



# **Enabler Release Definition for Open Connection Manager API**

Candidate Version 1.1 – 26 Mar 2013

---

**Open Mobile Alliance**  
OMA-ERELED-OpenCMAPI-V1\_1-20130326-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.

© 2013 Open Mobile Alliance Ltd. All Rights Reserved.

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

## Contents

1. SCOPE .....	4
2. REFERENCES .....	5
2.1 NORMATIVE REFERENCES .....	5
2.2 INFORMATIVE REFERENCES .....	5
3. TERMINOLOGY AND CONVENTIONS .....	6
3.1 CONVENTIONS .....	6
3.2 DEFINITIONS .....	6
3.3 ABBREVIATIONS .....	6
4. RELEASE VERSION OVERVIEW .....	9
4.1 VERSION 1.0 FUNCTIONALITY .....	10
4.2 VERSION 1.1 FUNCTIONALITY .....	11
5. DOCUMENT LISTING FOR OPENCMAPI .....	12
6. OMNA CONSIDERATIONS .....	13
7. CONFORMANCE REQUIREMENTS NOTATION DETAILS .....	14
8. ERDEF FOR OPENCMAPI - CLIENT REQUIREMENTS .....	15
9. ERDEF FOR OPENCMAPI - SERVER REQUIREMENTS .....	16
APPENDIX A. CHANGE HISTORY (INFORMATIVE) .....	17
A.1 APPROVED VERSION HISTORY .....	17
A.2 DRAFT/CANDIDATE VERSION 1.0 HISTORY .....	17

## Figures

Figure 1: High Level Diagram for the OpenCMAPI Enabler .....	10
--	----

## Tables

Table 1: Listing of Documents in OpenCMAPI Enabler .....	12
Table 2: ERDEF for OpenCMAPI Client-side Requirements .....	15
Table 3: ERDEF for OpenCMAPI Server-side Requirements .....	16

# 1. Scope

The scope of this document is limited to the Enabler Release Definition of the Open Connection Manager API (OpenCMAPI) v1.1 Enabler according to OMA Release process and the Enabler Release specification baseline listed in section 5.

## 2. References

### 2.1 Normative References

- [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)
- [SCRRULES] “SCR Rules and Procedures”, Open Mobile Alliance™, OMA-ORG-SCR\_Rules\_and\_Procedures,  
[URL:http://www.openmobilealliance.org/](http://www.openmobilealliance.org/)

### 2.2 Informative References

- [OMADICT] “Dictionary for OMA Specifications”, Version 2.8, Open Mobile Alliance™,  
OMA-ORG-Dictionary-V2\_8, [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

<b>Enabler Release</b>	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.
<b>Minimum Functionality Description</b>	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.

### 3.3 Abbreviations

<b>3GPP</b>	3rd Generation Partnership Project
<b>3GPP2</b>	3rd Generation Partnership Project 2
<b>AKA</b>	Authentication and Key Agreement
<b>API</b>	Application Programming Interface
<b>APN</b>	Access Point Name
<b>CDMA</b>	Code Division Multiple Access
<b>CHAP</b>	Challenge Handshake Authentication Protocol
<b>CM</b>	Connection Manager
<b>CSIM</b>	CDMA2000 Subscriber Identity Module
<b>DM</b>	Device Management
<b>DNS</b>	Domain Name System
<b>EAP</b>	Extensible Authentication Protocol
<b>EDGE</b>	Enhanced Data rates for GSM Evolution
<b>ERDEF</b>	Enabler Requirement Definition
<b>ERELD</b>	Enabler Release Definition
<b>ETSI</b>	European Telecommunications Standards Institute
<b>e-UTRAN</b>	evolved Universal Terrestrial Radio Access Network
<b>GAN</b>	Generic Access Network
<b>GERAN</b>	GSM EDGE Radio Access Network
<b>GPRS</b>	General Packet Radio Service
<b>GPS</b>	Global Positioning System

<b>GSM</b>	Global System for Mobile communications
<b>HSPA</b>	High Speed Packet Access
<b>ISIM</b>	IP Multimedia Services Identity Module
<b>LTE</b>	Long Term Evolution
<b>MAC</b>	Media Access Control
<b>MMS</b>	Multimedia Messaging Service
<b>NAA</b>	Network Access Application
<b>NDIS</b>	Network Driver Interface Specification
<b>NMEA</b>	National Marine Electronics Association
<b>ODM</b>	Original Device Manufacturer
<b>OEM</b>	Original Equipment Manufacturer
<b>OMA</b>	Open Mobile Alliance
<b>OMNA</b>	Open Mobile Naming Authority
<b>OpenCMAPI</b>	Open Connection Manager (CM) Application Programming Interface (API)
<b>PAP</b>	Password Authentication Protocol
<b>PDN</b>	Public Data Network
<b>PIN</b>	Personal Identification Number
<b>PLMN</b>	Public Land Mobile Network
<b>PRL</b>	Preferred Roaming List
<b>PSK</b>	PreShared Key
<b>PUK</b>	Pin Unlocking Key
<b>QoS</b>	Quality of Service
<b>RAS</b>	Remote Access Service
<b>RAT</b>	Radio Access Technologies
<b>RFC</b>	Request For Comments
<b>RSSI</b>	Received Signal Strength Indicator
<b>R-UIM</b>	Removable User Identity Module
<b>SIM</b>	Subscriber Identity Module
<b>SMS</b>	Short Message Service
<b>SMS-C</b>	Short Message Service Center
<b>SSID</b>	Service Set Identifier
<b>UI</b>	User Interface
<b>UICC</b>	Universal Integrated Circuit card
<b>UIM</b>	User Identity Module
<b>UMA</b>	Unlicensed Mobile Access
<b>UMTS</b>	Universal Mobile Telecommunications System
<b>USIM</b>	Universal Subscriber Identity Module
<b>USSD</b>	Unstructured Supplementary Service Data
<b>UTRAN</b>	Universal Terrestrial Radio Access Network
<b>VPN</b>	Virtual Private Network

---

<b>WEP</b>	Wired Equivalent Privacy
<b>Wi-Fi</b>	Wireless Fidelity
<b>WiMAX</b>	Worldwide Interoperability for Microwave Access
<b>WISPr</b>	Wireless Internet Service Provider roaming
<b>WLAN</b>	Wireless Local Area Network
<b>WPA2</b>	Wi-Fi Protected Access Version 2
<b>WPS</b>	Wireless Protected Setup
<b>WWAN</b>	Wireless Wide Area Network



## 4. Release Version Overview

The focus of the OpenCMAPI enabler is the standardization of new functional APIs essential for applications to develop connection manager user interface and to extend applications and services with information related to the connection.

In order to allow for advanced service creation based on multiple services/enablers, interface functionalities for SMS, USSD as well as GPS are included.

The intention is to be supported by different types of devices such as Mobile Broadband devices, Wireless routers, M2M, Smartphones, Tablets, and Cloud Devices requiring access to mobile data connectivity.

The OpenCMAPI functionalities are designed independently of a specific framework architecture or application domain.

This enabler will allow service providers to develop easily connection manager application and dedicated user interface to work across all their devices in their portfolio without additional effort to integrate or support a new device. Moreover, it will help to improve new types of applications relying almost solely on having a good always on connection such as virtual reality applications to be always informed about the status of the connection established or the ones available.

From device manufacturer point of view, OpenCMAPI will allow reducing effort and costs to be compliant with the requirements of different service providers and OEM/ODM and will provide immediate support of the services and user experience developed by these Service providers.

From the OEM/ODM such as laptop's manufacturers' point of view, OpenCMAPI will allow to develop connection managers applications that can easily interwork with any modems embedded and will decrease the complexity for customization and support for multiple Business models with service providers.

Furthermore, the OpenCMAPI will allow Corporate or Enterprise customers to develop their own connection managers, their own UI and services easily across numerous devices and without having to redevelop any time they have a new device to be supported.

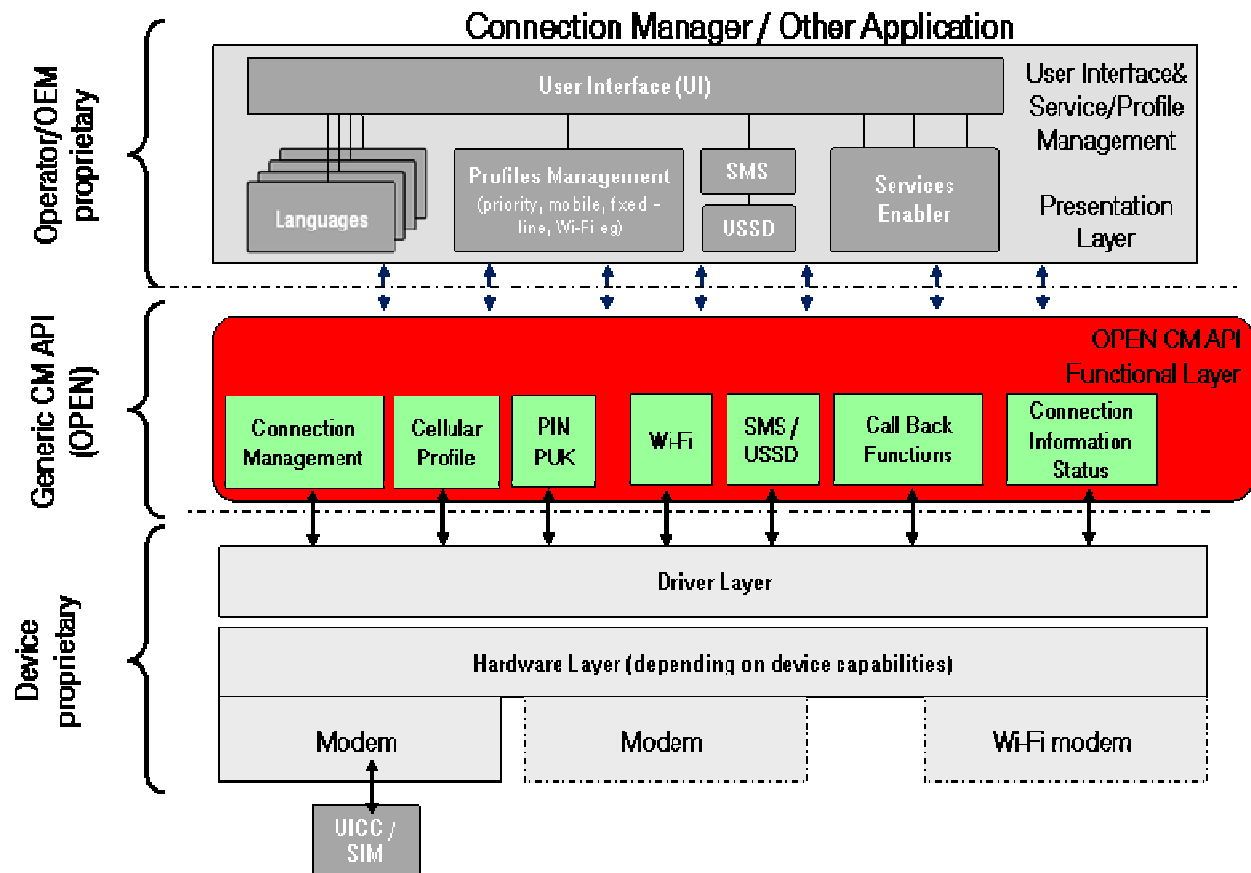


Figure 1: High Level Diagram for the OpenCMAPI Enabler

## 4.1 Version 1.0 Functionality

The API functionalities as proposed in the OpenCMAPI v1.0 created a new set of OMA service interfaces to enhance value of the connectivity and access to multiple networks by allowing the industry to easily develop services, differentiation and their own User experience on top of the connection management API.

The functionality of the OpenCMAPI Enabler v1.0 included the following features:

- Network Types
- Cellular Network Management
- Device Service Handling
- PIN/PUK Management
- Connection Management:
- Wi-Fi handling & WLAN authentication
- CallBack
- Status information handling
- Statistics Management

- SMS service handling
- USSD service handling
- GPS service handling
- Power Management
- Tethering handling
- UICC interface
- PUSH Services

## 4.2 Version 1.1 Functionality

OpenCMAPI v1.1 is enhancing the version 1.0 and extending functionality of service APIs to 3rd party applications with the addition of the following features:

- Additional Information Status and call-backs functions
- Phone Book /Contacts management support
- Support of Hotspot 2.0
- Support of P2P (or D2D as known in 3GPP) Direct connection
- Web API (for wireless routers for example)

## 5. Document Listing for OpenCMAPI

This section is normative.

Doc Ref	Permanent Document Reference	Description
<b>Requirement Document</b>		
[OpenCMAPI_RD_v1_1]	OMA-RD-OpenCMAPI-V1_1-20130326-C	Requirement Document for OpenCMAPI Enabler v1.1
<b>Architecture Document</b>		
<b>Technical Specifications</b>		
<b>Supporting Files</b>		

**Table 1: Listing of Documents in OpenCMAPI Enabler**

## 6. OMNA Considerations

## 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 OpenCMAPI - Client Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-OpenCMAPI-C-001-<<M/O>>	OpenCMAPI Client	

**Table 2: ERDEF for OpenCMAPI Client-side Requirements**

## 9. ERDEF for OpenCMAPI - Server Requirements

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-OpenCMAPI-S-001-<<M/O>>	OpenCMAPI Server	

**Table 3: ERDEF for OpenCMAPI Server-side Requirements**



## Appendix A. Change History (Informative)

### A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

### A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-ERELED-OpenCMAPI-V1_1	21 Nov 12	n/a	Initial baseline for RD review.
	23 Jan 2013	5	Updated the document listing
	30 Jan 2013	5	Updated the document listing
	22 Feb 2013	5	Updated the document listing
	18 Mar 2013	5	Updated the document listing in preparation for submission of RD for Candidate approval
Candidate Version OMA-ERELED-OpenCMAPI-V1_1	26 Mar 2013	All	Status changed to Candidate by TP #: OMA-TP-2013-0093R02- INP_OpenCMAPI_V1_1_RD_for_Candidate_approval