parameter Media_type_restriction_policy defined in section C.3 of [IR.94-v12.0]. The reference to the configuration parameter PROVIDE IR94 is not applicable. To enable Video over EPC-integrated Wi-Fi, the RCS Service Provider shall use configuration parameter Media_type_restriction_policy defined in section C.3 of [IR.94-v12.0] and section B.3 of [IR.51-v5.0]. The reference to the configuration parameters PROVIDE IR51 VOICE and PROVIDE IR51 VIDEO is not applicable.

Section 18.3.1 of [RCC.71-UP2.0]:

- Requirement R18-18-4, the RCS Service Provider is able to activate IP Video Call on the device via the configuration parameter Media_type_restriction_policy defined in section B.3 of [IR.51-v5.0] by enabling Voice over EPC integrated Wi-Fi. The reference to configuration parameter PROVIDE IR51 VOICE is not applicable.

Annex C:

- A new configuration parameter for IMS configuration is added to Table 56 of [RCC.71-UP2.0]:

Parameter	Functional Definition	Syntax Definition for transport using [RCC.14]	Client Configurability	Aligned Value for this profile
Media_type_ restriction_ policy	[3GPP TS 24.167]	[RCC.15]	RCS Service Provider Configurable	

- In Table 56 of [RCC.71-UP2.0], the configuration parameters PROVIDE IR94 VIDEO, PROVIDE IR51 VOICE and PROVIDE IR51 VIDEO for IP Voice and Video Call configuration are deleted.

2.2.2 ID_RCC.71_2.0_2 Master Switch Behaviour

ID	ID_RCC.71_2.0_2
Title	Master Switch Behaviour
Type	Requirement
Related spec and section	[RCC.71-UP2.0] Section 18.3.1 Annex C
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

2.2.2.1 Issue Description

R18-18-2 of [RCC.71-UP2.0] refers to RCS client modes that are no longer used in [RCC.07-v8.0] to which it refers. Furthermore, the procedures do not take into account whether the registration is shared with VoLTE.

2.2.2.2 Expected Behaviour

R18-18-2 of [RCC.71-UP2.0] shall be replaced with the following:

> The technical implementation of the requirements of US18-1 of [RCC.71-UP2.0] regarding Master Switch shall be provided by client via the following procedures:
>
> - If the user changes the value of the "Master Switch" from "ON" to "OFF", the client shall send a HTTP client configuration request with the "vers" parameter defined in [RCC.14-v5.0] set to the value stored for the local client configuration and the "rcs_state" parameter defined in [RCC.07-v8.0] to "-4". The client shall expect configuration server responses as defined for client configuration requests with positive integer values in the "vers" request parameter as defined in [RCC.14-v5.0] and process is accordingly. The client shall keep the lasts client configuration data locally stored.
> - If the validity of the configuration XML document expires or it receives a network request for client configuration as defined in section 3 of [RCC.14-v5.0] and the "Master Switch" is set to "OFF", then the clients shall send a HTTP client

configuration request only if the current configuration XML document includes settings for services that are not affected by the “Master Switch” (e.g. VoLTE). In such a HTTP client configuration request the client shall set the "rcs_state" parameter defined in [RCC.07-v8.0] to "-4". If all services included in the current configuration XML document are affected by the “Master Switch”, the client shall not send a HTTP client configuration request. In all cases, the client shall keep the configuration data for services affected by the “Master Switch” locally stored.

- If the user changes the value of the "Master Switch" from "OFF" to "ON" then the client shall send a HTTP client configuration request with the "vers" parameter defined in [RCC.14-v5.0] and the "rcs_state" parameter defined in [RCC.07-v8.0] to the version of the configuration XML document corresponding to the locally stored client configuration.
- If the user changes the value of the "Master Switch" from "ON" to "OFF" and the client is not registered for VoLTE/VoWiFi then it shall terminate existing sessions and cancel existing requests for RCS services. Otherwise, the client shall terminate existing sessions and cancel existing requests only for services other than IP Voice Calls and IP Video Call and SMS over IP (see also section 2.8.1.4 of [RCC.07-v8.0]).
- If the user changes the value of the "Master Switch" from "ON" to "OFF" and the client is registered for VoLTE/VoWiFi and the client is configured to share a registration between RCS and Multimedia Telephony, then the client shall re-register in IMS with only the relevant ICSI and feature tags of [PRD-IR.92], [PRD-IR.94] respectively. Otherwise, the client shall de-register from the IMS for the registration related to the RCS services.
- If the user changes the value of the "Master Switch" from "OFF" to "ON" and the client is not registered for any of the IP Voice Call, IP Video Call or SMS over IP, then the client shall register in IMS for any supported and active RCS services.
- If the user changes the value of the "Master Switch" from "OFF" to "ON", and the client is registered for any of the IP Voice Call, IP Video Call or SMS over IP, then it shall re-register in IMS according to section 2.4.1 of [RCC.07-v8.0] to add the feature tags of any supported and active RCS services according to configuration.
- If the "Master Switch" is set to "OFF" and the client is registered in IMS for any of the IP Voice Call, IP Video Call or SMS over IP and

  - it receives an OPTIONS request it shall respond with 200 OK but no RCS feature tags in the contact header
  - it receives an INVITE or MESSAGE request with RCS feature tags in the accept-contact header, it shall respond with 480 Temporarily Unavailable.

- If the "Master Switch" is set to "OFF", and Backup & Restore as defined in section 9 of [RCC.71-UP2.0] is enabled then the client shall not synchronise with the common message store if a trigger as defined in section 4.1.11.8 of [RCC.07-v8.0] applies.
- If the user changes the value of the "Master Switch" from "ON" to "OFF", the RCS client shall log-out from a session with the Common Message Store.
- If the user changes the value of the "Master Switch" from "OFF" to "ON" and Backup & Restore as defined in section 9 of [RCC.71-UP2.0] is enabled then the

RCS client shall take this as a trigger for synchronization with the Common Message Store.

2.2.3 ID_RCC.71_2.0_3 CPIM Header Extension Support Mechanism

ID	ID_RCC.71_2.0_3
Title	CPIM Header Extension Support Mechanism
Type	Requirement
Related spec and section	[RCC.71v2.1-UP2.0] Annex D: D.8, D.9
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.03.2018
Superseded by	

2.2.3.1 Issue Description

ID_RCC.07_8.0_14: CPIM Header Extension Support Mechanism introduces a compatibility mechanism for CPIM header extensions. This correction defines the applicability of the mechanism to modules of the Universal Profile 2.0 implementation defined in Annex D of [RCC.71v2.1-UP2.0].

2.2.3.2 Expected Behaviour

The following additional requirement shall be added to section D.8 of [RCC.71v2.1-UP2.0]:

- The correction ID_RCC.07_8.0_14: CPIM Header Extension Support Mechanism applies.

The following additional requirement shall be added to section D.9 of [RCC.71v2.1-UP2.0]:

- The correction ID_RCC.07_8.0_14: CPIM Header Extension Support Mechanism applies.

2.2.4 ID_RCC.71_2.0_4 Privacy requirements updated

ID	ID_RCC.71_2.0_4
Title	Privacy requirements updated
Type	Requirement
Related spec and section	[RCC.71v2.1-UP2.0] section 15.2, Annex D.4.2 and Annex D.4.4
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

2.2.4.1 Issue Description

Requirements R15-2-1 to R15-2-6 for privacy in section 15.2 of [RCC.71v2.1-UP2.0] have been updated and the technical implementation of those requirements referenced in R15-8-2

in section 15.2.1 of [RCC.71v2.1-UP2.0] shall not be used and shall be replaced by the technical implementation defined in R15-9-2 of [RCC.71v2.2-UP2.2].

2.2.4.2 Expected Behaviour

The technical implementation in R15-8-2 of [RCC.71v2.1-UP2.0] for requirements R15-2-1 to R15-2-6 for user story US15-2 shall use the technical realization defined in [RCC.07-v9.0]. The PRIVACY DISABLE configuration parameter defined in [RCC.71v2.1-UP2.0] shall be set to 1 if the technical implementation of the Anonymization Function as defined in R15-9-2 of [RCC.71v2.2-UP2.2] is not available.

2.2.5 ID_RCC.71_2.0_5 Configuration Document usage

ID	ID_RCC.71_2.0_5
Title	Configuration Document usage
Type	Requirement
Related spec and section	[RCC.71v2.1-UP2.0] Annex C
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	26.09.2018 (Updated 16.12.2019)
Superseded by	

2.2.5.1 Issue Description

Based on interoperability testing, mistakes in the configuration document structure are fairly common and documents regularly include parameters for which inclusion adds no value.

2.2.5.2 Expected Behaviour

Table 3 provides an example configuration document for Universal Profile 2.0.

```
<?xml version="1.0"?>
<wap-provisioningdoc version="1.1">
  <characteristic type="VERS">
    <parm name="version" value="1"/>
    <parm name="validity" value="X"/>
  </characteristic>
  <characteristic type="TOKEN">
    <parm name="token" value="XXX"/>
  </characteristic>
  <characteristic type="USER">
    <parm name="msisdn" value="3246123123"/>
  </characteristic>
  <characteristic type="APPLICATION">
    <parm name="AppID" value="urn:oma:mo:ext-3gpp-ims:1.0"/>
    <characteristic type="3GPP_IMS">
      <parm name=”AppID” value=”ap2001”/>
      <parm name="Name" value="IMS Settings"/>
      <characteristic type="ConRefs">
        <characteristic type="NODE">
          <parm name="ConRef" value="dummy.apn"/>
        </characteristic>
      </characteristic>
```

```
      <parm name="PDP_ContextOperPref" value="0"/>
      <parm name="Timer_T1" value="2000"/>
      <parm name="Timer_T2" value="16000"/>
      <parm name="Timer_T4" value="17000"/>
      <parm name="Private_User_Identity"
value="+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      <characteristic type="Public_User_Identity_List">
        <characteristic type="NODE">
          <parm name="Public_User_Identity"
value="sip:+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
        </characteristic>
      </characteristic>
      <parm name="Home_network_domain_name" value="ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      <characteristic type="Ext">
        <characteristic type="GSMA">
          <parm name="AppRef" value="IMS-Settings"/>
          <parm name="AuthType" value="Digest"/>
          <parm name="Realm" value="ims.mnc008.mcc123.pub.3gppnetwork.org"/>
          <parm name="UserName" value="+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
          <parm name="UserPwd" value="12346789"/>
          <parm name="endUserConfReqId" value="sip:euc@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
          <characteristic type="transportProto">
            <parm name="psSignalling" value="SIPoTCP"/>
            <parm name="psMedia" value="MSRP"/>
            <parm name="psRTMedia" value="RTP"/>
            <parm name="psSignallingRoaming" value="SIPoTCP"/>
            <parm name="psMediaRoaming" value="MSRP"/>
            <parm name="psRTMediaRoaming" value="RTP"/>
            <parm name="wifiSignalling" value="SIPoTLS"/>
            <parm name="wifiMedia" value="MSRPoTLS"/>
            <parm name="wifiRTMedia" value="SRTP"/>
          </characteristic>
          <parm name="rcsVolteSingleRegistration" value="0"/>
          <characteristic type="Ext"/>
        </characteristic>
      </characteristic>
      <characteristic type="ICSI_List" />
      <characteristic type="LBO_P-CSCF_Address">
        <characteristic type="NODE">
          <parm name="Address" value="rcs.ims.mnc008.mcc123.pub.3gppnetwork.org"/>
          <parm name="AddressType" value="FQDN"/>
        </characteristic>
      </characteristic>
      <parm name="Keep_Alive_Enabled" value="1"/>
      <parm name="RegRetryBaseTime" value="30"/>
      <parm name="RegRetryMaxTime" value="1800"/>
    </characteristic>
  </characteristic>
  <characteristic type="APPLICATION">
    <parm name="AppID" value="ap2002"/>
    <parm name="Name" value="RCS settings"/>
    <parm name="AppRef" value="RCS-Settings"/>
     <parm name="To-AppRef" value="IMS-Settings"/>
    <characteristic type="SERVICES">
      <parm name="SupportedRCSVersions" value="7.0"/>
      <parm name="SupportedRCSProfileVersions" value="UP_2.0"/>
      <parm name="ChatAuth" value="1"/>
      <parm name="GroupChatAuth" value="1"/>
```

```
      <parm name="ftAuth" value="0"/>
      <parm name="standaloneMsgAuth" value="1"/>
      <parm name="geolocPushAuth" value="1"/>
      <parm name="vsAuth" value="1"/>
      <parm name="rcsIPVoiceCallAuth" value="0"/>
      <parm name="rcsIPVideoCallAuth" value="0"/>
      <parm name="composerAuth" value="1"/>
      <parm name="sharedMapAuth" value="1"/>
      <parm name="sharedSketchAuth" value="1"/>
      <parm name="postCallAuth" value="1"/>
      <characteristic type="Ext">
        <characteristic type="DataOff">
          <parm name="rcsMessagingDataOff" value="1"/>
          <parm name="fileTransferDataOff" value="1"/>
          <parm name="smsoIPDataOff" value="1"/>
          <parm name="mmsDataOff" value="1"/>
          <parm name="contentShareDataOff" value="1"/>
          <parm name="preAndPostCallDataOff" value="1"/>
          <parm name="volteDataOff" value="1"/>
          <parm name="IPVideoCallDataOff" value="1"/>
          <parm name="provisioningDataOff" value="1"/>
          <parm name="syncDataOff" value="X"/>
          <characteristic type="Ext"/>
        </characteristic>
      </characteristic>
    </characteristic>
    <characteristic type="PRESENCE">
    </characteristic>
    <characteristic type="MESSAGING">
      <characteristic type="StandaloneMsg">
        <parm name="MaxSizeStandalone" value="1048576"/>
        <parm name="exploder-uri" value="sip:exploder@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      </characteristic>
      <characteristic type="Chat">
        <parm name="max_adhoc_group_size" value="100"/>
        <parm name="conf-fcty-uri" value="sip:Conference-
Factory@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
        <parm name="AutAccept" value="1"/>
        <parm name="AutAcceptGroupChat" value="1"/>
        <parm name="TimerIdle" value="330"/>
        <parm name="MaxSize" value="8192"/>
        <parm name="ChatRevokeTimer" value="300"/>
        <parm name="reconnectGuardTimer" value="100"/>
        <parm name="cfsTrigger" value="0"/>
      </characteristic>
      <parm name="max1ToManyRecipients" value="100"/>
      <parm name="1toManySelectedTech" value="0"/>
      <parm name="displayNotificationSwitch" value="0"/>
      <characteristic type="FileTransfer">
        <parm name="ftWarnSize" value="10240"/>
        <parm name="MaxSizeFileTr" value="102400"/>
        <parm name="ftAutAccept" value="1"/>
        <parm name="ftHTTPCSURI"
value="https://ftcontentserver.rcs.mnc008.mcc123.pub.3gppnetwork.org/content/"/>
        <parm name="ftHTTPDLURI" value="https://dl.rcs.mnc008.mcc123.pub.3gppnetwork.org/content/"/>
        <parm name="ftHTTPCSUser" value="+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
        <parm name="ftHTTPCSPwd" value="123456789"/>
        <parm name="ftHTTPFallback" value="1"/>
```

```
      <parm name="ftMax1ToManyRecipients" value="X"/>
    </characteristic>
    <characteristic type="Chatbot">
      <parm name="ChatbotDirectory" value="https://directory.rcs.mnc008.mcc123.pub.3gppnetwork.org/"/>
      <parm name="BotinfoFQDNRoot" value="botinforoot.rcs.mnc008.mcc123.pub.3gppnetwork.org/"/>
      <parm name="ChatbotBlacklist"
value="https://chatbotblacklist.rcs.mnc008.mcc123.pub.3gppnetwork.org/"/>
      <parm name="MsgHistorySelectable" value="0"/>
      <parm name="PrivacyDisable" value="1"/>
    </characteristic>
    <characteristic type="MessageStore">
      <parm name="MsgStoreUrl" value="https://msg-store.rcs.mnc008.mcc123.pub.3gppnetwork.org/"/>
      <parm name="MsgStoreNotifUrl" value="https://msg-store.rcs.mnc008.mcc123.pub.3gppnetwork.org/"/>
      <parm name="MsgStoreAuth" value="2"/>
      <parm name="MsgStoreUserName"
value="+3246123123@ims.mnc008.mcc123.pub.3gppnetwork.org"/>
      <parm name="MsgStoreUserPwd" value="123456789"/>
      <parm name="EventRpting" value="1"/>
      <parm name="AuthArchive" value="1"/>
      <parm name="SMSStore" value="2"/>
      <parm name="MMSStore" value="2"/>
    </characteristic>
    <characteristic type="Plugins">
      <parm name="catalogURI" value="https://plugin-catalog.rcs.mnc008.mcc123.pub.3gppnetwork.org/"/>
    </characteristic>
    <characteristic type="Ext"/>
  </characteristic>
  <characteristic type="CAPDISCOVERY">
    <parm name="disableInitialAddressBookScan" value="0"/>
    <parm name="capInfoExpiry" value="2592000"/>
    <parm name="nonRCScapInfoExpiry" value="2592000"/>
    <parm name="serviceAvailabilityInfoExpiry" value="60"/>
    <parm name="defaultDisc" value="0"/>
    <characteristic type="CapDiscoveryWhiteList">
      <characteristic type="CapDiscoveryAllowedPrefixes">
        <parm name="Prefix1" value="!^(\+|00)(?!(32))\d*"/>
        <parm name="Prefix2" value="!^(0|0032|\+32)4(5|6|7|8|9)\d{7}"/>
        <parm name="Prefix3" value="!^\d{4}"/>
     </characteristic>
    </characteristic>
    <characteristic type="Ext"/>
  </characteristic>
  <characteristic type="APN">
    <characteristic type="EXT"/>
  </characteristic>
  <characteristic type="OTHER">
    <parm name="MaxTimeVideoShare" value="600"/>
    <parm name="callComposerTimerIdle" value="180"/>
    <characteristic type="Ext"/>
  </characteristic>
  <characteristic type="SERVICEPROVIDEREXT"/>
  <characteristic type="UX">
    <parm name="messagingUX" value="0"/>
    <parm name="msgTDSwitch" value="0"/>
    <parm name="userAliasAuth" value="1"/>
    <parm name="spamNotificationText" value="This is considered to be a spam sender and cannot be
contacted."/>
    <parm name="videoAndEnCallUX" value="0"/>
```

```
    <parm name="IR51SwitchUx" value="0"/>
    <parm name="msgFBDefault" value="0"/>
    <parm name="ftFBDefault" value="0"/>
    <parm name="callLogsBearerDiffer" value="0"/>
    <characteristic type="Ext"/>
   </characteristic>
  </characteristic>
</wap-provisioningdoc>
```

Table 3: Example Universal Profile 2.0 Configuration document

The following should be noted about this example:

- Most importantly that this is just an example
  - some values have been arbitrarily chosen and this therefore is not intended to reflect a configuration for an actual deployment
  - many services are enabled (e.g. Standalone Messaging, Message Store, Plugins) to allow reflecting the location of the configuration parameters related to those services in the example. That doesn't reflect any expectation with regards to them being enabled in actual deployments.
  - It reflects a configuration with separate registrations using SIP OPTIONS for capability discovery because that is a common deployment and other choices would add more parameters without much additional example value.
- While parameters with their value set to the default value defined for that parameter are included for illustrative purposes, doing so is not recommended for actual deployments because it would require more resources in client and network to transmit and process the document and because it creates more possibilities for mistakes.
- The document is assumed to be provided by the default Configuration Server and must thus include a USER characteristic as specified in section 4.2 of [RCC.14-v5.0].
- The following aspects from this example are specifically highlighted:
  - Only one entry is included in the Public_User_Identity_List because additional entries wouldn't be used. The client would learn about any additional IMPUs through the P-Associated-URI header field in the response to the SIP REGISTER request and use those as defined in section 2.5.3.3 of [RCC.07-v8.0];
  - For the CapDiscoveryAllowedPrefixes it is recommended to work with regular expressions, especially for allowing international numbers to avoid that the list becomes unmanageably large when more interconnects are added.

2.2.6 ID_RCC.71_2.0_6: Message Store Message Direction

ID	ID_RCC.71_2.0_6
Title	Message Store Message Direction
Type	Requirement
Related spec and section	[RCC.71-UP2.0] Section 5.3.5

Applicable Universal Profile release	Universal Profile v2.0/Universal Profile v2.1
Publication Date	18.12.2018
Superseded by	

2.2.6.1 Issue Description

See section 2.3.1.1.

2.2.6.2 Expected Behaviour

See section 2.1.3.2 whereby the references to [RCC.71v2.2-UP2.2] and [RCC.11-v7.0] shall be replaced with references to [RCC.71-UP2.0] and [RCC.11-v6.0] respectively.

2.2.7 ID_RCC.71_2.0_7: Auto Download Procedures

ID	ID_RCC.71_2.0_7
Title	Auto Download Procedures
Type	Requirement
Related spec and section	[RCC.71-UP2.0] Sections 7.3.3, 9.3.2, 15.2.1.3, 18.3.1
Applicable Universal Profile release	Universal Profile v2.0/Universal Profile v2.1
Publication Date	16.12.2019
Superseded by	

2.2.7.1 Issue Description

The requirements for the client to download media objects received in File Transfer messages and in Rich cards are ambiguous.

2.2.7.2 Expected Behaviour

In R18-18-10 of [RCC.71-UP2.0] it is clarified that the user setting for auto acceptance apply for files received via the File Transfer service and media objects received in Rich Cards as per user story US7-15 and the requirements R9-3-9, R15-8-7 and R15-8-36 of [RCC.71-UP2.0].

The Service Provider shall be able to provide the initial default value auto-acceptance via the configuration parameter the FT AUT ACCEPT defined in section A.1.4 of [RCC.07-v8.0]. Once the user has altered the settings, the value of FT AUT ACCEPT from the device configuration becomes irrelevant.

The Service Provider is able to provide a file size limit via the configuration parameter FT WARN SIZE defined in section A.1.4 of [RCC.07-v8.0] to control the auto acceptance for files in File Transfer and media objects in Rich Cards based on their size.

A file contained in a File Transfer or a media object in a Rich Card shall be downloaded depending on its file size, the access network, the user settings and the value of the configuration parameter FT WARN SIZE defined in section A.1.4 of [RCC.07-v8.0] as follows:

Auto Accept	**I**	**I**	**I**	**I**	**O**
Auto Accept when roaming	**O**	**O**	**I**	**I**	**O**
Warn Size	**0**	**>0**	**0**	**>0**	**any**
Cellular Access in the HPLMN	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	manual acceptance
Cellular Access in a VPLMN	manual acceptance	manual acceptance	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	manual acceptance
Non Cellular Access	auto acceptance	auto acceptance	auto acceptance	auto acceptance	manual acceptance

2.3 RCC.71 Version 2.2

This section contains solutions for issues found in [RCC.71v2.2-UP2.2].

2.3.1 ID_RCC.71_2.2_1: Message Store Message Direction

ID	ID_RCC.71_2.2_1
Title	Message Store Message Direction
Type	Requirement
Related spec and section	[RCC.71v2.2-UP2.2] Section 5.3.5
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	18.12.2018
Superseded by	

2.3.1.1 Issue Description

R5-28-36 of [RCC.71v2.2-UP2.2] refers to the Message Direction MIME header defined in PRD RCC.07. Given the use of a RESTful interface for the Message Store in Universal Profile 2.0 and later, NMS attributes need to be used instead.

2.3.1.2 Expected Behaviour

Message Direction shall be indicated on the RESTful interface towards the Message Store through the Direction attribute defined in [CPM-MSGSTOR-REST]. This means that R5-28-36 of [RCC.71v2.2-UP2.2] is changed to the following:

- For the requirements R5-12-2, R5-12-3 and R5-12-4 of [RCC.71v2.2-UP2.2] the client shall support the following procedure:

  - It is the responsibility of the Messaging Server to deliver chat messages in the correct order, so the Client can rely on it when sorting received messages. The client shall interleave the sent and received messages in the chronological order. The client shall interleave received messages based on the value of the CPIM Message-Direction header value (as referred to from section C.1.9 of [RCC.11-v7.0]) as sent or received or, if absent as received message. The client shall interleave client-originated messages as sent message.

After the client has synchronised with the Common Message Store successfully, then messages shall be sorted in accordance with the time indicated in the CPIM DateTime header value received with message from the Common Message Store. The client shall interleave messages based on the value of the Direction attribute defined in [CPM-MSGSTOR-REST].

2.3.2 ID_RCC.71_2.2_2: Auto Download Procedures

ID	ID_RCC.71_2.2_2
Title	Auto Download Procedures
Type	Requirement
Related spec and section	[RCC.71v2.2-UP2.2] Sections 7.3.3, 9.3.2, 15.2.1.3, 18.3.1
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

2.3.2.1 Issue Description

The requirements for the client to download media objects received in File Transfer messages and in Rich cards are ambiguous.

2.3.2.2 Expected Behaviour

In R18-18-10 of [RCC.71-UP2.2] it is clarified that the user setting for auto acceptance apply for files received via the File Transfer service and media objects received in Rich Cards as per user story US7-15 and the requirements R9-3-9, R15-8-7 and R15-8-36 of [RCC.71-UP2.2].

The Service Provider shall be able to provide the initial default value auto-acceptance via the configuration parameter the FT AUT ACCEPT defined in section A.1.4 of [RCC.07-v9.0]. Once the user has altered the settings, the value of FT AUT ACCEPT from the device configuration becomes irrelevant.

The Service Provider is able to provide a file size limit via the configuration parameter FT WARN SIZE defined in section A.1.4 of [RCC.07-v9.0] to control the auto acceptance for files in File Transfer and media objects in Rich Cards based on their size.

A file contained in a File Transfer or a media object in a Rich Card shall be downloaded depending on its file size, the access network, the user settings and the value of the configuration parameter FT WARN SIZE defined in section A.1.4 of [RCC.07-v9.0] as follows:

Auto Accept	**I**	**I**	**I**	**I**	**O**
Auto Accept when roaming	**O**	**O**	**I**	**I**	**O**
Warn Size	**0**	**>0**	**0**	**>0**	**any**
Cellular Access in the HPLMN	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	manual acceptance
Cellular Access in a VPLMN	manual acceptance	manual acceptance	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	manual acceptance
Non Cellular Access	auto acceptance	auto acceptance	auto acceptance	auto acceptance	manual acceptance

2.4 RCC.71 Version 2.3

This section contains solutions for issues found in [RCC.71v2.2-UP2.2].

2.4.1 ID_RCC.71_2.3_1: Auto Download Procedures

ID	ID_RCC.71_2.3_1
Title	Auto Download Procedures
Type	Requirement
Related spec and section	[RCC.71v2.2-UP2.2] Sections 7.3.3, 9.3.2, 15.2.1.3, 18.3.1
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

2.4.1.1 Issue Description

The requirements for the client to download media objects in received File Transfer messages and in Rich cards are ambiguous.

2.4.1.2 Expected Behaviour

In R18-18-10 of [RCC.71-UP2.3] it is clarified that the user setting for auto acceptance apply for files received via the File Transfer service and media objects received in Rich Cards as per user story US7-15 and the requirements R9-3-9, R15-8-7 and R15-8-36 of [RCC.71-UP2.3].

The Service Provider shall be able to provide the initial default value auto-acceptance via the configuration parameter the FT AUT ACCEPT defined in section A.1.4 of [RCC.07-v10.0]. Once the user has altered the settings, the value of FT AUT ACCEPT from the device configuration becomes irrelevant.

The Service Provider is able to provide a file size limit via the configuration parameter FT WARN SIZE defined in section A.1.4 of [RCC.07-v10.0] to control the auto acceptance for files in File Transfer and media objects in Rich Cards based on their size.

A file contained in a File Transfer or a media object in a Rich Card shall be downloaded depending on its file size, the access network, the user settings and the value of the configuration parameter FT WARN SIZE defined in section A.1.4 of [RCC.07-v10.0] as follows:

Auto Accept	**I**	**I**	**I**	**I**	**O**
Auto Accept when roaming	**O**	**O**	**I**	**I**	**O**
Warn Size	**0**	**>0**	**0**	**>0**	**any**
Cellular Access in the HPLMN	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	manual acceptance
Cellular Access in a VPLMN	manual acceptance	manual acceptance	auto acceptance	auto acceptance if "file size < warn size", otherwise manual acceptance	manual acceptance
Non Cellular Access	auto acceptance	auto acceptance	auto acceptance	auto acceptance	manual acceptance

3 Clarifications and Issue Solutions for RCS Services and Client Specification

3.1 RCC.07 Version 7.0

This section contains solutions for issues found in [RCC.07-v7.0].

3.1.1 ID_RCC.07_7.0_1: IMDN.Message-ID length

ID	ID_RCC.07_7.0_1
Title	IMDN.Message-ID length
Type	Requirement
Related spec and section	[RCC.11-v5.0] section 5.4 [RCC.07-v7.0] sections 3.2, 3.3, 3.4, 3.5 and 4.1
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

3.1.1.1 Issue Description

RFC5438 recommends a minimum but no maximum length for the Message-ID header which may be a cause for interoperability problems.

3.1.1.2 Expected Behaviour

The maximum length for the value of the IMDN.Message-ID header shall be 36 characters.

3.1.2 ID_RCC.07_7.0_2: File Transfer over HTTP: sender upload retries in error cases

ID	ID_RCC.07_7.0_2
Title	File Transfer over HTTP: sender upload retries in error cases
Type	Clarification
Related spec and section	[RCC.07-v7.0] section 3.5.4.8.3.1.1
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

3.1.2.1 Issue Description

The File Transfer over Hypertext Transfer Protocol (FToHTTP) upload resume procedures defined in section 3.5.4.8.3.1.1 of [RCC.07-v7.0] may fail in different steps of the procedures requiring different retry behaviour.

3.1.2.2 Expected Behaviour

The following clarifications to the procedures in section 3.5.4.8.3.1.1 in [RCC.07-v7.0] shall apply:

- If the “**Get upload info**" request fails with an error other than a Hypertext Transfer Protocol (HTTP) 404 or 410 error response then the client shall retry the “**Get upload info**" request.

- If the "**Resume upload**" request fails (content server response other than HTTP 200 OK) then the client shall retry by starting the section 3.5.4.8.3.1.1 Upload Resume procedure of [RCC.07-v7.0] anew.
- If the "**Get download info**" request fails (content server response other than HTTP 200 OK) then the client shall retry by starting the section 3.5.4.8.3.1.1 Upload Resume procedure of [RCC.07-v7.0] anew.
- Overall the client shall retry per file upload up to a maximum of three (3) times after which it is considered to be unsuccessful and no further automatic attempts will be done to transfer the remaining part of the file.

3.1.3 ID_RCC.07_7.0_3: MAX_AD-HOC_GROUP_SIZE parameter format

ID	ID_RCC.07_7.0_3
Title	MAX_AD-HOC_GROUP_SIZE parameter format
Type	Clarification
Related spec and section	[RCC.07-v7.0] section 3.5.4.8.3.1.1
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

3.1.3.1 Issue Description

The RCS 6.0 [RCC.07-v7.0] and Open Mobile Alliance (OMA) SIP for Instant Messaging and Presence Leveraging Extensions (SIMPLE) Instant Messaging (IM) [RCC.12-v5.0] specifications define MAX_AD-HOC_GROUP_SIZE configuration parameter with the dash between ‘AD’ and ‘HOC’ whereas the Tables 145 and 222 of A.2.6 and A.4 respectively in [RCC.07-v7.0] provide this parameter without the dash (e.g. max_adhoc_group_size) for the HTTP configuration document. As SIMPLE IM does not provide a mapping to the HTTP configuration there is no conflict and therefore the format to be used while performing HTTP provisioning is without dash, i.e. max_adhoc_group_size.

3.1.3.2 Expected Behaviour

The following text shall replace Table 145 in section A.2.6 of [RCC.07-v7.0]:

Table 145 defines the formal mapping of the OMA SIMPLE IM provisioning parameters [RCC.12-v5.0] to values to be used while performing HTTP provisioning. In most cases it is a one to one mapping, with upper case characters mapped to lowercase, and dashes preserved, but the MAX_AD-HOC_GROUP_SIZE parameter maps to *max_adhoc_group_size* (i.e. with underscores used, and without the dash between “ad” and “hoc”).

3.1.4 ID_RCC.07_7.0_4: Client Handling of Registration Requests

ID	ID_RCC.07_7.0_4
Title	Client Handling of Registration Requests
Type	Clarification

Related spec and section	[RCC.07-v7.0] section 2.4.1
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	02.06.2017
Superseded by	

3.1.4.1 Issue Description

Simultaneous processing of multiple registrations for a single user identity may lead to failure scenarios in a single IMS core configuration.

3.1.4.2 Expected Behaviour

If there is a trigger for an initial registration, re-registration or de-registration and if there is a SIP REGISTER request in progress for another registration, then the UE shall only initiate a new SIP REGISTER request when

- it has received a final response for the other SIP REGISTER request, or
- there has been an interruption, due to failure and reconnect, of the underlying signalling transport mechanism used for the other SIP REGISTER request, or
- the other SIP REGISTER request has timed out.

If there is no other SIP REGISTER request in progress the UE shall send the SIP REGISTER request when the trigger occurs.

3.1.5 ID_RCC.07_7.0_5: MessageRevoke failure indication

ID	ID_RCC.07_7.0_5
Title	MessageRevoke failure indication
Type	Clarification
Related spec and section	[RCC.07-v7.0] sections 3.2.3.10 [RCC.71-UP1.0] section 5.3.5
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

3.1.5.1 Issue Description

The procedure defined in [RCC.07-v7.0] section 3.3.4.9 and [RCC.71-UP1.0] section 5.3.5 may lead to the impression that if a MessageRevoke request has failed, the *result* element in the body of the MessageRevokeResponse request shall be set to “failed”. The XML schema for the MessageRevoke content-type defines only “success” or “failure” as allowed values for that element however.

3.1.5.2 Expected Behaviour

See section 3.2.3.2.

3.1.6 ID_RCC.07_7.0_6: Clarification of CAPABILITY DISCOVERY ALLOWED PREFIXES

ID	ID_RCC.07_7.0_6
Title	Clarification of CAPABILITY DISCOVERY ALLOWED PREFIXES
Type	Requirement
Related spec and section	[RCC.07-v7.0] section A.1.10, section A.2.8
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

3.1.6.1 Issue Description

The description of the client configuration parameter CAPABILITY DISCOVERY ALLOWED PREFIXES does not take the two methods for configuration, prefix and regex, into account.

3.1.6.2 Expected Behaviour

The description of the configuration parameter CAPABILITY DISCOVERY ALLOWED PREFIXES in section A.1.10 of [RCC.07-v7.0] shall be replaced by the following:

> The configuration parameter provides prefixes or rules to identify phone numbers contained in the address book or entered by the user which shall be considered for capability and new user discovery.
>
> If the configuration parameter is absent, all phone numbers shall be considered for capability and new user discovery.
>
> If a number shall be considered for capability and new user discovery, then the client shall invoke the procedures for capability and new user discovery in accordance with the definitions in section 2.6 of [RCC.07-v7.0].
>
> If a number shall not be considered for capability and new user discovery, the client shall not invoke the procedures for capability and new user discovery defined in section 2.6 of [RCC.07-v7.0] and shall consider the phone number as not RCS capable. If capability and new user discovery through SIP OPTIONS is applied, the client shall process received discovery request in accordance with the definitions in section 2.6.1.1 of [RCC.07-v7.0].
>
> The service provider should take the subscriber's HPLMN numbering scheme into account when defining the value of the configuration parameter.

The description of the value of the node

/<x>/CapDiscovery/CapDiscoveryWhiteList/<x>/Prefix

in section A.2.8 of [RCC.07-v7.0] shall be replaced by the following:

- The value can contain either a single prefix or a single regular expression for matching with phone numbers. If the phone number matches the prefix or the regular

expression, then the phone number shall be considered for capability and new user discovery. If the phone number does not match the prefix or regular expression, then the client shall match the phone number with the value of the next configuration parameter in the capability discovery white list. If the phone number matches with none of the values of the "Prefix" configuration parameters in the capability discovery white list, then the phone number shall not be considered for capability and new user discovery.

To match a phone number with prefixes and regular expressions, the client shall remove visual separators and white space from the input phone number string.

- The configuration parameter contains a prefix if the value consists of a number string, optionally preceded by a "+" character.
  The client shall match the phone number and the prefix contained in the configuration parameter by string match. The phone number matches, if there is a full match of the prefix with the beginning of the phone number string.

  Examples:
  +446
  +4479
  00446
  004479
  06
  079

- The configuration parameter contains a regular expression if the value starts with the "!" character. The subsequent string shall be interpreted by the client using Portable Operating System Interface (POSIX) extended regular expression (see [POSIX]). The phone number matches, if the application of the regular expression results in a non-empty string.
  Examples:
  !^(0044|0)(6|79)
  !\+44(6|79)\d*

3.1.7 ID_RCC.07_7.0_7: IMDN Clarification

ID	ID_RCC.07_7.0_7
Title	IMDN Clarification
Type	Requirement
Related spec and section	[RCC.07-v7.0] section 3.3.4.1
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

3.1.7.1 Issue Description

The procedures for delivering notifications when reopening an older chat are no longer correct since there is no longer a requirement to deliver IMDNs to the original device that sent the message.

3.1.7.2 Expected Behaviour

The following clarification to the third last main bullet in section 3.3.4.1 of [RCC.07-v7.0] about reopening an older chat on the device shall apply:

- When reopening an older chat on the device that contains messages for which a “display” notification should be sent, these notifications shall be sent according to the rules and procedures of [RCC.11-v5.0].

3.1.8 ID_RCC.07_7.0_8: Max Size Standalone parameter

ID	ID_RCC.07_7.0_8
Title	Max Size Standalone parameter
Type	Requirement
Related spec and section	[RCC.07-v7.0] sections A.2.6 and A.4
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

3.1.8.1 Issue Description

The example XML documents provided in sections A.2.7 and A.4 of [RCC.07-v7.0] use MaxSizeStandalone as name for the parameter controlling the maximum size of a CPM Standalone Message. The formal definition in section A.2.7 of [RCC.07-v7.0] defines that parameter name to be "MaxSize" though.

3.1.8.2 Expected Behaviour

The correct example structure for the StandaloneMsg characteristic shall be:

```
<characteristic type=”StandaloneMsg”>
        <parm name=”MaxSize” value=”X”/>
</characteristic>
```

3.1.9 ID_RCC.07_7.0_9: Presence service-id version update

ID	ID_RCC.07_7.0_9
Title	Presence service-id version update
Type	Requirement
Related spec and section	[RCC.07-v7.0] sections 2.6.1.2.5.1 and 2.6.1.3
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	05.06.2018

Superseded by	

3.1.9.1 Issue Description

The Presence service-id version for Chat and other services is not in alignment with OMA recommendations and also not consistent between other service-id's within RCC.07. Since OMA defines this value as xs:token rather than xs:decimal there are issues between clients and across NNI where one operator or client has implemented "2" and another as "2.0".

In previous versions of RCC.07 (e.g. RCS 5.3 and earlier), this value was "2.0" hence the recommendation is to update this value to be "2.0" again in order to be in alignment with OMA and other service-id's.

3.1.9.2 Expected Behaviour

When implementing Presence capability discovery based on section 2.6.1.2.5.1 and Table 8 in section 2.6.1.3 of [RCC.11-v6.0], the service-id value for these services shall be called version 2.0, not version 2. It should be as shown here:

Standalone Messaging

Service-id: *org.openmobilealliance:StandaloneMsg*
Version: 2.0

Session Mode Messaging/Chat

Service-id: *org.openmobilealliance:ChatSession*

Version: 2.0

File Transfer with Store and Forward

Service-id: *org.openmobilealliance:File-Transfer*
Version: 2.0

File Transfer Thumbnail

Service-id: *org.openmobilealliance:File-Transfer-thumb*
Version: 2.0

3.1.10 ID_RCC.07_7.0_10: User-Agent and Server header encoding

ID	ID_RCC.07_7.0_10
Title	User-Agent and Server header encoding
Type	Recommendation
Related spec and section	[RCC.07-v7.0]
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.09.2018
Superseded by	

3.1.10.1 Issue Description

It is desired to have a more granular indication of user agent characteristics present in SIP request and responses for various operational reasons. From RCS 8.0 onwards the indication of user agent characteristics is provided via formalised definitions of the SIP "User-Agent" and "Server" headers. It is recommended that client and network

implementations apply these definitions already when based on Universal Profile 1.0 as per expected behaviour below.

3.1.10.2 Expected Behaviour

If the implementation follows the recommendation, then clients and the network shall encode the "User-Agent" and "Server" header as defined in section 3.2.26using the Universal Profile 1.0 baseline.

3.1.11 ID_RCC.07_7.0_11: Remove automatic re-join for Group Chat

ID	ID_RCC.07_7.0_11
Title	Remove automatic re-join for Group Chat
Type	Requirement
Related spec and section	[RCC.07-v7.0] sections 3.4.6.1.10, 3.4.6.1.11 and B.1.16
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	18.12.2018
Superseded by	

3.1.11.1 Issue Description

It is the responsibility of the Participating Function of the Messaging Server to detect that a client regained connectivity, if Group Chat messages or events are stored for a Group Chat participant. Clients restarting Group Chat sessions to indicate their availability create unnecessary load in the Messaging Server.

3.1.11.2 Expected Behaviour

The client shall send a re-join request to a Group Chat only to process user requests while no Group Chat session exists, i.e. if a message need to be sent, if participants need to be added or if the user wants to leave the Group Chat. The use cases depicted in sections 3.4.6.1.10, 3.4.6.1.11 and B.1.16 of [RCC.07-v7.0] are not applicable for the client

3.2 RCC.07 Version 8.0

This section contains solutions for issues found in [RCC.07-v8.0].

3.2.1 ID_RCC.07_8.0_1: Voice and Video Control Parameters

ID	ID_RCC.07_8.0_1
Title	Voice and Video Control Parameters
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections A.1.11, A.1.14 and A.2.2
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017

Superseded by	

3.2.1.1 Issue Description

The client configuration parameters to control IR.51 voice and video and IR.94 video of the RCS services tree are replaced by the standard mechanism described in IR.51 and IR.94.

3.2.1.2 Expected Behaviour

The following changes shall apply:

Section A.1.11 of [RCC.07-v8.0]:

- In Table 87, the configuration parameters PROVIDE IR.94 VIDEO, PROVIDE IR51 VOICE and PROVIDE IR51 VIDEO are deleted.

Section A.1.14 of [RCC.07-v8.0]:

- In Table 89, RCS usage of the configuration parameter IP VIDEO CALL DATA OFF, the configuration parameter becomes mandatory on devices supporting VOLTE if VOLTE DATA OFF is set to 1 and the configuration parameter Media_type_restriction_policy defined in section C.3 of [IR.94-v12.0] enables Video over LTE or on devices where PROVIDE RCS IP VIDEO CALL is set to a value that is greater than 1. The reference to the configuration parameter PROVIDE IR94 is not applicable.

Section A.2.2 of [RCC.07-v8.0]:

- in Figure 19, the configuration parameters IR51VoiceAuth, IR51VideoAuth and IR94VideoAuth are deleted.
- in Table 93, the configuration parameters IR51VoiceAuth, IR51VideoAuth and IR94VideoAuth are deleted.
- the definitions of the following nodes are deleted:
  /<x>/Services/IR94VideoAuth
  /<x>/Services/IR51VoiceAuth
  /<x>/Services/IR51VideoAuth
- in Table 194, the configuration parameters IR51VoiceAuth, IR51VideoAuth and IR94VideoAuth are deleted.

3.2.2 ID_RCC.07_8.0_2: Parameter encoding in HTTP URL for File Transfer fallback

ID	ID_RCC.07_8.0_2
Title	Parameter encoding in HTTP URL for File Transfer fallback
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.2.5.7.3.1 and 3.2.5.7.3.2
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017

Superseded by	

3.2.2.1 Issue Description

The client processing of URLs contained in the HTTP content body defined in sections 3.2.5.7.3.1 and 3.2.5.7.3.2 of [RCC.07-v8.0] lacks clarity on the clarity on the applied encoding rules.

3.2.2.2 Expected Behaviour

In section 3.2.5.7.3.1 of [RCC.07-v8.0], when sending a file to recipient with no File Transfer capability, the client shall not use the value of the "branded-url" element or the value of the "url" attribute of the HTTP content body literally but the URL contained in the respective element or attribute.

In section 7.3.2.5.2 of [RCC.07-v8.0], for the procedures for File Transfer fallback, the client shall not use the value of the "url" attribute of the HTTP content body literally but the URL contained in the attribute. When adding parameters to the URL, the client shall append attributes to the query part of the URL using the application/x-www-form-urlencoded format as defined in [HTML4.0]. If no query part is present, the client shall add one first.

3.2.3 ID_RCC.07_8.0_3: MessageRevoke failure indication

ID	ID_RCC.07_8.0_3
Title	MessageRevoke failure indication
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.2.3.8.2
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

3.2.3.1 Issue Description

The procedure and example defined in [RCC.07-v8.0] section 3.2.3.8.2 may lead to the impression that if a MessageRevoke request has failed, the result element in the body of the MessageRevokeResponse request shall be set to “failed”. The XML schema for the MessageRevoke content-type defines only “success” or “failure” as allowed values for that element however.

3.2.3.2 Expected Behaviour

The <result> element in the body of the MessageRevokeResponse shall be set to “success” if the MessageRevoke request was successful and “failure” if it has failed.

3.2.4 ID_RCC.07_8.0_4: Aliasing clarifications

ID	ID_RCC.07_8.0_4
Title	Aliasing clarifications
Type	Requirement

Related spec and section	[RCC.07-v8.0] section 3.6.5.1.5.3
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

3.2.4.1 Issue Description

Two issues are corrected:

- When receiving a SIP request from a client, the AF shall, when needed, replace the URI representing the public User identity by the token, not only in From and P-Asserted-Identity headers but in any other SIP headers carrying the public User identity.
- The handling of the 200 OK with the 'aliason' on 'tk' parameter shall also be provided when the AF is collocated on the Chatbot Platform.

3.2.4.2 Expected Behaviour

The following text shall replace section 3.6.5.1.5.3 of [RCC.07-v8.0]:

Upon receiving a SIP request carrying the Chatbot IARI feature tag defined in section 3.6.2.1 of [RCC.07-v8.0] included in the Accept-Contact header field and without the Chatbot role as defined in section 3.6.2.3 of [RCC.07-v8.0] included in the Contact header, the AF:

1. shall retrieve the identities of the User and the Chatbot respectively from the P-Asserted-Identity and Request-URI headers;
2. shall check if the (User, Chatbot) pair is known;

    a) If the pair is not known, the AF shall create a token as per section 2.5.4.2 of [RCC.07-v8.0] and associate it with the (User, Chatbot) pair; otherwise
    b) if the pair is known, the AF shall use the information associated with the pair: either the existing token or the indication that no aliasing shall be done

When the AF is deployed in the Service Provider's network, it shall act as a SIP B2BUA with the following precisions. The AF:

1. if the AF settings indicate that a token has to be used, shall add an 'aliason' URI parameter as defined in section 2.5.4.3 of [RCC.07-v8.0] and a '*tk*' URI parameter set to 'on' to the URI in the P-Asserted-Identity of the SIP 200 OK that is sent back on the originating leg. Otherwise, the AF shall add a '*tk*' URI parameter set to 'off' to the URI in the P-Asserted-Identity of the SIP 200 OK that is sent back on the originating leg.
2. shall, if a token has to be used, replace the URI representing the public User identity in the From, P-Asserted-Identity and in any other SIP headers carrying the public User identity with the token (using the format defined in section 2.5.4.2 of [RCC.07-v8.0]), leaving all URI parameters untouched, in the received SIP request and forward it; otherwise
3. shall forward the SIP request unaltered.

When the AF is co-located on the Chatbot Platform, the 'aliason' and 'tk' URI parameters

shall also be added according to the rules provided in step 1 above.

3.2.5 ID_RCC.07_8.0_5: Responding to a Privacy Management Command

ID	ID_RCC.07_8.0_5
Title	Responding to a Privacy Management Command
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.5.1.5.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

3.2.5.1 Issue Description

The procedure defined in step 3 – b) of section 3.6.5.1.5.1 of [RCC.07-v8.0] is wrong. The address of the targeted Chatbot shall be taken from the 'To' header field of the received Privacy Management Command, not from the 'P-Asserted-Identity'.

In addition, the procedure to set the P-Asserted-Identity of the Privacy Management Response was missing

3.2.5.2 Expected Behaviour

The following text shall replace section 3.6.5.1.5.1 of [RCC.07-v8.0]:

When receiving a Privacy Management Command as specified in section 3.6.5.1.2 of [RCC.07-v8.0], the AF:

4. shall send a SIP 200 OK;
5. shall process the command according to Table 19 of [RCC.07-v8.0];
6. shall send a SIP MESSAGE request according to the rules and procedures of [RCC.11-v6.0] with the clarifications listed here. In this SIP MESSAGE request, the AF:

    a) shall set the Request-URI and To header fields to the address of the user that sent the Privacy Management Command;
    b) shall set the From header field to the address of the targeted Chatbot taken from the To header field of the received Privacy Management Command;
    c) shall include a P-Asserted-Identity header field set to the address of the targeted Chatbot taken from the To header field of the received Privacy Management Command;
    d) shall set the P-Preferred-Service header field with the value set to 'urn:urn-7:3gpp-service.ims.icsi.oma.cpm.systemmsg';
    e) shall include an Accept-Contact header field with the CPM Feature Tag 'urn:urn-7:3gpp-service.ims.icsi.oma.cpm.systemmsg';
    f) shall add another Accept-Contact header field carrying the Privacy Commands and Responses IARI tag defined in section 3.6.5.1.2 of [RCC.07-v8.0] along with the *require* and *explicit* parameters;
    g) shall include a User-Agent header field as specified in [RCC.11-v6.0];

h) shall include the Content-Type header field with the value set to *application/vnd.gsma.rcsalias-mgmt+xml*, as described in section 3.6.5.1.2 of [RCC.07-v8.0];
i) shall create a Privacy Management Response as described in section 3.6.5.1.2 of [RCC.07-v8.0] and set the body of the Privacy Management Response, as follows:

   i. The <Command-ID> element set to the value of the <Command-ID> element of the received Privacy Management Command,
   ii. The <result> element set to the result of the processing of the Privacy Management Command.

3.2.6 ID_RCC.07_8.0_6: Clarification of CAPABILITY DISCOVERY ALLOWED PREFIXES

ID	ID_RCC.07_8.0_6
Title	Clarification of CAPABILITY DISCOVERY ALLOWED PREFIXES
Type	Requirement
Related spec and section	[RCC.07-v8.0] section A.1.9, section A.2.5
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

3.2.6.1 Issue Description

The description of the client configuration parameter CAPABILITY DISCOVERY ALLOWED PREFIXES does not take the two methods for configuration, prefix and regex, into account.

3.2.6.2 Expected Behaviour

The description of the configuration parameter CAPABILITY DISCOVERY ALLOWED PREFIXES in section A.1.9 of [RCC.07-v8.0] shall be replaced by the following:

> The configuration parameter provides prefixes or rules to identify phone numbers contained in the address book or entered by the user which shall be considered for capability and new user discovery.
>
> If the configuration parameter is absent, all phone numbers shall be considered for capability and new user discovery.
>
> If a number shall be considered for capability and new user discovery, then the client shall invoke the procedures for capability and new user discovery in accordance with the definitions in section 2.6 of [RCC.07-v8.0].
>
> If a number shall not be considered for capability and new user discovery, the client shall not invoke the procedures for capability and new user discovery defined in section 2.6 and shall consider the phone number as not RCS capable. If capability and new user discovery through SIP OPTIONS is applied, the client shall process

received discovery request in accordance with the definitions in section 2.6.1.1 of [RCC.07-v8.0].

The service provider should take the subscriber's HPLMN numbering scheme into account when defining the value of the configuration parameter.

The description of the value of the node

/<x>/CapDiscovery/CapDiscoveryWhiteList/<x>/Prefix

in section A.2.5 of [RCC.07-v8.0] shall be replaced by the following:

- The value can contain either a single prefix or a single regular expression for matching with phone numbers. If the phone number matches the prefix or the regular expression, then the phone number shall be considered for capability and new user discovery. If the phone number does not match the prefix or regular expression, then the client shall match the phone number with the value of the next configuration parameter in the capability discovery white list. If the phone number matches with none of the values of the "Prefix" configuration parameters in the capability discovery white list, then the phone number shall not be considered for capability and new user discovery.

  To match a phone number with prefixes and regular expressions, the client shall remove visual separators and white space from the input phone number string.

  - The configuration parameter contains a prefix if the value consists of a number string, optionally preceded by a "+" character.
    The client shall match the phone number and the prefix contained in the configuration parameter by string match. The phone number matches, if there is a full match of the prefix with the beginning of the phone number string.

    Examples:
    +446
    +4479
    00446
    004479
    06
    079

  - The configuration parameter contains a regular expression if the value starts with the "!" character. The subsequent string shall be interpreted by the client using Portable Operating System Interface (POSIX) extended regular expression (see [POSIX]). The phone number matches, if the application of the regular expression results in a non-empty string.
    Examples:
    !^(0044|0)(6|79)
    !\+44(6|79)\d*

3.2.7 ID_RCC.07_8.0_7: IMDN Clarification

ID	ID_RCC.07_8.0_7
Title	IMDN Clarification
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.2.3.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

3.2.7.1 Issue Description

The procedures for delivering notifications when reopening an older chat are no longer correct since there is no longer a requirement to deliver IMDNs to the original device that sent the message.

3.2.7.2 Expected Behaviour

The following clarification to the third last main bullet in section 3.2.3.1 of [RCC.07-v8.0] about reopening an older chat on the device shall apply:

- When reopening an older chat on the device that contains messages for which a “display” notification should be sent, these notifications shall be sent according to the rules and procedures of [RCC.11-v6.0].

3.2.8 ID_RCC.07_8.0_8: Message Revoke Clarification

ID	ID_RCC.07_8.0_8
Title	Message Revoke Clarification
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.2.3.8.2.1 and 3.2.3.8.2.2
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

3.2.8.1 Issue Description

The Conversation-ID and Contribution-ID header fields are not relevant for MessageRevoke and MessageRevokeResponse, so the procedures to set them need to be relaxed. In addition, the P-Preferred/Asserted-Service header needs to be set.

3.2.8.2 Expected Behaviour

The following clarifications to section 3.2.3.8.2.1 of [RCC.07-v8.0] shall apply:

- Step 4 applies to the P-Preferred-Identity header;

- Step 7 applies to the MessageRevoke request, not the MessageRevokeResponse request;
- Step 9 shall be replaced with: shall include a Conversation-ID header and a Contribution-ID header and shall
    - if available, include the same Conversation-ID and Contribution-ID header field values that were used for the message being revoked; otherwise
    - generate and include new Conversation-ID and Contribution-ID header field values;
- a new step shall be added before step 10: shall include a P-Preferred-Service header with the CPM ICSI for Session Mode Messaging;

The following clarifications to section 3.2.3.8.2.2 of [RCC.07-v8.0] shall apply:

- Step 4 applies to the P-Preferred-Identity header;
- Step 8 shall be replaced with: shall include a Conversation-ID header and a Contribution-ID header and shall
    - if available, include the same Conversation-ID and Contribution-ID header field values that were used for the message being revoked; otherwise
    - generate and include new Conversation-ID and Contribution-ID header field values;
- a new step shall be added before step 9: shall include a P-Preferred-Service header with the CPM ICSI for Session Mode Messaging;

3.2.9 ID_RCC.07_8.0_9: Max Size Standalone parameter

ID	ID_RCC.07_8.0_9
Title	Max Size Standalone parameter
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.2.3.8.2.1 and 3.2.3.8.2.2
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

3.2.9.1 Issue Description

The example XML documents provided in sections A.2.4 and A.4.2 of [RCC.07-v8.0] use MaxSizeStandalone as name for the parameter controlling the maximum size of a CPM Standalone Message. The formal definition in section A.2.4 of [RCC.07-v8.0] defines that parameter name to be "MaxSize" though.

3.2.9.2 Expected Behaviour

The correct example structure for the StandaloneMsg characteristic shall be:

```
<characteristic type="StandaloneMsg">
```

```
            <parm name="MaxSize" value="X"/>
            <parm name="exploder-uri" value="X"/>
        </characteristic>
```

3.2.10 ID_RCC.07_8.0_10: Clarifications for Rich Cards and Suggested Chip Lists

ID	ID_RCC.07_8.0_10
Title	Clarifications for Rich Cards and Suggested Chip Lists
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.6.10.4, 3.6.10.5.1.2, 3.6.10.5.2.2, 3.6.10.6.1.2, 3.6.10.6.1.3
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	ID_RCC.07_8.0_12 in section 3.2.12

3.2.10.1 Issue Description

Superseded by ID_RCC.07_8.0_12 in section 3.2.12.

3.2.10.2 Expected Behaviour

Superseded by ID_RCC.07_8.0_12 in section 3.2.12.

3.2.10.2.1 Rich Cards and Suggested Chip Lists JSON schema for validation

Superseded by ID_RCC.07_8.0_12 in section 3.2.12.

3.2.10.2.2 Single Rich Card Example JSON payload

Superseded by ID_RCC.07_8.0_12 in section 3.2.12.

3.2.10.2.3 Carousel of Rich Cards Example JSON payload

Superseded by ID_RCC.07_8.0_12 in section 3.2.12.

3.2.10.2.4 Payload from Chatbot Platform to Clients Suggested Actions

Superseded by ID_RCC.07_8.0_12 in section 3.2.12.

3.2.10.2.5 Payload from Chatbot Platform to Clients Example JSON payload

Superseded by ID_RCC.07_8.0_12 in section 3.2.12.

3.2.11 ID_RCC.07_8.0_11: Remove Botinfo subdomain

ID	ID_RCC.07_8.0_11
Title	Remove Botinfo subdomain
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.4.1

Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

3.2.11.1 Issue Description

It has been agreed to remove the Botinfo server subdomain.

3.2.11.2 Expected Behaviour

The following updates apply to section 3.6.4.1 of [RCC.07-v8.0]:

- The botinfo URL in table 47 of [RCC.07-v8.0] shall be updated to: `https://<root_domain>/bot?<set_of_query_parameters>`
- The sentence “The FQDN of the botinfo URL shall start with “*botinfo*” subdomain.” in section 3.6.4.1 of [RCC.07-v8.0] shall not apply.

3.2.12 ID_RCC.07_8.0_12: Clarifications for Rich Cards and Suggested Chip Lists including new mandatory fields

ID	ID_RCC.07_8.0_12
Title	Clarifications for Rich Cards and Suggested Chip Lists including new mandatory fields
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.6.10.4, 3.6.10.5.1.2, 3.6.10.5.2.2, 3.6.10.6.1.2, 3.6.10.6.1.3
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.03.2018
Superseded by	

3.2.12.1 Issue Description

This section and its subsections supersedes ID_RCC.07_8.0_10 in section 3.2.10 above.

To provide an excellent user experience to all users, including users with accessibility challenges, several minor changes were made to the specification of Rich Cards and Suggested Chip Lists. These changes include:

- Introducing file sizes for media objects within Rich Cards;
- Introducing content description for media objects within Rich Cards (to improve accessibility e. g. for use with screen readers);
- Introducing support for location search queries (e. g. “restaurants”) for the ‘showLocation’ suggested action;
- Changing postback JSON object to be optional instead of mandatory for suggestions.

The updates described in ID_RCC.07_8.0_10 in section 3.2.10 above for section 3.2.6.10 of [RCC.07-v8.0], did not include "cardwidth" as a mandatory field for

"generalPurposeCardCarousel", and did not include the "phoneNumber" and "type" as mandatory fields for "composeRecordingMessage" suggested action schema.

3.2.12.2 Expected Behaviour

The following updates are moved here from section 3.2.10.2 above and apply to the subsections here.

- Introducing file sizes for media objects within Rich Cards
    - Media objects embedded in Rich Cards (thumbnail images and full-sized media files like images or videos) shall always include information about their respective binary file sizes. The file sizes should be provided in bytes. The JSON schema in section 3.6.10.4 of [RCC.07-v8.0] shall be replaced by section 3.2.12.2.1 below. Sections 3.6.10.5.1.2 and 3.6.10.5.2.2 of [RCC.07-v8.0] shall be replaced with sections 3.2.12.2.2 and 3.2.12.2.3 below which now contain examples for single Rich Cards as well as carousels of Rich Cards.
- Introducing content description for media objects within Rich Cards
    - For accessibility challenged users an optional content description for media objects embedded within Rich Cards has been introduced. This is meant to contain a textual description of the media content. The text given in the newly introduced “contentDescription” field will never be displayed on screen but shall be used by clients in their respective platform’s accessibility support (e.g. screen reader functionality).
    - An example: a telecommunication company’s Chatbot sends an image embedded in a Rich Card which contains a graph of the user’s data plan (consumed vs. available data). The content description field for this image should contain “Out of your 20 GB, you used 5 GB, so 15 GB are still available during this billing period”. A vision-impaired user could now use their device’s screen reader functionality to have this text read back to them.
    - The JSON schema in section 3.6.10.4 of [RCC.07-v8.0] is replaced with section 3.2.12.2.1 below which is extended accordingly. Sections 3.6.10.5.1.2 and 3.6.10.5.2.2 of [RCC.07-v8.0] shall be replaced with sections 3.2.12.2.2 and 3.2.12.2.3 below which now contain examples for single Rich Cards as well as carousels of Rich Cards.
- Introducing support for location search queries for the ‘showLocation’ suggested action
    - Search queries (e. g. “restaurants”) are now supported in addition to searching for geo coordinates in the ‘showLocation’ suggested action.
    - The two location search modes are mutually exclusive. Location search can contain either
        - Geo coordinates (latitude, longitude), or
        - Textual queries (e. g. “restaurants”)

- The JSON schema in section 3.6.10.4 of [RCC.07-v8.0] is replaced with section3.2.10.2.1 3.2.12.2.1 below which has been extended accordingly. Section 3.6.10.6.1.2 of [RCC.07-v8.0] shall be replaced with section 3.2.12.2.4 below which is extended to reflect the new location search mode. Section 3.6.10.6.1.3 of [RCC.07-v8.0] shall be replaced with section 3.2.12.2.53.2.10.2.5 below which now contains examples for a Suggested Chip List containing both types of the 'showLocation' suggested action.

- Changing postback JSON object to be optional instead of mandatory
  - If Chatbots are not interested in feedback about user interaction with suggested replies or suggested actions they now do not have to specify any postback data at all. Specifying postback data for a suggested reply or suggested action was mandatory before.
  - The JSON schema in section 3.6.10.4 of [RCC.07-v8.0] is replaced with section 3.2.12.2.1 below which is modified accordingly.

In addition to the above, the schema shall be updated to add "cardwidth" as a mandatory field for "generalPurposeCardCarousel", and to add "phoneNumber" and "type" as mandatory fields for "composeRecordingMessage" suggested action schema, as shown in subsection 3.2.12.2.1.

3.2.12.2.1 Rich Cards and Suggested Chip Lists JSON schema for validation including new updates

The following shall replace the rich cards and suggested chip lists JSON schema for validation found in section 3.6.10.4 of [RCC.07-v8.0]:

The following schema defines all JSON payloads exchanged between Chatbot Platform and clients:

```
{
 "$schema": "http://json-schema.org/draft-04/schema#",

 "title": "Root Object",
 "type": "object",

 "properties": {

  "message": {
   "title": "A chatbot message, sent from chatbot platform to client.",
   "type": "object",
   "oneOf": [{
    "$ref": "#/definitions/messages/generalPurposeCardMessage"
   }, {
    "$ref": "#/definitions/messages/generalPurposeCardCarouselMessage"
   }]
  },

  "suggestions": {
   "title": "Suggested replies and/or suggested actions for a chatbot message, send from chatbot platform to client.",
   "type": "array",
```

```
    "items": {
     "oneOf": [{
       "$ref": "#/definitions/suggestions/replies/reply"
     }, {
       "$ref": "#/definitions/suggestions/actions/action"
     }]
    },
    "minItems": 1,
    "maxItems": 11,
    "additionalItems": false
  },

  "response": {
    "title": "Response to a suggested reply or suggested action, sent from client to chatbot platform.",
    "type": "object",
    "oneOf": [{
       "properties": {
         "reply": {
           "$ref": "#/definitions/suggestions/suggestion"
         }
       },
       "required": ["reply"]
     },
     {
       "properties": {
         "action": {
           "$ref": "#/definitions/suggestions/suggestion"
         }
       },
       "required": ["action"]
     }
    ]
  },

  "sharedData": {
    "title": "Data shared by the client with the chatbot platform (e. g. device specifics).",
    "type": "object",
    "oneOf": [{
      "properties": {
       "deviceSpecifics": {
         "$ref": "#/definitions/sharedData/deviceSpecifics"
       }
      }
    }]
  }

},
"oneOf": [{
    "required": ["message"]
  },
  {
    "required": ["suggestions"]
  },
  {
    "required": ["response"]
  },
  {
    "required": ["sharedData"]
```

```
    }
  ],

  "definitions": {

    "messageFragments": {
      "cardMedia": {
        "type": "object",
        "properties": {
          "mediaUrl": {
            "type": "string",
            "format": "uri"
          },
          "mediaContentType": {
            "type": "string"
          },
          "mediaFileSize": {
          "title": "Media file size in bytes",
            "type": "integer",
            "minimum": 0
          },
          "thumbnailUrl": {
            "type": "string",
            "format": "uri"
          },
          "thumbnailContentType": {
            "type": "string"
          },
          "thumbnailFileSize": {
            "title": "Thumbnail file size in bytes",
            "type": "integer",
            "minimum": 0
          },
          "height": {
            "type": "string",
            "enum": ["SHORT_HEIGHT", "MEDIUM_HEIGHT", "TALL_HEIGHT"]
          },
          "contentDescription": {
            "title": "Optional textual description of media content",
            "description": "Accessiblity text for use with screen readers. Will not be shown on screen.",
            "type": "string",
            "minLength": 1,
            "maxLength": 200
          }
        },
        "required": ["mediaUrl", "mediaContentType", "mediaFileSize", "height"],
        "dependencies": {
          "thumbnailUrl": ["thumbnailContentType", "thumbnailFileSize"]
        }
      },
      "cardTitle": {
        "type": "string",
        "minLength": 1,
        "maxLength": 200
      },
      "cardDescription": {
        "type": "string",
        "minLength": 1,
```

```
      "maxLength": 2000
    }
  },

  "messages": {
    "generalPurposeCardMessage": {
      "title": "This defines a general-purpose, standalone Rich Card message.",
      "type": "object",
      "properties": {
        "generalPurposeCard": {
          "type": "object",
          "properties": {
            "layout": {
              "type": "object",
              "oneOf": [{
                  "properties": {
                    "cardOrientation": {
                      "type": "string",
                      "enum": ["VERTICAL"]
                    }
                  },
                  "required": ["cardOrientation"]
                },
                {
                  "properties": {
                    "cardOrientation": {
                      "type": "string",
                      "enum": ["HORIZONTAL"]
                    },
                    "imageAlignment": {
                      "type": "string",
                      "enum": ["LEFT", "RIGHT"]
                    }
                  },
                  "required": ["cardOrientation", "imageAlignment"]
                }
              ]
            },
            "content": {
              "type": "object",
              "properties": {
                "media": {
                  "$ref": "#/definitions/messageFragments/cardMedia"
                },
                "title": {
                  "$ref": "#/definitions/messageFragments/cardTitle"
                },
                "description": {
                  "$ref": "#/definitions/messageFragments/cardDescription"
                },
                "suggestions": {
                  "type": "array",
                  "items": {
                    "oneOf": [{
                      "$ref": "#/definitions/suggestions/replies/reply"
                    }, {
                      "$ref": "#/definitions/suggestions/actions/action"
                    }]
```

```
                },
                "minItems": 1,
                "maxItems": 11,
                "additionalItems": false
              }
            },
            "anyOf": [{
                "required": ["media"]
              },
              {
                "required": ["title"]
              },
              {
                "required": ["description"]
              }
            ]
          }
        },
        "required": ["layout", "content"]
      }
    },
    "required": ["generalPurposeCard"]
  },
  "generalPurposeCardCarouselMessage": {
    "title": "This defines a message containing a carousel of general-purpose Rich Cards.",
    "type": "object",
    "properties": {
      "generalPurposeCardCarousel": {
        "type": "object",
        "properties": {
          "layout": {
            "type": "object",
            "properties": {
              "cardWidth": {
                "type": "string",
                "enum": ["SMALL_WIDTH", "MEDIUM_WIDTH"],
                "default": "SMALL_WIDTH"
              }
            },
           "required": ["cardWidth"]
          },
          "content": {
            "type": "array",
            "items": {
              "type": "object",
              "properties": {
                "media": {
                  "$ref": "#/definitions/messageFragments/cardMedia"
                },
                "title": {
                  "$ref": "#/definitions/messageFragments/cardTitle"
                },
                "description": {
                  "$ref": "#/definitions/messageFragments/cardDescription"
                },
                "suggestions": {
                  "type": "array",
                  "items": {
```

```
                "oneOf": [{
                  "$ref": "#/definitions/suggestions/replies/reply"
                }, {
                  "$ref": "#/definitions/suggestions/actions/action"
                }]
              },
              "minItems": 1,
              "maxItems": 11,
              "additionalItems": false
            }
          },
          "anyOf": [{
            "required": ["media"]
          },
          {
            "required": ["title"]
          },
          {
            "required": ["description"]
          }
          ]
        },
        "minItems": 2,
        "maxItems": 10,
        "additionalItems": false
      }
    },
    "required": ["layout", "content"]
  }
 },
 "required": ["generalPurposeCardCarousel"]
}
},

"suggestionFragments": {
 "postback": {
  "title": "Definition of data to be posted back from UE to chatbot.",
  "type": "object",
  "properties": {
   "data": {
    "type": "string",
    "maxLength": 2048
   }
  },
  "required": ["data"]
 }
},

"suggestions": {
 "suggestion": {
  "title": "Common base definition for suggested replies and suggested actions.",
  "type": "object",
  "properties": {
   "displayText": {
    "type": "string",
    "minLength": 1,
    "maxLength": 25
   },
```

```
      "postback": {
        "$ref": "#/definitions/suggestionFragments/postback"
      }
    },
    "required": ["displayText"]
  },
  "replies": {
    "reply": {
      "title": "Definition of a suggested reply.",
      "type": "object",
      "properties": {
        "reply": {
          "allOf": [{
            "$ref": "#/definitions/suggestions/suggestion"
          }]
        }
      },
      "required": ["reply"]
    }
  },
  "actions": {
    "action": {
      "title": "Common base definition of a suggested action.",
      "type": "object",
      "properties": {
        "action": {
          "type": "object",
          "allOf": [{
            "$ref": "#/definitions/suggestions/suggestion"
          }, {
            "oneOf": [{
              "$ref": "#/definitions/suggestions/actions/urlAction"
            }, {
              "$ref": "#/definitions/suggestions/actions/dialerAction"
            }, {
              "$ref": "#/definitions/suggestions/actions/mapAction"
            }, {
              "$ref": "#/definitions/suggestions/actions/calendarAction"
            }, {
              "$ref": "#/definitions/suggestions/actions/composeAction"
            }, {
              "$ref": "#/definitions/suggestions/actions/deviceAction"
            }, {
              "$ref": "#/definitions/suggestions/actions/settingsAction"
            }]
          }]
        }
      },
      "required": ["action"]
    },
    "urlAction": {
      "title": "Suggested actions to interact a website or deep app link.",
      "properties": {
        "urlAction": {
          "type": "object",
          "oneOf": [{
            "properties": {
              "openUrl": {
```

```
              "type": "object",
              "properties": {
                "url": {
                  "type": "string",
                  "format": "uri"
                }
              },
              "required": ["url"]
            }
          },
          "required": ["openUrl"]
        }]
      }
    },
    "required": ["urlAction"]
  },
  "dialerAction": {
    "title": "Suggested actions for interacting with a phone number.",
    "properties": {
      "dialerAction": {
        "type": "object",
        "oneOf": [{
          "properties": {
            "dialPhoneNumber": {
              "type": "object",
              "properties": {
                "phoneNumber": {
                  "type": "string"
                },
                "fallbackUrl": {
                  "type": "string",
                  "format": "uri"
                }
              },
              "required": ["phoneNumber"]
            }
          },
          "required": ["dialPhoneNumber"]
        }, {
          "properties": {
            "dialEnrichedCall": {
              "type": "object",
              "properties": {
                "phoneNumber": {
                  "type": "string"
                },
                "subject": {
                  "type": "string",
                  "maxLength": 60
                },
                "fallbackUrl": {
                  "type": "string",
                  "format": "uri"
                }
              },
              "required": ["phoneNumber"]
            }
          },
```

```
            "required": ["dialEnrichedCall"]
          }, {
            "properties": {
              "dialVideoCall": {
                "type": "object",
                "properties": {
                  "phoneNumber": {
                    "type": "string"
                  },
                  "fallbackUrl": {
                    "type": "string",
                    "format": "uri"
                  }
                },
                "required": ["phoneNumber"]
              }
            },
            "required": ["dialVideoCall"]
          }]
        }
      },
      "required": ["dialerAction"]
    },
    "mapAction": {
      "title": "Suggested actions for interacting with a location on a map.",
      "properties": {
        "mapAction": {
          "type": "object",
          "oneOf": [{
            "properties": {
              "showLocation": {
                "title": "Shows a given location on a map.",
                "type": "object",
                "properties": {
                  "location": {
                    "type": "object",
                    "properties": {
                      "latitude": {
                        "type": "number"
                      },
                      "longitude": {
                        "type": "number"
                      },
                      "label": {
                        "type": "string",
                        "minLength": 1,
                        "maxLength": 100
                      },
                      "query": {
                        "title": "Search for location(s) by query",
                        "description": "Search is based on user's current location",
                        "examples": [
                          "restaurants",
                          "GSMA Head Office, 25 Walbrook, London, UK"
                        ],
                        "type": "string",
                        "minLength": 1,
                        "maxLength": 200
```

```
                    }
                  },
                  "oneOf": [{
                     "required": ["latitude", "longitude"]
                    },
                    {
                      "required": ["query"]
                    }
                  ]
                },
                "fallbackUrl": {
                  "type": "string",
                  "format": "uri"
                }
              },
              "required": ["location"]
            }
          },
          "required": ["showLocation"]
        },
        {
          "properties": {
            "requestLocationPush": {
              "title": "One-time request to send a geo location push from UE to chatbot",
              "type": "object"
            }
          },
          "required": ["requestLocationPush"]
        }
      ]
    }
  },
  "required": ["mapAction"]
},
"calendarAction": {
  "title": "Suggested actions for interacting with a calendar event.",
  "properties": {
    "calendarAction": {
      "type": "object",
      "oneOf": [{
        "properties": {
          "createCalendarEvent": {
            "type": "object",
            "properties": {
              "startTime": {
                "type": "string",
                "format": "date-time"
              },
              "endTime": {
                "type": "string",
                "format": "date-time"
              },
              "title": {
                "type": "string",
                "minLength": 1,
                "maxLength": 100
              },
              "description": {
```

```
                "type": "string",
                "minLength": 1,
                "maxLength": 500
              },
              "fallbackUrl": {
                "type": "string",
                "format": "uri"
              }
            },
            "required": ["startTime", "endTime", "title"]
          }
        },
        "required": ["createCalendarEvent"]
      }]
    }
  },
  "required": ["calendarAction"]
},
"composeAction": {
  "title": "Suggested actions for composing draft messages.",
  "properties": {
    "composeAction": {
      "type": "object",
      "oneOf": [{
        "properties": {
          "composeTextMessage": {
            "title": "Compose a draft text message.",
            "type": "object",
            "properties": {
              "phoneNumber": {
                "type": "string"
              },
              "text": {
                "type": "string",
                "maxLength": 100
              }
            },
            "required": ["phoneNumber", "text"]
          }
        },
        "required": ["composeTextMessage"]
      },
      {
        "properties": {
          "composeRecordingMessage": {
            "title": "Compose a draft message with a media recording.",
            "type": "object",
            "properties": {
              "phoneNumber": {
                "type": "string"
              },
              "type": {
                "type": "string",
                "enum": ["AUDIO", "VIDEO"]
              }
            },
            "required": ["phoneNumber", "type"]
          }
```

```
            },
            "required": ["composeRecordingMessage"]
          }
        ]
      }
    },
    "required": ["composeAction"]
  },
  "deviceAction": {
    "title": "Suggested actions for interacting with the user's device.",
    "properties": {
      "deviceAction": {
        "type": "object",
        "oneOf": [{
          "properties": {
            "requestDeviceSpecifics": {
              "title": "Request specifics about the user's device.",
              "type": "object"
            }
          },
          "required": ["requestDeviceSpecifics"]
        }

        ]
      }
    },
    "required": ["deviceAction"]
  },
  "settingsAction": {
    "title": "Suggested actions for interacting with app settings",
    "properties": {
      "settingsAction": {
        "type": "object",
        "oneOf": [{
          "properties": {
            "disableAnonymization": {
              "title": "Ask the user to disable the anonymization setting.",
              "type": "object"
            }
          },
          "required": ["disableAnonymization"]
        },
        {
          "properties": {
            "enableDisplayedNotifications": {
              "title": "Ask the user to enable sending displayed notifications.",
              "type": "object"
            }
          },
          "required": ["enableDisplayedNotifications"]
        }
        ]
      }
    },
    "required": ["settingsAction"]
  }
 }
},
```

```
  "sharedData": {
    "deviceSpecifics": {
      "title": "Device specifics shared by the client with the chatbot platform.",
      "type": "object",
      "properties": {
        "deviceModel": {
          "title": "Short description of the device model (e. g. 'SmartPhone8').",
          "type": "string",
          "minLength": 1,
          "maxLength": 20
        },
        "platformVersion": {
          "title": "Version information about the device platform (e. g. 'Android-7.1.2-N481G3').",
          "type": "string",
          "minLength": 1,
          "maxLength": 25
        },
        "clientVendor": {
          "title": "Short code for client vendor, same as used during RCS autoconfiguration (e. g. 'VNDR').",
          "type": "string",
          "minLength": 1,
          "maxLength": 4
        },
        "clientVersion": {
          "title": "Version information about the client, same as used during RCS autoconfiguration (e. g.
'RCSAndrd-1.0')",
          "type": "string",
          "minLength": 1,
          "maxLength": 15
        },
        "batteryRemainingMinutes": {
          "title": "Remaining battery use of device in minutes (e. g. '517')",
          "type": "integer",
          "minimum": 0
        }
      }
    }
  }

 }
}
```

Table 4: JSON message payloads schema

3.2.12.2.2 Single Rich Card Example JSON payload

The following shall replace section 3.6.10.5.1.2 of [RCC.07-v8.0]:

The following payload is an example for a Single Rich Card including suggested replies and suggested actions:

```
{
 "message": {
   "generalPurposeCard": {
     "layout": {
       "cardOrientation": "HORIZONTAL",
       "imageAlignment": "LEFT"
     },
     "content": {
```

```
      "media": {
        "mediaUrl": "https://cdn.server/path/media.mp4",
        "mediaContentType": "video/mp4",
        "mediaFileSize": 2718288,
        "thumbnailUrl": "https://cdn.server/path/media.png",
        "thumbnailContentType": "image/png",
        "thumbnailFileSize": 314159,
        "height": "MEDIUM_HEIGHT",
        "contentDescription": "Textual description of media content, e. g. for use with screen readers."
      },
      "title": "This is a single rich card.",
      "description": "This is the description of the rich card. It's the first field that will be truncated if it exceeds
the maximum width or height of a card.",
      "suggestions": [{
         "reply": {
          "displayText": "No",
          "postback": {
            "data": "set_by_chatbot_reply_no"
          }
         }
        },
        {
         "action": {
          "urlAction": {
            "openUrl": {
              "url": "https://www.google.com"
            }
          },
          "displayText": "Open website or deep link",
          "postback": {
            "data": "set_by_chatbot_open_url"
          }
         }
        },
        {
         "action": {
          "dialerAction": {
            "dialPhoneNumber": {
              "phoneNumber": "+1650253000"
            }
          },
          "displayText": "Call a phone number",
          "postback": {
            "data": "set_by_chatbot_open_dialer"
          }
         }
        }
      ]
    }
   }
  }
}
```


Table 5: Chatbot communication Single Rich Card example

3.2.12.2.3 Carousel of Rich Cards Example JSON payload

The following shall replace section 3.6.10.5.2.2 of [RCC.07-v8.0]:

Two or more (up to ten) cards can be combined into a carousel. The following payload is an example for a carousel of cards including suggested replies and suggested actions:

```
{
 "message": {
  "generalPurposeCardCarousel": {
   "layout": {
    "cardWidth": "MEDIUM_WIDTH"
   },
   "content": [{
     "media": {
      "mediaUrl": "https://cdn.server/path/media.mp4",
      "mediaContentType": "video/mp4",
      "mediaFileSize": 2718288,
      "thumbnailUrl": "https://cdn.server/path/media.png",
      "thumbnailContentType": "image/png",
      "thumbnailFileSize": 314159,
      "height": "SHORT_HEIGHT",
      "contentDescription": "Textual description of media content, e. g. for use with screen readers."
     },
     "title": "This is the first rich card in a carousel.",
     "description": "This is the description of the rich card. It's the first field that will be truncated if it exceeds the maximum width or height of a card.",
     "suggestions": [{
       "action": {
        "mapAction": {
         "showLocation": {
          "location": {
           "latitude": 37.4220041,
           "longitude": -122.0862515,
           "label": "Googleplex"
          },
          "fallbackUrl": "https://www.google.com/maps/@37.4219162,-122.078063,15z"
         }
        },
        "displayText": "Show location on a map",
        "postback": {
         "data": "set_by_chatbot_open_map"
        }
       }
      },
      {
       "action": {
        "calendarAction": {
         "createCalendarEvent": {
          "startTime": "2017-03-14T00:00:00Z",
          "endTime": "2017-03-14T23:59:59Z",
          "title": "Meeting",
          "description": "GSG review meeting"
         }
        },
        "displayText": "Schedule Meeting",
        "postback": {
         "data": "set_by_chatbot_create_calendar_event"
        }
       }
      }
     ]
    },
```

```
      {
        "title": "This is the second rich card in the carousel.",
        "description": "Carousel cards need to specify a card width in the 'layout' section. For small width cards, only short and medium height media are supported.",
        "[...]": "[...]"
      }
    ]
  }
 }
}
```

Table 6: Chatbot Communication Carousel Rich card Example

3.2.12.2.4 Payload from Chatbot Platform to Clients Suggested Actions

The following shall replace the mapAction in section 3.6.10.6.1.2 of [RCC.07-v8.0]:

- mapAction
    - showLocation — show location(s) on a map for given coordinates or search query
    - requestLocationPush — request for a one-time geo location push

3.2.12.2.5 Payload from Chatbot Platform to Clients Example JSON payload

The following shall replace section 3.6.10.6.1.3 of [RCC.07-v8.0]:

The following payload defines a Suggested Chip List with two suggested replies and all currently supported actions:

```
{
 "suggestions": [{
    "reply": {
      "displayText": "Yes",
      "postback": {
        "data": "set_by_chatbot_reply_yes"
      }
    }
  },
  {
    "reply": {
      "displayText": "No",
      "postback": {
        "data": "set_by_chatbot_reply_no"
      }
    }
  },
  {
    "action": {
      "urlAction": {
        "openUrl": {
          "url": "https://www.google.com"
        }
      },
      "displayText": "Open website or deep link",
      "postback": {
        "data": "set_by_chatbot_open_url"
      }
    }
```

```
  },
  {
    "action": {
      "dialerAction": {
        "dialPhoneNumber": {
          "phoneNumber": "+1650253000"
        }
      },
      "displayText": "Call a phone number",
      "postback": {
        "data": "set_by_chatbot_dial_phone_number"
      }
    }
  },
  {
    "action": {
      "dialerAction": {
        "dialEnrichedCall": {
          "phoneNumber": "+1650253000",
          "subject": "The optional subject for the enriched call"
        }
      },
      "displayText": "Start enriched call",
      "postback": {
        "data": "set_by_chatbot_dial_enriched_call"
      }
    }
  },
  {
    "action": {
      "dialerAction": {
        "dialVideoCall": {
          "phoneNumber": "+1650253000"
        }
      },
      "displayText": "Start video call",
      "postback": {
        "data": "set_by_chatbot_dial_video_call"
      }
    }
  },
  {
    "action": {
      "mapAction": {
        "showLocation": {
          "location": {
            "latitude": 37.4220041,
            "longitude": -122.0862515,
            "label": "Googleplex"
          },
          "fallbackUrl": "https://www.google.com/maps/@37.4219162,-122.078063,15z"
        }
      },
      "displayText": "Show location on a map",
      "postback": {
        "data": "set_by_chatbot_show_location"
      }
    }
```

```
  },
  {
    "action": {
      "mapAction": {
        "showLocation": {
          "location": {
            "query": "restaurants"
          },
          "fallbackUrl": "https://www.google.com/maps/search/restaurants"
        }
      },
      "displayText": "Search location(s) on map",
      "postback": {
        "data": "set_by_chatbot_search_locations"
      }
    }
  },
  {
    "action": {
      "mapAction": {
        "requestLocationPush": {}
      },
      "displayText": "Request a geo location",
      "postback": {
        "data": "set_by_chatbot_request_location_push"
      }
    }
  },
  {
    "action": {
      "calendarAction": {
        "createCalendarEvent": {
          "startTime": "2017-03-14T00:00:00Z",
          "endTime": "2017-03-14T23:59:59Z",
          "title": "Meeting",
          "description": "GSG review meeting"
        }
      },
      "displayText": "Schedule Meeting",
      "postback": {
        "data": "set_by_chatbot_create_calendar_event"
      }
    }
  },
  {
    "action": {
      "composeAction": {
        "composeTextMessage": {
          "phoneNumber": "+1650253000",
          "text": "Draft to go into the send message text field."
        }
      },
      "displayText": "Draft a text message",
      "postback": {
        "data": "set_by_chatbot_compose_text_message"
      }
    }
  },
```

```
{
  "action": {
    "composeAction": {
      "composeRecordingMessage": {
        "phoneNumber": "+1650253000",
        "type": "VIDEO"
      }
    },
    "displayText": "Record audio or video",
    "postback": {
      "data": "set_by_chatbot_compose_recording_message"
    }
  }
},
{
  "action": {
    "deviceAction": {
      "requestDeviceSpecifics": {}
    },
    "displayText": "Request device specifics",
    "postback": {
      "data": "set_by_chatbot_request_device_specifics"
    }
  }
},
{
  "action": {
    "settingsAction": {
      "disableAnonymization": {}
    },
    "displayText": "Share your phone number",
    "postback": {
      "data": "set_by_chatbot_disable_anonymization"
    }
  }
},
{
  "action": {
    "settingsAction": {
      "enableDisplayedNotifications": {}
    },
    "displayText": "Send read receipts",
    "postback": {
      "data": "set_by_chatbot_enable_displayed_notifications"
    }
  }
}
]
}
```

Table 7: Chatbot Communication Suggested Chip List example

3.2.13 ID_RCC.07_8.0_13: Chatbot role clarifications

ID	ID_RCC.07_8.0_13
Title	Chatbot role clarifications

Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.6.2.4, 3.6.8.3 and 3.6.8.4
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.03.2018
Superseded by	

3.2.13.1 Issue Description

The Chatbot role as defined in section 3.6.2.3 of [RCC.07-v8.0] is not correctly exploited.

The client shall have the information whether a contact is a bot or not via the capability discovery process. Therefore, it shall be mandatory that the capability information from a Chatbot includes the chatbot indicator.

More checking needs to be done by the client when it receives a request or a response to a request to set a Chatbot session:
- check that the originating party is a chatbot and if not reject the session

3.2.13.2 Expected Behaviour

3.2.13.2.1 Expected behaviour from a Chatbot platform regarding capability exchanges

In addition to the procedures related to the capability exchange given in section 3.6.2.4 of [RCC.07-v8.0], a Chatbot platform shall:

- publish the service-id for Chatbot role as defined in Table 8 of [RCC.07-v8.0], when supporting capability exchange via presence.
- include the Chatbot role as defined in section 3.6.2.3 of [RCC.07-v8.0] in any SIP OPTIONS request or response that it generates, when supporting capability exchange via SIP OPTIONS.

3.2.13.2.2 Expected behaviour from a Client when initiating a 1-to-1 Chatbot session request to a Chatbot

The following text shall replace section 3.6.8.3 of [RCC.07-v8.0]:

When a request from a user's client towards a Chatbot (i.e. the capability defined in section 3.6.2.4 of [RCC.07-v8.0] is verified) is to be sent, the client shall send a SIP INVITE request according to section3.2.3.1 of [RCC.07-v8.0] and to the rules and procedures of section 7.3.1.1 of RCC.11-v6.0 with the clarifications listed here.

In this SIP INVITE request, the client:

1. shall in addition to values already included in the Contact header, include the Chatbot IARI and the Chatbot application version feature tag as defined in section 3.6.2 of [RCC.07-v8.0], in the Contact header;
2. shall in addition to the Accept-Contact header already added, add another Accept-Contact header field carrying the Chat IARI feature tag defined in section 3.6.2.1 of

[RCC.07-v8.0] and the Chatbot application version feature tag defined in section 3.6.2.2 of [RCC.07-v8.0], and shall include the require and explicit parameters;

3. shall set the Request-URI of the Chat session request to the service-id of the Chatbot defined as per section 2.5.4.1 of [RCC.07-v8.0]. The Chatbot SIP URI should be used if available instead of the tel URI;
4. shall, in addition to values to be included as per section 3.2.3.1 of [RCC.07-v8.0], include in the a=accept-wrapped-types the list of the Chatbot-related content-types defined in section 3.6.10.2 of [RCC.07-v8.0] that the client is willing to receive, i.e. multipart/mixed, application/vnd.gsma.botsuggestion.v1.0+json, and application/vnd.gsma.botmessage.v1.0+json.

Upon receipt of a SIP 200 OK response,

- the client shall verify whether the Contact header of the SIP 200 OK response contains the Chatbot role feature tag as defined in section 3.6.2.3 of [RCC.07-v8.0].
- If the Chatbot role feature tag is not provided, the client shall not establish the media plane and terminate the SIP Session by sending a SIP BYE request to the Chatbot according to the rules and procedures of section 7.3.4.1 of RCC.11-v6.0.
- Otherwise, section 3.2.3.1 of [RCC.07-v8.0] and the rules and procedures of section 7.3 of RCC.11-v6.0 apply.

If receiving a SIP final response different from SIP 200 OK, section 3.2.3.1 of [RCC.07-v8.0] and the rules and procedures of section 7.3.1.1 of RCC.11-v6.0 apply

A Chatbot is assumed to always be online, therefore there will be no indication of support for delivery assurance by the Chatbot Platform in the SIP response.

3.2.13.2.3 Expected behaviour from a Client receiving a 1-to-1 Chatbot session request from a Chatbot

The following text shall replace section 3.6.8.4 of [RCC.07-v8.0]:

When receiving a SIP INVITE for a Chat session with an Accept-Contact header field containing the Chatbot IARI feature tag defined in section 3.6.2.1 of [RCC.07-v8.0], then the client

- shall reject the SIP INVITE with a 606 Not Acceptable response, if the Contact header of the SIP INVITE does not contain the Chatbot role feature tag as defined in section 3.6.2.3 of [RCC.07-v8.0], otherwise

- shall apply the rules and procedures of section 3.2.3.1 of [RCC.07-v8.0] and of section 7.3.2 of RCC.11-v6.0 with the clarifications listed below:
    - When the client returns a 200 OK response, then the client
        - shall include in the Contact header of the 200 OK the Chatbot IARI as defined in section 3.6.2.1 of [RCC.07-v8.0] and the Chatbot application version feature tags as defined in section 3.6.2.2 of [RCC.07-v8.0].
        - shall check if the Chatbot Information needs to be refreshed according to section 3.6.4 of [RCC.07-v8.0].

3.2.14 ID_RCC.07_8.0_14: CPIM Header Extension Support Mechanism

ID	ID_RCC.07_8.0_14
Title	Remove Botinfo subdomain
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 2.4.4.1, 3.2.8.8.4, 3.6.8.7
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.03.2018
Superseded by	

3.2.14.1 Issue Description

RCS service definitions make use of the CPIM header extensibility mechanism defined in section 3.4 of [RFC3862] beyond the header namespace defined in section 6.1 of [RFC5438]. The CPIM header extension support mechanism ensures interoperability with messaging clients not supporting these extensions.

3.2.14.2 Expected Behaviour

3.2.14.2.1 CPIM header extension support feature tag

The CPIM header extension support feature tag is the indication of an entity to support the procedures of CPIM header extensibility defined in this section.

The indication of the CPIM header extension support is provided by a feature parameter as defined in section 9 of [RFC3840]. The feature parameter is encoded as an "other-tags" feature tag in accordance with the definitions of section 9 of [RFC3840].

The feature tag name shall be set to "g.gsma.rcs.cpimext". The media feature tag shall have no value.

Security considerations for this media feature tag are discussed in section 11.1 of [RFC3840].

The indication of the CPIM header extension support is represented as follows:

+g.gsma.rcs.cpimext

3.2.14.2.2 Procedures in the client

A client supporting CPIM header extensions shall advertise its support by means of the feature tag defined in section 3.2.14.2.1 in the Contact header of

- SIP REGISTER requests and
- SIP INVITE requests and 200 OK responses for
    - Chat,
    - Chatbot session,
    - Group Chat,
    - Standalone Messaging sessions and

- call composer sessions as defined in RCC.20-v3.0.

A client supporting CPIM header extensions shall, on reception of a CPIM message, check the value of the CPIM "NS" headers contained in the message.

If

- the URI value and the associated namespace of a given CPIM "NS" header is known to the client and
- a header name containing the associated name prefix is known to the client,

then the client shall process the CPIM header in accordance with the definitions of the extension header.

If

- the URI value and the associated namespace of a given CPIM "NS" header is known to the client and
- a header name containing the associated name prefix is not known to the client,

then the client shall ignore the CPIM header.

If the URI value and the associated namespace of a given CPIM "NS" header is unknown to the client, then the client shall ignore all CPIM headers containing the associated name prefix.

3.2.14.2.3 Procedures in the Messaging Server

3.2.14.2.3.1 Session Initiation

An originating Messaging Server supporting the media plane handing of CPIM header extensions defined in section 3.2.14.2.3.2 shall advertise this by including the feature tag defined in section 3.2.14.2.1 in the Contact header field of all SIP INVITE requests for a Chat, Group Chat or Standalone Message session.

A terminating Messaging Server supporting the media plane handing of CPIM header extensions defined in section 3.2.14.2.3.2 shall advertise this by including the feature tag defined in section 3.2.14.2.1 in the Contact header field of the 200 OK response to a SIP INVITE for a Chat, Group Chat or Standalone Message session.

A Controlling Function supporting the media plane handing of CPIM header extensions defined in section 3.2.14.2.3.2 shall advertise this by including the feature tag defined in section 3.2.14.2.1 in the Contact header of the SIP INVITE for Group Chat or Standalone Message session and in the 200 OK response to a SIP INVITE for a Group Chat or Standalone Message session.

3.2.14.2.3.2 Media Plane Handling

The Messaging Server sending a CPIM message shall detect whether CPIM header extensions are supported for the Chat, Group Chat or Standalone Messaging session. CPIM header extensions are supported for a session, if the Messaging Server received the CPIM header extension support feature tag defined in section 3.2.14.2.1 in the Contact header of the SIP INVITE request or 200 OK response to establish the Chat, Group Chat or Standalone Messaging session.

If for the session the CPIM header extension is not supported and if the Messaging Server needs to send a CPIM message in such a session, then the Messaging Server shall parse the CPIM "NS" headers contained in the message.

If a given CPIM "NS" header contains a URI value different from the URI value defined in section 6.1 of [RFC5438] and there is no other compatibility rule defined for the namespace or extension header in the corresponding service definitions, then when forwarding the CPIM Message the Messaging Server

- shall remove the "NS" header, and
- shall remove all CPIM headers containing the associated name prefix.

If for a 1-to-1 Chatbot session, CPIM header extensions are not supported according to the definitions in section 3.2.14.2.3.2, and

1. if the Messaging Server needs to send a message with a "NS" header containing the URI value defined in section 3.6.7.1 of [RCC.07-v8.0], then the Messaging Server

   - shall not remove the "NS" header, and
   - shall not remove the CPIM headers containing the associated name prefix,

2. if the Messaging Server needs to send a message with a "NS" header containing the URI value defined in section C.1.13 of RCC.11-v6.0, then the Messaging Server

   - shall not remove the "NS" header, and
   - shall not remove the CPIM headers containing the associated name prefix.

If all CPIM "NS" headers have been processed, then the Messaging Server shall continue processing with the resulting CPIM message as defined for the corresponding RCS service.

3.2.14.2.4 Plugin-Info CPIM header towards Legacy Clients

The procedures for the Messaging Server to handle the CPIM Plugin-Info header extension towards legacy clients as defined in section 3.2.8.8.4 of [RCC.07-v8.0] shall be provided by the mechanism defined in the current correction.

3.2.15 ID_RCC.07_8.0_15: Geolocation Push Cleanup

ID	ID_RCC.07_8.0_15
Title	Geolocation Push Cleanup
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.2.3.1, 3.2.5.3.1.1, 3.2.6.2.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.03.2018
Superseded by	

3.2.15.1 Issue Description

Since the terminating Participating Function always answers Chat requests on behalf of the served user, the use of specific values in the Accept-Contact header to route to supporting devices does not make sense. The Geolocation Push procedures defined in section 3.2.6.2.1 of [RCC.07-v8.0] needs to be clarified. Parts of sections 3.2.3.1, and 3.2.5.3.1.1 of [RCC.07-v8.0] also need clarifications.

3.2.15.2 Expected Behaviour

In section 3.2.3.1 of [RCC.07-v8.0], the third sentence in this bullet shall be added:

- Multimedia content within a Chat session is not permitted. Therefore, in the SDP of the SIP INVITE request and response, the *a=accept-wrapped-types* attribute shall only include text/plain and message/imdn+xml and if File Transfer using HTTP or Geolocation PUSH is supported (see sections 3.2.5 and 3.2.6.2 of [RCC.07-v8.0]) *application/vnd.gsma.rcs-ft-http+xml* and *application/vnd.gsma.rcspushlocation+xml* respectively, e.g., *a=accept-wrapped-types:text/plain message/imdn+xml*. This also applies to requests generated by the Participating Function, and to responses generated by the Participating Function even if a response from the terminating client has not yet been received. To transfer multimedia content during a chat, File Transfer is used.

In section 3.2.5.3.1.1 of [RCC.07-v8.0], in the two bullets under Table 21 of [RCC.07-v8.0] shall be updated as follows (i.e. the second sentence in bullet 2 is updated to remove “or via 1-to-1 Chat”):

> If sending to a single recipient, then there are the following possible scenarios:
>
> - If there is a 1-to-1 chat session established with the user and File Transfer is supported in the session as described in section 3.2.5.2 of [RCC.07-v8.0], the session shall be reused to convey the File Transfer message body content in a Chat message.
> - If there is no 1-to-1 Chat session established, then the client shall apply the technology selection for 1-to-1 messaging as defined in section 3.2.1 of [RCC.07-v8.0]. If the client establishes a session to transmit the File Transfer message body via Standalone Messaging, then the client shall include a dedicated Accept-Contact header field that includes the File Transfer IARI tag defined in section 2.6.1.3 of [RCC.07-v8.0] along with *require* and *explicit* parameters

In section 3.2.6.2.1 of [RCC.07-v8.0], the first paragraph shall be replaced with the following: In case a new 1-to-1 session needs to be established when the user wants to transfer geolocation information to a contact that has the Geolocation PUSH capability, the sending client shall generate a SIP INVITE request for a 1-to-1 Chat session as specified in section 3.2.3.1 of [RCC.07-v8.0]. The Geolocation PUSH XML message body itself (i.e. geolocation information in a CPIM wrapper with the encapsulated Content-Type header set to *application/vnd.gsma.rcspushlocation+xml*) shall then be sent as first message in the Chat.

3.2.16 ID_RCC.07_8.0_16: Correct Presence Service IDs

ID	ID_RCC.07_8.0_16
Title	Correct Presence Service IDs
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 2.6.1.3
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.03.2018
Superseded by	

3.2.16.1 Issue Description

The URNs used in the Presence Service IDs for Geolocation Push via SMS, Chatbot Communication and Plug-ins are not in the correct format and is for Geolocation Push via SMS not aligned with the one used in [RCC.71-UP1.0].

3.2.16.2 Expected Behaviour

The following service IDs shall be used instead of those defined in section 2.6.1.3 of [RCC.07-v8.0]:

RCS service		Tag
Geolocation PUSH via SMS	Tag	+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.geosms"
	Service ID	Service-id: org.3gpp.urn:urn-7:3gpp-application.ims.iari.rcs.geosms Version: 1.0 Contact address type: tel / SIP URI
Chatbot Communication	Tag	+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.chatbot";+g.gsma.rcs.botversion="#=1"
	Service ID	Service-id: org.3gpp.urn:urn-7:3gpp-application.ims.iari.rcs.chatbot Version: 1.0 Contact address type: tel / SIP URI
Plug-ins	Tag	+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.plugin"
	Service ID	Service-id: org.3gpp.urn:urn-7:3gpp-application.ims.iari.rcs.plugin Version: 1.0 Contact address type: tel / SIP URI

Table 8: Corrected SIP OPTIONS tag and Presence Service ID usage for RCS

3.2.17 ID_RCC.07_8.0_17: Correction to CPIM namespace for MaaP

ID	ID_RCC.07_8.0_17
Title	Correction to CPIM namespace for MaaP

Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.7.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.03.2018
Superseded by	

3.2.17.1 Issue Description

There is a syntax error in the definition of the CPIM Namespace for MaaP.

3.2.17.2 Expected Behaviour

The CPIM Namespace for MaaP in section 3.6.7.1 of [RCC.07-v8.0] shall be the following:

NS: maap <http://www.gsma.com/rcs/maap/>

3.2.18 ID_RCC.07_8.0_18: Non-Conformant Chatbot Message Handling

ID	ID_RCC.07_8.0_18
Title	Non-Conformant Chatbot Message Handling
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.10.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.03.2018
Superseded by	

3.2.18.1 Issue Description

Section 3.6.10.1 of [RCC.07-v8.0] states that a client should return a MSRP 415 response when receiving certain types of non-conformant messages. Such a response is not ideal though since it might trigger a fallback attempt to SMS and also semantically not fully accurate because for those messages the used content-type would be understood by the client. Next to that, [RCC.07-v8.0] does not clarify how to handle other types of non-conformant messages in a Chatbot conversation.

3.2.18.2 Expected Behaviour

When receiving a non-conformant message (e.g. non-compliant to the JSON or XML schema or a multipart message with inappropriate body types), the client shall acknowledge the reception and send a delivery notification, but shall not display the message.

NOTE: Chatbot Platforms are expected to verify the content that is sent and as such, this case should not occur in practice. This silent discarding is therefore not considered a problem.

3.2.19 ID_RCC.07_8.0_19: Update of Alias Function to Anonymization Function

ID	ID_RCC.07_8.0_19
Title	Update of Alias Function to Anonymization Function
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.1, and section 3.6.5 and its subsections
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

3.2.19.1 Issue Description

The technical realization for the Alias Function defined in [RCC.07-v8.0] shall not be used and shall be replaced by the technical realization defined in [RCC.07-v9.0] where the function is renamed to the Anonymization Function. The indication of whether a session is anonymized or whether the token will be linked with the user's IMS Public User Identity is carried in the Privacy header of the related SIP request (e.g., Privacy: tk, or Privacy: tklink respectively) instead of via CPM System Messages. The only CPM System Message kept for anonymization is the one defined for deleting an anonymization token. The CPM System Messages for aliason, aliasoff, aliaslink and fetchsettings defined in [RCC.07-v8.0] are not used.

3.2.19.2 Expected Behaviour

The PRIVACY DISABLE configuration parameter defined in [RCC.71v2.1-UP2.0] shall be set to 1 if the technical implementation of the Anonymization Function as defined in R15-9-2 of [RCC.71v2.2-UP2.2] is not available, The technical realization defined in section 3.6.5 Privacy Protection and its subsections in [RCC.07-v8.0] shall not be used, and instead the technical implementation defined in R15-9-2 of [RCC.71v2.2-UP2.2] shall be used.

3.2.20 ID_RCC.07_8.0_20: Correction of Chatbot application version feature tag

ID	ID_RCC.07_8.0_20
Title	Correction of Chatbot application version feature tag
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 2.4.4.1, 2.6.1.3, 3.6.2.4
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

3.2.20.1 Issue Description

The Chatbot version feature tag is not correctly shown in occurrences in [RCC.07-v8.0].

3.2.20.2 Expected Behaviour

The Chatbot version feature tag to indicate support of the Chatbot version "1" shall be represented as follows:

+g.gsma.rcs.botversion="#=1"

The representation of chatbot version feature tags in [RCC.07-v8.0]shall be corrected accordingly in

- Table 2 in section 2.4.4.1 of [RCC.07-v8.0]
- Table 8 in section 2.6.1.3 of [RCC.07-v8.0]
- non-normative examples in section 3.6.2.4 of [RCC.07-v8.0].

3.2.21 ID_RCC.07_8.0_21: Chatbot Information retrieval retry procedures

ID	ID_RCC.07_8.0_21
Title	Chatbot Information retrieval retry procedures
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.4.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

3.2.21.1 Issue Description

The Chatbot Information retrieval procedures do not specify the case of HTTP 503 Internal Server error response with a Retry-After header, HTTP 408 error response or no response from the Chatbot Information Function.

3.2.21.2 Expected Behaviour

The description of the client procedures in result of processing of the request for the initial Chatbot Information retrieval in section 3.6.4.1 of [RCC.07-v8.0] shall be replaced by the following:

If the client receives in result of processing of the request for the initial Chatbot Information retrieval:

- any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408:
  - If the request is initiated as the result of a Chatbot attempting to contact a user for the first time:
    - The client shall not attempt any retry request towards the Chatbot Information Function and it shall not apply any UX procedures for Chatbot initiated conversations.

- If the request is initiated as a result of the user attempting to retrieve more information for a Chatbot that the client has not interacted with before:
    - The client shall not attempt any retry request towards the Chatbot Information Function and it shall notify the user.

- an HTTP 503 Internal Server error response with a Retry-After header:
    - The client shall retry the request towards the Chatbot Information Function. The recommended value to retry shall be specified in the “Retry-After” header. The client shall retry for a maximum of three times;
    - If a request is processed successfully after retry, the procedures described for the HTTP 200 OK response shall apply;
    - If the last retry of the request fails, the client shall consider the transaction failed and the procedures described for any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408 shall apply.

- an HTTP 408 error response or no response (Chatbot Information retrieval request timeout):
    - The client shall manage the procedures locally on the device. If for the failure of a request a retry is applicable, the client shall retry by sending the same request again. The client shall retry for a maximum of three times;
    - If a request is processed successfully, the procedures described for the HTTP 200 OK response shall apply;
    - If the last retry of the request fails, the client shall consider the transaction failed and the procedures described for any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408 shall apply.

- An HTTP 200 OK response, the client shall:
    - Store the Etag and Cache-Control mandatory header values according to the procedures of [RFC7232] (see Table 49);
    - Store the Chatbot Information data, returned by the Chatbot Information Function;
    - For a request initiated as the result of a Chatbot attempting to contact a user for first time, apply any UX procedures for Chatbot initiated conversations.

The description of the client procedures in result of processing of the Chatbot Information refresh request in section 3.6.4.1 of [RCC.07-v8.0] shall be replaced by the following:

If the client receives in result of processing the Chatbot Information refresh request:

- any HTTP 5XX or HTTP 4XX error response or no response the client shall continue using the existing Chatbot Information until the next client trigger.
- a HTTP 304 NOT_MODIFIED response, the client shall:
    - store the Etag and Cache-Control directive value according to the procedures of [RFC7232]

- continue using the existing Chatbot Information

- a HTTP 200 OK response, the client shall:

  - store the Etag and Cache-Control directive value according to the procedures of [RFC7232]
  - store the provided Chatbot Information data

3.2.22 ID_RCC.07_8.0_22: Error Code correction

ID	ID_RCC.07_8.0_22
Title	Error Code correction
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.6
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

3.2.22.1 Issue Description

The error codes in section 3.6.6, when a client is trying to communicate with a blocked chatbot, are not appropriate.

3.2.22.2 Expected Behaviour

The following correction shall be made to the error codes returned when implementing section 3.6.6 of [RCC.07-v8.0]:

If access to a Chatbot is prevented in a Spam Block function, either in the Service Provider network or in the Chatbot Platform, this shall lead to the following behaviour:

- A SIP 403 Forbidden response including a Warning header field including the warning text set to "206 Spam Sender" shall be returned to a SIP request initiated by the client.
- A SIP 404 Not Found response shall be returned to a SIP request initiated by the Chatbot Platform (if blocked in the MNO network).

3.2.23 ID_RCC.07_8.0_23: Correction on Contact Header of a SIP INVITE request and response from the Chatbot Platform

ID	ID_RCC.07_8.0_23
Title	Correction on Contact Header of a SIP INVITE request and response from the Chatbot Platform
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.6.8.1 and 3.6.8.2
Applicable Universal Profile release	Universal Profile v2.0

Publication Date	05.06.2018
Superseded by	

3.2.23.1 Issue Description

The Contact header specification in section 3.6.8.1 and 3.6.8.2 is not clear on whether the existing feature tags need to be included.

3.2.23.2 Expected Behaviour

Step 1 in the generation of the SIP INVITE request in section 3.6.8.1 of [RCC.07-v8.0] and Step 1 in the generation of the SIP INVITE response in section 3.6.8.2 of [RCC.07-v8.0] shall be replaced with the following:

In section 3.6.8.1 of [RCC.07-v8.0]:

In this SIP INVITE request, the Chatbot Platform:

1. shall include the Chatbot IARI, the Chatbot application version feature tag and the *isbot* feature tag as defined in section 3.6.2 of [RCC.07-v8.0], in the Contact header in addition to values already included following section 3.2.3.1 of [RCC.07-v8.0];

In section 3.6.8.2 of [RCC.07-v8.0]:

In this SIP INVITE response, the Chatbot Platform:

1. shall include the Chatbot IARI, the Chatbot application version feature tag and the isbot feature tag as defined in section 3.6.2 of [RCC.07-v8.0], in the Contact header in addition to values already included following section 3.2.3.1 of [RCC.07-v8.0].

3.2.24 ID_RCC.07_8.0_24: Correction on CPM feature tag and bot version used in Contact header of a SIP request and response

ID	ID_RCC.07_8.0_24
Title	Correction on CPM feature tag and bot version used in Contact header of a SIP request and response
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.2.4
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

3.2.24.1 Issue Description

The CPM feature tag and bot version used in the Contact header in section 3.6.2.4 of [RCC.07-v8.0] in the non-normative examples is not correct.

3.2.24.2 Expected Behaviour

The non-normative examples in section 3.6.2.4 of [RCC.07-v8.0] shall be replaced with the following:

Non-normative examples:

- SIP OPTIONS request or response in the Contact header sent from the Chatbot Platform:
  `Contact:<sip:foo.bar@domain;+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.chatbot";+g.gsma.rcs.botversion="#=1";+g.gsma.rcs.isbot`
- SIP OPTIONS request or response in the Contact header sent from the client:
  `Contact:<sip:foo.bar@domain>;+g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-application.ims.icsi.oma.cpm.session";+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.chatbot";+g.gsma.rcs.botversion="#=1"`
- SIP INVITE request or response in the Contact header sent from the Chatbot Platform:
  `Contact:<sip:foo.bar@botplatform.domain>;+g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-service.ims.icsi.oma.cpm.session";+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.chatbot";+g.gsma.rcs.botversion="#=1";+g.gsma.rcs.isbot`
- SIP INVITE request or response in the Contact header sent from the client:
  `Contact:<sip:foo.bar@domain>;+g.3gpp.icsi-ref="urn%3Aurn-7%3A3gpp-application.ims.icsi.oma.cpm.session";+g.3gpp.iari-ref="urn%3Aurn-7%3A3gpp-application.ims.iari.rcs.chatbot";+g.gsma.rcs.botversion="#=1"`

3.2.25 ID_RCC.07_8.0_25: Presence service-id version update

ID	ID_RCC.07_8.0_25
Title	Presence service-id version update
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 2.6.1.3
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

3.2.25.1 Issue Description

The Presence service-id version for Chat is not in alignment with OMA recommendations and also not consistent between other service-id's within RCC.07. Since OMA defines this value as xs:token rather than xs:decimal there are issues between clients and across NNI where one operator or client has implemented "2" and another as "2.0".
In previous versions of RCC.07 (e.g. RCS 5.3 and earlier), this value was "2.0" hence the recommendation is to update this value to be "2.0" again in order to be in alignment with OMA and other service-id's.

3.2.25.2 Expected Behaviour

When implementing Presence capability discovery based on Table 8 in section 2.6.1.3 of [RCC.07-v8.0], the second proposed service-id value for the Chat service shall be called version 2.0, not version 2. It should be as shown here:

Service-id: org.openmobilealliance:ChatSession
Version: 2.0

3.2.26 ID_RCC.07_8.0_26: User-Agent and Server header encoding

ID	ID_RCC.07_8.0_26
Title	User-Agent and Server header encoding
Type	Requirement
Related spec and section	[RCC.07-v8.0]
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	26.09.2018, updated 18.12.2018 to correct ABNF
Superseded by	

3.2.26.1 Issue Description

It is desired to have a more granular indication of user agent characteristics present in SIP request and responses for various operational reasons. From RCS 8.0 onwards the indication of user agent characteristics is provided via formalised definitions of the SIP "User-Agent" and "Server" headers. It is recommended that client and network implementations apply these definitions already when based on RCS 7.0. as per expected behaviour below.

3.2.26.2 Expected Behaviour

If the device is configured to not share a registration between RCS and Multimedia Telephony via the client configuration parameter RCS VOLTE SINGLE REGISTRATION, it is recommended that the client includes in the SIP REGISTER request for RCS services a "User-Agent" header field following the definitions below.

In any registration configuration of the client configuration parameter RCS VOLTE SINGLE REGISTRATION, it is recommended that the client and the network include in non-REGISTER SIP requests and responses for RCS services other than Multimedia Telephony and SMS over IP the "User-Agent" and "Server" header field following the definitions below.

For RCS, the following ABNF for the "User-Agent" and "Server" headers applies:

```
Server = "Server" HCOLON product-list

User-Agent = "User-Agent" HCOLON product-list

product-list = enabler *(LWS enabler) *(LWS service) [LWS terminal]
                    [LWS client] [LWS OS] *(LWS list-extension)
```

The following user agent characteristics are defined:

1. Enabler technology:

   This product token identifies the supported and activated enabler technologies of an entity. The values of the product tokens are defined in the corresponding enabler specifications, e.g. the CPM enabler. One or more product tokens can be present in the header value. For RCS, the presence of the CPM technology product token defined in Annex D of [RCC.11-v6.0] is mandatory.

```
enabler = CPM-Version / extension ; CPM version is defined in
                                  ; Annex D of
                                  ; [RCS-CPM-CONVFUNC-ENDORS]
```

2. Service:

   This product token identifies the supported and enabled services provided by an entity. Zero or more product tokens can be present in the header value. For RCS the service product token shall be provided by clients and may be provided by networks and Chatbot Platforms.

```
service = RCS-product / extension

RCS-product = "RCS-" RCS-device-token SLASH RCS-profile

RCS-device-token = "client" ; header is included by a client
                   / "serv" ; header is included by an
                            ; application server
                   / "bot"  ; header is included by a botplatform
                   / token

RCS-profile = token ; same as rcs_profile defined in section 2.3.2.2
of [RCC.07-v8.0]
```

   Where `RCS-device-token` shall be set to "client", "serv" and "bot" depending on whether the header field is included by a client, an application server or a Chatbot Platform respectively. `RCS-profile` shall be set to the same value as the one provided for the rcs_profile Configuration request parameter defined in section 2.3.2.2 of [RCC.07-v8.0].

3. Terminal information:

   This product token identifies the terminal on which an entity resides. The value of the product token is determined by the terminal OEM. Zero or one product token can be present in the header value. This product token is only applicable for clients.

```
terminal = "term-" terminal-vendor SLASH terminal-model ”-”
            terminal-SW-version

terminal-vendor = token      ; same as terminal_vendor defined in
                             ; section 2.4 of [RCC.14-v5.0]

terminal-model = sf-token; same as terminal_model defined
                             ; in section 2.4 of [RCC.14-v5.0]

terminal-SW-version = token  ; same as terminal_sw_version defined
                             ; in section 2.4 of [RCC.14-v5.0]
```

```
sf-token =  1*(alphanum / "." / "!" / "%" / "*" / "_" /
                      "+" / "`" / "'" / "~" )
```

Where `terminal-vendor`, `terminal-model` and `terminal-SW-version` shall be set to the same value as the one provided for respectively the terminal_vendor, terminal_model and terminal_sw_version Configuration request parameters defined in section 2.4 of [RCC.14-v5.0].

4. Client information:

   This product token identifies the client software. The value of the product token is determined by the client provider. Zero or one product token can be present in the header value. For RCS, the client information product token is only applicable for clients.

```
client = "client-" client-vendor SLASH client-version

client-vendor = token ; same as client-vendor defined in
                      ; section 2.3.2.2 of [RCC.07-v8.0]

client-version = token; same as client-version defined in
                      ; section 2.3.2.2 of [RCC.07-v8.0]
```

   Where `client-vendor` and `client-version` shall be set to the same value as the one provided for respectively the client_vendor and client_version Configuration request parameters defined in section 2.3.2.2 of [RCC.07-v8.0].

5. Operating System information:

   This product token identifies the operating System on which an entity resides. The value of the product token is determined by the terminal OS provider. Zero or one product token can be present in the header value. This product token is only applicable for clients.

```
OS = "OS-" OS-type (SLASH OS-version)

OS-type = "Android" / "IOS" / "SymbianOS" / "Windows" / "Other" /
          token

OS-version = 1*alphanum *4("." 1*alphanum)
```

   Where `OS-type` and `OS-version` should be set to the most appropriate values for the Operating System on which the client is running.

6. Vendor specific and extensions:

   The extensibility of the product token list is maintained. Vendor specific information and extensions beyond the defined product token groups can be included in the list using the extension mechanism.

```
list-extension = extension

extension = extension-product / comment

extension-product = gsma-extension / other-extension

gsma-extension = tag "-" value [SLASH product-version]

tag = sf-token

value = token

product-version = token

other-extension = token [SLASH product-version]
```

NOTE: Because it cannot be guaranteed that the User-Agent and Server header fields are passed unmodified between entities supporting RCS, it is recommended that such entities do not depend on the presence of the described information. It is therefore recommended to handle this as purely informational.

Examples:

```
User-Agent: CPM-client/OMA2.2 RCS-client/UP_2.0 term-Vendor1/Model1-
XXXX client-CLN1/Software1234 OS-Android/8.1
Server: CPM-serv/OMA2.2 RCS-serv/UP_2.0
```

3.2.27 ID_RCC.07_8.0_27: Shared Client Data details

ID	ID_RCC.07_8.0_27
Title	Shared Client Data details
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.10.6.2.3
Applicable Universal Profile release	Universal Profile v2.0/2.1
Publication Date	26.09.2018
Superseded by	

3.2.27.1 Issue Description

[RCC.07-v8.0] doesn't specify what values have to be used for the different attributes of the object to provide details on the device to a Chatbot.

3.2.27.2 Expected Behaviour

When the user agrees to share client data following a `requestDeviceSpecifics` suggested action, the client shall send a sharedData payload as a CPIM Message to the

Chatbot Platform with a deviceSpecifics property to the Chatbot Platform following the schema defined in section 3.6.10.4 of [RCC.07-v9.0]. In this payload, the client shall set

- The value of the `deviceModel` property to the same value as provided for the `terminal_model` Configuration request parameter defined in section 2.4 of [RCC.14-v5.0];
- The value of the `platformVersion` property to the same value as provided for the `terminal_sw_version` defined in section 2.4 of [RCC.14-v5.0];
- The value of the `clientVendor` property to the same value as provided for the `client_vendor` Configuration request parameter defined in section 2.3.2.2 of [RCC.07-v9.0];
- The value of the `clientVersion` property to the same value as provided for the `client_version` Configuration request parameter defined in section 2.3.2.2 of [RCC.07-v9.0];
- The value of the `batteryRemainingMinutes` property to the estimated number of remaining minutes of battery life.

The Content-Type of the CPIM body shall be set as specified in section 3.6.10.2.4 of [RCC.07-v9.0].

3.2.28 ID_RCC.07_8.0_28: Message Store Message Direction

ID	ID_RCC.07_8.0_28
Title	Message Store Message Direction
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.2.5.3.2.1, 4.1.8.1, 4.1.12.1.4, 4.1.13.1, 4.1.15.4, 4.1.16.8
Applicable Universal Profile release	Universal Profile v2.0/v2.1
Publication Date	18.12.2018
Superseded by	

3.2.28.1 Issue Description

See section 3.3.4.1, where the reference to [RCC.07-v9.0] shall be replaced with a reference to [RCC.07-v8.0].

3.2.28.2 Expected Behaviour

See section 3.3.4.2, where the references to [RCC.07-v9.0] shall be replaced with a references to [RCC.07-v8.0].

3.2.29 ID_RCC.07_8.0_29: Compatibility handling for failed Group Chat restart

ID	ID_RCC.07_8.0_29
Title	Compatibility handling for failed Group Chat restart
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.2.4.10

Applicable Universal Profile release	Universal Profile v2.0/v2.1
Publication Date	18.12.2018
Superseded by	

3.2.29.1 Issue Description

Clients supporting Group Chat procedures defined in earlier versions of RCS will automatically establish a new Group Chat if a SIP 404 Not Found or SIP 403 Forbidden response with Reason header is received for a restart of a Group Chat session. This results in unexpected service behaviour in client interoperability scenarios.

The Controlling Function shall support an alternative procedure for the handling of an unauthorised Group Chat session restart to handle the transition in the client base as per expected behaviour below.

3.2.29.2 Expected Behaviour

If the Controlling Function receives a request for a restart of a Group Chat session and if the Group Chat does not exist as defined in step 1 and 2 of section 9.2.4 of [RCC.11-v6.0] or if Group Chat exists and the user is not allowed to join as defined in step 4 of section 9.2.4 of [RCC.11-v6.0], then

- the Controlling Function shall accept the SIP request with a SIP 200 OK response as defined in steps 10 to14 of section 9.2.4 of [RCC.11-v6.0].
- The Controlling Function shall not initiate the Media Plane handling for the client.
- If the Group Chat exists and the user is not allowed to join, then the Controlling Function shall
  - not add the requesting user as a participant to the Group Chat,
  - not restart the Group Chat session, if it is inactive,
  - not notify other participants, if the Group Chat session is active.
- The Controlling Function shall remove the unauthorised client from the Group Chat session by sending a SIP BYE request with Reason header as defined in section 9.2.11 of [RCC.11-v6.0].

If the Controlling Function receives a SIP SUBSCRIBE request for conference events from the client restarting the Group Chat session, then the Controlling Function shall act as defined for the case where the Group Chat Session Identity is not known, or the user is not a participant of the Group Chat respectively.

3.2.30 ID_RCC.07_8.0_30: Remove automatic re-join for Group Chat

ID	ID_RCC.07_8.0_30
Title	Remove automatic re-join for Group Chat
Type	Requirement
Related spec and section	[RCC.07-v8.0] section B.1.10

Applicable Universal Profile release	Universal Profile v2.0/v2.1
Publication Date	18.12.2018
Superseded by	

3.2.30.1 Issue Description

It is the responsibility of the Participating Function of the Messaging Server to detect that a client regained connectivity, if Group Chat messages or events are stored for a Group Chat participant. Clients restarting Group Chat sessions to indicate their availability create unnecessary load in the Messaging Server.

3.2.30.2 Expected Behaviour

It is clarified that the client shall send a re-join request to a Group Chat only to process a user request as defined in section 3.2.4.10 of [RCC.07-v8.0], i.e. if a message need to be sent, if participants need to be added or removed, if the user wants to leave the Group Chat or if Group Chat meta information need to be managed. The use case depicted in section B.1.10 of [RCC.07-v8.0] is not applicable for the client

3.2.31 ID_RCC.07_8.0_31: Generic File Download Procedure

ID	ID_RCC.07_8.0_31
Title	Generic File Download Procedure
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.2.5.3.2.1
Applicable Universal Profile release	Universal Profile v2.0/v2.1
Publication Date	16.12.2019
Superseded by	

3.2.31.1 Issue Description

See section 3.4.2.1, where the reference to [RCC.07-v10.0] shall be replaced with a reference to [RCC.07-v8.0].

3.2.31.2 Expected Behaviour

See section 3.4.2.2, where the references to [RCC.07-v10.0] shall be replaced with a reference to [RCC.07-v8.0] and the references to [RCC.11-v8.0] with a reference to [RCC.11-v6.0].

3.2.32 ID_RCC.07_8.0_32: CPM Session ICSI in SIP OPTIONS of Chatbot

ID	ID_RCC.07_8.0_32
Title	CPM Session ICSI in SIP OPTIONS of Chatbot
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.2.4

Applicable Universal Profile release	Universal Profile v2.0
Publication Date	16.12.2019
Superseded by	

3.2.32.1 Issue Description

See section 3.4.4.1.

3.2.32.2 Expected Behaviour

The behaviour for Chatbot Platforms specified in section 3.6.2.4 of [RCC.07-v8.0] is updated to the following:

A Chatbot platform:

- shall not include the the CPM Session ICSI value and Chat IARI as defined in Table 8 of [RCC.07-v8.0] for the Chat service in any OPTIONS request or response that it generates;
- If it supports capability exchange via presence, it shall not publish the service-id for Chat as defined in Table 8 of [RCC.07-v8.0].

3.2.33 ID_RCC.07_8.0_33: Data Off Parameter Clarification

ID	ID_RCC.07_8.0_33
Title	Data Off Parameter Clarification
Type	Requirement
Related spec and section	[RCC.07-v8.0] section A.1.14 and A.2.2
Applicable Universal Profile release	Universal Profile v2.0/v2.1
Publication Date	16.12.2019
Superseded by	

3.2.33.1 Issue Description

See section 3.3.11.1.

3.2.33.2 Expected Behaviour

See the definition of the MESSAGING DATA OFF and FILE TRANSFER DATA OFF in section 3.4.5.2 where the references to [RCC.07-v10.0] shall be replaced with references to [RCC.07-v8.0].

3.2.34 ID_RCC.07_8.0_34: Chatbot Media Download

ID	ID_RCC.07_8.0_34
Title	Chatbot Media Download
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.6.8.7 and 3.6.10.5.3

Applicable Universal Profile release	Universal Profile v2.0/v2.1
Publication Date	16.12.2019
Superseded by	

3.2.34.1 Issue Description

See section 3.4.6.1 where the references to [RCC.07-v10.0] shall be replaced with references to [RCC.07-v8.0].

3.2.34.2 Expected Behaviour

See section 3.4.6.2 where the references to [RCC.07-v10.0] shall be replaced with references to [RCC.07-v8.0].

3.2.35 ID_RCC.07_8.0_35: Chatbot Feature Tags in IMDNs

ID	ID_RCC.07_8.0_35
Title	Chatbot Feature Tags in IMDNs
Type	Requirement
Related spec and section	[RCC.07-v8.0] section 3.6.8.8
Applicable Universal Profile release	Universal Profile v2.0/v2.1
Publication Date	16.12.2019
Superseded by	

3.2.35.1 Issue Description

No specific procedures had been specified on the generation of IMDNs that relate to messages received in a Chatbot session.

3.2.35.2 Expected Behaviour

The rules for sending delivery and display notifications shall follow those of sections 3.2.2.2 and 3.2.3.1 of [RCC.07-v8.0].

In addition, for any disposition notification sent outside of an established MSRP session (i.e. sent by SIP MESSAGE) the following requirements and clarifications apply:

- When sending disposition notifications using a SIP MESSAGE method for a message that was received from or sent to a Chatbot, the client and the Chatbot Platform shall in addition to the Accept-Contact header already added, add another Accept-Contact header field carrying the Chatbot IARI feature tag defined in section 3.6.2.1 of [RCC.07-v8.0] and the Chatbot application version feature tag defined in section 3.2.20 and shall include the *require* and *explicit* parameters;
- If the disposition notification is related to a message that was received by the client in an anonymous Chatbot Chat Session (i.e. the 'tk' parameter of the Chatbot URI was set to ‘on’ in the P-Asserted-Identity received by the client), the client shall add to the SIP MESSAGE conveying it a Privacy header as defined in [RFC3323] if not already included, and add a value “tk” to it.

3.2.36 ID_RCC.07_8.0_36: Auto Download Procedures

ID	ID_RCC.07_8.0_36
Title	Auto Download Procedures
Type	Requirement
Related spec and section	[RCC.07-v8.0] sections 3.2.5.3.2, 3.2.5.4.4 and 3.6.10.5.3
Applicable Universal Profile release	Universal Profile v2.0/v2.1
Publication Date	16.12.2019
Superseded by	

3.2.36.1 Issue Description

The requirements for the client to download media objects in received File Transfer messages and in Rich cards are ambiguous.

3.2.36.2 Expected Behaviour

In sections 3.2.5.3.2, 3.2.5.4.4 and 3.6.10.5.3 of [RCC.07-v8.0], the client shall apply manual or auto-acceptance for a file download only as per definition in section 2.2.7.

3.3 RCC.07 Version 9.0

This section contains solutions for issues found in [RCC.07-v9.0].

3.3.1 ID_RCC.07_9.0_1: User-Agent and Server header encoding

ID	ID_RCC.07_9.0_1
Title	User-Agent and Server header encoding
Type	Requirement
Related spec and section	[RCC.07-v9.0] section C.4.1
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	26.09.2018
Superseded by	

3.3.1.1 Issue Description

A number of corrections were made to the ABNF of the SIP User-Agent and Server header in [RCC.07-v9.0] section C.4.1.

3.3.1.2 Expected Behaviour

The following provides the corrected full ABNF for the User-Agent and Server headers replacing the definitions in section C.4.1 of [RCC.07-v9.0]:

```
Server = "Server" HCOLON product-list
User-Agent = "User-Agent" HCOLON product-list
```

```
product-list = enabler *(LWS enabler) *(LWS service) [LWS terminal]
                   [LWS client] [LWS OS] *(LWS list-extension)

enabler = CPM-Version / extension ; CPM version is defined in
                                  ; Annex D of
                                  ; [RCS-CPM-CONVFUNC-ENDORS]

service = RCS-product / extension
RCS-product = "RCS-" RCS-device-token SLASH RCS-profile
RCS-device-token = "client" ; header is included by a client
                   / "serv" ; header is included by an
                            ; application server
                   / "bot"  ; header is included by a botplatform
                   / token
RCS-profile = token ; same as rcs_profile defined in section 2.3.2.2

terminal = "term-" terminal-vendor SLASH terminal-model "-"
            terminal-SW-version
terminal-vendor = token      ; same as terminal_vendor defined in
                             ; section 2.4 of [PRD-RCC.14]
terminal-model = sf-token ; same as terminal_model defined
                             ; in section 2.4 of [PRD-RCC.14]
terminal-SW-version = token  ; same as terminal_sw_version defined
                             ; in section 2.4 of [PRD-RCC.14]
sf-token =  1*(alphanum / "." / "!" / "%" / "*" / "_" /
                       "+" / "`" / "'" / "~" )

client = "client-" client-vendor SLASH client-version
client-vendor = token ; same as client_vendor defined in
                      ; section 2.3.2.2
client-version = token; same as client_version defined in
                      ; section 2.3.2.2

OS = "OS-" OS-type (SLASH OS-version)
OS-type = "Android" / "IOS" / "SymbianOS" / "Windows" / "Other" /
           token
OS-version = 1*alphanum *4("." 1*alphanum)

list-extension = extension
extension = extension-product / comment
extension-product = gsma-extension / other-extension
gsma-extension = tag "-" value [SLASH product-version]
tag = sf-token
value = token
product-version = token
other-extension = token [SLASH product-version]
```

3.3.2 ID_RCC.07_9.0_2: HTTP Digest RFCs

ID	ID_RCC.07_9.0_2
Title	HTTP Digest RFCs
Type	Requirement

Related spec and section	[RCC.07-v9.0] sections 1.4, 2.12.1.1.2, 3.2.5.3.1.1, 4.1.4 and 4.1.5
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	26.09.2018
Superseded by	

3.3.2.1 Issue Description

[RCC.07-v9.0] refers to RFC7616 for the implementation of HTTP Digest. That creates compatibility issues with clients from earlier releases.

3.3.2.2 Expected Behaviour

HTTP Digest authentication shall be implemented based on [RFC2617]. An RCS client based on [RCC.07-v9.0] implementing Universal Profile 2.2 shall include the qop directive in the HTTP Authorization header when it was provided by the server in the WWW-Authenticate header.

NOTE: For earlier versions there are no changes. Universal Profile 1.0 and 2.0 clients shall implement HTTP Digest based on [RFC2617] as defined in the versions of RCC.07 for those respective releases and inclusion of the qop directive in the HTTP Authorization header is therefore not mandatory.

This results in following changes:

- In section 2.12.1.1.2 of [RCC.07-v9.0], the reference to RFC7616 should be to [RFC2617] instead.
- In section 3.2.5.3.1.1 of [RCC.07-v9.0] in step 3, the reference to RFC7616 should be to [RFC2617] instead with the clarification that a Universal Profile 2.2 client shall include the qop directive if provided by the server.
- In section 4.1.4 of [RCC.07-v9.0], the reference to RFC7616 should be to [RFC2617] instead with the clarification that a Universal Profile 2.2 client shall include the qop directive if provided by the server.
- In section 4.1.5 of [RCC.07-v9.0], the reference to RFC7617 should be to [RFC2617] instead.

3.3.3 ID_RCC.07_9.0_3: Shared Client Data details

ID	ID_RCC.07_9.0_3
Title	Shared Client Data details
Type	Requirement
Related spec and section	[RCC.07-v9.0] section 3.6.10.6.2.3
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	26.09.2018
Superseded by	

3.3.3.1 Issue Description

[RCC.07-v9.0] doesn't specify what values have to be used for the different attributes of the object to provide details on the device to a Chatbot.

3.3.3.2 Expected Behaviour

When the user agrees to share client data following a `requestDeviceSpecifics` suggested action, the client shall send a sharedData payload as a CPIM Message to the Chatbot Platform with a deviceSpecifics property to the Chatbot Platform following the schema defined in section 3.6.10.4 of [RCC.07-v9.0]. In this payload, the client shall set

- The value of the `deviceModel` property to the same value as provided for the `terminal_model` Configuration request parameter defined in section 2.4 of [RCC.14-v5.0];
- The value of the `platformVersion` property to the same value as provided for the `terminal_sw_version` defined in section 2.4 of [RCC.14-v5.0];
- The value of the `clientVendor` property to the same value as provided for the `client_vendor` Configuration request parameter defined in section 2.3.2.2 of [RCC.07-v9.0];
- The value of the `clientVersion` property to the same value as provided for the `client_version` Configuration request parameter defined in section 2.3.2.2 of [RCC.07-v9.0];
- The value of the `batteryRemainingMinutes` property to the estimated number of remaining minutes of battery life.

The Content-Type of the CPIM body shall be set as specified in section 3.6.10.2.4 of [RCC.07-v9.0].

3.3.4 ID_RCC.07_9.0_4: Message Store Message Direction

ID	ID_RCC.07_9.0_4
Title	Message Store Message Direction
Type	Requirement
Related spec and section	[RCC.07-v9.0]sections 3.2.5.3.2.1, 4.1.8.1, 4.1.12.1.4, 4.1.13.1, 4.1.15.4, 4.1.16.8
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	18.12.2018
Superseded by	

3.3.4.1 Issue Description

[RCC.07-v9.0] refers to the Message-Direction attribute defined in [CPM-MSGSTOR-REST] in several sections, but that specification defines an attribute named Direction instead of Message-Direction. The Direction attribute would have "In" and "Out" as possible values.

3.3.4.2 Expected Behaviour

[RCC.07-v9.0] refers to the "Message-Direction" attribute defined in [CPM-MSGSTOR-REST] in sections 3.2.5.3.2.1, 4.1.15.4, 4.1.16.8 and in the tables in sections 4.1.12.1.4 and

4.1.13.1. This shall refer to the "Direction" attribute defined in [CPM-MSGSTOR-REST] instead.

In section 4.1.8.1 of [RCC.07-v9.0], when storing a message sent or received as an SMS/MMS in the Common Message Store, the client shall set

- a Message-Context header and attribute to pager-message/multimedia-message as described in section 4.1.8 of [RCC.07-v9.0] and
- The Message-Direction header and Direction attribute as described in section 4.1.16.8 of [RCC.07-v9.0] (updated as per the below).

Section 4.1.16.8 of [RCC.07-v9.0] shall be updated as follows:

To simplify the client procedure to display messages as sent or received within a conversation an entity storing the message in the Common Message Store shall add the message transfer direction via a Direction attribute.

The Direction attribute should be stored for all types of user messages in the Common Message Store.

If the Direction attribute is present and the value is set to "Out", then the client shall display the message as sent from the own user. The client should disregard the address value in the From: header of the message. If the Direction attribute is present and the value is set to "In", then the client shall display the message as received by the own user. The client should disregard the address value in the To: header of the message.

If the Direction attribute is not present then the client should display the message direction based on a local device policy.

The Direction attribute is defined in [CPM-MSGSTOR-REST].

3.3.5 ID_RCC.07_9.0_5: Chatbot Platform AF SIP responses clarification

ID	ID_RCC.07_9.0_5
Title	Chatbot Platform AF SIP responses clarification
Type	Requirement
Related spec and section	[RCC.07-v9.0] section 3.6.5.1.4.1
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	18.12.2018
Superseded by	

3.3.5.1 Issue Description

In [RCC.07-v9.0], the Chatbot Platform AF procedures related to the handling of users SIP request lacks some precision. When responding to a SIP request related to the setting of a communication, the Chatbot Platform AF shall add the ‘tk’ uri parameter in the SIP response.

3.3.5.2 Expected Behaviour

Section 3.6.5.1.4.1 of [RCC.07-v9.0] shall be updated as follows:

Upon receiving a SIP request carrying the Chatbot IARI feature tag defined in section 3.6.2.1 of [RCC.07-v9.0] included in the Accept-Contact header field and without the Chatbot role as defined in section 3.6.2.3 of [RCC.07-v9.0] included in the Contact header, the AF:

7. shall retrieve the URIs of the user and the Chatbot respectively from the P-Asserted-Identity and Request-URI headers;
8. if the request is a SIP INVITE or a SIP MESSAGE with a Privacy header set to “tk”,

    a) if for any reason (e.g. the AF cannot access its repository, or a token cannot be generated) anonymity cannot be performed, the Chatbot Platform AF shall respond to the SIP request with a SIP 500 Server Internal Error response with optionally a Retry-After header set to a locally configured value and shall not proceed with the rest of the steps.
    b) the Chatbot Platform AF shall check if the (user URI, Chatbot URI) pair is known in its repository;

        i. If the pair is not known, the AF shall create a token and associate it with the (user URI, Chatbot URI) pair;
        ii. otherwise, the AF shall use the token associated with the pair.

    c) shall provide the token to the Chatbot as the user’s identity.

    d) shall send a SIP response according to section 3.6.8.2 of [RCC.07-v9.0] with the following clarification:
        i. a ‘tk’ URI parameter (as defined in section 2.5.4.3 of [RCC.07-v9.0]) set to ‘on’ shall be added to each of the URIs in the P-Asserted-Identity header field.

9. if the request is a SIP INVITE with a Privacy header set to “tklink”,

    a) if for any reason the AF cannot access its repository, the Chatbot Platform AF shall respond to the SIP request with a SIP 500 Server Internal Error response with optionally a Retry-After header set to a locally configured value and shall not proceed with the rest of the steps.
    b) shall check if the (user URI, Chatbot URI) pair is known in its repository;

        i. If the pair is not known, the Chatbot platform AF shall respond to the SIP INVITE with a SIP 403 Forbidden with a Warning header with the warning text set to “204 Token Not Found” and shall not proceed with the rest of the steps;
        ii. otherwise, the Chatbot Platform shall
            - indicate to the Chatbot that the user’s URI and the token associated to the pair represent the same user.
              How the Chatbot platform interacts with the Chatbot for such indication is outside the scope of this specification and
            - invalidate the corresponding token in the repository and

- If there is an established 1-to-1 Chat session between the user and the Chatbot where privacy was requested, close the session by sending to the client a SIP BYE request carrying a Reason header field with the protocol set to SIP and the protocol cause code set to 200 (e.g. SIP;cause=200;text="Call completed").

c) shall send a SIP response according to section 3.6.8.2 of [RCC.07-v9.0] with the following clarification:
   i. a 'tk' URI parameter (as defined in section 2.5.4.3 of [RCC.07-v9.0]) set to 'off' shall be added to each of the URIs in the P-Asserted-Identity header field.

10. if the request is a SIP OPTIONS or SIP SUBSCRIBE, then the Chatbot Platform shall either respond itself, or interact with the Chatbot without providing the user's URI.
11. Otherwise (i.e. the conditions in steps 8, 8.d) and 9.c) do not apply), the AF

a) shall provide the user's URI(s) to the Chatbot as the user's identity(ies).

b) shall send a SIP response according to section 3.6.8.2 of [RCC.07-v9.0] with the following clarification:
   i. a 'tk' URI parameter (as defined in section 2.5.4.3 of [RCC.07-v9.0]) set to 'off' shall be added to each of the URIs in the P-Asserted-Identity header field.

3.3.6 ID_RCC.07_9.0_6: Compatibility handling for failed Group Chat restart

ID	ID_RCC.07_9.0_6
Title	Compatibility handling for failed Group Chat restart
Type	Requirement
Related spec and section	[RCC.07-v9.0]section 3.2.4.10
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	18.12.2018
Superseded by	

3.3.6.1 Issue Description

Clients supporting Group Chat procedures defined in earlier versions of RCS will automatically establish a new Group Chat if a SIP 404 Not Found or SIP 403 Forbidden response with Reason header is received for a restart of a Group Chat session. This results in unexpected service behaviour in client interoperability scenarios.

The Controlling Function shall support an alternative procedure for the handling of an unauthorised Group Chat session restart to handle the transition in the client base as per expected behaviour below.

3.3.6.2 Expected Behaviour

If the Controlling Function receives a request for a restart of a Group Chat session and if the Group Chat does not exist as defined in step 1 and 2 of section 9.2.4 of [RCC.11-v7.0] or if

Group Chat exists and the user is not allowed to join as defined in step 4 of section 9.2.4 of [RCC.11-v7.0], then

- the Controlling Function shall accept the SIP request with a SIP 200 OK response as defined in steps 10 to14 of section 9.2.4 of [RCC.11-v7.0].
- The Controlling Function shall not initiate the Media Plane handling for the client.
- If the Group Chat exists and the user is not allowed to join, then the Controlling Function shall
  - not add the requesting user as a participant to the Group Chat,
  - not restart the Group Chat session, if it is inactive,
  - not notify other participants, if the Group Chat session is active.
- The Controlling Function shall remove the unauthorised client from the Group Chat session by sending a SIP BYE request with Reason header as defined in section 9.2.11 of [RCC.11-v7.0].

If the Controlling Function receives a SIP SUBSCRIBE request for conference events from the client restarting the Group Chat session, then the Controlling Function shall act as defined for the case where the Group Chat Session Identity is not known, or the user is not a participant of the Group Chat respectively.

3.3.7 ID_RCC.07_9.0_7: Remove automatic re-join for Group Chat

ID	ID_RCC.07_9.0_7
Title	Remove automatic re-join for Group Chat
Type	Requirement
Related spec and section	[RCC.07-v9.0] section B.1.10
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	18.12.2018
Superseded by	

3.3.7.1 Issue Description

It is the responsibility of the Participating Function of the Messaging Server to detect that a client regained connectivity, if Group Chat messages or events are stored for a Group Chat participant. Clients restarting Group Chat sessions to indicate their availability create unnecessary load in the Messaging Server.

3.3.7.2 Expected Behaviour

It is clarified that the client shall send a re-join request to a Group Chat only to process a user request as defined in section 3.2.4.10 of [RCC.07-v9.0], i.e. if a message need to be sent, if participants need to be added or removed, if the user wants to leave the Group Chat or if Group Chat meta information need to be managed. The use case depicted in section B.1.10 of [RCC.07-v9.0] is not applicable for the client.

3.3.8 ID_RCC.07_9.0_8: Generic File Download Procedure

ID	ID_RCC.07_9.0_8
Title	Generic File Download Procedure
Type	Requirement
Related spec and section	[RCC.07-v9.0] section 3.2.5.3.2.1
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.8.1 Issue Description

See section 3.4.2.1, where the reference to [RCC.07-v10.0] shall be replaced with a reference to [RCC.07-v9.0].

3.3.8.2 Expected Behaviour

See section 3.4.2.2, where the references to [RCC.07-v10.0] shall be replaced with a reference to [RCC.07-v9.0] and the references to [RCC.11-v8.0] with a reference to [RCC.11-v7.0].

3.3.9 ID_RCC.07_9.0_9: Chatbot Information Schema correction

ID	ID_RCC.07_9.0_9
Title	Chatbot Information Schema correction
Type	Requirement
Related spec and section	[RCC.07-v9.0] section 3.6.4.1.3
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.9.1 Issue Description

See section 3.4.3.1, where the reference to [RCC.07-v10.0] shall be replaced with a reference to [RCC.07-v9.0].

3.3.9.2 Expected Behaviour

See section 3.4.3.2 where the reference to [RCC.07-v10.0] shall be replaced with a reference to [RCC.07-v9.0].

3.3.10 ID_RCC.07_9.0_10: CPM Session ICSI in SIP OPTIONS of Chatbot

ID	ID_RCC.07_9.0_10
Title	CPM Session ICSI in SIP OPTIONS of Chatbot
Type	Requirement

Related spec and section	[RCC.07-v9.0] section 2.6.1.3.2.1
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.10.1 Issue Description

See section 3.4.4.1 where the references to [RCC.07-v10.0] shall be replaced with references to [RCC.07-v9.0].

3.3.10.2 Expected Behaviour

See section 3.4.4.2 where the references to to [RCC.07-v10.0] shall be replaced with references to [RCC.07-v9.0].

3.3.11 ID_RCC.07_9.0_11: Data Off Parameter Clarification

ID	ID_RCC.07_9.0_11
Title	Data Off Parameter Clarification
Type	Requirement
Related spec and section	[RCC.07-v9.0] section A.1.14 and A.2.2
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.11.1 Issue Description

The definition of the Data Off client configuration parameters in section A.1.14 of [RCC.07-v9.0] does not clarify to which services MESSAGING DATA OFF and FILE TRANSFER DATA OFF apply nor does it specify the relation between those.

3.3.11.2 Expected Behaviour

See the definition of the MESSAGING DATA OFF and FILE TRANSFER DATA OFF in section 3.4.5.2 where the references to [RCC.07-v10.0] shall be replaced with references to [RCC.07-v9.0].

3.3.12 ID_RCC.07_9.0_12: Chatbot Media Download

ID	ID_RCC.07_9.0_12
Title	Chatbot Media Download
Type	Requirement
Related spec and section	[RCC.07-v9.0]sections 3.6.8.7 and 3.6.10.5.3
Applicable Universal Profile release	Universal Profile v2.2

Publication Date	16.12.2019
Superseded by	

3.3.12.1 Issue Description

See section 3.4.6.1 where the references to [RCC.07-v10.0] shall be replaced with references to [RCC.07-v9.0].

3.3.12.2 Expected Behaviour

See section 3.4.6.2 where the references to [RCC.07-v10.0] shall be replaced with references to [RCC.07-v9.0].

3.3.13 ID_RCC.07_9.0_13: Chatbot Feature Tags in IMDNs

ID	ID_RCC.07_9.0_13
Title	Chatbot Feature Tags in IMDNs
Type	Requirement
Related spec and section	[RCC.07-v9.0] sections 3.6.8.8
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.13.1 Issue Description

The procedure in section 3.6.8.8 of [RCC.07-v9.0] for the sending of disposition notifications related to a message received in a Chatbot session didn't clarify whether a SIP MESSAGE request used to send a disposition notification had to include feature tags to identify it as a request relating to Chatbot communication.

3.3.13.2 Expected Behaviour

In addition to what is specified in section 3.6.8.8 of[RCC.07-v9.0], for any disposition notification sent outside of an established MSRP session (i.e. sent by SIP MESSAGE) the following applies:

- When sending disposition notifications using a SIP MESSAGE method for a message that was received from or sent to a Chatbot, the client and the Chatbot Platform shall in addition to the Accept-Contact header already added, add another Accept-Contact header field carrying the Chatbot IARI feature tag defined in section 3.6.2.1 of [RCC.07-v9.0] and the Chatbot application version feature tag defined in section 3.6.2.2 of [RCC.07-v9.0] and shall include the *require* and *explicit* parameters.

3.3.14 ID_RCC.07_9.0_14: "sms" URI processing

ID	ID_RCC.07_9.0_14
Title	"sms" URI processing
Type	Requirement

Related spec and section	[RCC.07-v9.0] section 3.6.3.4
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.14.1 Issue Description

The processing requirements of the "sms" URI extensions for RCS deep links are insufficient to guarantee full interoperability.

3.3.14.2 Expected Behaviour

The following syntax extends the formal definition of the "sms" URI scheme defined in [RFC5724].

```
sms-field-name =/ "service_id" / "suggestions"
sms-recipient =/ service-id ; this increment is not compatible
                            ; with [RFC5724]
service-id = escaped-value
```

Based on the extensions defined above, the following additions apply to the processing of the "sms" URI as defined in section 2.3 of [RFC5724]:

- In step 1, if the client is registered for RCS services, then
  - if a “service_id” parameter is included in the "sms" URI, the value of the “service_id” parameter shall be extracted and converted to a SIP URI. The definitions for the handling of Vanity-Service-IDs as defined in section 3.3.18 shall be taken into account. The "sms-hier-part" of the "sms" URI as defined in [RFC5724] shall be ignored in this case.
  - Otherwise, if the "service_id" parameter is not included in the "sms" URI" and the first "sms-recipient" contains a Chatbot service identifier as per "sms" URI extension above, then the client shall extract the value and convert it to a SIP URI. The definitions for the handling of Vanity-Service-IDs as defined in section 3.3.18 shall be taken into account.
  - Otherwise, the client shall extract the phone number of the first "sms-recipient" as defined in [RFC5724].
  - Trigger handling for capability discovery applies for the extracted contact address based on the procedures defined in section 2.6 of [RCC.07-v9.0] and the corresponding service description. The definitions for discovery of a Chatbot service identifier for a tel URI via capability discovery as defined in section 2.5.4.1 of [RCC.07-v9.0] shall be taken into account.
  - If the contact address resulting from the processing above is a Chatbot service identifier, then trigger handling for Chatbot information retrieval via the procedures defined in section 3.6.4.1 of [RCC.07-v9.0] applies.

Otherwise, if the client is not registered for RCS services, then the "sms" URI extension parameters defined above and a "sms-recipient" containing a Chatbot service identifier shall be ignored. The processing of [RFC5724] shall apply.

- In step 2, a "body" parameter shall not be extracted, if the contact address is known to be linked to a Chatbot in result of the processing in step 1, and if a “suggestions” parameter is present. The "suggestions" parameter shall be extracted in this case.
- In step 3, if the "suggestions" parameter has been extracted in step 2, then the RCS client shall show an initial Suggested Chip List based on the JSON object that is obtained after base64 URL decoding the value of the “suggestions” parameter of the "sms" URI.
- In step 4, if the client is registered for RCS services, the selection of the default delivery method and the fall-back to alternative delivery methods shall be applied in accordance with the procedures of the 1-to-1 Messaging technology selection as defined in section 3.2.1 of [RCC.07-v9.0].
- In step 5, if the processing of the "sms" URI was based on a SIP URI extracted from the "service_id" parameter or the "sms-recipient", then the processing of the comma separated list in the "sms-hier-part" of the "sms" URI is omitted.
- If the client is registered for RCS services, when processing a comma-separated list of recipients in the "sms-hier-part", the client shall consider the procedures for the 1-to-Many Messaging Technology selection as defined in section 3.2.2.8 of [RCC.07-v9.0].

3.3.15 ID_RCC.07_9.0_15: Chatbot Capability and Service ID

ID	ID_RCC.07_9.0_15
Title	Chatbot Capability and Service ID
Type	Requirement
Related spec and section	[RCC.07-v9.0] sections 2.5.4.1, 3.6.2.4
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.15.1 Issue Description

The description of the conditions for a contact to be linked with a Chatbot is ambiguous.

3.3.15.2 Expected Behaviour

For section 2.5.4.1 of [RCC.07-v9.0], it is clarified that the presence of the "botplatform" subdomain in a SIP URI representing a Chatbot Service ID is not mandated.

For section 3.6.2.4 of [RCC.07-v9.0], it is clarified that the presence of the "botplatform" subdomain is not required for a SIP URI linked with a Chatbot.

3.3.16 ID_RCC.07_9.0_16: Auto Download Procedures

ID	ID_RCC.07_9.0_16

Title	Auto Download Procedures
Type	Requirement
Related spec and section	[RCC.07-v9.0] sections 3.2.5.3.2, 3.2.5.4.4 and 3.6.10.5.3
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.16.1 Issue Description

The requirements for the client to download media objects in received File Transfer messages and in Rich cards are ambiguous.

3.3.16.2 Expected Behaviour

In sections 3.2.5.3.2, 3.2.5.4.4 and 3.6.10.5.3 of [RCC.07-v9.0], the client shall apply manual or auto-acceptance for a file download only as per definitions in section 2.3.2.

3.3.17 ID_RCC.07_9.0_17: Extension of the Chatbot Information Response handling

ID	ID_RCC.07_9.0_17
Title	Extension of the Chatbot Information Response handling
Type	Requirement
Related spec and section	[RCC.07-v9.0] section 3.6.4.1
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.17.1 Issue Description

The procedures of the Chatbot Information retrieval have been extended to allow the network to return an alternative Chatbot Service ID for the case where a user attempts to contact a chatbot for the first time. This extension allows the service provider to link a user provided Chatbot service identifier with the service identifier used in its own network.

3.3.17.2 Expected Behaviour

When receiving a 200 OK response to a Chatbot Information request which has been initiated as the result of a user attempt to contact a Chatbot for the first time, as defined in section 3.6.4.1.2 of [RCC.07-v9.0], then the client

- shall check whether the PCC part of the Chatbot Information data contains Service ID information as per section 3.6.4.1.3 of [RCC.07-v9.0].
- If Service ID information is contained, then the client shall compare the SIP URI contained in the Service ID information of the Chatbot Information data with the SIP URI for which the Chatbot Information retrieval was triggered. Prior to comparison,

URI parameters and headers shall be removed from both SIP URIs. The comparison of the resulting SIP URIs shall follow the URI comparison rules defined in [RFC3261].

- If the Service ID information is not contained in the PCC part of the Chatbot Information data, or if Service ID information is contained and the SIP URIs match then the client shall continue processing the 200 OK response as defined in [RCC.07-v9.0].
- Otherwise, if the SIP URIs do not match, then the client shall use the SIP URI contained in the Service ID information to initiate a second Chatbot Information retrieval using the procedures defined in section 3.6.4.1.1 of [RCC.07-v9.0]. If the second Chatbot Information response results in

    - an HTTP 200 OK response, then the client shall use the Chatbot Information data received in the second Chatbot Information response for the further processing, and use the SIP URI received in the Service ID information of the PCC part of the Chatbot Information data received in first Chatbot Information response as the contact address of the Chatbot. The client shall discard the SIP URI which triggered the first Chatbot Information.
    - any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408, then the client shall continue with the SIP URI which triggered the first Chatbot Information request and the Chatbot Information data received in the first Chatbot Information response.
    - an HTTP 408 error response or no response (Chatbot Information retrieval request timeout):
      The client shall manage the procedures locally on the device. If for the failure of a request a retry is applicable, the client shall retry by sending the second request for Chatbot Information again. The client shall retry for a maximum of three times.
      If a request is processed successfully, the procedures described for the HTTP 200 OK response shall apply.
      If the last retry of the request fails, the client shall consider the transaction failed and the procedures described for any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408 shall apply.

3.3.18 ID_RCC.07_9.0_18: Vanity Service ID

ID	ID_RCC.07_9.0_18
Title	Vanity Service ID
Type	Requirement
Related spec and section	[RCC.07-v9.0] section 2.5
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.18.1 Issue Description

To meet the functional requirements of the Universal Profile for the user initiated addressing of a Chatbot, the RCS specification has been extended to support Vanity-Service-IDs. Vanity-Service-IDs are used to simplify the input or representation of Chatbot service identifiers.

3.3.18.2 Expected Behaviour

The new addressing scheme for Vanity-Service-ID shall be supported by the client as an extension to addressing principles defined in section 2.5 of [RCC.07-v9.0].

A contact address of a Chatbot shall be considered to be a Vanity-Service-ID, if a contact address matches the definitions of a Vanity-Service-ID but does not match the definitions of a phone number, as per RCS addressing model defined below.

Prior to the use of the contact address for capability discovery, chatbot information request and establishment of a communication with the Chatbot, the client shall transform the Vanity-Service-ID to a fully qualified SIP URI in accordance with the definitions of a SIP URI in [RFC3261] as follows.

The client shall

- if the Vanity-Service-ID contains characters being reserved within the "userinfo" part of the SIP URI, escape these characters using the ""%" HEX HEX" mechanism, as defined in [RFC3261], and
- prefix to the string the "sip:" scheme string, and
- suffix to the string a "@" character and a "host" part containing the FQDN composed from the service providers MCC and MNC as defined in section 2.5.4.1.2 of [RCC.07-v9.0]. When generating the FQDN, the client shall use its home network operator MCC and MNC values.

Examples:

If the home network operator of the client is assigned with the following MCC and MNC values:

MCC = 262, MNC = 01

then a Vanity-Service-ID:

"acme-corporation"

results in the Chatbot service identifier SIP URI:

"sip:acme-corporation@botplatform.mnc001.mcc262.3gppnetwork.org".

A Vanity-Service-ID:

"корпорация-acme"

results in the Chatbot service identifier SIP URI:

"sip:%D0%BA%D0%BE%D1%80%D0%BF%D0
%BE%D1%80%D0%B0%D1%86%D0%B8%D1%8F-acme@
botplatform.mnc262.mcc001.3gppnetwork.org".

When showing a Chatbot service identifier to the user, the client may omit the "sip:" scheme string, the "@" character of the "userinfo" part and the "host" part of a SIP URI identifying a chatbot, if

- the SIP URI does not contain parameters, and
- the "host" part contains the FQDN composed from MCC and MNC as defined in section 2.5.4.1.2 of of [RCC.07-v9.0], and
- the values of MCC and MNC are the values of the client's home network operator.

If the client omits the "sip:" scheme string, the "@" character of the "userinfo" part and the "host" part of the SIP URI, and if the remaining part of the "userinfo" part contains escaped characters, then the client shall unescape these characters.

RCS Addressing Model:

The RCS Addressing model allows the determination of address types for user provided contact addresses. The following address types are defined:

- SIP URI
  to address a contact with a SIP URI, the client shall initiate SIP outgoing requests as defined in section 2.5.2 of [RCC.07-v9.0] for the case where the contact is a SIP URI.

- phone number
  to address a contact with a phone number, the client shall initiate SIP outgoing requests as defined in section 2.5.2 of [RCC.07-v9.0] for the case where the contact is a telephone number.

- Vanity-Service-ID
  to address a contact with a Vanity-Service-ID, the client shall apply the processing defined above, prior to the initiation of SIP outgoing requests.

- e-mail
  to address a contact with an e-mail address, the client shall initiate a messaging request using the MMS service.

The following provides the formal definition of the address types of the RCS addressing model.

```
address-type = SIP-URI / phone-number / vanity-service-id / e-mail
  ; SIP-URI is defined in [RFC3261]

phone-number = [+] *(DIGIT / separator) DIGIT *(DIGIT / separator)

separator = "-" / "." / "(" / ")" / "*" / "#"

vanity-service-id = vanity-id-text

vanity-id-text =  1*allowed-utf8char
```

```
allowed-utf8char =  %x21-3F / %x41-7E / UTF8-NONASCII
  ; UTF8-NONASCII is defined in [RFC3261]

e-mail = mailbox
  ; mailbox is defined in [RFC5322]
```

3.3.19 ID_RCC.07_9.0_19: Deferred Chatbot Session handling in client

ID	ID_RCC.07_9.0_19
Title	Deferred Chatbot Session handling in client
Type	Requirement
Related spec and section	[RCC.07-v9.0] section 3.6.9
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.19.1 Issue Description

The procedure in section 3.6.9 of [RCC.07-v9.0] defines handling of deferred session in the Messaging Server but it didn't clarify how the deferred session should be handled at the client.

3.3.19.2 Expected Behaviour

The following procedure is added to the end of section 3.6.9 of [RCC.07-v9.0]:

When a deferred session request is received, client shall follow the rules and procedures of sections 7.3.11 of [RCS-CPM-CONVFUNC-ENDORS] as well as the clarifications listed here. Upon receiving deferred request, the Client:

- shall reject the SIP INVITE request with a SIP 606 Not Acceptable response, if privacy is enabled using the PRIVACY DISABLE client configuration parameter defined in section A.1.3 of [RCC.07-v9.0]and the Referred-By in the SIP INVITE request doesn't contain the 'tk' parameter with a value "on" or "off"

3.3.20 ID_RCC.07_9.0_20: Token Delete Request failure handling

ID	ID_RCC.07_9.0_20
Title	Token Delete Request failure handling
Type	Requirement
Related spec and section	[RCC.07-v9.0] section 3.6.5.1.2.3
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.20.1 Issue Description

The procedure in section 3.6.5.1.2.3 of [RCC.07-v9.0] for deleting a token associated with a Chatbot didn't clarify how error responses other than SIP 500 Server Internal Error should be handled by the client.

3.3.20.2 Expected Behaviour

The following sentence is added to the end of section 3.6.5.1.2.3 of [RCC.07-v9.0]:

Upon receipt of any other error response, the client shall consider that the token is not deleted and inform the user accordingly.

3.3.21 ID_RCC.07_9.0_21: Token Link Request failure handling

ID	ID_RCC.07_9.0_21
Title	Token Link Request failure handling
Type	Requirement
Related spec and section	[RCC.07-v9.0]section 3.6.5.1.2.4
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	16.12.2019
Superseded by	

3.3.21.1 Issue Description

The procedure in section 3.6.5.1.2.4 of [RCC.07-v9.0] for linking a token with the user's MSISDN didn't clarify how error responses for the SIP INVITE should be handled by the client.

3.3.21.2 Expected Behaviour

The following two sentences are added to the end of the procedure in section 3.6.5.1.2.4 of [RCC.07-v9.0], and before the NOTE:

Upon receipt of a SIP 500 Server Internal Error response, the client shall consider that the token is not linked and the client may retry to link the token.

Upon receipt of any other error response, the client shall consider that the token is not linked and inform the user accordingly.

3.4 RCC.07 Version 10.0

This section contains solutions for issues found in [RCC.07-v10.0].

3.4.1 ID_RCC.07_10.0_1: Compatibility handling for failed Group Chat restart

ID	ID_RCC.07_10.0_1
Title	Compatibility handling for failed Group Chat restart
Type	Requirement

Related spec and section	[RCC.07-v10.0] section 3.2.4.10
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	18.12.2018
Superseded by	

3.4.1.1 Issue Description

Clients supporting Group Chat procedures defined in earlier versions of RCS will automatically establish a new Group Chat if a SIP 404 Not Found or SIP 403 Forbidden response with Reason header is received for a restart of a Group Chat session. This results in unexpected service behaviour in client interoperability scenarios.

The Controlling Function shall support an alternative procedure for the handling of an unauthorised Group Chat session restart to handle the transition in the client base as per expected behaviour below.

3.4.1.2 Expected Behaviour

If the Controlling Function receives a request for a restart of a Group Chat session and if the Group Chat does not exist as defined in step 1 and 2 of section 9.2.4 of [RCC.11-v8.0] or if Group Chat exists and the user is not allowed to join as defined in step 4 of section 9.2.4 of [RCC.11-v8.0] then

- the Controlling Function shall accept the SIP request with a SIP 200 OK response as defined in steps 10 to14 of section 9.2.4 of [RCC.11-v8.0]
- The Controlling Function shall not initiate the Media Plane handling for the client.
- If the Group Chat exists and the user is not allowed to join, then the Controlling Function shall
  - not add the requesting user as a participant to the Group Chat,
  - not restart the Group Chat session, if it is inactive,
  - not notify other participants, if the Group Chat session is active.
- The Controlling Function shall remove the unauthorised client from the Group Chat session by sending a SIP BYE request with Reason header as defined in section 9.2.11 of of [RCC.11-v8.0]

If the Controlling Function receives a SIP SUBSCRIBE request for conference events from the client restarting the Group Chat session, then the Controlling Function shall act as defined for the case where the Group Chat Session Identity is not known, or the user is not a participant of the Group Chat respectively.

3.4.2 ID_RCC.07_10.0_2: Generic File Download Procedure

ID	ID_RCC.07_10.0_2
Title	Generic File Download Procedure
Type	Requirement

Related spec and section	[RCC.07-v10.0] section 3.2.5.3.2.1
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.2.1 Issue Description

The download procedure in section 3.2.5.3.2.1 of [RCC.07-v10.0] is used for other services than File Transfer (e.g. media download in Rich Cards for Chatbot Messaging and icon download for Enriched Calling Call Composer). The procedure defined in section 3.2.5.3.2.1 of [RCC.07-v10.0] still contains several references to the File Transfer service though which might create confusion on how certain aspects of it apply to those other services.

3.4.2.2 Expected Behaviour

The procedure in section 3.2.5.3.2.1 of [RCC.07-v10.0] shall be replaced with the following:

> To download a file referred to through a HTTP URL received in an RCS message, the RCS Client shall:
>
> a) if the URL refers to a thumbnail, download the thumbnail via the download procedure defined below.
> b) Otherwise, if the user accepts the download or auto-accept applies (see section 3.2.5.3.2.2 of [RCC.07-v10.0]), download the file via the download procedure below.
>
> To download a given file referred to through a HTTP URL received in an RCS message, the client shall
>
> 1. if the value of the configuration parameter FT HTTP DL URI defined in section A.1.4 of [RCC.07-v10.0] is present, create the download URI by appending to the query component of the URL contained in the configuration parameter the request parameters defined below using the application/x-www-form-urlencoded format as defined in [HTML4.0]. If no query component exists, the client shall add one first, in accordance with the definitions in [RFC3986]. The client shall add:
>
>   - a mandatory "url" parameter with the URL that refers to the file.
>   - an optional "id" parameter with the message-ID of the RCS message through which the URL referring to the file was received. This shall be taken from the IMDN message-ID of the Chat or Standalone Message or taken from the message object of the Common Message Store. The "id" parameter shall be present if the URL was received via Chat or Standalone messaging or via a message object stored in the Common Message Store.
>   - an optional "op" parameter. The parameter shall be present if the RCS message through which the URL referring to the file was received was received in a 1-to-1 RCS messaging conversations. The parameter value shall contain the address of the other party of the message in the 1-to-1 conversation. The client shall derive the value from the SIP signalling or the

address header of the Common Message Store for a 1-to-1 Chat Message or a Standalone Message. If the message was received from another user as indicated by the value or absence via of the CPIM "Message-Direction" header defined in section C.1.9 of [RCC.11-v8.0] or the "Direction" attribute defined in [CPM-MSGSTOR-REST], then it shall be taken from the authenticated originator address of the message. If the message was sent by the own user as indicated via the CPIM "Message-Direction" header defined in section C.1.9 of [RCC.11-v8.0] or the "Direction" attribute defined in [CPM-MSGSTOR-REST], then it shall be taken from the authenticated recipient address of the message. The value of the authenticated originator or recipient address shall be used unaltered.

- an optional "ci" parameter. The parameter shall be present if the RCS message carrying the URL referring to the file was received in a Group Chat. The parameter value shall contain the value of the Conversation-Id taken from SIP signalling of a Group Chat session or from message object of a Group Chat message in the common message store.

Example: If

- the value of the configuration parameter FT HTTP DL URI is set to *https://dl.operator.com/path?parm=foo*
- and if the download URL referring to the file that was received is: *https://ftcontentserver.rcs.mnc001.mcc262.pub.3gppnetwork.org/dl?uid=1234*
- and the message ID of the chat message is *123456789*
- and if the authenticated originator address of the of a 1-to-1 Chat message is *sip:+491711234567@ims.mnc001.mcc262.3gppnetwork.org;user=phone*

then the client's download URI results in
https://dl.operator.com/path?parm=foo&url=https%3A%2F%2Fftcontentserver.rcs.mnc001.mcc262.pub.3gppnetwork.org%2Fdl%3Fuid%3D1234
&id=123456789&op=sip%3A%2B491711234567%40ims.mnc001.mcc262.3gppnetwork.org%3Buser%3Dphone

2. otherwise (i.e. if no value of the configuration parameter FT HTTP DL URI defined in section A.1.4 of [RCC.07-v10.0] is present), use the URL that was received without changes as the download URI in the following steps
3. Create an HTTP GET request using the download URI
4. if the client supports authentication with an GBA bootstrapped security association as defined in [3GPP TS 33.220], shall indicate this by addition of a GBA product token in the User-Agent header of the HTTP GET request as defined in [3GPP TS 24.109]
5. send the HTTP GET request using the derived file URI.
6. If the client receives in result of the processing of the request from the HTTP Content Server

   - a HTTP 401 AUTHENTICATION REQUIRED response with an WWW Authenticate header instructing the client to use HTTP digest Authentication with a bootstrapped security association as defined in [3GPP TS 24.109].

If the client has no bootstrapped security association in place it shall invoke the bootstrapping procedure defined in [3GPP TS 24.109].

The client shall generate another HTTP GET request to the download URI and use the stored key material and the B-TID to generate keys specific to the HTTP Content Server as defined in [3GPP TS 33.220]. The client shall add an Authorization header generated from the key material and the B-TID to the HTTP GET request and send the HTTP GET request for authentication.

If a HTTP 401 AUTHENTICATION REQUIRED response is received for this HTTP GET request, then the client shall invoke the bootstrapping procedure defined in [3GPP TS 24.109] and repeat the procedure based on the new key material.

- a HTTP 401 AUTHENTICATION REQUIRED response with an WWW Authenticate header without a "bootstrapping required" indication, then the client shall generate another HTTP GET request to the download URI and create an Authorization header from the values of FT HTTP CS USER and FT HTTP CS PWD from the device configuration as defined in in section A.1.4 of [RCC.07-v10.0]. The client shall then send the HTTP GET request for authentication.
  If a HTTP 401 AUTHENTICATION REQUIRED is received in the result of this HTTP GET request then the client shall trigger a configuration request to the configuration server via the procedures defined in section 2.3.2 of [RCC.07-v10.0] and retry the procedure if there were changes to the FT HTTP CS USER or FT HTTP CS PWD parameters. Otherwise, the client shall inform the user that the file is not available.
- a HTTP 302 FOUND response, the client shall follow the procedures for OpenID Connect based authentication as defined in section 2.12.2 of [RCC.07-v10.0]. The procedure results in a reconnection back to the HTTP content server commencing in the processing of the HTTP content server response.
- a HTTP 503 SERVICE UNAVAILABLE with a Retry-After header, then the client shall retry the procedure, the recommended interval to retry will be specified in the “Retry-After” header.
- a HTTP 404 NOT FOUND or HTTP 410 GONE, then the client shall stop the file download procedure and inform the user that the file is no longer available.
- any other error, then the client shall retry the procedure up to a maximum of 3 times. In case the file was partially downloaded already, a partial HTTP GET request as defined in [RFC7233] may be used to obtain the remaining part of the file.
- a HTTP 200 OK response with a file object in the body then client shall handle the file according to the content-type received in the HTTP GET response or in the message body in which the URL was received and, for a File Transfer, the file-disposition attribute received in the File Transfer message body.

Specifically for File Transfer, if the client receives a Chat or Standalone Message with a File Transfer message body, then the client shall apply delivery disposition notifications as defined for the corresponding transport service. The RCS client shall then download the

thumbnail (if applicable) and file using the links in the File Transfer message body according to the procedure defined above. The RCS client shall follow the service definitions of the File Transfer service for the handling of display disposition notifications.

3.4.3 ID_RCC.07_10.0_3: Chatbot Information Schema correction

ID	ID_RCC.07_10.0_3
Title	Chatbot Information Schema correction
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 3.6.4.1.3
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.3.1 Issue Description

The schema for Chatbot Information provided in section 3.6.4.1.3 of [RCC.07-v10.0] is not syntactically correct due to a typo.

3.4.3.2 Expected Behaviour

The schema for Chatbot Information provided in section 3.6.4.1.3 of [RCC.07-v10.0] shall be replaced with the following:

```
{
  "$schema": "http://json-schema.org/draft-04/schema#",

  "definitions": {
    "tel-nb": {
      "type": "object",
      "properties": {
          "tel-str": {
              "type": "string"
          }
      },
      "required": ["tel-str"]
    },
    "tel": {
      "type": "object",
      "properties": {
          "label": {
            "type": "string"
          },
          "tel-nb": {
            "$ref": "#/definitions/tel-nb"
          },
          "tel-type": {
            "type": "string"
          }
      },
      "required": ["label", "tel-nb", "tel-type"]
    },
```

```
    "uri-entry": {
      "type": "array",
      "items": {
        "type": "object",
        "properties": {
          "addr-uri": {
            "type": "string",
            "format": "uri"
          },
          "addr-uri-type": {
            "type": "string",
            "enum": ["SIP-URI", "Other"]
          },
          "label": {
            "type": "string",
            "enum": ["ServiceID", "SMS"]
          }
        },
        "required": ["addr-uri", "addr-uri-type", "label"]
      }
    },
    "comm-addr": {
      "type": "object",
      "properties": {
        "tel": {
          "$ref": "#/definitions/tel"
        },
        "uri-entry": {
          "$ref": "#/definitions/uri-entry"
        }
      },
      "required": ["tel", "uri-entry"]
    },
    "media": {
      "type": "object",
      "properties": {
        "media-url": {
          "type": "string",
          "format": "uri"
        },
        "fingerprint": {
          "type": "string"
        }
      },
      "required": ["media-url"]
    },
    "media-entry": {
      "type": "array",
      "items": {
        "type": "object",
        "properties": {
          "label": {
            "type": "string",
            "enum": ["Icon"]
          },
          "media": {
            "$ref": "#/definitions/media"
          },
```

```
        "media-content": {
          "type": "string",
          "enum": ["Logo", "Other"]
        }
      },
      "required": ["label", "media", "media-content"]
    }
  },
  "org-name": {
    "type": "array",
    "items": {
      "type": "object",
      "properties": {
        "display-name": {
          "type": "string"
        },
        "org-name-type": {
          "type": "string",
          "enum": ["OfficialName"]
        }
      },
      "required": ["display-name", "org-name-type"]
    }
  },
  "address-entry": {
    "type": "array",
    "items": {
      "type": "object",
      "properties": {
        "addr-string": {
          "type": "string"
        },
        "label": {
          "type": "string"
        }
      },
      "required": ["addr-string", "label"]
    }
  },
  "category-entry": {
    "type": "array",
    "items": {
      "type": "string"
    }
  },
  "verification-info": {
    "type": "object",
    "oneOf": [{
      "properties" : {
        "verified": {
          "type": "boolean"
        },
        "verified-by": {
          "type": "string"
        },
        "expires": {
          "type": "string",
          "format": "date-time"
```

```
        }
       },
       "required": ["verified", "verified-by", "expires"]
     },
     {
       "properties": {
         "verification-signatures": {
           "description": "RFC7515 (JWS) general JWS JSON serialisation",
           "type": "object"
         }
       }
     }
     ]
   }
},

"type": "object",

"properties": {
  "botinfo": {
    "type":"object",
    "properties": {
      "pcc": {
        "type": "object",
        "properties": {
          "org-details": {
            "type": "object",
            "properties": {
              "comm-addr": {
                "$ref": "#/definitions/comm-addr"
              },
              "media-list": {
                "type": "object",
                "properties": {
                  "media-entry": {
                    "$ref": "#/definitions/media-entry"
                  }
                }
              },
              "org-name": {
                "$ref": "#/definitions/org-name"
              },
              "org-description": {
                "type": "string",
                "maxLength": 500
              },
              "category-list": {
                "type": "object",
                "properties": {
                  "category-entry": {
                    "$ref": "#/definitions/category-entry"
                  }
                }
              }
            }
          },
          "pcc-type": {
            "type": "string"
```

```
          }
        }
      },
      "version":{
        "type":"string"
      },
      "provider":{
        "type":"string"
      },
      "email":{
        "type":"string",
        "format":"email"
      },
      "colour":{
        "type":"string",
        "description": "base64 url encoded colour representation"
      },
      "backgroundImage":{
        "type":"string",
        "format":"uri"
      },
      "website":{
        "type":"string",
        "format":"uri"
      },
      "TCPage":{
        "type":"string",
        "format":"uri"
      },
      "address": {
        "type": "object",
        "properties": {
          "address-entry": {
            "$ref": "#/definitions/address-entry"
          }
        }
      }
    },
    "required": ["pcc"]
  },
  "bot-verification": {
    "$ref": "#/definitions/verification-info"
  }
 },
 "required": ["botinfo"]
}
```

Table 9: JSON schema for Chatbot Information

3.4.4 ID_RCC.07_10.0_4: CPM Session ICSI in SIP OPTIONS of Chatbot

ID	ID_RCC.07_10.0_4
Title	CPM Session ICSI in SIP OPTIONS of Chatbot
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 2.6.1.3.2.1

Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.4.1 Issue Description

According to section 2.6.1.3 of [RCC.07-v10.0], the inclusion of the CPM Session ICSI is to be interpreted as the other party supporting regular 1-to-1 Chat. A Chatbot should therefore not provide the CPM Session ICSI in the capability exchange.

3.4.4.2 Expected Behaviour

The first bullet of section 2.6.1.3.2.1 of [RCC.07-v10.0] is updated to the following:

- shall not include the CPM Session ICSI value and Chat IARI value as defined in Table 9 of [RCC.07-v10.0] for the Chat service in any SIP OPTIONS request or response that it generates to avoid interaction with other RCS services.

3.4.5 ID_RCC.07_10.0_5: Data Off Parameter Clarification

ID	ID_RCC.07_10.0_5
Title	Data Off Parameter Clarification
Type	Requirement
Related spec and section	[RCC.07-v10.0] sections A.1.14 and A.2.2
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.5.1 Issue Description

The definition of the Data Off client configuration parameters in section A.1.14 of [RCC.07-v10.0] does not clarify to which services MESSAGING DATA OFF and FILE TRANSFER DATA OFF apply nor does it specify the relation between those. Next to that, in [RCC.07-v10.0] the description of the parameter value influencing the roaming behaviour was incorrect.

3.4.5.2 Expected Behaviour

The following would replace the parameter definitions provided in section A.1.14 of [RCC.07-v10.0]:

Configuration parameter	Description	RCS usage
RCS MESSAGING DATA OFF	This parameter indicates whether the •1-to-1 and Group Chat (see sections 3.2.3 and 3.2.4 of [RCC.07-v10.0] respectively), •Standalone Messaging (see section 3.2.2 of [RCC.07-v10.0]), •Geolocation PUSH (see section 3.2.6 of [RCC.07-v10.0]) and •Chatbot Communication (see section 3.6.8 of [RCC.07-v10.0]including Chatbot Directory Access defined in section 3.6.3.1 of [RCC.07-v10.0], Chatbot Information Retrieval defined in section 3.6.4 of [RCC.07-v10.0]and the procedures to control anonymization defined in section 3.6.5.1 of [RCC.07-v10.0]) services should remain available in case the cellular data switch is switched off (either toggled manually by the user or automatically during roaming). When set to 0 the Chat, Standalone Messaging, Geolocation PUSH and Chatbot Communication services are not cellular data off exempt services on cellular networks when cellular data is switched off. When set to 1 the Chat, Standalone Messaging, Geolocation PUSH and Chatbot Communication services are cellular data off exempt services on cellular networks when cellular Data is switched off. When set to 2 the Chat, Standalone Messaging, Geolocation PUSH and Chatbot Communication services are cellular data off exempt services on cellular networks when cellular Data is switched off and the device is attached to the HPLMN. NOTE: This configuration parameter when set to 0 or 2 will disable the File Transfer service. An MNO is thus not able to disable chat or standalone messaging but enable File Transfer.	Mandatory Parameter
FILE TRANSFER DATA OFF	This parameter indicates whether the File Transfer service (defined in section 3.2.5 of [RCC.07-v10.0], including Audio Messaging defined in section 3.2.7 of [RCC.07-v10.0]) should remain available in case the cellular data switch is switched off (either toggled manually by the user or automatically during roaming). When set to 0 the File Transfer Service is not a cellular data off exempt service on cellular networks when cellular data is switched off. When set to 1 the File Transfer service is a cellular data off exempt service on cellular networks when cellular Data is switched off. When set to 2 the File Transfer service is a cellular data off exempt service on cellular networks when cellular Data is switched off and the device is attached to the HPLMN. When File Transfer is disabled, then the client shall behave as defined in section 3.2.5.2 of [RCC.07-v10.0]the case where File Transfer is not authorised via client configuration.	Optional Parameter, It becomes Mandatory if RCS MESSAGING DATA OFF is set to 1 or 2.

Configuration parameter	Description	RCS usage
MMS DATA OFF	This parameter indicates whether MMS should remain available in case the cellular data switch is switched off (either toggled manually by the user or automatically during roaming). When set to **0** MMS is not a cellular data off exempt service when cellular data is switched off. When set to **1** (default value) MMS a cellular data off exempt service when cellular Data is switched off. When set to **2** MMS is a cellular data off exempt service when cellular data is switched off and the device is attached to the HPLMN, otherwise MMS is disabled. NOTE: the device's settings to enable/disable automatic download of received MMS messages remain applicable.	Optional Parameter
CONTENT SHARE DATA OFF	This parameter indicates whether the Shared Map and Shared Sketch services (defined in section 3.3 of [RCC.07-v10.0]) should remain available in case cellular data is switched off (either toggled manually by the user or automatically during roaming). When set to **0** the Shared Map and Shared Sketch services are not a cellular data off exempt services on cellular networks when cellular data is switched off. When set to **1** the Shared Map and Shared Sketch services are cellular data off exempt services on cellular networks when cellular data is switched off. When set to **2** the Shared Map and Shared Sketch services are cellular data off exempt services on cellular networks when cellular data is switched off and the device is attached to the HPLMN.	Optional Parameter It becomes mandatory if SHARED MAP AUTH and/or SHARED SKETCH AUTH is set to 1 (see section 2.1.2 of [RCC.20-v5.0]
PRE AND POST CALL DATA OFF	This parameter indicates whether the Call Composer and Post Call services (defined in section 3.3 of [RCC.07-v10.0]) should remain available in case cellular data is switched off (either toggled manually by the user or automatically during roaming). When set to **0** the Call Composer and Post-call services are not a cellular data off exempt services on cellular networks when cellular data is switched off. When set to **1** the Call Composer and Post-call services are cellular data off exempt services on cellular networks when cellular data is switched off. When set to **2** the Call Composer and Post-call services are cellular data off exempt services on cellular networks when cellular data is switched off and the device is attached to the HPLMN.	Optional Parameter It becomes mandatory if CALL COMPOSER AUTH and/or POST CALL AUTH is set to a value other than 0 (see section 2.1.2 of [RCC.20-v5.0]

Configuration parameter	Description	RCS usage
SYNC DATA OFF	This parameter indicates whether the synchronization with the Common Message Store (defined in section 4.1 of [RCC.07-v10.0]) should remain available in case the cellular data is switched off (either toggled manually by the user or automatically during roaming). When set to **0** the synchronisation with the Common Message Store is not a cellular data off exempt service when cellular data is switched off. When set to **1** synchronisation with the Common Message Store is a cellular data off exempt service when cellular data is switched off. When set to **2** the synchronisation with the Common Message Store is a cellular data off exempt service when cellular data is switched off and the device is attached to the HPLMN. If the synchronisation with the Common Message Store is not a cellular data off exempt service, the client shall not invoke the synchronisation with the Common Message Store, shall not set message flags via the Message Store and the event notification framework and shall not store SMS and MMS messages. Once synchronisation is enabled again, the client shall invoke the procedures for the synchronisation with the Common Message Store for the missed events.	Optional Parameter It becomes mandatory if MESSAGE STORE AUTH is present (see A.1.3 of [RCC.07-v10.0])

Table 10: RCS Data Off Configuration Parameters

The definitions of the parameters in the Data Off subtree defined in section A.2.2 of [RCC.07-v10.0]shall be replaced with the following:

Node: /<x>/Services/Ext/DataOff/rcsMessagingDataOff

Controls the Chat, Standalone Messaging, Geolocation PUSH and Chatbot Communication (including Chatbot Directory access, Chatbot Information Retrieval and control of anonymization) service behaviour when the cellular data switch is switched off.

The parameter is only applicable in case the Chat or Standalone services are supported. It will not be instantiated otherwise.

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrOne	Int	Get, Replace

Table 11: Data Off Services Extension MO sub tree addition parameters (rcsMessagingDataOff)

- Values:
  0: the Chat, Standalone Messaging, Geolocation PUSH and Chatbot Communication services are not cellular data off exempt services
  1: the Chat, Standalone Messaging, Geolocation PUSH and Chatbot Communication services are cellular data off exempt services

2: the Chat, Standalone Messaging, Geolocation PUSH and Chatbot Communication services are cellular data off exempt services if the device is attached to the HPLMN.

- Post-reconfiguration actions: If the value of the configuration parameter transits from 0 to 1 or from 0 to 2 while the device is connected to the HPLMN and at least one RCS messaging service is authorised the client shall (re-)register in IMS to add the relevant media feature tags for Chat, File Transfer, Standalone Messaging, Geolocation PUSH and Chatbot Communication services according to the authorisation of these services.
  If the value of the configuration parameter transits from 1 to 0 or from 2 to 0 while the device is connected to a cellular access network other than the HPLMN and at least one of the RCS messaging services is registered in IMS, the client shall de- or re-register with in IMS to remove the media feature tags for Chat, File Transfer, Standalone Messaging, Geolocation PUSH or Chatbot Communication services if these have been registered.
- Associated HTTP XML characteristic type: “rcsMessagingDataOff”

Node: /<x>/Services/Ext/DataOff/fileTransferDataOff

Controls the File Transfer service behaviour (including Audio Messaging) when the cellular data switch is switched off.

The parameter is only applicable in case the File Transfer service is supported and rcsMessagingDataOff is set to 1 or 2. It will not be instantiated otherwise.

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrOne	Int	Get, Replace

Table 12: Data Off Services Extension MO sub tree addition parameters (fileTransferDataOff)

- Values:
  0: the File Transfer service is not a cellular data off exempt service
  1: the File Transfer service is a cellular data off exempt service
  2: the File Transfer service is a cellular data off exempt service if the device is attached to the HPLMN.
- Post-reconfiguration actions: If the value of the configuration parameter transits from 0 to 1 or from 0 to 2 while the device is connected to the HPLMN and the File Transfer service is authorised, the client shall (re-)register in IMS to add the media feature tag for File Transfer via HTTP.
  If the value of the configuration parameter transits from 1 to 0 or from 2 to 0 while the device is connected to a cellular access network other than the HPLMN and File Transfer via HTTP is registered in IMS, the client shall de- or re-register in IMS to remove the media feature tag for File Transfer via HTTP.
- Associated HTTP XML characteristic type: “fileTransferDataOff”

Node: /<x>/Services/Ext/DataOff/mmsDataOff

Controls the MMS behaviour when the cellular data switch is switched off.

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrOne	Int	Get, Replace

Table 13: Data Off Services Extension MO sub tree addition parameters (mmsDataOff)

- Values:
  0: the MMS is not a cellular data off exempt service.
  1: the MMS is a cellular data off exempt service
  2: the MMS is a cellular data off exempt service if the client is attached to the HPLMN.
- Post-reconfiguration actions: no specific actions.
- Associated HTTP XML characteristic type: “mmsDataOff”

Node: /<x>/Services/Ext/DataOff/contentShareDataOff

Controls the Shared Map and Shared Sketch service behaviour when the cellular data switch is switched off.

The parameter is only applicable in case the Shared Map and Shared Sketch services are enabled. It will not be instantiated otherwise.

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrOne	Int	Get, Replace

Table 14: Data Off Services Extension MO sub tree addition parameters (contentShareDataOff)

- Values:
  0: the Shared Map and Shared Sketch services are not cellular data off exempt services
  1: the Shared Map and Shared Sketch services are cellular data off exempt services
  2: the Shared Map and Shared Sketch services are cellular data off exempt services when the device is attached to the HPLMN.
- Post-reconfiguration actions: If the value of the configuration parameter transits from 0 to 1 or from 0 to 2 while the device is connected to the HPLMN and at least one of Shared Map or Shared Sketch is authorised the client shall (re-)register in IMS to add the relevant media feature tags according to the authorisation of these services.
  If the value of the configuration parameter transits from 1 to 0 or from 2 to 0 while the device is connected to a cellular access network other than the HPLMN and at least one of the Shared Map or Shared Sketch service is registered in IMS, the client shall de-or re-register with in IMS to remove the media feature tags for the service being disabled by the configuration parameter.
- Associated HTTP XML characteristic type: “contentShareDataOff”

Node: /<x>/Services/Ext/DataOff/preAndPostCallDataOff

Controls the Call Composer and Post-call service behaviour when the cellular is switched off.

The parameter is only applicable in case the Call Composer and/or Post-call services are supported. It will not be instantiated otherwise.

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrOne	Int	Get, Replace

Table 15: Data Off Services Extension MO sub tree addition parameters (preAndPostCallDataOff)

- Values:
  0: the Call Composer and Post-call services are not cellular data off exempt services

  1: the Call Composer and Post-call services are cellular data off exempt services
  2: the Call Composer and Post-call services are cellular data off exempt services if the device is attached to the HPLMN.
- Post-reconfiguration actions: If the value of the configuration parameter transits from 0 to 1 or from 0 to 2 while the device is connected to the HPLMN and at least one of Call Composer and Post-call is authorised the client shall (re-)register in IMS to add the relevant media feature tags according to the authorisation of these services.
  If the value of the configuration parameter transits from 1 to 0 or from 2 to 0 while the device is connected to a cellular access network other than the HPLMN and at least one of Call Composer and Post-call service is registered in IMS, the client shall de- or re-register with in IMS to remove the media feature tags for the service being disabled by the configuration parameter.
- Associated HTTP XML characteristic type: “preAndPostCallDataOff”

Node: /<x>/Services/Ext/DataOff/syncDataOff

Controls the behaviour for synchronisation with the Common Message when the cellular data is switched off.

The parameter is only applicable in case the Common Message Store is supported. It will not be instantiated otherwise.

Status	Occurrence	Format	Min. Access Types
Required	ZeroOrOne	Int	Get, Replace

Table 16: Data Off Services Extension MO sub tree addition parameters (syncDataOff)

- Values:
  0: the synchronisation with the Common Message Store is not a cellular data off exempt service
  1: the synchronisation with the Common Message Store is a cellular data off exempt service
  2: the synchronisation with the Common Message Store is a cellular data off exempt service if the device is attached to the HPLMN.
- Post-reconfiguration actions: If the value of the configuration parameter transits from 1 to 0 or from 2 to 0 while the device is connected to a cellular access network other than the HPLMN the client should trigger a data connection triggered synchronization with the Common Message Store.

- Associated HTTP XML characteristic type: “syncDataOff”

3.4.6 ID_RCC.07_10.0_6: Chatbot Media Download

ID	ID_RCC.07_10.0_6
Title	Chatbot Media Download
Type	Requirement
Related spec and section	[RCC.07-v10.0] sections 3.6.8.7 and 3.6.10.5.3
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.6.1 Issue Description

Chatbots may use different domains to offer their media than regular RCS traffic. In the context of Chatbot communication clients should thus not rely on the standard domains being used.

3.4.6.2 Expected Behaviour

For a File Transfer:

> When sending a message to relay a File Transfer as defined in section 3.2.5 of [RCC.07-v10.0], a Chatbot Platform may use a different domain as the one defined in section 3.2.5.5 of [RCC.07-RCS9.0] for the URLs related to the file and, if applicable, the thumbnail.
> When receiving a message to relay a File Transfer as part of a Chatbot messaging communication, the client shall not verify whether the domain for the file and, if provided, the thumbnail complies with the URL format defined in section 3.2.5.5 of [RCC.07-v10.0].

For Rich Card Media the following is added to section 3.6.10.5.3 of [RCC.07-v10.0]:

> The client shall not verify whether the domain for the file and, if provided, the thumbnail complies with the URL format defined in section 3.2.5.5 [RCC.07-v10.0].

3.4.7 ID_RCC.07_10.0_7: Chatbot Feature Tags in IMDNs

ID	ID_RCC.07_10.0_7
Title	Chatbot Feature Tags in IMDNs
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 3.6.8.8
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.7.1 Issue Description

The procedure in section 3.6.8.8 of [RCC.07-v10.0]for the sending of disposition notifications related to a message received in a Chatbot session didn't clarify whether a SIP MESSAGE request used to send a disposition notification had to include feature tags to identify it as a request relating to Chatbot communication.

3.4.7.2 Expected Behaviour

In addition to what is specified in section 3.6.8.8 of [RCC.07-v10.0], for any disposition notification sent outside of an established MSRP session (i.e. sent by SIP MESSAGE) the following applies:

- When sending disposition notifications using a SIP MESSAGE method for a message that was received from or sent to a Chatbot, the client and the Chatbot Platform shall in addition to the Accept-Contact header already added, add another Accept-Contact header field carrying the Chatbot IARI feature tag defined in section 3.6.2.1 of [RCC.07-v10.0]the Chatbot application version feature tag defined in section 3.6.2.2 of [RCC.07-v10.0]and shall include the require and explicit parameters.

3.4.8 ID_RCC.07_10.0_8: "sms" URI processing

ID	ID_RCC.07_10.0_8
Title	"sms" URI processing
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 3.6.3.4
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.8.1 Issue Description

The processing requirements of the "sms" URI extensions for RCS deep links are insufficient to guarantee full interoperability.

3.4.8.2 Expected Behaviour

The following syntax extends the formal definition of the "sms" URI scheme defined in [RFC5724].

```
sms-field-name =/ "service_id" / "suggestions"
sms-recipient =/ service-id ; this increment is not compatible
                            ; with [RFC5724]
service-id = escaped-value
```

Based on the extensions defined above, the following additions apply to the processing of the "sms" URI as defined in section 2.3 of [RFC5724]:

- In step 1, if the client is registered for RCS services, then

- if a “service_id” parameter is included in the "sms" URI, the value of the “service_id” parameter shall be extracted and converted to a SIP URI. The definitions for the handling of Vanity-Service-IDs as defined in section 3.4.12 shall be taken into account. The "sms-hier-part" of the "sms" URI as defined in [RFC5724] shall be ignored in this case.
- Otherwise, if the "service_id" parameter is not included in the "sms" URI" and the first "sms-recipient" contains a Chatbot service identifier as per "sms" URI extension above, then the client shall extract the value and convert it to a SIP URI. The definitions for the handling of Vanity-Service-IDs as defined in section 3.4.12 shall be taken into account.
- Otherwise, the client shall extract the phone number of the first "sms-recipient" as defined in [RFC5724].
- Trigger handling for capability discovery applies for the extracted contact address based on the procedures defined in section 2.6 of [RCC.07-v10.0] and the corresponding service description. The definitions for discovery of a Chatbot service identifier for a tel URI via capability discovery as defined in section 2.5.4.1 of [RCC.07-v10.0] shall be taken into account.
- If the contact address resulting from the processing above is a Chatbot service identifier, then trigger handling for Chatbot information retrieval via the procedures defined in section 3.6.4.1 of [RCC.07-v10.0]applies.

Otherwise, if the client is not registered for RCS services, then the "sms" URI extension parameters defined above and a "sms-recipient" containing a Chatbot service identifier shall be ignored. The processing of [RFC5724] shall apply.

- In step 2, a "body" parameter shall not be extracted, if the contact address is known to be linked to a Chatbot in result of the processing in step 1, and if a “suggestions” parameter is present. The "suggestions" parameter shall be extracted in this case.
- In step 3, if the "suggestions" parameter has been extracted in step 2, then the RCS client shall show an initial Suggested Chip List based on the JSON object that is obtained after base64 URL decoding the value of the “suggestions” parameter of the "sms" URI.
- In step 4, if the client is registered for RCS services, the selection of the default delivery method and the fall-back to alternative delivery methods shall be applied in accordance with the procedures of the 1-to-1 Messaging technology selection as defined in section 3.2.1. If the messaging communication request has been referred to a Chatbot messaging communication via the procedures in section 3.2.1.1 of [RCC.07-v10.0], then trigger handling for Chatbot information retrieval via the procedures defined in section 3.6.4.1 of [RCC.07-v10.0] applies. The definitions for discovery of a Chatbot service identifier for a tel URI via a non-Chatbot 1-to-1 Messaging communication request as defined in section 2.5.4.1 of [RCC.07-v10.0] shall be taken into account.
- In step 5, if the processing of the "sms" URI was based on a SIP URI extracted from the "service_id" parameter or the "sms-recipient", then the processing of the comma separated list in the "sms-hier-part" of the "sms" URI is omitted.
- If the client is registered for RCS services, when processing a comma-separated list of recipients in the "sms-hier-part", the client shall consider the procedures for the 1-

to-Many Messaging Technology selection as defined in section 3.2.2.8 of [RCC.07-v10.0].

3.4.9 ID_RCC.07_10.0_9: Chatbot Capability and Service ID

ID	ID_RCC.07_10.0_9
Title	Chatbot Capability and Service ID
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 2.5.4.1
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.9.1 Issue Description

The description of the conditions for a contact to be linked with a Chatbot is ambiguous.

3.4.9.2 Expected Behaviour

For section 2.5.4.1 of [RCC.07-v10.0], it is clarified that the presence of the "botplatform" subdomain in a SIP URI representing a Chatbot Service ID is not mandated.

For section 3.6.2.4 of [RCC.07-v10.0], it is clarified that the presence of the "botplatform" subdomain is not required for a SIP URI linked with a Chatbot.

3.4.10 ID_RCC.07_10.0_10: Auto Download Procedures

ID	ID_RCC.07_10.0_10
Title	Auto Download Procedures
Type	Requirement
Related spec and section	[RCC.07-v10.0] sections 3.2.5.3.2, 3.2.5.4.4 and 3.6.10.5.3
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.10.1 Issue Description

The requirements for the client to download media objects in received File Transfer messages and in Rich cards are ambiguous.

3.4.10.2 Expected Behaviour

In sections 3.2.5.3.2, 3.2.5.4.4 and 3.6.10.5.3 of [RCC.07-v10.0], the client shall apply manual or auto-acceptance for a file download only as per definitions in section 2.4.1.

3.4.11 ID_RCC.07_10.0_11: Extension of the Chatbot Information Response handling

ID	ID_RCC.07_10.0_11
Title	Extension of the Chatbot Information Response handling
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 3.6.4.1
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.11.1 Issue Description

The procedures of the Chatbot Information retrieval have been extended to allow the network to return an alternative Chatbot Service ID for the case where a user attempts to contact a chatbot for the first time. This extension allows the service provider to link a user provided Chatbot service identifier with the service identifier used in its own network.

3.4.11.2 Expected Behaviour

When receiving a 200 OK response to a Chatbot Information request which has been initiated as the result of a user attempt to contact a Chatbot for the first time, as defined in section 3.6.4.1.2 of [RCC.07-v10.0] , then the client

- shall check whether the PCC part of the Chatbot Information data contains Service ID information as per section 3.6.4.1.3 of [RCC.07-v10.0].
- If Service ID information is contained, then the client shall compare the SIP URI contained in the Service ID information of the Chatbot Information data with the SIP URI for which the Chatbot Information retrieval was triggered. Prior to comparison, URI parameters and headers shall be removed from both SIP URIs. The comparison of the resulting SIP URIs shall follow the URI comparison rules defined in [RFC3261].
- If the Service ID information is not contained in the PCC part of the Chatbot Information data, or if Service ID information is contained and the SIP URIs match then the client shall continue processing the 200 OK response as defined in [RCC.07-v10.0] .
- Otherwise, if the SIP URIs do not match, then the client shall use the SIP URI contained in the Service ID information to initiate a second Chatbot Information retrieval using the procedures defined in section 3.6.4.1.1 of [RCC.07-v10.0]. If the second Chatbot Information response results in

    - an HTTP 200 OK response, then the client shall use the Chatbot Information data received in the second Chatbot Information response for the further processing, and use the SIP URI received in the Service ID information of the PCC part of the Chatbot Information data received in first Chatbot Information response as the contact address of the Chatbot. The client shall discard the SIP URI which triggered the first Chatbot Information.

- any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408, then the client shall continue with the SIP URI which triggered the first Chatbot Information request and the Chatbot Information data received in the first Chatbot Information response.
- an HTTP 408 error response or no response (Chatbot Information retrieval request timeout):
  The client shall manage the procedures locally on the device. If for the failure of a request a retry is applicable, the client shall retry by sending the second request for Chatbot Information again. The client shall retry for a maximum of three times.
  If a request is processed successfully, the procedures described for the HTTP 200 OK response shall apply.
  If the last retry of the request fails, the client shall consider the transaction failed and the procedures described for any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408 shall apply.

3.4.12 ID_RCC.07_10.0_12: Vanity Service ID

ID	ID_RCC.07_10.0_12
Title	Vanity Service ID
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 2.5
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.12.1 Issue Description

To meet the functional requirements of the Universal Profile for the user initiated addressing of a Chatbot, the RCS specification has been extended to support Vanity-Service-IDs. Vanity-Service-IDs are used to simplify the input or representation of Chatbot service identifiers.

3.4.12.2 Expected Behaviour

The new addressing scheme for Vanity-Service-ID shall be supported by the client as an extension to addressing principles defined in section 2.5 of [RCC.07-v10.0].

A contact address of a Chatbot shall be considered to be a Vanity-Service-ID, if a contact address matches the definitions of a Vanity-Service-ID but does not match the definitions of a phone number, as per RCS addressing model defined below.

Prior to the use of the contact address for capability discovery, chatbot information request and establishment of a communication with the Chatbot, the client shall transform the Vanity-Service-ID to a fully qualified SIP URI in accordance with the definitions of a SIP URI in [RFC3261] as follows.

The client shall

- if the Vanity-Service-ID contains characters being reserved within the "userinfo" part of the SIP URI, escape these characters using the ""%" HEX HEX" mechanism, as defined in [RFC3261], and
- prefix to the string the "sip:" scheme string, and
- suffix to the string a "@" character and a "host" part containing the FQDN composed from the service providers MCC and MNC as defined in section 2.5.4.1.2 of [RCC.07-v10.0]. When generating the FQDN, the client shall use its home network operator MCC and MNC values.

Examples:

If the home network operator of the client is assigned with the following MCC and MNC values:

MCC = 262, MNC = 01

then a Vanity-Service-ID:

"acme-corporation"

results in the Chatbot service identifier SIP URI:

"sip:acme-corporation@botplatform.mnc001.mcc262.3gppnetwork.org".

A Vanity-Service-ID:

"корпорация-acme"

results in the Chatbot service identifier SIP URI:

"sip:%D0%BA%D0%BE%D1%80%D0%BF%D0
%BE%D1%80%D0%B0%D1%86%D0%B8%D1%8F-acme@
botplatform.mnc262.mcc001.3gppnetwork.org".

When showing a Chatbot service identifier to the user, the client may omit the "sip:" scheme string, the "@" character of the "userinfo" part and the "host" part of a SIP URI identifying a chatbot, if

- the SIP URI does not contain parameters, and
- the "host" part contains the FQDN composed from MCC and MNC as defined in section 2.5.4.1.2 of [RCC.07-v10.0], and
- the values of MCC and MNC are the values of the client's home network operator.

If the client omits the "sip:" scheme string, the "@" character of the "userinfo" part and the "host" part of the SIP URI, and if the remaining part of the "userinfo" part contains escaped characters, then the client shall unescape these characters.

RCS Addressing Model:

The RCS Addressing model allows the determination of address types for user provided contact addresses. The following address types are defined:

- SIP URI
  to address a contact with a SIP URI, the client shall initiate SIP outgoing requests as defined in section 2.5.2 of [RCC.07-v10.0] for the case where the contact is a SIP URI.

- phone number
  to address a contact with a phone number, the client shall initiate SIP outgoing requests as defined in section 2.5.2 of [RCC.07-v10.0] for the case where the contact is a telephone number.

- Vanity-Service-ID
  to address a contact with a Vanity-Service-ID, the client shall apply the processing defined above, prior to the initiation of SIP outgoing requests.

- e-mail
  to address a contact with an e-mail address, the client shall initiate a messaging request using the MMS service.

The following provides the formal definition of the address types of the RCS addressing model.

```
address-type = SIP-URI / phone-number / vanity-service-id / e-mail
  ; SIP-URI is defined in [RFC3261]

phone-number = [+] *(DIGIT / separator) DIGIT *(DIGIT / separator)

separator = "-" / "." / "(" / ")" / "*" / "#"

vanity-service-id = vanity-id-text

vanity-id-text =  1*allowed-utf8char

allowed-utf8char =  %x21-3F / %x41-7E / UTF8-NONASCII
  ; UTF8-NONASCII is defined in [RFC3261]

e-mail = maibox
  ; mailbox is defined in [RFC5322]
```

3.4.13 ID_RCC.07_10.0_13: 1-to-1 Chatbot Standalone Message Request handling

ID	ID_RCC.07_10.0_13
Title	1-to-1 Chatbot Standalone Message Request
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 3.6.8.4.2
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.13.1 Issue Description

The procedure in section 3.6.8.4.2 of [RCC.07-v10.0]defines handling of 1-to-1 Chatbot Standalone Message request at the client, but it didn't clarify what error response should be sent by the client when privacy is enabled using the PRIVACY DISABLE client configuration parameter and when the P-Asserted identity in the SIP Message request doesn't contain the "tk" parameter with a value "on" or "off".

3.4.13.2 Expected Behaviour

Section 3.6.8.4.2 of [RCC.07-v10.0], for client handling of 1-to-1 Chatbot Standalone Message request is replaced with the following, where the third bullet is new text:

When receiving a SIP MESSAGE with an Accept-Contact header field containing the Chatbot IARI feature tag defined in section 3.6.2.1 of [RCC.07-v10.0] and another Accept-Contact header with the CPM Standalone Messaging ICSI, the client

- shall reject the SIP MESSAGE request with a SIP 488 NOT ACCEPTABLE HERE response if the client is not authorised to use Chatbot Communication using Standalone Messaging (see section 3.6.8.9 of [RCC.07-v10.0]), otherwise
- shall reject the SIP MESSAGE request with a SIP 606 Not Acceptable response, if the CPIM From header of the SIP MESSAGE does not contain the Chatbot role feature tag as defined in section 3.6.2.3 of [RCC.07-v10.0], otherwise
- shall reject the SIP MESSAGE request with a SIP 606 Not Acceptable response, if privacy is enabled using the PRIVACY DISABLE client configuration parameter defined in section A.1.3 of [RCC.07-v10.0] and the P-Asserted-Identity in the SIP MESSAGE request doesn't contain the 'tk' parameter with a value "on" or "off", otherwise
- shall apply the rules and procedures of section 3.2.2.1 of [RCC.07-v10.0] and of section 7.2.2 of [RCS-CPM-CONVFUNC-ENDORS] with the clarifications listed below:
    - When the client returns a SIP 200 OK response, the client shall check if the Chatbot Information needs to be refreshed according to section 3.6.4 of [RCC.07-v10.0].

3.4.14 ID_RCC.07_10.0_14: Deferred Chatbot Session handling in client

ID	ID_RCC.07_10.0_14
Title	Deferred Chatbot Session handling in client
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 3.6.9
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.14.1 Issue Description

The procedure in section 3.6.9 of [RCC.07-v10.0] defines handling of deferred session in the Messaging Server but it didn't clarify how the deferred session should be handled at the client.

3.4.14.2 Expected Behaviour

The following procedure is added to the end of section 3.6.9 of [RCC.07-v10.0]:

When a deferred session request is received, client shall follow the rules and procedures of sections 7.3.11 of [RCS-CPM-CONVFUNC-ENDORS] as well as the clarifications listed here. Upon receiving deferred request, the Client:

- shall reject the SIP INVITE request with a SIP 606 Not Acceptable response, if privacy is enabled using the PRIVACY DISABLE client configuration parameter defined in section A.1.3 of [RCC.07-v10.0] and the Referred-By in the SIP INVITE request doesn't contain the 'tk' parameter with a value "on" or "off".

3.4.15 ID_RCC.07_10.0_15: Token Delete Request failure handling

ID	ID_RCC.07_10.0_15
Title	Token Delete Request failure handling
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 3.6.5.1.2.3
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.15.1 Issue Description

The procedure in section 3.6.5.1.2.3 of [RCC.07-v10.0] for deleting a token associated with a Chatbot didn't clarify how error responses other than SIP 500 Server Internal Error should be handled by the client.

3.4.15.2 Expected Behaviour

The following sentence is added to the end of section 3.6.5.1.2.3 of [RCC.07-v10.0]:

Upon receipt of any other error response, the client shall consider that the token is not deleted and inform the user accordingly.

3.4.16 ID_RCC.07_10.0_16: Token Link Request failure handling

ID	ID_RCC.07_10.0_16
Title	Token Link Request failure handling
Type	Requirement
Related spec and section	[RCC.07-v10.0] section 3.6.5.1.2.4

Applicable Universal Profile release	Universal Profile v2.3
Publication Date	16.12.2019
Superseded by	

3.4.16.1 Issue Description

The procedure in section 3.6.5.1.2.4 of [RCC.07-v10.0] for linking a token with the user's MSISDN didn't clarify how error responses for the SIP INVITE Request should be handled by the client.

3.4.16.2 Expected Behaviour

The following two sentences are added to the end of the procedure in section 3.6.5.1.2.4 of [RCC.07-v10.0], and before the NOTE:

Upon receipt of a SIP 500 Server Internal Error response, the client shall consider that the token is not linked and the client may retry to link the token.

Upon receipt of any other error response, the client shall consider that the token is not linked and inform the user accordingly.

3.5 RCC.07 Version 11.0

This section contains solutions for issues found in [RCC.07-v11.0].

3.5.1 ID_RCC.07_11.0_1: Chatbot Capability and Service ID

ID	ID_RCC.07_11.0_1
Title	Chatbot Capability and Service ID
Type	Requirement
Related spec and section	[RCC.07-v11.0] section 2.5.4.1
Applicable Universal Profile release	Universal Profile v2.4
Publication Date	16.12.2019
Superseded by	

3.5.1.1 Issue Description

The description of the conditions for a contact to be linked with a Chatbot is ambiguous.

3.5.1.2 Expected Behaviour

For section 2.5.4.1 of in [RCC.07-v11.0], it is clarified that the presence of the "botplatform" subdomain in a SIP URI representing a Chatbot Service ID is not mandated.

3.5.2 ID_RCC.07_11.0_2: Extension of the Chatbot Information Response handling

ID	ID_RCC.07_11.0_2
Title	Extension of the Chatbot Information Response handling

Type	Requirement
Related spec and section	[RCC.07-v11.0] section 3.6.4.1
Applicable Universal Profile release	Universal Profile v2.4
Publication Date	16.12.2019
Superseded by	

3.5.2.1 Issue Description

The procedures of the Chatbot Information retrieval have been extended to allow the network to return an alternative Chatbot Service ID for the case where a user attempts to contact a chatbot for the first time. This extension allows the service provider to link a user provided Chatbot service identifier with the service identifier used in its own network.

3.5.2.2 Expected Behaviour

When receiving a 200 OK response to a Chatbot Information request which has been initiated as the result of a user attempt to contact a Chatbot for the first time, as defined in section 3.6.4.1.2 of [RCC.07-v11.0], then the client

- shall check whether the PCC part of the Chatbot Information data contains Service ID information as per section 3.6.4.1.3 of [RCC.07-v11.0].
- If Service ID information is contained, then the client shall compare the SIP URI contained in the Service ID information of the Chatbot Information data with the SIP URI for which the Chatbot Information retrieval was triggered. Prior to comparison, URI parameters and headers shall be removed from both SIP URIs. The comparison of the resulting SIP URIs shall follow the URI comparison rules defined in [RFC3261].
- If the Service ID information is not contained in the PCC part of the Chatbot Information data, or if Service ID information is contained and the SIP URIs match then the client shall continue processing the 200 OK response as defined in [RCC.07-v11.0].
- Otherwise, if the SIP URIs do not match, then the client shall use the SIP URI contained in the Service ID information to initiate a second Chatbot Information retrieval using the procedures defined in section 3.6.4.1.1 of [RCC.07-v11.0]. If the second Chatbot Information response results in

    - an HTTP 200 OK response, then the client shall use the Chatbot Information data received in the second Chatbot Information response for the further processing, and use the SIP URI received in the Service ID information of the PCC part of the Chatbot Information data received in first Chatbot Information response as the contact address of the Chatbot. The client shall discard the SIP URI which triggered the first Chatbot Information.
    - any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408, then the client shall continue with the SIP URI which triggered the first Chatbot Information request and the Chatbot Information data received in the first Chatbot Information response.

- an HTTP 408 error response or no response (Chatbot Information retrieval request timeout):
  The client shall manage the procedures locally on the device. If for the failure of a request a retry is applicable, the client shall retry by sending the second request for Chatbot Information again. The client shall retry for a maximum of three times.
  If a request is processed successfully, the procedures described for the HTTP 200 OK response shall apply.
  If the last retry of the request fails, the client shall consider the transaction failed and the procedures described for any HTTP 5XX error response other than HTTP 503 Internal Server error with a Retry-after header or HTTP 4XX error response other than 408 shall apply.

3.5.3 ID_RCC.07_11.0_3: Vanity Service ID

ID	ID_RCC.07_11.0_3
Title	Vanity Service ID
Type	Requirement
Related spec and section	[RCC.07-v11.0] section 2.5
Applicable Universal Profile release	Universal Profile v2.4
Publication Date	16.12.2019
Superseded by	

3.5.3.1 Issue Description

To meet the functional requirements of the Universal Profile for the user initiated addressing of a Chatbot, the RCS specification has been extended to support Vanity-Service-IDs. Vanity-Service-IDs are used to simplify the input or representation of Chatbot service identifiers.

3.5.3.2 Expected Behaviour

The new addressing scheme for Vanity-Service-ID shall be supported by the client as an extension to addressing principles defined in section 2.5 of [RCC.07-v11.0].

A contact address of a Chatbot shall be considered to be a Vanity-Service-ID, if a contact address matches the definitions of a Vanity-Service-ID but does not match the definitions of a phone number, as per RCS addressing model defined below.

Prior to the use of the contact address for capability discovery, chatbot information request and establishment of a communication with the Chatbot, the client shall transform the Vanity-Service-ID to a fully qualified SIP URI in accordance with the definitions of a SIP URI in [RFC3261] as follows.

The client shall

- if the Vanity-Service-ID contains characters being reserved within the "userinfo" part of the SIP URI, escape these characters using the ""%" HEX HEX" mechanism, as defined in [RFC3261], and
- prefix to the string the "sip:" scheme string, and
- suffix to the string a "@" character and a "host" part containing the FQDN composed from the service providers MCC and MNC as defined in section 2.5.4.1.2 of [RCC.07-v11.0]. When generating the FQDN, the client shall use its home network operator MCC and MNC values.

Examples:

If the home network operator of the client is assigned with the following MCC and MNC values:

MCC = 262, MNC = 01

then a Vanity-Service-ID:

"acme-corporation"

results in the Chatbot service identifier SIP URI:

"sip:acme-corporation@botplatform.mnc001.mcc262.3gppnetwork.org".

A Vanity-Service-ID:

"корпорация-acme"

results in the Chatbot service identifier SIP URI:

"sip:%D0%BA%D0%BE%D1%80%D0%BF%D0
%BE%D1%80%D0%B0%D1%86%D0%B8%D1%8F-acme@
botplatform.mnc262.mcc001.3gppnetwork.org".

When showing a Chatbot service identifier to the user, the client may omit the "sip:" scheme string, the "@" character of the "userinfo" part and the "host" part of a SIP URI identifying a chatbot, if

- the SIP URI does not contain parameters, and
- the "host" part contains the FQDN composed from MCC and MNC as defined in section 2.5.4.1.2 of [RCC.07-v11.0], and
- the values of MCC and MNC are the values of the client's home network operator.

If the client omits the "sip:" scheme string, the "@" character of the "userinfo" part and the "host" part of the SIP URI, and if the remaining part of the "userinfo" part contains escaped characters, then the client shall unescape these characters.

RCS Addressing Model:

The RCS Addressing model allows the determination of address types for user provided contact addresses. The following address types are defined:

- SIP URI
  to address a contact with a SIP URI, the client shall initiate SIP outgoing requests as defined in section 2.5.2 of [RCC.07-v11.0] for the case where the contact is a SIP URI.

- phone number
  to address a contact with a phone number, the client shall initiate SIP outgoing requests as defined in section 2.5.2 of [RCC.07-v11.0]for the case where the contact is a telephone number.

- Vanity-Service-ID
  to address a contact with a Vanity-Service-ID, the client shall apply the processing defined above, prior to the initiation of SIP outgoing requests.

- e-mail
  to address a contact with an e-mail address, the client shall initiate a messaging request using the MMS service.

The following provides the formal definition of the address types of the RCS addressing model.

```
address-type = SIP-URI / phone-number / vanity-service-id / e-mail
  ; SIP-URI is defined in [RFC3261]

phone-number = [+] *(DIGIT / separator) DIGIT *(DIGIT / separator)

separator = "-" / "." / "(" / ")" / "*" / "#"

vanity-service-id = vanity-id-text

vanity-id-text =  1*allowed-utf8char

allowed-utf8char =  %x21-3F / %x41-7E / UTF8-NONASCII
  ; UTF8-NONASCII is defined in [RFC3261]

e-mail = mailbox
  ; mailbox is defined in [RFC5322]
```

3.5.4 ID_RCC.07_11.0_4: Application IDs for Enriched Calling and Capability Discovery

ID	ID_RCC.07_11.0_4
Title	Application IDs for Enriched Calling and Capability Discovery
Type	Requirement
Related spec and section	[RCC.07-v11.0] sections A.3, A.4 and A.5
Applicable Universal Profile release	Universal Profile v2.4
Publication Date	16.12.2019

Superseded by	

3.5.4.1 Issue Description

The Application Identifiers ap2005 and ap2006 that have been specified in [RCC.20-v6.0] and registered with OMNA for the Enriched Calling and Capability Exchange MOs were used in GSMA PRD TS.43 already (without reservation at OMNA). Given that implementations exist already based on that specification, it has been chosen to change the identifiers used for Enriched Calling and Capability Exchange and to update the OMNA registry accordingly.

3.5.4.2 Expected Behaviour

The application identifier *ap2005* that is listed in Table 174 in section A.3 of [RCC.07-v11.0] and the configuration document structure and example in sections A.4 and A.5 of [RCC.07-v11.0] respectively shall be replaced by *ap2007*.

4 Clarifications and Issue Solutions for RCS Message Store Endorsement

4.1 RCC.09 Version 6.0

This section contains solutions for issues found in [RCC.09-v6.0].

4.1.1 ID_RCC.09_6.0_1: Correction of Group State Object XML Schema

ID	3.1.1 ID_RCC.09_6.0_1
Title	Correction of Group State Object XML Schema
Type	Requirement
Related spec and section	[RCC.09-v6.0] Section 5.2.4
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

4.1.1.1 Issue Description

The eXtensible Markup Language (XML) schema of the Group State Object defined in [RCC.09-v6.0] is corrected. The missing definition of the "participant-type" element is added. The updated schema makes use consistent use of the "participant-type" element to describe an individual participant.

4.1.1.2 Expected Behaviour

Table 1 in section 5.2.4 of [RCC.09-v6.0] shall be replaced by the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:xml="http://www.w3.org/XML/1998/namespace"
elementFormDefault="qualified">
    <xs:import namespace="http://www.w3.org/XML/1998/namespace"
                schemaLocation="http://www.w3.org/2009/01/xml.xsd"/>
```

```
<xs:element name="groupstate">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="participant" type="participant-type" maxOccurs="unbounded"/>
      <xs:element name="status" minOccurs="0">
        <xs:complexType>
          <xs:choice>
            <xs:element name="removed">
              <xs:complexType>
                <xs:sequence>
                    <xs:element name="participant" type="participant-type" minOccurs="0"/>
                    <xs:any minOccurs="0" maxOccurs="unbounded"
                    processContents="lax"/>
                </xs:sequence>
              </xs:complexType>
            </xs:element>
            <xs:any minOccurs="0" maxOccurs="unbounded" processContents="lax"/>
          </xs:choice>
          <xs:anyAttribute namespace="##other" processContents="lax"/>
        </xs:complexType>
      </xs:element>
      <xs:element name="subject" type="subject-type" minOccurs="0"/>
      <xs:element name="icon" type="icon-type" minOccurs="0"/>
      <xs:attribute name="lastfocussessionid" type="xs:string" use="required"/>
      <xs:attribute name="iw-number" type="xs:anyURI"/>
      <xs:attribute name="timestamp" type="xs:dateTime" use="required"/>
      <xs:attribute name="group-type" type="groupType" use="required"/>
      <xs:anyAttribute processContents="lax"/>
    </xs:sequence>
    <xs:any minOccurs="0" maxOccurs="unbounded" processContents="lax"/>
  </xs:complexType>
</xs:element>

<xs:simpleType name="groupType">
  <xs:restriction base="xs:normalizedString">
    <xs:enumeration value="Closed"/>
    <xs:enumeration value="Open"/>
  </xs:restriction>
</xs:simpleType>

<xs:element name="icon-type">
  <xs:complexType>
    <xs:choice>
      <xs:element name="icon-uri" type="xs:anyURI"/>
      <xs:element name="file-info" type="xs:string"/>
      <xs:any minOccurs="0" maxOccurs="unbounded" processContents="lax"/>
    </xs:choice>
  </xs:complexType>
  <xs:any namespace="##other" processContents="lax"/>
</xs:element>

<xs:element name="subject-type">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="subject" type="xs:string"/>
            <xs:element name="participant" type="participant-type" minOccurs="0"/>
            <xs:element name="timestamp" type="dateTime" minOccurs="0"/>
```

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

    </xs:element>


    <xs:element name="participant-type">
        <xs:complexType>
                <xs:attribute name="name" type="xs:string" use="required"/>
                <xs:attribute name="comm-addr" type="xs:anyURI" use="required"/>
                <xs:anyAttribute namespace="##other" processContents="lax"/>
        </xs:complexType>
    </xs:element>
</xs:schema>
```

5 Clarifications and Issue Solutions for RCS Conversation Functions Endorsement

5.1 RCC.11 Version 6.0 (UP 2.0)

This section contains solutions for issues found in [RCC.11-v6.0].

5.1.1 ID_RCC.11_6.0_1: Message-UID not populated and not used

ID	ID_RCC.11_6.0_1
Title	Message-UID not populated and not used
Type	Requirement
Related spec and section	[RCC.11-v6.0] Sections 4, 5.4.2, 7.2.2.1, 7.2.2.2, 8.5.1, C.1.6, C.2
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

5.1.1.1 Issue Description

There is no need for RCS to endorse the OMA CPM 2.2 procedures for Message-UID.

5.1.1.2 Expected Behaviour

The following updates shall apply to [RCC.11-v6.0]:

- RCS does not support or make use of following CPM Concepts – these are added to the concepts already listed in section 4 of [RCC.11-v6.0]:
  - Message-UID: For RCS the CPM Participating Function shall never provide a Message-UID
  - IMAP folders vs generic folders: For RCS, generic folders shall be used rather than IMAP folders

- Sections 5.4.2 Generate Read Report, 7.2.2.1 Receiving a Pager Mode CPM Standalone Message and SIP IMDNs, 7.2.2.2 Receiving a Large Message Mode CPM Standalone Message, 8.5.1 Record CPM Standalone Message of [RCC.11-v6.0] apply as written only after taking into account the use cases and technology choices for RCS that are described in section 4 of [RCC.11-v6.0].
- Section C.1.6 Message-UID does not apply for RCS.
- Section C.2. ABNF for the CPM-defined SIP Headers applies all except for Message-UID.

5.1.2 ID_RCC.11_6.0_2: Correct Group Session Data Management

ID	ID_RCC.11_6.0_2
Title	Correct Group Session Data Management
Type	Requirement
Related spec and section	[RCC.11-v6.0] section 6.8.1 and Appendix P
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

5.1.2.1 Issue Description

There are a number of errors related to the Group Session Data Management Schema in [RCC.11-v6.0].

5.1.2.2 Expected Behaviour

Contrary to what is stated in section 6.8.1 of [RCC.11-v6.0], the attribute “id” is defined as an integer, not a string.

The Group Session Data Management Schema and subsequent examples in Appendix P of [RCC.11-v6.0] shall be replaced with the schema and examples as defined in Appendix P of [RCC.11-v7.0].

5.1.3 ID_RCC.11_6.0_3: Conversation-ID and Contribution-ID clarification

ID	ID_RCC.11_6.0_3
Title	Conversation-ID and Contribution-ID clarification
Type	Requirement
Related spec and section	[RCC.11-v6.0] sections 4, 5.4.1, 5.4.2, 5.4.3, 5.4.4 and 7.3.1.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	05.06.2018
Superseded by	

5.1.3.1 Issue Description

The Conversation-ID and Contribution-ID header values have no actual use for 1-to-1 Communication requests and disposition notifications, so the requirement to re-use them can be relaxed.

5.1.3.2 Expected Behaviour

The following clarifications shall be added to the CPM concepts that RCS does not support or make use in section 4 of [RCC.11-v6.0]:

- For disposition notifications associated to CPM Messages exchanged within a 1-to-1 Chat session that are sent outside of the session using a SIP MESSAGE request, the party generating the disposition notification shall either include as value for the Contribution-ID and Conversation-ID headers the values for the respective headers from the session setup of the 1-to-1 Chat session or it shall generate and include new Conversation-ID and Contribution-ID header field values.
- For a 1-to-1 Chat session, the client shall assume that the session continues the previous conversation and shall for the Conversation-ID and Contribution-ID headers either reuse the values of the previous 1-to-1 CPM session that was established and ended with this recipient or the client shall generate and include new Conversation-ID and Contribution-ID header field values.

The following clarification shall be added in section 5.4.1 of [RCC.11-v6.0]:

- For RCS in step 2.a. ii) the client shall either
    - include for delivery notification requests associated with CPM Messages exchanged in a 1-to-1 Chat session the Conversation-ID and Contribution-ID header value received in the original SIP request; or
    - generate and include new Conversation-ID and Contribution-ID header field values;

The following clarification shall be added in section 5.4.2 of [RCC.11-v6.0]:

- For RCS in step 2.a. 5) the client shall either
    - include for read report requests associated with CPM Messages exchanged in a 1-to-1 Chat session the Conversation-ID and Contribution-ID header value received in the original SIP request; or
    - generate and include new Conversation-ID and Contribution-ID header field values;

In section 5.4.3 of [RCC.11-v6.0] the text of the clarification for RCS shall be replaced by the following text:

- For RCS, a CPM client may receive disposition notifications with a different Conversation-ID and/or Contribution-ID than the 1-to-1 Chat in which the message to which the notification applies was sent. An RCS client shall match received notifications to the messages sent based only on the IMDN Message-ID.

In section 5.4.4 of [RCC.11-v6.0] the text of the clarification for RCS shall be replaced by the following text:

- For RCS, a CPM client may receive disposition notifications with a different Conversation-ID and/or Contribution-ID than the 1-to-1 Chat in which the message to which the notification applies was sent. An RCS client shall match received notifications to the messages sent based only on the IMDN Message-ID.

The following clarification shall be added in the clarifications in section 7.3.1.1 of [RCC.11-v6.0]:

- In step 12, since CPM conversation does not exist for RCS, the client shall either:
  - include a Conversation-ID header with value from previous 1-1 CPM session that was established and ended with this recipient; or
  - generate and include new Conversation-ID and Contribution-ID header field values.

5.1.4 ID_RCC.11_6.0_4: Aligning with latest OMA CPM 2.2

ID	ID_RCC.11_6.0_4
Title	Aligning with latest OMA CPM 2.2
Type	Requirement
Related spec and section	[RCC.11-v6.0] Sections 1.4, 6.8, 7.2.2.3, 7.3.10.1, 8.2.2.1, 8.2.2.6, 8.2.2.9 (new section), 8.3.1.5. 8.3.2.1.1, 8.5, D.4 (new section)
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	18.12.2018
Superseded by	

5.1.4.1 Issue Description

A few errors have been found in OMA-TS-CPM_Conversation_Function-V2_2-20180330-D, and were also present in OMA-TS-CPM_Conv_Fnct-V2_2-20170612-D, which is the version of OMA CPM 2.2 referenced in [RCC.11-v6.0].

5.1.4.2 Expected Behaviour

The following updates are now corrected in OMA-TS-CPM_Conversation_Function-V2_2-20181025-D [CPMCONVFUNC] and thus shall apply when endorsed by [RCC.11-v6.0]:

- The first sentence in section 6.8 of OMA CPM 2.2 that defines the content-type for CPM Group Session Data management was inadvertently deleted and is now added back in. This sentence was removed in 2017 when the OMA CR0083 was applied to OMA-TS-CPM_Conversation_Function-V2_2-20170604-D:
  - Therefore, section 6.8 of [CPMCONVFUNC] is endorsed with no differences after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC].
- Corrections to the direct delivery procedures have been made to section 7.2.2.3 of OMA CPM 2.2:

    - Therefore, section 7.2.2.3 of [CPMCONVFUNC] is endorsed with no differences after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC].

- The User-Agent header field and value needs to be set in SIP SUBSCRIBE, similar to other SIP requests (section 7.3.10.1 of OMA CPM 2.2):
    - Therefore, section 7.3.10.1 of [CPMCONVFUNC] is endorsed with no differences.
- Corrections to the direct delivery procedures have been made to section 8.2.2.1 of OMA CPM 2.2:
    - Therefore, section 8.2.2.1 of [CPMCONVFUNC] is endorsed with no differences after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC].
- The User-Agent header field and value needs to be set in SIP SUBSCRIBE, similar to other SIP requests (section 8.2.2.6 of OMA CPM 2.2):
    - Therefore, section 8.2.2.6 of [CPMCONVFUNC] is endorsed with no differences after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC]. The clarification in section 8.2.2.6 of [RCC.11-v6.0] still applies.
- Procedures in the PF for handling SIP REFER were missing and are now added. Endorsement of the added OMA CPM 2.2 section 8.2.2.9 Adding/Removing Participants Request is added in this CR;
    - Therefore, section 8.2.2.9 of [CPMCONVFUNC] is endorsed with no differences.
- The SIP header field is Require, not Required – this is fixed in a few spots, and in section 8.3.1.5 step 1.b. of OMA CPM 2.2, it is not mentioned that it must be set, so that has been added:
    - Therefore, section 8.3.1.5 of [CPMCONVFUNC] is endorsed with no differences.
- Fixed in section 8.3.2.1.1 of OMA CPM 2.2 that a SIP BYE with reason code is sent instead of an error response to an INVITE, since the session was already set up, and the last procedure about the SIP ACK is not needed, since it was already forwarded on;
    - Therefore, section 8.3.2.1.1 of [CPMCONVFUNC] is endorsed with only the difference listed in section 8.3.2.1.1 of [RCC.11-v6.0] after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC].
- Some typos corrected, and one section number error is corrected in section 8.3.6 of OMA CPM 2.2:
- Added text to section 8.5 of OMA CPM 2.2 to allow URI parameters in folder names as per service provider policy. RCS already mandates them, so this aligns the OMA CPM 2.2 spec to how RCS will use it:
    - Therefore section 8.5 of [CPMCONVFUNC] is endorsed with no differences. As a clarification for RCS, RCS requires that if a “tk=on” or “tk=off” URI parameter is present in the URL, then it shall be included in the folder name.
- Added Appendix D.4 to OMA CPM 2.2, defining the CPM 2.2 version for the User-Agent/Server header. This was missing:

- Therefore, Appendix D.4 of [CPMCONVFUNC] is endorsed with no differences.

5.2 RCC.11 Version 7.0 (UP 2.2)

This section contains solutions for issues found in [RCC.11-v7.0].

5.2.1 ID_RCC.11_7.0_1: Aligning with latest OMA CPM 2.2

ID	ID_RCC.11_7.0_1
Title	Aligning with latest OMA CPM 2.2
Type	Requirement
Related spec and section	[RCC.11-v7.0] Sections 1.4, 6.8, 7.2.2.3, 7.3.10.1, 8.2.2.1, 8.2.2.6, 8.2.2.9 (new section), 8.3.1.5. 8.3.2.1.1, 8.5, D.4 (new section)
Applicable Universal Profile release	Universal Profile v2.2
Publication Date	18.12.2018
Superseded by	

5.2.1.1 Issue Description

A few errors have been found in OMA-TS-CPM_Conversation_Function-V2_2-20180330-D which is the version of OMA CPM 2.2 referenced by the UP 2.2 version of RCC.07.

5.2.1.2 Expected Behaviour

The following are now corrected in OMA-TS-CPM_Conversation_Function-V2_2-20181025-D [CPMCONVFUNC] and thus shall apply when endorsed by [RCC.11-v7.0]:

- The first sentence in section 6.8 of OMA CPM 2.2 that defines the content-type for CPM Group Session Data management was inadvertently deleted and is now added back in. This sentence was removed in 2017 when the OMA CR0083 was applied to OMA-TS-CPM_Conversation_Function-V2_2-20170604-D;
    - Therefore, section 6.8 of [CPMCONVFUNC] is endorsed with no differences after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC].
- Corrections to the direct delivery procedures have been made to section 7.2.2.3 of OMA CPM 2.2:
    - Therefore, section 7.2.2.3 of [CPMCONVFUNC] is endorsed with no differences after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC].
- The User-Agent header field and value needs to be set in SIP SUBSCRIBE, similar to other SIP requests (section 7.3.10.1 of OMA CPM 2.2):
    - Therefore, section 7.3.10.1 of [CPMCONVFUNC] is endorsed with no differences.
- Corrections to the direct delivery procedures have been made to section 8.2.2.1 of OMA CPM 2.2:
    - Therefore, section 8.2.2.1 of [CPMCONVFUNC] is endorsed with no differences after taking into account the use cases and technology choices for

RCS described in section 4 of [CPMCONVFUNC]. The clarification in section 8.2.2.1 of [RCC.11-v7.0] still applies.

- The User-Agent header field and value needs to be set in SIP SUBSCRIBE, similar to other SIP requests (section 8.2.2.6 of OMA CPM 2.2):
    - Therefore, section 8.2.2.6 of [CPMCONVFUNC] is endorsed with no differences after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC].
- Procedures in the PF for handling SIP REFER were missing and are now added. Endorsement of the added OMA CPM 2.2 section 8.2.2.9 Adding/Removing Participants Request is added in this CR:
    - Therefore, section 8.2.2.9 of [CPMCONVFUNC] is endorsed with no differences.
- The SIP header field is Require, not Required – this is fixed in a few spots, and in section 8.3.1.5 step 1.b. of OMA CPM 2.2, it is not mentioned that it must be set, so that has been added:
    - Therefore, section 8.3.1.5 of [CPMCONVFUNC] is endorsed with no differences.
- Fixed in section 8.3.2.1.1 of OMA CPM 2.2 that a SIP BYE with reason code is sent instead of an error response to an INVITE, since the session was already set up, and the last procedure about the SIP ACK is not needed, since it was already forwarded on:
    - Therefore, section 8.3.2.1.1 of [CPMCONVFUNC] is endorsed with only the difference listed in section 8.3.2.1.1 of [RCC.11-v7.0] after taking into account the use cases and technology choices for RCS described in section 4 of [CPMCONVFUNC].
- Some typos corrected, and one section number error is corrected in section 8.3.6 of OMA CPM 2.2;
- Added text to section 8.5 of OMA CPM 2.2 to allow URI parameters in folder names as per service provider policy. RCS already mandates them, so this aligns the OMA CPM 2.2 spec to how RCS will use it:
    - Therefore section 8.5 of [CPMCONVFUNC] is endorsed with no differences. As a clarification for RCS, RCS requires that if a “tk=on” or “tk=off” URI parameter is present in the URL, then it shall be included in the folder name.
- Added Appendix D.4 to OMA CPM 2.2, defining the CPM 2.2 version for the User-Agent/Server header. This was missing:
    - Therefore, Appendix D.4 of [CPMCONVFUNC] is endorsed with no differences.

6 Clarifications and Issue Solutions for Service Provider Device Configuration

6.1 RCC.14 Version 3.0

This section contains solutions for issues found in [RCC.14-v3.0].

6.1.1 ID_RCC.14_3.0_1: HTTP GET parameter terminal_sw_version maximum length

ID	ID_RCC.14_3.0_1
Title	HTTP GET parameter terminal_sw_version maximum length
Type	Requirement
Related spec and section	[RCC.14-v3.0] Section 2.2.1, section 2.3.2
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

6.1.1.1 Issue Description

There are clients with terminal_sw_version parameter value longer than the maximum length defined in the format of this parameter in sections 2.2.1 and 2.3.1 of [RCC.14-v3.0] i.e. longer than 10 characters. The requests of these clients may be rejected by the configuration server.

6.1.1.2 Expected Behaviour

The maximum length of the terminal_sw_version parameter defined in Table 1 of section 2.2.1 of [RCC.14-v3.0] and Table 9 of 2.3.2 of [RCC.14-v3.0] shall be changed from 10 to 20.

6.1.2 ID_RCC.14_3.0_2: SMS connectivity for first time configuration

ID	ID_RCC.14_3.0_2
Title	SMS connectivity for first time configuration
Type	Requirement
Related spec and section	[RCC.14-v3.0] Section 2.3.2
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

6.1.2.1 Issue Description

As long as there is no Short Message Service (SMS) connectivity (e.g. lack of indoor coverage) available for the client to receive the SMS that contains the One-Time Password (OTP), any attempt made by the client to perform the SMS based configuration procedure when no token is available or with token that does not privilege the server to issue a client configuration will fail. This impacts negatively the user experience.

6.1.2.2 Expected Behaviour

Depending on the use case, availability of SMS connectivity may be required to proceed with the configuration procedure. The text in section 2.3.2 of [RCC.14-v3.0] that describes the

two situations that exist depending on client capability to access the user data (e.g. the user's International Mobile Subscriber Identity [IMSI]) shall be replaced by the following text:

7. The client is not able to retrieve the IMSI of the Subscriber Identity Module (SIM):

   The IMSI parameter shall always be omitted from requests. The following use cases apply for the determination of Mobile Subscriber Integrated Services Digital Network Number (MSISDN) and token.

   - If the request is not caused by a previous configuration response containing a cookie and connectivity for receiving SMS is available and the client

     - has not stored a token and
     - has not stored a MSISDN,

     then the client shall prompt the user to provide a MSISDN in E.164 format.
     In this case the value of the MSISDN parameter shall take the number entered by the user. The value of the token parameter shall be left empty as defined in Table 9 of [RCC.14-v3.0].
     If connectivity for receiving SMS is not available, the client shall wait for SMS connectivity prior to initiating the configuration procedure.
   - If the request is not caused by a previous configuration response containing a cookie and connectivity for receiving SMS is available and the client

     - has not stored a token and
     - has stored a MSISDN from a previous user input or has derived it from the Public_User_Identity parameter (defined in [RCC.15-v2.0]) of the client configuration,

     then the client may prompt the user to enter a MSISDN in E.164 format with the stored value as recommendation or may use the MSISDN without user interaction.
     In this case the value of the MSISDN parameter shall take the value discovered by the client. The value of the token parameter shall be left empty.
     If connectivity for receiving SMS is not available, the client shall wait for SMS connectivity prior to initiating the configuration procedure.
   - If the client has not stored a token and the configuration request is caused by a previous configuration response containing a cookie, the client shall not prompt the user to enter the MSISDN and set the parameters as follows:

     - the token parameter shall be left empty
     - the MSISDN parameter shall be set to the value taken from a previous user input or as derived from the Public_User_Identity parameter (defined in [RCC.15-v2.0]) of the client configuration or it shall be omitted if none of these sources apply.

   - If the client has stored a token it shall use it to set the value of the token parameter. The MSISDN parameter shall be set to the value of the MSISDN stored with the token being either derived from the Public_User_Identity

parameter (defined in [RCC.15-v2.0]) or from previous user input or shall be omitted if these sources do not apply.

8. The client is able to retrieve the IMSI of the SIM:

   The IMSI parameter shall be set in the requests to the IMSI value derived from the SIM. The following use cases apply for the determination of MSISDN and token:

   - If the request is not caused by a previous configuration response containing a cookie and connectivity for receiving SMS is available and the client
     - has not stored a token

     then the client shall set the value of the MSISDN parameter to the MSISDN derived from the Public_User_Identity parameter (defined in [PRD-RCC.15]) of the client configuration or it shall omit it from the request. If the client has not stored a token, it shall leave the value of the token parameter empty as defined in Table 9 of [RCC.14-v3.0].
     If connectivity for receiving SMS is not available, the client shall wait for SMS connectivity prior to initiating the configuration procedure.
   - If the provisioning request is caused by the configuration server response with status 403 FORBIDDEN as defined in section 2.3.4 of [RCC.14-v3.0] the client shall prompt the user to enter the MSISDN. In this case the MSISDN value shall be taken from the user input and may be the source of the MSISDN parameter values in subsequent requests.
   - If the client has stored a token it shall use it to set the value of the token parameter as defined in Table 9 of [RCC.14-v3.0].

   The client behaviour to supply the identification parameters in the request is the same regardless whether it is sent in result of a previous configuration response containing a cookie or not.

6.1.3 ID_RCC.14_3.0_3: Retry behaviour when OTP SMS is not received for first time configuration

ID	ID_RCC.14_3.0_3
Title	Retry behaviour when OTP SMS is not received for first time configuration
Type	Clarification
Related spec and section	[RCC.14-v3.0] Section 2.3.4
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

6.1.3.1 Expected Behaviour

If the client or the user is not able to receive the OTP via SMS, e.g. due to missing network connection, then the configuration procedure may start from the beginning (e.g. after a

timeout period or selected by the user) including the request to enter the MSISDN if one was requested before.

6.2 RCC.14 Version 5.0

This section contains solutions for issues found in [RCC.14-v5.0].

6.2.1 ID_RCC.14_5.0_1: AppID for Configuration Document Transformation

ID	ID_RCC.14_5.0_1
Title	AppID for Configuration Document Transformation
Type	Requirement
Related spec and section	[RCC.14-v5.0] Section A.2
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	26.09.2018
Superseded by	

6.2.1.1 Issue Description

The definition of the rule to source the Management Object Identifier is missing for the transformation of a OMA DM DDF to a OMA CP configuration document in Annex A of [RCC.14-v5.0].

6.2.1.2 Expected Behaviour

In Table 18 of [RCC.14-v5.0] it is clarified the Management Object Identifier has to be taken from the <DDFName> element from the <DFType> element from the root <Node> with <DFFormat> set to <node/>.

6.3 RCC.14 Version 6.0

This section contains solutions for issues found in [RCC.14-v6.0].

6.3.1 ID_RCC.14_6.0_1: Authentication Flow using HTTP embedded EAP-AKA

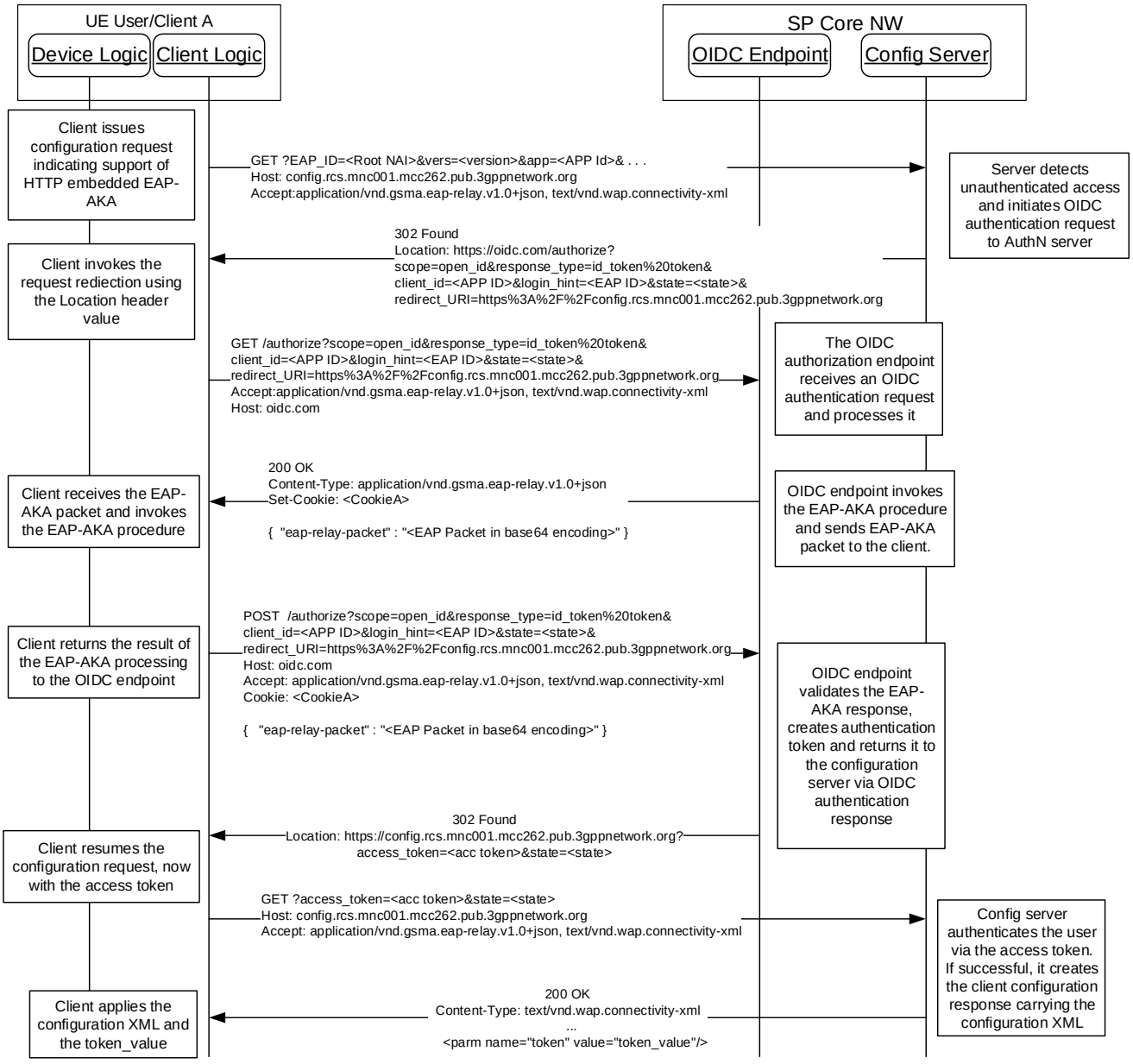
ID	ID_RCC.14_6.0_1
Title	Authentication Flow using HTTP embedded EAP-AKA
Type	Requirement
Related spec and section	[RCC.14-v6.0]Section 2.8.3.2
Applicable Universal Profile release	Universal Profile v2.3
Publication Date	18.12.2018
Superseded by	

6.3.1.1 Issue Description

The example flow in Figure 10 for OIDC and HTTP embedded EAP-AKA in section 2.8.3.2 of [RCC.14-v6.0] is not aligned with the defined procedures.

6.3.1.2 Expected Behaviour

Figure 10 in section 2.8.3.2 of [RCC.14-v6.0] shall be replaced with the following:



7 Clarifications and Issue Solutions for IMS Device Configuration and Supporting Services

7.1 RCC.15 Version 4.0

This section contains solutions for issues found in [RCC.15-v4.0].

7.1.1 ID_RCC.15_4.0_1: Management Object Identifier in the IMS MO DDF

ID	ID_RCC.15_4.0_1
Title	Management Object Identifier in the IMS MO DDF
Type	Requirement
Related spec and section	[RCC.15-v4.0] Section 2.2.1.1.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	26.09.2018
Superseded by	

7.1.1.1 Issue Description

The Management Object DDF of the IMS MO in [3GPP TS 24.167] does not specify the management object identifier.

7.1.1.2 Expected Behaviour

In section 2.2.1.1.1 of [RCC.15-v4.0] the Management Object DDF defined in [3GPP TS 24.167] is extended as follows. For the root interior node with the <NodeName> element value set to "3GPP_IMS", the value of the <DDFName> element in the <DFType> element of the <DFProperties> element is set to "urn:oma:mo:ext-3gpp-ims:1.0".

8 Clarifications and Issue Solutions for Enriched Calling Technical Specification

8.1 RCC.20 Version 2.0

This section contains solutions for issues found in [RCC.20-v2.0].

8.1.1 ID_RCC.20_2.0_1: Correction of Call Composer Service XML Schema

ID	ID_RCC.20_2.0_1
Title	Correction of Call Composer Service XML Schema
Type	Requirement
Related spec and section	[RCC.20-v2.0] Section 2.4.4, Section 2.6
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	26.02.2017
Superseded by	

8.1.1.1 Issue Description

The XML schema of the Call Composer Service defined in [RCC.20-v2.0] is corrected. The Uniform Resource Locator (URL) of the call composer picture shall be transferred in a "url" attribute of a "picture" element.

8.1.1.2 Expected Behaviour

Table 9 in section 2.4.4 of [RCC.20-v2.0] shall be replaced by the following:

```
<?xml version=”1.0” encoding=”UTF-8”?>
<rcsenvelope xmlns=”urn:gsma:params:xml:ns:rcs:rcs:calldata”>
    <rcscalldata>
        <subject>this is the subject</subject>
        <importance>[0/1]</importance>
        <location>[coordinates]</location>
        <composerid>[Random generated number to identify the session]</composerid>
        <picture url="[HTTP URL for the file]"/>
    </rcscalldata>
</rcsenvelope>
```

The description of the element "picture_url" under the element "rcscalldata" in section 2.4.4 of [RCC.20-v2.0] is removed. Instead a description of the element "picture" is added as follows:

- <picture>: provides the characteristics of the picture file on the File Transfer (FT) content server. The element includes an attribute "url" containing the URL of the picture file on the FT content server to be displayed.

Table 14 of section 2.6 of [RCC.20-v2.0] is replaced by the following:

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

<xs:schema
  targetNamespace="urn:gsma:params:xml:ns:rcs:rcs:calldata"
  xmlns="urn:gsma:params:xml:ns:rcs:rcs:calldata"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified" attributeFormDefault="unqualified">

    <!-- This import brings in the XML language attribute xml:lang -->
    <xs:import namespace="http://www.w3.org/XML/1998/namespace"
    schemaLocation="http://www.w3.org/2001/xml.xsd"/>

    <!-- The root "rcsenvelope" element -->
    <xs:element name="rcsenvelope">
        <xs:complexType>
            <xs:sequence>
                <xs:element name="rcscalldata" type="reasontype" maxOccurs="1"/>
                <xs:any minOccurs="0" maxOccurs="unbounded" processContents="lax"/>
            </xs:sequence>
        </xs:complexType>
    </xs:element>

    <!-- The definition of type "reasontype" is as below -->
    <xs:complexType name="reasontype">
        <xs:sequence>
            <xs:element name="subject" type="xs:string" minOccurs="0" maxOccurs="1"/>
            <xs:element name="importance" type="xs:boolean" minOccurs="0" maxOccurs="1"/>
            <xs:element name="location" type="xs:string" minOccurs="0" maxOccurs="1"/>
            <xs:element name="composerid" type="xs:string" minOccurs="0" maxOccurs="1"/>
            <xs:element name="picture" type="xs:string" minOccurs="0" maxOccurs="1">
                <xs:complexType>
                    <xs:attribute name="url" type="xs:anyURI" use="required"/>
                    <xs:anyAttribute namespace="##other" processContents="lax"/>
```

```
                </xs:complexType>
            </xs:element>
            <xs:element name="note" type="xs:string" minOccurs="0" maxOccurs="1"/>
            <xs:any minOccurs="0" maxOccurs="unbounded" processContents="lax"/>
        </xs:sequence>
    </xs:complexType>
</xs:schema>
```

8.1.2 ID_RCC.20_2.0_2: Shared Map/Sketch Session Invitation Handling

ID	ID_RCC.20_2.0_2
Title	Shared Map/Sketch Session Invitation Handling
Type	Requirement
Related spec and section	[RCC.20-v2.0] Section 2.9.9.1
Applicable Universal Profile release	Universal Profile v1.0
Publication Date	28.11.2017
Superseded by	

8.1.2.1 Issue Description

The definitions for session establishment of a Shared Map or Shared Sketch media session in section 2.9.9.1 of [RCC.20-v2.0] do not cover the handling of aborted and session timeouts. References to RCC.07 for the number matching procedures for in-call share session are missing.

8.1.2.2 Expected Behaviour

Section 2.9.9.1 of [RCC.20-v2.0] shall be replaced by the following:

is replaced by the following:

If Shared Map or Shared Sketch

- is enabled via SHARED MAP AUTH or SHARED SKETCH AUTH parameters respectively as defined in section 2.1.2 of [RCC.20-v2.0]
- and the in-call capability discovery is successful for the active call based on the Service Identification defined in section 2.9.7.1 and 2.9.8.1 of [RCC.20-v2.0]respectively

and therefore the service is available to the user, the client of the user initiating a Shared Map or Shared Sketch session shall establish a media session as described in section 2.3 of [RCC.20-v2.0]

To initiate the in-call capability discovery request and to establish the media sessions for a Shared Map or Shared Sketch, the client shall derive the target address for the SIP signalling from the other party of the active call in accordance with the definitions in section 2.5.3.2 of [RCC.07-v7.0].

The client shall match the phone number in the P-Asserted-Identity header of received in-call capability discovery requests or a media session for a Shared Map or Shared Sketch with an active ongoing call in accordance with the definitions in section 2.5.2.2 of [RCC.07-v7.0].

For both cases, to identify the other party of the call, the client shall use

- for a mobile originated call the connected party number if available, otherwise the called party number.
- for a mobile terminated call the calling line identity.

When establishing the media session the Shared Map or Shared Sketch ICSI shall be used in the accept-contact and P-Preferred-Services headers depending on the type of session (see sections 2.9.7.1 and 2.9.8.1 of [RCC.20-v2.0]).

If the user of the client initiating the media session aborts the session prior to finalisation of the INVITE transaction, then the client shall cancel the INVITE request by sending a CANCEL request according to the rules and procedures of [3GPP TS 24.229].

If the call matching the Shared Map or Shared Sketch session is terminated by the user of the client initiating the media session or is put on hold prior to finalisation the INVITE transaction, then the client shall cancel the media session by sending a CANCEL request according to the rules and procedures of [3GPP TS 24.229].

If a client receives an invitation for a Shared Map or Shared Sketch session and

- it is not involved in a call then the client shall reject the session with a SIP 486 Busy Here response.
- it is involved in an active mobile terminated call and the calling line identity of the active call has been restricted then the client shall reject the media session with a SIP 486 Busy Here response.
- if the media session matches the call, the client shall send a SIP 180 Ringing response and notify the user about the incoming Shared Map or Shared Sketch session. The client receiving the invitation to the media session shall start a timer "s" for the INVITE transaction. Subsequently,

    - if the user rejects the invitation to the Shared Map or Shared Sketch then the client shall reject the media session as defined for terminating nodes in section 2.3.1 of [RCC.20-v2.0] and stop the timer "s" for the INVITE transaction. On reception of a SIP error response the client of the initiating party shall act as defined for initiating nodes in section 2.3.1 of [RCC.20-v2.0].
    - if the user accepts the invitation to the Shared Map or Shared Sketch then the client shall accept the media session as defined for terminating nodes in section 2.3.1 of [RCC.20-v2.0] and stop the timer "s" for the INVITE transaction.
    - if the call matching the Shared Map or Shared Sketch session is terminated by the user of the client terminating the media session or if the user puts the call on hold, the client shall reject the media session with a SIP 486 Busy Here response and stop the timer "s" for the INVITE transaction.

- if the client receives a CANCEL request for the Shared Map or Shared Sketch session, then the client shall process the CANCEL request according to the rules and procedures of [3GPP TS 24.229] and stop the timer "s" for the INVITE transaction.
- if the timer "s" for the INVITE transaction expires, then the client shall reject the media session with a SIP 408 Request Timeout response.

  - The recommended value for the timer "s" is:
  s = 30 sec

Media sessions are used by the clients to manage a Shared Map or Shared Sketch session as defined in section 2.9.9.2 of [RCC.20-v2.0].

The termination of an established Shared Map or Shared Sketch session is initiated by the clients as defined in section 2.9.9.2 of [RCC.20-v2.0]. The media session shall be terminated by the client with the procedure defined in section 2.3.2 of [RCC.20-v2.0].

If an error occurs for the media session or the media session is closed while the Shared Sketch or Shared Map session remains active, the client should reconnect the media session as follows:

- If a client needs to transmit a Shared Map or Shared Sketch action it shall first terminate the failed media session if it is not yet terminated with the procedure defined in sections 2.3.2 and 2.3.4 of [RCC.20-v2.0] without notifying the user and then establish a new media session as described in section 2.3 of [RCC.20-v2.0]. If the establishment of the media session succeeds, the Shared Map or Shared Sketch session shall be continued. If the establishment of the media session fails the client may retry. If the session establishment continues to fail the client may cache the actions of the user to be able to continue the session at a later stage or to inform the user the Shared Map or Shared Sketch session is currently not available.
- If the other party client receives an INVITE from the same user that he is already in a Shared Map or Shared Sketch session with, it shall consider the new INVITE as a reconnect attempt, accept it and continue to send and receive Shared Map or Shared Sketch session data via the new media session.
- If race conditions apply it is possible that both clients tries reconnect the media session at the same time. This will lead to two open sessions, which shall be kept by the clients for the Shared Map or Shared Sketch session. Both sessions can be used for sending and receiving Shared Map or Shared Sketch session data. However a Shared Map or Shared Sketch action shall only by sent via one media session in this case. If the Shared Map or Shared Sketch session is terminated the clients shall terminate both media sessions with the procedure defined in section 2.3.2 of [RCC.20-v2.0].

The media session status does not alter the state of the Shared Map or Shared Sketch session defined in section 2.9.9.2 of [RCC.20-v2.0].

8.2 RCC.20 Version 3.0

This section contains solutions for issues found in [RCC.20-v3.0].

8.2.1 ID_RCC.20_3.0_1: Shared Map/Sketch Session Invitation Handling

ID	ID_RCC.20_3.0_1
Title	Shared Map/Sketch Session Invitation Handling
Type	Requirement
Related spec and section	[RCC.20-v3.0] Section 2.9.9.1
Applicable Universal Profile release	Universal Profile v2.0
Publication Date	28.11.2017
Superseded by	

8.2.1.1 Issue Description

The definitions for session establishment of a Shared Map or Shared Sketch media session in section 2.9.9.1 of [RCC.20-v3.0] do not cover the handling of aborted and session timeouts. References to RCC.07 for the number matching procedures for in-call share session are missing.

8.2.1.2 Expected Behaviour

Section 2.9.9.1 of [RCC.20-v3.0] shall be replaced by the following:

If Shared Map or Shared Sketch

- is enabled via SHARED MAP AUTH or SHARED SKETCH AUTH parameters respectively as defined in section 2.1.2 of [RCC.20-v3.0]
- and the in-call capability discovery is successful for the active call based on the Service Identification defined in section 2.9.7.1 and 2.9.8.1 of [RCC.20-v3.0] respectively

and therefore the service is available to the user, the client of the user initiating a Shared Map or Shared Sketch session shall establish a media session as described in section 2.3 of [RCC.20-v3.0].

To initiate the in-call capability discovery request and to establish the media sessions for a Shared Map or Shared Sketch, the client shall derive the target address for the SIP signalling from the other party of the active call in accordance with the definitions in section 2.5.3.2 of [RCC.07-v8.0].

The client shall match the phone number in the P-Asserted-Identity header of received in-call capability discovery requests or a media session for a Shared Map or Shared Sketch with an active ongoing call in accordance with the definitions in section 2.5.2.2 of [RCC.07-v8.0].

For both cases, to identify the other party of the call, the client shall use

- for a mobile originated call the connected party number if available, otherwise the called party number.
- for a mobile terminated call the calling line identity.

When establishing the media session the Shared Map or Shared Sketch ICSI shall be used in the accept-contact and P-Preferred-Services headers depending on the type of session (see sections 2.9.7.1 and 2.9.8.1 of [RCC.20-v3.0]).

If the user of the client initiating the media session aborts the session prior to finalisation of the INVITE transaction, then the client shall cancel the INVITE request by sending a CANCEL request according to the rules and procedures of [3GPP TS 24.229].

If the call matching the Shared Map or Shared Sketch session is terminated by the user of the client initiating the media session or is put on hold prior to finalisation the INVITE transaction, then the client shall cancel the media session by sending a CANCEL request according to the rules and procedures of [3GPP TS 24.229].

If a client receives an invitation for a Shared Map or Shared Sketch session and

- it is not involved in a call then the client shall reject the session with a SIP 486 Busy Here response.
- it is involved in an active mobile terminated call and the calling line identity of the active call has been restricted then the client shall reject the media session with a SIP 486 Busy Here response.
- if the media session matches the call, the client shall send a SIP 180 Ringing response and notify the user about the incoming Shared Map or Shared Sketch session. The client receiving the invitation to the media session shall start a timer "s" for the INVITE transaction. Subsequently,

    - if the user rejects the invitation to the Shared Map or Shared Sketch then the client shall reject the media session as defined for terminating nodes in section 2.3.1 of [RCC.20-v3.0] and stop the timer "s" for the INVITE transaction. On reception of a SIP error response the client of the initiating party shall act as defined for initiating nodes in section 2.3.1 of [RCC.20-v3.0].
    - if the user accepts the invitation to the Shared Map or Shared Sketch then the client shall accept the media session as defined for terminating nodes in section 2.3.1 of [RCC.20-v3.0] and stop the timer "s" for the INVITE transaction.
    - if the call matching the Shared Map or Shared Sketch session is terminated by the user of the client terminating the media session or if the user puts the call on hold, the client shall reject the media session with a SIP 486 Busy Here response and stop the timer "s" for the INVITE transaction.
    - if the client receives a CANCEL request for the Shared Map or Shared Sketch session, then the client shall process the CANCEL request according to the rules and procedures of [3GPP TS 24.229] and stop the timer "s" for the INVITE transaction.
    - if the timer "s" for the INVITE transaction expires, then the client shall reject the media session with a SIP 408 Request Timeout response.

        - The recommended value for the timer "s" is:
        s = 30 sec

Media sessions are used by the clients to manage a Shared Map or Shared Sketch session as defined in section 2.9.9.2 of [RCC.20-v3.0].

The termination of an established Shared Map or Shared Sketch session is initiated by the clients as defined in section 2.9.9.2 of [RCC.20-v3.0]. The media session shall be terminated by the client with the procedure defined in section 2.3.2 of [RCC.20-v3.0].

If an error occurs for the media session or the media session is closed while the Shared Sketch or Shared Map session remains active, the client should reconnect the media session as follows:

- If a client needs to transmit a Shared Map or Shared Sketch action it shall first terminate the failed media session if it is not yet terminated with the procedure defined in sections 2.3.2 and 2.3.4 of [RCC.20-v3.0] without notifying the user and then establish a new media session as described in section 2.3 of [RCC.20-v3.0]. If the establishment of the media session succeeds, the Shared Map or Shared Sketch session shall be continued. If the establishment of the media session fails, the client may retry. If the session establishment continues to fail the client may cache the actions of the user to be able to continue the session at a later stage or to inform the user the Shared Map or Shared Sketch session is currently not available.
- If the other party client receives an INVITE from the same user that he is already in a Shared Map or Shared Sketch session with, it shall consider the new INVITE as a reconnect attempt, accept it and continue to send and receive Shared Map or Shared Sketch session data via the new media session.
- If race conditions apply, it is possible that both clients tries reconnect the media session at the same time. This will lead to two open sessions, which shall be kept by the clients for the Shared Map or Shared Sketch session. Both sessions can be used for sending and receiving Shared Map or Shared Sketch session data. However a Shared Map or Shared Sketch action shall only by sent via one media session in this case. If the Shared Map or Shared Sketch session is terminated the clients shall terminate both media sessions with the procedure defined in section 2.3.2 of [RCC.20-v3.0].

The media session status does not alter the state of the Shared Map or Shared Sketch session defined in section 2.9.9.2 of [RCC.20-v3.0].

8.3 RCC.20 Version 6.0

This section contains solutions for issues found in [RCC.20-v6.0].

8.3.1 ID_RCC.20_6.0_1: Application IDs for Enriched Calling and Capability Discovery

ID	ID_RCC.20_6.0_1
Title	Application IDs for Enriched Calling and Capability Discovery
Type	Requirement
Related spec and section	[RCC.20-v6.0] sections 2.1.3, 2.1.4 and 2.1.6

Applicable Universal Profile release	Universal Profile v2.4
Publication Date	16.12.2019
Superseded by	

8.3.1.1 Issue Description

The Application Identifiers ap2005 and ap2006 that have been specified in [RCC.20-v6.0] and registered with OMNA for the Enriched Calling and Capability Exchange MOs were used in GSMA PRD TS.43 already (without reservation at OMNA). Given that implementations exist already based on that specification, it has been chosen to change the identifiers used for Enriched Calling and Capability Exchange and to update the OMNA registry accordingly.

8.3.1.2 Expected Behaviour

The application identifier ap2005 shall be replaced with the identifier ap2007 in the following:

- The value of the node /<x>/AppID client configuration parameter defined in section 2.1.3 of [RCC.20-v6.0]
- The value of the "app" HTTP Get parameter referred to in section 2.1.6.1 of [RCC.20-v6.0]
- The value of the APPID parameter in the Application type XML structure for Enriched Calling depicted in section 2.1.6.2 of [RCC.20-v6.0]
- The value of the APPID parameter in the example Enriched Calling configuration document in section 2.1.6.4 of [RCC.20-v6.0]

The application identifier ap2006 shall be replaced with the identifier ap2008 in the following:

- The value of the node /<x>/AppID client configuration parameter defined in section 2.1.4 of [RCC.20-v6.0]
- The value of the "app" HTTP Get parameter referred to in section 2.1.6.1 of [RCC.20-v6.0]
- The value of the APPID parameter in the Application type XML structure for Capability and Service Availability Discovery depicted in section 2.1.6.3 of [RCC.20-v6.0]

The value of the APPID parameter in the example Enriched Calling configuration document in section 2.1.6.4 of [RCC.20-v6.0].

9 Clarifications and Issue Solutions for OMA SIMPLE IM to OMA CPM transition guidelines

9.1 RCC.64 Version 1.0

This section contains solutions for issues found in [[RCC.64-v1.0]].

9.1.1 ID_RCC.64_1.0_1: Transition Client Delivery Assurance

ID	ID_RCC.64_1.0_1
Title	Transition Client Delivery Assurance

Type	Requirement
Related spec and section	[RCC.64-v1.0] Section 3.4.3, new section 3.4.4.
Applicable Universal Profile release	Not applicable
Publication Date	28.11.2017
Superseded by	

9.1.1.1 Issue Description

[RCC.64-v1.0] lacks a procedure for the originating client to manage delivery assurance, if SIMPLE IM is the selected messaging technology.

9.1.1.2 Expected Behaviour

Section 3.4.3 of [RCC.64-v1.0] shall be replaced by the following:

> A client supporting either the phase 1 or the phase 2 of transition defined in section 3.1 of [RCC.64-v1.0] shall apply the procedures for the Chat Fallback Mechanism management as defined in section 5.3.3.2 of [RCC.71-UP1.0] with the following additional clarifications and requirements.
>
> If
>
> - OMA SIMPLE IM is selected as messaging technology, and
> - the client initiates a 1-to-1 Chat session, and
> - the CHAT REVOKE TIMER client configuration parameter defined in section A.1.4.3 of [RCC.07-v7.0] is set to a value higher than "0", and
> - the SMS fall-back is not disabled on the client
>
> then the client shall monitor the delivery of the message that it sends in the SIP INVITE request.
>
> If the client receives a SIP 200 OK response to the SIP INVITE, then
>
> - if the contact header contains a message revocation feature tag as defined in section 5.3.2 of [RCC.71-UP1.0], then the client shall continue monitoring the delivery of the message sent in the SIP INVITE.
> - if the contact header contains a network interworking feature tag as defined in section 5.3.2 of [RCC.71-UP1.0] then the client shall stop monitoring the delivery of the message in the SIP INVITE.
> - if the contact header contains neither the network interworking feature tag nor the message revocation feature as defined in section 5.3.2 of [RCC.71-UP1.0], then the client shall stop monitoring the delivery of the message in the SIP INVITE.
>
> If the client receives a 486 Busy Here response to the SIP INVITE, then the client shall stop monitoring the delivery of the message sent in the SIP INVITE.

The expected behaviour for Disposition Notifications for a 1-to-1 Chat shall be as follows:

A client supporting either the phase 1 or the phase 2 of transition defined in section 3.1 of [RCC.64-v1.0] shall apply the procedures for Disposition Notification as defined in section 5.3.3.4 of [RCC.71-UP1.0] with the following additional clarifications and requirements.

If the chat messaging technology OMA SIMPLE IM is selected and if the client sends a message in a CPIM/IMDN wrapper carried in a SIP INVITE request, then the client shall request in the CPIM Disposition-Notification header an Interworking Disposition Notification as defined in Appendix O of [RCC.11-v5.0].

9.1.2 ID_RCC.64_1.0_2: Error Code Mapping Clarification

ID	ID_RCC.64_1.0_2
Title	Error Code Mapping Clarification
Type	Requirement
Related spec and section	[RCC.64-v1.0] Section 4.2
Applicable Universal Profile release	Not applicable
Publication Date	28.11.2017
Superseded by	

9.1.2.1 Issue Description

[RCC.64-v1.0] does not correctly map MSRP SEND error responses to SIP INVITE error responses.

9.1.2.2 Expected Behaviour

The seventh bullet under Table 9 in section 4.2 of [RCC.64-v1.0] shall be replaced by the following:

- For the procedures on receiving a SIP 200 OK response from the CPM side, the temporarily queued message from the INVITE is sent via MSRP towards the recipient. Upon receiving an MSRP 200 OK from the CPM side for the temporarily queued message from the INVITE, an OMA SIMPLE IM SIP 200 OK is sent towards the OMA SIMPLE IM user. Upon receiving an MSRP error response, Table 17 below lists the mappings to the appropriate SIP error response to be sent towards the OMA SIMPLE IM user. As well, a SIP BYE request shall be sent to the CPM side.

MSRP error received from OMA CPM side	SIP error response sent towards OMA SIMPLE IM side
400	400
403	403
408	408
413	603
415	415
501	501
Any other error received (e.g., 423, 481, 506)	500

Table 17: MSRP error response mapping to OMA SIMPLE IM SIP error response

For 1-to-1 chat originating on OMA CPM side i.e. Accept-Contact header includes urn:urn-7:3gpp-service.ims.icsi.oma.cpm.session, the text in section 4.2 of [RCC.64-v1.0] shall apply but the third last bullet shall be replaced with the following:

- The SIP error response procedures apply with the addition that an MSRP 481 error response shall be sent when an error response other than SIP 486 error response is received for the SIP INVITE request, and an MSRP 200 OK response shall be sent when a SIP 486 Busy Here error response is received. When a SIP error response other than 486 Busy Here is received, a SIP BYE request shall be sent to the CPM side including a Reason Header field as defined in RFC3326 with a protocol-value set to SIP and a protocol cause set to the value of the SIP error response received;

10 Document Management

A.1 Document History

Version	Date	Brief Description of Change	Approval Authority	Editor / Company
1.0	26.02.2017	New PRD based on issues found in documents used by RCC.71 Approved in GSG and PSMC	GSG/PSMC	Tom Van Pelt / GSMA
1.1	02.06.2017	Update including new items in sections 2 and 3: ID_RCC.71_1.0_5 to ID_RCC.71_1.0_11 and ID_RCC.07_7.0_4	GSG	Tom Van Pelt / GSMA
2.0	28.11.2017	Update including new items in Section 2.1: ID_RCC.71_1.0_12 to ID_RCC.71_1.0_15 Section 2.2: ID_RCC.71_2.0_1 to ID_RCC.71_2.0_2 Section 3.1: ID_RCC.07_7.0_5 to ID_RCC.07_7.0_7 Section 3.2: ID_RCC.07_8.0_1 to ID_RCC.07_8.0_11 Section 5.1: ID_RCC.11_6.0_1 Section 7.1: ID_RCC.20_2.0_2 Section 7.2: ID_RCC.20_3.0_1 Section 8.1: ID_RCC.64_1.0_1 to ID_RCC.64_1.0_2	GSG	Nancy Greene / Ericsson
2.1	16.03.2018	Update including new items in Section 2.2: ID_RCC.71_2.0_3 Section 3.2: ID_RCC.07_8.0_10 and ID_RCC.07_8.0_12 to ID_RCC.07_8.0_18	GSG	Nancy Greene / Ericsson
2.2	05.06.2018	Update including new items in Section 2.2: ID_RCC.71_2.0_4 Section 3.1: ID_RCC.07_7.0_9 Section 3.2: ID_RCC.07_8.0_19 to ID_RCC.07_8.0_25 Section 5.1: ID_RCC.11_6.0_2 and ID_RCC.11_6.0_3.	GSG	Nancy Greene / Ericsson
2.3	26.09.2018	Update including new items in Section 2.1: ID_RCC.71_1.0_16 Section 2.2: ID_RCC.71_2.0_5 Section 3.1: ID_RCC.07_7.0_10 Section 3.2: ID_RCC.07_8.0_26 and ID_RCC.07_8.0_27 New Section 3.3 RCC.07 Version 9.0 with ID_RCC.07_9.0_1 to ID_RCC.07_9.0_3 New Section 6.2 RCC.14 Version 5.0 with ID_RCC.14_5.0_1	GSG	Nancy Greene / Ericsson

		New Section 7 and section 7.1 RCC.15 Version 4.0 with ID_RCC.15_4.0_1 Former Section 7 is now Section 8, former Section 8 is now Section 9, and former Section 9 is now Section 10 (Annex A)		
2.4	18.12.2018	Update: - Correction in section 3.2.26 ID_RCC.07_8.0_26 - Correction in section 3.3 ID_RCC.07_9.0_1 - new items in * Section 2.2 ID_RCC.71_2.0_6 * Section 3.1 ID_RCC.07_7.0_11 * Section 3.2 ID_RCC.07_8.0_28, ID_RCC.07_8.0_29, ID_RCC.07_8.0_30 * Section 3.3 ID_RCC.07_9.0_4, ID_RCC.07_9.0_5, ID_RCC.07_9.0_6, ID_RCC.07_9.0_7 Section 5.1 ID_RCC.11_6.0_4 - new section 2.3 RCC.71 Version 2.2 with new item ID_RCC.71_2.2_1 - new section 3.4 RCC.07 Version 10.0 with new item ID_RCC.07_10.0_1 - new section 5.2 RCC.11 Version 7.0 with new item ID_RCC.11_7.0_1 - new section 6.3 RCC.14 Version 6.0 with new item ID_RCC.14_6.0_1	GSG	Nancy Greene / Ericsson
2.5	16.12.2019	Update: - Correction in 2.2.5 ID_RCC.71_2.0_5 - Another correction in 3.2.26 ID_RCC.07_8.0_26 - New items in * Section 2.2: ID_RCC.71_2.0_7 * Section 2.3: ID_RCC.71_2.2_2 * Section 3.2: ID_RCC.07_8.0_31 to ID_RCC.07_8.0_36 * Section 3.3: ID_RCC.07_9.0_8 to ID_RCC.07_9.0_21 * Section 3.4: ID_RCC.07_10.0_2 to ID_RCC.07_10.0_16 - new section 2.4 RCC.71 Version 2.3 with new item ID_RCC.71_2.3_1 (in a new section 2.4 - new section 3.5 RCC.07 Version 11.0 with new items ID_ RCC.07_11.0_1 to RCC.07_11.0_4	GSG	Nancy Greene / Ericsson

		- new section 8.3 RCC.20 Version 6.0 with new item ID_RCC.20_6.0_1		

A.2 Other Information

Type	Description
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Editor / Company	Tom Van Pelt / GSMA, Nancy Greene / Ericsson

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