Resource List Server (RLS) XDM Specification

Candidate Version 2.0 – 23 Dec 2008

Open Mobile Alliance

OMA-TS-Presence_SIMPLE_RLS_XDM-V2_0-20081223-C

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The RLS XDMS specific data formats and Application Usages are described in this specification.

2. References

2.1 Normative References

OMA

[PRS_RD] "Presence SIMPLE Requirements", Version 2.0, Open Mobile Alliance™, OMA-RD-Presence_SIMPLE-V2_0,
URL: http://www.openmobilealliance.org/

[PRS_Spec] "Presence SIMPLE Specification", Version 2.0, Open Mobile Alliance™, OMA-TS-Presence_SIMPLE-V2_0,
URL: http://www.openmobilealliance.org/

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

[XDM_Core] "XML Document Management (XDM) Specification", Version 2.0, Open Mobile Alliance™, OMA-TS-XDM_Core-V2_0,
URL: http://www.openmobilealliance.org/

[XDM_RD] "XML Document Management Requirements", Version 2.0, Open Mobile Alliance™, OMA-RD-XDM-V2_0,
URL: http://www.openmobilealliance.org/

IETF

[RFC2119] IETF RFC 2119 "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, Mar 1997,
URL: http://www.ietf.org/rfc/rfc2119.txt

[RFC3856] IETF RFC 3856 "A Presence Event Package for the Session Initiation Protocol", J. Rosenberg, Aug 2004,
URL: http://www.ietf.org/rfc/rfc3856.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

[RFC4826] IETF RFC 4826 "Extensible Markup Language (XML) Formats for Representing Resource Lists", J. Rosenberg, May 2007,
URL: http://www.ietf.org/rfc/rfc4826.txt

2.2 Informative References

[PRS_AD] "Presence SIMPLE Architecture", Version 2.0, Open Mobile Alliance™, OMA-AD-Presence_SIMPLE-V2_0,
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 Unique ID	Use definition from [XDM_Core].
Application Usage	Use definition from [XDM_Core].
Global Document	Use definition from [XDM_Core].
Global Tree	Use definition from [XDM_Core].
Presentity	Use definition from [PRS_RD].
Primary Principal	Use definition from [XDM_RD].
Users Tree	Use definition from [XDM_Core].
Watcher	Use definition from [PRS_RD].
XCAP Resource	Use definition from [XDM_Core].
XCAP Root	Use definition from [XDM_Core].
XCAP Server	Use definition from [XDM_Core].
XCAP User Identifier	Use definition from [XDM_Core].

3.3 Abbreviations

AUID	Application Unique ID
HTTP	Hyper Text Transfer Protocol
IETF	Internet Engineering Task Force
MIME	Multipurpose Internet Mail Extensions
OMA	Open Mobile Alliance
RLS	Resource List Server
SIMPLE	SIP for Messaging and Presence Leveraging Extensions
SIP	Session Initiation Protocol
URI	Uniform Resource Identifier
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 RLS XDMS is a repository for XML documents that define services which are associated with a list of resources. An example of such a service document is a Presence List, which is used by a RLS (see [PRS_AD]) to subscribe, on behalf of a Watcher, to the presence status of a list of Presentities.

The protocol used to access and manipulate such documents is based on XCAP, and is described in [XDM_Core].

This specification provides the Application Usage for the Presence List document.

5. RLS XDM Application Usages

5.1 Presence List

5.1.1 Structure

The Presence List document SHALL conform to the structure of the "rls-services" document described in [RFC4826] section 4.1, with the following clarifications:

a) Each <service> element SHALL include the <packages> element.

b) Each <packages> element SHALL specify at least the presence event package as defined in [RFC3856].

5.1.2 Application Unique ID

The AUID of a Presence List document SHALL be "rls-services" within the IETF tree, as specified in [RFC4826] section 4.4.1.

5.1.3 XML Schema

A Presence List document SHALL conform to the XML schema described in [RFC4826] section 4.2.

5.1.4 Default Namespace

The default namespace SHALL conform to the default namespace "urn:ietf:params:xml:ns:rls-services" for the "rls-services" document described in [RFC4826] section 4.4.4.

5.1.5 MIME Type

The MIME type of a Presence List document SHALL be "application/rls-services+xml", as specified in [RFC4826] section 4.4.2.

5.1.6 Validation Constraints

In addition to the XML schema, the validation constraints on a Presence List document SHALL conform to those described in [RFC4826] section 4.4.5, with the following clarifications:

Each <service> element SHALL include the <packages> element with a <package> child element with value "presence". If the Presence List document does not conform to this constraint, the RLS XDMS SHALL respond with an HTTP 409 (Conflict) response as described in [RFC4825]. The error condition SHALL be described by the <constraint-failure> error element. If included, the "phrase" attribute SHOULD be set to "Presence event package required".

The value of the "uri" attribute proposed by the XDMC in the <service> element (i.e. the Service URI):

- SHALL be a valid SIP URI;
- SHALL conform to the syntax specified by the Service URI Template (see [XDM_Core] "*Provisioned XDMC Parameters*"), which is stored in the RLS XDMS and provisioned to the XDMC; and
- SHALL NOT violate the "uniqueness constraint" defined in [RFC4826] section 4.4.5.

If the Service URI does not conform to the local policy or the constraints described above, the RLS XDMS SHALL respond with an HTTP 409 (Conflict) response as described in [RFC4825]. The error condition SHALL be described by the <uniqueness-failure> error element. The RLS XDMS SHALL include at least one <alt-value> element in the <uniqueness-failure> error element.

NOTE: The syntax of the <alt-value> element is according to the syntax stored in the RLS XDMS and provisioned to the XDMC, but may also be a different syntax according to local XDMS policy and not yet provisioned to the XDMC.

If the XDMC repeats the XCAP request, it SHOULD use a "uri" attribute chosen from one of the values received in the <alt-value> elements.

5.1.7 Data Semantics

The data semantics of a Presence List document SHALL conform to those described in [RFC4826] section 4.1.

5.1.8 Naming Conventions

The naming conventions of a Presence List document SHALL conform to those described in [RFC4826] section 4.4.7.

The document containing the Presence Lists for a particular user SHALL be named "index".

NOTE: Any document in the Users Tree without the name "index" will not be accessible by the RLS service.

5.1.9 Global Documents

In addition to the Presence List documents that exist in the Users Tree, this Application Usage defines a single Global Document, "index", created by the RLS XDMS in the Global Tree, as described in [RFC4826] section 4.4.8.

5.1.10 Resource Interdependencies

The RLS XDMS SHALL conform to the resource interdependencies described in [RFC4826] section 4.4.8.

5.1.11 Authorization Policies

The authorization policies SHALL conform to those described in [XDM_Core] "*Authorization*".

The RLS XDMS SHALL check that the identity of the requesting XDMC has been granted access rights to perform requested operations on the Global Document.

By default, the Primary Principal of a document in the Users Tree has permission to perform retrieve operations as defined in [XDM_Core] "*XDM Operations*" to fetch that part of the Global Document that has the same content as the document in the Users Tree.

6. Subscribing to Changes in the XML Documents

The RLS XDMS SHALL support subscriptions to changes in the XML documents as specified in [XDM_Core] "*Subscriptions to Changes in the XML Documents*".

Appendix A. Change History (Informative)

A.1 Approved Version History

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

A.2 Draft/Candidate Version 2.0 History

Document Identifier	Date	Sections	Description
Draft Version OMA-RLS_XDM_Specification-V2_0	27 June 2006	n/a	PAG agreed initial version based on OMA-PAG-2006-0328R02
	23 Nov 2006	2.1, 5.1.6	Incorporated CRs: OMA-PAG 2006-0665 OMA-PAG 2006-0777
	17 Jan 2007	B.1.1 B.1.2	Incorporated CR: OMA-PAG 2006-0796
	03 Sep 2007	2.1, 5.1.1, 5.1.2, 5.1.3, 5.1.4, 5.1.5, 5.1.6, 5.1.7, 5.1.8, 5.1.9, 5.1.10	Incorporated CRs: OMA-PAG 2006-0515 OMA-PAG 2006-0533R01
	4 Mar 2008	2.1, A.1, A.2, A.3	Incorporated CR: OMA-PAG 2008-0058
	12 Mar 2008	All	Editorial cleanup based on OMA-PAG-2008-0152
	28 May 2008	All	Incorporated CRs: OMA-PAG 2006-0345 OMA-PAG 2006-0346R01
	26 Aug 2008	C.1.1 C.1.2	Incorporated CR: OMA-PAG 2008-0541
	01 Oct 2008	5.1.6	Incorporated CR: OMA-PAG 2008-0598R01
Candidate Version OMA-RLS_XDM_Specification-V2_0	23 Dec 2008	N/A	Status changed to Candidate by TP TP ref # OMA-TP-2008-0490-INP_Presence_SIMPLE_V2_0_ERP_for_Candidate_Approval

Appendix B. Static Conformance Requirements (Normative)

The notation used in this appendix is specified in [SCRRULES].

The following tags are used in the Function column to identify the release of the Presence SIMPLE enabler that the requirement was introduced:

- PRSv1.1 – Requirement was introduced in Presence SIMPLE 1.1.
- PRSv2.0 – Requirement was introduced in Presence SIMPLE 2.0.

B.1 RLS XDM Application Usages (Server)

Item	Function	Reference	Requirement
RLS_XDM-XOP-S-001-M	Structure of Presence List (PRSv1.1)	5.1.1	
RLS_XDM-XOP-S-002-M	Application Unique ID of Presence List (PRSv1.1)	5.1.2	
RLS_XDM-XOP-S-004-M	XML schema of Presence List (PRSv1.1)	5.1.3	
RLS_XDM-XOP-S-003-M	Default namespace for Presence List (PRSv1.1)	5.1.4	
RLS_XDM-XOP-S-005-M	MIME type of Presence List (PRSv1.1)	5.1.5	
RLS_XDM-XOP-S-006-M	Validation constraints, in addition to the XML schema (PRSv1.1)	5.1.6	
RLS_XDM-XOP-S-007-M	Validation by RLS XDMS that the Service URI conforms to the additional constraints of local policy (PRSv1.1)	5.1.6	
RLS_XDM- XOP-S-008-M	Data semantics of Presence List (PRSv1.1)	5.1.7	
RLS_XDM-XOP-S-009-M	Naming conventions for Presence List (PRSv1.1)	5.1.8	
RLS_XDM-XOP-S-010-M	Global “index” document (PRSv1.1)	5.1.9	
RLS_XDM-XOP-S-011-M	Resource interdependencies of Presence List (PRSv1.1)	5.1.10	
RLS_XDM-XOP-S-012-M	Authorization policies of Presence List (PRSv1.1)	5.1.11	
RLS_XDM-SUB-S-013-M	Subscription to XML document changes (PRSv2.0)	6	

B.2 RLS XDM Application Usages (Client)

Item	Function	Reference	Requirement
RLS_XDM-XOP-C-001-M	Structure of Presence List (PRSv1.1)	5.1.1	
RLS_XDM-XOP-C-002-M	Application Unique ID of Presence List (PRSv1.1)	5.1.2	
RLS_XDM-XOP-C-004-M	XML schema of Presence List (PRSv1.1)	5.1.3	
RLS_XDM-XOP-C-003-M	Default namespace for Presence List (PRSv1.1)	5.1.4	
RLS_XDM-XOP-C-005-M	MIME type of Presence List (PRSv1.1)	5.1.5	
RLS_XDM-XOP-C-006-M	Validation constraints, in addition to the XML schema (PRSv1.1)	5.1.6	
RLS_XDM-XOP-C-007-M	Data semantics of Presence List (PRSv1.1)	5.1.7	
RLS_XDM-XOP-C-008-M	Naming conventions for Presence List (PRSv1.1)	5.1.8	
RLS_XDM-ERR-C-001-O	Handling by XDMC of HTTP 409 (Conflict) response from RLS XDMS (PRSv1.1)	5.1.6	

Appendix C. Examples (Informative)

C.1 Manipulating Presence Lists

C.1.1 Obtaining Presence Lists

Figure B.1 describes how an XDMC obtains Presence Lists.

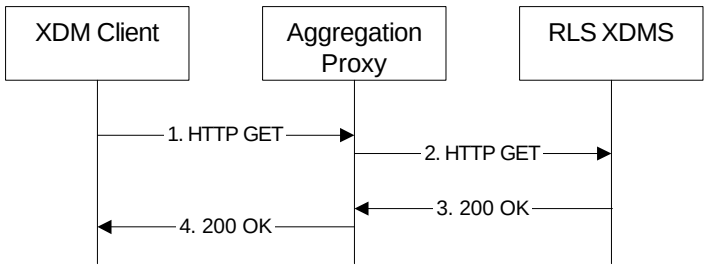

Figure B.1 - XDMC obtains Presence Lists

The details of the flows are as follows:

1) The user "sip:ronald.underwood@example.com" wants to obtain the document describing his Presence Lists. For this purpose the XDMC sends an HTTP GET request to the Aggregation Proxy.

```
GET /rls-services/users/sip:ronald.underwood@example.com/index HTTP/1.1
Host: xcap.example.com
...
```

2) Based on the AUID the Aggregation Proxy forwards the request to the RLS XDMS.

3) After the RLS XDMS has performed the necessary authorization checks on the request originator, the RLS XDMS sends an HTTP 200 (OK) response including the requested document in the body.

```
HTTP/1.1 200 OK
Etag: "etuk8"
...
Content-Type: application/rls-services+xml; charset="utf-8"

<?xml version="1.0" encoding="UTF-8"?>
<rls-services xmlns="urn:ietf:params:xml:ns:rls-services"
   xmlns:rl="urn:ietf:params:xml:ns:resource-lists">
  <service uri="sip:ronald.underwood@example.com;pres-list=oma_buddylist">
    <resource-list>
     http://xcap.example.com/services/resource-lists/users/sip: ronald.underwood@example.com/~~
/resource-lists/list%5B@name=%22oma_buddylist%22%5D
    </resource-list>
    <packages>
      <package>presence</package>
    </packages>
  </service>
  <service uri="sip:ronald.underwood@example.com;pres-list=list-a">
    <resource-list>
      http://xcap.example.com/services/resource-lists/users/sip:ronald.underwood@example.com/~~
/resource-lists/list%5B@name=%22list-a%22%5D
    </resource-list>
    <packages>
      <package>presence</package>
    </packages>
  </service>
</rls-services>
```

NOTE: the <resource-list> field represents a pointer to an external list stored in the Shared List XDMS

4) The Aggregation Proxy routes the response to the XDMC.

C.1.2 Service URI negotiation

Figure B.2 describes how the RLS XDMS can negotiate a Service URI.

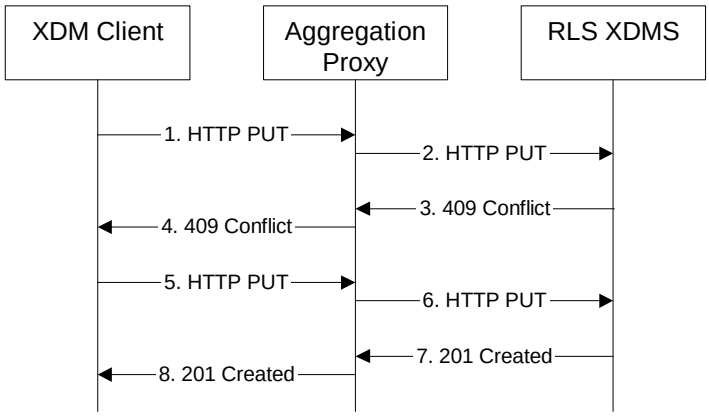

Figure B.2 - RLS XDMS negotiates a Service URI

The details of the flows are as follows:

1) The user "sip:ronald.underwood@example.com" wants to create a Service URI "sip:wrongname@example.com". For this purpose the XDMC sends an HTTP PUT request to the Aggregation Proxy.

```
PUT /rls-services/users/sip:ronald.underwood@example.com/index/~~/rls-services/service HTTP/1.1
Host: xcap.example.com
...
Content-Type: application/xcap-el+xml; charset="utf-8"
Content-Length: (...)

<service uri="sip:wrongname@example.com">
  <resource-list>
    http://xcap.example.com/services/resource-lists/users/sip:ronald.underwood@example.com/~~
/resource-lists/list%5B@name=%22list-b%22%5D
  </resource-list>
  <packages>
    <package>presence</package>
  </packages>
</service>
```

2) Based on the AUID the Aggregation Proxy forwards the request to the RLS XDMS.

3) The RLS XDMS detects that the Service URI does not conform to the local policy. The RLS XDMS generates a valid Service URI "sip:ronald.underwood@example.com;pres-list=list-b" and sends an HTTP 409 (Conflict) response including the generated URI.

```
HTTP/1.1 409 Conflict
...
Content-Type: application/xcap-error+xml; charset="utf-8"

<?xml version="1.0" encoding="UTF-8"?>
<xcap-error xmlns="urn:ietf:params:xml:ns:xcap-error">
  <uniqueness-failure>
    <exists field="service/@uri">
      <alt-value>sip:ronald.underwood@example.com;pres-list=list-b</alt-value>
    </exists>
  </uniqueness-failure>
</xcap-error>
```

4) The Aggregation Proxy routes the response to the XDMC.

5) The XDMC repeats the XCAP request (sent in step 1) using the received Service URI.

```
PUT /rls-services/users/sip:ronald.underwood@example.com/index/~~
   /rls-services/service HTTP/1.1
Host: xcap.example.com
...
Content-Type: application/xcap-el+xml; charset="utf-8"
Content-Length: (...)

<service uri="sip:ronald.underwood@example.com;pres-list=list-b">
  <resource-list>
    http://xcap.example.com/services/resource-lists/users/sip:ronald.underwood@example.com/~~
/resource-lists/list%5B@name=%22list-b%22%5D
  </resource-list>
  <packages>
    <package>presence</package>
  </packages>
</service>
```

6) Based on the AUID the Aggregation Proxy forwards the request to the RLS XDMS.

7) The RLS XDMS creates the requested Presence List document and sends an HTTP 201 (Created) response.

```
HTTP/1.1 201 Created
Etag: "etu65"
...
Content-Length: 0
```

8) The Aggregation Proxy routes the response to the XDMC.