XEP-0465: Pubsub Public Subscriptions

Jérôme Poisson
mailto:goffi@goffi.org
xmpp:goffi@jabber.fr

2022-05-17
Version 0.1.0

<table>
<thead>
<tr>
<th>Status</th>
<th>Type</th>
<th>Short Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>Standards Track</td>
<td>pps</td>
</tr>
</tbody>
</table>

This specification provides a way to make subscriptions to a node public
Legal

Copyright

This XMPP Extension Protocol is copyright © 1999 – 2020 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 <https://xmpp.org/about/xsf/ipr-policy> or obtained by writing to XMPP Standards Foundation, P.O. Box 787, Parker, CO 80134 USA).
1 Introduction

Publish-Subscribe (XEP-0060)\(^1\) as its name states has a mechanism to subscribe to a node. Only the owner of the node can retrieve the list of subscribers. It may be interesting for users to share publicly the nodes they have subscribed to, or who is subscribed to theirs: it's a quick way to discover center of interest of a user, or to discover new accounts/nodes related to a specific center of interest. This kind of feature is common in modern social networks and often named "following" and "followers". This XEP proposes a solution to implement this feature in XMPP while respecting privacy of users. There is currently a XEP partially covering this problem with Pubsub Subscription (XEP-0330)\(^2\). This XEP has the advantage to be usable with a generic Pubsub service, but it has 2 flaws:

- it's only covering half of the problem: we get the pubsub nodes to which an entity is subscribed, but we don't know who is subscribed to a node
- clients need to keep the 'urn:xmpp:pubsub:subscription' node synchronized with subscriptions: if a subscription is removed from a node, it may stay present by mistake in 'urn:xmpp:pubsub:subscription' node.

This XEP fixes both issues.

2 Requirements

The design goal of this XEP are:

- let a user discover to which node an other user is publicly subscribed
- let a user discover who is publicly subscribed to a node
- take care of privacy: a user must declare a subscription public on purpose
- keep public subscription synchronized with nodes subscriptions

This XEP uses Pubsub Account Management (XEP-0376)\(^3\) as only way to subscribe to a node and unsubscribe from a node, as it is necessary to keep track of subscriptions.

---

3 Glossary

In this documentation, **PAM service** refers to a PEP service implementing **Pubsub Account Management (XEP-0376)**.

4 Use Cases

4.1 Public Subscription

Romeo wants to subscribe to the blog of his cousin Benvolio and he wants to make it public, so other peoples can discover Benvolio blog more easily. He does that as usual by sending a subscription request as explained in XEP-0376 §Subscribing but he adds a <public> element with the ’urn:xmpp:pps:0’ namespace:

### Listing 1: Romeo Makes a Public Subscription to Benvolio Blog

```xml
<iq type='set' id='sub1'>
  <pam xmlns='urn:xmpp:pam:0' jid='benvolio@montague.lit'>
    <subscribe xmlns='http://jabber.org/protocol/pubsub'
      node='urn:xmpp:microblog:0'
      jid='romeo@montague.lit'>
      <public xmlns='urn:xmpp:pps:0'/>
    </subscribe>
  </pam>
</iq>
```

Romeo also wants to follow the blog of this girl that he met at the ball, however, he doesn’t want yet to make it public for political reasons. He then does the subscription as usual and does not include the <public> element:

### Listing 2: Romeo Makes a Non Public Subscription to Juliet Blog

```xml
<iq type='set' id='sub2'>
  <pam xmlns='urn:xmpp:pam:0' jid='juliet@capulet.lit'>
    <subscribe xmlns='http://jabber.org/protocol/pubsub'
      node='urn:xmpp:microblog:0'
      jid='romeo@montague.lit'/>
  </pam>
</iq>
```

4.2 Retrieving Public Subscriptions

Mercutio is a friend of Romeo and he wants to know which nodes Romeo is subscribed to, as it may be a way to discover new and interesting peoples. To do this, Romeo’s PAM service

---

manages a special node named 'urn:xmpp:pps:subscriptions:0'. This node is created and managed by the PAM service itself, it can be subscribed to and unsubscribed from as an usual PubSub node, and it contains an item for each public subscription that has been made by node owner (Romeo in our example). Each items payload is a <subscription> element with the 'urn:xmpp:pps:0' namespace containing a 'node' attribute with the name of the subscribed node, and a 'jid' attribute with the JID of the pubsub service containing the subscribed node. The node owner can't add or retract items directly on the node: if Romeo wants to add or public subscription, it does this by doing a public subscription as explained in Public Subscription, and if he wants to retract a public subscription, he can do as explained in the next section. Result Set Management (XEP-0059) and Pubsub Message Archive Management (XEP-0442) apply normally if they are implemented.

Listing 3: Mercutio Get Public Subscriptions of Romeo

```xml
<iq type='get'
    from='mercutio@escalus.lit/play.456'
    to='romeo@montague.lit'
    id='get_pub_sub1'>
    <pubsub xmlns='http://jabber.org/protocol/pubsub'>
        <items node='urn:xmpp:pps:subscriptions:0'/>
    </pubsub>
</iq>
```

Listing 4: Romeo’s PAM Service Replies With Public Subscriptions

```xml
<iq type='result'
    from='romeo@montague.lit'
    to='mercutio@escalus.lit/play.456'
    id='get_pub_sub1'>
    <pubsub xmlns='http://jabber.org/protocol/pubsub'>
        <items node='urn:xmpp:pps:subscriptions:0'>
            <item id='abcd'>
                <subscription xmlns='urn:xmpp:pps:0' node='urn:xmpp:microblog:0' jid='benvolio@montague.lit'/>
            </item>
        </items>
    </pubsub>
</iq>
```

### 4.3 Retracting Public Subscriptions

Romeo can retract a public subscription in 2 ways:

---

• by unsubscribing entirely from the node as explained in XEP-0376 §Unsubscribing. In this case the PAM service remove the node from public subscriptions (it won’t appear anymore if somebody retrieves subscriptions) and unsubscribe from the node.

• by subscribing again to the node without the <public> element, as explained in https://xmpp.org/extensions/xep-0376.html#subs. In this case the PAM service remove the node from public subscriptions, and forward the request to the pubsub service (so the pubsub service also knows that the subscription is not public anymore).

4.4 Retrieving Public Subscribers to a node

If Mercutio wants to know who is publicly subscribing to Romeo’s blog, he request the PAM Service by using a special node managed by the service in a similar way as ‘urn:xmpp:pps:0’ node from Retrieving Public Subscriptions section (i.e. a node which can be subscribed to normally, but whose items can’t be publised or retracted directly). This node is named by prefixing the name of the target node with ‘urn:xmpp:pps:subscribers:0/’. So to check who is subscribed to Romeo’s blog, Mercutio must request ‘urn:xmpp:pps:subscribers:0/urn:xmpp:microblog:0’ node. The service will answer with items whose payload is a <subscriber> element with the ‘urn:xmpp:pps:0’ namespace, and a ‘jid’ attribute whose value is the JID of the public subscriber:

Listing 5: Mercutio Get Public Subscribers of Romeo’s blog

```
<iq type='get' from='mercutio@escalus.lit/play.456' to='romeo@montague.lit' id='get_pub_sub2'>
  <pubsub xmlns='http://jabber.org/protocol/pubsub'>
    <items node='urn:xmpp:pps:subscribers:0/urn:xmpp:microblog:0'/>
  </pubsub>
</iq>
```

Listing 6: Romeo’s PAM Service Replies With Public Subscribers

```
<iq type='result' from='romeo@montague.lit' to='mercutio@escalus.lit/play.456' id='get_pub_sub2'>
  <pubsub xmlns='http://jabber.org/protocol/pubsub'>
    <items node='{}' urn:xmpp:pps:subscribers:0/urn:xmpp:microblog:0>
      <item id='defg'>
        <subscriber xmlns='urn:xmpp:pps:0' jid='benvolio@montague.lit'/>
      </item>
    </items>
  </pubsub>
</iq>
```
7 SECURITY CONSIDERATIONS

note: Public subscribers is not restricted to PAM service, if a generic pubsub service implements this XEP, it MUST also returns the public subscribers when the special node is requested.

5 Business Rules

If a user wants to create, purge or delete a special node used in this XEP, or if they want to manually publish or retract items, the service MUST return a <forbidden/> error to the user.

6 discovering support

If a PEP or Pubsub service supports the "Pubsub Public Subscriptions" protocol, it must adveritize it by including the "urn:xmpp:pps:0” discovery feature (see Protocol Namespaces regarding issuance of one or more permanent namespaces) in response to a Service Discovery (XEP-0030)\(^7\) information request:

Listing 7: service discovery information request

```xml
<iq from='example.org'
    id='disco1'
    to='example.com'
    type='get'>
    <query xmlns='http://jabber.org/protocol/disco#info'/>
</iq>
```

Listing 8: service discovery information response

```xml
<iq from='example.com'
    id='disco1'
    to='example.org'
    type='result'>
    <query xmlns='http://jabber.org/protocol/disco#info'>
    <feature var='urn:xmpp:pps:0'/>
    </query>
</iq>
```

7 Security Considerations

Publishing publicly subscriptions of a user has pricacy implications: those public subscriptions may be used by someone to get a user interests or to know they network of contacts.

It may be used by bad actors for many reasons like advertising, or it may even be life threatening in some countries/situation as it may be used to known political opinion, religion, sexual orientation, etc. A client SHOULD make the subscription public only if there is no doubt that this is what the user wants, by using an opt-in system, and SHOULD display a well visible warning about the consequences of making a subscription public.

8 IANA Considerations

TODO

9 XMPP Registrar Considerations

TODO

10 XML Schema

TODO