



# **Presence Access Layer Requirements**

## **Candidate Version 1.0 – 17 Aug 2010**

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**Open Mobile Alliance**  
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# 1. Scope

**(Informative)**

This document contains use cases and requirements for the OMA Presence Access Layer Enabler, taking into consideration the demands of end-users, Service Providers and system implementers.

## 2. References

### 2.1 Normative References

- [GPM\_RD] “Global Permissions Management Requirements”, Version 2.0, Open Mobile Alliance™, OMA-RD-GPM-V1\_0,  
URL: <http://www.openmobilealliance.org>
- [PDE\_DDS] “Presence SIMPLE Data Specification”, Version 2.0, Open Mobile Alliance™, OMA-DDS-Presence\_Data\_Ext-V2\_0,  
URL: <http://www.openmobilealliance.org>
- [Privacy\_Req] “OMA Privacy Requirements for Mobile Services”, Open Mobile Alliance™,  
URL: <http://www.openmobilealliance.org>
- [PRS\_RD] “Presence SIMPLE Requirements”, Version 2.0, Open Mobile Alliance™, OMA-RD-Presence\_SIMPLE-V2\_0,  
URL: <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>

### 2.2 Informative References

- [LOCSIP\_RD] “Location in SIP/IP core Requirements”, Open Mobile Alliance™, OMA-RD-LOCSIP-V1\_0,  
URL: <http://www.openmobilealliance.org>
- [OMADICT] “Dictionary for OMA Specifications”, Version 2.7, Open Mobile Alliance™,  
OMA-ORG-Dictionary-V2\_7,  
URL: <http://www.openmobilealliance.org>
- [PRS\_IG] “Implementation Guidelines for OMA Presence SIMPLE v1.1”, Open Mobile Alliance™, OMA-WP-PRS\_1\_1\_Implementation\_Guidelines,  
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” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

### 3.2 Definitions

<b>Application</b>	Use definition from [OMADICT].
<b>Delegated Subscription</b>	Use definition from [PRS_RD].
<b>Enabler</b>	Use definition from [OMADICT].
<b>Location Server</b>	Use definition from [LOCSIP_RD].
<b>Logical Observer</b>	An entity (e.g. a Watcher) which receives and makes use of information pertaining to other entities (e.g. a Presentity).
<b>Notification</b>	Use definition from [PRS_RD].
<b>PAL Administrator</b>	A User authorized to provision and administer a PAL Service.
<b>PAL Client</b>	A Logical Observer which utilizes a Presence Context (e.g. to request and receive Presence Aspect values from a PAL Server).
<b>PAL Policy</b>	A set of guiding principles and rules used as a mechanism to assist a PAL Service in the consolidation of Presence Information on behalf of PAL Clients.
<b>PAL Presence Parameters</b>	A collection of one or more of the following: <ul style="list-style-type: none"> <li>• Presence Aspect(s);</li> <li>• PAL Rule(s) including all dependent rules;</li> <li>• PAL Policy;</li> <li>• Presence Trigger(s) if applicable to an associated Presence Aware Service.</li> </ul>
<b>PAL Profile</b>	A set of PAL Presence Parameters applicable to Presence Aware Services.
<b>PAL Rules</b>	A sequence of logical operations applicable to a Presence Aspect or Presence Trigger.
<b>PAL Server</b>	A server that receives and processes PAL request(s) from PAL Clients and returns a corresponding result (e.g. establish and return a Presence Context to a PAL Client).
<b>PAL Service</b>	A service instance of the PAL Enabler.
<b>Presence Aspect</b>	A logical abstraction used to consolidate Presence Information on behalf of a Logical Observer, based on one or more Presence Information Elements.
<b>Presence Aware Service</b>	A Service or Application which makes use of Presence Information to fulfill specific function points.
<b>Presence Context</b>	A context established for a Presence Aware Service to provide a consolidated view of Presence Information.
<b>Presence Information</b>	Use definition from [PRS_RD].
<b>Presence Information Element</b>	Use definition from [PRS_RD].
<b>Presence Service</b>	Use definition from [PRS_RD].
<b>Presence Trigger</b>	A mechanism used to detect changes affecting a Presence Aspect and as a result, execute a predefined action.
<b>Quality of Service</b>	A level of service associated with a Presence Context used to establish the delivery of Presence Information, on behalf of a PAL Client.

<b>Service</b>	Use definition from [OMADICT].
<b>Service Provider</b>	Use definition from [OMADICT].
<b>Subscription</b>	Use definition from [PRS_RD].
<b>User</b>	Use definition from [OMADICT].
<b>Watcher</b>	Use definition from [PRS_RD].
<b>Watcher Information</b>	Use definition from [PRS_RD].
<b>Watcher Information Subscriber</b>	Use definition from [PRS_RD].

### 3.3 Abbreviations

<b>ARPU</b>	Average Revenue Per User
<b>GPM</b>	Global Permissions Management
<b>HTTP</b>	HyperText Transfer Protocol
<b>OAM</b>	Operations, Administration, and Maintenance
<b>OMA</b>	Open Mobile Alliance
<b>PAL</b>	Presence Access Layer
<b>PDE</b>	Presence Data Extension
<b>PoC</b>	Push-to-talk over Cellular
<b>QoS</b>	Quality of Service
<b>SIMPLE</b>	SIP for Instant Messaging and Presence Leveraging Extensions
<b>SIP</b>	Session Initiation Protocol
<b>SMS</b>	Short Message Service
<b>WAP</b>	Wireless Application Protocol
<b>XML</b>	eXtensible Markup Language



## 4. Introduction

**(Informative)**

The OMA Presence SIMPLE Enabler is a SIP/SIMPLE-based Presence Service responsible for the capture of state, and other relevant information for distribution to authorized Logical Observers. The Presence Access Layer Enabler is complimentary to Presence SIMPLE.

PAL specifies a set of Presence Information abstractions called Presence Aspects, with the intent to increase interoperability. Presence Aspects consolidate Presence Information based on one or more Presence Information Elements. PAL Presence Aspects are based on underlying rules that fully align with the Presence SIMPLE Enabler [PRS\_RD] and applicable Implementation Guidelines for OMA Presence SIMPLE [PRS\_IG]. Presence Trigger's provide a means for a Presence Aware Service to execute a specified action (also specified by PAL Rules) when a change is detected for a corresponding Presence Aspect.

Presence Context permits a given Presence Aware Service to select all relevant/applicable Presence Aspects required to fulfill service function points. This provides PAL Client's with a zero-configuration presence filtering mechanism. That is, a PAL Client need only interact with a specific subset of interoperable Presence Aspects as specified by the associated Presence Context for the given Presence Aware Service or Class of Service.

The objective of the PAL Enabler is to define an interoperable mechanism for establishing and resolving Presence Context associated with a Presence Aware Service, for a PAL Client. Further, the PAL Enabler provides a mechanism to retrieve and make use of determinate Presence Information in the form of Presence Aspects. This includes resolving and returning Presence Aspect values as a result of a PAL Client request, as well as receiving the results of a predefined action (e.g. an asynchronous notification), in response to a detected Presence Aspect value change.

## 5. PAL release description (Informative)

Determinate, consistent views of Presence Information corresponding to Presentities of interest are crucial for successful mobile presence deployments. Service Provider's demand wireless efficiency and scalability as the number of mobile presence services/subscribers grows and status information becomes more complex. Subscribers require intuitive and easy to use presence aware mobile services which operate seamlessly across domains and are able to adapt to a mobile User's ever changing usage scenarios.

The Presence Access Layer (PAL) provides abstract presence indicators known as Presence Aspects. Presence Aspects provide a wirelessly efficient mechanism with which a presence client (i.e. PAL Client) may receive determinate, consistent, and interoperable presence indications based on a consolidated view of underlying Presence Information. Consolidation of Presence Information is achieved through the use of common logic based on the OMA Presence SIMPLE Data Specification and Implementation Guidelines for OMA Presence SIMPLE.

The PAL Enabler provides the following functions:

- Acceptance of PAL service requests;
- Supports a mechanism for the resolution of Presence Context on behalf of PAL Clients based on a Presence Aware Service or Class of Service;
- Interacts with other Enablers for the retrieval of required information (e.g. Presence SIMPLE, XML Document Management Enablers);
- Preserves privacy and security of information requested and mediated by the PAL Enabler.

Figure 1, below, illustrates a logical view of the PAL Enabler including interaction with other Enablers.

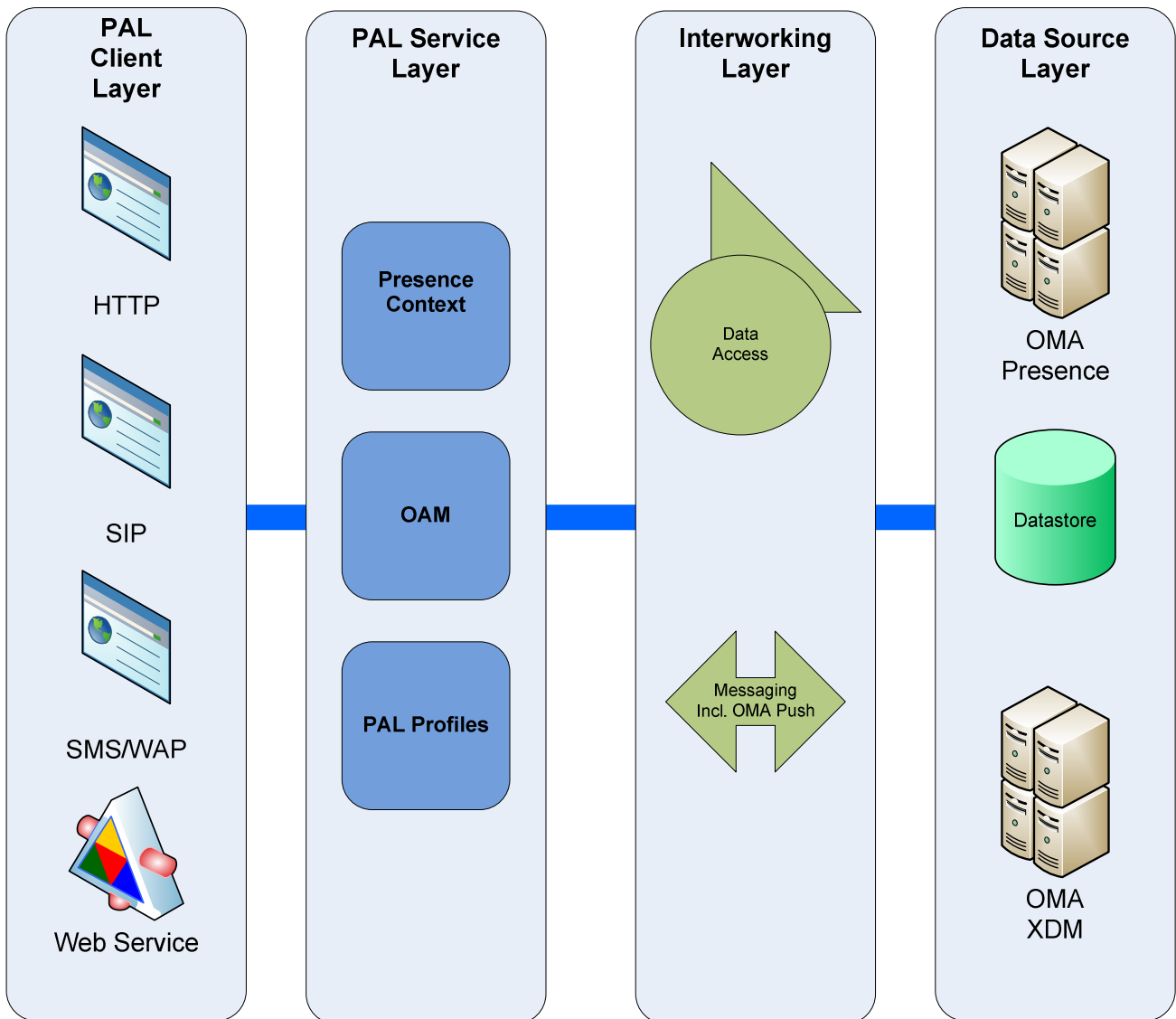


Figure 1 OMA PAL Enabler – Logical View

## 5.1 Version 1.0

The PAL Version 1.0 Enabler provides functionality to achieve wirelessly efficient and determinate presence indications. This is based on the following functionality:

- Interaction between a PAL Client and the PAL Service;
- Interworking with OMA Presence SIMPLE, and OMA XML Document Management Enablers;
- Common logic based on interoperable rules, for the consolidation of Presence Information;
- Management and administration of PAL Enabler on behalf of a Service Provider.

## 6. Requirements (Normative)

### 6.1 Modularisation

The PAL RD includes the following requirements modules:

- **Client Interaction:** mandatory module; contain requirements for access to and interaction between a PAL Client and a PAL Service.
- **Context:** mandatory module; contain requirements related to the resolution of Presence Context on behalf of a Presence Aware Service (e.g. OMA PoC).
- **Interworking:** mandatory module; contain requirements for interworking, e.g., processing of Presence Information on behalf of a PAL Client.
- **Privacy and Security:** mandatory module; contain requirements relating to the privacy and security of information requested and mediated by PAL on behalf of PAL Clients and associated data services (e.g. OMA Presence).
- **Provisioning and Administration:** mandatory module; contain requirements to manage and provision the PAL Enabler.

### 6.2 High-Level Functional Requirements

This section specifies the high level functional requirements for the PAL Enabler.

Label	Description	Release	Functional module
PAL-HLF-001	The PAL Enabler SHALL provide means to expose simplified views of Presence Information using Presence Aspects.	PAL 1.0	General
PAL-HLF-002	The PAL Enabler SHALL provide means to detect changes in Presence Information associated with a Presence Aspect.	PAL 1.0	General
PAL-HLF-003	The PAL Enabler SHALL provide a mechanism to execute a predefined action corresponding with a Presence Trigger.	PAL 1.0	General
PAL-HLF-004	The PAL Enabler SHALL provide a mechanism to specify common rules for processing logic of Presence Information applicable to a Presence Aspect.	PAL 1.0	General
PAL-HLF-005	The PAL Enabler SHALL provide a policy mechanism associated with processing logic of Presence Information applicable to a Presence Aspect.	PAL 1.0	General
PAL-HLF-006	The PAL Enabler SHALL support the request and retrieval of Presence Aspects relating to one or more Presentities.	PAL 1.0	General
PAL-HLF-007	The PAL Enabler SHALL be able to uniquely identify a given Watcher or Presentity.	PAL 1.0	General
PAL-HLF-008	The PAL Enabler SHALL provide a mechanism to create, use and manage PAL Profiles for Presence Aware Services (e.g. OMA IM, etc.)	PAL 1.0	General

**Table 1: High-Level Functional Requirements**

#### 6.2.1 Security

None identified.

### 6.2.1.1 Authentication

This subclause specifies PAL Enabler requirements for authentication.

Label	Description	Release	Functional module
PAL-AUC-001	The PAL Enabler SHALL support a mechanism for mutual authentication between a PAL Client and a PAL Server.	PAL 1.0	General

**Table 2: High-Level Functional Requirements – Authentication Items**

### 6.2.1.2 Authorization

This subclause specifies PAL Enabler requirements for authorization.

Label	Description	Release	Functional module
PAL-AUT-001	The PAL Enabler SHALL authorize a PAL Client to use the PAL Service.	PAL 1.0	General

**Table 3: High-Level Functional Requirements – Authorization Items**

### 6.2.1.3 Data Integrity

This subclause specifies PAL Enabler requirements for data integrity.

Label	Description	Release	Functional module
PAL-DINT-001	The PAL Enabler SHALL ensure data integrity protection between a PAL Client and a PAL Server.	PAL 1.0	General

**Table 4: High-Level Functional Requirements – Data Integrity Items**

### 6.2.1.4 Confidentiality

This subclause specifies PAL Enabler requirements for confidentiality.

Label	Description	Release	Functional module
PAL-CONF-001	Mechanisms SHALL be provided to support confidentiality of message exchanges between a PAL Client and a PAL Server.	PAL 1.0	General

**Table 5: High-Level Functional Requirements – Confidentiality Items**

## 6.2.2 Interoperability

None identified.

## 6.2.3 Privacy

This subclause specifies PAL Enabler requirements for privacy. The Enabler handles personal data and has to ensure that protection of such data is not violated by the Enabler. The Enabler achieves this by complying with the common requirements for privacy specified by OMA.

Label	Description	Release	Functional module
PAL-PRV-001	The PAL Enabler SHALL fulfil the requirements in [Privacy_Req].	PAL 1.0	General
PAL-PRV-002	The PAL Enabler SHALL use for the evaluation only the information that the requestor is authorized to obtain.	PAL 1.0	General

Table 6: High-Level Functional Requirements – Privacy Items

## 6.2.4 Client Interaction

This sub-clause specifies PAL Enabler requirements for the interaction between a PAL Service and PAL Client. A PAL Service can for e.g., notify a PAL Client as a result of a detected change in Presence Aspect corresponding to a Presentity associated with the Presence Service. Further, the PAL Service may provide Presence Aspect indications in response to PAL service requests initiated by a PAL Client. The input for a PAL service request can be e.g. the identity of one or more Presentities, requested Presence Aspect(s), and optionally the identity of a PAL Client.

Label	Description	Release	Functional module
PAL-INTE-001	The PAL enabler SHALL provide a mechanism for a PAL Client to request Presence Aspects(s) relating to one or more Presentities.	PAL 1.0	Client Interaction
	The PAL enabler SHALL support the following Presence Aspects:		
PAL-INTE-002	1) A Presence Aspect indicating a presentity's willingness to participate in an associated service interaction;	PDE 1.2	Client Interaction
PAL-INTE-003	2) A Presence Aspect indicating a presentity's availability to participate in an associated service interaction;	PDE 1.2	Client Interaction
PAL-INTE-004	3) A Presence Aspect indicating a presentity's most applicable method of participation in an associated service interaction;	PAL 1.0	Client Interaction
PAL-INTE-005	4) A Presence Aspect indicating a presentity is contactable (i.e. willing, available and in coverage) for participation in an associated service interaction;	PDE 1.2	Client Interaction
PAL-INTE-006	5) A Presence Aspect that provides a list of presentities within a specified proximity and optionally fulfils a set of criteria;	Future release	Client Interaction
PAL-INTE-007	6) A Presence Aspect indicating whether a presentity is contactable and optionally fulfils a set of criteria (e.g. based on whether the presentity is 'contactable' and shares a common interest – 'soccer');	PDE 1.2	Client Interaction
PAL-INTE-008	7) Presence Aspects based on each existing Presence Information Elements (e.g. Presence Aspect "personal-interests") as described in [PDE_DDS];	PDE 1.2	Client Interaction
PAL-INTE-009	8) Presence Aspects based on existing Watcher Information (e.g. Presence Aspect "pending-subscription").	PDE 1.2	Client Interaction
PAL-INTE-010	The PAL Enabler SHALL support execution of Presence Triggers on behalf of PAL Clients.	PAL 1.0	Client Interaction
	The PAL Enabler SHALL support the following Presence Triggers:		
PAL-INTE-011	1) A Presence Trigger invoked when a presentity's willingness changes for the associated service or application;	PDE 1.2	Client Interaction
PAL-INTE-012	2) A Presence Trigger invoked when a presentity's availability changes for the associated service or application;	PDE 1.2	Client Interaction
PAL-INTE-013	3) A Presence Trigger invoked when a presentity's contactability changes for the associated service or application;	PDE 1.2	Client Interaction
PAL-INTE-014	4) Presence Triggers based on changes in each other existing Presence Information Elements as described in [PDE_DDS];	Future release	Client Interaction

PAL-INTE-015	5) A Presence Trigger invoked when a presentity's proximity to a Watcher changes;	Future release	Client Interaction
PAL-INTE-016	6) A Presence Trigger invoked when it is detected that a Presentity has updated a note;	PDE 1.2	Client Interaction
PAL-INTE-017	7) A trigger invoked when a presentity switches from an eligible to ineligible session participation state (or vice-versa) for a given service or application.	Future release	Client Interaction
	The PAL enabler SHALL support the following actions upon execution of Presence Triggers:		
PAL-INTE-018	1) Generate a notification toward PAL Clients; (i.e. Notify that a trigger condition has been met)	PAL 1.0	Client Interaction
PAL-INTE-019	2) Generate a .notification toward a service with instructions provided by a PAL Service. (e.g. trigger an IM service to send an invitation)	Future release	Client Interaction
PAL-INTE-020	The PAL Service SHALL allow optimized delivery of Presence Aspects and Presence Triggers toward a PAL Client (e.g. bundling).	PAL 1.0	Client Interaction
PAL-INTE-021	The PAL Enabler SHALL ensure that PAL Service protocols provide support for PAL Clients deployed on devices without support for the Presence SIMPLE Enabler (re: Watcher functionality).	PAL 1.0	Client Interaction
PAL-INTE-022	The PAL Enabler SHALL provide PAL Clients with a consistent and unambiguous view of Presence Information.	PAL 1.0	Client Interaction
PAL-INTE-023	The PAL Enabler SHALL provide a mechanism to define User specific Presence Aspects.	PAL 1.0	Client Interaction
PAL-INTE-024	The PAL Enabler MAY allow a Presence Aspect to be combined with another Presence Aspects.	PAL 1.0	Client Interaction
	The PAL Enabler SHALL provide a mechanism for a PAL Client to store the following User specific information:		
PAL-INTE-025	1) Presence Aspects;	PAL 1.0	Client Interaction
PAL-INTE-026	2) Presence Triggers.	PAL 1.0	Client Interaction
PAL-INTE-027	The PAL Enabler MAY provide a mechanism to search Presence Aspects or Presence Triggers.	PAL 1.0	Client Interaction
PAL-INTE-028	The PAL Enabler MAY provide a mechanism to share User specific Presence Aspects or Presence Triggers with other PAL Clients.	PAL 1.0	Client Interaction
PAL-INTE-029	The PAL Enabler SHALL support the suspension or resumption for the delivery of Presence Information associated with a Presence Context.	PAL 1.0	Client Interaction
	The PAL Enabler SHALL support the monitoring of Presence Aspect changes using Presence Triggers on the following basis:		
PAL-INTE-030	1) One-time until a change is detected;	PAL 1.0	Client Interaction
PAL-INTE-031	2) Over a specified time period;	PAL 1.0	Client Interaction
PAL-INTE-032	3) Over an indefinite time period until cancelled.	PAL 1.0	Client Interaction
	The PAL Enabler SHALL support the following specified constraints when establishing a Presence Context:		
PAL-INTE-033	1) Quality of Service (e.g. QoS associated with a Presence Aware Service);	PAL 1.0	Client Interaction

	The PAL Enabler SHALL support the following specified constraints when requesting Presence Aspects associated with a Presence Context:		
PAL-INTE-034	1) Level of interest (e.g. level of interest associated with a Presence Aware Service);	PAL 1.0	Client Interaction
PAL-INTE-035	2) Priority value (e.g. priority associated with a Presence Aspect request).	PAL 1.0	Client Interaction
PAL-INTE-036	The duration of a Presence Context SHALL last until it is explicitly terminated.	PAL 1.0	Client Interaction
PAL-INTE-037	The PAL Enabler SHALL provide a mechanism to suppress notifications regarding a certain PAL Client's Presence Aspects.	PAL 1.0	Client Interaction
PAL-INTE-038	The PAL Enabler SHALL provide a mechanism to suppress the predefined action upon execution of a Presence Trigger regarding a certain PAL Client's Presence Aspect.	PAL 1.0	Client Interaction

**Table 7: High-level Functional Requirements – Client Interaction**

## 6.2.5 Context

This sub-clause provides PAL Enabler requirements associated with Presence Context.

Label	Description	Release	Functional module
PAL-CTXT-001	The PAL Enabler SHALL permit a Presence Aware Service to be associated with a Presence Context.	PAL 1.0	Context
PAL-CTXT-002	The PAL Enabler SHALL be able to establish a Presence Context on behalf of a Presence Aware Service.	PAL 1.0	Context
PAL-CTXT-003	The PAL Enabler SHALL be able to resolve a Presence Context corresponding to a Presence Aware Service.	PAL 1.0	Context
	The Presence Context SHALL include a set of common predefined:		
PAL-CTXT-004	1) Presence Aspects;	PAL 1.0	Context
PAL-CTXT-005	2) PAL Rules;	PAL 1.0	Context
PAL-CTXT-006	3) PAL Policy.	PAL 1.0	Context
PAL-CTXT-007	The PAL Enabler SHALL provide support for a policy resolution mechanism for processing logic of Presence Information applicable to a Presence Aspect.	PAL 1.0	Context
PAL-CTXT-008	A Presence Context MAY incorporate common predefined Presence Triggers, if detected changes to Presence Information relating to a Presence Aspect are applicable.	PAL 1.0	Context

**Table 8: High-level Functional Requirements – Context**

## 6.2.6 Privacy and Security

This sub-clause specifies PAL Enabler requirements relating to privacy and security of information requested and processed by the PAL Service on behalf of PAL Clients. A PAL Service can for e.g., support and uphold the privacy and security of OMA Presence. Additionally, the PAL Service may support PAL specific privacy and security.



Label	Description	Release	Functional module
PAL-SEC-001	The PAL enabler SHALL adhere to the OMA Presence Service privacy requirement when processing information on behalf of a Watcher, as described in [PRS_RD].	PAL 1.0	Privacy & Security
PAL-SEC-002	The PAL enabler SHALL comply with OMA Presence Service security requirements in order to facilitate Watcher access to Presence Information, as described in [PRS_RD].	PAL 1.0	Privacy & Security
PAL-SEC-003	The PAL Enabler SHALL be able to apply PAL Policy to further restrict Presence Information the Watcher is allowed to see.	PAL 1.0	Privacy & Security
PAL-SEC-004	The PAL Enabler MAY use OMA GPM Enabler for privacy and security management puposes, as described in [GPM_RD].	GPM 1.0	Privacy & Security
PAL-SEC-005	The PAL Enabler SHALL provide a mechanism for Presence Aspects to adopt an appropriate privacy level associated with underlying Presence Information.	PAL 1.0	Privacy & Security
PAL-SEC-006	The PAL Enabler SHALL provide a mechanism for Presence Aspects to adopt an appropriate security level associated with underlying Presence Information.	PAL 1.0	Privacy & Security

**Table 9: High-level Functional Requirements – Privacy and Security**

## 6.2.7 Provisioning and Administration

This sub-clause specifies PAL Enabler requirements relating to the management of the Presence Access Layer. For example, provisioning may include the ability to establish PAL Profiles for Presence Aware Services. Further, it will allow support for reporting and charging on behalf of a Service Provider.

Label	Description	Release	Functional module
	The PAL Enabler SHALL provide a mechanism to perform the following operations to a Presence Aspect or a Presence Trigger:	PAL 1.0	
PAL-PRAD-001	1) Retrieve;	PAL 1.0	Provisioning & Administration
PAL-PRAD-002	2) Create;	PAL 1.0	Provisioning & Administration
PAL-PRAD-003	3) Modify;	PAL 1.0	Provisioning & Administration
PAL-PRAD-004	4) Delete.	PAL 1.0	Provisioning & Administration
PAL-PRAD-005	The PAL Enabler SHALL provide a mechanism with which a Service Provider is able to manage and administer a PAL Service.	PAL 1.0	Provisioning & Administration
	A Service Provider or PAL Administrator SHALL be able to perform the following operations:		
PAL-PRAD-006	1) Create a PAL Profile;	PAL 1.0	Provisioning & Administration

PAL-PRAD-007	2) Retrieve a PAL Profile;	PAL 1.0	Provisioning & Administration
PAL-PRAD-008	3) Modify a PAL Profile;	PAL 1.0	Provisioning & Administration
PAL-PRAD-009	4) Remove a PAL Profile.	PAL 1.0	Provisioning & Administration
PAL-PRAD-010	The PAL Enabler SHALL support tracking and reporting of Presence Information for charging purposes.	Future release	Provisioning & Administration
PAL-PRAD-011	The PAL Enabler SHALL support charging events related to consolidation and delivery of Presence Information in the form of Presence Aspects.	Future release	Provisioning & Administration
	The PAL Enabler SHALL support the following:		
PAL-PRAD-012	1) Both online and offline charging;	Future release	Provisioning & Administration
PAL-PRAD-013	2) Pre-paid and post-paid charging;	Future release	Provisioning & Administration
PAL-PRAD-014	3) Transport/bearer level charging;	Future release	Provisioning & Administration
PAL-PRAD-015	4) PAL Subscription based charging.	Future release	Provisioning & Administration

Table 10: High-level Functional Requirements – Provisioning and Administration

### 6.3 Overall System Requirements

Label	Description	Release	Functional module
PAL-SYS-001	The PAL Enabler SHALL leverage existing technologies and specifications as far as possible to satisfy the requirements, such as protocols, data representations and encoding formats defined within OMA and by other standards bodies (e.g. OMA PUSH Enabler for notifications, OMA XDM Enabler for PAL Profiles).	PAL 1.0	Overall System Requirements
PAL-SYS-002	The formalism to be used by a PAL Client to request and/or receive notifications from a PAL Server SHALL be independent of any particular transport protocol (i.e. it may be mapped to several transport protocols, such as SIP and HTTP).	PAL 1.0	Overall System Requirements

Table 11: High-Level System Requirements

## Appendix A. Change History

(Informative)

### A.1 Approved Version History

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

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

Document Identifier	Date	Sections	Description
Draft Versions OMA-RD-PAL-V1_0	22 Oct 2008	All	PAL V1.0 RD baseline document according to OMA-PAG-2008-0676.
	12 Jan 2009	2	Incorporated CRs:
		3	OMA-PAG-PAL-2008-0001R01-CR_PAL_V1_0_RD_AddModules
		6	OMA-PAG-PAL-2008-0003R01-CR_PAL_V1_0_RD_AddDefs
		B.1	OMA-PAG-PAL-2008-0004R03-CR_PAL_V1_0_RD_ConsumingPRSInfo
			OMA-PAG-PAL-2008-0005-CR_PAL_V1_0_RD_PrivacyAndSecurity
	18 Feb 2009		OMA-PAG-PAL-2008-0006R03-CR_PAL_V1_0_RD_PresenceTriggers
			OMA-PAG-PAL-2008-0007-CR_PAL_V1_0_RD_AddRefs
		2	Incorporated CRs:
		3	OMA-PAG-PAL-2009-0002-CR_PAL_V1_0_FixAndAddRefs
B.2		OMA-PAG-PAL-2009-0003-CR_PAL_V1_0_RD_AddDefinitions	
26 Mar 2009	6	OMA-PAG-PAL-2009-0004-CR_PAL_V1_0_RD_RevisedUseCaseB2	
	B.3	OMA-PAG-PAL-2009-0005R01-	
	B.4	CR_PAL_V1_0_RD_General_Requirements	
		OMA-PAG-PAL-2009-0006-CR_PAL_V1_0_RD_ContextUseCase.zip	
		OMA-PAG-PAL-2009-0007R01-	
		CR_PAL_V1_0_RD_Context_Requirements	
		OMA-PAG-PAL-2009-0008R01-	
		CR_PAL_V1_0_RD_DeterminatePAUseCase	
		OMA-PAG-PAL-2009-0009R01-	
		CR_PAL_V1_0_RD_Interraction_Requirements	
27 Mar 2009		OMA-PAG-PAL-2009-0010R01-	
		CR_PAL_V1_0_RD_Interworking_Requirements	
	All	General editorial clean-up by DSO	
15 Apr 2009	6.2.5	OMA-PAG-PAL-2009-0015R01-	
	6.2.7	CR_PAL_V1_0_RD_Interoperability_Requirements	
	6.2.11	OMA-PAG-PAL-2009-0018R01-	
	6.2.9	CR_PAL_RD_Requirements_for_ClientInt.zip	
	2.1	OMA-PAG-PAL-2009-0019R01-	
	6.2.1	CR_PAL_RD_Requirements_for_Interworking	
	6.2.6	OMA-PAG-PAL-2009-0020R01-	
	CR_PAL_RD_Requirements_for_Security_and_Privacy		
24 Apr 2009	3.2	OMA-PAG-PAL-2009-0017R04-	
	3.3	CR_PAL_V1_0_RD_Additional_ClientInt_Requirements	
	6.2	OMA-PAG-PAL-2009-0021R01-	
	6.2.5	CR_PAL_V1_0_RD_Interop_Requirements	
	6.2.7	OMA-PAG-PAL-2009-0022R02-CR_PAL_V1_0_RD_Miscellaneous_Defs	
	6.2.10	OMA-PAG-PAL-2009-0023R02-	
	6.2.11	CR_PAL_V1_0_RD_MoreClientInt_Requirements	
		OMA-PAG-PAL-2009-0024-	
		CR_PAL_V1_0_RD_MoreHighLevelFunc_Requirements	
		OMA-PAG-PAL-2009-0026R01-	
		CR_PAL_V1_0_RD_ProvAndAdmin_Requirements	
	OMA-PAG-PAL-2009-0027R02-		
	CR_PAL_V1_0_RD_MorePrivSecurity_Requirements		
	OMA-PAG-PAL-2009-0029R01-CR_PAL_RD_suppression_support		

Document Identifier	Date	Sections	Description
	26 Jun 2009	6.2.5 6.3  4 3.2 6 6.2.7 Appendix B 6.2.4 6.2.7 6.2.4 6.2.1.2 3.2, 5	OMA-PAG-PAL-2009-0034R01-CR_PAL_V1_0_RD_Resolution_Proposal_for_Informal_Review_Comment  OMA-PAG-PAL-2009-0036-CR_PAL_V1_0_RDRR_A002 OMA-PAG-PAL-2009-0035R01-CR_PAL_V1_0_RDRR_A001 OMA-PAG-PAL-2009-0038-CR_PAL_V1_0_RDRR_A004 OMA-PAG-PAL-2009-0039R01-CR_PAL_V1_0_RDRR_A008 OMA-PAG-PAL-2009-0040-CR_PAL_V1_0_RDRR_A012 OMA-PAG-PAL-2009-0042R02-CR_PAL_1.0_RDRR_A007_A010_A011 OMA-PAG-PAL-2009-0043R02-CR_PAL_1.0_RDRR_A009 OMA-PAG-PAL-2009-0051R01-CR_PAL_V1_0_RDRR_A005 OMA-PAG-PAL-2009-0053-CR_PAL_V1_0_RDRR_A013 OMA-PAG-PAL-2009-0037R01-CR_PAL_V1_0_RDRR_A003
	01 Jul 2009	5	Editorial correction Figure 1
	07 Jul 2009	2.1, 2.2 6.2.1, 6.2.2 Appendix C	Fully implemente OMA-PAG-PAL-2009-0034R01-CR_PAL_V1_0_RD_Resolution_Proposal_for_Informal_Review_Comment Editorial correction
Candidate Version OMA-RD-PAL-V1_0	28 Jul 2009	n/a	Status changed to Candidate by TP: TP ref# OMA-TP-2009-0328- INP_PAL_V1_0_RD_for_Candidate_Approval
Draft Versions OMA-RD-PAL-V1_0	12 Nov 2009	2.1, 3.2	Incorporated CRs: OMA-PAG-PAL-2009-0057-CR_PAL_V1_0_RD_EditorsNote_Defs OMA-PAG-PAL-2009-0069R04-CR_PAL_V1_0_AD_PAL_A001_A002 Sorting in alphabetical order of lists in 2.1 and 3.2
	13 Nov 2009	3.2	Re-application of OMA-PAG-PAL-2009-0069R04
Candidate Version OMA-RD-PAL-V1_0	07 Dec 2009	n/a	Status changed to Candidate by TP: TP ref# OMA-TP-2009-0552-INP_PAL_V1_0_RD_for_notification
Draft Versions OMA-RD-PAL-V1_0	24 Feb 2010	3.2	Re-application of OMA-PAG-PAL-2009-0057-CR_PAL_V1_0_RD_EditorsNote_Defs combined with OMA-PAG-PAL-2009-0069R04-CR_PAL_V1_0_AD_PAL_A001_A002
	26 Feb 2010	3.2	Correction to the re-application of OMA-PAG-PAL-2009-0057-CR_PAL_V1_0_RD_EditorsNote_Defs, combined with OMA-PAG-PAL-2009-0069R04-CR_PAL_V1_0_AD_PAL_A001_A002
	11 May 2010	All	Incorporated CRs: OMA-COM-PRS-2010-0061R01, OMA-COM-PRS-2010-0062.
Candidate Version OMA-RD-PAL-V1_0	17 Aug 2010	n/a	Status changed to Candidate by TP: TP ref# OMA-TP-2010-0333- INP_PAL_V1_0_ERP_and_ETR_for_Candidate_approval

## Appendix B. Use Cases (Informative)

The use cases described herein are intended to illustrate the main usage of the PAL Enabler and to facilitate a better and clearer understanding of PAL Enabler requirements. The described use cases are not an exhaustive list of possible use cases for the PAL Enabler.

### B.1 Consuming specific Presence Information.

This use case demonstrates how PAL may be used to expose specific Presence Information in the form of Presence Aspects to provide determinate and consistent Presence Information on behalf of clients utilizing a Presence Aware Service.

#### B.1.1 Short Description

Alice, and Bob are users of an Instant Message (IM) service known as 'MyFriendlyChat' on their wireless devices and have previously invited/added one another to their mobile devices MyFriendly Chat buddy list.

Alice is returning to her college after a day of classes and considers inviting Bob to join her for dinner. Alice uses her mobile device and invokes the MyFriendly Chat service. Alice then opens her buddy list and sees that Bob is willing to chat. She types in a quick message to invite Bob to dinner. Bob receives an audible 'alert' on his mobile, and proceeds to check his device and views Alice's message. He replies (via MyFriendly Chat) that he would be happy to join her for dinner, and will meet her in the college reception area.

#### B.1.2 Market benefits

A PAL Client such as that running on Alice's mobile device is no longer required to compute whether Bob is willing based on raw Presence Information provided by an OMA Presence Service. A PAL Presence Aspect based on the presentity's willingness indicator is exposed on behalf of the MyFriendly Chat service. This Presence Aspect allows software vendors to rapidly create presence capable mobile client software.

A reduction in resources required to transport and process Presence Information, will increase adoption rates of Presence Aware Services (e.g. MyFriendly Chat) by Service Providers. This will result in increased average revenue per user (ARPU) through the creation of new and inventive mobile services on behalf of subscribers.

### B.2 Presence information for parental monitoring.

This use case details how PAL provides a Presence Trigger based on detected changes in Presence Information from mobile devices originating within a local or remote network.

#### B.2.1 Short Description

Anthony and Josephine are father and daughter, and subscribers of XYZ Wireless. Anthony subscribes to a mobile monitoring service known as 'Parental-Alert' which is used to monitor activities and/or location of his daughter based on Presence Information, including tagged location reported by Josephine's device. Anthony invokes Parental-Alert to monitor the status of Josephine while she is out with friends (e.g. Josephine is 'at home', 'at the mall', 'studying', etc.). When a PAL Presence Trigger detects a change (e.g. a detected change in Josephine's 'activity' information element) a corresponding action is executed by PAL on behalf of a Watcher. For example, Anthony's mobile device receives an audible alert signifying Josephine is in distress and needs assistance.

##### B.2.1.1 Alternate Flow

This use case may be expanded to function through a remote network. For example, if Josephine were to begin attending college the following year in a different country, it would be highly desirable for her father, Anthony, to continue monitoring the state of his daughter. Anthony may wish to receive a 'parental alert' in the form of a Presence Trigger on behalf of his daughter, when she returns to her college dormitory, or experiences an emergency.

#### B.2.2 Market benefits

A PAL Client provides Presence Triggers, which allow a Presence Aware Service (i.e. Parental-Alert) manifested on the mobile device to receive simple asynchronous notifications relating to a detected state-change. Further, PAL exposes

consistent and interoperable Presence Triggers (e.g. 'on-activity-update') such that a Presence Aware Service can continue to function properly, regardless of where the Watcher or Presentity mobile devices are currently roaming.

## **B.3 Presence Context associated with a Presence Aware Service.**

This use case details how a Presence Aware Service is associated, and benefits from a Presence Context.

### **B.3.1 Short Description**

XYZ Wireless deploys two wireless Presence Aware Services within its network: a wireless IM service known as 'MIMO' (from M-Wire Inc.), and a PoC service (i.e. 'P-Talk' - from Airborne Software Inc.). As part of service initiation within XYZ's network, both IM and PoC service's their unique Presence Context through a PAL Service. The PAL Service resolves, based on service identity, applicable Presence Context including interoperable Presence Aspects, rules, and policy values. Presence Triggers may also be specified as part of Presence Context. That is, Presence Context specifies a presence environment within the PAL Enabler, corresponding to a Presence Aware Service for the consumption of Presence Information. For example, MIMO makes use of Presence Aspect 'willingness' while P-Talk requires Presence Aspect 'contactable' in order to fulfil subscriber contact functionality within XYZ's mobile network.

### **B.3.2 Market benefits**

Presence Context reduces complexity on behalf of a Presence Aware Service, by narrowing the set of interoperable Presence Aspects, rules, policy values and Presence Triggers required by a Presence Aware Service. This permits third-party software vendors (e.g. M-Wire Inc.) to rapidly introduce Presence Aware Services on behalf of Service Providers such as XYZ Wireless. Further, a network Service Provider will increase their average revenue per user (ARPU) based on new service offerings towards mobile subscribers and increased customer satisfaction.

## **B.4 Resolve indeterminate presence indicators.**

This use case details how a Watcher is able to obtain determinate Presence Aspect indicators through a PAL Service, in situations where the corresponding Presence Information for a Presentity is incomplete or inconclusive.

### **B.4.1 Short Description**

Alice and Bob are users of the PoC-Alert service from XYZ Wireless. As a subscriber to XYZ Wireless, Alice and Bob reflect their presence status through XYZ's OMA compliant Presence Service in the role of presentities. Alice and Bob are also subscribed to each others Presence Information. Alice starts the PoC-Alert client on her device and scans the list of 'available' contacts to initiate a PoC-Alert message toward Bob. Bob has not published any presence status to the Presence Service, relating to the PoC-Alert service. Alice is authorized to receive Bob's Presence Information. Fortunately, XYZ Wireless also deploys a PAL Service within its network infrastructure. The PAL Service has an associated Presence Context configured to operate on behalf of the PoC-Alert service with a policy. Alice is able to select Bob as an 'available' contact for the purposes of sending him a PoC-Alert message.

### **B.4.2 Market benefits**

Rules and policy within the PAL Enabler is applied on a per-service basis, as part of Presence Context, in order to specify processing logic of Presence Information. PAL rules and policy benefit Presence Aware Services, as clients are able to receive consistent and determinate Presence Aspect indicators even in scenarios Presence Information provided by a Presentity may be missing, or indeterminate.