Enabler Release Definition for Open Connection Manager API

Approved Version 1.0 – 26 Jan 2016

Open Mobile Alliance

OMA-ERELD-OpenCMAPI-V1_0-20160126-A

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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) 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

[SCRRULES] "SCR Rules and Procedures", Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL: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/

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

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

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

ISIM	IP Multimedia Services Identity Module
LTE	Long Term Evolution
MAC	Media Access Control
MMS	Multimedia Messaging Service
NAA	Network Access Application
NDIS	Network Driver Interface Specification
NMEA	National Marine Electronics Association
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)
PAP	Password Authentication Protocol
PDN	Public Data Network
PIN	Personal Identification Number
PLMN	Public Land Mobile Network
PRL	Preferred Roaming List
PSK	PreShared Key
PUK	Pin Unlocking Key
QoS	Quality of Service
RAS	Remote Access Service
RAT	Radio Access Technologies
RFC	Request For Comments
RSSI	Received Signal Strength Indicator
R-UIM	Removable User Identity Module
SIM	Subscriber Identity Module
SMS	Short Message Service
SMS-C	Short Message Service Center
SSID	Service Set Identifier
UI	User Interface
UICC	Universal Integrated Circuit card
UIM	User Identity Module
UMA	Unlicensed Mobile Access
UMTS	Universal Mobile Telecommunications System
USIM	Universal Subscriber Identity Module
USSD	Unstructured Supplementary Service Data
UTRAN	Universal Terrestrial Radio Access Network
VPN	Virtual Private Network
WEP	Wired Equivalent Privacy
Wi-Fi	Wireless Fidelity

WiMAX	Worldwide Interoperability for Microwave Access
WISPr	Wireless Internet Service Provider roaming
WLAN	Wireless Local Area Network
WPA2	Wi-Fi Protected Access Version 2
WPS	Wireless Protected Setup
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 internet.

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 (laptop manufacturers) 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.

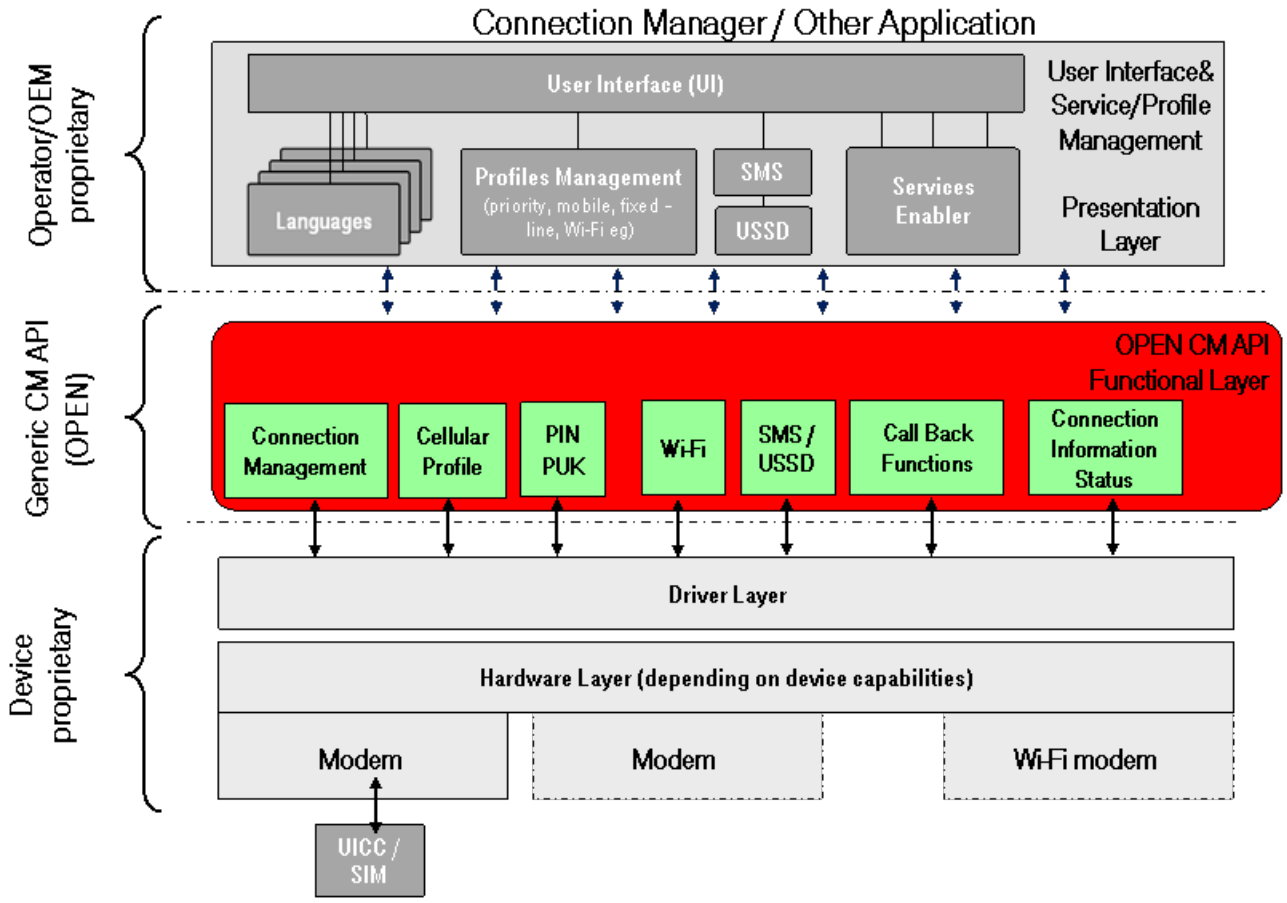

Figure 1: High Level Diagram for the OpenCMAPI Enabler

4.1 Version 1.0 Functionality

The API functionalities as proposed in the OpenCMAPI v1.0 aims at creating 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 v1.0 version includes the following:

- 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 x.y Functionality

4.2.1 Version x.y.z Functionality

5. Document Listing for OpenCMAPI

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[OpenCMAPI_RD]	OMA-RD-OpenCMAPI-V1_0-20160126-A	Requirement Document for OpenCMAPI Enabler
Architecture Document		
[OpenCMAPI_AD]	OMA-AD-OpenCMAPI-V1_0-20160126-A	Architecture Document for OpenCMAPI Enabler
Technical Specification		
[OpenCMAPI_TS]	OMA-TS-OpenCMAPI-V1_0-20160126-A	Specification that defines OpenCMAPI Enabler

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
OMA-ERELD-OpenCMAPI-V1_0-20160126-A	26 Jan 2016	Status changed to Approved by TP TP Ref # OMA-TP-2016-0009-INP_OpenCMAPI_V1_0_ERP_for_final_Approval