Instant Messaging Requirements

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Open Mobile Alliance

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1. Scope   (Informative)

This document describes use cases of Instant Messaging (IM) in mobile and requirements for a wireless IM solution within OMA.

The overall goal of this requirements document is to investigate IM service in mobile from service provider, technological and end-users' demands. This document contributes the development of an IM Solution for OMA.

The overall goals of an OMA IM Solution can be stated as:

- Low latency (i.e. as close to real time as possible for an IM message exchange)

- Optimized and efficient use of available wireless resources

- Interoperability & Interworking with other standardized IM solutions

- Security

- Mobility

- Unrestricted by content type

Although the technical realization is assumed to be based on SIP/SIMPLE technology, this Requirements Document describes requirements at a high level, in a technology agnostic way.

2. References

2.1 Normative References

[GM]	"Group Management Requirements", Open Mobile Alliance™, OMA-RD-GM-V1_0-20040930-C (Note: This document is now called "XML Document Management Requirements"), URL: http://www.openmobilealliance.org/
[PRESENCE]	"Presence Requirements", Open Mobile Alliance™, OMA-RD_Presence-V1_0-20040921-C, (Note: This document is now called "Presence SIMPLE Requirements"), URL: http://www.openmobilealliance.org/
[PRIVACY]	"Privacy for Mobile Services Requirements", Open Mobile Alliance™, November 2003, URL: http://www.openmobilealliance.org/
[RFC2119]	"Key words for use in RFCs to Indicate Requirement Levels". S. Bradner. March 1997. URL:http://www.ietf.org/rfc/rfc2119.txt
[RFC3261]	"SIP: Session Initiation Protocol" June 2002 URL:http://www.ietf.org/rfc/rfc3261.txt
[RFC3966]	"The tel URI for Telephone Numbers" H. Schulzrinne. December 2004. URL:http://www.ietf.org/rfc/rfc3966.txt
[RFC3986]	"Uniform Resource Identifier (URI): Generic Syntax" January 2005. URL:http://www.ietf.org/rfc/rfc3986.txt

2.2 Informative References

[FRAMEWORK]	"WAP Immediate Messaging White Paper", WAP Forum, 8-January-2002. URL: http://www.wapforum.org/
[OMA1]	"Dictionary for OMA Specifications", Open Mobile Alliance™, OMA-ORG-Dictionary-V2_3-20051220-A, URL: http://www.openmobilealliance.org/
[RFC4353]	"A Framework for Conferencing with the Session Initiation Protocol (SIP)", J. Rosenberg, February 2006, URL: http://www.ietf.org/rfc/rfc4353.txt

3. Terminology and Conventions

3.1   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].

All sections and appendixes, except "Scope" and "Introduction", are normative, unless they are explicitly indicated to be informative.

3.2   Definitions

Cellular network	A cellular network is a radio communication network that covers a territory divided in cells
Chat Alias	A unique identifier used by an IM user in a chat room.
Chat group	A synonym to Chat room.
Chat room	A synonym for session-based instant messaging conference.Conference is defined in [RFC4353].
Contact List	Contact information of individuals which are grouped together by an end user for his/her convenience, e.g. Friends, Family, Business, also referred to as 'buddy list'. A Contact List can exist in different ways in different applications, with the end user having some control of it. For example, it can be used in a messaging application to group a set of presentities together, enabling the end user to easily see the presence information of those individuals. Note: a Contact List is not a (presence enhanced) phonebook or address list which is stored in a mobile device.
Conversation	An ordered exchange of immediate messages in the context of a session between users.
Deferred messaging	If an intended recipient of an IM Pager mode or Large Message mode communication is not available, either due to the recipient's Inbox settings or the recipient being IM offline, the message is stored in the IM server for later delivery, i.e. the IM becomes deferred message.
Display Name	Non-unique and not routable identification of a user that could be displayed to other users as defined in [RFC3261]
Emoticon or smiley:	A character sequence used to indicate an emotional state in messaging (e-mail, news, IM…). When displayed, emoticons are usually replaced by graphical representations of the emotion they convey.
IM account	A subscription to an IM service.
IM Client	An IM Service endpoint.
IM communication	The exchange of instant messages on a one-to-one basis or between the participants of an IM group.
IM Group	A defined set of IM participants amongst whom an IM session may take place or who may participate in a chat session.
IM Participants	An IM user who joined a chat room.
IM Server	A networked entity that provides real-time messaging functionality.
IM service	A service as defined in [OMA1] using OMA IM Enabler.
IM service entity	An entity providing one or more capabilities defined in the IM Enabler.
IM service interactions	The interactions between an IM client and an IM server (e.g. Join an IM group, leave an IM group, administer IM groups, etc).
IM session	Exchange of near real-time messages where the senders and receivers join together for a period of time (session). The session is established at some moment in time, continues for a finite duration and then is

	dissolved. Messages exchanged are associated together in the context of this session.
IM subscription	A subscription as defined in [OMA1] to an IM service.
IM subscriber	A subscriber as defined in [OMA1] to an IM service.
IM system	The set of entities providing an IM service. It consists of IM servers and clients.
IM User	A human using the described features through a terminal device. In this document the terms "User" and "IM user" are equivalent.
IM user agent	An endpoint of an IM communication.
Instant Messaging Service (IM Service)	A system application by which a client is able to provide (near) real-time messaging capabilities.
Invisibility in IM	The Invisible option allows the user to do everything like a normal IM user, but with his status shown as 'offline'.
Mobile Directory Number (MDN)	A Mobile Directory Number (MDN) is used in 3GPP2. An MDN is a dialable number associated with the mobile station through a service subscription. A Mobile Directory Number is not necessarily the same as the mobile station identification on the air interface. An MDN consists of country code, national destination code, and subscriber number. An MDN consists up to 15 digits.
Mobile Operator	An operator providing a network connectivity service and possibly other services to users with mobile devices.
Mobile Station international Integrated Services Digital Network number (MSISDN)	A Mobile Station international Integrated Services Digital Network number (MSISDN) is used in 3GPP. An MSISDN is a dialable number associated with the mobile station through a service subscription. An MSISDN consists of country code, national destination code and subscriber number. An MSISDN MAY be up to 15 digits.
Nickname	A name assigned by an end user to an individual contact in a Contact List to support that end user's familiarity with the person.
One-to-Many-to-One	A conversation service that allows a user to send a message to multiple recipients and allows the individual recipients to communicate back to the sender ONLY.
Presence	Presence, or a model for presence, may include a combination of network state information (online or offline, location), application state information (idle or active) and user specified state information (available or busy).
Phonebook	A local database in the terminal containing phone numbers, names, etc.
Private Chat Room	A Chat room conversation on a server that allows access to authorised IM users only and is usually created, managed and administered by a user. This user is the owner of the private chat room.
Private data	Data in the private profile
Private Profile	The part of the User Profile that is open only to users that the owner of the profile has accepted should be able to search in the profile.
Public Chat Room	A Chat room conversation on a server that allows access to any IM user and is usually created, managed and administered by a network administrator or service provider.
Public Data	Data in the Public Profile
Public Domain	Domain accessible by any internet user
Public Profile	The part of the User Profile that is open for anyone to search in.
Registration	The action or process by which an individual, who generally is a subscriber of the mobile network operator, becomes a user of the IM-Service.
Session	A stateful association of presence and other user preference, capability and identity data through which it is possible to communicate immediate messages. A session may be established between IM users or between an IM user and an IM Server.

System Message	A special type of message sent by the System for different purposes (e.g. advice of charge, service notifications, advertisements, instructions, etc). System Messages may contain a list of possible options and require a response from the user.
User-ID	Routable unique identification of an IM user. It takes the form of a SIP URI (as defined in [RFC3261] and [RFC3986] or the "tel"-URI format as defined in [RFC3966]
User Profile	Data related to a user which is stored by the service. It may contain data which can be managed by the user and data that can be managed by the service provider. Some data can be available only to selected users while other can be available to all users.

3.3 Abbreviations

ARCH	OMA Architecture Working Group
CDR	Call Detail Record
E.164	ITU-T Recommendation E.164 "The international public telecommunication numbering plan"
EMS	Enhanced Messaging Service
GM	Group Management
ID	Identifier
IM	Instant Message
IMS	IP Multimedia (Sub)System
IOP	Interoperability
IP	Internet Protocol
ISDN	Integrated Services Digital Network
MDN	Mobile Directory Number
MMS	Multimedia Messaging Service
MSISDN	Mobile Subscriber ISDN Number
OMA	Open Mobile Alliance
OTA	Over-the-Air
PC	Personal Computer
PoC	Push-to-talk Over Cellular
RD	Requirement Documents
RFC	Request for Comments
SIP	Session Initiation Protocol
SIMPLE	SIP for Instant Messaging and Presence Leveraging Extensions
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
URL	Uniform Resource Locator
WG	Working Group

4. Introduction (Informative)

Instant Messaging (IM) is a form of 2-way communications that allows users to typically send text information to the other parties (however content types are not restricted to text only). It can be peer-to-peer, one-to-many, or one-to-many-to-one configuration, meaning that the messaging can be between two individuals, within a group where everyone in the group can see what everyone else is sending, or a specific one-to-many-to-one communication for dispatch services. There is no need to maintain any type of floor control since messages are posted to the individual (or group) in the order they are received, and can be read as needed.

As opposed to other kinds of messaging, Instant Messaging is characterized by its interactive nature, i.e. users exchange messages in near real time to engage conversations. This requires low latency in the delivery of messages.

Instant Messaging is built upon group management and presence enablers to provide a more compelling user experience.

This document first captures the use cases for IM Service, and then specific technical requirements are derived from these use cases.

5. Use Cases   (Informative)

The following use cases are provided to further illustrate the functions and roles of the various system elements in the IM framework and the inter-related functions performed by the IM Server

5.1   Use Case – IM Conversation History

Sometimes you had such a nice conversation that you want to store it, to read again, or to show it to friends. It is possible with IM. Because it is a very big issue, This Use case is split up in a few parts: There is a Use Case for saving a conversation, restoring a conversation, deleting a conversation and sending a conversation.

5.1.1   Saving a conversation

5.1.1.1   Short Description

When you want to save a conversation, you could save it on the IM service provider. This Use Case describes how a user may store his conversation.

5.1.1.2   Actors

User A: the user that uses the IM service.

IM service provider provides the conversation history service to his subscribers.

5.1.1.3   Actor Specific Issues

User must have an IM client with the conversation history feature supported.

User must have an IM account.

IM Service Provider has a reliable system for conversation history management.

IM Service Provider must have enough space to store all conversations of all users.

5.1.1.4   Actor Specific Benefits

The user's IM client supports the conversation history feature.

IM Service provider also supports conversation history to its subscribers.

IM Service provider has enough space to store the conversation.

5.1.1.5   Pre-conditions

The user's client supports the conversation history feature.

IM Service Provider also supports conversation history feature.

5.1.1.6   Post-conditions

The conversation with User X has been saved as "ConversationX".

5.1.1.7   Normal Flow

1.   User A has the conversation screen open with the conversation "User A – User X".

2.   User A selects the save option and requests the IM server to save the conversation.

3.   The service provider prompts for a "conversation-name".

4. User A enters "Conversation X" and uses the "save" button to finish the action.

5. The conversation has been saved on the IM Server as "ConversationX".

5.1.1.8 Alternative Flow

None

5.1.1.9 Operational and Quality of Experience Requirements

- The User may save a conversation.

- It must be possible for the user to enter a name for the conversation; otherwise a default name will be used.

- The IM user should be able to know the details about his storage quota utilization.

- The IM server must have a storage quota for each user.

- The date that the conversation has been made must be stored.

- The user may specify the duration to retain the items in the archival.

5.1.2 Restoring a conversation

5.1.2.1 Short Description

When you have saved the conversation, you want to see that conversation later again, so you'll restore your conversation. In this use case we will restore the conversation of User A with User X, "ConversationX".

5.1.2.2 Actors

User A: the User, who will restore the conversation.

IM Service Provider provides the conversation history service to his subscribers.

5.1.2.3 Actor Specific Issues

User must have an IM client with the conversation history feature supported.

User must have an IM account.

IM Service Provider has a reliable system for conversation history management.

5.1.2.4 Actor Specific Benefits

The user's IM client supports the conversation history feature.

IM Service Provider also supports conversation history to its subscribers.

5.1.2.5 Pre-conditions

The user's client supports conversation history feature.

IM service provider also supports conversation history feature.

The user has saved a conversation under the name "Conversation X".

5.1.2.6   Post-conditions

"ConversationX" will be opened.

5.1.2.7   Normal Flow

1.   User A opens the IM history feature and contacts the service provider.

2.   User A requests the list with all stored conversation.

3.   IM Service Provider shows the list with conversations.

4.   User A selects "ConversationX".

5.   User A chooses the "open" option.

6.   The IM service Provider opens the conversation.

7.   User A could now read the conversation.

5.1.2.8   Alternative Flow

None

5.1.2.9   Operational and Quality of Experience Requirements

- A user must be able to open a stored conversation.

- The conversation must be stored in a list of conversations.

- A user must have the ability to scroll through the list of conversations.

5.1.3   Deleting a conversation

5.1.3.1   Short Description

To maintain the possibility to store a conversation, enough memory must be available. Therefore, stored conversations must be deleted in time. This use case describes how to delete the conversation "ConversationX"

5.1.3.2   Actors

User A: the user, who deletes "ConversationX".

IM Service Provider provides the conversation history service to its subscribers.

5.1.3.3   Actor Specific Issues

User must have an IM Client with the conversation history feature supported.

User must have an IM account.

IM Service Provider has a reliable system for conversation history management.

5.1.3.4   Actor Specific Benefits

The user's IM client supports the conversation history feature.

IM Service Provider also supports conversation history to its subscribers.

5.1.3.5   Pre-conditions

The user's client supports conversation history feature.

IM service provider also supports conversation history feature.

"ConversationX" is stored by the IM-Service Provider and is occupying expensive memory.

5.1.3.6   Post-conditions

"ConversationX" has been removed from the IM-Server.

5.1.3.7   Normal Flow

1. User A opens the IM history feature and contacts the service provider.
2. User A requests the list with all stored conversation.
3. The IM Service Provider returns the list with conversations.
4. User A selects "ConversationX".
5. User A selects the "delete" option.
6. The IM device asks for a confirmation from the IM Server.
7. User A selects "yes".
8. "ConversationX" has been removed.

5.1.3.8   Alternative Flow – Removing all conversations

1. User A opens the IM history feature and contacts the service provider.
2. User A requests the list with all stored conversation.
3. The IM Service Provider returns the list with conversations.
4. User A requests to delete all conversations from the IM-server.
5. The IM server warns the user that all conversations will be deleted and asks for a confirmation.
6. User A selects "yes".
7. The IM server deletes all conversations and returns an empty conversation-list.

5.1.3.9   Operational and Quality of Experience Requirements

-   A user must be able to remove a conversation.
-   The terminal must ask for a confirmation, before deleting the conversation.
-   A removed conversation will not be stored in a "recycle bin".
-   A user may remove all their conversations from the IM server.

5.1.4   Send a conversation

5.1.4.1   Short Description

Sometimes, it is useful to send a conversation to other users For instance when a company has a conference through IM, the IM session could be saved and sent to all attendees. In this Use-Case Conversation X will be sent to an E-mail address. This option becomes handy when you want to backup conversation.

5.1.4.2   Actors

User A, the sender of the "ConversationX".

IM Service Provider provides the conversation history service to his subscribers.

5.1.4.3   Actor Specific Issues

User must have an IM Client with the conversation history feature supported.

User must have an IM account.

IM Service Provider has a reliable system for conversation history management.

5.1.4.4   Actor Specific Benefits

The user's IM client supports the conversation history feature.

IM Service Provider also supports conversation history to its subscribers.

5.1.4.5   Pre-conditions

The users client supports the conversation history feature.

IM service provider also supports conversation history feature.

"ConversationX" is stored on the Terminal X. and can be sent anywhere.

5.1.4.6   Post-conditions

"ConversationX" is send to User B.

5.1.4.7   Normal Flow

1. User A opens the IM history feature and contacts the service provider.

2. User A requests the list with all stored conversation.

3. The IM Service Provider returns a list with all stored conversations.

4. User A selects in the Conversation history "ConversationX".

5. User A selects the "send" option.

6. IM Service Provider asks for the destination address.

7. User A inputs the destination address of User B.

8. User A finally presses the "send" button.

9. The IM Service Provider sends the conversation to User B.

10. User B receives a message with a conversation of user A.

5.1.4.8 Alternative Flow

None

5.1.4.9 Operational and Quality of Experience Requirements

- It shall be possible to send a stored conversation.

- Instead of typing an address the user could choose from a list of addresses in the address book.

5.2 Use Case – IM Notification

This use case will demonstrate how a user of IM services will receive a notification indicating that he has received an IM. It will describe the event through the IM system and to the users IM client.

5.2.1 Short Description

In this use case there will be two IM users, an IM server, and the network needed to connect the service. One of the users will send an IM to the other user and it will go through the network to the IM server, where it will be handled accordingly, and then a notification will be sent to the receiving user.

5.2.2 Actors

Sam (samtheman) – The user that will be receiving the notification. In this use case this user will have a device that has an IM client installed.

Betty (bettybopp) – Will be originating an IM and sending it to Sam. In this use case this user will have a device that has an IM client installed.

IM Server

5.2.2.1 Actor Specific Issues

Betty is a friend of Sam's, and she wants to invite Sam to join a chat session with her to discuss plans for the evening.

Sam is busy washing his car (anticipating his evening with Betty) and has his IM client connected to his belt and is not watching his IM service, but does want to be notified of incoming IM request.

5.2.2.2 Actor Specific Benefits

Sam will be able to be notified when an IM is delivered, and Betty will be able to complete her IM session with Sam and make plans to get together later.

5.2.3 Pre-conditions

Both Sam and Betty have devices with IM capability and are intelligent users of the service. Both have their IM client online and with them. Both have the other in their IM address book.

The IM Server is in service and able to handle the IM request as defined in the user profiles.

5.2.4 Post-conditions

Sam should be notified of the incoming IM from Betty, and he is able to join the IM chat request and plan there evening.

5.2.5 Normal Flow

1. Betty realizes that Sam has not confirmed their plans for the evening and wishes to contact Sam to finalize the details. To do this she decides to use her IM service.

2. Betty opens her IM client's address book and selects Sam (samtheman) and inputs a message "sam r u coming this evening?" and sends it.

3. The IM client will interpret the address "Sam" as samtheman and send the message to the IM server.

4. The IM Server receives the message from Betty (bettybopp) addressed to Sam (samtheman).

5. The IM server then processes the message by checking both profiles to validate they are configured to send/receive messages between each other. This is a valid message.

6. The IM server then verifies Sam's current availability settings and privacy setting. Sam is OK to receive messages.

7. The IM server now generates the outbound message to Sam and sends it.

8. Sam's client receives the message from the IM server and sends an acknowledgement to the IM server.

9. The IM client then generates a pop-up screen, audible alarm, and vibrates the device. This is the actual notification.

10. Bob hears the alarm and looks at his device and sees a message from Betty (bettybopp) and accepts the chat request.

11. They chat and agree on the evenings plans. Sam then finishes cleaning his car.

5.2.6   Operational and Quality of Experience Requirements

- The receiving user shall receive notifications based on their privacy and availability settings.

- Users should be able to interpret the notifications easily

Notification should include visual, audible, and vibrating as supported by the device.

5.3   Use Case – IM Use of Presence

5.3.1   Short Description

Presence Service is a kind of catalyzer for IM Service. This use case shows how IM Service enabler uses Presence Service enabler to make user's experience better.

5.3.2   Actors

Alice: The user that uses the IM service and Presence service, which uses presence feature to express her availability, device capabilities, and other presence information.

Bob: The user that uses the IM service and Presence service, who wants to have an IM chat with Alice when she is available.

IM Client: Application resident in a devices managing the IM service for the end users.

Presence Client: Application resident in a devices managing the Presence service for the end users.

IM Server: Network entity that communicates with the IM Client to achieve the IM service, which also communicates with Presence Server to publish user's availability and the device capability.

Presence Server. Network entity that communicates with the Presence Client to achieve the Presence Service, which also receives user's availability and the device capability from IM Server.

5.3.2.1   Actor Specific Issues

Alice wants to configure her presence information to express her availability, and other presence information. She also wants to chat with others using IM service when she is in her spare time. She must have an IM account, an IM Client, a Presence account, and a Presence Client.

Bob finds that Alice's availability presence turns from "Busy" to "Available" from his Presence Client, and her mobile phone supports IM service, then decides make an IM chat with Alice. He must have an IM account, an IM Client, a Presence account, and a Presence Client as well.

IM Server receives the login request from Alice, then publishes Alice's availability and the capability of the IM application to the Presence Server.

5.3.2.2 Actor Specific Benefits

Alice can modify her presence easily when she wants, and IM Server can help her updating her presence automatically.

Bob can get Alice's availability before he chat with her using IM, which avoids the impolite chat request.

5.3.3 Pre-conditions

Alice and Bob are both provisioned to use the IM Service and Presence Service.

Alice and Bob's devices both have an IM Client and a Presence Client.

Alice's availability presence is "Busy", and is not logged in her IM Service.

5.3.4 Post-conditions

Alice's availability presence is changed from "Busy" to "Available".

Bob finds Alice is "Available" and her device supports IM capability, and makes an IM chat with her.

5.3.5 Normal Flow

1. Alice is attending a meeting, so she navigates to the presence setting menu of her Presence Client and sets her availability presence to "Busy". Then Alice's Presence client sends a corresponding request message to Presence server and the server records her setting.

2. Bob wants to have an IM chat with Alice. However, he checks Alice's availability presence from his Presence Client, and finds she is in "Busy" presence status. He feels a little disappointed, and selects an option to be alerted when Alice becomes available.

3. After two hours, Alice's meeting is over. She wants to have a rest, and navigates to the login menu of her IM Client and logs on to the IM Server. Then a login request message is sent from Alice's IM client to IM Server.

4. IM Server receives Alice request, then publishes Alice's availability and the IM capability of her mobile phone to the Presence Server.

5. Presence Server generates a notification message and sends it to Bob's Presence Client.

6. Bob's Presence Client gives an indication via an audible alarm or vibration. Then Bob checks Alice's availability presence again using his Presence Client, and happily finds she is "Available" and can be reached by IM. So he writes an instant message and sends to Alice, using the "Send an Instant Message" menu of his IM Client. Then Bob's IM Client sends a corresponding request message to IM server.

7. IM server forwards the message to Alice's IM client. Alice's IM client then generates a pop-up screen, audible alarm, or vibrates the device to indicate that an instant message comes.

5.3.6 Alternative Flow

None

5.3.7 Operational and Quality of Experience Requirements

Considering the convenience for the user, it is better that user can invoke IM Client from Presence Client directly.

5.4 Use Case – IM Use of Group Management

5.4.1 Short Description

This use case shows how mobile subscribers are making use of Group Management functionalities in particular IM for contact management (e.g. add to Contact List, delete from Contact List) and IM for group conversations (e.g. initiate and manage groups for IM chat). The GM functionalities can be classified either as:

- Dynamic: These are the ones used over group IM conversation (chat).

- Static: These are the ones allowing the creation, management and deletion of IM conversation groups (chat rooms).

The mobile subscriber is given the ability:

- To decide how to manage his/her Contact List(s).

- To engage group mode communications using the specified IM service.

5.4.2 Actors

- Julia – She is the primary user to make use of Group Management functionalities. Both to manage her Contact List(s) and to create/initiate a group IM conversation.

- Romeo – He acts as an example of a potential contact, i.e.: one to be added in Julia's Contact List(s). When added, either by invitation or by joining, Romeo's contact details constitute a given contact and member of the group.

- Maria – She acts as an example of a given contact, i.e.: one to be managed within Julia's Contact List and able to participate in chat communication initiated and controlled by Julia.

- Instant Messaging (IM) service.

- Group Management (GM) functionalities.

5.4.2.1 Actor Specific Issues

Julia wants:

- To configure her Contact List by adding a contact – in this case, Romeo.

- To configure her Contact List by modifying the contents of the Contact List.

Romeo and Maria are:

- Members of the Julia's Contact List management requirements.

The IM service provides:

- The IM conversation(s) facilitated by GM functionalities between Julia and Romeo and/or Maria.

The GM functionalities:

- To be able of supporting the above manipulations in the most efficient way possible.

- To work according to the commands of Julia.

5.4.2.2 Actor Specific Benefits

Julia:

- Is able to add Romeo to her Contact List according to her preferences.

- Is able to manipulate her Contact List and place Romeo's details accordingly.

Romeo:

- Becomes member of chat rooms created by Julia

- Is able to participate in group-mode IM conversation controlled and moderated by Julia.

Maria:

- Is already in Julia's Contact List

- Can be invited or join after request Julia's chat room(s).

5.4.3   Pre-conditions

- Julia, Romeo and Maria are all provisioned to use the IM Service.

- The IM service they are all subscribed to is enabled by GM functionalities.

5.4.4   Post-conditions

Julia has added Romeo to her Contact List(s) and creates a chat room inviting him as well as Maria.

Romeo and Maria engage to the chat session but with limited privileges. They are able to leave the group IM conversation at any time they choose.

5.4.5   Normal Flow

1. Julia decides to input Romeo's contact details in her Contact List in order for him to be able to join her chat rooms. She inputs the Romeo's contact details under her Contact List "colleagues".

2. Julia invites Romeo to her chat room.

3. Romeo accepts the invitation. Romeo is a member of the group assigned "colleague discussions".

4. Julia notifies Maria about the chat in that group. Maria's contact details are in Contact List "friends".

5. Maria joins the group ("colleague discussions") IM conversation.

6. Julia and her two friends are in group mode IM conversation.

7. After a while Maria decides to leave the group – she does so.

8. Julia and Romeo continue the IM conversation (still group, but two participating users).

9. Both decide to terminate the conversation – First Romeo, then Julia leave the group.

10. After termination, Julia decides to include Romeo to her "friends" Contact List. She does so by adding his details in that list and then deletes it from the list "colleagues".

5.4.6   Alternative Flow

1. Julia decides to input Romeo's contact details in her Contact List in order for him to be able to join her chat rooms. She inputs the Romeo's contact details under her Contact List "colleagues".

2. Julia invites Romeo to her chat room.

3. Romeo accepts invitation. Romeo is a member of the group assigned "colleague discussions".

4. Julia invites Maria for the chat in that group. Maria's contact details are in Contact List "friends".

5. Maria joins the group ("colleague discussions") IM conversation.

6. Julia and her two friends are in group mode IM conversation.

7. After a while Maria decides to leave the group – she does so.

8. Julia and Romeo continue the IM conversation (still group, but two participating users).

9. Both decide to terminate the IM conversation – First Romeo and then Julia leave the group.

10. After termination, Julia decides to include Romeo to her "friends" Contact List. She does so by moving his details in that list from the list "colleagues".

5.4.7   Operational and Quality of Experience Requirements

- Julia has control over her Contact Lists(s) and she is able to modify them accordingly.

- Romeo is added to Julia's Contact List and is invited to participate in the chat room.

- Julia also invites Maria to join the group IM conversation.

All three engage to group IM conversation.

5.5   Use Case – Modify Contact Entry

5.5.1   Short Description

This use case demonstrates a situation where an end user has the need to modify Contact List information. An end user adds a couple of new entries in their Contact List, yet afterwards decides that a modification is necessary. In this case the change being made is to the name, or nick name associated with the contact, however other information associated with an entry could also be modified.

5.5.2   Actors

User A – An end user with mobile device having an IM client.

'Crazy-Girl' aka 'Pretty-Girl' – An end user having access to an IM client.

'Curly-Top' aka 'No-Hair' – An end user having access to an IM client.

5.5.2.1   Actor Specific Issues

User A – Has a need to update information in Contact List entries.

5.5.2.2   Actor Specific Benefits

User A – Benefits from an easy method of updating entries in a Contact List such as the name identifier, phone number, and picture.

5.5.3   Pre-conditions

User A – Mobile device is enabled with a provisioned and working IM client.

5.5.4   Post-conditions

User A – Entries in the IM Contact List reflects the information User A desires.

5.5.5   Normal Flow

1. User A has 'Crazy girl' and 'Curly Top' on his Contact List.

2. The three individuals decide to meet in person the following night at a dance club.

3. After spending the evening socializing and dancing, User A decides that the names of 'Crazy-Girl' and 'Curly-Top' don't describe his new friends. Instead, User A decides better nick names are 'Pretty-Girl' and 'No-Hair'.

4. User A requests the IM server to modify the name identifiers of 'Crazy-Girl' to 'Pretty-Girl'.

5. The IM server accepts this name modification request and responds with updated Contact List information.

6. User A requests the IM server to modify the name identifier of 'Curly-Top' to 'No-Hair'.

7. The IM server accepts this name modification request and responds with updated Contact List information.

5.5.6   Alternative Flow

None

5.5.7   Operational and Quality of Experience Requirements

User A is provided with a more convenient way of modifying entries in his Contact Lists.

It should not be possible to address/contact a person who is in a chat room anonymously.

5.6   Use Case – Temporary Group

5.6.1   Short Description

The group persistency feature allows an end user to make the decision when creating a group whether the group is to be temporary or permanent. In the event of creating a temporary group, an end user specifies a duration period for the transitory group. The group exists during this duration period and beyond if an active session is taking place at the end of the duration period. This use case describes a scenario of an end user creating a temporary group and using this temporary group in a chat session.

5.6.2   Actors

*   Mary – End user with device provisioned with IM client.

*   Tina – End user with a device provisioned with an IM client.

*   Ian – End user with a device provisioned with an IM client.

*   IM Client – Application resident in a device managing the IM service for the end users.

*   IM Server – Network entity that communicates with the IM Client to achieve the IM service.

5.6.2.1   Actor Specific Issues

No specific issues with any of the actors.

5.6.2.2   Actor Specific Benefits

*   Mary the end user is relieved of the burden of managing a newly created group.

5.6.3   Pre-conditions

*   Mary has a device that is enabled with IM client.

- Mary has concert tickets to her favorite band, the Zombies.

5.6.4   Post-conditions

- The groups defined in Mary's IM client reflect what she desires, and the fact that the temporary 'Zombie Concert' group is not present.

5.6.5   Normal Flow

1. On the evening of the Zombie concert about 3 hours before it starts, Mary decides to create a temporary IM group to chat about the concert.

2. The IM client in Mary's device requests the IM server to create a temporary group providing a group name of 'Zombie Concert', the fact it is a temporary group, and the duration period of the group being 3 hours.

3. The IM Server responds to the group creation request from Mary's IM Client with an updated Contact List which includes the new 'Zombie Concert' group identified as temporary. Mary's IM Client processes this Contact List update showing the 'Zombie Concert' group.

4. In route to the concert, Mary invites Tina to join the Zombie Concert group. Tina accepts the invitation to the Zombie Concert group and says 'Hello' to the group.

5. Mary invites Ian to join the Zombie Concert group. Ian accepts the invitation to the Zombie Concert group and says 'Hello Everyone' to the group.

6. Three hours after Mary created the temporary Zombie Concert group Mary, Tina, and Ian are still in an active chat session and therefore the IM Server maintains the group.

7. Sometime later Ian, Tina, and Mary exit the Zombie Concert group chat session.

8. The IM server recognizes that the active chat session has ended in the Zombie Concert group and that it is a temporary group past its expiration time. Therefore the IM server deletes the group and provides Mary's IM Client with an updated Contact List, which doesn't include the Zombie Concert group.

5.6.6   Alternative Flow

None

5.6.7   Operational and Quality of Experience Requirements

- Minimizes maintenance of groups by the end user.

- Minimizes memory in an IM client to store groups.

5.7   Use Case – Mobile Originated Chat

5.7.1   Short Description

Bob sends an Instant Message to this friend Sue. Sue replies, and a conversation starts.

5.7.2   Actors

- Sue

- Bob

- IM Service Provider

5.7.2.1   Actor Specific Issues

Bob wants to determine if Sue is online, and to send her an IM.

Sue will determine if she wants to IM with Bob

5.7.2.2   Actor Specific Benefits

Bob can converse with Sue via IM

Sue can control if she responds or not

5.7.3   Pre-conditions

Both Bob's and Sue's device must have IM clients.

Bob must be logged-in with the IM Server.

Bob's IM client has already synchronized its contact information with the IM server.

Sue's client should already be synchronized with the IM server.

Sue should be on Bob's Contact List.

5.7.4   Post-conditions

The IM interaction between Bob and Sue is completed and both IM clients return to the pre-condition states

5.7.5   Normal Flow

1. Bob decides he would like to start an IM session with Sue

2. Bob selects Sue from Contact List (or directly enters her user name to contact).

3. Bob composes initial message

4. Bob sends the Instant Message addressed to Sue.

5. The server checks that Sue is online.

6. IM Server forwards the message to Sue using rules and settings to choose the appropriate target device or devices to alert.

7. Sue's terminal receives the IM indication and provides an alert to Sue. Sue's terminal returns a confirmation of message delivery to the server.

8. Sue answers the IM indication in which case:
    a. Bob and Sue exchange messages. The IM Server and Mobile IM Clients, maintain synchronization.
    b. Bob or Sue may return to the Contact List and invite additional participants at any time.
    c. IM session continues until all participants exit the IM session or the IM session times out.

5.7.6   Alternative Flow

Offline Messaging: If Sue is offline, the server will store the message and deliver it the next time Sue logs in. She receives a notification that messages are waiting for her.

5.7.7   Operational and Quality of Experience Requirements

•   Client should provide a Contact List.

•   Status of contacts in the Contacts list should be displayed.

- The device should provide a method to input text for sending to other devices.

- The device should support a method to notify the user of an incoming request for an IM session.

- The device should support display of recent messages and input of new message simultaneously.

5.8 Interconnection between IM Service Providers

5.8.1 Short Description

This use case describes how users subscribed to different IM Service Providers can interact with each other thanks to the interconnection between both service providers' systems.

The following usage case assumes solely for illustrative purposes that each client is connected to a home IM server and that all service to service communication occurs between the home IM servers – alternative network topologies and functional distributions could be employed.

5.8.2 Actors

IM Service Provider A

IM Service Provider B

User A: an IM user having a subscription with IM Service Provider A

User B: an IM user having a subscription with IM Service Provider B

5.8.3 Pre-conditions

An interconnection agreement must exist between IM Service Provider A and IM Service Provider B.

In order to interconnect, Service Providers must agree on an addressing scheme (for example, E.164 numbering and/or name@domain, etc.) and on a server to server protocol.

User A and User B must both have valid subscriptions with their respective Service Providers.

5.8.4 Post-conditions

None

5.8.5 Normal Flow

1. By using their IM enabled devices, User A connects to IM Service Provider A and User B connects to IM Service Provider B

2. User A requests to add User B to his/her Contact List. To do so s/he enters User B's IM identifier (E.164, e-mail style address, etc). User ID may be communicated directly between users or a search function could be used if this is allowed by the interconnection agreement between both Service Providers.

3. The request is relayed from User A's device to Service Provider A

4. User B is recognized as a user belonging to one of the Service Providers that IM Service Provider A has an interconnection agreement with.

5. The request is then relayed to Service Provider B through the interconnection and finally to User's B device.

6. User B accepts and is automatically asked if he wants to add User A to his/her Contact List. User B chooses to do so. The request is accepted by User A also.

7. Both IM Service Providers exchange presence information about their users through the interconnection agreement and distribute it to their respective users.

8. User A selects User B contact from Contact List (or directly enters a user name to contact).

9. User A composes an initial message for User B.

10. The message is submitted to IM Service Provider A.

11. IM Service Provider A routes message to User B's device via the interconnection with IM Service Provider B.

12. User B is able to respond and converse with User A.

5.8.6   Alternative Flow

None

5.8.7   Operational and Quality of Experience Requirements

User A and User B may be using a different type of device or access network type to connect to their respective IM Service. For example User A may be using a desktop PC with a DSL connection to the Internet and User B may be using a mobile phone with an IM client connected through the cellular network.

There shall be no restrictions in the interactions between IM Users that are subscribed to different IM Service Providers due to technical limitations of the protocols.

However the exact features that are enabled in the interconnection interface may depend on the terms of the agreement between IM Service Providers (i.e. some features may be restricted).

The Service Provider should have the possibility to expose to end users some information elements that may have impacts on specific charging policy applied for their contacts. Examples of such information could be:

- a contact's service provider name or logo

- a contact's device type (mobile phone, PC, etc)

- a contact's access network type used (wired, mobile, etc)

- etc.

5.9   Use Case Public Chat

5.9.1   Short Description

The user navigates to and opens a Public Chat. Within this setup he can chat with other users. Each user is identified by a Chat Alias, so that the participants don't know each other's real identity.

Actors

- User A

- Other Public Users

- Instant Messaging Service Provider.

5.9.1.1   Actor Specific Issues

None

5.9.1.2   Actor Specific Benefits

- User A and other Public Users: can communicate with other public users

5.9.2   Pre-conditions

- User A: Anonymity must be ensured.

- Other Public Users: Anonymity must be ensured.

5.9.3   Post-conditions

None

5.9.4   Normal Flow

The workflow is comprised of the following steps:

- User A opens a Public Chat on his IM client.

- The user's Display Name (assumed to be entered in profile) is used as a default Chat Alias.

- The client sends a request to join the Chat Room

- The server acknowledges User A's entry into the Chat Room (we assume that the Chat Alias is not taken by another user).

- He sees contributions from other users, and contributes his own thoughts/opinions.

- All messages are shown to all users.

5.9.5   Alternative Flows

5.9.5.1   User's Display Name not available

- If the user has not yet filled his profile, then he will have to enter a Alias in step 2 in the Normal Flow.

5.9.5.2   User's Chat Alias is already taken by another User

- If the default Chat Alias is already in use within this Chat Room, the server returns a list of suggestions to use instead.

- User A chooses a Chat Alias from this list, or alternatively opts to enter a new Chat Alias.

5.9.6   Operational and Quality of Experience Requirements

Public Chat has acquired a dubious reputation in the public mind. Many users are concerned about abuse of personal information for spam marketing, fraud or sexual predation. It SHOULD be ensured that:

- Identity information is not displayed in the public domain

- Underage users are protected from rogue users.

- It must be possible to remove rogue users.

A Public Chat may not be converted to a Private Conversation.

It must be possible to switch off the Public Chat functionality on the server, should the service provider feel that user's privacy and/or safety is compromised.

5.10   Registration in IM by mobile E.164 number

5.10.1   Short Description

The user, completely new to the Instant Messaging service, registers with the Instant Message service in a very easy, user-friendly manner.

Once registered, the system may optionally send an OTA message to the client to update the User-ID and password on the IM device.

5.10.2   Actors

- User

- Instant Messaging Service Provider

5.10.2.1   Actor Specific Issues

- User: The registration should appear to the user as close as possible to a normal login.

- Instant Messenger service provider: Register the user with as little user input as possible. This implies a high level of automation. This is a critical issue because of the extra effort in typing on a mobile device.

5.10.2.2   Actor Specific Benefits

User: user becomes very easily a registered user of the Instant Message service.

5.10.3   Pre-conditions

The user has a valid E.164 number, and has not used the Instant Messaging service before.

5.10.4   Post-conditions

None

5.10.5   Normal Flow

The workflow consists of the following steps:

1. The user navigates to the 'Instant Messenger' register command on his IM capable phone.

2. The client makes a registration request, such that E.164 authentication is used. User-ID and password, which are preconfigured on the phone, are passed.

5.11 Use Case Add Contact to Contact List by 'User-ID or 'Search'

5.11.1 Short Description

User A adds another user, User B, whose one of his possible User-IDs is known, to his Contact List. The added user must be a registered user. User B receives a notification to say that User A has added him. If the used User ID is not known to User A, he can perform a Search on specific personal values.

User ID is meant here as a generic term that covers a variety of possible types of user IDs that may be used to address a specific user, for example 'username', MSISDN/MDN, E.164, etc.

5.11.2 Actors

- User A

- User B

- Instant Messaging Service Provider

5.11.2.1 Actor Specific Issues

- Instant Messaging Service Provider: has to protect User B's privacy.

5.11.2.2 Actor Specific Benefits

- User A: can easily enlarge his list of contacts by knowing one of User B's User-IDs.

- User B: can easily be added by other's Contact List, using one of his User-IDs. User B is informed when he's added to someone else's Contact List.

- Instant Messaging Service Provider: to provide an easy mechanism to allow the user to invite new users to join the IM service.

5.11.3 Pre-conditions

- User A: He has to know a valid User-ID. Otherwise he can add a User by 'Search' (see 5.13.6 Alternative Flow).

- User B: Has to be a registered IM user.

- It may not be allowed to search on specific combinations of personal values or results of searches may be confined. For example the service provider's policy could prohibit searches on children under age of 18.

5.11.4 Post-conditions

None

5.11.5 Normal Flow – add contact by a 'User-ID'

The workflow is comprised of the following steps:

1. User A navigates to the Contact List page on his IM device, and chooses an option named "Add User to List" or similar

2. User A inputs a User-ID of UserB (which he knows)

3. The client device sends a request to the server to add the user to the Contact List.

4. The server verifies that the used User-ID to be added is valid.

5. If User B has 'authorization on' then this authorization must be agreed by User B before the Contact is added.

6. The server adds the User-ID and the Display Name to the Server Contact List, and sends a response to the client with the User-ID and the Display Name. The Display Name is in this case the Display Name as entered by UserB.

7. The client saves the User-ID and the Display Name as returned by the server to the local (client) Contact List.

5.11.6   Alternative Flow – Add Contact by 'Search'

1. User A navigates to the Search function on his IM device

2. User A chooses personal values to base the search on, for example:

    - Age

    - Gender

    - Intention

    - City

    - Country

    - Free Text

3. User A requests a search

4. The search results are returned as a list of Display Names and User-IDs, but with no mobile E.164 number displayed

5. User A browses through the results, clicking on the User-ID or Display Name to look at the detail profiles.

6. User A chooses the Add Contact option for User B

7. If User B has 'authorization on' then this authorization must be agreed by User B before the Contact is added.

8. A system message is sent to User B to say that he has been added as a Friend

9. User B is added to User A's Contact List

5.11.7   Operational and Quality of Experience Requirements

Unnecessary typing by User A must be avoided.

5.12 Accessing IM Server via Internet Connected Device

5.12.1   Short Description

This use case describes how a cellular network subscriber can access his/her IM service via an Internet connected device.

5.12.2   Actors

- End User: Jack

- Cellular Network Operator: A Cellular Network Operator with Instant Messaging Service.

5.12.2.1   Actor Specific Issues

Jack:

- Does not have access to the cellular network due to roaming agreement or coverage.

- Has access to a public or personal device connected to the internet network. Jack prefers to use this device since it has a large keyboard; hence, it is easier to type text.

Cellular Network Operator:

- Wants to increase the IM revenue by expanding the usage of IM service to the devices which are connected to the Internet.

5.12.2.2   Actor Specific Benefits

Jack:

- Logs in the Instant Messaging service by using a public or personal device connected to Internet network.

- As first time user registers to the Instant Messaging service by using a public or personal device without a requirement of being connected to the cellular network.

Cellular Network Operator:

- Instant Messaging Service can even be provided in the areas where there is no cellular coverage, but Internet connection is available.

- Instant Messaging Service can be provided to users who prefer using a device connected to the Internet network.

- Cellular Network operator expands the coverage and thereby usage of IM services. This results in expanding the IM revenue.

5.12.3   Pre-conditions

- Jack is subscriber of the Cellular Network Provider and has a valid E.164 (MSISDN or MDN)

- Jack is provisioned to the Cellular Network Provider' IM service so he is authorized to register with the IM system.

- Jack has IM enabled device from the Cellular Network Provider.

- Jack has been assigned a default User-ID and password by the Cellular Network Operator for first time access to the IM service.

- Jack MAY change the default password.

- The Cellular Network Operator can provide Jack the service that he can get access to the IM server through a website.

5.12.4   Post-conditions

- Jack has successfully performed an initial or first time registration to the IM service by using a device connected to the Internet network.

- Jack has successfully logged in to the IM service by using a device connected to the Internet network.

5.12.5   Normal Flow

1. Using Internet connected device, Jack navigates to the Cellular Network Operator's website.

2. Jack navigates to 'Instant Messenger' registration portion of the website.

3. Jack makes an initial register request to the server, by using his User-ID and the default password.

4. Upon successful authentication of the User-ID and password, the IM server sends a registration response back to Jack.

5. Having performed an initial registration and being logged on to the IM service, Jack has now the option of modifying his password.

6. Jack has now access to the IM service provided by his Cellular Network Operator through an Internet connected device.

5.13   Use Case – Message Filtering

5.13.1   Short Description

This use case describes the filtering of message in a group session. In the group session, the Instant Message is sent to everybody who has joined in the group session. In some case, especially in a public chat room, there could be a roguish member who always sends such many trashy messages to the group that other members can't read the useful messages. In order to keep away from the trashy messages, the user can select to block all messages from the roguish member in the group session.

5.13.2   Actors

- Julia – She is a normal user of an existing group session.

- Romeo – He acts as an example of a normal user that has joined in the group session.

- Tom – He acts as an example of a roguish user that Julia wants to block all messages of him.

- Instant Messaging (IM) service provided.

- Group Management (GM) functionalities.

5.13.2.1   Actor Specific Issues

Julia wants:

- To keep the IM communications with other members of the group.

- To be able to keep away from the trashy message in the group session, but wants to contact Tom if necessary.

Romeo and Tom are:

- Members of the group that Julia has joined in.

The IM service provides:

- The communication(s) facilitated by GM functionalities between Julia and Romeo and Tom.

- Removal/filtering of rogue users.

The GM functionalities:

- To be able of supporting the above manipulations in the most efficient way possible.

5.13.2.2   Actor Specific Benefits

Julia:

- Communicates with the other members in the group.

- Only sees the messages of the members whom she wants to talk with.

Romeo:

- Keep communication with Julia.

5.13.3   Pre-conditions

- Julia, Romeo and Tom are all provisioned to use the IM Service.

- The IM service they are all subscribed to is enabled by GM functionalities.

5.13.4   Post-conditions

- Julia and Romeo are able to keep the communication in a convenient environment.

- Julia isn't disturbed by the roguish messages that are sent by Tom.

- Tom's status on the Contact List of Julia is "filtered"

- Julia's status on Tom's Contact List is "offline"

5.13.5   Normal Flow

1. Julia, Romeo and Tom are the members of a group, and they have joined in the group session.

2. After a while, Tom has nothing to say and wants to disturb the other members by sending some trashy message.

3. Julia is communicating with Romeo and other interesting members, but the trashy messages sent by Tom make her can't clearly see the useful messages sent by Romeo and other interesting members.

4. Julia selects Tom from the member list, and sets the option to filter all messages from Tom.

5. Julia's client sends the setting to the IM server.

6. IM server doesn't send any message from Tom to Julia's client in the group session.

7. According to the filter setting, IM server may send no message from Julia to Tom's client in the group session.

8. Julia can normally communicate with Romeo and other interesting members without seeing the trashy message sent by Tom, and Tom may not receive the messages sent by Julia to the group according to the filter setting.

5.13.6   Operational and Quality of Experience Requirements

If a user is filtered in very much Contact Lists, the user may be excluded from the IM Service by the IM server.

A user must have the ability to "filter" contacts.

A user must have the ability to "unfilter" contacts.

5.14 Use Case – Quick Answer

5.14.1 Short Description

This use case describes the quick answer in IM service. For many IM users, there are some messages to be usually used as answers. The IM user can preset these messages before he starts an IM session, and he can quickly send these pre-configured messages as an answer by making fewer inputs in the IM session. The quick answer messages are stored in the IM server so that the IM user can set these messages once and use those from different devices.

5.14.2 Actors

- Julia – She is a normal user of the IM service.

- Instant Messaging (IM) service provided.

5.14.2.1 Actor Specific Issues

Julia wants:

- To quickly answer other user's message with few typing and searching.

- To set the quick answer once, and use it through different terminals.

The IM service providers:

- Wants to provide a more convenient method for users, in order to increase revenue.

5.14.2.2 Actor Specific Benefits

Julia:

- Quickly answer other user's message with few typing and searching.

The IM service providers:

- Make users feel the IM service is very convenient, encourages more and more people to use the IM service.

5.14.3 Pre-conditions

- Julia is a registered and authorized user of the IM Service.

- Julia has an IM compatible mobile device

- Julia has an IM compatible PC Client

5.14.4 Post-conditions

- Julia can quickly answer other user's message without typing too many characters or doing too many actions.

5.14.5 Normal Flow

1. Julia navigates to the IM client application on her mobile device.

2. Julia inputs her username and password to login the IM service.

3. After login successful, Julia navigates to the quick answer page on the IM client, and chooses "add a quick answer message".

4. Julia inputs the message content "I'm in meeting.".

5. IM client uploads the message content to the IM server. IM server stores the new quick answer message and the uploading client identifier.

6. Some days later, Julia logins the IM server using her IM PC client. IM server recognizes it's a different client which has not received the new quick answer, then sends the "I'm in meeting" quick answer message to Julia's IM PC client.

7. Julia joins in an IM session and chats with other IM users.

8. Julia receives a message from another IM user.

9. Julia selects the pre-configured message "I'm in meeting" from quick answer list view and sends it to the IM user.

5.14.6 Alternative Flow

None

5.14.7 Operational and Quality of Experience Requirements

The user must be able to use quick answers.

Inserting a quick answer in a message must take as few as possible acts.

6. Requirements   (Normative)

6.1   High-Level Functional Requirements

6.1.1   General Requirements

Label	Description	Enabler Release
GR-1	The IM system SHALL support access of IM services from a mobile device	IM 1.0
GR-2	The IM system SHALL support access of IM services from an Internet device	IM 1.0
GR-3	The IM system SHALL support one-to-one messaging	IM 1.0
GR-4	The IM service SHALL support many-to-many instant messaging, including private and public chat	IM 1.0
GR-5	The IM service SHALL support one-to-many-to-one instant messaging	Future

Table 1: High level Functional Requirements - General requirements

6.1.2   IM Data Model

Label	Description	Enabler Release
DM-1	It SHALL be possible to address IM users using a URI	IM 1.0
DM-2	Instant Messages SHALL support text-based messaging	IM 1.0
DM-3	The IM enabler SHALL support multimedia content.	IM 1.0

Table 2: High level Functional Requirements - IM Data Model

6.1.3   Registration

Label	Description	Enabler Release
REG-1	The registration data SHALL be sent in a secure way.	IM 1.0
REG-2	The IM service SHALL support the ability for the Service Provider to configure their IM service so that either of two options is applied for IM Registration: • User confirmation is NOT needed for registration; i.e. when an individual uses the IM service application for the first time, he/she confirms implicitly, that he/she wants to be registered in the IM service. • User confirmation is needed for registration; i.e. Users need to explicitly confirm that they want to register in the IM service.	Deleted
REG-3	Registration from the mobile device SHALL require the minimum typing effort.	IM 1.0
REG-4	IM service SHALL provide a default profile for users. That default profile SHALL be provisioned by the service provider respecting maximum privacy protection and non-intrusion. Upon registration, the user SHALL be informed that a default profile was created for him/her and SHALL be given the possibility to change it.	Deleted
REG-5	The IM user MAY register from multiple devices. Each registration is treated as unique.	IM 1.0
REG-6	The IM user MAY register from multiple devices. All such registrations are considered as a single IM registration with multiple points of contact.	IM 1.0
REG-7	When registering, user authentication SHALL be provided.	IM 1.0

Table 3: High level Functional Requirements - Registration

6.1.4   Sending IM

Label	Description	Enabler Release
SND-1	It SHALL be possible for the sender to use a nickname when sending messages.	IM 1.0
SND-2	The IM user SHALL be able to send messages to users in his/her Contact List, including peers and chat rooms.	IM 1.0
SND-3	The IM Service SHALL allow users to send messages to offline members in their Contact List that are not available to receive messages, according to Service Provider policies.	Deleted
SND-4	As an option for the Service Provider, where provided, The IM user SHALL be able to send messages to users not in his/her Contact List, including peers and chat rooms.	IM 1.0
SND-5	The sender SHALL be informed of the allowed max. message size per content type, and content types by the network. IM service MAY allow the sender to take into account the recipient's terminal capabilities.	IM 1.0
SND-6	As an option for the Service Provider, where provided, the IM user SHALL be able to send messages to users not in his/her Contact List, including peers and chat rooms.	Deleted

Table 4: High level Functional Requirements - Sending IM

6.1.5   Receiving IM

Label	Description	Enabler Release
RCV-1	IM user SHALL have the ability to receive messages in his/her device	IM 1.0
RCV-2	IM user SHALL have the capability to receive Multimedia Content. The IM service MAY provide content adaptation or alternative ways to retrieve multimedia content.	IM 1.0
RCV-3	Stored offline messages SHOULD be delivered to the destination user at the moment that he/she logs into the IM Service. A time stamp MAY be added by the IM service to stored messages. The Service Provider SHALL have the means to adjust storage time.	IM 1.0
RCV-4	Service messages, provided by IM Service, SHALL conform to the delivery rules of IM user messages, regarding the recipient's availability (status) to receive messages.	IM 1.0
RCV-5	IM systemshall be able to support a request from a user to view the list of messages and message related attributes, such as sender, recipient, subject and date/time, in a network based repository. Note 1: In MWG IM this requirement addresses deferred messages.	IM 1.0
RCV-6	IM system shall be able to support a request from a user to retrieve messages that are stored in a network based repository. Note 1: In MWG IM this requirement addresses deferred messages.	IM 1.0

Table 5: High level Functional Requirements - Receiving IM

6.1.6   IM Message Delivery

Label	Description	Enabler Release
DLV-1	Messages sent SHALL be shown to all users participating in a Public Chat Room except those for whom messaging filtering rules apply.	IM 1.0
DLV-2	The IM system SHALL have the ability to maintain message sequencing and synchronization to preserve the order of a conversation or message flow.	IM 1.0

Table 6: High level Functional Requirements - IM Message Delivery

6.1.7   IM Notifications

Label	Description	Enabler Release

NOT-1	Mobile device SHOULD support a method to notify the user of an incoming invitation for an IM session.	IM 1.0

NOT-2	The IM system SHALL have the ability to alert/notify a user when messages cannot be delivered immediately for one of the following (non-exhaustive) reasons:
	
	    a. Intended recipient is unreachable
	
	    b. Capabilities of recipient mobile device
		IM 1.0

NOT-3	The IM system SHALL have the ability to provide delivery failure notification	IM 1.0
NOT-4	It SHALL be possible to receive an acknowledgement for sent messages	IM 1.0
NOT-5	The user MAY be notified when there is a new incoming message	IM 1.0
NOT-6	When the user has the conversation screen closed, the user MAY be notified of incoming messages	IM 1.0
NOT-7	When the user has the conversation screen open the user MAY be notified of incoming message	IM 1.0
NOT-8	To avoid irritation, the user MAY be able to switch notifications off, so that he/she will not be notified when there is a new message.	IM 1.0
NOT-9	The notification MAY be audio, vibration, text, and/or graphics	IM 1.0
NOT-10	IM service SHALL support a method to notify a user participating in a Chat Session that a new user has joined or left the session	IM 1.0
NOT-11	The IM Service SHALL inform a user that he/she has been added to someone else's Contact List.	Deleted
NOT-12	The user MUST be able to switch off message notifications.	IM 1.0
NOT-13	The user MUST be able to switch off offline message notifications.	Future
NOT-14	Notification mechanism for deferred messages may contain the list of deferred messages and deferred message related attributes such as sender, recipient, subject and date/time, in a network based repository.	IM 1.0

Table 7: High level Functional Requirements – IM Notifications

6.1.8 Conversation History

Label	Description	Enabler Release
HST-1	The IM service SHOULD provide a possibility to (re)store conversations.	IM 1.0
HST-2a	Where conversation histories are supported, the IM subscriber SHALL be provided basic management functionalities : • Save • delete	IM 1.0
HST-2b	Where conversation histories are supported, the IM subscriber SHALL be provided advanced management functionalities : • Rename • Move into folders	Moved to next Release
HST-3	The IM Service Provider MAY define a maximum storage limit of conversations.	IM 1.0
HST-4	A user SHOULD be able to search his own Conversation History using meta data such as: • Title of Message History Storage (FULL or PART of the TITLE) • Time Period (messages SENT/RECEIVED between DATE/TIME 1 and DATE/TIME 2)	IM 1.0

• Users (Messages sent BY/TO user1)	

Table 8: High level Functional Requirements – Conversation History

6.1.9   Presence in IM

Label	Description	Enabler Release
PRE-1	The Contact List SHOULD display contact status.	IM 1.0
PRE-2	The IM Service SHALL have the ability to utilize the capabilities of a Presence Enabler	IM 1.0
PRE-3	Presence requirements for IM SHALL be compliant with the requirements stated in the Presence RD [PRESENCE].	IM 1.0
PRE-4	It SHALL be possible for IM users to use presence capabilities.	IM 1.0
PRE-5	It SHALL be possible for IM users to utilize the presence service in order to communicate to others certain information and preferences (presence information), such as their willingness and availability to communicate using IM.	IM 1.0
PRE-6	The presence service MAY allow IM users to communicate this information by creating and activating presence statuses such as "working", "meeting", "Out to lunch", "Discrete, "busy", "Do Not Disturb" etc.	IM 1.0

Table 9: High level Functional Requirements – Presence in IM

6.1.10   Group Management in IM

Label	Description	Enabler Release
GM-1	Group Management requirements SHALL be compliant with the requirements stated in the Group Management RD [GM].	IM 1.0
GM-2	The IM service SHALL provide the ability to add Instant Messaging users in the Contact List by SIP URI, or tel-URI.	IM 1.0
GM-3	The IM Service SHALL be able to provide advance search functionality with basic logical relationships (AND, OR, NOT) as well as any level of nesting in the search criteria	IM 1.0
GM-4	The IM service SHALL provide the ability to create and manage Contact Lists.	IM 1.0
GM-5	If User B has 'authorization on' then, if User A requests to add user B in his/her Contact List, this authorization SHALL be agreed by User B before: • User A can see User B's status • User A can send messages to User B	Deleted
GM-6	The uniqueness of the new name SHALL be verified within the contact list in a request to modify the name of an entry in a contact list.	Deleted
GM-7	The IM Server MAY disallow duplicate name entries in the Contact List according to Service Provider policies.	Deleted
GM-8	The server SHALL be the master of the Contact List, at start-up the client will be synchronized with the server.	IM 1.0
GM-9	The Contact List SHALL show a list of groups, the contacts within that group MAY be displayed under display-names.	IM 1.0
GM-10	An IM user MAY be a member of more than one IM group at the same time.	IM 1.0
GM-11	The Client or mobile device SHALL provide functions for managing Contact List. It SHALL be possible to: • Add: Add contacts (others IM users) to the Contact List. • Modify: The user may change some property of contacts included in the Contact List	IM 1.0

	• Remove : The contact information is erased from the Contact List • Block: By blocking a contact, the user filters messages with filtered contact • Unblock: By unblocking a contact, communication flow is re-established with that contact	
GM-12	If an IM user tries to Add Contact by E.164 number, a friend not yet registered in the IM service, the IM Service SHALL inform the IM user and invite the friend to join the IM service.	Deleted
GM-13	The IM Client SHALL provide easy ways for the user to handle Group properties associated to his/her profile. For example, Restricted Users' List, Location List, etc.	IM 1.0
GM-14a	The IM Service SHALL provide easy ways for the user to Give/Refuse authorization to see his presence status based on the identity of the requestor.	IM 1.0
GM-14b	The IM Service SHALL provide easy ways for the user to block messages based on the identity of the sender..	IM 1.0
GM-15	IM Service SHALL automatically update the Contact List of a user that is added to someone else's Contact List, so that both users are members of each other's Contact List.	Deleted
GM-16	The client or mobile device SHOULD provide a Contact List, in which groups can be added, modified, or removed by the user.	IM 1.0
GM-17	It SHALL be possible for a user to search for a contact in the user's own Contact List	IM 1.0
GM-18	The IM service SHALL be capable to allow the user to manage contacts.	IM 1.0
GM-19	The IM service SHALL provide the ability to add Instant Messaging users in the Contact List by performing a search on non-unique criteria, returning a list of User-Ids that can be added to the Contact List by the user.	IM 1.0

Table 10: High level Functional Requirements –Group management in IM

6.1.11   Controlling Privacy in IM

Label	Description	Enabler Release
PRI-1	Privacy requirements SHALL be compliant with the requirements stated in the Privacy RD [PRIVACY]	IM 1.0
PRI-2	Public Chat user's anonymity SHALL be ensured.	IM 1.0
PRI-3	'The user MUST be able to choose a Chat Alias to stay anonymous when participating in Public Chat'	IM 1.0
PRI-4	Identity information SHALL NOT be displayed in the public domain (i.e. E-mail address, mobile E.164 number, real name).	IM 1.0
PRI-5	It SHALL be possible to protect underage users participating in Public Chat from rogue users.	IM 1.0
PRI-6	The returned result of a search SHALL NOT include anything else than User-ID and the display-name, if it exists.	IM 1.0
PRI-7	User's identity SHALL NOT be revealed in the result of a Public Data Search. (i.e. E-mail address, mobile E.164 number, real name).	Deleted
PRI-8	The IM service SHALL NOT send any message from the filtered contacts to the user who use message filtering in a group session or one-to-one IM conversation.	IM 1.0
PRI-9	The IM service MAY avoid sending messages from the user who use message filtering to the filtered contacts in a group session or one-to-one IM conversation.	Deleted
PRI-10	It SHALL be possible for the IM service provider to confine the results of searches. For example, the IM service provider's policy could prohibit searches on children under the age of 18.	IM 1.0
PRI-11	The IM server SHALL provide secure storage for IM subscribers' personal data such as identity, Contact List or conversation history.	IM 1.0

PRI-12	Unidentified users SHALL NOT be permitted to use the IM service.	IM 1.0
PRI-13	Users SHALL be able to choose to receive messages from individual contacts in the user's own Contact List only, in which case the IM service SHALL block all messages from all other users not included in that Contact List. The IM service provider SHALL be able to define the default behavior.	IM 1.0
PRI-14	Identity information SHALL NOT be displayed in the public domain (e.g. MSISDN, E-Mail, Name)	Deleted
PRI-15	The IM Service Provider SHALL have the ability to exclude users from certain chat-groups under specific criteria (e.g. underage people, etc)	IM 1.0

Table 11: High level Functional Requirements – Controlling Privacy in IM

6.1.11.1   Invisibility

Label	Description	Enabler Release
PRI-17	The IM subscriber SHALL be shown to his contacts with presence status "offline" to his contacts when the "invisible" option is switched on	IM 1.0
PRI-18	The IM subscriber SHALL be able send and receive messages, having the "invisible" status.	IM 1.0
PRI-19	The IM subscriber SHALL be able to see the presence status of others.	IM 1.0

Table 12: High level Functional Requirements – Controlling Privacy in IM – Invisibility

6.1.12   Security

Label	Description	Enabler Release
SEC-1	Instant Messaging server SHALL be able to authenticate user at login or registration with mobile E.164 number.	Deleted
SEC-2	Instant Messaging server SHALL be able to lookup the subscriber in the Mobile Number Portability database.	Deleted
SEC-3	Instant Messaging server SHALL be able to generate a new User ID and password.	Deleted
SEC-4	The IM server SHALL have a mechanism to authenticate user's User ID and password.	Deleted
SEC-5	The Instant Messaging server SHALL be able to generate a registration response in a standardized format, such that the registered IM User ID and password are returned to the device and automatically updates the stored IM User ID and password.	Deleted
SEC-6	The IM server MAY record user's registration attempts.	IM 1.0
SEC-7	The user MAY be able to change the password.	Deleted
SEC-8	It SHALL be possible to directly add a mobile E.164 number to the device phonebook and then subsequently the user SHALL be able to initiate an IM session using this entry.	IM 1.0
SEC-9	The IM system SHALL have the ability to authenticate a user accessing the IM system; Authentication may be user level authorization or network/device level authorization.	Deleted
SEC-10	The IM system SHALL confirm the identity of a user in the following cases: a. A user initiating a message b. A user accessing profile data (from the perspective of managing policy) c. A user initiating privacy policy changes	IM 1.0
SEC-11	Prior to any IM interactions, such as administration, configuration and IM sessions, the IM service client and the IM service subscriber SHALL be authenticated	Deleted
SEC-12	Prior to any IM interactions, such as administration, configuration and IM sessions, the IM service client and the IM service subscriber SHALL be logged in	Deleted
SEC-	The IM-communication and signaling SHALL be transported in a secure manner	IM 1.0

13		
SEC-14	IM user SHALL be authenticated before using IM service.	IM 1.0

Table 13: High level Functional Requirements – Security

6.1.13 Charging

Label	Description	Enabler Release
CRG-1	The IM server SHALL have the ability to differentiate users accessing the service from Cellular Network from users accessing the service from the Internet, for charging purposes.	IM 1.0
CRG-2	The IM system SHALL be able to associate IM accounts or sessions with a device	IM 1.0
CRG-3	The IM system SHALL be able to generate information for the purposes of charging.	IM 1.0
CRG-4	The IM system SHALL provide records for failed delivery of messages.	IM 1.0
CRG-5	The IM service entity SHALL be able to collect sufficient information needed for charging.	Deleted
CRG-6	The IM system SHALL support sufficient mechanisms to allow various forms of charging such as event-based (e.g sending or receiving), volume-based, time-based or a combination of these. Information of relevance SHOULD include but not be limited to, the following items. (See CRG-7, CRG-8, CRG-9)	IM 1.0
CRG-7	For Subscription based Charging • IM Subscriber status relative to IM subscription, i.e. IM subscribed, IM unsubscribed, IM subscription suspended or temporarily barred (by the service provider). • Identity of each IM group in which the IM subscriber participates (as configured by the service provider). • Maximum Size of each IM group (i.e. maximum number of participants who joined the session, regardless of having spoken or not) in which the IM subscriber has participated within a defined period (as configured by the service provider).	IM 1.0

CRG-8	For Support Traffic based Charging (in addition to that for Subscription based Charging):
	• Duration of a session, with start and finish time stamps.
	
	• Number of IM participants, including their identities.
	
	• Number of messages sent or received
	   ➢ For each message:
	      ○ Type of message (i.e. text, multimedia)
	      ○ Volume of data
	      ○ Destination:
	         ▪ Per type (to Person or to Group)
	         ▪ By operator (if for a different operator or service provider)
	• Delivery type (e.g. immediate, or deferred)
	
	• Number of sessions initiated, i.e. successful attempts.
		IM 1.0

	• Number of failed session attempts, with time stamps of failed attempts. • Volume of data (e.g. packets, bytes). • Type of IM session. (e.g. public/private chat, one-to-one, one-to-many, one-to-many-to-one) • Use of other service enabler functionality (e.g. presence, location,…) • Charging information SHALL be generated for both sender and the receiver of the message	
CRG-9	For Support Charging of interconnection between cellular operators and IM service providers Interconnecting their IM services The IM system SHALL provide relevant information for clearing, charging and payment of service between cellular operators and IM service providers having interconnected their IM services, according to the policies established in their bilateral agreement which may be based upon traffic measured by events, volume, time or a mix of those, for example.	IM 1.0
CRG-10	The IM system SHALL support offline charging.	IM 1.0
CRG-11	The IM system SHALL support online charging.	IM 1.0

Table 14: High level Functional Requirements – Charging

6.1.14   Administration and Configuration

Label	Description	Enabler Release
ADM-1	It SHALL be possible for the IM service provider to remove rogue users from the public chat room and/or from the IM service.	IM 1.0
ADM-2	An IM service provider SHALL have the ability to prohibit conversion from public chat to private conversation	IM 1.0
ADM-3	The following session management facilities SHALL be available • Start a session with IM Server • Stop a session with IM Server • Restart a session with IM Server	IM 1.0
ADM-4	The IM service provider SHALL be able to configure the maximum length of an IM message in an IM session.	IM 1.0
ADM-5	The IM service provider SHALL be able to decide the maximum number of IM-participants of an IM group conversation.	IM 1.0
ADM-6	The IM Service Provider SHALL be able to limit the maximum size of the Multimedia content that can be sent	IM 1.0
ADM-7	IM service shall allow the Service Provider or Operator to define: • Allowable Content types • Allowable Max. message size per content type	IM 1.0
ADM-8	Clients shall be informed of any policies, rule and regulations, if existed, concerning • Allowable Content types	IM 1.0

	• Allowable Max. message size per content type	

Table 15: High level Functional Requirements – Administration and Configuration

6.1.15   Usability

Label	Description	Enabler Release
USE-1	Minimal user input or interaction SHOULD be required for common user actions.	IM 1.0
USE-2	The IM user SHOULD have the ability to associate his/her IM account with their device(s) in order to ease access to the service (i.e. skip login/password input phase).	IM 1.0
USE-3	The IM Service SHALL allow users to access an account simultaneously from multiple devices having different capabilities, subject to IM Service Provider policy.	IM 1.0
USE-4	The IM Service SHALL allow users to have simultaneous conversations. Those conversations can be one-to-one or in a group.	IM 1.0
USE-5	The text representation for the following emoticons SHALL be standardized in order to enable interoperability between different clients: ✓ Happy, smile ✓ Sad ✓ Wink ✓ Big grin ✓ Confused ✓ Blushing, embarrassed ✓ Stick-out tongue ✓ Kiss, red lips ✓ Shocked, surprised ✓ Angry ✓ Cool, sunglasses ✓ Worried ✓ Devilish ✓ Crying ✓ Laughing ✓ Straight face, disappointed ✓ Angel, innocent ✓ Nerd ✓ Sleepy ✓ Rolling eyes ✓ Sick, berk ✓ Shhh! No speak, lips sealed ✓ Thinking, pensive ✓ Raised eyebrow, sarcastic look ✓ Rose, flower ✓ Cup of coffee	IM 1.0

	✓ Drink, cocktail	
	✓ Idea (light bulb)	
	✓ Love struck, heart	
USE-6	IM clients MAY support the display of graphical representations of emoticons and/or shortcuts for a predefined list of emoticons for quick typing. If an IM client supports an OMA defined emoticon, then its text representation SHALL conform to the standard.	IM 1.0
USE-7	The IM service entity SHALL NOT prevent the IM subscriber's operation of other OMA compatible services, for which the IM subscriber is authorized and subscribed.	IM 1.0
USE-8	It SHALL be possible to have more than one conversation at the same time.	Deleted
USE-9	The IM client on the handset SHALL run concurrently with other applications and services on the device.	IM 1.0
USE-10	The user SHALL be able to use any IM capable client to create quick answer messages, and store them to the IM server.	Future
USE-11	The user SHALL be able to use all stored quick answer messages from any IM capable client, irrespective of from which client they were created and stored.	Future
USE-12	The IM server SHALL be able to determine whether the login client has the same quick answer messages with the server. And if not, the IM server SHALL be able to send the different quick answer messages to the client automatically.	Future
USE-13	The IM service SHALL allow a cellular network operator to provide mechanisms for its subscribers to access the IM services via Internet connected devices.	IM 1.0
USE-14	The request-response time by the network in IM service interactions and the distribution time of the Instant Message SHALL be minimized so as to provide the best possible user experience.	IM 1.0
USE-15	The IM clientMAY return a "connecting status" to the user while trying to communicate with the IM server.	IM 1.0
USE-16	The IM system SHOULD support multiple font sizes	IM 1.0
USE-17	The IM system SHOULD support multiple font colors	IM 1.0
USE-18	The IM system SHOULD support Bold, Italic, Underlined font styles	IM 1.0

Table 16: High level Functional Requirements –Usability

6.1.16   Interoperability

Label	Description	Enabler Release
IOP-1	The IM system SHALL support the exchange of instant messages between users using mobile or internet connected devices.	IM 1.0
IOP-2	The IM service SHALL support the exchange of instant messages between different IM Service Providers or domains.	IM 1.0
IOP-3	The IM service SHALL allow mobile operator, Internet-based IM Service Provider and public/private enterprise deployments.	IM 1.0
IOP-4	The IM system SHALL support interconnection between mobile and Internet terminals	Deleted
IOP-5	IM Enabler SHALL interoperate with other OMA Enablers, such as Group Management, Presence & Availability.	IM 1.0
IOP-6	It should be possible for the IM user to send/receive messages to/ from subscribers of 3GPP defined messaging SMS services. Note: This requirement will be fulfilled only by referencing 3GPP's specification	IM 1.0

IOP-7	It should be possible for the IM user to send/receive messages to/ from subscribers of 3GPP defined messaging services (SMS, EMS, MMS). Optionally, it should be possible to send/receive messages to/from users of fixed Internet messaging service (e.g. SMTP and SIMPLE based services) Note: This requirement will be fulfilled only by referencing 3GPP's specification	Future
IOP-8	A user, using a voice service (PoC, Multi Media Telephony) should be able to use messaging and chat services provided by OMA IM service in a seamless manner Note: This requirement is solved with the co-operation/Liaison document submitted to any WG/standardisation forum that might be relevant to OMA MWG-IM enabler.	IM 1.0

Table 17: High level Functional Requirements – Interoperability

6.1.17   Lawful Intercept

Label	Description	Enabler Release
LI-1	The IM service enabler SHALL support capabilities to allow lawful interception.	IM 1.0

Table 18: High level Functional Requirements – Lawful Intercept

6.1.18   IM Usage in Enterprise/Corporate Environment

Label	Description	Enabler Release
ENT-1	The IM Service SHALL be able to interact with an enterprise or corporate IM system, subject to policy agreement. When interacting with a corporate environment, the IM Service SHOULD ensure that private addresses used within the environment are not exposed, shared or broadcasted to IM subscribers outside the environment.	IM 1.0

Table 19: High level Functional Requirements – IM Usage in Enterprise/ Corporate Environment

6.1.19   User Profile

Label	Description	Enabler Release
UPROF-1	User Profile SHALL contain, at least, user's IM service related information to assure interoperation with other mobile IM-Services as well as Internet IM.	IM 1.0
UPROF-2	The IM-Service SHALL have a User Profile holding, at least, the following information: • User ID – Public, unique identifier. By default set by IM Service Provider • Display-name – Public. • Mobile E.164 Telephone number – Private, unique identifier, always set by IM Service Provider • Age – Private, may be set and locked by IM Service Provider. • Age – Public • Gender – Public, Set by the user. By default empty • e-mail – Private, Set by user. By default empty • Groups – Private, List of Groups which the user belongs to. • Block List – Private, List of filtered/blocked users that are not allowed to communicate with user. Set by user or IM Service Provider. By default empty	IM 1.0

	• Contact List – Private, List of users. Set by the user.. By default empty	
	• Privacy Information/ Permissions (flags) – Private information. Profile should include different permissions that will affect information provided by IM-Service to other users. By default these parameters will be set to most restricted state. 1) To be found in searches (in order to be added to others' Contact Lists) by E.164 number. By default set to no. 2) To show his IM Status. By default No 3) To be located. By default set to no 4) Add Contact Authorization. By default set to Yes (User can be added to others' Contact List with authorization)	
UPROF-3	IM Service SHALL allow IM Service Provider to change or to set profile parameters' default values according to its preferences	IM 1.0
UPROF-4	The IM system SHALL provide functionality to the user to Retrieve, Update and Clear entirely his own Public Profile.	IM 1.0
UPROF-5	Clearing the Public Profile SHALL NOT clear the User ID or the Display Name fields.	IM 1.0
UPROF-6	The IM system SHOULD provide functionality to Search for users based on their Public Profile.	IM 1.0
UPROF-7	The IM system SHOULD NOT allow searching based on Public Profile if the requesting user did not fill out a set of mandatory fields in his/her own profile.	IM 1.0
UPROF-8	The IM server SHALL send a system message to users who did not fill in the mandatory part of their Public Profile – explaining the consequences to privacy of filling the Public Profile.	IM 1.0
UPROF-9	The IM system SHALL NOT include, in a Public Profile-based search, users who did not fill out the mandatory fields in their own profiles.	IM 1.0
UPROF-10	The IM server SHALL allow group administrators to specify an age range requirement for joining chat groups.	IM 1.0
UPROF-11	The IM server SHALL NOT allow those users that are outside the age range specified in the group properties to join the chat room.	IM 1.0
UPROF-12	If an IM server has age restriction for searching based on the age field in the user profile, then the restricting server SHALL exclude those users – who are under the restricted age according to their user profile – from the search results.	IM 1.0
UPROF-13	If Display Name exists in the Public Profile of the user then the IM server SHALL include the Display Name with the User-Ids in the search results.	IM 1.0
UPROF-14	The IM server SHALL accept only full strings (NOT sub-strings) in any searches that use Public Profile fields as search criteria.	Deleted
UPROF-15	The IM system SHALL provide functionality to Retrieve information from the Public Profile of another user.	IM1.0

Table 20: High level Functional Requirements –User Profile

6.1.20   IM Location

Label	Description	Enabler Release
LOC-1	The IM user SHALL be able to control if his/her location information is to be provided or not.	IM 1.0
LOC-2	Only contacts in the user's Location List SHALL be allowed to request the user's location information.	IM 1.0

LOC-3	Information SHALL be provided in contextual or graphical form, according to the preference of the user that requests it	IM 1.0
LOC-4	IM users MAY request the IM service to provide them with their own location.	IM 1.0
LOC-5	The IM user MAY have the capability to request IM Service to send his/her information to his/her communication partner (Peer or Group). It could be done, for example: • The user's IM service sends a service message with the user location directly to partner. • The location provided by IM service to the user is attached (by the user) to a IM message.	IM 1.0

Table 21: High level Functional Requirements – IM Location

6.1.21   Multimedia Content in IM

Label	Description	Enabler Release
MMD-1	A user participating in a one-to-one communication, SHALL be able to send to his/her friend, from the IM client and within the IM session, Multimedia content stored in his/her device	IM 1.0
MMD-2	A user involved in a Chat conversation, MAY be able to send Multimedia content to active participants of Chat	IM 1.0
MMD-3	The IM system SHALL have the capability to notify delivery of Multimedia content	IM 1.0
MMD-4	A user participating in one-to-one communication or Chat SHOULD have the possibility to share multimedia content stored outside of the IM Service. For example, by sending pointer or URL to storing device, to other participants. IM Client SHOULD recognize the pointer and present the content.	IM 1.0
MMD-5	If there's an original name associated with a multimedia content, the IM Service SHALL support transferring the original name of the multimedia content from the sender to the recipient	IM 1.0

Table 22: High level Functional Requirements – Multimedia Content in IM

6.1.22   IM one-to-one and Chat Communication

Label	Description	Enabler Release
CHAT-1	IM communication SHALL support one-to-one and Chat Communication. The user SHALL be able to communicate seamlessly in either mode.	IM 1.0
CHAT-2	It SHALL be possible to establish Public and Private Chat rooms.	IM 1.0
CHAT-3	A user SHALL be able to search for Public Chat Rooms (in a similar a way as he/she searches for friends: e.g. by name, preferences,..) and add them in his/her Contact List.	IM 1.0
CHAT-4	A user SHALL be able to join a Public Chat by selecting it in his/her Contact List.	IM 1.0
CHAT-5	The IM Service Provider SHALL have the possibility to create Public Chat Rooms	IM 1.0
CHAT-6	A user SHALL be able to create one or several Chat Rooms. At creation time, the user SHALL have the possibility to declare it Public or Private. The user that created the Chat Room SHALL be considered the "owner" of that Chat Room.	IM 1.0
CHAT-7	A Chat Room SHALL exist as long as the session termination policy allows it. The session termination policies SHALL as a minimum include policies for: • if the Chat Room requester needs to be in the conversation	IM 1.0

	• expiration timer triggered actions	
	• needed number of remaining users	
CHAT-8	A Chat Room SHALL be erased (no longer be available at users´ Contact List) after some time that no user is participating in it. The Service Provider SHALL have the possibility to set that amount of time.	Deleted
CHAT-9	A user SHALL be able to join a Private Chat Room only if he/she is invited by someone participating in that Private Chat Room.	IM 1.0
CHAT-10	A user participating/being invited to participate in a chat SHALL be notified that another user he or she has blocked has joined/exists in the chat.	IM 1.0
CHAT-11	A user SHALL join a Chat Room by selecting it in his/her Contact List.	Deleted
CHAT-12	A user that is participating in a chat, SHALL be able to establish a parallel one-to-one communication with another user participating in that chatn	IM 1.0
CHAT-13	A user participating in a one-to-one communication SHALL have the ability to invite some one else in his/her Contact List to join the conversation. Then the one-to-one communication SHALL become a Private Chat Room, in a transparent way for these users.	IM 1.0
CHAT-14	Users participating in a conversation SHALL be able to switch to speech conversation and be able to combine text with speech conversation (where available), from the IM Client by selecting the participant's Display-Name. In many-to-many conversation mode, users SHALL be provided with the ability to set up a speech conference (i.e. conference call, PoC session). The maximum number of participants in the speech conference SHALL be determined by the Service Provider.	Deleted
CHAT-15	IM Client SHOULD support a method to invite a user for a conversation.	IM 1.0
CHAT-16	In public chat, IM subscribers SHALL have the ability to join and leave a chat-group by themselves.	IM 1.0
CHAT-18	Users SHALL have the ability to arrange a chat-group about a certain topic.	IM 1.0
CHAT-19	An IM user who has been disconnected from a chat room SHALL be able to rejoin the same chat room if it is still ongoing and the maximum allowed number of IM users is not exceeded.	IM 1.0
CHAT-20	The owner of a private chat room SHALL have the possibility to block/unblock users from his private chat room.	IM 1.0

Table 23: High level Functional Requirements – IM One to-one and Chat Communication

6.1.23   Message Filtering

Label	Description	Enabler Release
RCV-1	IM user SHALL have the ability to filter rogue users, blocking messages from rogue users from being delivered to his/her device.	IM 1.0

Table 24: High level Functional Requirements – Message Filtering

6.1.24   System Messages

Label	Description	Enabler Release
SMSG-1	The IM system SHALL support sending a System Message to the IM client.	IM 1.0
SMSG	The IM system SHOULD be able to identify unsupported client releases (e.g. old client	IM 1.0

-2	versions) and MAY block access to the service to those unsupported clients. The IM system SHOULD support a way to notify unsupported clients about the reason for denying access to the IM service.	
SMSG -3	System Messages SHALL support an answer mode that requires a response from the IM client. System Messages SHALL support the following answer options: • No answer required (i.e. information message) • Two options (e.g. accept/refuse) • More than two options	IM 1.0
SMSG -4	The IM system SHALL be able to block access to the IM service until the client has responded to a System Message if requested.	IM 1.0
SMSG -5	The IM system SHALL be able to send the System Message to the IM client before the client is logged into the IM service.	Deleted
SMSG -6	The IM system SHALL be able to send a System Message containing at least 128 characters displayed. The IM system SHOULD be able to send a System Message containing at least 512 characters displayed.	IM 1.0
SMSG -7	The IM client SHALL be able to prompt to the end user with a System Message containing at least 128 characters displayed. The IM client SHOULD be able to prompt to the end user with a System Message containing at least 512 characters displayed.	IM 1.0
SMSG -8	The IM client SHALL prompt the answer options to the end user for selection when the client receives the System Message.	IM 1.0
SMSG -9	The IM system SHALL be able to use the answer option from the IM client to decide which level of service is granted. The end user SHALL NOT be visible as online until the level of service has been negotiated.	IM 1.0
SMSG -10	The IM system SHALL be able to send the System Message at anytime.(e.g. system shutdown)	IM 1.0
SSMG -11	The IM client SHALL be able to receive the System Message at any time.	IM 1.0
SMSG -12	The IM system SHALL be able to deny access to the service if no response is received to a System Message within a specific period of time (e.g. timeout). The timeout period is implementation specific (i.e. selectable by IM Service Provider).	IM 1.0
SMSG -13	The IM service SHOULD support a way to make sure that the end-user has read and responded to the system notification accordingly.	IM 1.0
SMSG -14	The IM system should not send un-necessary system messages	IM 1.0
SMSG -15	System Messages SHALL NOT include any sensitive information (e.g. E.164 numbers, names, etc.)	IM 1.0

Table 25: High level Functional Requirements – System Messages

6.2   Overall System Requirements

Label	Description	Enabler Release
SYS-1	The IM Service Enabler SHALL support character sets for all known languages (e.g. English, German, Japanese, Chinese, Korean, Russian, etc.) to allow chatting in the users native languages.	IM 1.0
SYS-2	The IM system MAY support mobile terminals that do not contain an IM User Agent	IM 1.0

| SYS-3 | IM Service SHALL support critical functionality on legacy mobile terminals that do not contain an IM User Agent. | IM 1.0 |

Table 26: Overall System Requirements

6.3   System Elements

6.3.1   IM User Agent

Label	Description	Enabler Release
UA-1	IM User Agent SHALL provide full interworking with Presence, Group Management, Messaging, and other User Agents resident in the device.	IM 1.0
UA-2	IM User Agent SHALL be able to provide partial IM service, when other User Agents (e.g. presence) are not available on the mobile device; i.e. some functionality associated to the missing User Agents may not be available.	IM 1.0

Table 27: System Elements – IM User Agent

Appendix A. Change History (Informative)

A.1 Approved Version 1.0 History

Reference	Date	Description
OMA-RD-IM-V1_0-20120807-A	07 Aug 2012	Status changed to Approved by TP: OMA-TP-2012-0298-INP_SIMPLE_IM_V1_0_ERP_for_Final_Approval