



Enabler Release Definition for Converged IP Messaging (CPM)

Candidate Version 2.2 – 07 Sep 2020

Open Mobile Alliance
OMA-ERELED-CPM-V2_2-20200907-C

Use of this document is subject to all of the terms and conditions of the Use Agreement located at <http://www.openmobilealliance.org/UseAgreement.html>.

Unless this document is clearly designated as an approved specification, this document is a work in process, is not an approved Open Mobile Alliance™ specification, and is subject to revision or removal without notice.

You may use this document or any part of the document for internal or educational purposes only, provided you do not modify, edit or take out of context the information in this document in any manner. Information contained in this document may be used, at your sole risk, for any purposes. You may not use this document in any other manner without the prior written permission of the Open Mobile Alliance. The Open Mobile Alliance authorizes you to copy this document, provided that you retain all copyright and other proprietary notices contained in the original materials on any copies of the materials and that you comply strictly with these terms. This copyright permission does not constitute an endorsement of the products or services. The Open Mobile Alliance assumes no responsibility for errors or omissions in this document.

Each Open Mobile Alliance member has agreed to use reasonable endeavors to inform the Open Mobile Alliance in a timely manner of Essential IPR as it becomes aware that the Essential IPR is related to the prepared or published specification. However, the members do not have an obligation to conduct IPR searches. The declared Essential IPR is publicly available to members and non-members of the Open Mobile Alliance and may be found on the “OMA IPR Declarations” list at <http://www.openmobilealliance.org/ipr.html>. The Open Mobile Alliance has not conducted an independent IPR review of this document and the information contained herein, and makes no representations or warranties regarding third party IPR, including without limitation patents, copyrights or trade secret rights. This document may contain inventions for which you must obtain licenses from third parties before making, using or selling the inventions. Defined terms above are set forth in the schedule to the Open Mobile Alliance Application Form.

NO REPRESENTATIONS OR WARRANTIES (WHETHER EXPRESS OR IMPLIED) ARE MADE BY THE OPEN MOBILE ALLIANCE OR ANY OPEN MOBILE ALLIANCE MEMBER OR ITS AFFILIATES REGARDING ANY OF THE IPR’S REPRESENTED ON THE “OMA IPR DECLARATIONS” LIST, INCLUDING, BUT NOT LIMITED TO THE ACCURACY, COMPLETENESS, VALIDITY OR RELEVANCE OF THE INFORMATION OR WHETHER OR NOT SUCH RIGHTS ARE ESSENTIAL OR NON-ESSENTIAL.

THE OPEN MOBILE ALLIANCE IS NOT LIABLE FOR AND HEREBY DISCLAIMS ANY DIRECT, INDIRECT, PUNITIVE, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OF DOCUMENTS AND THE INFORMATION CONTAINED IN THE DOCUMENTS.

© 2020 Open Mobile Alliance All Rights Reserved.

Used with the permission of the Open Mobile Alliance Under the terms set forth above.

Contents

- 1. SCOPE.....4
- 2. REFERENCES5
 - 2.1 NORMATIVE REFERENCES.....5
 - 2.2 INFORMATIVE REFERENCES.....5
- 3. TERMINOLOGY AND CONVENTIONS6
 - 3.1 CONVENTIONS6
 - 3.2 DEFINITIONS.....6
 - 3.3 ABBREVIATIONS6
- 4. RELEASE VERSION OVERVIEW8
 - 4.1 VERSION 1.0 FUNCTIONALITY8
 - 4.2 VERSION 2.0 FUNCTIONALITY9
 - 4.3 VERSION 2.1 FUNCTIONALITY9
 - 4.4 VERSION 2.2 FUNCTIONALITY10
- 5. DOCUMENT LISTING FOR CPM 2.2.....12
- 6. OMNA CONSIDERATIONS13
- 7. CONFORMANCE REQUIREMENTS NOTATION DETAILS14
- 8. ERDEF FOR CPM – CLIENT REQUIREMENTS15
- 9. ERDEF FOR CPM – SERVER REQUIREMENTS.....16
- APPENDIX A. CHANGE HISTORY (INFORMATIVE).....17
 - A.1 APPROVED VERSION HISTORY17
 - A.2 DRAFT/CANDIDATE VERSION 2.2 HISTORY17

Tables

- Table 1: Listing of Documents in CPM 2.2 Enabler12
- Table 2: ERDEF for CPM Client-side Requirements15
- Table 3: ERDEF for CPM Server-side Requirements.....16

1. Scope

The scope of this document is limited to the Enabler Release Definition of the Converged IP Messaging (CPM) Enabler version 2.2 according to OMA release process and the Enabler Release specification baseline listed in section 5.

2. References

2.1 Normative References

- [OMA-CPM-AD] “Converged IP Messaging Architecture”, Open Mobile Alliance™, OMA-AD-CPM-V2_2, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMA-CPM-CHG] “OMA-TS-CPM_Charging_Specification-V2.2”, Open Mobile Alliance™. OMA-TS-CPM_Charging_Specification-V2_2, URL: <http://www.openmobilealliance.org/>
- [OMA-CPM-RD] “Converged IP Messaging Requirements”, Open Mobile Alliance™, OMA-RD-CPM-V2_2, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMA-CPM-SD] “Converged IP Messaging System Description”, Open Mobile Alliance™, OMA-TS-CPM_System_Description-V2_2, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMA-CPM-TS-CONV] “CPM Conversation Functions”, Open Mobile Alliance™, OMA-TS-CPM_Conv_Funct-V2_2, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMA-CPM-TS-ITW] “CPM Interworking”, Open Mobile Alliance™, OMA-TS-CPM_Interworking-V2_2, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)
- [OMA-CPM-TS-MSGSTOR] “CPM Message Storage”, Open Mobile Alliance™, OMA-TS-CPM_MessageStorage-V2_2, [URL:http://www.openmobilealliance.org/](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](http://www.ietf.org/rfc/rfc2119.txt)
- [SCR RULES] “SCR Rules and Procedures”, Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures-V1_0, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)

2.2 Informative References

- [OMADICT] “Dictionary for OMA Specifications”, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_9, [URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)

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”, “Release Version Overview” and “Conformance Requirements Notation Details”, are normative, unless they are explicitly indicated to be informative.

The formal notation convention used in sections 8 and 9 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [SCRRULES].

3.2 Definitions

CPM Address	See [OMA-CPM-RD].
CPM Ad-hoc Group	See [OMA-CPM-RD].
CPM Chat Message	See [OMA-CPM-RD].
CPM Conversation	See [OMA-CPM-RD].
CPM Message	See [OMA-CPM-RD].
CPM Pre-defined Group	See [OMA-CPM-RD].
CPM Session	See [OMA-CPM-RD].
CPM Session History	See [OMA-CPM-RD].
CPM Standalone Message	See [OMA-CPM-RD].
CPM User	See [OMA-CPM-AD].
Device	See [OMADICT].
Enabler Release	Collection of specifications that combined together form an enabler for a service area, e.g. a download enabler, a browsing enabler, a messaging enabler, a location enabler, etc. The specifications that are forming an enabler should combined fulfil a number of related market requirements.
Immediate Messaging	See [OMADICT].
Media	See [OMA-CPM-RD].
Media Object	See [OMA-CPM-AD].
Media Stream	See [OMA-CPM-AD].
Media Stream Type	See [OMA-CPM-AD].
Media Type	See [OMADICT].
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.
Non-CPM Communication Service	See [OMA-CPM-RD].
Principal	See [OMADICT].
User Preferences Profile	See [OMA-CPM-RD].
VAS Application	See [OMA-CPM-AD].

3.3 Abbreviations

CPM	Converged IP Messaging
ERDEF	Enabler Requirement Definition

ERELD	Enabler Release Definition
MMS	Multimedia Messaging Service
OMA	Open Mobile Alliance
SD	System Description
SMS	Short Message Service
VAS	Value Added Service

4. Release Version Overview

The CPM Enabler provides common building blocks, by reuse of existing blocks and by defining new ones, to allow for both the consolidation of present and the creation of future interpersonal interactive multimedia communication services which accommodate different user experiences such as deferred and Immediate Messaging, session-based messaging, and half duplex/full duplex conferencing.

As CPM is architected as an extensible, phased framework, not all of the following items are supported in this release. More detail on this release can be found in the next subsection.

CPM supports one-to-one, one-to-many personal communications, and also communication with VAS Applications.

CPM enables the creation of services that allow users to:

- communicate without knowing what network access technology is being used,
- have parallel conversations,
- concurrently associate several devices with themselves,
- catch up with missed conversations
- personalise their services by setting preferences to indicate, for example, which device(s) messages should be sent to,
- store any type of message and Media in the network, and
- seamlessly make the transition from legacy voice, video and messaging services such as MMS and SMS to CPM based services by providing interworking between CPM and these legacy services.

The efficient use of resources (e.g. radio bandwidth) by all of CPM's features will be taken into consideration in the design of the CPM Enabler.

4.1 Version 1.0 Functionality

CPM Enabler version 1.0 offers:

- support for the following CPM conversation requirements:
 - Immediate Messaging and deferred delivery messaging (with temporary server storage and subsequent delivery).
 - Exchanging files with multimedia contents after explicit recipient authorization (file transfer feature).
 - One-to-one and one-to-many CPM Conversations among CPM Users with the selection of any kind of Media (single or multiple).
 - Add or remove Media Streams at the CPM Session initiation and at any time during a CPM Session.
 - Add or remove users at any time during a CPM Session.
- support for discrete (e.g. text, image, video clip, audio clip, voice clip, binary file) Media Types and continuous (e.g. bidirectional voice, streaming video) Media Stream Types.
- support for the initiation of CPM Conversations for CPM Pre-defined Groups and CPM Ad-hoc Groups, which can be modified during CPM Conversations.
- support for CPM Users to set up several User Preferences Profiles like Office, Home, Meeting, etc. to which the preferences of the CPM User are associated.
- an environment supporting multiple CPM Addresses and multiple Devices aiming for best user experience in today's heterogeneous world for services, networks and Devices.
- interaction with the Presence Enabler.
- support for interworking with Non-CPM Communication Services.

- inclusion of a network-based storage for CPM Standalone Messages and CPM Session Histories, including any Media Objects attached to them. All these data can be synchronized to all the Devices of the CPM User. The storage capabilities are subject to the preferences of the CPM User and service provider policies.
- support for interoperability between multiple networks, i.e. CPM Conversations between Principals from different CPM service providers.

4.2 Version 2.0 Functionality

CPM Enabler version 2.0 adds the following features:

- Chat enhancements:
 - Support for notifications within the chat such as “isComposing” and disposition notifications (i.e. delivered, displayed), with a seamless delivery for interworking with SIMPLE IM V2.0
 - Support for storing chat messages and associated notifications while a chat participant is not available (e.g. lost coverage, not registered in IMS) or missed chat
 - Support for delivery of stored chat messages and disposition notifications once the recipient becomes available
 - Group chat features for support of CPM Closed Group Session, CPM Long-lived Session
 - Enhanced multi-device functionality for chat (forking in case of auto-answer)
 - Support for live recording of chat messages
 - Seamless chat experience (backward compatibility with SIMPLE IM V2.0)
 - Interworking over the NNI with SIMPLE IM V2.0 chat
- CPM File Transfer enhancements:
 - Support CPM File Transfer while having an ongoing CPM Session.
 - Support CPM File Transfer to off-line recipients
 - Support CPM File Transfer termination independently without impact an ongoing CPM Session, or vice versa.
 - Support CPM File Transfer termination by either sender or recipient
 - Support the request by either sender or recipient to resume an interrupted CPM File Transfer
 - Support for sending a thumbnail image in the invitation of the content to be transferred
 - Explicit support for file size, file name, and type in a CPM File Transfer request.
 - Define a maximum file size policy.
 - Support multi device CPM File Transfer request and termination, with cancellation to all remaining devices after one of the devices accepts
- Enhanced CPM Standalone Message support:
 - Enhanced multi-device functionality for sending delivery notifications and read reports towards the device that originated the CPM Standalone Message.
- Backward compatibility of version 2.0 with CPM Version 1.0 excludes support of session history object as defined in CPM version 1.0. This has been replaced in CPM version 2.0 by the session history folder and session info object.

4.3 Version 2.1 Functionality

CPM Enabler version 2.1 Conversation Function provides the following changes and enhancements:

- Handling of IMDN notifications:
 - delivery of disposition notifications to the CPM User that has originated that CPM Message, CPM Chat Message or CPM File Transfer, instead of delivery only to his/her device that has originated that CPM request associated with the disposition notification;

- Capability to negotiate the MSRP chunk size to be used in CPM requests, to leverage the various network access types bandwidths and service level agreements between domains.
- True immediacy feature:
 - Enables immediate delivery of received CPM Messages, CPM Standalone Media objects and disposition notifications to all of the recipient's CPM Clients that are registered and suitable,
 - Enables immediate delivery of CPM Messages, CPM Standalone Media objects and disposition notifications that originated on one of a CPM User's multiple connected Clients, to all the other CPM User's Clients that are registered and suitable.
- Converged delivery functions for CPM Messages, CPM Sessions and CPM File Transfers on any available access domain on which the CPM User is reachable.
- Event Reporting Framework:
 - Update of IMAP flags for one, or more, CPM Message Store objects based on CPM User actions that have occurred on the CPM Client,
 - Reporting of CPM User activity on any of the CPM User's Clients to the CPM Participating Function,
 - Interworking events reported by the CPM Interworking Function to the CPM Participating Function.

4.4 Version 2.2 Functionality

CPM Enabler version 2.2 Conversation Function provides the following changes and enhancements:

- Support for OMA NMS APIs as RESTful interface and REST-based data model for storing objects in the CPM Message Store, when recording of CPM Standalone Messages, CPM Sessions, CPM File Transfer History and Standalone Media Objects;
- Specifies CPM charging models and the messages supported in its on-line and off-line charging interfaces;
- CPM Group Session:
 - enhancements to Group Session Data Management (GSDM):
 - Added support for the group chat bulletin;
 - Added procedures for the Group Chat administrator to give this role to another user, or to take it away;
 - Add minimum policies for the user admin support (single admin, any admin);
 - Schema updates for icon to support both URL and direct inclusion of the file icon in the CPM Group Session Data Management information;
 - CPM Group communications enhancements (Group Session and Standalone Message):
 - Support for denoted messages in Group communications via CPIM "cc" header;
 - Optimization decisions:
 - When supported, propagating the Participant List updates in MSRP SEND packets in an active CPM Group Session, to avoid establishing separate SIP dialogs for the SIP NOTIFY requests towards each Participant (or towards each Participant's connected devices, in multi-device direct delivery cases)
 - This optimizes the CPM Participating Function -CPM Client flow, CPM Controlling Function-CPM Participating Function flow;
 - use the conference event package information as basis for storing Participant Information, CPM Groups Session Data Management information and for transmitting these updates in the CPM Group Session (in MSRP);
- for the case of the direct delivery to multiple user devices (registered and connected in a CPM communication): reinstated the use of instance-ID to reach out to specific CPM User device;
- Bug fixes and corrections from previous releases:
 - add missing procedures for handling of direct delivery to multiple CPM User devices when messages originated by the CPM User have to be forked to all his other registered & connected devices to that CPM Session, CPM Standalone Messages Pager Mode and Large Message Mode;

- Explicitly clarifying in the procedures for all network entities used in a CPM flow, the mandatory preservation in SIP B2BUA requests/responses, of the conference focus uri (tagged with 'isfocus') in the Contact header field;
- Alignments with newly published [RFC7647] for handling of in SIP REFER (Refer-Sub header field by network entities along the path in B2BUA flows);
- Handling of default cases such as empty subject, empty icon, empty bulletin in the CPM Group Session.

5. Document Listing for CPM 2.2

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[OMA-CPM-RD]	OMA-RD-COM-V2_2-20170926-C	Requirement Document of the CPM Enabler
Architecture Document		
[OMA-CPM-AD]	OMA-AD-CPM-V2_2-20170926-C	Architecture Document of the CPM Enabler
Technical Specifications		
[OMA-CPM-TS-CONV]	OMA-TS-CPM_Conversation_Function-V2_2-20200907-C	Specification that defines the CPM Controlling Function and the Participating Function, for client & server.
[OMA-CPM-TS-ITW]	OMA-TS-CPM_Interworking_Function-V2_2-20170926-C	Specification that defines the CPM Interworking Selection Function and the Interworking Function.
[OMA-CPM-TS-MSGSTOR]	OMA-TS-CPM_Message_Store-V2_2-20170926-C	Specification that defines the CPM Message Storage Functions, for client & server.
[OMA-CPM-TS-NMS-MSTOR]	OMA-TS-Message_Storage_Using_RESTFul_API-V1_0-20200907-C	Specification that defines the CPM Message Storage using the REST NMS APIs, for client & server.
[OMA-CPM-SD]	OMA-TS-CPM_System_Description-V2_2-20170926-C	Specification that describes system concepts, defines central data elements, and provides related procedures of the CPM Enabler.
[OMA-CPM-CHG]	OMA-TS-CPM_Charging_Specification-V2_2-20170926-C	Specification that specifies CPM charging models and the messages supported in the on-line and offline charging interfaces.

Table 1: Listing of Documents in CPM 2.2 Enabler

6. OMNA Considerations

CPM includes the following OMNA items:

1. PUSH Application Id
 - a. Number: 0x15
 - b. URN: x-oma-application:cpm.ua
 - c. Description: OMA CPM
2. CPM service capabilities publication through OMA Presence Enabler [OMA PRES] use the following <service-description> child elements in the presence document, according to [OMA PDE]:

For CPM Standalone capabilities:

```
→<service-id>→org.openmobilealliance:StandaloneMsg  
→<version>→2
```

For CPM Session capabilities:

- CPM Session:

```
→<service-id>→org.openmobilealliance:ChatSession  
→<version>→2
```

For CPM File Transfer capabilities:

```
→<service-id>→org.openmobilealliance:File-Transfer  
→<version>→2  
→<service-id>→org.openmobilealliance:File-Transfer-thumb  
→<version>→2
```

7. Conformance Requirements Notation Details

This section is informative

The tables in following chapters use the following notation:

- Item:** Entry in this column **MUST** be a valid `ScrItem` according to [SCRRULES].
- Feature/Application:** Entry in this column **SHOULD** be a short descriptive label to the **Item** in question.
- Requirement:** Expression in the column **MUST** be a valid `TerminalExpression` according to [SCRRULES] and it **MUST** accurately reflect the architectural requirement of the **Item** in question.

8. ERDEF for CPM – Client Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-CPM-C-001-M	CPM Client	CPM-CF:MCF
OMA-ERDEF-CPM-C-002-O	CPM Message Storage Client	CPM-TS-MS:MCF

Table 2: ERDEF for CPM Client-side Requirements

9. ERDEF for CPM – Server Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-CPM-S-001-M	CPM Participating Function	CPM-CF-PF:MSF
OMA-ERDEF-CPM-S-002-M	CPM Controlling Function	CPM-CF-CF:MSF
OMA-ERDEF-CPM-S-003-O	Message Storage Server	CPM-TS-MS:MSF
OMA-ERDEF-CPM-S-004-O	Interworking Selection Function	CPM-TS-Isf:MSF
OMA-ERDEF-CPM-S-005-O	Interworking Function	CPM-TS-Int:MSF

Table 3: ERDEF for CPM Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No previous version within OMA

A.2 Draft/Candidate Version 2.2 History

Document Identifier	Date	Sections	Description
Draft Versions: OMA-ERELD-CPM-V2_2	02 Mar 2017	All	Initial version of the CPM 2.2 ERELD based on: <ul style="list-style-type: none"> OMA-ERELD-CPM-V2_1-20160209-C And including updated listing of the latest versions of the draft specifications for CPM v2.2
	15 Sep 2017	5	Update the document listing prior to Candidate approval request
Candidate Version: OMA-ERELD-CPM-V2_2	26 Sep 2017	n/a	Status changed to Candidate by TP TP Ref # OMA-TP-2017-0040-INP_CPM-V2_2_ERP_for_1st_Candidate_Approval
Draft Version: OMA-ERELD-CPM-V2_2	10 Jan 2018	2.1, 5	Incorporated CR: OMA-COM-CPM-2017-0101-CR_Bug_Fixes_for_Implications_of_CPM_Charging
Draft Version: OMA-ERELD-CPM-V2_2	01 Sep 2020	n/a	Update the document listing prior to Candidate approval request
Candidate Version: OMA-ERELD-CPM-V2_2	07 Sep 2020	n/a	Status changed to Candidate by WG WG Ref # OMA-COM-CPM- 2020-0006-INP_Converged_IP_Messaging_2_2_ERP_for_Candidate_Approval.docx