RCS Universal Profile Corrections and Clarifications

Version 2.1
16 March 2018

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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-RCS6.0]) 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**

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT</td>
<td>File Transfer</td>
</tr>
<tr>
<td>FToHTTP</td>
<td>File Transfer over HyperText Transfer Protocol</td>
</tr>
<tr>
<td>HTTP</td>
<td>HyperText Transfer Protocol</td>
</tr>
<tr>
<td>IM</td>
<td>Instant Messaging</td>
</tr>
<tr>
<td>IMSI</td>
<td>International Mobile Subscriber Identity</td>
</tr>
<tr>
<td>kbps</td>
<td>Kilobit per second</td>
</tr>
<tr>
<td>MSISDN</td>
<td>Mobile Subscriber Integrated Services Digital Network Number</td>
</tr>
<tr>
<td>OMA</td>
<td>Open Mobile Alliance</td>
</tr>
<tr>
<td>OTP</td>
<td>One-Time Password</td>
</tr>
<tr>
<td>POSIX</td>
<td>Portable Operating System Interface</td>
</tr>
<tr>
<td>PRD</td>
<td>Permanent Reference Document</td>
</tr>
<tr>
<td>RCS</td>
<td>Rich Communication Services</td>
</tr>
<tr>
<td>SDD</td>
<td>Service Definition Document</td>
</tr>
<tr>
<td>SIM</td>
<td>Subscriber Identity Module</td>
</tr>
<tr>
<td>SIMPLE</td>
<td>Session Initiation Protocol for Instant Messaging and Presence Leveraging Extensions</td>
</tr>
<tr>
<td>SIP</td>
<td>Session Initiation Protocol</td>
</tr>
<tr>
<td>SMS</td>
<td>Short Message Service</td>
</tr>
<tr>
<td>URL</td>
<td>Uniform Resource Locator</td>
</tr>
<tr>
<td>XML</td>
<td>eXtensible Markup Language</td>
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1.4 References

<table>
<thead>
<tr>
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<th>Doc Number</th>
<th>Title</th>
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<td>Ref</td>
<td>Doc Number</td>
<td>Title</td>
</tr>
<tr>
<td>-----</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>[20]</td>
<td>[3GPP TS 24.229]</td>
<td>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) <a href="http://www.3gpp.org">http://www.3gpp.org</a></td>
</tr>
<tr>
<td>[26]</td>
<td>[HTML4.0]</td>
<td>HTML 4.01 Specification <a href="https://www.w3.org/">https://www.w3.org/</a></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Modifying a Contact</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>RCC.71-UP1.0</td>
</tr>
<tr>
<td>Applicable Universal Profile release</td>
<td>Universal Profile v1.0</td>
</tr>
<tr>
<td>Publication Date</td>
<td>26.02.2017</td>
</tr>
<tr>
<td>Superseded by</td>
<td></td>
</tr>
</tbody>
</table>

#### 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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Max Group Chat Size</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
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<tr>
<td>Related spec and section</td>
<td>RCC.71-UP1.0</td>
</tr>
<tr>
<td>Applicable Universal Profile release</td>
<td>Universal Profile v1.0</td>
</tr>
<tr>
<td>Publication Date</td>
<td>26.02.2017</td>
</tr>
<tr>
<td>Superseded by</td>
<td></td>
</tr>
</tbody>
</table>

#### 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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_3</th>
</tr>
</thead>
</table>

V2.1
### 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

#### 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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Resize video files before transferring</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>RCC.71-UP1.0</td>
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<td>Section 7.3.4</td>
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<td>Universal Profile v1.0</td>
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<td>Publication Date</td>
<td>26.02.2017</td>
</tr>
<tr>
<td>Superseded by</td>
<td></td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_5</th>
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<tbody>
<tr>
<td>Title</td>
<td>Sample HTTP Content Server response body</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
</tbody>
</table>
| 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 |
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
<?xml version="1.0" encoding="UTF-8"?>
  <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&s=32464&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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>&quot;geo&quot; URI Label encoding</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>RCC.71-UP1.0</td>
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<td>Universal Profile v1.0</td>
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<td>Publication Date</td>
<td>02.06.2017</td>
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</table>

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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Full Store and Forward configuration parameters</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
</tbody>
</table>
| Related spec and section | RCC.71-UP1.0  
Annex C |
| Applicable Universal Profile release | Universal Profile v1.0 |
| Publication Date | 02.06.2017 |

**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 [RCC.07-RCS6.0].

**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**

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_8</th>
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</thead>
<tbody>
<tr>
<td>Title</td>
<td>GEOLOCATION TEXT MAX LENGTH aligned value</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
</tbody>
</table>
| Related spec and section | RCC.71-UP1.0  
Annex C |
| Applicable Universal Profile release | Universal Profile v1.0 |
| Publication Date | 02.06.2017 |

**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-RCS6.0].

**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**

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.71_1.0_9</th>
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<tbody>
<tr>
<td>Title</td>
<td>Technical Implementation of Group Chat Subject and Icon</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
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<td></td>
<td>Section 6.3.2</td>
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### 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-RCS6.0]. 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-RCS6.0].
- If the client re-starts a Group Chat via the procedure defined in section 3.4.4.1.7 of [RCC.07-RCS6.0], 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-RCS6.0], 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

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</tr>
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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].

<table>
<thead>
<tr>
<th>Parameter</th>
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<tbody>
<tr>
<td>d</td>
<td>Integer</td>
<td>Playing length in seconds of the Audio Message</td>
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</table>

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

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<tr>
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<td>02.06.2017</td>
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### 2.1.11.1 Issue Description

Section 12.7.2.5 of RCC.71-UP1.0 and section 3.10.4 of [RCC.07-RCS6.0] 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-RCS6.0] 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-RCS6.0] 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-RCS6.0], 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-RCS6.0] 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

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</tr>
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<td>Type</td>
<td>Requirement</td>
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</table>
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-RCS6.0] 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-RCS6.0] 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

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<tr>
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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

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#### 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-RCS6.0] 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-RCS6.0] 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 last 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-RCS6.0] 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-RCS6.0] 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-RCS6.0]).

- 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-RCS6.0] 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-RCS6.0] 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

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<tr>
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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;

2.2 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.71-UP2.0].

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

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<td>Voice and Video Control Parameters</td>
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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, 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:
• In Table 56, 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

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#### 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-RCS7.0] 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-RCS7.0] 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-RCS7.0] 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-RCS7.0] 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-RCS7.0]).

- 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-RCS7.0] 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-RCS7.0] 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

<table>
<thead>
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<td>Requirement</td>
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<td>Related spec and section</td>
<td>[RCC.71v2.1-UP2.0] Annex D: D.8, D.9</td>
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</tr>
<tr>
<td>Publication Date</td>
<td>16.03.2018</td>
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</table>

#### 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.

### 3 Clarifications and Issue Solutions for RCS Services and Client Specification

#### 3.1 RCC.07 Version 7.0

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

<table>
<thead>
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<th>ID</th>
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<tr>
<td>Title</td>
<td>IMDN.Message-ID length</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
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</tbody>
</table>
3.1.1.1 Issue Description
RFCS5438 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

### 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-RCS6.0] may fail in different steps of the procedures requiring different retry behaviour.

### Expected Behaviour
The following clarifications to the procedures in section 3.5.4.8.3.1.1 in [RCC.07-RCS6.0] 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-RCS6.0] 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-RCS6.0] 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

<table>
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<td>Title</td>
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<td>Clarification</td>
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<td>[RCC.07-RCS6.0] section 3.5.4.8.3.1.1</td>
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</tr>
<tr>
<td>Publication Date</td>
<td>26.02.2017</td>
</tr>
</tbody>
</table>

#### 3.1.3.1 Issue Description

The RCS 6.0 [RCC.07-RCS6.0] 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-RCS6.0] 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-RCS6.0]:

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

<table>
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<td>Client Handling of Registration Requests</td>
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<td>Related spec and section</td>
<td>[RCC.07-RCS6.0] section 2.4.1</td>
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<tr>
<td>Publication Date</td>
<td>02.06.2017</td>
</tr>
</tbody>
</table>

| 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

<table>
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<tr>
<th>ID</th>
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<td>Clarification</td>
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<tr>
<td>Related spec and section</td>
<td>[RCC.07-RCS6.0] sections 3.2.3.10, RCC.71-UP1.0 section 5.3.5</td>
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</tr>
<tr>
<td>Publication Date</td>
<td>28.11.2017</td>
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</tbody>
</table>

3.1.5.1 Issue Description
The procedure defined in [RCC.07-RCS6.0] 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

<table>
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<td>Related spec and section</td>
<td>[RCC.07-RCS6.0] section A.1.10, section A.2.8</td>
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</table>
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-RCS6.0] 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-RCS6.0].

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-RCS6.0] 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-RCS6.0].

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-RCS6.0] 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

<table>
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</tr>
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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-RCS6.0] 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

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</tr>
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#### 3.1.8.1 Issue Description

The example XML documents provided in sections A.2.7 and A.4 of [RCC.07-RCS6.0] 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-RCS6.0] defines that parameter name to be "MaxSize" though.

#### 3.1.8.2 Expected Behaviour

The correct example structure for the StandaloneMsg characteristic shall be:

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

### 3.2 RCC.07 Version 8.0

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

<table>
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</tr>
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</table>

#### 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-RCS7.0]:

- 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-RCS7.0]:

- 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-RCS7.0]:

- 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

<table>
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</table>

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-RCS7.0] 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-RCS7.0], 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-RCS7.0], 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

<table>
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<td>Requirement</td>
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<td>28.11.2017</td>
</tr>
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</tbody>
</table>

3.2.3.1 Issue Description

The procedure and example defined in [RCC.07-RCS7.0] 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

<table>
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<tr>
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<td>28.11.2017</td>
</tr>
<tr>
<td>Superseded by</td>
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</tbody>
</table>
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 3.6.5.15.3 of [RCC.07-RCS7.0]:

Upon receiving a SIP request carrying the Chatbot IARI feature tag defined in section 3.6.2.1 of [RCC.07-RCS7.0] included in the Accept-Contact header field and without the Chatbot role as defined in section 3.6.2.3 of [RCC.07-RCS7.0] 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-RCS7.0] 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-RCS7.0] 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-RCS7.0]), 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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.07_8.0_5</th>
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<tbody>
<tr>
<td>Title</td>
<td>Responding to a Privacy Management Command</td>
</tr>
</tbody>
</table>
3.2.5.1 Issue Description

The procedure defined in step 3 – b) of section 3.6.5.1.5.1 of [RCC.07-RCS7.0] 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-RCS7.0]:

When receiving a Privacy Management Command as specified in section 3.6.5.1.2 of [RCC.07-RCS7.0], the AF:

1. shall send a SIP 200 OK;
2. shall process the command according to Table 19 of [RCC.07-RCS7.0];
3. 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-RCS7.0] 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-RCS7.0];
   i) shall create a Privacy Management Response as described in section 3.6.5.1.2 of [RCC.07-RCS7.0] 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

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<tr>
<td>Type</td>
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<tr>
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<td>[RCC.07-RCS7.0] section A.1.9, section A.2.5</td>
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<tr>
<td>Publication Date</td>
<td>28.11.2017</td>
</tr>
</tbody>
</table>

#### 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-RCS7.0] 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-RCS7.0].

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-RCS7.0].

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
in section A.2.5 of [RCC.07-RCS7.0] 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

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<td>Related spec and section</td>
<td>[RCC.07-RCS7.0] section 3.2.3.1</td>
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</table>
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-RCS7.0] 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

<table>
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<td>Requirement</td>
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</tr>
<tr>
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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-RCS7.0] 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-RCS7.0] 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

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3.2.9.1 Issue Description

The example XML documents provided in sections A.2.4 and A.4.2 of [RCC.07-RCS7.0] 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-RCS7.0] defines that parameter name to be "MaxSize" though.

3.2.9.2 Expected Behaviour

The correct example structure for the StandaloneMsg characteristic shall be:

```xml
<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

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<td>Requirement</td>
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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

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</table>
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-RCS7.0]:

- The botinfo URL in table 47 of [RCC.07-RCS7.0] shall be updated to:
- The sentence “The FQDN of the botinfo URL shall start with “botinfo” subdomain.” in section 3.6.4.1 of [RCC.07-RCS7.0] shall not apply.

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

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3.2.12.1 Issue Description
This section and its subsections supersedes Error! Reference source not found. in section Error! Reference source not found. 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 Error! Reference source not found. above for section 3.2.6.10 of [RCC.07-RCS7.0], 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 Error! Reference source not found. 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-RCS7.0] 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-RCS7.0] 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-RCS7.0] 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-RCS7.0] 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-RCS7.0] is replaced with section 3.2.10.2.1 3.2.12.2.1 below which has been extended accordingly. Section 3.6.10.6.1.2 of [RCC.07-RCS7.0] 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-RCS7.0] 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-RCS7.0] 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-RCS7.0]:

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

```json
{
 "$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"
 }]

```

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"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": "Accessibility text for use with screen readers. Will not be shown on screen."
      }
    },
    "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"
            ]
          }
        }
      }
    }
  }
}
"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"
      }
    }
  }
},

}]}
"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"
      }
    }
  }
},

}]}
"minItems": 1,
"maxItems": 11,
"additionalItems": false
},
"anyOf": [{
  "required": ["media"]
},
{
  "required": ["title"]
},
{
  "required": ["description"]
}
]

"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"
      }
    }
  }
},

}]}
"minItems": 1,
"maxItems": 11,
"additionalItems": false
},
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{
  "required": ["title"]
},
{
  "required": ["description"]
}
]
"required": ["displayText"]
},
"replies": {
"reply": {
"title": "Definition of a suggested reply.0",
"type": "object",
"properties": {
"reply": {
"allOf": [
"$ref": "/definitions/suggestions/suggestion"
]
},
"required": ["reply"]
},
"required": ["reply"]
},
"actions": {
"action": {
"title": "Common base definition of a suggested action.0",
"type": "object",
"properties": {
"action": {
"type": "object",
"allOf": [
"$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.0",
"properties": {
"urlAction": {
"type": "object",
"oneOf": [
"properties": {
"openUrl": {
"type": "object",
"properties": {
"url": {
"type": "string",
"required": ["url"]
}
}
"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"
              }
            }
          }
        }
      },
      "required": ["dialPhoneNumber", "dialEnrichedCall"]
    }
  }
}
}
"type": "object",
  "properties": {
    "phoneNumber": {
      "type": "string"
    },
    "fallbackUrl": {
      "type": "string",
      "format": "uri"
    }
  },
  "required": ["phoneNumber"]
},
  "required": ["dialVideoCall"]
},
  "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
                    }
                  }
                }
              }
            }
          }
        }
      }
    }
  },
  "required": ["dialerAction"]
}
{ "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"]
}

"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.",
    "required": ["deviceSpecifics"]
  }
}
Table 2: 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-RCS7.0]:

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

```json
{
    "message": {
        "generalPurposeCard": {
            "layout": {
                "cardOrientation": "HORIZONTAL",
                "imageAlignment": "LEFT"
            },
            "content": {
                "media": {
                    "mediaUrl": "https://cdn.server/path/media.mp4",
                    "mediaContentType": "video/mp4",
                    "mediaFileSize": 2718288,
                    "batteryRemainingMinutes": 517
                }
            }
        }
    }
}
```
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:

```json
{
  "message": {
    "carousel": {
      "title": "Carousel of Rich Cards Example JSON payload",
      "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"
          }
        }
      }
    }
  }
}
```
"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 4: 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-RCS7.0]:

- 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-RCS7.0]:

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

```json
{
  "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": {
      "displayText": "Draft a recording message",
      "postback": {
        "data": "set_by_chatbot_compose_recording_message"
      }
    }
  }
}
Table 5: Chatbot Communication Suggested Chip List example

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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.07_8.0_13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Chatbot role clarifications</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.07-RCS7.0] sections 3.6.2.4, 3.6.8.3 and 3.6.8.4</td>
</tr>
</tbody>
</table>
3.2.13.1 Issue Description

The Chatbot role as defined in section 3.6.2.3 of [RCC.07-RCS7.0] 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-RCS7.0], a Chatbot platform shall:

- publish the service-id for Chatbot role as defined in Table 8 of [RCC.07-RCS7.0], when supporting capability exchange via presence.
- include the Chatbot role as defined in section 3.6.2.3 of [RCC.07-RCS7.0] 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-RCS7.0]:

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-RCS7.0] is verified) is to be sent, the client shall send a SIP INVITE request according to section 3.2.3.1 of [RCC.07-RCS7.0] 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-RCS7.0], 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-RCS7.0] and the Chatbot application version feature tag defined in section 3.6.2.2 of [RCC.07-RCS7.0], 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-RCS7.0]. 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-RCS7.0], 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-RCS7.0] 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-RCS7.0].
- 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-RCS7.0] 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-RCS7.0] 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-RCS7.0]:

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-RCS7.0], 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-RCS7.0], otherwise
- shall apply the rules and procedures of section 3.2.3.1 of [RCC.07-RCS7.0] 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-RCS7.0] and the Chatbot application version feature tags as defined in section 3.6.2.2 of [RCC.07-RCS7.0].
    - shall check if the Chatbot Information needs to be refreshed according to section 3.6.4 of [RCC.07-RCS7.0].
3.2.14 ID_RCC.07_8.0_14: CPIM Header Extension Support Mechanism

<table>
<thead>
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<th>ID</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Remove Botinfo subdomain</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.07-RCS7.0] section 2.4.4.1, 3.2.8.8.4, 3.6.8.7</td>
</tr>
<tr>
<td>Applicable Universal Profile release</td>
<td>Universal Profile v2.0</td>
</tr>
<tr>
<td>Publication Date</td>
<td>16.03.2018</td>
</tr>
<tr>
<td>Superseded by</td>
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</tr>
</tbody>
</table>

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
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-RCS7.0], 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-RCS7.0] shall be provided by the mechanism defined in the current correction.

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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.07_8.0_15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Geolocation Push Cleanup</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.07-RCS7.0] sections 3.2.3.1, 3.2.5.3.1.1, 3.2.6.2.1</td>
</tr>
<tr>
<td>Applicable Universal Profile release</td>
<td>Universal Profile v2.0</td>
</tr>
<tr>
<td>Publication Date</td>
<td>16.03.2018</td>
</tr>
<tr>
<td>Superseded by</td>
<td></td>
</tr>
</tbody>
</table>
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-RCS7.0] needs to be clarified. Parts of sections 3.2.3.1, and 3.2.5.3.1.1 of [RCC.07-RCS7.0] also need clarifications.

3.2.15.2 Expected Behaviour
In section 3.2.3.1 of [RCC.07-RCS7.0], 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 Error! Reference source not found. and Error! Reference source not found. of [RCC.07-RCS7.0]) 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-RCS7.0], in the two bullets under Table 21 of [RCC.07-RCS7.0] 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 Error! Reference source not found. of [RCC.07-RCS7.0], 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 Error! Reference source not found. of [RCC.07-RCS7.0]. 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 Error! Reference source not found. of [RCC.07-RCS7.0] along with require and explicit parameters.

In section 3.2.6.2.1 of [RCC.07-RCS7.0], 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-RCS7.0]. 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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.07_8.0_16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Correct Presence Service IDs</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.07-RCS7.0] section 2.6.1.3</td>
</tr>
<tr>
<td>Applicable Universal Profile release</td>
<td>Universal Profile v2.0</td>
</tr>
<tr>
<td>Publication Date</td>
<td>16.03.2018</td>
</tr>
<tr>
<td>Superseded by</td>
<td></td>
</tr>
</tbody>
</table>

#### 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-RCS7.0]:

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

Table 6: 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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.07_8.0_17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Correction to CPIM namespace for MaaP</td>
</tr>
</tbody>
</table>
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-RCS7.0] shall be the following:

\[ \text{NS: maap} \ < \text{http://www.gsma.com/rcs/maap/>} \]

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

3.2.18.1 Issue Description
Section 3.6.10.1 of [RCC.07-RCS7.0] 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-RCS7.0] 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.

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

<table>
<thead>
<tr>
<th>ID</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Correction of Group State Object XML Schema</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.09-v6.0]</td>
</tr>
<tr>
<td>Applicable Universal Profile release</td>
<td>Universal Profile v1.0</td>
</tr>
<tr>
<td>Publication Date</td>
<td>26.02.2017</td>
</tr>
</tbody>
</table>

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
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
          elementFormDefault="qualified">
               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:choice>
          <xs:element name="removed">
            <xs:complexType>
              <xs:sequence>
                <xs:element name="participant" type="participant-type" minOccurs="0"/>
              </xs:sequence>
            </xs:complexType>
          </xs:element>
          <xs:element name="any" minOccurs="0" maxOccurs="unbounded" processContents="lax"/>
        </xs:choice>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```
<xs:choice>
  <xs:element name="subject" type="subject-type" minOccurs="0"/>
  <xs:element name="icon" type="icon-type" minOccurs="0"/>
  <xs:attribute name="lastfocusessionid" 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:choice>

<xs:complexType name="groupType">
  <xs:restriction base="xs:normalizedString">
    <xs:enumeration value="Closed"/>
    <xs:enumeration value="Open"/>
  </xs:restriction>
</xs:complexType>

<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: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: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

<table>
<thead>
<tr>
<th>ID</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Message-UID not populated and not used</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[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</td>
</tr>
<tr>
<td>Applicable Universal Profile release</td>
<td>Universal Profile v2.0</td>
</tr>
<tr>
<td>Publication Date</td>
<td>28.11.2017</td>
</tr>
</tbody>
</table>

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.

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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.14_3.0_1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>HTTP GET parameter terminal_sw_version maximum length</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.14-v3.0]</td>
</tr>
<tr>
<td></td>
<td>Section 2.2.1, section 2.3.2</td>
</tr>
<tr>
<td>Applicable Universal Profile release</td>
<td>Universal Profile v1.0</td>
</tr>
<tr>
<td>Publication Date</td>
<td>26.02.2017</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.14_3.0_2</th>
</tr>
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<tbody>
<tr>
<td>Title</td>
<td>SMS connectivity for first time configuration</td>
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<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.14-v3.0]</td>
</tr>
<tr>
<td></td>
<td>Section 2.3.2</td>
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<td>Applicable Universal Profile release</td>
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</tr>
<tr>
<td>Publication Date</td>
<td>26.02.2017</td>
</tr>
</tbody>
</table>

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:

1. 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.v2.0]) or from previous user input or shall be omitted if these sources do not apply.

2. 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

<table>
<thead>
<tr>
<th>ID</th>
<th>ID_RCC.14_3.0_3</th>
</tr>
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<tbody>
<tr>
<td>Title</td>
<td>Retry behaviour when OTP SMS is not received for first time configuration</td>
</tr>
<tr>
<td>Type</td>
<td>Clarification</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.14-v3.0] Section 2.3.4</td>
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<td>26.02.2017</td>
</tr>
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</tbody>
</table>

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.

7 Clarifications and Issue Solutions for Enriched Calling Technical Specification

7.1 RCC.20 Version 2.0
This section contains solutions for issues found in [RCC.20-v2.0].

7.1.1 ID_RCC.20_2.0_1: Correction of Call Composer Service XML Schema

<table>
<thead>
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<tr>
<td>Title</td>
<td>Correction of Call Composer Service XML Schema</td>
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<td>Requirement</td>
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<td>Related spec and section</td>
<td>[RCC.20-v2.0] Section 2.4.4, Section 2.6</td>
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</tr>
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7.1.1.1 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.

7.1.1.2 Expected Behaviour
Table 9 in section 2.4.4 of [RCC.20-v2.0] shall be replaced by the following:

```xml
<?xml version="1.0" encoding="UTF-8"?>
  <rcs-calldata>
    <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]"/>
  </rcs-calldata>
</rcs-envelope>
```

The description of the element "picture_url" under the element "rcs-calldata" 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:
7.1.2 ID_RCC.20_2.0_2: Shared Map/Sketch Session Invitation Handling

<table>
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<tr>
<td>Title</td>
<td>Shared Map/Sketch Session Invitation Handling</td>
</tr>
<tr>
<td>Type</td>
<td>Requirement</td>
</tr>
<tr>
<td>Related spec and section</td>
<td>[RCC.20-v2.0] Section 2.9.9.1</td>
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<td>28.11.2017</td>
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7.1.2.1 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.

7.1.2.2 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-RCS6.0].

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-RCS6.0].

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].

### 7.2 RCC.20 Version 3.0

This section contains solutions for issues found in [RCC.20-v3.0].

#### 7.2.1 ID_RCC.20_3.0_1: Shared Map/Sketch Session Invitation Handling

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<td>Type</td>
<td>Requirement</td>
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<td>Related spec and section</td>
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#### 7.2.1.1 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.

#### 7.2.1.2 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-RCS7.0].

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-RCS7.0].

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:
  \[ s = 30 \text{ sec} \]

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 Clarifications and Issue Solutions for OMA SIMPLE IM to OMA
CPM transition guidelines

8.1 RCC.64 Version 1.0
This section contains solutions for issues found in [[RCC.64-v1.0]].

8.1.1 ID_RCC.64_1.0_1: Transition Client Delivery Assurance

<table>
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<td>Publication Date</td>
<td>28.11.2017</td>
</tr>
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8.1.1.1 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.

8.1.1.2 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-RCS6.0] 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].

8.1.2 ID_RCC.64_1.0_2: Error Code Mapping Clarification

<table>
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</table>
8.1.2.1 Issue Description

[RCC.64-v1.0] does not correctly map MSRP SEND error responses to SIP INVITE error responses.

8.1.2.2 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 7 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.

<table>
<thead>
<tr>
<th>MSRP error received from OMA CPM side</th>
<th>SIP error response sent towards OMA SIMPLE IM side</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>403</td>
<td>403</td>
</tr>
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<td>408</td>
<td>408</td>
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<td>413</td>
<td>603</td>
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<tr>
<td>415</td>
<td>415</td>
</tr>
<tr>
<td>501</td>
<td>501</td>
</tr>
<tr>
<td>Any other error received (e.g., 423, 481, 506)</td>
<td>500</td>
</tr>
</tbody>
</table>

Table 7: 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;
9 Document Management

A.1 Document History

<table>
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<th>Version</th>
<th>Date</th>
<th>Brief Description of Change</th>
<th>Approval Authority</th>
<th>Editor / Company</th>
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<td>1.0</td>
<td>26.02.2017</td>
<td>New PRD based on issues found in documents used by RCC.71 Approved in GSG and PSMC</td>
<td>GSG/PSMC</td>
<td>Tom Van Pelt / GSMA</td>
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<td>02.06.2017</td>
<td>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</td>
<td>GSG</td>
<td>Tom Van Pelt / GSMA</td>
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<td>2.0</td>
<td>28.11.2017</td>
<td>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</td>
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A.2 Other Information

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<td>Tom Van Pelt / GSMA, Nancy Greene / Ericsson</td>
</tr>
</tbody>
</table>

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Your comments or suggestions & questions are always welcome.