Instant Messaging Requirements

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Open Mobile Alliance

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Contents

Tables

1. Scope (Informative)

This document defines the requirements for OMA SIMPLE IM 2.0 Enabler specifications, taking into consideration the demands of end-users, service providers, and system implementers. The overall goal of this requirements document is to define the requirements for an IM service for OMA.

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

[RFC5438] "Instant Message Disposition Notification (IMDN)" February 2009. http://www.ietf.org/rfc/rfc5438.txt

[RCS-E] "RCS-e - Advanced Communications: Services and Client Specification" Version 1.1.2. September 2011 http://www.gsm.org/documents/RCS-e_Advanced_Comms_specification_v1-2_final_draft.pdf

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 Instant Message 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.
Delivery Notification	The delivery notification indicates whether or not the IM has been delivered to the IM Recipient.
Display Name	Non-unique and not routable identification of a user that could be displayed to other users as defined in [RFC3261]
Display Notification	The display notification indicates whether or not the IM Recipient rendered the IM to the user.
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.

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.

4.1 Version 1.0

This specification version supports three fundamental modes of IM communication: (1) Pager Mode (2) Large Message Mode and (3) IM Session Mode. The first is appropriate for brief message exchanges such as announcements with acknowledgements. The second is for brief message exchanges in which the size of the individual message is large (such as when carrying multimedia content).The last is similar to a conference hosted by a network where individual users join and leave the group conversation over time. In addition, this specification supports the File transfer communication mode.

Basic messaging capabilities are augmented with advanced features such as Conversation Storage and Searching. During IM communication, a record of the users incoming and outgoing messages may be stored as part of a conversation. The IM user is later able to selectively retrieve messages from within conversations as well as manage their storage. The Search feature in [XDM-Core] allows users to search through the metadata of stored IM content. Further, the Search feature enables users to explore the user profiles of others in order to find new people with which to communicate.

Together with companion OMA enablers for Presence Service and XML Document Management, this specification supports IM services built upon presence and group management to provide a more compelling user experience. In addition, user group lists may be created that operate across Presence and PoC services as well as IM service.

4.2 Version 2.0

SIMPLE IM 2.0 brings new features to the IM Session service :

- Store and forward (deferred) functionality
- Display notification functionality

5. SIMPLE IM 2.0 release description (Informative)

The SIMPLE IM 2.0 version extends the 1.0 version in order to provide following functionality:

- Support of [RFC5438] in order to provide delivery and display notifications for IM's sent within an IM Session.
- Delivery of notifications for IM Session related Instant Messages, to be sent outside an IM Session
- User alias (modifications to the existing support) (also called display name)
- Support of store and forward (deferred) functionality for messages and notifications sent within an IM Session
    - Message and notifications delivery outside a session
    - Device identification with new mechanisms
    - Message identification for all messages
    - Auto-acceptance of store and forward IM Server PUSH of stored notifications
    - Store and forward IM Server PUSH of stored messages

SIMPLE IM 2.0 analyses any impacts the new functionality could have on architecture, charging, security and privacy. No change in these aspects is expected in the 2.0 version compared with the 1.0 version.

The main impacts of the new functionality are expected in the Technical Specification. IOP testing will be taken into consideration according to the OMA process.

5.1 End-to-end Service Description

SIMPLE IM 1.0 hasn't been a commercial success. SIMPLE IM 2.0 addresses industry needs to accomplish an out-of-the-box chat solution.

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
SND-7	Messages sent SHALL include a message identification	IM 2.0

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.	Deleted
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
RCV-7	Stored offline messages SHALL be delivered to the destination user at the moment that he/she logs into the IM Service. The Service Provider SHALL have the means to adjust storage time.	IM 2.0
RCV-8	IM system SHALL be able to support pushing messages that are stored in a network based repository to the destination user.	IM 2.0

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	IM 1.0

	synchronization to preserve the order of a conversation or message flow.	

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
NOT-15	The IM system SHALL have the ability to provide displayed message notification	IM 2.0
NOT-16	The IM system SHALL have the ability to provide message delivery notification	IM 2.0
NOT-17	When sender IM client is not available for a "message delivery" notification, IM server SHALL store these notifications and push them as soon as the IM server determines the user is available	IM 2.0
NOT-18	When sender IM client is not available for a "displayed message" notification, IM server SHALL store these notifications and push them as soon as the IM server determines the user is available	IM 2.0
NOT-19	In multidevice scenarios, notifications SHALL be delivered only to the device that sent the original message, regardless of other devices where an IM session may be open at the time of receiving the notification	IM 2.0

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) • Users (Messages sent BY/TO user1)	IM 1.0

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:	Deleted

	• User A can see User B's status • User A can send messages to User B	
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 • 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	IM 1.0
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	IM 1.0

	Public Chat'	
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-13	The IM-communication and signaling SHALL be transported in a secure manner	IM 1.0
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):	IM 1.0

	• 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: o Type of message (i.e. text, multimedia) o Volume of data o 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. • 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	IM 1.0

	• Stop a session with IM Server • Restart a session with IM Server	
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 • Allowable Max. message size per content type	IM 1.0

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	IM 1.0

	✓ 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 ✓ 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	IM 1.0

	• 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 • 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 • expiration timer triggered actions • needed number of remaining users	IM 1.0
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 -2	The IM system SHOULD be able to identify unsupported client releases (e.g. old client 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.	IM 1.0
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	The IM service SHOULD support a way to make sure that the end-user has read and	IM 1.0

-13	responded to the system notification accordingly.	
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 History

Reference	Date	Description
		No prior version

A.2 Draft/Candidate Version 2.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-RD-SIMPLE_IM-V2_0	21 Dec 2011	1,2,4,5	Baseline as agreed in OMA-IM-2011-0004R01-INP_SIMPLE_IM_RD_2_0_Baseline
	23 Dec 2011	6,3	Applied agreed CR: OMA-IM-2011-0005-INP_SIMPLE_IM_2_0_Reqs_from_1_0
	24 Dec 2011	3,6	Applied agreed CRs: OMA-IM-2011-0006-CR_Terminology_and_Conventions_2.0 OMA-IM-2011-0007-CR_RCS_e_Requirements_for_2.0
Candidate Version: OMA-RD-SIMPLE_IM-V2_0	31 Jul 2012	All	Status changed to Candidate by TP: OMA-TP-2012-0286-INP_SIMPLE_IM_V2_0_ERP_for_Candidate_Approval