

# OrangeLabs RCS-e stack



## Roadmap 2011

Edition 6.0

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Orange Labs



# History...

- 2007 / First RCS stack for J2ME platform.
- 2008-2009 / RCS 1.0 stack:
  - GSMA IOT: Helsinki (2008) / First participation.
  - GSMA IOT: Paris (2009).
  - GSMA IOT: Munich (2009).
- Jan. 2010 / First RCS stack for Android platform.
- 2010 / RCS 2.0 stack:
  - GSMA IOT: Paris (2010).
  - GSMA IOT: Beijing (2010).
  - GSMA IOT: Madrid (2010).
- Jan. 2011 / RCS 2.0 stack:
  - GSMA IOT: Helsinki (2011).
  - OrangeLabs stack is taken as Reference Implementation by GSMA.
- Feb. 2011 / Integrate the same SIP stack as Google Android 2.3.
- March 2011 / RCS-e stack implementation based on 2.0 stack started.
- April 2011 / First RCS-e 1.1 release available.
- Mai 2011 : RCS-e stack published to open source community.



# RCS-e features list

(not exhaustive)

## Note:

See in **green color**, features which has been already implemented and tested.

See in **orange color**, features which has been already implemented but not yet tested.

See in **default color**, features which are not yet implemented.



# Capability discovery

- Capability discovery via SIP OPTIONS.
- Capability discovery via Anonymous fetch.
- Periodic polling.
- First time discovery.
- Address book monitoring.
- Integration into native address book.
- Supported capabilities: CS video, IM, FT, Image share, Video share, Presence discovery, Social presence, RCS extensions.
- Update capabilities in case of error, end of session.
- Adapt capabilities thanks to network coverage.



# Chat 1/2

- Chat 1-1.
- Chat group.
- File transfer.
- Chat and file transfer history.
- Multi-session management.
- Is-composing.
- List of participants in the session.
- Add 1 participant.
- Add N participants.
- Conference event subscription.
- Support of plain text UTF-8 format.
- Support of message/CPIM format.
- IMDN and message delivery report (“delivered”, “displayed”).



# Chat 2/2

- Block/unblock contacts (black list).
- Spam folder for message received from blocked contacts.
- Store & Forward procedure management.
- Use an alias to initiate a chat session.
- Close a chat session after an inactivity timeout.



# Richcall

- Image sharing.
- Live video & pre-recorded video sharing.
- Capability exchange during call.
- Call monitoring.
- H263 file parser.
- H263+ software codec (from Android opencore package).
- H264 file parser. -> Postponed because pre-recorded H.264 file not used with QCIF format in Android apps
- H.264 packetizer.
- H264 software codec (from Android opencore package).
- RTCP event management.
- Visio share from 2 individual video share sessions.
- Stop sharing if call hold or if a multiparty call -> Should be done in native dialer



# Social presence

- This package is optional in RCS-e.
- Same features as RCS 2.0.





# Misc.1/2

- Address book integration via ContactContract API.
- Event log history (one content provider which aggregates Call/SMS/MMS/Chat & FT per contact).
- RCS account based on SyncAdapter API.
- Presence is now an optional package which may be activated by configuration.
- RTP stack is now part of the media player to avoid AIDL exchange between UI and stack.
- New SIP stack (NIST SIP stack deployed under Android 2.3).
- Backup and restore last RCS info if user account has changed.
- OTA provisioning via WAP PUSH SMS & HTTP/XML download.
- Registration management in case of failure.
- Session refresh management.



# Misc. 2/2

- Support of GIBA & HTTP Digest for IMS attachment.
- Support several network access: mobile or Wi-fi.
- RCS API for multi-applications context.
- SIPS and secured media transport protocol (MSRP, RTP).
- GRUU for multidevice management.
- IPv6 support.
- Roaming APN.



# Roadmap



# Roadmap for Dev

## ■ April 18: Sprint 0

- First RCS-e release.

## ■ May 02: Sprint 1

- Update capabilities in case of error, end of session.
- Adapt capabilities thanks to network coverage.
- Registration management in case of failure.
- H264 software codec (from Android opencore package).
- Visio share from 2 individual video share sessions.

## ■ May 15: Sprint 2

- IMDN and message delivery report (“delivered”, “displayed”).
- Add 1/N participants.
- Close a chat session after an inactivity timeout.
- OTA provisioning with WAP PUSH event and direct HTTP download of XML config.

## ■ May 30: Sprint 3

- RTCP event management.
- H264 packetizer.
- H264 file parser -> Postponed because pre-recorded H.264 file is not used with QCIF format in Android apps
- Store & Forward procedure management via WAP PUSH event.



# Roadmap for Dev

## ■ June 15: Sprint 4

- Session refresh management (RFC 4028).
- Spam folder for message received from blocked contacts.
- Use an alias (i.e. display name) to initiate sessions.
- RCS API permission checking.
- Dynamic discovery of RCS extensions.
- SIP keep alive if a NAT is auto detected.

## ■ June 30: Sprint 5

- Capabilities discovery enhancement to support large address book.
- SIPS (SIP over TLS).

## ■ July 30: Sprint 6

- NAT traversal support.
- GRUU for multidevice support.

## ■ August 15: Sprint 7

- IPv6 tests.
- OTA authentication procedure (algorithm to be defined).
- Generic SIP API to open the stack for new IMS services implementation.

# Roadmap for Support

- **July:** First IOT tests.
- **From June to first commercial release:** Several sprints to be planned to correct bugs and IOT results.



# Features not yet planned

Some RCS-e features are not yet planned in the :

- IMS authentication over Wi-fi.
- LTE support.

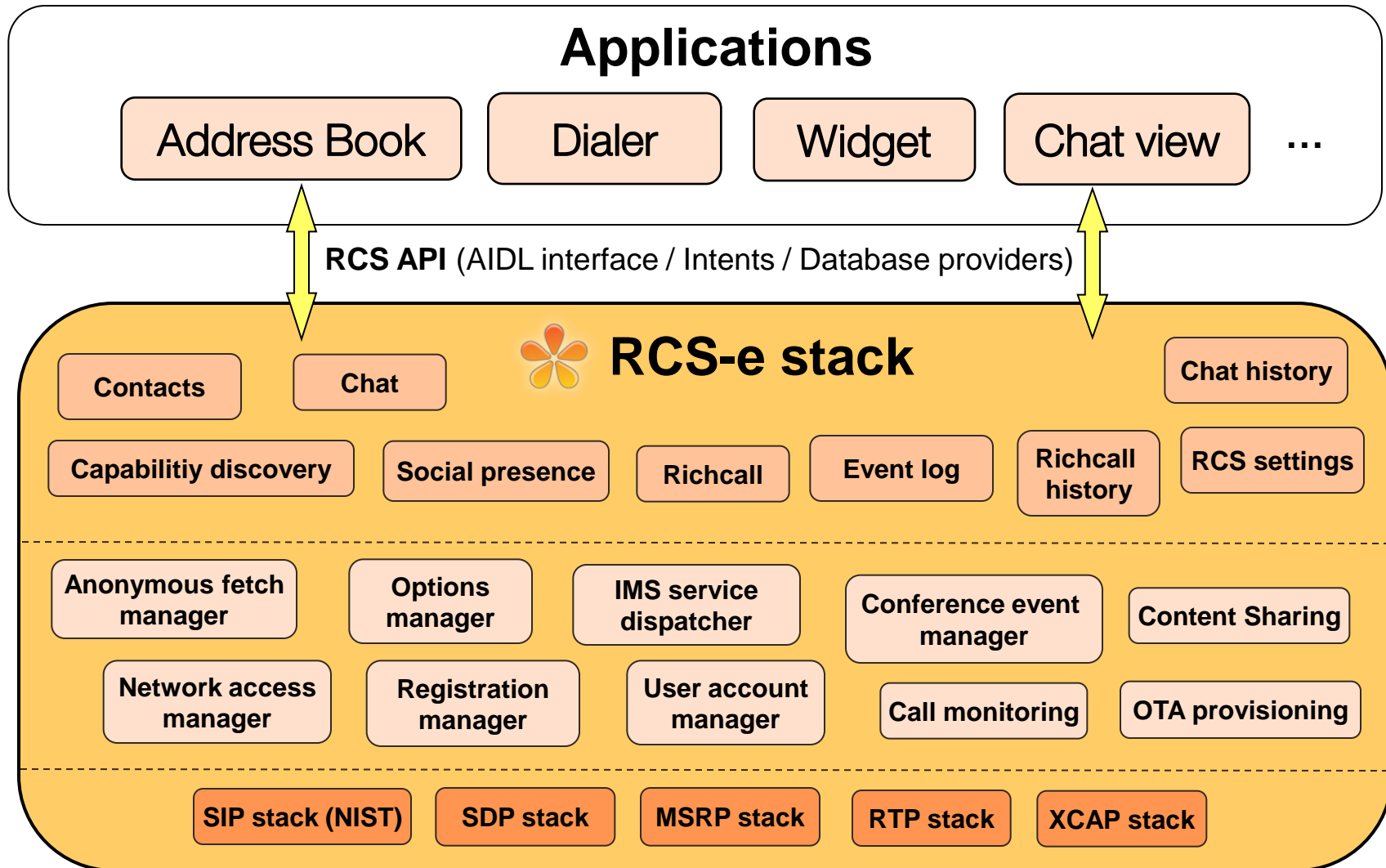


# Implementation





# Software architecture

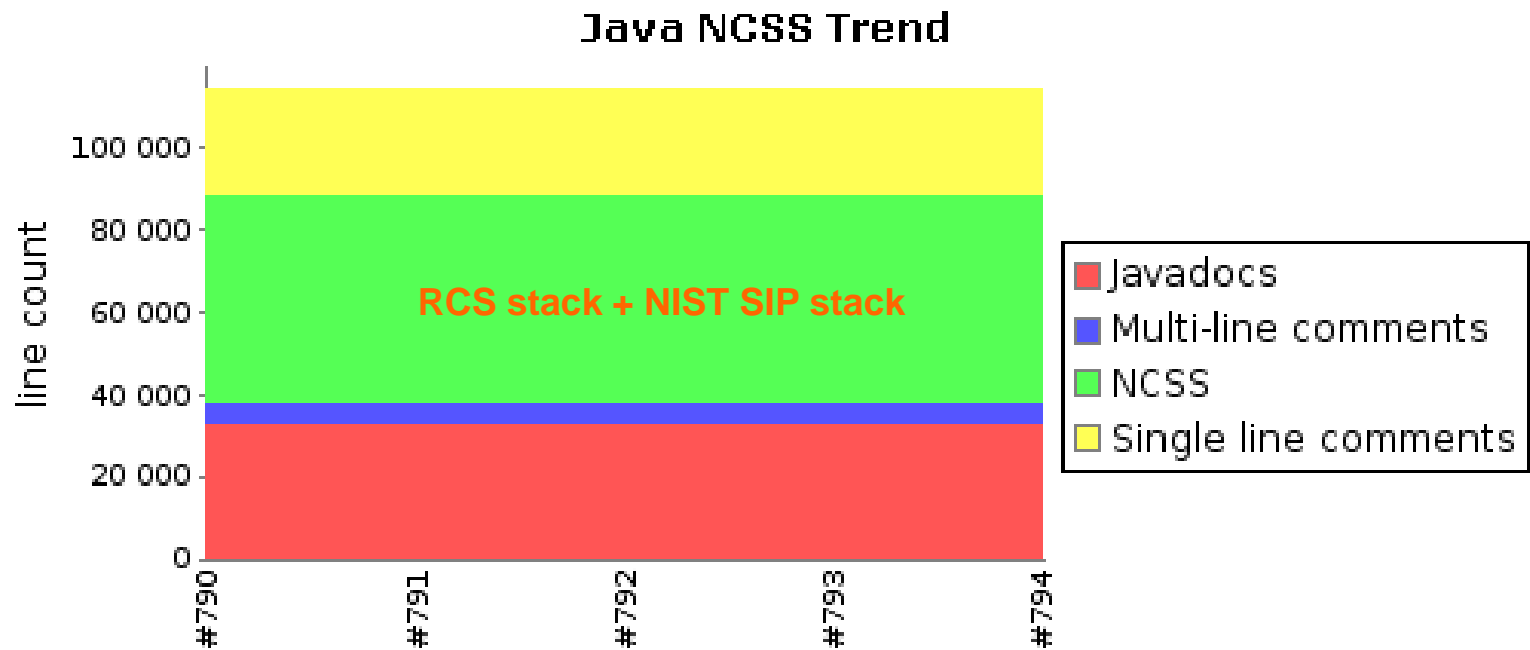


# RCS API evolutions

- No API change between RCS 2.0 and RCS-e for Presence API and Richcall API.
- New methods to monitor IMS events (connected, disconnected).
- New Contacts API:
  - Request and receive contact capabilities.
  - Interface to manage contact info in the address book.
- Chat group features are now implemented (e.g. new events).
- RTP media samples are no more exchanged between UI and core stack via AIDL interface: now media samples are directly exchanged from the UI to the network -> more efficient.
- Default media players are now delivered in the RCS API. These players may be redefined in the UI part.

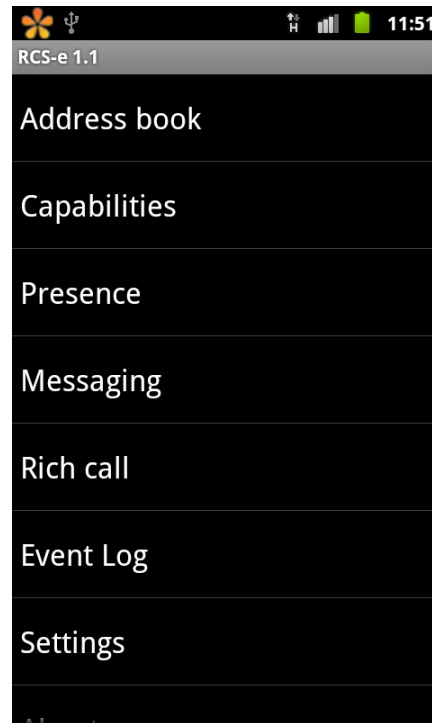


# Metrics



# Tools

- Bug tracking via Mantis.
- Continuous Integration via Hudson.
- RI application which offers a low level UI interface to test RCS stack and its protocols:



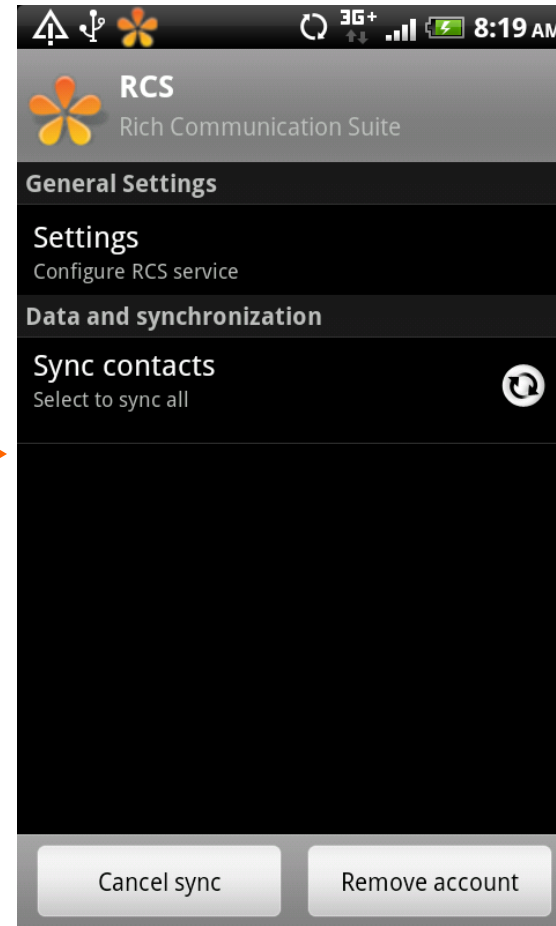
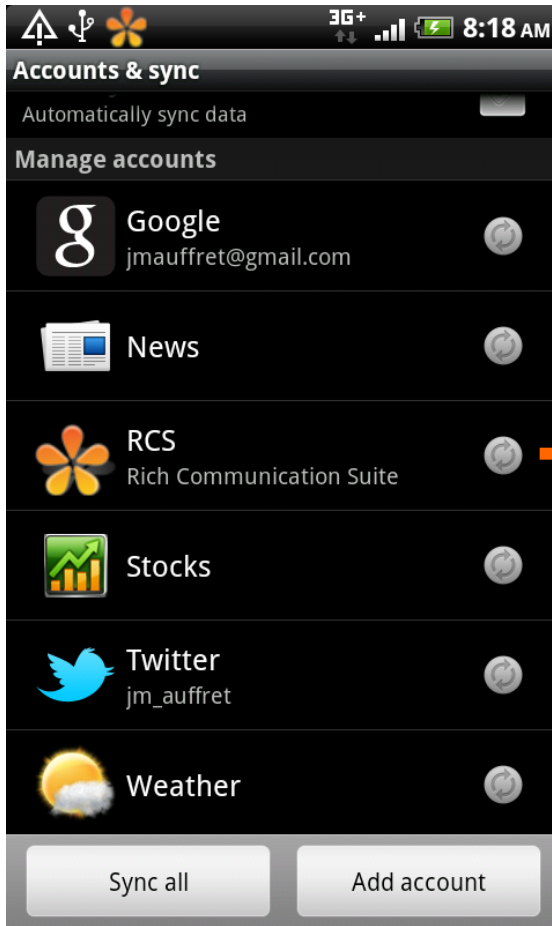
**RI**

# RCS-e applications

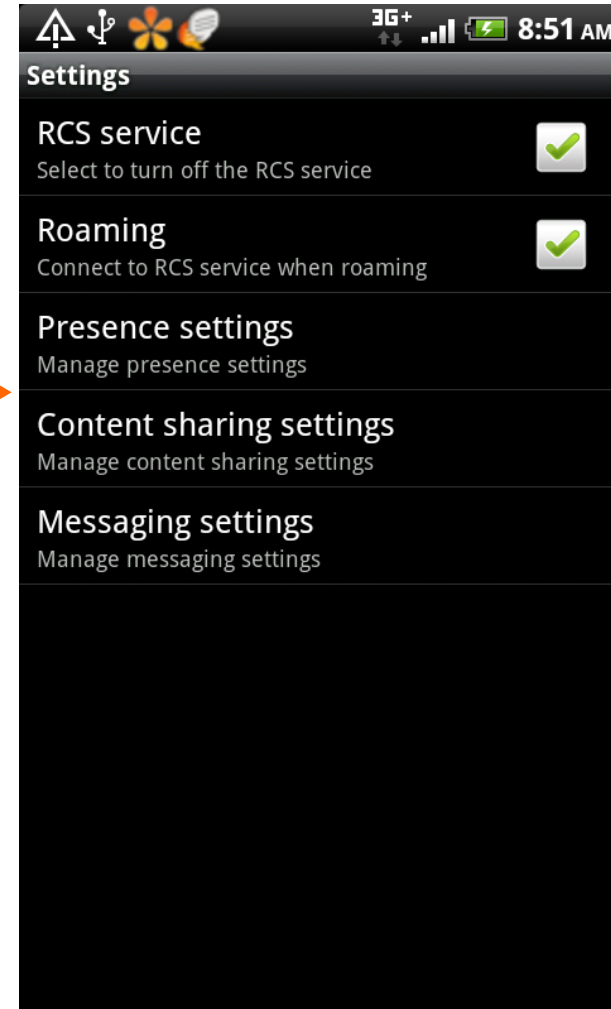
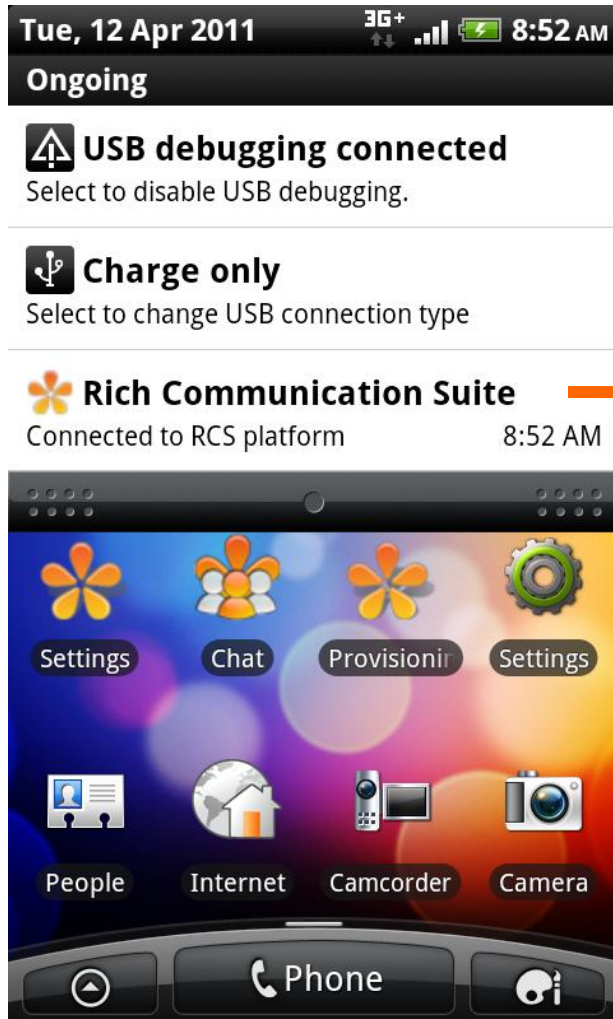
## Screenshots



# RCS account

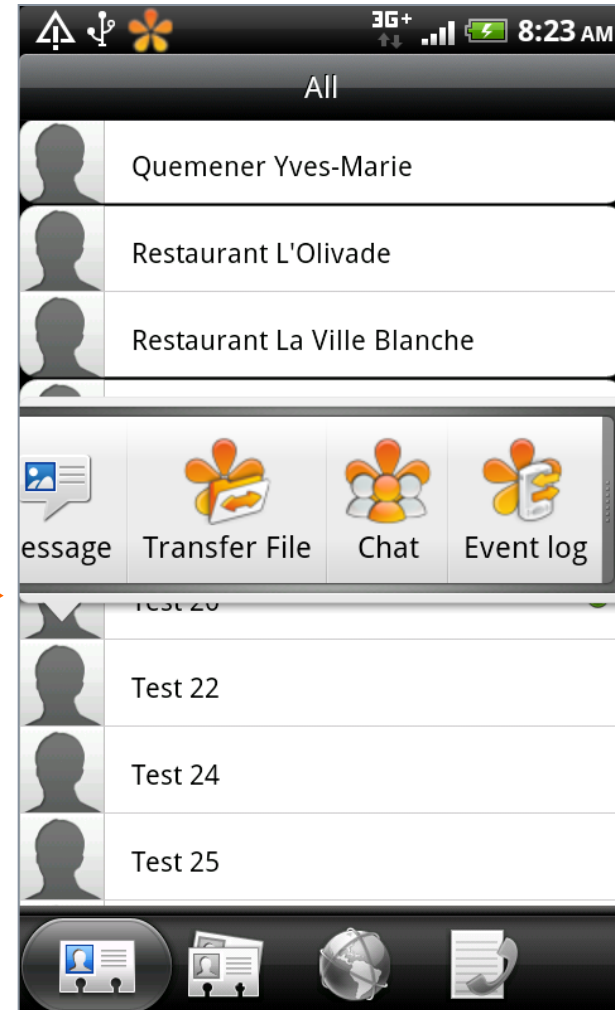


# RCS settings



# Native address book integration 1/2

**Native  
address  
book  
from HTC**





# Local provisioning application

Only for debug

Provisioning

Profile Stack Service Logger

IMS authentication procedure:  
DIGEST

IMS username:  
+34890890022

IMS display name:  
+34890890022

IMS private URI:  
+34890890022@sip.osp.com

IMS password:  
nsnims2008

IMS home domain:

Provisioning

Profile Stack Service Logger

Is-composing timeout for chat (seconds):  
15

Session refresh expire period (seconds):  
3600

Capability refresh timeout (seconds):  
86400

Capability polling period (seconds):  
3600

Capability discovery mode:  
options

☒ Rich call mode

Provisioning


Profile Stack Service Logger

☒ Trace activation

☒ SIP trace activation

☒ Media trace activation

Trace level:  
DEBUG

 Save



# Supported standards

Note: Sometimes only a part of the referenced standard is implemented. Only the necessary features for RCS-e are implemented.



# RCS

- RCS Release 2 - Functional Description.
- RCS Release 2 - Technical Realization.
- RCS Release 2 - Endorsement of OMA SIP/SIMPLE IM 1.0.
- RCS Release 2 - Management Objects.
- RCS-e - Services and Client Specification.
- IR74 - Video Share Interoperability Specification.
- IR79 - Image Share Interoperability Specification.
- Instant Messaging using SIMPLE Architecture, v1.0.
- Instant Messaging Requirements, v1.0.
- Instant Messaging using SIMPLE, v1.0.
- Presence SIMPLE Architecture, v2.0.
- Resource List Server (RLS) XDM Specification, v2.0.



# 3GPP

- TS 24.229 - IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP), Stage 3.
- TS 24.279 - Combining Circuit Switched (CS) and IP Multimedia Subsystem (IMS) services, Stage 3.



# RFC

- RFC 1321 - The MD5 Message-Digest Algorithm.
- RFC 2327 - SDP: Session Description Protocol.
- RFC 2617 - HTTP Authentication: Basic and Digest Access Authentication.
- RFC 3261 - SIP: Session Initiation Protocol.
- RFC 3264 - An Offer/Answer Model with the Session Description Protocol (SDP).
- RFC 3265 - Session Initiation Protocol (SIP) Specific Event Notification.
- RFC 3325 - Private Extensions to the Session Initiation Protocol (SIP) for Asserted Identity within Trusted Networks.
- RFC 3339 - Date and Time on the Internet.
- RFC 3455 - Private Header (P-Header) Extensions to the Session Initiation Protocol (SIP) for the 3rd-Generation Partnership Project (3GPP).



# RFC

- RFC 3515 - The Session Initiation Protocol (SIP) Refer Method.
- RFC 3550 - RTP: A Transport Protocol for Real-Time Applications.
- RFC 3608 - Session Initiation Protocol (SIP) Extension Header Field for Service Route Discovery During Registration.
- RFC 3840 - Indicating User Agent Capabilities in the Session Initiation Protocol (SIP).
- RFC 3856 - A Presence Event Package for the Session Initiation Protocol (SIP).
- RFC 3857 - A Watcher Information Event Template-Package for the Session Initiation Protocol (SIP).
- RFC 3858 - An Extensible Markup Language (XML) Based Format for Watcher Information.
- RFC 3862 - Common Presence and Instant Messaging (CPIM): Message Format.



# RFC

- RFC 3863 - Presence Information Data Format (PIDF).
- RFC 3903 - Session Initiation Protocol (SIP) Extension for Event State Publication.
- RFC 3966 - The tel URI for Telephone Numbers.
- RFC 3994 - Indication of Message Composition for Instant Messaging.
- RFC 4145 - TCP-Based Media Transport in the Session Description Protocol (SDP).
- RFC 4566 - SDP: Session Description Protocol.
- RFC 4662 - A Session Initiation Protocol (SIP) Event Notification Extension for Resource Lists.
- RFC 4480 - RPID: Rich Presence Extensions to the Presence Information Data Format (PIDF).



# RFC

- RFC 4481 - Timed Presence Extensions to the Presence Information Data Format (PIDF) to Indicate Status Information for Past and Future Time Intervals.
- RFC 4975 - The Message Session Relay Protocol (MSRP).
- RFC 5262 - Presence Information Data Format (PIDF) Extension for Partial Presence.
- RFC 5438 - Instant Message Disposition Notification.
- RFC 5547 - A Session Description Protocol (SDP) Offer/Answer Mechanism to Enable File Transfer.
- RFC 5839 - An Extension to Session Initiation Protocol (SIP) Events for Conditional Event Notification.





# RFC

- draft-ietf-sip-uri-list-conferencing-01 - Conference Establishment Using Request-Contained Lists in the Session Initiation Protocol (SIP).
- draft-ietf-sip-multiple-refer-01 - Referring to Multiple Resources in the Session Initiation Protocol (SIP).
- draft-ietf-simple-imdn-04 - Instant Message Disposition Notification.
- draft-ietf-mmusic-file-transfer-mech-03 - A Session Description Protocol (SDP) Offer/Answer Mechanism to Enable File Transfer.

