Service User Profile Management Architecture

Candidate Version 1.0 – 11 Jan 2011

Open Mobile Alliance

OMA-AD-Service_User_Profile_Management-V1_0-20110111-C

Contents

Figures

1. Scope (Informative)

The Service User Profile Management (SUPM) enabler provides a standardized interface to access and manage the data related to Service User Profile, with which applications and/or enablers can create, read, update and delete those data in order to support contextualization and personalization of the User's services.

This document provides the architecture of the SUPM enabler. This architecture is defined for this enabler to support the requirements described in the Service User Profile Management Requirements Document [SUPM-RD].

2. References

2.1 Normative References

[OSE] "OMA Service Environment", Open Mobile Alliance™, 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

[SUPM-RD] "OMA Service User Profile Management Requirements", Open Mobile Alliance™, OMA-RD-Service_User_Profile_Management-V1_0, 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” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

Application	See [OMADICT]
Authorized Principal	See [OMADICT]
Principal	See [OMADICT]
Resource	See [OMADICT]
Service	See [OMADICT]
Service Provider	See [OMADICT]
Service User Profile	See [SUPM-RD]
User Profile	See [OMADICT]
User	See [OMADICT]
User’s Characteristic Description Information	See [SUPM-RD]
SUPM Data View	SUPM Data View is a set of Service User Profile data elements that are accessible through SUPM-1 interface.

3.3 Abbreviations

AD	Architecture Document
CAB	Converged Address Book
CBCS	Categorization Based Content Screening
CPM	Converged IP Messaging
GSSM	General Service Subscription Management
HTTPS	Hypertext Transfer Protocol Secure
LDAP	Lightweight Directory Access Protocol
OMA	Open Mobile Alliance
PRS	Presence
SUPM	Service User Profile Management
SUPL	Secure User Plane Location
TLS	Transport Layer Security
UDC	User Data Convergence
XDM	XML Document Management

4. Introduction (Informative)

The Services User Profile Management (SUPM) is an enabler whose objective is to offer to applications and/or enablers the possibility to access and manage data related to the users and their services that these application and/or enablers need for being able to personalise and contextualise those services that they want to deliver.

SUPM acts as a middle-man between applications and/or enablers offering user services (for example being recommended a program in correspondence with the preferences of the user, combined with its current location) and the enabler or other resources managing existing user-related information.

The SUPM enabler allows an authorized principal to manipulate Services User Profile data, i.e. any element or group of element belonging to a Service Provider managed set of information related to a User that may be used to create personalized and contextualised services. The set of information may include both static and dynamic information. The SUPM enabler supports requests to create/read/update/delete Service User Profile data. .

To do so, the SUPM enabler has the ability to transform the format of data between that (either supplied or received) on the SUPM interface and the underlying data sources and to expose an aggregated view of the Service User Profile.

Consequently, SUPM allows the authorized principal to manipulate the user data that it needs in order to personalise and contextualise a service for a given user. For example, a service can use SUPM to get the gender and age of the user, as well as his interests in gaming, and current device capabilities in order to personalise a game downloading service restricted to games in accordance with the Gender/Age/Device Capabilities/Type of Games.

This document defines the functional components and the interfaces of the SUPM enabler, thus providing its architecture, in alignment with the requirements that have been captured in the Services User Profile Management Requirements Document [SUPM-RD].

4.1 Version 1.0

This architecture document covers all requirements [SUPM-RD] of SUPM V 1.0.

5. Architectural Model

SUPM architecture specifies one interface and one component based on [SUPM RD] and is described in following sections.

5.1 Dependencies

Where the SUPM Enabler interacts with other OMA Enablers, it should follow the principles of [OSE]. An example of possible SUPM relationship at deployment time with other enablers is given in appendix C.

5.2 Architectural Diagram

The following figure represents the SUPM architecture, showing the SUPM interface and the SUPM component.

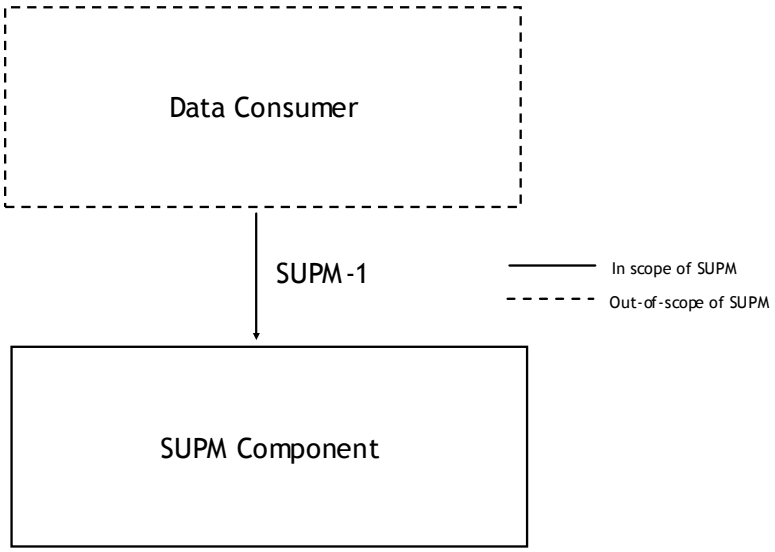

Figure 1 – SUPM Enabler Architectural Diagram

5.3 Functional Components and Interfaces definition

5.3.1 SUPM Component Description

The role of this component is to be the single contact point for data consumer requests to access and manage User related data.

This component allows a data consumer to create, read, update, or delete Service User Profile data for a specific user.

The read operation requests the SUPM Component to return a single value for each data element indicated in the request.

The SUPM component performs the following functions:

- Analysis of the request
- For each data element, determines based on configuration at deployment time, where the data is stored, performs the requested operation in the data source(s), and captures any resulting information to be returned to the data consumer.
- May change the format of the data retrieved from the data source before sending the response to the data consumer.

- Data aggregation: for each read command SUPM may return a grouping of data elements fetched by SUPM from one or more data sources.

Note that in the implementation, SUPM Component could cache the Service User Profile data retrieved from different data sources. The cached Service User Profile data should be kept consistent and how to achieve this is out of scope of SUPM enabler.

Note that in the implementation, the user identifier used in the SUPM-1 interface may need to be mapped by the SUPM component to the various identifiers used across the different data sources (e.g. map MSISDN to SIP URI).

Note that in some deployment scenario, several instances of this component may exist.

5.3.2 SUPM-1 Interface

This interface provides the entry point to SUPM enabler for data consumers.

It operates in a request/response model.

This interface supports requests to create/read/update/delete Service User Profile data, and the corresponding responses. The request contains the following information related to the operation to be performed:

- Identification of the Data Consumer
- Identification of the user
- Type of operation: create/read/update/delete
- Identification of the data on which the operation will be performed

The response contains the result of the requested operation.

Note that identification of the data will be specified at the TS stage.

SUPM-1 interface gives access to Service User Profile Information. This information can be static or dynamic; managed by Service Providers, users and/or other principals; explicitly specified by someone or computed:

- related to the user himself, the services he uses, the preferences he has (often static type)
- related to the current situation of the user, such as location, presence, current device capabilities (often dynamic type)
- related to User's Characteristic Description Information (often computed type)

Data elements of the Service User Profile may be defined by the SUPM enabler specification (names and formats), by other specifications or may be defined by Service Providers for a given deployment.

SUPM enabler allows to expose different SUPM Data Views of the Service User Profile data to the data consumer.

5.4 Security Considerations

SUPM-1 interface is expected to be provided over secure connections, e.g. as secured by TLS (e.g. HTTPS), to ensure that the interface operations are only visible to the appropriate data consumer.

SUPM SHOULD allow Service Provider's deployment to perform the specific security features below:

- mutual authentication of the data consumer and SUPM Component
- integrity protection between data consumer and SUPM Component
- authorizing data consumer of operations on SUPM data, to ensure that different data consumers have different access control level to user data (including the protection of privacy of user data)

Note that how to achieve access control is implementation specific.

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 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-AD-SUPM-V1_0	30 Sept 2009	all	Submission of plan = baseline AD, to allow INP and CRs to refer to sections Numbers. Incorporates input to committee: OMA-ARC-*SUPM-2009xxxxxxxxx SUPMxxxx*
	18 Nov 2009	1, 2.1, 3.2, 4, 4.1, 5, App C	OMA-ARC-2009-0340R01-INP_SUPM_AD_section1_Scope.doc OMA-ARC-2009-0341R01-INP_SUPM_AD_2_1_NormativeReferences.doc OMA-ARC-2009-0344R01-INP_SUPM_AD_section3_2_Definitions.doc OMA-ARC-2009-0345R03-INP_SUPM_section4_Intro_Version1_0.doc OMA-ARC-2009-0346R02-INP_SUPM_AD_section5_INTRO_ArchitecturalModel.doc OMA-ARC-2009-0346R02-INP_SUPM_AD_section5_INTRO_ArchitecturalModel.doc OMA-ARC-2009-0347R01-INP_SUPM_AD_section4_1_version_content.doc
	2 Dec 2009	all	OMA-ARC-2009-0388-INP_SUPM_ArchitecturalModel_drawing_inPPT; OMA-ARC-2009-0389-INP_SUPM_appendixC_drawing_inPPT; OMA-ARC-2009-0391R01-INP_SUPM_explanations_figure1; OMA-ARC-2009-0392R01-INP_SUPM_features OMA-ARC-2009-0393-INP_SUPM_supm1_interface
	30 Dec 2009	all	OMA-ARC-SUPM-2009-0003-CR_Align_Terminology; OMA-ARC-ServUserProf-2009-0007R01-CR_Definitions; OMA-ARC-ServUserProf-2009-0014R01-CR_adding_references___section_2; OMA-ARC-ServUserProf-2009-0016-CR_Update_section_4.1; OMA-ARC-ServUserProf-2009-0020-CR_updating_5.3.2; OMA-ARC-ServUserProf-2009-0021-CR_Security_inputs_in_section_5.4.
	13 Jan, 2010	all	OMA-ARC-ServUserProf-2009-0001R01-CR_Data_Operation_Flow; OMA-ARC-SUPM-2009-0006R03-CR_Section_5_introductory_part; OMA-ARC-ServUserProf-2009-0008R02-CR_Descriptors_are_used_over_SUPM_1; OMA-ARC-ServUserProf-2009-0013R01-CR_Changes_to_section_1__scope; OMA-ARC-ServUserProf-2009-0018R01-CR_Update_section_5.1; OMA-ARC-ServUserProf-2009-0019R01-CR_Changes_in_5.3.1.
	14 Jan, 2010	all	OMA-ARC-SUPM-2009-0015R01-CR_Update_Introduction__section_4; OMA-ARC-SUPM-2009-0017R02-CR__adding_dependencies___section_5.1; OMA-ARC-SUPM-2010-0001-CR_Fix_Appendix_C; OMA-ARC-SUPM-2010-0003R01-CR_Store_Functionality.
	13 Feb, 2010	2.1, 3.2, 3.3, 4, 5.1, 5.3, A.1, B.1, and C	Resolve clerical ADRR issues: A003, A005, A007, A019, A020, A030, A036, A037, A059, A060, and A066.
	16 Feb 2010	3.3, 5.4	OMA-ARC-SUPM-2010-0015R03

Document Identifier	Date	Sections	Description
	25 Feb, 2010	all	OMA-ARC-SUPM-2010-0016R04-CR_AD_Search_Operation; OMA-ARC-SUPM-2010-0034R01-CR_ADRR_Dependencies; OMA-ARC-SUPM-2010-0035R01-CR_ADRR_Introduction; OMA-ARC-SUPM-2010-0036-CR_AD_Consistent_Data_Appendix.
	05 Mar, 2010	all	OMA-ARC-SUPM-2010-0043R02-CR_AD_Issue_5_User_ID_Mapping; OMA-ARC-SUPM-2010-0044R01-CR_ADRR_Issue_8_Consistency; OMA-ARC-SUPM-2010-0045R01-CR_ADRR_Issue_9_Privacy.
	17 Mar, 2010	all	OMA-ARC-SUPM-2010-0047R04- CR_ADRR_A001_A069_Scope_section.doc; OMA-ARC-SUPM-2010-0049R02- CR_ADDR_A025_A071_Chapter_5.0.doc; OMA-ARC-SUPM-2010-0052R01-CR_A018_A033_Aggregation.doc; OMA-ARC-SUPM-2010-0057R03-CR_ADRR_A041_A042_5.3.1.doc; OMA-ARC-SUPM-2010-0058R01-CR_ADDR_Appendix_C.doc OMA-ARC-SUPM-2010-0059R04- CR_ADRR_A045_A052_Section_5.3.2.doc; OMA-ARC-SUPM-2010-0063R03-CR_ADRR_Appendix_B.doc; OMA-ARC-SUPM-2010-0065R01- CR_Revision_of_CR_0064_by_SUPM_Interim.doc; OMA-ARC-SUPM-2010-0066R01- CR_ADRR_A006_Data_consumer.doc; OMA-ARC-SUPM-2010-0067R01-CR_Data_element.doc. OMA-ARC-SUPM-2010-0055R03-CR_ADRR_A021.doc
	18 Mar 2010	All	Editorial update according to the agreed ADRR comments resolution: A008, A009, A010, A011.
Candidate Version: OMA-AD-Service_User_Profile_Management-V1_0	20 Apr 2010	All	Status changed to Candidate by TP: OMA-TP-2010-0178-INP_SUPM_V1_0_AD_for_Candidate_approval
Draft Versions: OMA-AD-Service_User_Profile_Management-V1_0	13 Oct 2010	2.2, 4, 5.4	Implemented agreed change: OMA-ARC-SUPM-2010-0159-CR_CONR_AD_Editorials
	24 Nov 2010	5.3.2	Implemented agreed change: OMA-ARC-SUPM-2010-0177R01-CR_CONR_C004_C005
Candidate Version: OMA-AD-Service_User_Profile_Management-V1_0	11 Jan 2011	All	Status changed to Candidate by TP: OMA-TP-2010-0530-INP_SUPM_V1_0_ERP_for_Candidate_Approval

Appendix B. Flows (informative)

B.1 Data Operation Call Flow

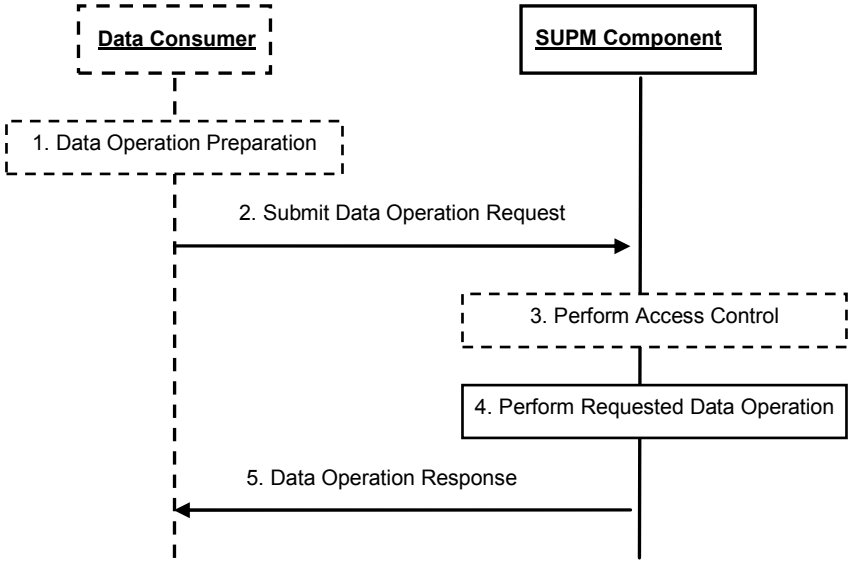

Figure 2 - Data Operation Call Flow

This call flow is triggered by data consumer's internal execution logic.

1. Data consumer decides what operation to perform, and collects the related information. This step is out of scope of the SUPM enabler.
2. Data consumer sends Service User Profile data operation request to the SUPM component.
3. SUPM component performs the access control for the data consumer, the User, the operation, and the requested data.
4. SUPM component performs the operation for the identified Service User Profile data. SUPM component determines based on configuration at deployment time, where the actual data specified in the request resides and fetches the data from the data source.
5. SUPM component returns back the result of the operation to the data consumer.

Appendix C. Deployment Diagram (informative)

The following figure presents a possible deployment scenario.

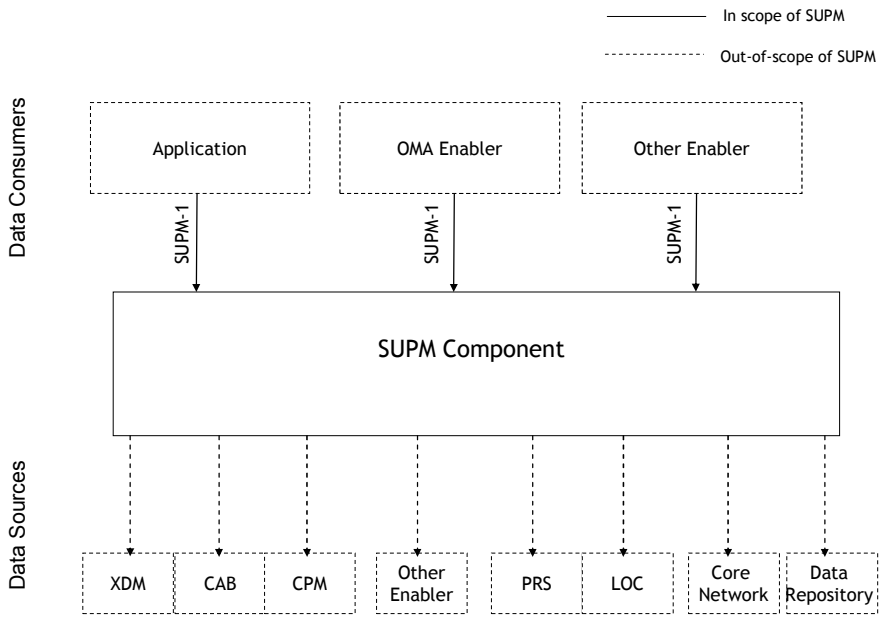

Figure 3 – SUPM Deployment Diagram

Appendix D. Data mapping considerations in SUPM deployments (Informative)

The SUPM enabler offers a view of the Service User Profile through a single interface (SUPM-1) to data consumers (e.g. applications and/or enablers). Data consumers can access and manage data elements of the Service User Profile without having to care about the actual (possibly different) data sources for the various data elements of the profile.

The method for mapping the data element from the Service User Profile view to the actual data elements in the data sources (see Figure 3) is implementation specific. The configuration of this mapping is outside the scope of this specification.

A SUPM implementation should be capable of associating one or more data sources to each data element exposed via the SUPM-1 interface.

If there is one data source for each data element exposed via the SUPM-1 interface, SUPM will provide a view of the Service User Profile of the different data elements from the configured data sources.

If there are more than one data sources for a given data element, SUPM provides a view based on the following principles: At configuration time, the Service Provider chooses which data source is used to return the value for the read operation. For a write operation, all data sources are updated per the new value. That means, the data value for a given data element in different data sources will remain consistent as long as the underlying data has not been changed by other (non-SUPM) means.

It is up to the Service Provider to decide which and how many data sources are associated with a data item.