



# XMPP

## XEP-0312: PubSub Since

Joe Hildebrand  
<mailto:jhildebr@cisco.com>  
<xmpp:hildjj@jabber.org>

Peter Saint-Andre  
<mailto:xsf@stpeter.im>  
<xmpp:peter@jabber.org>  
<http://stpeter.im/>

2012-05-29  
Version 0.3

Status	Type	Short Name
Deferred	Standards Track	NOT_YET_ASSIGNED

This specification defines a publish-subscribe feature that enables a subscriber to automatically receive pubsub and PEP notifications since the last logout time of a specific resource.

# Legal

## Copyright

This XMPP Extension Protocol is copyright © 1999 – 2018 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).

## Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>How It Works</b>	<b>1</b>
<b>3</b>	<b>Determining Support</b>	<b>2</b>
<b>4</b>	<b>Security Considerations</b>	<b>3</b>
<b>5</b>	<b>IANA Considerations</b>	<b>3</b>
<b>6</b>	<b>Implementation Notes</b>	<b>3</b>
<b>7</b>	<b>XMPP Registrar Considerations</b>	<b>3</b>
	7.1 Protocol Namespaces . . . . .	3
	7.2 Service Discovery Features . . . . .	4
<b>8</b>	<b>XML Schema</b>	<b>4</b>

## 1 Introduction

Many [Publish-Subscribe \(XEP-0060\)](#)<sup>1</sup> and [Personal Eventing Protocol \(XEP-0163\)](#)<sup>2</sup> services send notifications based on information about the presence of subscribers. This implies that subscribers might not receive notifications that were generated when they are offline at a particular resource. This specification defines how pubsub and PEP services can use the last logout information to send interim notifications to subscribers. (Although [Last Activity in Presence \(XEP-0256\)](#)<sup>3</sup> defines a way for clients to note their last logout time, this document defines a specialized namespace to reduce the possibility that non-initial presence notifications would trigger the synchronization behavior.)

## 2 How It Works

When sending initial presence, a subscriber (more precisely, a subscriber's specific full JID) can indicate how long ago it last logged out by including an `<ago/>` element qualified by the `'urn:xmpp:ago:0'` namespace; the `'secs'` attribute indicates the number of seconds since this resource was last online.

Listing 1: Last Logout Indication in Initial Presence

```
<presence from='juliet@capulet.com/balcony'>
  <ago xmlns='urn:xmpp:ago:0' secs='86511' />
</presence>
```

Upon receiving such an indication, a pubsub or PEP service that supports presence-based notifications and the "pubsub-since" feature defined herein would behave as follows:

1. The service **MUST** send to the subscriber's full JID all of the notifications stored in the relevant node's history that were generated since the last logout time (although see the rule #2 and rule #5 below).
2. The service **SHOULD NOT** include items that were deleted from the node, and **MAY** purge the node if items are deleted (naturally, if the node is purged then the service would not be able to meet rule #1 above).
3. The service **SHOULD** include only the final version of each pubsub notification (e.g., in case of items that were updated during the period when the subscriber was offline).
4. The service **MAY** adjust its definition of "interim notification" to account for reasonable clock skew (e.g., including notifications up to five minutes older than the subscriber's last logout time).

---

<sup>1</sup>XEP-0060: Publish-Subscribe <<https://xmpp.org/extensions/xep-0060.html>>.

<sup>2</sup>XEP-0163: Personal Eventing Protocol <<https://xmpp.org/extensions/xep-0163.html>>.

<sup>3</sup>XEP-0256: Last Activity in Presence <<https://xmpp.org/extensions/xep-0256.html>>.

5. The service MAY limit the number of notifications that it sends to avoid resource constraints.
6. The service MAY include [Result Set Management \(XEP-0059\)](#)<sup>4</sup> data so that the subscriber can page through the set of interim notifications.

If the pubsub service receives subsequent available presence from that full JID (even a presence update that includes the last availability indication), it MUST behave according to the rules in XEP-0060 or XEP-0163 (typically this means it would do nothing, since presence-based delivery toggles notifications "on" when receiving initial presence and toggles notifications "off" when receiving unavailable presence).

### 3 Determining Support

If a pubsub or PEP service supports the protocol defined herein, it MUST report that by including a [Service Discovery \(XEP-0030\)](#)<sup>5</sup> feature of "http://jabber.org/protocol/pubsub#since" in response to disco#info requests:

Listing 2: Service discovery information request

```
<iq from='bard@shakespeare.lit/globe'
  id='sb2t1d49'
  to='pubsub.shakespeare.lit'
  type='get'>
  <query xmlns='http://jabber.org/protocol/disco#info' />
</iq>
```

Listing 3: Service discovery information response

```
<iq from='pubsub.shakespeare.lit'
  id='sb2t1d49'
  to='bard@shakespeare.lit/globe'
  type='result'>
  <query xmlns='http://jabber.org/protocol/disco#info'>
    <identity category='pubsub' type='service' />
    <feature var='http://jabber.org/protocol/pubsub' />
    <feature var='http://jabber.org/protocol/pubsub#auto-subscribe' />
    <feature var='http://jabber.org/protocol/pubsub#presence-
      notifications' />
    <feature var='http://jabber.org/protocol/pubsub#since' />
  </query>
</iq>
```

<sup>4</sup>XEP-0059: Result Set Management <<https://xmpp.org/extensions/xep-0059.html>>.

<sup>5</sup>XEP-0030: Service Discovery <<https://xmpp.org/extensions/xep-0030.html>>.

## 4 Security Considerations

The number or cumulative size of the notifications published since the subscriber's last login time might be large, causing a significant load on the service. Implementations might consider truncating the interim notifications to avoid a denial of service.

## 5 IANA Considerations

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

## 6 Implementation Notes

The Last Activity extension (XEP-0012) notates time in seconds before the moment of stanza generation. Although some commenters have suggested that it would be easier to implement last activity notations in terms of UTC timestamps, clients can mitigate some implementation problems by storing the last activity time in UTC instead of local time (in case the device is moved across time zones) and by using standard technologies for clock synchronization such as [RFC 1305](#)<sup>7</sup> and [Entity Time \(XEP-0202\)](#)<sup>8</sup>. The five-minute grace period is merely a suggestion for developers; implementation and deployment experience might indicate that other values are more prudent.

## 7 XMPP Registrar Considerations

### 7.1 Protocol Namespaces

The [XMPP Registrar](#)<sup>9</sup> shall add 'urn:xmpp:ago:0' to its registry at [<https://xmpp.org/registrar/namespaces.html>](https://xmpp.org/registrar/namespaces.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>RFC 1305: Network Time Protocol (Version 3) [<http://tools.ietf.org/html/rfc1305>](http://tools.ietf.org/html/rfc1305).

<sup>8</sup>XEP-0202: Entity Time [<https://xmpp.org/extensions/xep-0202.html>](https://xmpp.org/extensions/xep-0202.html).

<sup>9</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 Service Discovery Features

Support for the feature defined in this document is advertised by the "http://jabber.org/protocol/pubsub#since" Service Discovery feature.

The XMPP Registrar shall add this feature to its registry at <<https://xmpp.org/registrar/disco-features.html>>. The registration is as follows.

```
<var>
  <name>http://jabber.org/protocol/pubsub#since</name>
  <desc>
    The pubsub or PEP service sends interim notifications upon
    receiving
    initial presence containing the subscriber's_s_last_logout_time.
  </desc>
  <doc>XEP-0312</doc>
</var>
```

## 8 XML Schema

```
<?xml version='1.0' encoding='UTF-8'?>
<xs:schema
  xmlns:xs='http://www.w3.org/2001/XMLSchema'
  targetNamespace='urn:xmpp:ago:0'
  xmlns='urn:xmpp:ago:0'
  elementFormDefault='qualified'>

  <xs:element name='ago'>
    <xs:complexType>
      <xs:simpleContent>
        <xs:extension base='empty'>
          <xs:attribute name='secs' type='xs:unsignedLong' use='
            required' />
        </xs:extension>
      </xs:simpleContent>
    </xs:complexType>
  </xs:element>

  <xs:simpleType name='empty'>
    <xs:restriction base='xs:string'>
      <xs:enumeration value='' />
    </xs:restriction>
  </xs:simpleType>

</xs:schema>
```