# Shared Profile XDM Specification

Approved Version 1.0 – 03 Apr 2012

**Open Mobile Alliance**

OMA-TS-XDM_Shared_Profile-V1_0-20120403-A

# Contents



# Figures

# 1. Scope

This specification describes the data format and Application Usage for the User Profile document, which can be used by all OMA enablers.

The User Profile document contains user information that is stored in the network. Typical ways to use it are through search queries to discover communication partners (e.g.chat) or through requests to obtain information about a specific user.

# 2. References

## 2.1 Normative References


**[ISO3166-1]** ISO 3166-1: Codes for the Representation of Names of Countries and their Subdivisions – Part 1: Country Codes, 2006,
URL: http://www.iso.ch/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=39719

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

**[RFC3261]** IETF RFC 3261 "SIP: Session Initiation Protocol", J. Rosenberg, H. Schulzrinne, G. Camarillo, A. Johnston, J. Peterson, R. Sparks, M. Handley, 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

**[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

**[SCRRULES]** "SCR Rules and Procedures", Version 1.0, Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures-V1_0,
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/

**[XSD_userProfile]** "XML Schema Definition: XDM User Profile", Version 1.0, Open Mobile Alliance™, OMA-SUP-XSD_xdm_userProfile-V1_0,
URL: http://www.openmobilealliance.org/


## 2.2 Informative References


**[XDM_AD]** "XML Document Management Architecture", Version 2.0, Open Mobile Alliance™, OMA-AD-XDM-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 Server** | A functional entity that implements the service logic for SIP Sessions (e.g. PoC Server or IM Server). |
| **Application Unique ID** | A unique identifier within the namespace of Application Unique IDs created by this specification that differentiates XCAP Resources accessed by one application from XCAP Resources accessed by another. (Source: [RFC4825]) |
| **Application Usage** | Detailed information on the interaction of an application with an XCAP Server. (Source: [RFC4825]) |
| **Document Selector** | A sequence of path segments, with each segment being separated by a "/", that identify the XML document within an XCAP Root that is being selected. (Source: [RFC4825]) |
| **Document URI** | The HTTP URI containing the XCAP Root and Document Selector, resulting in the selection of a specific document. (Source: [RFC4825]) |
| **Global Document** | A document placed under the Global Tree that applies to all users of that Application Usage. |
| **Global Tree** | A URI that represents the parent for all Global Documents for a particular Application Usage within a particular XCAP Root. (Source: [RFC4825]) |
| **Service Provider** | A legal or administrative entity that provides a service to its clients or customers. Typically it is (but is not restricted to) a network operator. |
| **User** | A User is any entity that uses the described features through the User Equipment. |
| **User Address** | A User Address identifies a User. The User Address can be used by one User to request communication with other Users. |
| **Users Tree** | A URI that represents the parent for all user documents for a particular Application Usage within a particular XCAP Root. |
| **XCAP Resource** | An HTTP resource representing an XML document, an element within an XML document, or an attribute of an element within an XML document that follows the naming and validation constraints of XCAP. (Source: [RFC4825]) |
| **XCAP Root** | A context that includes all of the documents across all Application Usages and users that are managed by a server. (Source: [RFC4825]) |
| **XCAP Server** | An HTTP server that understands how to follow the naming and validation constraints defined in this specification. (Source: [RFC4825]) |
| **XCAP User Identifier** | The XUI is a string, valid as a path element in an HTTP URI, that is associated with each user served by the XCAP Server. (Source: [RFC4825]) |

## 3.3 Abbreviations

| | |
|---|---|
| **ABNF** | Augmented Backus-Naur Form |
| **AUID** | Application Unique ID |
| **HTTP** | Hypertext Transfer Protocol |
| **IETF** | Internet Engireering Task Force |
| **IM** | Instant Messaging |
| **MIME** | Multipurpose Internet Mail Extensions |

| | |
|---|---|
| **OMA** | Open Mobile Alliance |
| **SCR** | Static Conformance Requirements |
| **SIP** | Session Initiation Protocol |
| **URI** | Uniform Resource Identifier |
| **URL** | Uniform Resource Locator |
| **XCAP** | XML Configuration Access Protocol |
| **XDM** | XML Document Management |
| **XDMC** | XDM Client |
| **XDMS** | XDM Server |
| **XML** | Extensible Markup Language |
| **XUI** | XCAP User Identifier |

# 4. Introduction

This specification provides the Application Usage for the User Profile document, which can be searched by Users and Application Servers to find the User Address (and possibly other information) about Users matching a certain criteria.

The Shared Profile XDMS (see [XDM_AD]) is the logical repository for User Profile documents. The common protocol specified in [XDM_Core] is used for access and manipulation of such documents by authorized principals.

# 5. Shared Profile XDM Application Usages

## 5.1 User Profile

### 5.1.1 Structure

The User Profile document SHALL conform to the structure of the "user-profile" document described in this subclause. The schema definition is provided in section 5.1.3.

The <user-profile> element:

a) SHALL include a "uri" attribute that contains the XUI of the User for whom this User Profile is intended;

b) MAY include any other attribute for the purposes of extensibility

c) MAY include a <communication-addresses> element, containing a list of elements representing the communication associated with the User. These elements MAY be of the following kind:

   1. SIP URI as defined in [RFC3261];
   2. TEL URI as defined in [RFC3966];
   3. E.164 number;
   4. email address.

d) MAY include a <display-name> element, containing a suggested name to display in user interfaces (e.g. in the IM buddy list) ;

e) MAY include a <birth-date> element, containing the birth date of the User;

f) MAY include a <name> element containing the human identity of the User. It MAY contain:

   1. a <given-name> element;
   2. a <family-name> element;
   3. a <middle-name> element;
   4. a <name-suffix> element;
   5. a <name-prefix> element;
   6. any other elements from any other namespaces for the purpose of extensibility.

g) MAY include an <address> element containing a postal address of the User. It MAY contain:

   1. a <country> element, corresponding to the country in which this address is located;
   2. a <region> element, corresponding to the region (e.g. state, province…) in which this address is located;
   3. a <locality> element, which represents the locality in which this address is located (e.g. village, city, town…);
   4. an <area> element, which represents the subdivision of the locality in which this address is located (e.g. neighbourhood, suburb, district…);
   5. a <street-name> element, which represents the name of the street in which this address is located;
   6. a <street-number> element, which represents the house number in the street in which this address is located;

7. a <postal-code> element, which represents the code for postal delivery (e.g. ZIP code) for this address;
8. any other elements from any other namespaces for the purpose of extensibility.

h) MAY include a <gender> element, containing the gender of the User;

i) MAY include a <freetext> element containing a description of the User;

j) MAY include a <communication-types> element containing a list of the communication abilities of the User for human consumption;

k) MAY include a <hobbies> element listing the User' s hobbies;

l) MAY include a <favourite-links> element listing the User's favourite links;

m) MAY include any other elements from any other namespaces for the purposes of extensibility.

### 5.1.2 Application Unique ID

The AUID SHALL be "org.openmobilealliance.user-profile".

### 5.1.3 XML Schema

The "user-profile" XML document SHALL be composed according to the XML schema described in [XSD_userProfile].

### 5.1.4 Default Namespace

The default namespace used in expanding URIs SHALL be "urn:oma:xml:xdm:user-profile" defined in Section 5.1.3.

### 5.1.5 MIME Type

The MIME type for the User Profile document SHALL be "application/vnd.oma.user-profile+xml".

### 5.1.6 Validation constraints

The User Profile document SHALL conform to the XML Schema described in subclause 5.1.3 "*XML Schema*", with the clarifications given in this sub-clause.

The value of the "uri" attribute of the <user-profile> element SHALL be the same as the XUI value of the Document URI for the User Profile document. If not, the XDMS SHALL return an HTTP "409 Conflict" response as described in [RFC4825], including the <constraint-failure> error element. If included, the "phrase" attribute SHOULD be set to "Wrong User Profile URI".

### 5.1.7 Data Semantics

The value of the "uri" attribute in the <user-profile> element SHALL represent a valid User Address for communication, as well as an XUI that can be used as a path segment to retrieve the User Profile document.

The <country> element SHALL be used to indicate the country using a two-letter "Alpha-2" format, as specified in [ISO3166-1].

### 5.1.8 Naming conventions

The name of User Profile document SHALL be "user-profile".

### 5.1.9 Global documents

This Application Usage defines no Global Documents.

### 5.1.10 Resource interdependencies

This Application Usage defines no additional resource interdependencies.

### 5.1.11 Authorization policies

The authorization policies for manipulating a User Profile SHALL conform to those described in [XDM_Core] Section 5.1.5 *"Authorization"* with the following exceptions:

1) Principals SHALL have permission to perform retrieve operations of any User Profile document in the Users Tree;
2) Principals SHALL have permission to perform subscribing to changes operations of any User Profile document in the Users Tree.

Principals SHALL have permission to perform seach operations of any collection of User Profile documents in the Users Tree.

### 5.1.12 Search capabilities

The User Profile Application Usage MAY support search. If the search feature is supported, it SHALL be possible to search for contacts based on the data stored in User Profiles, and the following rules apply:

The Shared Profile XDMS SHALL support a collection "org.openmobilealliance.user-profile/users/", a collection "org.openmobilealliance.user-profile/users/[XUI]/" and a collection "org.openmobilealliance.user-profile/users/[XUI]/<document name>" as defined in [XDM_Core].

The basic XQuery expression [XDM_Core] supported by the Shared Profile XDMS for this Application Usage SHALL be as follows:

```
xquery version "1.0";
declare default element namespace "urn:oma:xml:xdm:user-profile";

for $g in collection(/[Data_Source]/)/user-profiles/user-profile
where /[Condition]/
return <user-profile>{$g/@uri} {$g/display-name} </user-profile>
```

where:

**[*Data_Source*]** represents collection that SHALL be searched. In case that the value:

- "org.openmobilealliance.user-profile/users/" is used, the Search SHALL be executed over all User Profile documents stored in the Shared Profile XDMS.
- "org.openmobilealliance.user-profile/users/[XUI]/" is used, the Search SHALL be executed over the User Profile document stored in the home directory of the User identified by XUI.
- "org.openmobilealliance.user-profile/users/[XUI]/<document name>" is used, the Search SHALL be executed over the User Profile document identified by <document name>.

**[*Condition*]** represents a logical expression defined by XDMC. It MAY include any combination of elements/attributes from the User Profile document.

Example of the Condition:

```
($g/user-information/hobbies/hobby="Football")and($g/user-information/address/country="JP")
```

All Search Requests that does not comply with the basic XQuery expression as defined in this chapter SHALL be responded with an HTTP "409 Conflict" error response as defined by [XDM_Core].

# 5.2 Locked User Profile

## 5.2.1 Structure

The Locked User Profile document SHALL conform to the structure of the "user-profile" document described in this sub-clause. The schema definition is provided in section 5.2.3.

The <user-profile> element:

a) SHALL include a <birth-date> element containing the birth date of the user.

b) MAY include any other elements from any other namespaces for the purposes of extensibility

c) MAY include any attribute for the purposes of extensibility

## 5.2.2 Application Unique ID

The AUID SHALL be "org.openmobilealliance.locked-user-profile".

## 5.2.3 XML Schema

The "locked-user-profile" XML document SHALL be composed according to the XML schema described in [XSD_userProfile].

## 5.2.4 Default Namespace

The default namespace used in expanding URIs SHALL be "urn:oma:xml:xdm:user-profile" defined in Section 5.2.3.

## 5.2.5 MIME Type

The MIME type for the Locked User Profile document SHALL be "application/vnd.oma.user-profile+xml"

## 5.2.6 Validation constraints

This Application Usage defines not additional validation constraints.

## 5.2.7 Data Semantics

The <birth-date> element SHALL express the date of birth of the user as provisioned by the Service Provider.

## 5.2.8 Naming conventions

The name of the Locked User Profile document SHALL be "lockedprofile".

## 5.2.9 Global documents

This Application Usage defines no Global Documents.

## 5.2.10 Resource interdependencies

This Application Usage defines no additional resource interdependencies.

### 5.2.11 Authorization policies

The Service Provider SHALL be the only entity allowed to create the document on behalf of the Primary Principal. The Service Provider SHALL have all permissions on the document. The Primary Principal SHALL only have the read permission to this document.

# 6. Subscribing to changes in the XML documents

The Shared Profile XDMS SHALL support subscriptions to changes in the XML documents as specified in [XDM_Core] "*Subscriptions to changes in the XML documents*", subchapters "*Initial subscription*" and "*Generating a SIP NOTIFY request*".

# Appendix A. Change History (Informative)

## A.1 Approved Version 1.0 History

| Reference | Date | Description |
|---|---|---|
| OMA-TS-XDM_Shared_Profile-V1_0-20120403-A | 03 Apr 2012 | Status changed to Approved by TP:<br>OMA-TP-2012-0135-INP_XDM_V2_0_ERP_for_Final_Approval |

# Appendix B. Static Conformance Requirements (Normative)

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

The SCR's defined in the following tables include SCR for:

- Shared User Profile XDM Application Usages

## B.1 Shared Profile XDM Application Usages (Server)

| Item | Function | Reference | Requirement |
|---|---|---|---|
| XDM_Profile-XOP-S-001-M | Support User Profile structure | 5.1.1 | XDM_Core -XCAP-S-001-M |
| XDM_Profile-XOP-S-002-M | Support Application Unique ID in User Profile | 5.1.2 | |
| XDM_Profile-XOP-S-003-M | Support XML schema of User Profile | 5.1.3 | |
| XDM_Profile-XOP-S-004-M | User Profile conforms to MIME type | 5.1.5 | |
| XDM_Profile-XOP-S-005-M | Support validation constraints, in addition to the XML schema | 5.1.6 | |
| XDM_Profile-XOP-S-006-M | Support data semantics of User Profile | 5.1.7 | |
| XDM_Profile-XOP-S-007-M | Support naming conventions for Shared User Profile | 5.1.8 | |
| XDM_Profile-XOP-S-008-M | Authorization policies | 5.1.11 | |
| XDM_Profile-SUB-S-001-M | Subscribing to changes in XML documents | 6 | XDM_Core -SUB-S-001-O AND XDM_Core -SUB-S-002-O |
| XDM_Profile-SRC-S-001-O | Search capabilities | 5.1.12 | |
| XDM_Profile-XOP-S-009-M | Support Locked User Profile structure | 5.2.1 | XDM_Core -XCAP-S-001-M |
| XDM_Profile-XOP-S-010-M | Support Application Unique ID in Locked User Profile | 5.2.2 | |
| XDM_Profile-XOP-S-011-M | Support XML schema of Locked User Profile | 5.2.3 | |
| XDM_Profile-XOP-S-012-M | Locked User Profile conforms to MIME type | 5.2.5 | |
| XDM_Profile-XOP-S-013-M | Supprot validation constraints, in addition to the XML schema | 5.2.6 | |

| Item | Function | Reference | Requirement |
|---|---|---|---|
| XDM_Profile-XOP-S-014-M | Support data semantics of Locked User Profile | 5.2.7 | |
| XDM_Profile-XOP-S-015-M | Support naming conventions for Locked User Profile | 5.2.8 | |
| XDM_Profile-XOP-S-016-M | Support authorization policies | 5.2.11 | |

## B.2 Shared Profile XDM Application Usages (Client)

| Item | Function | Reference | Requirement |
|---|---|---|---|
| XDM_Profile-XOP-C-001-O | Support User Profile Application Usage | 5.1 | XDM_Profile-XOP-C-002-O AND XDM_Profile-XOP-C-003-O AND XDM_Profile-XOP-C-004-O AND XDM_Profile-XOP-C-005-O AND XDM_Profile-XOP-C-006-O AND XDM_Profile-XOP-C-007-O AND XDM_Profile-XOP-C-008-O |
| XDM_Profile-XOP-C-002-O | Support User Profile structure | 5.1.1 | XDM_Core-XOP-C-003-M AND XDM_Profile-XOP-C-001-O |
| XDM_Profile-XOP-C-003-O | Support Application Unique ID in User Profile | 5.1.2 | XDM_Profile-XOP-C-001-O |
| XDM_Profile-XOP-C-004-O | Support XML schema of User Profile | 5.1.3 | XDM_Profile-XOP-C-001-O |
| XDM_Profile-XOP-C-005-O | User Profile conforms to MIME type | 5.1.5 | XDM_Profile-XOP-C-001-O |
| XDM_Profile-XOP-C-006-O | Support validation constraints, in addition to the XML schema | 5.1.6 | XDM_Profile-XOP-C-001-O |
| XDM_Profile-XOP-C-007-O | Support data semantics of User Profile | 5.1.7 | XDM_Profile-XOP-C-001-O |
| XDM_Profile-XOP-C-008-O | Support naming conventions for User Profile | 5.1.8 | XDM_Profile-XOP-C-001-O |
| XDM_Profile-XOP-C-009-O | Support Locked User Profile Application Usage | 5.2 | XDM_Profile-XOP-C-010-O AND XDM_Profile-XOP-C-011-O AND XDM_Profile-XOP-C-012-O AND XDM_Profile-XOP-C-013-O AND XDM_Profile-XOP-C-014-O AND XDM_Profile-XOP-C-015-O AND XDM_Profile-XOP-C-016-O |
| XDM_Profile-XOP-C-010-O | Support Locked User Profile structure | 5.2.1 | XDM_Core-XOP-C-003-M AND XDM_Profile-XOP-C-009-O |
| XDM_Profile-XOP-C-011-O | Support Application Unique ID in Locked User Profile | 5.2.2 | XDM_Profile-XOP-C-009-O |

| Item | Function | Reference | Requirement |
|---|---|---|---|
| XDM_Profile-XOP-C-012-O | Support XML schema of Locked User Profile | 5.2.3 | XDM_Profile-XOP-C-009-O |
| XDM_Profile-XOP-C-013-O | Locked User Profile conforms to MIME type | 5.2.5 | XDM_Profile-XOP-C-009-O |
| XDM_Profile-XOP-C-014-O | Support validation constraints, in addition to the XML schema | 5.2.6 | XDM_Profile-XOP-C-009-O |
| XDM_Profile-XOP-C-015-O | Support data semantics of Locked User Profile | 5.2.7 | XDM_Profile-XOP-C-009-O |
| XDM_Profile-XOP-C-016-O | Support naming conventions for Locked User Profile | 5.2.8 | XDM_Profile-XOP-C-009-O |
| XDM_Profile-SRC-C-001-O | Search capabilities | 5.1.12 | |

# Appendix C. Examples (Informative)

## C.1 Obtaining a User Profile document

Figure C.1 describes how XDMC obtains a particular User Profile document.

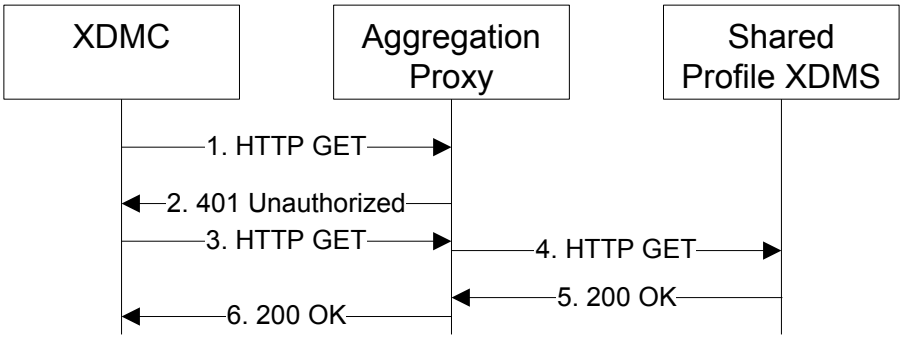


**Figure C.1- XDMC obtains a particular User Profile document**

The details of the flows are as follows:

1) The user "sip:bob@example.com" wants to obtain the user sip:alice@example.com User Profile document. For this purpose the XDMC sends an HTTP GET request to the Aggregation Proxy.

```
GET /org.openmobilealliance.user-profile/users/sip:alice@example.com/user-profile HTTP/1.1
Host: xcap.example.com

User-Agent: XDM-client/OMA2.0
Date: Thu, 10 Aug 2007 10:50:33 GMT
X-3GPP-Intended-Identity: "sip:bob@example.com"
```

2) Upon receiving an unauthorized HTTP GET the Aggregation Proxy chooses to authenticate the XDMC.

```
HTTP/1.1 401 Unauthorized
Server: XDM-proxy/OMA2.0
Date: Thu, 10 Aug 2007 10:50:33 GMT
WWW-Authenticate: Digest realm="xcap.example.com", nonce="47364c23432d2e131a5fb210812c", qop=auth-
   int
Content-Length: 0
```

3) The XDMC sends a HTTP GET request including the Authorization header to the Aggregation Proxy.

```
GET /org.openmobilealliance.user-profile/users/sip:alice@example.com/user-profile HTTP/1.1
Host: xcap.example.com
User-Agent: XDM-client/OMA2.0
Date: Thu, 10 Aug 2007 10:50:34 GMT
Authorization: Digest realm="xcap.example.com", nonce="47364c23432d2e131a5fb210812c",
   username="sip:bob@example.com", qop=auth-int,
   uri="/org.openmobilealliance.user-profile/users/sip:alice@example.com/user-profile",
   response="2c8ee200cec7f6e966c932a9242554e4", cnonce="dcd99agsfgfsa8b7102dd2f0e8b1", nc=00000001
X-3GPP-Intended-Identity: "sip:bob@example.com"
Accept-Encoding: gzip
```

4) Based on the AUID the Aggregation Proxy forwards the request to Shared Profile XDMS.

5) After the Shared Profile XDMS has performed the necessary authorisation checks on the request originator, the Shared Profile XDMS sends an HTTP "200 OK" response including the requested document in the body.

```
HTTP/1.1 200 OK
```

```
Etag: "et53"
...
Content-Type: application/vnd.oma.user-profile+xml; charset="utf-8"

<?xml version="1.0" encoding="UTF-8"?>
<user-profiles xmlns="urn:oma:xml:xdm:user-profile">
  <user-profile uri="sip:alice@example.com">
      <communication-addresses>
         <comm-addr>+1 858 623 0743</comm-addr>
         <comm-addr>asmith@omaorg.org</comm-addr>
         <comm-addr>sip:alice@example.com</comm-addr>
      </communication-addresses>
      <display-name xml:lang="en">Alice</display-name>
      <birth-date>1995-05-20</birth-date>
      <name xml:lang="en">
        <given-name>Alice</given-name>
        <family-name>Smith</family-name>
        <middle-name>Pamela</middle-name>
        <name-suffix></name-suffix>
        <name-prefix></name-prefix>
        </name>
      <address xml:lang="en">
        <country>USA</country>
        <region>California</region>
        <locality>La Jolla</locality>
        <area></area>
        <street-name>Executive Square</street-name>
        <street-number>4275</street-number>
        <postal-code>Ca 92037</postal-code>
      </address>
      <gender>female</gender>

      <freetext xml:lang="en">I'm an OMA freak</freetext>
      <communication-types>
        <comm-type xml:lang="en">Push to talk</comm-type>
        <comm-type xml:lang="en">Instant messaging</comm-type>
      </communication-types>
      <hobbies>
        <hobby xml:lang="en">Butterfly collecting</hobby>
        <hobby xml:lang="en">Bird watching</hobby>
      </hobbies>
      <favourite-links>
         <link>http://www.openmobilealliance.org/</link>
         <link>http://ietf.org</link>
      </favourite-links>

  </user-profile>
</user-profiles>
```

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

# C.2 Search in the home domain User Profile XDMS

Figure C.2 describes how an XDMC can do a search in the Shared User Profile XDMS.

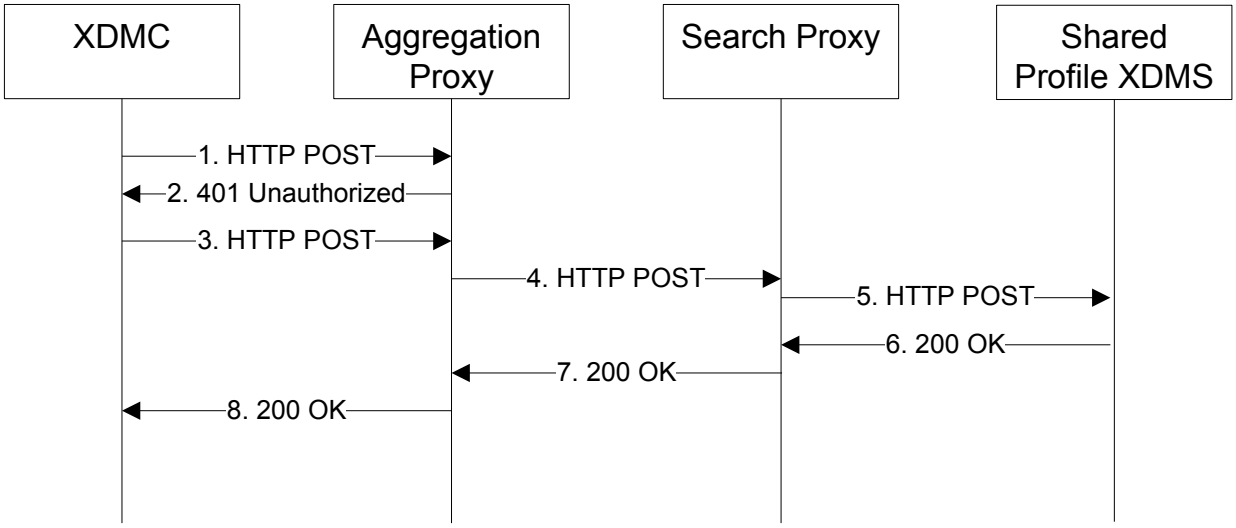


**Figure C.2- XDMC performs a search in Shared Profile XDMS in its home domain**

The details of the flows are as follows:

1) The user "sip:joebloggs@example.com" wants to obtain user profile data about people from California and with the hobby "Bird watching". For this purpose the XDMC sends an HTTP POST request to the Aggregation Proxy.

```
POST /org.openmobilealliance.search?target=org.openmobilealliance.user-profile/users/ HTTP/1.1
Host: xcap.example.com
User-Agent: XDM-client/OMA2.0
Date: Thu, 10 Aug 2007 11:50:33 GMT
X-3GPP-Intended-Identity: "sip:joebloggs@example.com"
Accept-Encoding: gzip
Content-Type: application/vnd.oma.search+xml; charset="utf-8"
Content-Length: …

<?xml version="1.0" encoding="UTF-8"?>
<search-set   xmlns="urn:oma:xml:xdm:search">
 <search id="1234">
  <request>
    <query>
   <![CDATA[
      xquery version "1.0";
      declare default element namespace "urn:oma:xml:xdm:user-profile";
      for $u in collection("org.openmobilealliance.user-profile/users/")/user-profiles/user-
   profile
      where ($u/hobbies/hobby="Bird watching")and($u/address/region="California")
      return <user-profile>{$u/@uri}{$u/display-name}</user-profile>
  ]]>
    </query>
  </request>
 </search>
</search-set>
```

2) Upon receiving an unauthorized HTTP POST the Aggregation Proxy chooses to authenticate the XDMC.

```
HTTP/1.1 401 Unauthorized
Server: XDM-proxy/OMA2.0
Date: Thu, 10 Aug 2007 11:50:33 GMT
WWW-Authenticate: Digest realm="xcap.example.com", nonce="47364c23432d2e131a5fb210812c", qop=auth-
   int
Content-Length: 0
```

3) The XDMC sends a HTTP POST request including the Authorization header to the Aggregation Proxy.

```
POST /org.openmobilealliance.search?target=org.openmobilealliance.user-profile/users/ HTTP/1.1
Host: xcap.example.com
User-Agent: XDM-client/OMA2.0
Date: Thu, 10 Aug 2007 11:50:33 GMT
Authorization: Digest realm="xcap.example.com", nonce="47364c23432d2e131a5fb210812c",
   username="sip:joebloggs@example.com", qop=auth-int,
   uri="/org.openmobilealliance.search?target=org.openmobilealliance.user-profile/users/",
   response="2c8ee200cec7f6e966c932a9242554e4", cnonce="dcd99agsfgfsa8b7102dd2f0e8b1", nc=00000001
X-3GPP-Intended-Identity: "sip:joebloggs@example.com"
Accept-Encoding: gzip
Content-Type: application/vnd.oma.search+xml; charset="utf-8"
Content-Length: …

<?xml version="1.0" encoding="UTF-8"?>
<search-set   xmlns="urn:oma:xml:xdm:search">
 <search id="1234">
  <request>
    <query>
   <![CDATA[
      xquery version "1.0";
      declare default element namespace "urn:oma:xml:xdm:user-profile";
      for $u in collection("org.openmobilealliance.user-profile/users/")/user-profiles/user-
   profile
      where ($u/hobbies/hobby="Bird watching")and($u/address/region="California")
   return <user-profile>{$u/@uri}{$u/display-name}</user-profile>
  ]]>
    </query>
  </request>
 </search>
</search-set>
```

4) Based on the "org.openmobilealliance.search" part of the Request URI, the Aggregation Proxy forwards the Search Request to the Search Proxy.

```
POST /org.openmobilealliance.search?target=org.openmobilealliance.user-profile/users/ HTTP/1.1
Host: xcap.example.com
User-Agent: XDM-client/OMA2.0
Date: Thu, 10 Aug 2007 11:50:33 GMT
X-3GPP-Intended-Identity: "sip:joebloggs@example.com"
Accept-Encoding: gzip
Content-Type: application/vnd.oma.search+xml; charset="utf-8"
Content-Length: …

<?xml version="1.0" encoding="UTF-8"?>
<search-set   xmlns="urn:oma:xml:xdm:search">
 <search id="1234">
  <request>
    <query>
   <![CDATA[
      xquery version "1.0";
      declare default element namespace "urn:oma:xml:xdm:user-profile";
      for $u in collection("org.openmobilealliance.user-profile/users/")/user-profiles/user-
   profile
      where ($u/hobbies/hobby="Bird watching")and($u/address/region="California")
      return <user-profile>{$u/@uri}{$u/display-name}</user-profile>
  ]]>
    </query>
  </request>
 </search>
</search-set>
```

NOTE 1: If the "X-3GPP-Intended-Identity" is not included in the message (3), the Aggregation Proxy will include the "X-3GPP-Asserted-Identity" header.

5) Based on the target parameter "target=org.openmobilealliance.user-profile/users/" in the Request URI, the Search Proxy forwards the Search Request to the Shared Profile XDMS. When forwarding, the Search Proxy removes the "target" query parameter from the HTTP URI.

```
POST /org.openmobilealliance.search HTTP/1.1
Host: xcap.example.com
User-Agent: XDM-client/OMA2.0
Date: Thu, 10 Aug 2007 11:50:33 GMT
X-3GPP-Intended-Identity: "sip:joebloggs@example.com"
Accept-Encoding: gzip
Content-Type: application/vnd.oma.search+xml; charset="utf-8"
Content-Length: …

<?xml version="1.0" encoding="UTF-8"?>
<search-set   xmlns="urn:oma:xml:xdm:search">
 <search id="1234">
  <request>
    <query>
   <![CDATA[
      xquery version "1.0";
      declare default element namespace "urn:oma:xml:xdm:user-profile";
      for $u in collection("org.openmobilealliance.user-profile/users/")/user-profiles/user-
   profile
      where ($u/hobbies/hobby="Bird watching")and($u/region/="California")
      return <user-profile>{$u/@uri}{$u/display-name}</user-profile>
  ]]>
    </query>
  </request>
 </search>
</search-set>
```

6) After the Shared Profile XDMS has performed the search operation, the Shared Profile XDMS sends an HTTP "200 OK" response including the requested results in the body.

```
HTTP/1.1 200 OK
Server: XDM-serv/OMA2.0
Date: Thu, 10 Aug 2007 11:50:39 GMT
Content-Type: application/vnd.oma.search+xml; charset="utf-8"
Content-Length: (...)

<?xml version="1.0" encoding="UTF-8"?>
<search-set xmlns="urn:oma:xml:xdm:search" xmlns:up="urn:oma:xml:xdm:user-profile">
 <search id="1234">
  <response>
   <up:user-profile uri="alice@example.com"><up:display-name>Alice</up:display-name></up:user-
   profile>
   <up:user-profile uri="seth@example.com"><up:display-name>Seth</up:display-name></up:user-
   profile>
  </response>
 </search>
</search-set>
```

7) The Search Proxy routes the response to the Aggregation Proxy.

```
HTTP/1.1 200 OK
Server: XDM-serv/OMA2.0
Date: Thu, 10 Aug 2006 10:50:39 GMT
Content-Type: application/vnd.oma.search+xml; charset="utf-8"
Content-Length: (...)

<?xml version="1.0" encoding="UTF-8"?>
<search-set xmlns="urn:oma:xml:xdm:search" xmlns:up="urn:oma:xml:xdm:user-profile">
 <search id="1234">
  <response>
   <response>
   <up:user-profile uri="alice@example.com"><up:display-name>Alice</up:display-name></up:user-
   profile>
   <up:user-profile uri="seth@example.com"><up:display-name>Seth</up:display-name></up:user-
   profile>
  </response>
 </search>
</search-set>
```

8) The Aggregation Proxy encodes (optionally) the content and routes the response back to the XDMC.

```
HTTP/1.1 200 OK
Server: XDM-serv/OMA2.0
```

```
Date: Thu, 10 Aug 2006 10:50:39 GMT
Content-Type: application/vnd.oma.search+xml; charset="utf-8"
Content-Length: (...)

<?xml version="1.0" encoding="UTF-8"?>
<search-set xmlns="urn:oma:xml:xdm:search" xmlns:up="urn:oma:xml:xdm:user-profile">
 <search id="1234">
  <response>
   <up:user-profile uri="alice@example.com"><up:display-name>Alice</up:display-name></up:user-
   profile>
   <up:user-profile uri="seth@example.com"><up:display-name>Seth</up:display-name></up:user-
   profile>
  </response>
 </search>
</search-set>
```