



XMPP

XEP-0110: Generic Maps

Jiri Komzak

<mailto:j.komzak@open.ac.uk>
<xmpp:jk25@jabber.open.ac.uk>

Martin Dzubor

<mailto:m.dzubor@open.ac.uk>
<xmpp:md267@jabber.open.ac.uk>

2003-07-28
Version 0.1

Status	Type	Short Name
Deferred	Standards Track	Not yet assigned

A protocol for transport of generic maps (graphical displays of specific subsets of buddies).

Legal

Copyright

This XMPP Extension Protocol is copyright © 1999 - 2014 by the [XMPP Standards Foundation](#) (XSF).

Permissions

Permission is hereby granted, free of charge, to any person obtaining a copy of this specification (the "Specification"), to make use of the Specification without restriction, including without limitation the rights to implement the Specification in a software program, deploy the Specification in a network service, and copy, modify, merge, publish, translate, distribute, sublicense, or sell copies of the Specification, and to permit persons to whom the Specification is furnished to do so, subject to the condition that the foregoing copyright notice and this permission notice shall be included in all copies or substantial portions of the Specification. Unless separate permission is granted, modified works that are redistributed shall not contain misleading information regarding the authors, title, number, or publisher of the Specification, and shall not claim endorsement of the modified works by the authors, any organization or project to which the authors belong, or the XMPP Standards Foundation.

Warranty

NOTE WELL: This Specification is provided on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE.

Liability

In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall the XMPP Standards Foundation or any author of this Specification be liable for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising from, out of, or in connection with the Specification or the implementation, deployment, or other use of the Specification (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if the XMPP Standards Foundation or such author has been advised of the possibility of such damages.

Conformance

This XMPP Extension Protocol has been contributed in full conformance with the XSF's Intellectual Property Rights Policy (a copy of which can be found at <http://xmpp.org/about-xmpp/xsf/xsf-ipr-policy/> or obtained by writing to XMPP Standards Foundation, 1899 Wynkoop Street, Suite 600, Denver, CO 80202 USA).

Contents

1	Introduction	1
2	Requirements	1
3	Use Cases	1
3.1	Generic Map message	1
3.2	Definition of projection	2
3.3	Scaleability	3
4	Implementation Notes	3
4.1	Parsing equations for map projections	3
4.2	Transferring image files	3
4.3	Attributes for determination of coordinates	3
4.4	Clusters - accumulation of attribute values	4
5	Security Considerations	4
6	IANA Considerations	4
7	XMPP Registrar Considerations	4

1 Introduction

Generic maps provide a way to extending the roster into a general display showing contacts (JIDs) together with further additional information. The further information is provided by the position in the map (and possibly by the dot type - e.g. shape or colour). In addition to showing people belonging to one roster group, it is possible to cluster people, use more detailed inset maps etc. each of these features providing a unique context.

The motivations for this document are:

- It is faster and easier to find people using a rich graphical view as compared to linear lists/trees
- Maps provide easily understandable further information (context) about the contact
- Maps show relations among JIDs and give better idea about their distribution in a given space (e.g. geographic region, company, campus)

2 Requirements

The requirements for the protocol are:

- General definition of projection based on some attribute(s) of particular JIDs
- Scaleability - in display size and size of transmitted data

3 Use Cases

Generic Map is actually XML description of a graphical display, which can then be sent as a part of <message/> or <iq/> packet together with information about how to obtain attributes needed for its display (other resources required).

3.1 Generic Map message

Example 1 shows a typical message containing simple Generic Map.

Listing 1: Generic map message

```
<message to='joe@domain.com' from='john@domain.com' id='map1'>
  <subject>Map of our office</subject>
  <body>Cool stuff, I can see you on-line in the map.</body>
  <map xmlns='http://jabber.org/protocol/map' id='map1.ygf'>
    <layer id='inset_1' offset_x='0' offset_y='0' scale='1'>
      <img src='ortho_0.gif' width='242' height='243' />
    </layer>
  </map>
</message>
```

```

    <item jid='buddy1@jabber.org' x='135' y='35' />
    <item jid='buddy2@jabber.org' x='175' y='155' />
  </layer>
</map>
<x xmlns=jabber:x:oob>
  <url>http://domain.com/maps/ortho_0.gif</url>
  <desc>ortho_0.gif - map for map1.ygf</desc>
</x>
</message>

```

Each map consists of one or more layers. The main purpose of layers is to combine maps and views to deliver information suitable for a particular context, and to offer greater flexibility to the user in respect to customization.

Layers can be defined either inline or by a reference to another map. Each layer has a specified position in the map, a scale and a priority. The maps defined inline contain also projection, underlying image and a list of entities lying inside it (i.e. typically JIDs or clusters of JIDs). The underlying images are sent out of band using the jabber:x:oob namespace or possibly defined in some other way (e.g. xml-based SVG).

The map in Example 1 uses an implicit map projection assuming that attributes x and y are directly the co-ordinates of a particular entity (e.g. buddy1@jabber.org) in the image (ortho_0.gif) expressed in pixels.

3.2 Definition of projection

A similar map with coordinates specified using geographic latitude + longitude (possibly obtained using Geographic Location Information¹ extension) is shown in Example 2 (only the map tag is shown).

Listing 2: Generic map tag using geographic coordinates

```

<map xmlns='http://jabber.org/protocol/map' id='map2.ygf'>
  <layer id='inset_1' offset_x='0' offset_y='0' scale='1'>
    <img src='ortho_0.gif' width='242' height='243' />
    <projection x='(long-5)*10' y='(lat-40)*12' />
    <item jid='buddy1@jabber.org' long='9' lat='51' />
    <item jid='buddy2@jabber.org' long='12' lat='52' />
  </layer>
</map>

```

As can be seen in Example 2, the projection can be specified using any parameters either explicitly set in the item tags or obtained for the particular JID from some other source (e.g. JUD or LDAP).

¹XEP-0080: Geographic Location Information <http://www.xmpp.org/extensions/xep-0080.html>

3.3 Scalability

Another important feature of this proposal is scalability, which is achieved by grouping the individual JIDs with similar properties (e.g. 'near' locations) into clusters. Cluster is basically a list of constituting entities (JIDs) that share similar values of specified attribute (e.g. JIDs that are co-located in the same town/region/country). The size of clusters may depend on the resolution and intended scale of the map. In the map clusters can be displayed using a distinctive icon.

Listing 3: Generic map tag with clustered items

```
<map xmlns='http://jabber.org/protocol/map' id='map3.ygf'>
  <layer id='inset_1' offset_x='0' offset_y='0' scale='1'>
    <img src='ortho_0.gif' width='242' height='243' />
    <item jid='buddy1@jabber.org' long='9' lat='51' />
    <cluster size='10' x='38' y='135' size='5'>
      <item jid='buddy2@jabber.org' />
      <item jid='buddy3@jabber.org' />
    </cluster>
  </layer>
</map>
```

4 Implementation Notes

The following guidelines may assist the developers of a mapping plug-in in the Jabber clients.

4.1 Parsing equations for map projections

The expression in the <projection/> tag uses values of different attributes specified for the JID either directly in the <map/> tag or elsewhere in the environment.

4.2 Transferring image files

The image files (maps) are transferred as an extra extension of packet using the filename as a unique id.

4.3 Attributes for determination of coordinates

The attributes are either specified in the <map/> tag or known in the environment (e.g. presence), but they could be also provided by a subscribed service using Publish-Subscribe ²

²XEP-0060: Publish-Subscribe <http://www.xmpp.org/extensions/xep-0060.html>

(e.g. GPS or LBS from a mobile operator).

4.4 Clusters - accumulation of attribute values

The clustering of items can be specified directly in the map tag or done using a pixel resolution of the display available.

5 Security Considerations

No security features or concerns related to this proposal.

6 IANA Considerations

No IANA interaction required.

7 XMPP Registrar Considerations

The [XMPP Registrar](#)³ will need to register the new namespace of "http://jabber.org/protocol/map".

³The XMPP Registrar maintains a list of reserved protocol namespaces as well as registries of parameters used in the context of XMPP extension protocols approved by the XMPP Standards Foundation. For further information, see <http://xmpp.org/registrar/>.