



# XMPP

## XEP-0350: Data Forms Geolocation Element

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2017-09-11

Version 0.2

Status	Type	Short Name
Deferred	Standards Track	geolocation-element

This specification defines an XMPP protocol extension for including geolocation data in XEP-0004 data forms.

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## 1 Introduction

In certain protocols that make use of [Data Forms \(XEP-0004\)](#)<sup>1</sup>, it can be helpful to include geolocation data. One example of such a "using protocol" is [Form Discovery and Publishing \(XEP-0346\)](#)<sup>2</sup>. This document defines a method for including geolocation data in a Data Form for something you manage and want to publish. This XEP leaves it open to developers how such a <geoloc/> form element will be rendered; possibilities might include editing Latitude and Longitude manually or through a rendered map.

There may also be the need to gather location data from both humans (using a GUI format) and computer processes (using a pre-defined but flexible format). This document defines a flexible mechanism for the [XMPP Registrar](#)<sup>3</sup> to standardize geographical location field names in data forms, thus enabling XMPP clients to process location fields in forms while giving protocol authors a way to specify additional location data types for non-GUI processors to determine the semantic meanings of a location field.

## 2 Requirements

This proposal addresses the following requirements:

- Integrate geolocation data with XEP-0004.
- Allow a potential receiver (rather than the sender) to validate geolocation data.

## 3 Integrate Geolocation Element with XEP-0004

The root element for geolocation data is <geoloc/> as defined in [User Geolocation \(XEP-0080\)](#)<sup>4</sup>. The information is structured by means of a <geoloc/> element that is qualified by the 'http://jabber.org/protocol/geoloc' namespace. The <geo/> element MUST be contained within a <field/> element qualified by the 'jabber:x:data' namespace.

The following example is provided only for the purpose of illustration; consult the specifications for using protocols (e.g., XEP-0080) to see canonical examples.

Listing 1: Inclusion in Data Form

```
<x xmlns='jabber:x:data' type='form'>
  [ ... ]
  <field var='location'>
```

<sup>1</sup>XEP-0004: Data Forms <<https://xmpp.org/extensions/xep-0004.html>>.

<sup>2</sup>XEP-0346: Form Discovery and Publishing <<https://xmpp.org/extensions/xep-0346.html>>.

<sup>3</sup>The 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 <<https://xmpp.org/registrar/>>.

<sup>4</sup>XEP-0080: User Geolocation <<https://xmpp.org/extensions/xep-0080.html>>.



```
<geoloc xmlns="http://jabber.org/protocol/geoloc">
  <text>Venice, Italy</text>
  <locality>Venice</locality>
  <country>Italy</country>
  <lat>45.44</lat>
  <lon>12.33</lon>
</geoloc>
</field>
[ ... ]
</x>
```

## 4 Allow Receiver to Validate Geolocation Data

All elements associated with location fields MUST be qualified by the 'http://jabber.org/protocol/geoloc' namespace. The use of namespace prefixes is RECOMMENDED for large forms, to reduce the data size. To maintain the highest level of compatibility, implementations sending the form using prefixes SHOULD use the namespace prefix "geo:", and SHOULD declare the namespace prefix mapping in the ancestor <xmlns='jabber:x:data'/> element:

The following example is provided only for the purpose of illustration; consult the specifications for using protocols (e.g. XEP-0080, XEP-0122) to see canonical examples.

Listing 2: Validation of Geolocation Data

```
<x xmlns='jabber:x:data'
  xmlns:geo='http://jabber.org/protocol/geoloc'
  xmlns:xdv='http://jabber.org/protocols/xdata-validate'
  type='form'>
  <title>Sample_Location_Form</title>
  <instructions>
    Please provide information for the following location fields...
  </instructions>
  <field_type='text-single' _var='name' _label='Event Name' />
  <field_type='text-single' _var='time' _label='Event Date/Time'>
    <xdv:validate_datatype='xs:dateTime'>
      <basic/>
    </xdv:validate>
  </field>
  <field_type='text-single' _var='latitude' _label='Latitude'>
    <xdv:validate_datatype='geo:lat'>
      <basic/>
    </xdv:validate>
  </field>
  <field_type='text-single' _var='longitude' _label='Longitude'>
    <xdv:validate_datatype='geo:lon'>
      <basic/>
    </xdv:validate>
  </field>
```



```
.....</xdv:validate>  
..</field>  
</x>
```

## 4.1 Location Datatypes for Data Forms

The integration with Data Forms is accomplished via the datatypes specified in [Data Forms Validation \(XEP-0122\)](#)<sup>5</sup>. Each datatype is specific to the profile desired. The sender MUST use the 'geo:' datatypes as specified in XEP-0122. When submitting a form, a field's value(s) MUST be validated by the receiving entity based on the 'geo:' datatype identifier(s). Also, the submitter MUST provide a 'geo:' element for each location element within the data form. If a form-submitting entity receives a field type it does not understand, the 'text-single' field type from XEP-0004 MUST be assumed.

## 5 Security Considerations

It is imperative to control access to location information, at least by default. Imagine that a stalker got unauthorized access to this information, with enough accuracy and timeliness to be able to find the target person. This scenario could lead to loss of life, so please take access control checks seriously. If an error is deliberately added to a location, the error SHOULD be the same for all receivers, to minimize the likelihood of triangulation. In the case of deliberate error, the <accuracy /> element SHOULD NOT be included.

## 6 IANA Considerations

This document requires no interaction with the the [Internet Assigned Numbers Authority \(IANA\)](#)<sup>6</sup>.

## 7 XMPP Registrar Considerations

### 7.1 Protocol Namespaces

The [XMPP Registrar](#)<sup>7</sup> already includes 'http://jabber.org/protocol/geoloc' in its registry of protocol namespaces (see <<https://xmpp.org/registrar/namespaces.html>>).

<sup>5</sup>XEP-0122: Data Forms Validation <<https://xmpp.org/extensions/xep-0122.html>>.

<sup>6</sup>The Internet Assigned Numbers Authority (IANA) is the central coordinator for the assignment of unique parameter values for Internet protocols, such as port numbers and URI schemes. For further information, see <<http://www.iana.org/>>.

<sup>7</sup>The 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 <<https://xmpp.org/registrar/>>.



## 7.2 Location Fields and Data Form Validation Datatypes

The XMPP Registrar includes 'geo:' in its registry of Data Forms Validation Datatype Prefixes. Normally, each geographic format that wishes to be considered for use with Data Forms MUST register its own datatype qualified by the "geo:" prefix. However, this document provides an initial seed, based on the currently assumed formats. The following datatypes shall be registered for use with Data Forms Validation:

```
<datatype>
  <name>geo:lat</name>
  <desc>Datatype for publishing the latitude of a geographic location<
    /desc>
  <doc>XEP-0080</doc>
</datatype>
```

Listing 3: Validation of a XEP-0080 Latitude Field

```
<field type='text-single' var='latitude' label='Latitude'>
  <xdv:validate datatype='geo:lat'>
    <range min='-90'
      max='90' />
  </xdv:validate>
  <value>45.44</value>
</field>
```

```
<datatype>
  <name>geo:lon</name>
  <desc>Datatype for publishing the longitude of a geographic location
    </desc>
  <doc>XEP-0080</doc>
</datatype>
```

Listing 4: Validation of XEP-0080 Longitude Field

```
<field type='text-single' var='longitude' label='Longitude'>
  <xdv:validate datatype='geo:lon'>
    <range min='-180'
      max='180' />
  </xdv:validate>
  <value>12.33</value>
</field>
```

## 7.3 Text Field and Data Form Validation Datatypes

The XMPP Registrar MAY include 'geo:' datatypes in its registry of Data Forms Validation Datatypes, which can be used with the 'text-single' field type from XEP-0004.



```
<datatype>
  <name>geo:dms</name>
  <desc>Datatype for publishing a degrees, minutes, and seconds (DMS)
    location</desc>
  <doc>Degree Minutes and Seconds, 'http://en.wikipedia.org/wiki/
    Geographic_coordinate_system'.</doc>
</datatype>
```

Listing 5: Validation of a DMS Location Field

```
<field type='text-single' var='dms_location'>
  <xdv:validate datatype='geo:dms' />
  <regex>([-|\\+]?\\d{1,3}[d|D|\\u00B0|\\s](\\s*\\d{1,2}[ '|\\u2019|\\s
    ])?(\\s*\\d{1,2}[\\\"|\\u201d])?\\s*[N|n|S|s]?)(\\s*|,|,\\s*)
    ?([-|\\+]?\\d+?(\\.\\d+)?)?\\s*[E|e|W|w]?)</regex>
</xdv:validate>
<value>52d18'24.4775"N_0d52'44.0625"W</value>
</field>
```

```
<datatype>
  <name>geo:mgrs</name>
  <desc>Datatype for publishing a MGRS location</desc>
  <doc>Military Grid Reference System, 'http://en.wikipedia.org/wiki/
    Military_grid_reference_system'.</doc>
</datatype>
```

Listing 6: Validation of a MGRS Location Field

```
<field type='text-single' var='mgrs_location'>
  <xdv:validate datatype='geo:mgrs' />
  <regex>\\d{1,2}[A-Za-z]\\s*[A-Za-z]{2}\\s*\\d{1,5}\\s*\\d{1,5}</
    regex>
</xdv:validate>
<value>38SMB4484</value>
</field>
```

## 8 XML Schema

As this document only defines semantics for existing protocol, additional schemas are not required.