



Enabler Release Definition for Converged Personal Network Service

Candidate Version 1.1 – 13 Mar 2012

Open Mobile Alliance
OMA-ERELED-CPNS-V1_1-20120313-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.

© 2012 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	6
3. TERMINOLOGY AND CONVENTIONS.....	7
3.1 CONVENTIONS	7
3.2 DEFINITIONS.....	7
3.3 ABBREVIATIONS	8
4. RELEASE VERSION OVERVIEW	9
4.1 VERSION 1.0 FUNCTIONALITY	9
4.2 VERSION 1.1 FUNCTIONALITY	10
5. DOCUMENT LISTING FOR CPNS V1.1	11
6. OMNA CONSIDERATIONS	12
7. CONFORMANCE REQUIREMENTS NOTATION DETAILS	13
8. ERDEF FOR CPNS - CLIENT REQUIREMENTS.....	14
9. ERDEF FOR CPNS - SERVER REQUIREMENTS	15
APPENDIX A. CHANGE HISTORY (INFORMATIVE).....	16
A.1 APPROVED VERSION HISTORY	16
A.2 DRAFT/CANDIDATE VERSION 1.1 HISTORY	16

1. Scope

The scope of this document is limited to the Enabler Release Definition of Converged Personal Network Service (CPNS) enabler according to OMA Release process and the Enabler Release specification baseline listed in section 5.

The CPNS Enabler enables CPNS entities in a personal network (PN) to consume services within that PN, services from and to other PNs, and services provided by service providers outside the PN.

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/)
- [CPNS_RD] "Converged Personal Network Service Requirements", Open Mobile Alliance™, OMA-RD-CPNS-V1_1, [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/)
- [OMA – CPNS] Converged Personal Network Service (CPNS) 1.0 - 03 May 2011
URL: <http://www.openmobilealliance.org/>
- [OMA – Presence] “Presence”, Open Mobile Alliance™, OMA-TS-Presence_SIMPLE-V2_0-20081223-C
URL: <http://www.openmobilealliance.org/>
- [OMA – Privacy] “Privacy”, Open Mobile Alliance™, OMA-RRP-Privacy-V1_0-20070807-A
URL: <http://www.openmobilealliance.org/>
- [3GPP TS 22.004] 3GPP TS 22.004 V8.0.0 (2006-12) "General on supplementary services (Release 8)"
- [3GPP TR 21.905] "Vocabulary for 3GPP Specifications"
E.g. 3GPP TR 21.905 (Release 9)
<http://www.3gpp.org/ftp/Specs/html-info/21905.htm>
- [3GPP TR 22.944] "Report on service requirements for UE functionality split".
E.g. 3GPP TS 22.994 (Release 8)
<http://www.3gpp.org/ftp/Specs/html-info/22004.htm>
- [3GPP TS 22.004] "General on supplementary services"
E.g. 3GPP TS 22.004 (Release 8)
<http://www.3gpp.org/ftp/Specs/html-info/22004.htm>
- [3GPP TS 22.101] "Service aspects; Service principles"
E.g. 3GPP TS 22.101 (Release 9)
<http://www.3gpp.org/ftp/Specs/html-info/22101.htm>
- [3GPP TS 22.105] "Service aspects; Services and service capabilities"
E.g. 3GPP TS 22.105 (Release 9)
<http://www.3gpp.org/ftp/Specs/html-info/22105.htm>
- [3GPP TS 22.259] “Service requirements for Personal Network Management (PNM); Stage 1”
E.g. 3GPP TS 22.259 (Release 9)
<http://www.3gpp.org/ftp/Specs/html-info/22259.htm>
- [3GPP TS 23.259] “Personal Network Management (PNM); Procedures and information flows”
E.g. 3GPP TS 23.259 (Release 9)
<http://www.3gpp.org/ftp/Specs/html-info/23259.htm>
- [3GPP TS 24.259] Personal Network Management (PNM); Stage 3
E.g. 3GPP TS 24.259 (Release 8)
<http://www.3gpp.org/ftp/Specs/html-info/24259.htm>
- [TS 102 689] “Machine-to-Machine communications (M2M); M2M service requirements”

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.

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 [SCRRLUES].

3.2 Definitions

CPNS Device	A Device [OMADICT] which can operate in different Modes simultaneously in the Personal Network. CPNS Devices are assumed to have capabilities to process, store and/or render content, as well as to have communication interfaces that enable them to perform in different Modes in Personal Networks.
CPNS Server	Is a functional entity that provides resources to CPNS entities either in response to requests or in a Push mode. In addition, it interacts with other external entities, such as Content Provider Server etc., for the purpose of service provisioning.
CPNS User	The CPNS User is the person who uses CPNS Service using PNE(s).
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.
External Entity	An entity not specified by the CPNS Enabler.
Minimum Functionality Description	Description of the guaranteed features and functionality that will be enabled by implementing the minimum mandatory part of the Enabler Release.
Mode	There are three identified Modes for CPNS Devices: PN GW, CPNS Server and PNE. The Modes CPNS Devices can operate in depend on their capabilities.
Overlay Network	A virtual network which is built on top of an existing underlying network. Nodes in an Overlay Network can reach each other through multiple physical or logical links in the underlying network.
PAN	Personal Area Network.
Peer-to-Peer Network	A network of connected PNE(s) where: <ul style="list-style-type: none"> • The PNE(s) form an Overlay Network, and • The process of establishing and maintaining connectivity between PNE(s) is handled mainly by the PNE(s) themselves, and • The PNE(s) can both offer and receive Services.
Personal Network (PN)	A collection of devices available to a CPNS User to consume and produce Services. All devices within a PN can be linked to a PN GW. A PN is a non-static collection and will vary over time. A PN consists at a minimum of a device acting in PN GW mode and another device acting in PNE mode.
Personal Network Element (PNE)	A functional entity making up a Personal Network. It may be used either to consume or provide content and/or Services (simultaneously or separately).
Personal Network Gateway (PN GW)	A functional entity which by interconnecting entities that reside in personal networks and wide area networks, instantiates a converged network that provides CPNS services. A PN GW at the device level enables a PNE to connect to a CPNS Server as well as other PNE in a same or another PN. This implies using a global network, such as a mobile network. At the service level, the PN GW manages the service access to and from PNEs, and the communication of capabilities information and statistics to the CPNS Server.
PN Admin (Administrator)	A PNE or PN GW which has authorities to change the configuration of device.

PN Inventory	List of PN(s) and devices belonging to a PN or multiple PNs.
Service	See [OMA-DICT] A selection from the portfolio of offerings made available by a Service Provider.
Service Group	A set of PNEs and/or PNGW(s) that share the same service, data and applications between themselves and which can stretch over multiple Personal Networks
Zone	Specific geographic area
Zone based service	The certain CPNS service to be provided in a specific zone where the zone PN GW covers
Zone PN GW	The PN GW which provides a unique service/content in a zone

3.3 Abbreviations

AP	Access Point
CPNS	Converged Personal Network Service
DLNA	Digital Living Network Alliance
ERDEF	Enabler Requirement Definition
ERELED	Enabler Release Definition
GPS	Global Positioning System
HD	High Definition
M2M	Machine-to-Machine
ME	Mobile Equipment
MT	Mobile Termination
OMA	Open Mobile Alliance
OMNA	Open Mobile Naming Authority
PAN	Personal Area Network
PLMN	Public Land Mobile Network
PNE	Personal Network Element
PNM	Personal Network Management
TE	Terminal Equipment
UE	User Equipment
USIM	User Secure Identity Module
WAN	Wide Area Network
WiBro	Wireless Broadband
WiFi	Wireless Fidelity (Wireless Access Network mechanism)

4. Release Version Overview

This document outlines the Enabler Release Definition for Converged Personal Network Service (CPNS) enabler and the respective conformance requirements for clients and servers implementing claiming compliance to it as defined by Open Mobile Alliance across the specification baseline.

The goal of the OMA Converged Personal Network Services (CPNS) enabler is to provide application-layer support for ubiquitous access to Services in a *converged network*, which is a collection of individual networks that are interconnected by means of *PN Gateway* (PN GW) devices.

The CPNS Enabler facilitates access by devices in a PN to application or content Services that are available either locally in one or more other PNE(s), or residing in other networks, including other PNs or network elements accessed via a cellular or other WAN technology. The main objective of the enabler is to allow the PNE(s) that are part of the PN to access Services outside of the PN and for those PNE(s) to offer Services to PNE(s) in other networks. The CPNS Enabler provides a wide range of functionality to support converged-network Services, including (but not limited to) end-to-end management of Service sessions, Service publication and discovery, tailoring of Service characteristics based on PNE capabilities, remote management of PNE configuration data and firmware/software, collection of CPNS usage statistics, security and charging.

This enabler considers the interfaces and interactions between the key entities of the CPNS Enabler.

The main CPNS Enabler entities are:

- CPNS Server
- PN GW
- PNE

CPNS Server is an entity of CPNS Enabler that replies to requests from PN GW and ensures that the appropriate application is selected and appropriate content is provided to the PNE(s)

PN GW serves as an intermediary entity between the PNE(s) and other networks that forwards the requests from the PNE(s) to the other networks and the other way around

PNE(s) are connected to the PN GW and are used for rendering the content received from the PN GW or from each other. PNE(s) can also offer content and other Services to PNE(s) in the same PN and to entities in other networks.

Providing that the CPNS has great potential in many areas, such as home environment, Machine-to-Machine (M2M) communication, remote personal networks, etc., and given that not all of these capabilities were fully utilized and covered by CPNS v1.0, CPNS 1.1 defines additional features that were not specified and in Release 1.0.

The new CPNS Release will extend the target usages, strengthen the interoperability, and overall improve the value of the specification altogether.

4.1 Version 1.0 Functionality

This enabler considers the interfaces and interactions between the key entities of the CPNS enabler.

The CPNS enabler will support both the PN-to-cellular/WAN model and the Peer-to-peer model.

4.2 Version 1.1 Functionality

CPNS 1.1 aims to specify requirements from the CPNS 1.0 that were not addressed and were deferred for the future release and to enhance the existing features and add new functionalities that are relevant for this release.

Enhancement of existing features and addition of new functionalities include the following:

- Strengthen the Non-CPNS Proxy function
 - To support legacy and other non-CPNS devices (ex.DLNA)
- Interaction with ETSI M2M
 - Functional mapping between CPNS and M2M
 - Mapping of ETSI M2M GW functionality onto CPNS PN GW
 - Mapping of CPNS interfaces onto ETSI M2M interfaces
- Device Categorization
 - To appropriately support various kinds of devices
- Enhancement of Personal Network / Service Group Management
 - Switching of PN GW and PNEs, Merging and splitting of Personal Networks
 - Enhancement of Zone Based Service
 - Enhancement of Service Group etc

5. Document Listing for CPNS V1.1

This section is normative.

Doc Ref	Permanent Document Reference	Description
Requirement Document		
[CPNS_RD]	OMA-RD-CPNS-V1_1-20120313-C	Requirements for Converged Personal Network Service enabler Version 1.1
Architecture Document		
[CPNS_AD]	OMA-AD-CPNS-V1_1-20120228-D	Architecture for Converged Personal Network Service enabler Version 1.1
Technical Specifications		
[CPNS_TS]	OMA-TS-CPNS_Core-V1_1-20120222-D	Technical Specification for Converged Personal Network Service enabler Version 1.1
Supporting Files		

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 CPNS - Client Requirements

This section is normative.

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

Table 1: ERDEF for CPNS Client-side Requirements

9. ERDEF for CPNS - Server Requirements

This section is normative.

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

Table 2: ERDEF for CPNS Server-side Requirements

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

A.2 Draft/Candidate Version 1.1 History

Document Identifier	Date	Sections	Description
Draft Version: OMA-ERELED-CPNS-V1_1	12 Dec 2011	All	Initial baseline for ERELD
	05 Mar 2012	All	Updated to 2012 template Updated Section 5 Editorial Cleaning up
Candidate Version: OMA-ERELED-CPNS-V1_1	13 Mar 2012	All	Status changed to Candidate by TP TP ref #:OMA-TP-2012-0112- INP_CPNS_V1_1_RD_for_Candidate_Approval