



# XMPP

## XEP-0398: User Avatar to vCard-Based Avatars Conversion

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This specification describes a method for using PEP based avatars and vCard based avatars in parallel by having the user's server do a conversion between the two.

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## 1 Introduction

User Avatar (XEP-0084) <sup>1</sup> and vCard-Based Avatars (XEP-0153) <sup>2</sup> are usually considered to stand in competition with each other. User Avatar (XEP-0084) <sup>3</sup> even talks about superseding XEP-0153 in the future. While XEP-0084 provides a more efficient interface to upload avatars by separating metadata and data (thus saving the client from having to download its own avatar on every connect) it has the significant downside of not working with Multi-User Chat (XEP-0045) <sup>4</sup>.

Server implementations can aid to resolve this conflict by automatically putting avatars uploaded with User Avatar (XEP-0084) <sup>5</sup> into XEP-0153 storage and vice versa. This allows clients to use the more efficient XEP-0084 for uploading avatars and XEP-0153 to retrieve avatars in Multi-User Chats.

## 2 Discovery

The conversion is transparent to the uploading entity. However an entity might want to discover if a service will be performing the conversion from User Avatar (XEP-0084) <sup>6</sup> to XEP-0153 so it doesn't have to maintain a vCard avatar itself.

The service MUST include a Service Discovery (XEP-0030) <sup>7</sup> feature of "urn:xmpp:pep-vcard-conversion:0" on the account.

Listing 1: Client sends service discovery request to own account

```
<iq from='romeo@montague.tld/garden'
  id='01'
  type='get'
  to='romeo@montague.tld'>
  <query xmlns='http://jabber.org/protocol/disco#info' />
</iq>
```

Listing 2: Server includes feature namespace in response

```
<iq from='romeo@montague.tld'
  id='01'
  type='result'
  to='romeo@montague.tld/garden'>
  <query xmlns='http://jabber.org/protocol/disco#info'>
    <feature var='urn:xmpp:pep-vcard-conversion:0' />
  </query>
</iq>
```

<sup>1</sup>XEP-0084: User Avatar <<https://xmpp.org/extensions/xep-0084.html>>.

<sup>2</sup>XEP-0153: vCard-Based Avatars <<https://xmpp.org/extensions/xep-0153.html>>.

<sup>3</sup>XEP-0084: User Avatar <<https://xmpp.org/extensions/xep-0084.html>>.

<sup>4</sup>XEP-0045: Multi-User Chat <<https://xmpp.org/extensions/xep-0045.html>>.

<sup>5</sup>XEP-0084: User Avatar <<https://xmpp.org/extensions/xep-0084.html>>.

<sup>6</sup>XEP-0084: User Avatar <<https://xmpp.org/extensions/xep-0084.html>>.

<sup>7</sup>XEP-0030: Service Discovery <<https://xmpp.org/extensions/xep-0030.html>>.

```
</query>  
</iq>
```

### 3 Conversion

Modern clients are expected to use PEP ([User Avatar \(XEP-0084\)](#)<sup>8</sup>) as the interface to upload their avatar and use vCard (XEP-0153) only as a read only fallback. Thus a service MUST support conversion from PEP to vCard. A service MAY support conversion from vCard to PEP in order to display avatars in clients that only support XEP-0084.

#### 3.1 From PEP to vCard

Upon receiving a publication request to the 'urn:xmpp:avatar:metadata' node the service MUST look up the corresponding item published in the 'urn:xmpp:avatar:data' node and store the content of the data element as a photo in the vcard. Services MUST consider the fact that the metadata node might contain multiple info elements and MUST pick the info element that does not point to an external URL. Services SHOULD verify that the SHA-1 hash of the image matches the id.

#### 3.2 From vCard to PEP

Upon receiving a vCard publication request with a valid photo attached to it a service MUST first publish an item to the 'urn:xmpp:avatar:data' node on behalf of the requesting entity. The id of that item MUST be the SHA-1 hash of the image as described in [User Avatar \(XEP-0084\)](#)<sup>9</sup>. Afterwards the service MUST publish a new item to the 'urn:xmpp:avatar:metadata' node with one info element that represents the newly published image using the type value from the vCard as a type attribute in the info element.

After publication the service SHOULD send out notification messages to all subscribers of the metadata node.

## 4 Presence Broadcast

The “Business Rules” section of [vCard-Based Avatars \(XEP-0153\)](#)<sup>10</sup> tells entities to include a hash of the vCard avatar in their presence. However this requires clients to retrieve the avatar on every connect to calculate the hash. To avoid this, services MUST include the hash on behalf of their users in every available presence that does not contain an empty photo element wrapped in an x element qualified by the 'vcard-temp:x:update' namespace. Empty x

---

<sup>8</sup>XEP-0084: User Avatar <<https://xmpp.org/extensions/xep-0084.html>>.

<sup>9</sup>XEP-0084: User Avatar <<https://xmpp.org/extensions/xep-0084.html>>.

<sup>10</sup>XEP-0153: vCard-Based Avatars <<https://xmpp.org/extensions/xep-0153.html>>.

elements qualified by the 'vcard-temp:x:update' namespace (those without a photo element as child) MUST be overwritten. Presences where the content of the photo element is not empty and not equal to the hash calculated by the service MAY be overwritten.

Listing 3: Client sends presence to server

```
<presence/>
```

Listing 4: Server forwards presence to other entities that have presence subscription

```
<presence to='juliet@capulet.tld' from='romeo@montague.tld/garden'>
  <x xmlns='vcard-temp:x:update'>
    <photo>sha1-hash-of-image</photo>
  </x>
</presence>
```

Listing 5: Client sends a presence containing an empty photo element

```
<presence>
  <x xmlns='vcard-temp:x:update'>
    <photo/>
  </x>
</presence>
```

Listing 6: The server redirects the presence but doesn't touch the photo element

```
<presence to='juliet@capulet.tld' from='romeo@montague.tld/garden'>
  <x xmlns='vcard-temp:x:update'>
    <photo/>
  </x>
</presence>
```

The hash MUST also be injected into directed presences such as MUC joins

## 5 Implementation Notes

### 5.1 Client

Implementing clients SHOULD use the more efficient [User Avatar \(XEP-0084\)](#)<sup>11</sup> to access their own avatar storage and implement XEP-0153 only to download avatars from other entities if they do not have mutual presence subscription with said entity. (For example participants in a Multi-User Chat.)

Services will inject the hash in directed presences automatically but will not resend the presence if the avatar gets updated. Thus clients MAY resend directed available presence to all Multi-User Chats after receiving a 'urn:xmpp:avatar:metadata' update notification.

<sup>11</sup>XEP-0084: User Avatar <<https://xmpp.org/extensions/xep-0084.html>>.

The service will then inject an updated version of the hash. To avoid sending unnecessary presence updates, resending should only occur if the service announces the 'urn:xmpp:pep-vcard-conversion:0' feature.

## 5.2 Server

While this specification is worded in a way that implies PEP and vCard are two different storages and a publication to one copies the avatar to another an alternative implementation, that also satisfies the requirements, is one that dynamically injects the PEP avatar into the vCard upon request. If this approach is taken services SHOULD check if the requestor of the vCard has access to the PEP nodes.

## 6 Accessibility Considerations

This specification has no accessibility considerations beyond those introduced by [User Avatar \(XEP-0084\)](#)<sup>12</sup>.

## 7 Security Considerations

Services that copy the avatar from PEP to vCard upon publication SHOULD perform conversion only if the access model of the 'urn:xmpp:avatar:data' node has been set to 'open' as described in [Publish-Subscribe \(XEP-0060\)](#)<sup>13</sup>.

Services that dynamically inject the PEP avatar into a vCard response SHOULD check if the entity that requested the vCard has access to both PEP nodes. This can be the case if the access model has been set top 'open' or if the requesting entity has a presence subscription of the owner.

## 8 Privacy Considerations

World readable avatars (access model *open*) will be made available through semi-anonymous MUCs and can be used to de-anonymize users.

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<sup>12</sup>XEP-0084: User Avatar <<https://xmpp.org/extensions/xep-0084.html>>.

<sup>13</sup>XEP-0060: Publish-Subscribe <<https://xmpp.org/extensions/xep-0060.html>>.

## 9 IANA Considerations

This document requires no interaction with the Internet Assigned Numbers Authority (IANA).

## 10 XMPP Registrar Considerations

This specification defines the following XML namespace:

- urn:xmpp:pep-vcard-conversion:0

## 11 Acknowledgements

Special thanks to Evgeny Khramtsov who implemented what is now written down as a XEP in ejabberd and created the inspiration for this XEP.