



Enabler Release Definition for Open Connection Manager API

Candidate Version 1.1 – 17 Feb 2015

Open Mobile Alliance
OMA-ERELD-OpenCMAPI-V1_1-20150217-C

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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 to formally express the structure and internal dependencies between specifications in the Enabler Release specification baseline is detailed in [SCRRULES].

3.2 Definitions

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.

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

3.3 Abbreviations

ANDSF	Access Network Discovery and Selection Function
API	Application Programming Interface
CDMA	Code Division Multiple Access
CM	Connection Manager
D2D	Device to Device
DM	Device Management
ERDEF	Enabler Requirement Definition
ERELD	Enabler Release Definition
GNSS	Global Navigation Satellite System
IoT	Internet of Things
M2M	Machine to Machine
ODM	Original Device Manufacturer
OEM	Original Equipment Manufacturer
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority
OpenCMAPI	Open Connection Manager (CM) Application Programming Interface (API)
PIN	Personal Identification Number
ProSe	Proximity Services (Also referred to as LTE D2D)
PUK	Pin Unlocking Key
RFC	Request For Comments
SIM	Subscriber Identity Module
SMS	Short Message Service
UI	User Interface

UICC	Universal Integrated Circuit card
URL	Uniform Resource Locator
USSD	Unstructured Supplementary Service Data
Wi-Fi	Wireless Fidelity
WLAN	Wireless Local Area Network
WWAN	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.

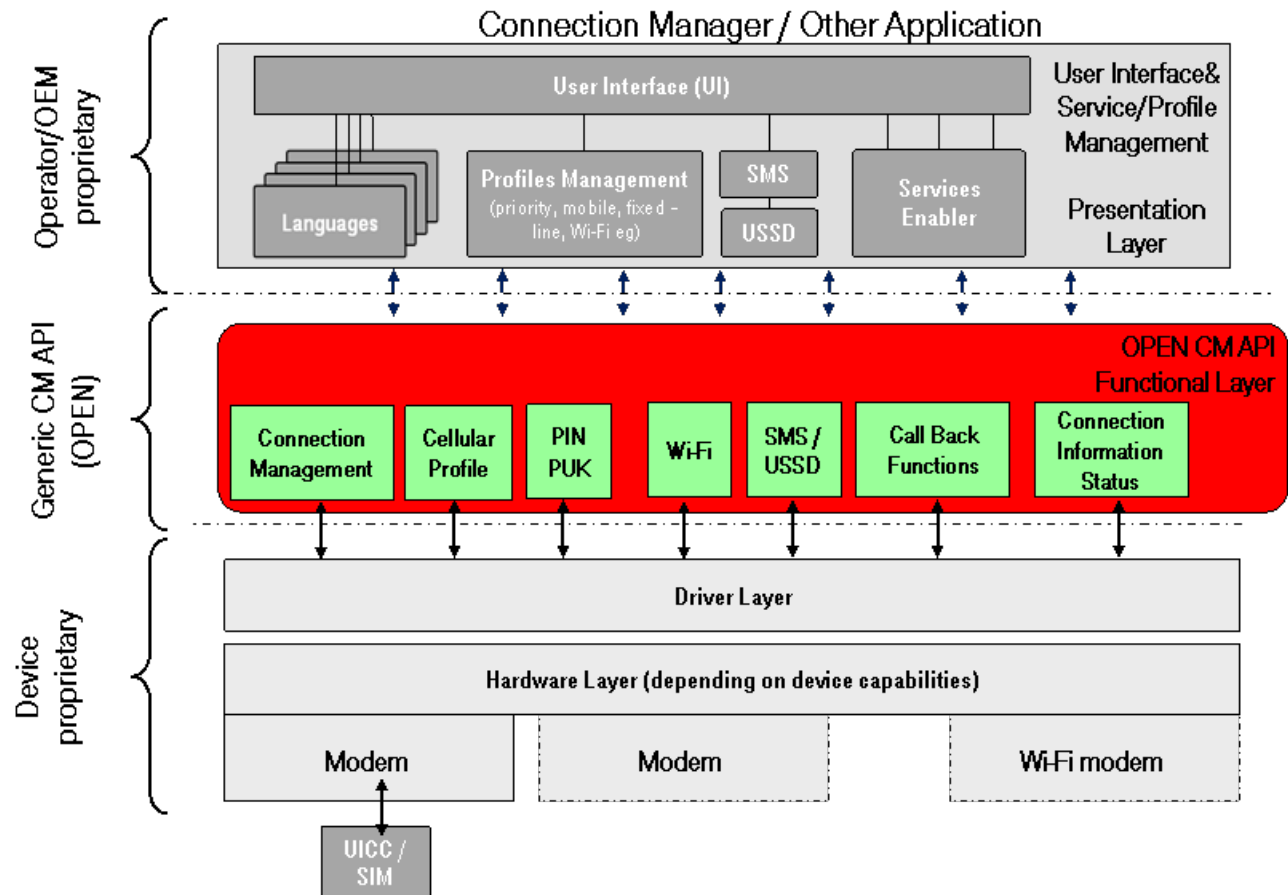


Figure 1: High Level Diagram for the OpenCMAPI Enabler

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
- Extension of WLAN functions including support of Hotspot 2.0, ANDSF & user and operator preferences
- Support of P2P (or D2D or ProSe as known in 3GPP) Direct connection
- Web API (e.g. for wireless routers)
- Router Management support
- Support of extended device service functions
- Support of IP Multimedia Services functions
- Support of dedicated M2M/IoT functions

5. Document Listing for OpenCMAPI

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[OpenCMAPI_RD]	OMA-RD-OpenCMAPI-V1_1-20150217-C	Requirement Document for OpenCMAPI Enabler v1.1
Architecture Document		
[OpenCMAPI_AD]	OMA-AD-OpenCMAPI-V1_1-20150217-C	Architecture Document for OpenCMAPI Enabler v1.1
Technical Specifications		
[OpenCMAPI_TS]	OMA-TS-OpenCMAPI-V1_1-20150217-C	Specification Document that defines OpenCMAPI Enabler v1.1
[OpenCMAPI_TS_WEB]	OMA-TS-OpenCMAPI_Web-V1_1-20150217-C	Specification Document that defines OpenCMAPI Enabler v1.1 Web API
Supporting Files		
[JSD]	OMA-SUP-JSD_OpenCMAPI-V1_1-20150217-C	JSON Schema definitions for OpenCMAPI Working file in Schema directory: file: opencmapi-V1_1.zip http://www.openmobilealliance.org/tech/profiles/
[WebIDL]	OMA-SUP-WIDL_OpenCMAPI-V1_1-20150217-C	WebIDL for OpenCMAPI Working file in Schema directory: file: opencmapi-V1_1.idl http://www.openmobilealliance.org/tech/profiles/

Table 1: Listing of Documents in OpenCMAPI Enabler

6. OMNA Considerations

Note: The CMAPI enabler introduces new types of supporting file: JSON schema definition & WebIDL.

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

This section is normative.

Item	Feature / Application	Requirement
OMA-ERDEF-OpenCMAPI-001-M	Support of API Management	
OMA-ERDEF-OpenCMAPI-002-M	Support of Device Discovery APIs	
OMA-ERDEF-OpenCMAPI-003-M	Support of Cellular Network Management APIs	
OMA-ERDEF-OpenCMAPI-004-M	Support of Connection Management APIs	
OMA-ERDEF-OpenCMAPI-005-M	Support of Network Management APIs	
OMA-ERDEF-OpenCMAPI-006-O	Support of CDMA2000 APIs	
OMA-ERDEF-OpenCMAPI-007-M	Support of Device Service APIs	
OMA-ERDEF-OpenCMAPI-008-O	Support of Device Extended Service APIs	
OMA-ERDEF-OpenCMAPI-009-M	Support of PINs/PUKs Management APIs	
OMA-ERDEF-OpenCMAPI-010-M	Support of UICC Management APIs for device types Smartphone and Tablet	
OMA-ERDEF-OpenCMAPI-011-O	Support of UICC Management APIs for device types Mobile Broadband Device, Laptop, Wireless Router, M2M, Cloud Devices	
OMA-ERDEF-OpenCMAPI-012-M	Support of WLAN APIs for device types Laptop, Smartphone, Tablet, Cloud Devices	
OMA-ERDEF-OpenCMAPI-013-O	Support of WLAN APIs for device types Mobile Broadband Device, Wireless Router, M2M	
OMA-ERDEF-OpenCMAPI-014-M	Support of Statistics APIs	
OMA-ERDEF-OpenCMAPI-015-M	Support of Information Status APIs	
OMA-ERDEF-OpenCMAPI-016-M	Support of SMS Management APIs	
OMA-ERDEF-OpenCMAPI-017-M	Support of USSD Management APIs	
OMA-ERDEF-OpenCMAPI-018-O	Support of GNSS APIs	
OMA-ERDEF-OpenCMAPI-019-M	Support of Contact Management APIs for device types Mobile Broadband Device, Laptop, Wireless Router, Smartphone, Tablet, Cloud Devices	
OMA-ERDEF-OpenCMAPI-020-O	Support of Contact Management APIs for device M2M	
OMA-ERDEF-OpenCMAPI-021-M	Support of Data Push Service Management APIs for device types Smartphone and Tablet	
OMA-ERDEF-OpenCMAPI-022-O	Support of Data Push Service Management APIs for device types Mobile Broadband Device, Laptop, Wireless Router, M2M, Cloud Devices	
OMA-ERDEF-OpenCMAPI-023-O	Support of P2P Direct Management APIs	
OMA-ERDEF-OpenCMAPI-024-M	Support of Wireless Router Management APIs for device types Wireless Router	
OMA-ERDEF-OpenCMAPI-025-O	Support of Wireless Router Management APIs for device types Mobile Broadband Device, Laptop, M2M, Smartphone, Cloud Devices and Tablet	
OMA-ERDEF-OpenCMAPI-026-O	Support of IP Multimedia Services APIs	
OMA-ERDEF-OpenCMAPI-027-O	Support of M2M/IoT APIs	
OMA-ERDEF-OpenCMAPI-028-M	Support of Callback APIs	

OMA-ERDEF-OpenCMAPI-029-M	Support of WebAPI for device types Wireless Router, Cloud Devices	
OMA-ERDEF-OpenCMAPI-030-O	Support of WebAPI for device types Mobile Broadband Device, Laptop, M2M, Smartphone and Tablet	

Table 2: ERDEF for OpenCMAPI

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 2012	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
Draft Version OMA-ERELED-OpenCMAPI-V1_1	23 May 2013	All	Status demoted to draft Updated the document listing with AD and TS draft documents
Candidate Version OMA-ERELED-OpenCMAPI-V1_1	04 Jun 2013	All	Status changed to Candidate by TP #: OMA-TP-2013-0159-INP_OpenCMAPI_1_1_AD_for_Candidate_approval
Draft Versions OMA-ERELED-OpenCMAPI-V1_1	30 Jan 2014	All	Status changed to Draft Updated the document listing with RD and TS draft documents
	31 Jan 2014	All	Updated the document listing TS draft documents
	01 Oct 2014	2, 3.3, 4.2, 5, 6, 8, 9	Incorporated CR: OMA-CD-OpenCMAPI-2014-0097R01-CR_ERELED_CONRR_comments_resolution
	10 Feb 2015	5	Updated document listing prior to consistency review closure.
Candidate Version OMA-ERELED-OpenCMAPI-V1_1	17 Feb 2015	All	Status changed to Candidate by TP TP Ref # OMA-TP-2015-0059-INP_OpenCMAPI_V1_1_ERP_and_ETR_for_Candidate_approval