



# XMPP

## XEP-0230: Service Discovery Notifications

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This specification defines a method for requesting and receiving notifications regarding XMPP service discovery items.

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## 1 Introduction

[Entity Capabilities \(XEP-0115\)](#)<sup>1</sup> defines a way for entities to receive dynamically-updated information about [Service Discovery \(XEP-0030\)](#)<sup>2</sup> capabilities, rather than polling for updates by sending repeated disco#info requests. However, there is no comparable method for receiving updated disco#items information (this might be helpful when the number of associated entities is large or dynamic, e.g., at a multi-user chat service). This document specifies such a method by re-using semantics from [Publish-Subscribe \(XEP-0060\)](#)<sup>3</sup>.

## 2 Protocol

Before a requesting entity asks for service discovery items with notifications, it SHOULD send directed presence to the responding entity so that the responding entity knows when to stop sending notifications.

Listing 1: Requesting entity sends presence

```
<presence from='bill@shakespeare.lit/globe' to='chat.shakespeare.lit'/>
```

The requesting entity then sends a disco#items request to the responding entity, including a <subscribe/> element qualified by the 'http://jabber.org/protocol/pubsub' namespace, which in turn specifies a node of 'http://jabber.org/protocol/disco#items'.

Listing 2: Requesting all items

```
<iq type='get'
  from='bill@shakespeare.lit/globe'
  to='chat.shakespeare.lit'
  id='items1'>
  <query xmlns='http://jabber.org/protocol/disco#items'>
    <subscribe xmlns='http://jabber.org/protocol/pubsub'
      node='http://jabber.org/protocol/disco#items' />
  </query>
</iq>
```

If the responding entity does not recognize inclusion of the <subscribe/> element as a child of the <query/> element, it MUST return the service discovery items but MUST NOT send subsequent notifications to the requesting entity.

If the requesting entity did not share presence with the responding entity, the responding entity MUST return the service discovery items but SHOULD NOT send subsequent notifications

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<sup>1</sup>XEP-0115: Entity Capabilities <<https://xmpp.org/extensions/xep-0115.html>>.

<sup>2</sup>XEP-0030: Service Discovery <<https://xmpp.org/extensions/xep-0030.html>>.

<sup>3</sup>XEP-0060: Publish-Subscribe <<https://xmpp.org/extensions/xep-0060.html>>.

to the requesting entity.

If the responding entity recognizes inclusion of the <subscribe/> element as a child of the <query/> element and the requesting entity is allowed to receive notifications, the responding entity MUST return the service discovery items (including a <subscription/> element) and SHOULD send subsequent notifications to the requesting entity.

Listing 3: Result-set for all items

```
<iq type='result'
  from='chat.shakespeare.lit'
  to='bill@shakespeare.lit/globe'
  id='items1'>
  <query xmlns='http://jabber.org/protocol/disco#items'>
    <item jid='alls-well-that-ends-well@chat.shakespeare.lit' />
    <item jid='as-you-like-it@chat.shakespeare.lit' />
    <item jid='cleopatra@chat.shakespeare.lit' />
    <item jid='comedy-of-errors@chat.shakespeare.lit' />
    <item jid='coriolanus@chat.shakespeare.lit' />
    <item jid='cymbeline@chat.shakespeare.lit' />
    <item jid='hamlet@chat.shakespeare.lit' />
    <item jid='henry-the-fourth-one@chat.shakespeare.lit' />
    <item jid='henry-the-fourth-two@chat.shakespeare.lit' />
    <item jid='henry-the-fifth@chat.shakespeare.lit' />
    <subscription
      xmlns='http://jabber.org/protocol/pubsub'
      jid='bill@shakespeare.lit'
      subid='some-long-sub-id'
      subscription='subscribed' />
  </query>
</iq>
```

The responding entity then SHOULD send subsequent notifications to the requesting entity when associated items are added to or deleted from the potential result set.

Listing 4: A notification (new item)

```
<message from='chat.shakespeare.lit' to='bill@shakespeare.lit' id='foo'>
  <event xmlns='http://jabber.org/protocol/pubsub#event'>
    <items node='http://jabber.org/protocol/disco#items'>
      <item id='ae890ac52d0df67ed7cfd51b644e901'>
        <item xmlns='http://jabber.org/protocol/disco#items'
          jid='henry-the-fifth@chat.shakespeare.lit' />
      </item>
    </items>
  </event>
</message>
```

Listing 5: A notification (deleted item)

```
<message from='chat.shakespeare.lit' to='bill@shakespeare.lit' id='bar'>
  <event xmlns='http://jabber.org/protocol/pubsub#event'>
    <items node='http://jabber.org/protocol/disco#items'>
      <retract id='fa890ca52d0df67de7fcfd51b644c701'>
        <item xmlns='http://jabber.org/protocol/disco#items'
          jid='cardenio@chat.shakespeare.lit'>
        </item>
      </retract>
    </items>
  </event>
</message>
```

When the requesting entity goes offline, the responding entity will receive unavailable presence.

Listing 6: Responding entity receives unavailable presence

```
<presence from='bill@shakespeare.lit/globe'
  to='chat.shakespeare.lit'
  type='unavailable' />
```

The responding entity then MUST NOT send further notifications.

### 3 Security Considerations

This document introduces no new security considerations above and beyond those already defined for service discovery and publish-subscribe.

### 4 IANA Considerations

This document requires no interaction with the [Internet Assigned Numbers Authority \(IANA\)](#)<sup>4</sup>.

### 5 XMPP Registrar Considerations

This document requires no interaction with the [XMPP Registrar](#)<sup>5</sup>.

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<sup>4</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>5</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 informa-

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tion, see <<https://xmpp.org/registrar/>>.