Implementation Guidelines for OMA XDM v1.1

Candidate Version – 27 Jun 2008

Open Mobile Alliance

OMA-WP-XDM_1_1_Implementation_Guidelines-20080627-C

Contents

Figures

1. Scope

The goal of this document is to provide guidelines to designers for the implementation of the XDM Version 1.1 enabler [XDM_ERELD]. The intention is not to replace or extend the XDM Version 1.1 specifications but rather to describe good practices or valuable design choices in order to help interoperability and migration between different implementations.

This document does not contain any new requirements in addition to [XDM_ERELD].

The guidelines consist of a number of recommendations on how to solve design issues in certain situations or real life examples for particular XDM Version 1.1 features.

2. References

[3GPP-TS_24.229] 3GPP TS 24.229 "IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3; Release 7", URL: http://www.3gpp.org/ftp/Specs/archive/24_series/24.229/

[PRS_IG] "Implementation Guidelines for OMA SIMPLE Presence v1.1", Open Mobile Alliance™, OMA-WP-PRS_1_1_Implementation_Guidelines, URL: http://www.openmobilealliance.org/

[PRS_SPEC] "Presence SIMPLE Specification", Version 1.1, Open Mobile Alliance™, OMA-TS-Presence_SIMPLE-V1_1, URL: http://www.openmobilealliance.org/

[RFC3261] IETF RFC 3261 "Session Initiaton Protocol (SIP)", Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M. and E. Schooler, June 2002, URL: http://www.ietf.org/rfc/rfc3261.txt

[RFC3966] IETF RFC 3966 "The tel URI for Telephone Numbers", H. Schulzrinne, December 2004, URL: http://www.ietf.org/rfc/rfc3966.txt

[RFC3986] IETF RFC 3986 "Uniform Resource Identifier (URI): Generic Syntax", T. Berners-Lee, R. Fielding, L. Masinter, January 2005, URL: http://www.ietf.org/rfc/rfc3986.txt

[RFC4825] IETF RFC 4825 "The Extensible Markup Language (XML) Configuration Access protocol (XCAP)", J. Rosenberg, May 2007, URL: http://www.ietf.org/rfc/rfc4825.txt

[UNI_STD] The Unicode Standard, Version 5.0, URL: http://www.unicode.org/versions/Unicode5.0.0/

[W3C_UNIXML] W3C Recommendation "Unicode in XML and other Markup Languages", M. Dürst, A. Freytag , May 16 2007, World Wide Web Consortium (W3C), URL: http://www.w3.org/TR/unicode-xml/

[XDM_AC] "XDM Application Characteristics file of XDM V1.0", Version 1.0, Open Mobile Alliance™, OMA-SUP-AC_ap0003_xdm-v1_0, URL: http://www.openmobilealliance.org/

[XDM_Core] "XML Document Management (XDM) Specification", Version 1.1, Open Mobile Alliance™, OMA-TS-XDM_Core-V1_1, URL: http://www.openmobilealliance.org/

[XDM_ERELD] "Enabler Release Definition for XML Document Management", Version 1.1, Open Mobile Alliance™, OMA-ERELD-XDM-V1_1, URL: http://www.openmobilealliance.org/

[XDM_MO] "OMA Management Object for XML Document Management", Version 1.1, Open Mobile Alliance™, OMA-TS-XDM_MO-V1_1, URL: http://www.openmobilealliance.org/

[XDM_SHARED] "Shared XDM Specification", Version 1.1, Open Mobile Alliance™, OMA-TS-XDM_Shared-V1_1, URL: http://www.openmobilealliance.org/

3. Terminology and Conventions

3.1 Conventions

This is an informative document not intended to provide testable requirements for implementations.

The key word "RECOMMENDED" in this document is used to express the specific implementation guideline(s), and is typically accompanied by the detailed justification and example (if applicable) for the guideline.

3.2 Definitions

Application Server	See [XDM_Core].
Application Unique ID	See [XDM_Core].
Group Usage List	See [XDM_SHARED].
OMA-reserved URI List	URI List defined in [XDM_SHARED] with its specific usage and assigned with a specific "name" attribute value.
Presence Information	See [PRS_SPEC].
Presence List	See [PRS_SPEC].
Presence Authorisation Rules	See [PRS_SPEC].
Presence Subscription	See [PRS_SPEC].
Presentity	See [PRS_SPEC].
Resource List Server	See [PRS_SPEC].
SIP URI	A communication resource as defined by [RFC3261].
tel URI	A globally unique identifier used to describe a resource identified by a telephone number as defined by [RFC3966].
URI List	See [XDM_SHARED].
User-defined URI List	URI List with a "name" attribute value defined by the XDMC.
Watcher	See [PRS_SPEC].
XCAP Application Usage	See [XDM_Core].
XCAP Resource	See [XDM_Core].

3.3 Abbreviations

AS	Application Server
ASCII	American Standard Code for Information Interchange
AUID	Application Unique ID
BMP	Basic Multilingual Plane
ERELD	Enabler Release Definition
HTTP	Hyper Text Transfer Protocol
IETF	Internet Engineering Task Force
IG	Implementation Guidelines
OMA	Open Mobile Alliance

PoC	Push-to-talk over Cellular
PRS	Presence SIMPLE
PS	Presence Server
RFC	Request for Comments
RLS	Resource List Server
SIMPLE	SIP for Instant Messaging and Presence Leveraging Extensions
SIP	Session Initiation Protocol
UE	User Equipment
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
UTF	Unicode Transformation Format
XCAP	XML Configuration Access Protocol
XDM	XML Document Management
XDMC	XML Document Management Client
XDMS	XML Document Management Server
XML	eXtensible Markup Language

4. Introduction

The XDM Version 1.1 service enabler specified by [XDM_ERELD] allows for significant design flexibility, which in some cases may lead to difficulties in interoperability, migration, or user experience between different implementations. This document gives implementation guidance by providing recommendations and examples.

5. Implementation Guidelines

5.1 URI Lists in Shared XDMS

5.1.1 Usage of Different Types of URI Lists

An XDMC has a need to recognize different types of URI Lists: OMA-reserved URI Lists (see section 5.1.1.1) and User-defined URI Lists (see section 5.1.1.2).

As described in [XDM_SHARED], it is possible to have a reference from one URI List to another URI List and in that way create nesting of URI Lists.

The following sections provide recommendations on the usage and the nesting of the different types of URI Lists. Corresponding examples are available in Appendix B.

5.1.1.1 OMA-reserved URI Lists

OMA-reserved URI Lists include the “oma_allcontacts”, “oma_buddylist”, “oma_pocbuddylist”, “oma_blockedcontacts”, and “oma_grantedcontacts” URI Lists defined in [XDM_SHARED] “*Naming Conventions*”, and other future defined URI Lists with the “name” attribute values starting with ‘oma_’.

For all OMA-reserved URI Lists, it is RECOMMENDED that the XDMC:

- include, using the <external> child element, zero or more references to other URI List(s) in the same “resource-lists” document, whenever appropriate;
- not include any <list> child element; and
- not include any <entry-ref> child element.

The reasons for the recommendations include:

- improved performance, since:
  - users in the referenced URI Lists can be included as a set, without having to insert them one by one; and
  - use of the <entry-ref> element may create extra roundtrips between an XDMC and an XDMS when resolving a URI List.
- simplified client implementation, since
  - nesting of URI Lists can be achieved using the <external> child element and therefore use of the <list> child element is not needed as a second way of doing the same thing; and
  - the use of <entry-ref> elements that contains a reference to other <entry> elements in the same “resource-lists” document brings complexities in reference structure without much value.

“oma_buddylist” URI List

The “oma_buddylist” URI List is used by an XDMC/user to store the lists of all users of interest. This list can be used for Presence List subscription.

In addition to the recommendations for OMA-reserved URI Lists, it is RECOMMENDED that the XDMC:

- include in the “oma_buddylist” URI List references to all other URI Lists (e.g. “oma_pocbuddylist” URI List) in the same “resource-lists” document that can be used as Presence Lists; and
- not include in the “oma_buddylist” URI List any <entry> element that contains an individual user URI.

The reasons for the recommendations include:

- efficient Presence Subscriptions, since a Watcher can subscribe for Presence Information for all desired Presentities at once by referencing the “oma_buddylist” URI List; and

- flexibility to split the list subscription to the "oma_buddylist" URI List, into a number of list subscriptions to the sub-lists of the "oma_buddylist" URI List, in a situation where there exists limitation (e.g. for a certain type of access network) on how many users a list subscription is allowed to contain.

"oma_pocbuddylist" URI List

The "oma_pocbuddylist" URI List is used by an XDMC/user to store the lists of all those users with whom the XDMC/user wants to use PoC as communication means. This is a default URI List for the XDMC/user's default PoC communication, i.e., the default URI List to be referenced by a default PoC Group. An XDMC/user is free to use other URI Lists for other kinds of PoC communications, i.e., XDMC/user can have multiple PoC Groups each of which contain the references to different URI Lists than the "oma_pocbuddylist".

For the "oma_pocbuddylist" URI List, no additional recommendation is provided than those for OMA-reserved URI Lists.

"oma_blockedcontacts" URI List

The "oma_blockedcontacts" URI List is used by an XDMC/user to store the lists of all those users with whom the XDMC/user does not want to have any communication over any application.

In addition to the recommendations for OMA-reserved URI Lists, it is RECOMMENDED that the XDMC:

- include a reference to the "oma_blockedcontacts" URI List in all application services (AUIDs) defining the negative service access rules of the owner of the "oma_blockedcontacts" URI List, such as 'polite-block/block' Presence Authorization Rules and 'reject' PoC user access rules; and
- not include in the "oma_blockedcontacts" URI List any reference to the "oma_grantedcontacts" URI List.

The reasons for the recommendations include:

- the "oma_blockedcontacts" URI List is a "block-a-user-from-everything" type of list; and
- the "oma_blockedcontacts" is mutually exclusive to the "oma_grantedcontacts" URI List.

"oma_grantedcontacts" URI List

The "oma_grantedcontacts" URI List is used by an XDMC/user to store the lists of all those users with whom the XDMC/user wants to have any communication over any application.

In addition to the recommendations for OMA-reserved URI Lists, it is RECOMMENDED that the XDMC:

- include a reference to the "oma_grantedcontacts" URI List in all application services (AUIDs) defining the positive service access rules of the owner of the "oma_grantedcontacts" URI List, e.g. 'allow' Presence Authorization Rules and 'accept' PoC user access rules;
- include in the "oma_grantedcontacts" URI List a reference to the "oma_buddylist" or the "oma_pocbuddylist" URI List, if appropriate; and
- not include in the "oma_grantedcontacts" URI List any reference to the "oma_blockedcontacts" URI List.

The reasons for the recommendations include:

- the "oma_grantedcontacts" URI List is a "grant-a-user-for-everything" type of list;
- an XDMC/user can easily grant the communication access to its buddies in a set, i.e. an XDMC/user may have a need to grant a user access to a communication means (e.g. Presence Information) at the same time the user is added to the "oma_buddylist" or "oma_pocbuddylist" URI List. This is to implement Presence Authorization of the type "users that I have in my buddy list are also allowed to see my Presence Information"; and
- the "oma_grantedcontacts" is mutually exclusive to the "oma_blockedcontacts" URI List.

"oma_allcontacts" URI List

The "oma_allcontacts" URI List is used by an XDMC/user to store the complete lists of all users whom the XDMC/user knows about.

In addition to the recommendations for OMA-reserved URI Lists, it is RECOMMENDED that the XDMC:

- include in the “oma_allcontacts” URI List references to all other URI Lists in the “resource-lists” document, if appropriate; and
- not include references to the “oma_allcontacts” URI List in any other application services (AUIDs) or URI List.

The reasons for the recommendations include:

- the “oma_allcontacts” URI List is a “contain-all-users” type of list and this can be readily achieved by referencing to all other URI Lists in the same “resource-lists” document; and
- as the “oma_allcontacts” URI List can be very large and will contain all users whoever they are (e.g. both granted and blocked contacts), it is quite unlikely that the owner of the “oma_allcontacts” URI List wants to apply the same service rules or procedures to all users in such a list.

5.1.1.2 User-defined URI Lists

User-defined URI Lists are the URI Lists where the XDMC creates the “name” attribute value at its discretion.

For all User-defined URI Lists, it is RECOMMENDED that the XDMC:

- not include references to other lists (i.e. only the <entry> element is recommended to be used as a child element of the <list> element);
- always include a “display-name” element as the direct child element attached to the User-defined URI List, with the human readable name of the User-defined URI List; and
- use a “name” attribute value that:
    - does not start with ‘oma_’;
    - contains only the unreserved character set defined in [RFC3986];
    - contains only lower case characters; and
    - does not reveal the content of the <display-name> element attached to the URI List.

The reasons for the recommendations include:

- simplified client implementation by limiting use of nested URI Lists or references to other URI Lists in the User-defined URI List;
- improved user experience since a human user can easily address a User-defined URI List by a display name;
- the “name” attribute value starting with ‘oma_’ is reserved for future OMA-reserved URI List;
- the value of a “name” attribute can be used as part of a Service URI without the need of URI normalization (see [PRS_IG] “*Generating Service URIs for Presence Lists*”);
- simplified client implementations that do not need to consider if lower or upper case values for the “name” attribute are allowed; and
- improved user privacy by having a neutral identifier as the “name” attribute value of a User-defined URI List, i.e. a possible sensitive user’s private information in the display name of a User-defined URI List can not be inadvertently exposed in e.g. a node selector or a Service URI referring to the URI List by its “name” attribute value.

5.1.2 Usage of User URIs and Service URIs in URI Lists

URIs are stored in the XML documents in the Shared XDMS and can be of two types; User URI that identifies an individual user or Service URI that identifies a service (e.g. Presence List URI, PoC Group URI).

It is RECOMMENDED that an XDMC:

- be able to handle cases where the same User URI is included in more than one URI List, or the results of resolving a Service URI (e.g. Presence List Service URI) that has references to URI Lists may have redundant individual User URIs; and

- not include a Service URI as an entry in any URI List.

The reasons for the recommendations include:

- as two applications can operate on the same URI List index document but on different URI Lists, an implementation will be very complex if a client always needs to check if this user URI already exists in another list. Further, there are cases where an individual user must exist in two or more URI List; and
- some applications have specific procedures when using a Service URI. If such application is using a URI List with a Service URI included unexpected behavior may be the result in a client causing bad user experience. If an XDMC has a need to store a Service URI in the Shared XDMS it is better to use a Group Usage List in Shared XDMS.

5.1.3 Usage of the <appusages> Element in URI Lists

The <appusages> element as defined in [XDM_SHARED] indicates which XCAP Application Usage documents have a reference to a certain URI List.

It is RECOMMENDED that the <appusages> element:

- not be used when an OMA-reserved URI List is referenced by an application service; and
- not be used when a URI List refers to another URI List in the same "resource-lists" document using the <external> child element.

The reasons for the recommendations include:

- as the reference relationship between an OMA-reserved URI List and an Application Server is defined clearly (see section 5.1.1.1), there is no need to use the <appusages> element; and
- a reference from one URI List to another URI List is a reference within the same document. As an XDMC uses a single document for all URI Lists for a particular user, an XDMC has a way of checking references by directly accessing the document.

5.2 Group Usage List in Shared XDMS

As described in [XDM_SHARED] "*Group Usage List*", the purpose of the Group Usage List is to store Service URIs.

It is RECOMMENDED that an XDMC that supports Group Usage List:

- create only one Group Usage List document named "index"; and
- insert only those Service URIs that are not owned by the XDMC/user into the Group Usage List document.

The reasons for the recommendations include:

- simplified migration between devices, if a single document with a fixed name is used by XDMC implementations;
- efficient use of resources (e.g. device memory and access network bandwith), since duplication of the XDMC/user's data in the Shared XDMS with those in an application-specific XDMS (i.e. RLS XDMS for Presence List URIs and PoC XDMS for PoC Group URIs) is avoided; for example, the XDMC/user's PoC Group URIs are stored in PoC Group documents, and can be identified by accessing those PoC documents. The list of XDMC/user's PoC Group documents, if necessary, can be located by using the XML Documents Directory XCAP Application Usage defined in [XDM_Core] "*XML Documents Directory* ". Therefore the XDMC/user does not need to use the Group Usage List to remember those Service URIs of its own; and
- reduced implementation complexity, , for example, a PoC Group document can be deleted without having to check whether the Service URI related to the PoC Group document also needs to be removed from a Group Usage List document.

5.3 Conditional Operations towards XML Documents

As described in [XDM_Core] "*XDM Operations*", the XDMC may perform conditional GET, PUT and DELETE operations. This mechanism enables the XDMC to request that the XDMS perform an operation on an XCAP Resource only if the resource maintained by the XDMS matches (or does not match) the copy cached by the XDMC.

It is RECOMMENDED that an XDMC that supports conditional operations:

- always use the If-Match header for the PUT and DELETE operations; and
- always use the If-None-Match header for the GET operation when the XDMC wants to refresh a document of which the XDMC already has a locally cached copy.

The reasons for the recommendations include:

- avoid undesirable results, when multiple XDMCs are accessing the same XCAP Resource;
- verification that the XCAP Resource cached locally is synchronized with that stored in the XDMS; and
- effective use of resources (e.g. access network bandwidth).

5.4 Encodings

A URI enables the identification or naming of resources in a network. In XDM, URIs are used extensively within HTTP requests/responses. Therefore, the XDM procedures include steps where two URIs are tested for equivalence.

A variety of methods can be used in practice to test URI equivalence. These methods fall into a range distinguished by the amount of processing required and the degree to which the probability of false negatives is reduced (i.e. erroneously concluding that two equivalent URIs are different). Practices with less computational costs typically have a relatively higher probability of producing false negatives while those requiring higher computational costs have a lower probability of false negatives. Section 6.2 in [RFC3986] lists a variety of methods that can be used to test URI equivalence.

The rules for SIP URI equivalence are defined in [RFC3261] section 19.1.4, where it is noted that a SIP URI equivalence verification cannot be achieved by simple string comparison of arbitrary SIP URIs; however, a SIP URI equivalence verification could be achieved with a high level of efficiency when character-for-character string comparison is performed on a normalized format for the SIP URIs.

SIP URI encoding

It is RECOMMENDED that, when including SIP URIs within HTTP requests/responses, an XDMC/XDMS:

- encode SIP URIs according to the following rules:
  - unreserved characters, as defined by [RFC3986], are not percent encoded;
  - when percent encoding (e.g. to represent reserved characters as defined by [RFC3986]), upper case letters are used for the hexadecimal digits A-F;
  - upper case letters are not used in a SIP URI, with the exception of the 'userinfo' part of the SIP URI and the hexadecimal digits in a percent-encoded triplet; and
  - if the SIP URI contains characters outside the US-ASCII character set, the SIP URI is first encoded in UTF-8 before being percent-encoded.

The reasons for the recommendations include:

- improved accuracy and efficiency of SIP URI equivalence testing as defined in [RFC3261] section 19.1.4 and [RFC3986] section 6.2.2, since the SIP URI is encoded in the format as normalized as possible; and
- [RFC3986] recommends the use of UTF-8 for newly defined schemes.

SIP URI generation

It is RECOMMENDED that, when generating a new SIP URI, an XDMC:

- not use URI parameters in SIP User URIs that identify individual users; and
- only use URI parameter(s) for Service URIs that identify application services (e.g. Presence List URI, PoC Group URI), as defined by a URI Template (see [XDM_Core] "*Provisioned XDMC Parameters*"), if such URI Template is provisioned.

The reasons for the recommendations include:

- improved accuracy and efficiency of SIP URI equivalence testing as defined in [RFC3261] section 19.1.4 and [RFC3986] section 6.2.2; and
- compliance with the syntax of the URI Template, if provisioned.

XML document encoding

Whereas SIP URI characters after percent encoding are limited to the US-ASCII character set, XML documents may comprise any character of the BMP of the Unicode Standard [UNI_STD]. The BMP subset includes the majority of common-use characters. Detailed guidelines on the use of the Unicode Standard in conjunction with XML are provided in [W3C_UNIXML].

It is RECOMMENDED that an XDMC/XDMS;

- use UTF-8 encoding when exchanging XML documents.

The reasons for the recommendation include:

- universality of Unicode as a superset of virtually all other character sets; and
- improved interoperability due to broad industry support for UTF-8.

5.5 Usage of tel URIs

The rules for tel URI equivalence are defined in [RFC3966] section 4.

When storing a tel URI as part of an XML document stored in the XDMS, it is RECOMMENDED that the XDMC:

- use the international format of the tel URI, if the international format is available; and
- follow the procedures described in [3GPP-TS_24.229] section 5.1.2A.1, if the international format is not available.

Note: The procedures described in [3GPP-TS_24.229] describe the phone-context parameter of a tel URI and are generic, including non-3GPP environments, as for the storage and format considerations of tel URIs within the XDMS.

The reasons for the recommendations include:

- improved accuracy of tel URI equivalence testing as defined in [RFC3966] section 4 and [RFC3986] section 6.2.2, while minimizing computational costs; and
- improved cross-domain interoperability.

5.6 Provisioning

The length of the value of provisioning parameters is not restricted by [XDM_MO] and [XDM_AC].

It is RECOMMENDED that:

- the string of any character-formatted provisioning parameter, defined in [XDM_MO] and [XDM_AC], not exceed 100 characters.

The reasons for the recommendation include:

- use of longer provisioning strings than a UE can handle will cause malfunctions;
- maximum length of 100 characters is deemed sufficient; and
- effective use of resources (e.g. access network bandwidth).

5.7 XDM Synchronization Mechanism

As described in [XDM_Core] *"Procedures of the XDM Client"*, the XCAP Resources in an XDMS can be accessed by either XDMC in UE or XDMC in AS. An XDMC in AS that utilizes an XCAP Resource in an XDMS needs to become aware of any changes on the XCAP Resource in the XDMS made by another XDMC in UE. For example, the PS needs to become aware of any changes that the Presentity may make to its Presence Authorization Rules in the Presence XDMS for active Presence Subscriptions.

Therefore, it is RECOMMENDED that an XDMC implemented in an AS:

- synchronize its local copy of an XCAP Resource with the XDMS, by retrieving the XCAP Resource in the XDMS according to the recommendations in section 5.3.

The reasons for the recommendation include:

- providing an XDM synchronization mechanism for any AS that needs it.

Appendix A. Change History (Informative)

Document Identifier	Date	Sections	Description
Draft Version OMA-WP-XDM_Implementation_Guidelines	15 June 2007	All	Initial version of WP (including skeleton, ToC and some generic texts) as permanent doc
	05 Sep 2007	1, 4, 5.1, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12	Incorporated CRs: OMA-PAG-0523 OMA-PAG-0551R02 OMA-PAG-0563
	30 Oct 2007	2, 3, 5,	Incorporated CRs: OMA-PAG-0677-R01 OMA-PAG-0679 OMA-PAG-0680-R01 OMA-PAG-0682 OMA-PAG-0683-R01 OMA-PAG-0684 OMA-PAG-0685-R01 OMA-PAG-0686-R02 OMA-PAG-0691 OMA-PAG-0706-R02
	26 Nov 2007	2, 5	Incorporated CR: OMA-PAG-0681-R03
	19 Dec 2007	5.2 5.4 3.1, 4 5.4 5.10 2 3, 5.5 3.3, 5.1, 5.6 5.7 5.8, 5.9, App B All	OMA-PAG-0834R01 OMA-PAG-0835 OMA-PAG-0839 OMA-PAG-0841 (revised interpretation) OMA-PAG-0842R02 OMA-PAG-0851R01 OMA-PAG-0853R01 OMA-PAG-855R03 OMA-PAG-2007-0856R03 OMA-PAG-2007-0859R01 Editorials
	09 Jan 2008	2, 5.1.1.1, 5.1.1.2, 5.4, Footers All	OMA-PAG-2008-0008 Formatting
	15 Feb 2008	All	Included Editorial comments in OMA-CONRR-2008-XDM_PRS_IMPL_V1_0_20080213-D
	05 Mar 2008	5.1.1.1 5.2 5.6 B.1 5.3 B.2.1 B B.1, B.2 App B.4	OMA-PAG-2008-0088R01 OMA-PAG-2008-0089R01 OMA-PAG-20008-0090 OMA-PAG-20008-0091 OMA-PAG-2008-0101 OMA-PAG-2008-0103 OMA-PAG-2008-0114 OMA-PAG-2008-0115 OMA-PAG-2008-0136
	26 Mar 2008	5.1, 5.3-5.5 B.2.2 5.1.3 2, 5.1.4 5.3 5.1.1.2 B.4 B.2 5.1.1	Editorial updates OMA-PAG-2008-0092R02 OMA-PAG-2008-0099R01 OMA-PAG-2008-0100R02 OMA-PAG-2008-0102R04 OMA-PAG-2008-0132 OMA-PAG-2008-0145 OMA-PAG-2008-0160 OMA-PAG-2008-0161

Document Identifier	Date	Sections	Description
	21 Apr 2008	5.4	OMA-PAG-2008-0178
		2, 3.2, 5.4(n)	OMA-PAG-2008-0185R02
		B.4	OMA-PAG-2008-0186
		1	OMA-PAG-2008-0206
		2	OMA-PAG-2008-0207
		3.2	OMA-PAG-2008-0208R01
		3.3	OMA-PAG-2008-0209R01
		3.2, 5.1.1	OMA-PAG-2008-0210R02
		5.1.2	OMA-PAG-2008-0211R01
		5.1.3	OMA-PAG-2007-0212R01
		5.2(n), 5.5	OMA-PAG-0213R02
		5.2	OMA-PAG-2007-0214R01
		5.3	OMA-PAG-2008-0215R02
		5.6	OMA-PAG-2008-0216R01
		App B	OMA-PAG-2008-0217R02
		All	Minor editorials
	09 May 2008	All	OMA-PAG-2008-0293R01
	03 Jun 2008	All	Editorial comments from PAG R&A
	09 Jun 2008	App A	Correction in App A - History for 03 Jun 2008. Editorial comments from PAG R&A: Incorporated CR: OMA-PAG-2008-379R02
Candidate Version OMA-WP-XDM_Implementation_Guidelines	27 Jun 2008	N/A	Status changed to Candidate by TP TP ref#: OMA-TP-2008-0242-INP_XDM_PRS_IMPL_1_0_RRP_for_Candidate_Approval

Appendix B. Examples

The examples in this Appendix include formatting characters (like extra spaces, linefeeds) and comments to improve readability. These are not needed in a real XML implementation and should be omitted to limit the document sizes.

B.1 URI List Index Document

The following example contains the URI List index document of the user "sip:joe@example.com" stored in the Shared XDMS. The URI Lists in this example are described in section 5.1.

```
<?xml version="1.0" encoding="UTF-8"?>
<resource-lists xmlns="urn:ietf:params:xml:ns:resource-lists">

<!-- The "oma_buddylist" URI List contains the references to the "oma_pocbuddylist", "list-a", and
   "list-e" URI Lists.
   The owner of the list may want to get presence information for all members in this list -->

    <list name="oma_buddylist">
     <external anchor="http://xcap.example.org/resource-lists/users/
       sip:joe@example.org/index/~~/resource-lists/list%5B@name=%22oma_pocbuddylist%22%5D"/>
     <external anchor="http://xcap.example.org/resource-lists/users/
       sip:joe@example.org/index/~~/resource-lists/list%5B@name=%22list-a%22%5D"/>
     <external anchor="http://xcap.example.org/resource-lists/users/
       sip:joe@example.org/index/~~/resource-lists/list%5B@name=%22list-e%22%5D"/>
    </list>

<!-- The "oma_pocbuddylist" URI List contains one user "David" and a reference to "list-b" URI
   List.
   The owner of the list wants "David" and all members of "list-b" URI List to be visible as PoC
   buddies -->

    <list name="oma_pocbuddylist">
     <entry uri="sip:david@example.com">
      <display-name>David</display-name>
     </entry>
     <external anchor="http://xcap.example.org/resource-lists/users/
       sip:joe@example.org/index/~~/resource-lists/list%5B@name=%22list-b%22%5D"/>
    </list>

<!-- The "oma_blockedcontacts" URI List contains one user "Sue" and a reference to "list-c" URI
   List.
   The owner of the list wants "Sue" and all the members of "list-c" URI List to be blocked from
   accessing services of the owner -->

    <list name="oma_blockedcontacts">
     <entry uri="sip:sue@example.com">
      <display-name>Sue</display-name>
     </entry>
     <external anchor="http://xcap.example.org/resource-lists/users/
       sip:joe@example.org/index/~~/resource-lists/list%5B@name=%22list-c%22%5D"/>
    </list>

<!-- The "oma_grantedcontacts" URI List contains one user "Allen" and a reference to the
   oma_buddylist and "list-d" URI List.
   The owner of the list wants "Allen" and all the members of oma_buddylist and "list-d" URI List
   to get access to all information and communications services of the owner -->

    <list name="oma_grantedcontacts">
      <entry uri="sip:allen@example.com">
        <display-name>Allen</display-name>
      </entry>
      <external anchor="http://xcap.example.org/resource-lists/users/
       sip:joe@example.org/index/~~/resource-lists/list%5B@name=%22oma_buddylist%22%5D"/>
      <external anchor="http://xcap.example.org/resource-lists/users/
       sip:joe@example.org/index/~~/resource-lists/list%5B@name=%22list-d%22%5D"/>
    </list>
```

```
<!-- This is a URI List with an XDMC assigned "name" attribute value of "list-a", having two users
   of "Alice" and "Bert" -->

   <list name="list-a">
     <display-name>My Golf Team</display-name>
      <entry uri="sip:alice@example.com">
       <display-name>Alice</display-name>
     </entry>
     <entry uri="sip:bert@example.com">
      <display-name>Bert</display-name>
     </entry>
   </list>

<!-- This is a URI List with an XDMC assigned "name" attribute value of "list-b", having one user
   "Bob" -->

    <list name="list-b">
     <display-name>My Soccer Team</display-name>
     <entry uri="sip:bob@example.com">
      <display-name>Bob</display-name>
     </entry>
    </list>

<!-- This is a URI List with an XDMC assigned "name" attribute value of "list-c", having one user
   "Carl" -->

    <list name="list-c">
     <display-name>Carl's Cricket Team</display-name>
     <entry uri="sip:carl@example.com">
      <display-name>Carl</display-name>
     </entry>
    </list>

<!-- This is a URI List with a XDMC assigned "name" attribute value of "list-d", having one user
   "John" -->

    <list name="list-d">
     <display-name>My Basket Team</display-name>
     <entry uri="sip:john@example.com">
      <display-name>John</display-name>
     </entry>
    </list>

<!-- This is a URI List with an XDMC assigned "name" attribute value of "list-e", having one user
   "Sean" -->

    <list name="list-e">
     <display-name>My Baseball Team</display-name>
     <entry uri="sip:sean@example.com">
      <display-name>Sean</display-name>
     </entry>
    </list>

</resource-lists>
```

B.2 Presence List Document

The following example contains a Presence List index document of the user "sip:joe@example.com" stored in the RLS XDMS. The Presence Lists defined in this document refers to the URI Lists defined in the example in Appendix B.1.

It is assumed here that the user "sip:joe@example.com" has multiple devices with different Presence Lists, and the following example shows the combined Presence List index document for the user.

```
<?xml version="1.0" encoding="UTF-8"?>
<rls-services xmlns="urn:ietf:params:xml:ns:rls-services">

<!-- This Presence List is to subscribe for all the entries that the user has within the
"oma_buddylist" URI List, which includes "oma_pocbuddylist", "list-a" and "list-e" URI Lists. As
the size of the list is expected to be large, this list could be useful for a device without UI and
traffic constraints (e.g. a PC). -->
   <service uri="sip:joe@example.com;pres-list=oma_buddylist">
      <resource-list>http://xcap.example.com/resource-lists/users/
   sip:joe@example.com/index/~~/resource-lists/list%5B@name=%22oma_buddylist%22%5D
      </resource-list>
      <packages>
         <package>presence</package>
      </packages>
   </service>

<!-- This Presence List is to subscribe for only the entries within the "oma_pocbuddylist" URI
List. This list could be useful for a device with UI and traffic constraints (e.g. a mobile
terminal). -->
   <service uri="sip:joe@example.com;pres-list=oma_pocbuddylist">
      <resource-list>http://xcap.example.com/resource-lists/users/
   sip:joe@example.com/index/~~/resource-lists/list%5B@name=%22oma_pocbuddylist%22%5D
      </resource-list>
      <packages>
         <package>presence</package>
      </packages>
   </service>

<!-- This Presence List is to subscribe for only the entries within the "list-a" URI List. As the
size of this list is expected to be reasonably small, this list could be useful for a device with
severe UI and traffic constraints (e.g. low-end mobile terminal) -->
   <service uri="sip:joe@example.com;pres-list=list-a">
      <resource-list>http://xcap.example.com/resource-lists/users/
   sip:joe@example.com/index/~~/resource-lists/list%5B@name=%22list-a%22%5D
      </resource-list>
      <packages>
         <package>presence</package>
      </packages>
   </service>

</rls-services>
```

B.3 Presence Authorization Rules document

An example of a Presence Authorization Rules document stored in the Presence XDMS and its usage of URI Lists is included in Appendix "*Examples of Presence Authorization Rule Documents based on Rules Template* "in [PRS_IG].

B.4 Overview of how the example documents in B.1, B.2 and B.3 are referencing URI Lists in Shared XDMS

Figure 1 and 2 show how an RLS XDMS, Presence XDMS and PoC XDMS implementation can make use of the Shared XDMS. The URI List index document is the one shown in Appendix B.1.

The RLS XDMS document used is the one shown in Appendix B.2 and the Presence XDMS document is the one referenced from Appendix B.3.

In addition to this a PoC XDMS is shown with 3 documents namely a “poc-rules” document and two “poc-groups” documents in order to illustrate how the Shared XDMS can be used if more than one enabler in the network uses URI Lists.

The “poc-rules” document in **Figure 1** has two rules namely a rule with the “id” attribute “ruleid-x” that will make sure that PoC calls from users in the “oma_blockedcontacts” URI List will be rejected and a rule with the “id” attribute “ruleid-y” that will make sure that users in “list-e” URI List can use the automatic answer mode PoC function.

Also shown in **Figure 1** are two PoC Group documents. One document contains a PoC chat group definition for the members in the “oma_pocbuddylist” URI List and one document contains a PoC prearranged group definition for members in the “list-e” URI List. This URI List is also referenced from a document in the Presence XDMS to give the members of the PoC group access to some Presence Information.

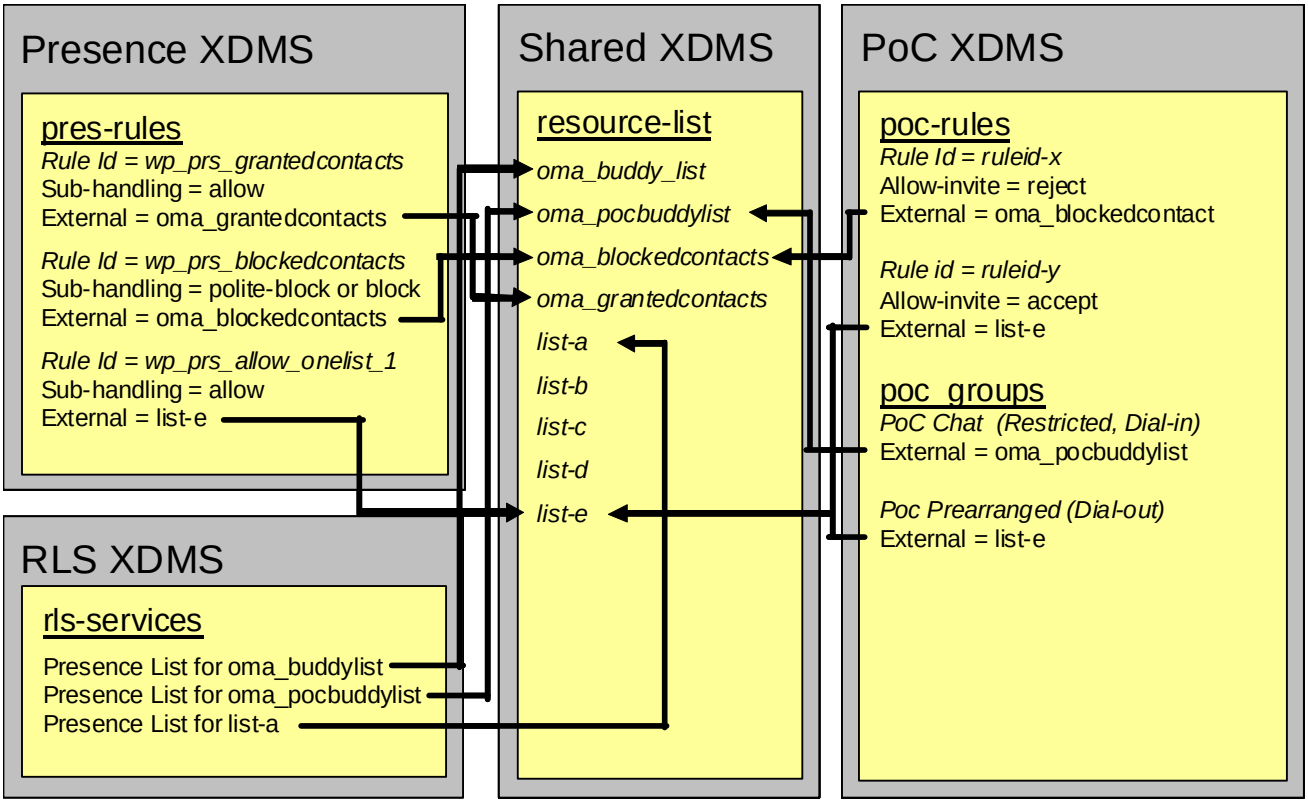

Figure 1: Overview of how a Presence, an RLS and a PoC XDMS implementation make use of URI Lists described in XML document examples in Appendix B

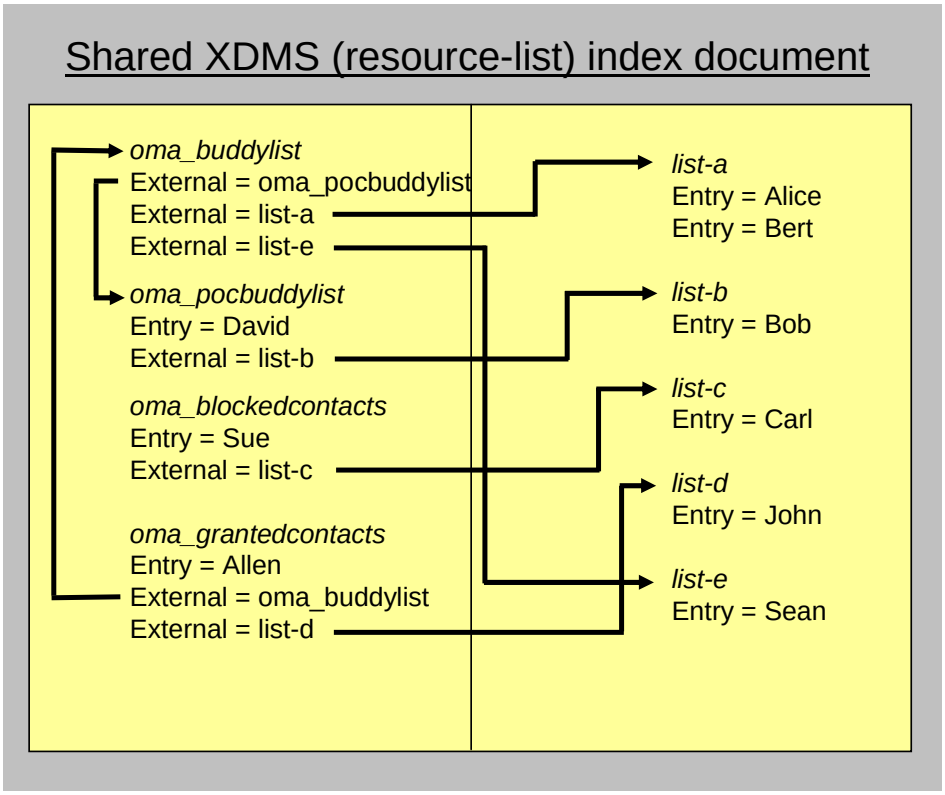

Figure 2: Overview of how Lists are referenced inside the URI List Index document described in Appendix B.1