



XMPP

XEP-0292: vCard4 Over XMPP

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This document specifies an XMPP extension for use of the vCard4 XML format in XMPP systems, with the intent of obsoleting the vcard-temp format.

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1 Introduction

Since 1999, the Jabber/XMPP community has used an interim, unofficial XML representation of vCard data for personal contacts, called `vcard-temp` (XEP-0054) ¹. Recently, the IETF has upgraded vCard from vCard3 to vCard 4 (RFC 6350 ²), and at the same time has defined an official XML format for vCard4 (RFC 6351 ³). This document specifies an XMPP extension for use of the vCard4 XML format in XMPP systems, with the intent of obsoleting the `vcard-temp` format. Primarily this document defines the encapsulation method itself; secondarily it also defines transport methods and a mapping to the `vcard-temp` format for migration by clients and servers.

2 Requirements

This specification was designed with the following requirements in mind.

1. Reuse vCard4 as defined in RFC 6350.
2. Reuse the vCard4 XML format as defined in RFC 6351.
3. Ensure that clients and servers can easily migrate from `vcard-temp` to the new encapsulation format.
4. Notify interested parties of changes to vCard data using standard XMPP extensions, specifically [Personal Eventing Protocol \(XEP-0163\)](#) ⁴.
5. Support vCards for non-human entities such as XMPP servers and [Multi-User Chat \(XEP-0045\)](#) ⁵ rooms.
6. Enable XMPP servers to store vCard4 XML data in LDAP directories if desired.

3 Reuse of vCard4

Because there is now an XML namespace for the official vCard format, we can simply re-use that namespace: `urn:ietf:params:xml:ns:vcard-4.0`.

The vCard XML format defined at the IETF specifies that the root element is `<vcards/>`, where the only defined child element is `<vcard/>`. For use in XMPP, we specify that the root element shall be `<vcard/>`, not `<vcards/>`.

¹XEP-0054: `vcard-temp` <<https://xmpp.org/extensions/xep-0054.html>>.

²RFC 6350: vCard Format Specification <<http://tools.ietf.org/html/rfc6350>>.

³RFC 6351: vCard XML Representation <<http://tools.ietf.org/html/rfc6351>>.

⁴XEP-0163: Personal Eventing Protocol <<https://xmpp.org/extensions/xep-0163.html>>.

⁵XEP-0045: Multi-User Chat <<https://xmpp.org/extensions/xep-0045.html>>.

4 Self vCards

This section describes the use of the vCard format for self-publication and retrieval of publicly-accessible information about any entity on an XMPP network, thus fulfilling all the use cases of the old vcard-temp format.

4.1 IQ-Based Publication and Retrieval

As in XEP-0054, the primary method for publishing and retrieving vCards is the XMPP <iq/> stanza. (Although it would have been possible to use [Best Practices for Persistent Storage of Public Data via Publish-Subscribe \(XEP-0222\)](#)⁶ for public storage and retrieval, community consensus is that storage via IQ is more backward-compatible with XEP-0054, and that publish-subscribe is more appropriate only for event notifications.)

4.1.1 Retrieval

An XMPP entity retrieves the vCard of another entity (or itself) by sending an IQ-get to the target entity containing a <vcard/> child element (note the lowercase "c"!) qualified by the 'urn:ietf:params:xml:ns:vcard-4.0' namespace.

Listing 1: vCard Retrieval Request

```
<iq from='samizzi@cisco.com/foo'
  id='bx81v356'
  to='stpeter@jabber.org'
  type='get'>
  <vcard xmlns='urn:ietf:params:xml:ns:vcard-4.0' />
</iq>
```

If a vCard exists for the target entity, the responsible entity (e.g., the XMPP server that hosts the account for a bare JID) MUST return the data in an IQ-result:

Listing 2: Server Returns vCard

```
<iq from='stpeter@jabber.org'
  id='bx81v356'
  to='samizzi@cisco.com/foo'
  type='result'>
  <vcard xmlns="urn:ietf:params:xml:ns:vcard-4.0">
    <fn><text>Peter Saint-Andre</text></fn>
    <n><surname>Saint-Andre</surname><given>Peter</given><additional
      ></additional></n>
```

⁶XEP-0222: Best Practices for Persistent Storage of Public Data via Publish-Subscribe <<https://xmpp.org/extensions/xep-0222.html>>.

```
<nickname><text>stpeter</text></nickname>
<nickname><text>psa</text></nickname>
<photo><uri>https://stpeter.im/images/stpeter_oscon.jpg</uri></
  photo>
<bday><date>1966-08-06</date></bday>
<adr>
  <parameters>
    <type><text>work</text><text>voice</text></type>
    <pref><integer>1</integer></pref>
  </parameters>
  <ext>Suite 600</ext>
  <street>1899 Wynkoop Street</street>
  <locality>Denver</locality>
  <region>CO</region>
  <code>80202</code>
  <country>USA</country>
</adr>
<adr>
  <parameters><type><text>home</text></type></parameters>
  <ext></ext>
  <street></street>
  <locality>Parker</locality>
  <region>CO</region>
  <code>80138</code>
  <country>USA</country>
</adr>
<tel>
  <parameters>
    <type><text>work</text><text>voice</text></type>
    <pref><integer>1</integer></pref>
  </parameters>
  <uri>tel:+1-303-308-3282</uri>
</tel>
<tel>
  <parameters><type><text>work</text><text>fax</text></type></
  parameters>
  <uri>tel:+1-303-308-3219</uri>
</tel>
<tel>
  <parameters>
    <type><text>cell</text><text>voice</text><text>text</text></
    type>
  </parameters>
  <uri>tel:+1-720-256-6756</uri>
</tel>
<tel>
  <parameters><type><text>home</text><text>voice</text></type></
  parameters>
  <uri>tel:+1-303-555-1212</uri>
```

```

</tel>
<geo><uri>geo:39.59,-105.01</uri></geo>
<title><text>Executive Director</text></title>
<role><text>Patron Saint</text></role>
<org>
  <parameters><type><text>work</text></type></parameters>
  <text>XMPP Standards Foundation</text>
</org>
<url><uri>https://stpeter.im/</uri></url>
<note>
  <text>
    More information about me is located on my
    personal website: https://stpeter.im/
  </text>
</note>
<gender><sex><text>M</text></sex></gender>
<lang>
  <parameters><pref>1</pref></parameters>
  <language-tag>en</language-tag>
</lang>
<email>
  <parameters><type><text>work</text></type></parameters>
  <text>psaintan@cisco.com</text>
</email>
<email>
  <parameters><type><text>home</text></type></parameters>
  <text>stpeter@jabber.org</text>
</email>
<impp>
  <parameters><type><text>work</text></type></parameters>
  <uri>xmpp:psaintan@cisco.com</uri>
</impp>
<impp>
  <parameters><type><text>home</text></type></parameters>
  <uri>xmpp:stpeter@jabber.org</uri>
</impp>
<key>
  <uri>https://stpeter.im/stpeter.asc</uri>
</key>
</vcard>
</iq>

```

If no vCard exists, the server MUST return an IQ-result containing an empty <vcard/> element.

Listing 3: No vCard (empty element)

```

<iq from='stpeter@jabber.org'
  id='bx81v356'
  to='samizzi@cisco.com/foo'

```



```

    type='result'>
    <vcard xmlns='urn:ietf:params:xml:ns:vcard-4.0' />
  </iq>

```

4.1.2 Publication

An XMPP entity publishes or updates its vCard by sending an IQ-set to itself (typically its bare JID), containing a <vcard/> child element qualified by the 'urn:ietf:params:xml:ns:vcard-4.0' namespace. The publication request needs to include the entire vCard, not a "diff" against the prior data (if any).

Listing 4: vCard Publication Request

```

<iq from='stpeter@jabber.org/squire
.....id='h3vz319m'
.....to='stpeter@jabber.org'
.....type='set'>
....<vcard xmlns='urn:ietf:params:xml:ns:vcard-4.0'>
.....[...]
....</vcard>
..</iq>

```

If no error occurs, the responsible entity returns an IQ-result.

Listing 5: Server Acknowledges Publication

```

<iq from='stpeter@jabber.org'
    id='bx81v356'
    to='stpeter@jabber.org/squire'
    type='result' />

```

Note: An entity MAY have authorization to update the vCard of another entity (e.g., a server administrator might have authorization to modify the server's vCard).

4.2 Event Notifications

[Publish-Subscribe \(XEP-0060\)](#)⁷ provides a way to subscribe to events, and [Personal Eventing Protocol \(XEP-0163\)](#)⁸ defines a pubsub profile for events associated with instant messaging (IM) accounts. If PEP is supported by an IM server, it can be used to automatically generate event notifications when a user's vCard is modified.

⁷XEP-0060: Publish-Subscribe <<https://xmpp.org/extensions/xep-0060.html>>.

⁸XEP-0163: Personal Eventing Protocol <<https://xmpp.org/extensions/xep-0163.html>>.

4.2.1 Location

The canonical location for notifications regarding a user's vCard is a pubsub node whose name is "urn:xmpp:vcard4".

4.2.2 Subscribing to vCard Notifications

Let us imagine that Juliet wishes to receive the updates that Romeo publishes to his vCard. She has two options:

1. Implicitly subscribe by advertising support for "urn:xmpp:vcard4+notify" in her [Entity Capabilities \(XEP-0115\)](#)⁹ data. Romeo's PEP service then automatically sends vCard updates to her when it receives presence from her, until and unless she sends presence of type unavailable or stops advertising an interest in vCard updates. This is in accordance with XEP-0060, section 6.1.
2. Explicitly subscribe by sending a formal subscription request to the "urn:xmpp:vcard4" node at Romeo's JabberID. Romeo's PEP service might send her all vCard updates even if she is offline at the time (depending on service policies regarding presence integration).

4.2.3 Receiving a vCard Notification

Because Juliet has sent presence to Romeo including Entity Capabilities data that includes the "urn:xmpp:vcard4+notify" feature, Romeo's XMPP server will send a PEP notification to Juliet. The notification can include an XMPP message body for backward-compatibility with XMPP clients that are not pubsub-capable. This is in accordance with XEP-0060, section 6.1.7.

Listing 6: Receiving a vCard publication/update

```
<message from='romeo@montague.lit'
         to='juliet@capulet.lit'
         type='headline'>
  <event xmlns='http://jabber.org/protocol/pubsub#event'>
    <items node='urn:xmpp:vcard4'>
      <item id='current' />
    </items>
  </event>
</message>
```

Note: There is no payload, because this is a pure notification (the receiver needs to retrieve the vCard using an IQ-get as described earlier).

⁹XEP-0115: Entity Capabilities <<https://xmpp.org/extensions/xep-0115.html>>.

5 Contact vCards

In addition to enabling the publication and retrieval of vCards about any entity on an XMPP network, the vCard format can also be used to store information about an entity's contacts.

5.1 Format

A contact is simply a vCard about someone else (or something else, in the case of automated entities). If the other person or entity is in the user's roster [RFC 6121](#)¹⁰, the vCard SHOULD contain the Jabber ID of the person or entity. This enables a user to store information about the contact outside of the roster, thus obviating the need for changes or extensions to the roster namespace itself (as in [Annotations \(XEP-0145\)](#)¹¹).

Listing 7: Contact

```
<vcard xmlns="urn:ietf:params:xml:ns:vcard-4.0">
  <fn><text>Samantha Mizzi</text></fn>
  <n>
    <surname>Mizzi</surname>
    <given>Samantha</given>
    <additional></additional>
  </n>
  <nickname><text>Sam</text></nickname>
  <nickname><text>samizzi</text></nickname>
  <geo><uri>geo:39.59,-105.01</uri></geo>
  <org>
    <parameters><type><text>work</text></type></parameters>
    <text>Cisco</text>
  </org>
  <note>
    <text>
      My co-author on XEP-0292. She's cool!
    </text>
  </note>
  <impp>
    <parameters><type><text>work</text></type></parameters>
    <uri>xmpp:samizzi@cisco.com</uri>
  </impp>
</vcard>
```

¹⁰RFC 6121: Extensible Messaging and Presence Protocol (XMPP): Instant Messaging and Presence <<http://tools.ietf.org/html/rfc6121>>.

¹¹XEP-0145: Annotations <<https://xmpp.org/extensions/xep-0145.html>>.

5.2 Storage

Because contact vCards are private information, they are best stored using [Best Practices for Persistent Storage of Private Data via Publish-Subscribe \(XEP-0223\)](#)¹². The canonical location is a well-known pubsub node "urn:xmpp:contacts". In accordance with XEP-0223, this node MUST have an access type of "whitelist" by default. When a client stores items at this node, it SHOULD NOT include an ItemID, so that the pubsub service can assign those identifiers.

Listing 8: Storing a Contact vCard

```
<iq from='stpeter@stpeter.im/squire' type='set' id='h3vs7163'>
  <pubsub xmlns='http://jabber.org/protocol/pubsub'>
    <publish node='urn:xmpp:contacts'>
      <item>
        <vcard xmlns="urn:ietf:params:xml:ns:vcard-4.0">
          <fn><text>Samantha Mizzi</text></fn>
          <n>
            <surname>Mizzi</surname>
            <given>Samantha</given>
            <additional></additional>
          </n>
          <nickname><text>Sam</text></nickname>
          <nickname><text>samizzi</text></nickname>
          <geo><uri>geo:39.59,-105.01</uri></geo>
          <org>
            <parameters><type><text>work</text></type></parameters>
            <text>Cisco</text>
          </org>
          <note>
            <text>
              My co-author on XEP-0292. She's_cool!
            </text>
          </note>
          <impp>
            <parameters><type><text>work</text></type></parameters>
            <uri>xmpp:samizzi@cisco.com</uri>
          </impp>
        </vcard>
      </item>
    </publish>
    <publish-options>
      <x_xmlns='jabber:x:data'_type='submit'>
        <field_var='FORM_TYPE'_type='hidden'>
          <value>http://jabber.org/protocol/pubsub#publish-options</
            value>
        </field>
      </x_xmlns>
    </publish-options>
  </pubsub>
</iq>
```

¹²XEP-0223: Best Practices for Persistent Storage of Private Data via Publish-Subscribe <<https://xmpp.org/extensions/xep-0223.html>>.

```

.....<field_var='pubsub#persist_items'>
.....<value>>true</value>
.....</field>
.....<field_var='pubsub#access_model'>
.....<value>whitelist</value>
.....</field>
.....</x>
.....</publish-options>
..</pubsub>
</iq>

```

When a contact's vCard is stored in a private node, it is pushed out to all of the user's resources that have included in their entity capabilities (XEP-0115) data a service discovery feature of "urn:xmpp:contacts+notify" (in the following example those resources are "squire" and "roundabout").

Listing 9: Publisher resources receive event notification

```

<message from='stpeter@stpeter.im'
to='stpeter@stpeter.im/squire'
type='headline'
id='ka92g1b5'>
  <event xmlns='http://jabber.org/protocol/pubsub#event'>
    <items node='urn:xmpp:contacts'>
      <item id='9703CC4E-CF7E-4A86-9E61-2C670235F9CB'>
        <vcard xmlns="urn:ietf:params:xml:ns:vcard-4.0">
          <fn><text>Samantha Mizzi</text></fn>
          <n>
            <surname>Mizzi</surname>
            <given>Samantha</given>
            <additional></additional>
          </n>
          <nickname><text>Sam</text></nickname>
          <nickname><text>samizzi</text></nickname>
          <geo><uri>geo:39.59,-105.01</uri></geo>
          <org>
            <parameters><type><text>work</text></type></parameters>
            <text>Cisco</text>
          </org>
          <note>
            <text>
              My co-author on XEP-0292. She's_cool!
            </text>
          </note>
          <impp>
            <parameters><type><text>work</text></type></parameters>
            <uri>xmpp:samizzi@cisco.com</uri>
          </impp>
        </vcard>

```

```

.....</item>
....</items>
..</event>
</message>

<message_from='stpeter@stpeter.im'
.....to='stpeter@stpeter.im/roundabout'
.....type='headline'
.....id='pty14x69'>
..<event_xmlns='http://jabber.org/protocol/pubsub#event'>
....<items_node='urn:xmpp:contacts'>
.....<item_id='9703CC4E-CF7E-4A86-9E61-2C670235F9CB'>
.....<vcard_xmlns="urn:ietf:params:xml:ns:vcard-4.0">
.....<fn><text>Samantha_Mizzi</text></fn>
.....<n>
.....<surname>Mizzi</surname>
.....<given>Samantha</given>
.....<additional></additional>
.....</n>
.....<nickname><text>Sam</text></nickname>
.....<nickname><text>samizzi</text></nickname>
.....<geo><uri>geo:39.59,-105.01</uri></geo>
.....<org>
.....<parameters><type><text>work</text></type></parameters>
.....<text>Cisco</text>
.....</org>
.....<note>
.....<text>
.....My_co-author_on_XEP-0292. She's cool!
.....</text>
.....</note>
.....<impp>
.....<parameters><type><text>work</text></type></parameters>
.....<uri>xmpp:samizzi@cisco.com</uri>
.....</impp>
.....</vcard>
.....</item>
.....</items>
.....</event>
</message>

```

6 vCards of Automated Entities

Traditionally, vCards have been used on the XMPP network for entities other than human users, e.g. by XMPP servers and chatrooms. When such automated entities use vCards, it is RECOMMENDED to specify a value of "application" for the vCard4 KIND property RFC 6473¹³,

¹³RFC 6473: vCard KIND:application <<http://tools.ietf.org/html/rfc6351>>.

as illustrated in the following example:

Listing 10: vCard for a Thing

```
<iq from='jabber.org'
  id='yhx51c35'
  to='samizzi@cisco.com/foo'
  type='result'>
  <vcard xmlns='urn:ietf:params:xml:ns:vcard-4.0'>
    <fn><text>jabber.org IM service</text></fn>
    <url><uri>http://www.jabber.org/</uri></url>
    <lang>
      <parameters><pref>1</pref></parameters>
      <language-tag>en</language-tag>
    </lang>
    <email><text>xmpp@jabber.org</text></email>
    <impp><uri>xmpp:jabber.org</uri></impp>
    <logo><uri>http://www.jabber.org/images/logo.png</uri></logo>
    <geo><uri>geo:42.25,-91.05</uri></geo>
    <tz><text>America/Chicago</text></tz>
    <kind><text>application</text></kind>
  </vcard>
</iq>
```

7 Determining Support

If an XMPP client or server supports the vCard4 namespace, it MUST advertise that fact in its responses to [Service Discovery \(XEP-0030\)](#)¹⁴ information ("disco#info") requests by returning a feature of "urn:ietf:params:xml:ns:vcard-4.0":

Listing 11: A disco#info query

```
<iq type='get'
  from='stpeter@jabber.org/squire'
  to='samizzi@cisco.com/foo'
  id='disco1'>
  <query xmlns='http://jabber.org/protocol/disco#info' />
</iq>
```

Listing 12: A disco#info response

```
<iq type='result'
  from='samizzi@cisco.com/foo'
  to='stpeter@jabber.org/squire'
  id='disco1'>
```

¹⁴XEP-0030: Service Discovery <<https://xmpp.org/extensions/xep-0030.html>>.

```
<query xmlns='http://jabber.org/protocol/disco#info'>
  ...
  <feature var='urn:ietf:params:xml:ns:vcard-4.0' />
  ...
</query>
</iq>
```

In order for an application to determine whether an entity supports this protocol, where possible it SHOULD use the dynamic, presence-based profile of service discovery defined in [Entity Capabilities \(XEP-0115\)](#) ¹⁵. However, if an application has not received entity capabilities information from an entity, it SHOULD use explicit service discovery instead.

8 Security Considerations

The vCard information published to one's XMPP server is world-readable; therefore, users should exercise due caution when determining what information to include (e.g., street addresses, personal telephone numbers, or email addresses).

9 IANA Considerations

This document does not require interaction with the [Internet Assigned Numbers Authority \(IANA\)](#) ¹⁶.

10 XMPP Registrar Considerations

10.1 Well-Known Service Discovery Nodes

The [XMPP Registrar](#) ¹⁷ shall include 'urn:xmpp:contact' and 'urn:xmpp:vcard4' in its registry of Nodes for Service Discovery and Publish-Subscribe at <https://xmpp.org/registrar/nodes.html>.

¹⁵XEP-0115: Entity Capabilities <https://xmpp.org/extensions/xep-0115.html>.

¹⁶The 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/>.

¹⁷The 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/>.

11 Mapping from vcard-temp to vCard4

This section provides a more detailed description of mapping vcard-temp properties to vcard4 properties.

11.1 Properties Defined in vcard-temp but not in vCard3 or vCard4

11.1.1 DESC

The vcard-temp specification defined a <DESC/> element. This element was not part of the vCard3 schema. Mapping the vcard-temp <DESC/> element to the vCard4 NOTE property is appropriate.

Listing 13: Deprecated DESC element

```
<DESC>
  More information about me is located on my
  personal website: https://stpeter.im/
</DESC>
```

Listing 14: NOTE property

```
<note>
  <text>
    More information about me is located on my
    personal website: https://stpeter.im/
  </text>
</note>
```

11.1.2 JABBERID

The vcard-temp specification defined a <JABBERID/> element:

Listing 15: Deprecated JABBERID element

```
<JABBERID>stpeter@jabber.org</JABBERID>
```

Although the JABBERID field was not part of the vCard3 schema and was simply hacked into vcard-temp, RFC 4770¹⁸ defined an IMPP property for instant messaging and presence addresses, which was ported to vCard4. In the vCard4 XML format, the IMPP property for a JabberID would be as follows.

¹⁸RFC 4770: vCard Extensions for Instant Messaging (IM) <<http://tools.ietf.org/html/rfc4770>>.

Listing 16: IMPP property

```
<impp>
  <uri>xmpp:stpeter@jabber.org</uri>
</impp>
```

11.1.3 MIDDLE

The vcard-temp specification defined a <MIDDLE/> element as the third allowable element within the <N/> ("name") element. This element was not part of the vCard3 schema, although the Dawson drafts did contain an <other/> element in the third position of child elements within the <n/> element. It is appropriate to map the vcard-temp <MIDDLE/> element to the vCard4 "Additional Name" part of the "N" structured property value, which in xCard is the <additional/> child of the <n/> element.

11.2 Properties Defined Incorrectly in vcard-temp

Several of the properties in vcard-temp are defined differently in vCard3. In fact, the definitions even differ from those provisionally made in the so-called "Dawson drafts" from which vcard-temp was supposedly derived (for reference, the last of these is archived at <<http://www.watersprings.org/pub/id/draft-dawson-vcard-xml-dtd-03.txt>>). The reasons for these discrepancies are unknown. However, care must be taken in correctly mapping these properties from vcard-temp to vCard4.

11.2.1 KEY

The DTD in XEP-0054 provided this definition for the KEY element:

```
<!ELEMENT KEY (TYPE?, CRED)>
```

However, the DTD in the final Dawson draft provided the following definition:

```
<!ELEMENT key (extref | b64bin)>
```

The relevant RelaxNG definition in vCard4 XML is as follows:

```
property-key = element key {
  (value-uri | value-text)
}
```

The source of the spurious <TYPE/> and <CRED/> elements is unknown. The vcard-temp <CRED/> element is mapped to the vCard4 value-text construction.

11.2.2 SOUND

The DTD in XEP-0054 provided this definition for the SOUND element:

```
<!ELEMENT SOUND (PHONETIC | BINVAL | EXTVAL)>
```

However, the DTD in the final Dawson draft provided the following definition:

```
<!ELEMENT sound (extref | b64bin)>
```

The source of the spurious vcard-temp <PHONETIC/> element is unknown. However, it does not exist in vCard4 and therefore is simply discarded when mapping. The vcard-temp <BINVAL/> element is mapped to the vCard4 b64bin construction and the vcard-temp <EXTVAL/> element is mapped to the vCard4 extref construction.

11.2.3 VERSION

As explained in XEP-0054, the <VERSION/> element from the final Dawson draft was not used in vcard-temp; instead, the vcard-temp protocol used a 'version' attribute (in fact the Dawson drafts were inconsistent, since the DTD defined a <VERSION/> element and the body of the specification used a 'version' attribute).

11.3 Properties Defined Differently in vcard-temp, vCard3, and vCard4

The following properties are defined differently in vcard-temp and vCard4. As a result, the mappings are workable but might not preserve all information that could have been contained in vcard-temp data.

11.3.1 ADR

The following address type values allowed in vCard3 were removed from vCard4:

- DOM
- INTL
- PARCEL
- POSTAL

11.3.2 AGENT

In vCard3 and vcard-temp, the AGENT property was allowed to contain the inline vCard of someone who could act as an agent for the primary owner of the referenced vCard. In vCard4, inline vCards are disallowed. Therefore only pointers to external vCard objects are now allowed, by means of a URI.

11.3.3 ORG

The ORGUNIT property was removed from vCard4, with the result that the ORGNAME property becomes the only child of ORG.

11.3.4 SORT-STRING

The SORT-STRING property from vCard3 was renamed to SORT-AS in vCard4.

11.3.5 TEL

The following telephony type values allowed in vCard3 were removed from vCard4:

- BBS
- ISDN
- MODEM
- MSG
- PCS

In addition, in vCard4 the telephone number is represented as a tel: URI, not by means of a NUMBER property.

11.4 Properties Defined Similarly in vcard-temp, vCard3, and vCard4

The following properties are defined similarly in vcard-temp, vCard3, and vCard4. The mappings are fairly straightforward (a future version of this document might provide more detailed narrative descriptions of the mappings).

- BDAY
- CATEGORIES

- EMAIL
- FN
- GEO
- LOGO
- N
- NICKNAME
- NOTE
- PHOTO (mapped to a 'data:' URI in vCard4, see [RFC 2397](#) ¹⁹)
- PRODID
- REV
- ROLE
- TITLE
- TZ
- UID
- URL

11.5 Properties Defined in vCard3 but Removed from vCard4

The following properties were defined in vCard3 but were removed from vCard4:

- CLASS
- LABEL
- MAILER

There is no mapping from these properties to vCard4.

¹⁹RFC 2397: The data: URL scheme <<http://tools.ietf.org/html/rfc2397>>.

12 Migration Tools

This section contains three tools that are intended to help developers in migrating from vcard-temp to vCard4 XML:

1. An Extensible Stylesheet Language Transformation (XSLT) script for automatically translating the vcard-temp XML format into the vCard4 XML format.
2. An example of vcard-temp data that uses most of the elements defined in XEP-0054 that can be mapped to vCard4 properties (note that some of these elements were never used in practice).
3. An example of vCard4 XML data showing the transformation of the vcard-temp example using the XSLT stylesheet.

The tools are **purely informational** and are not a normative part of this specification.

12.1 Extensible Stylesheet Language Transformation (XSLT) from vcard-temp to vCard4

```
<?xml version='1.0' encoding='UTF-8'?>
```

```
<!--
```

```
Copyright (c) 1999 - 2017 XMPP Standards Foundation
```

```
Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:
```

```
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```

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```

```
ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE
OR OTHER DEALINGS IN THE SOFTWARE.

-->

<!-- Author: stpeter@jabber.org -->

<!-- Version: 0.0.3 -->

<!-- Last Updated: 2012-09-12 -->

<xsl:stylesheet
  xmlns='urn:ietf:params:xml:ns:vcard-4.0'
  xmlns:xsl='http://www.w3.org/1999/XSL/Transform'
  version='1.0'>

  <xsl:output method='xml' />

  <xsl:template match='/'>
    <vcard>

      <!-- BEGIN VARIABLES -->

      <!-- in case we need them, count instances of the vcard-temp
           elements per the DTD in XEP-0054 -->

      <xsl:variable name='FN.count' select='count(/vCard/FN)' />
      <xsl:variable name='N.count' select='count(/vCard/N)' />
      <xsl:variable name='NICKNAME.count' select='count(/vCard/
        NICKNAME)' />
      <xsl:variable name='PHOTO.count' select='count(/vCard/PHOTO)' />
      <xsl:variable name='BDAY.count' select='count(/vCard/BDAY)' />
      <xsl:variable name='ADR.count' select='count(/vCard/ADR)' />
      <xsl:variable name='LABEL.count' select='count(/vCard/LABEL)' />
      <xsl:variable name='TEL.count' select='count(/vCard/TEL)' />
      <xsl:variable name='EMAIL.count' select='count(/vCard/EMAIL)' />
      <xsl:variable name='JABBERID.count' select='count(/vCard/
        JABBERID)' />
      <xsl:variable name='MAILER.count' select='count(/vCard/MAILER)' /
        >
      <xsl:variable name='TZ.count' select='count(/vCard/TZ)' />
      <xsl:variable name='GEO.count' select='count(/vCard/GEO)' />
      <xsl:variable name='TITLE.count' select='count(/vCard/TITLE)' />
      <xsl:variable name='ROLE.count' select='count(/vCard/ROLE)' />
      <xsl:variable name='LOGO.count' select='count(/vCard/LOGO)' />
      <xsl:variable name='AGENT.count' select='count(/vCard/AGENT)' />
      <xsl:variable name='ORG.count' select='count(/vCard/ORG)' />
```

```

<xsl:variable name='CATEGORIES.count' select='count(/vCard/
  CATEGORIES)'/>
<xsl:variable name='NOTE.count' select='count(/vCard/NOTE)'/>
<xsl:variable name='PROPID.count' select='count(/vCard/PROPID)'/
  >
<xsl:variable name='REV.count' select='count(/vCard/REV)'/>
<xsl:variable name='SORT-STRING.count' select='count(/vCard/SORT
  -STRING)'/>
<xsl:variable name='SOUND.count' select='count(/vCard/SOUND)'/>
<xsl:variable name='UID.count' select='count(/vCard/UID)'/>
<xsl:variable name='URL.count' select='count(/vCard/URL)'/>
<xsl:variable name='CLASS.count' select='count(/vCard/CLASS)'/>
<xsl:variable name='KEY.count' select='count(/vCard/KEY)'/>
<xsl:variable name='DESC.count' select='count(/vCard/DESC)'/>

<!-- END VARIABLES -->

<!-- BEGIN VCARD4 OUTPUT -->

<!-- FN is required -->

<fn><text><xsl:value-of select='/vCard/FN'/'></text></fn>

<!-- N is required -->

<xsl:apply-templates select='/vCard/N'/'>

<!-- NICKNAME can be included one or more times -->

<xsl:for-each select='/vCard/NICKNAME'>
  <nickname><text><xsl:value-of select='.'/'></text></nickname>
</xsl:for-each>

<!-- PHOTO can be included one or more times -->
<!-- content is either a pointer to a URL or inline binary,
  which is mapped to a data: URI in vCard4 -->

<xsl:for-each select='/vCard/PHOTO'>
  <xsl:variable name='PHOTO.ext' select='count(EXTVAL)'/>
  <xsl:variable name='PHOTO.type' select='TYPE'/'>
  <xsl:choose>
    <xsl:when test='$PHOTO.ext=1'>
      <photo><uri><xsl:value-of select='EXTVAL'/'></uri></photo>
    </xsl:when>
    <xsl:otherwise>
      <photo>
        <uri>
          <xsl:text>data:</xsl:text><xsl:value-of select='TYPE'/'
            ><xsl:text>;</xsl:text><xsl:value-of select='

```



```
        BINVAL' />
    </uri>
  </photo>
</xsl:otherwise>
</xsl:choose>
</xsl:for-each>

<!-- BDAY can be included once -->

<xsl:if test='$BDAY.count=1'>
  <bday><date><xsl:value-of select='/vCard/BDAY' /></date></bday>
</xsl:if>

<!-- ADR can be included one or more times -->

<xsl:apply-templates select='/vCard/ADR' />

<!-- NOTE: vcard-temp allowed a LABEL element,
but it was removed from vCard4 -->

<!-- one or more TEL elements can be included -->

<xsl:apply-templates select='/vCard/TEL' />

<!-- one or more EMAIL elements can be included -->

<xsl:apply-templates select='/vCard/EMAIL' />

<!-- JABBERID can be included one or more times -->
<!-- we map this to the vCard4 IMPP property -->

<xsl:for-each select='/vCard/JABBERID'>
  <impp><uri><xsl:text>xmpp:</xsl:text><xsl:value-of select='.' />
  </uri></impp>
</xsl:for-each>

<!-- NOTE: vcard-temp allowed a MAILER element,
but it was removed from vCard4 -->

<!-- one or more TZ elements can be included -->

<xsl:for-each select='/vCard/TZ'>
  <tz><text><xsl:value-of select='.' /></text></tz>
</xsl:for-each>

<!-- one or more GEO elements can be included -->

<xsl:for-each select='/vCard/GEO'>
```

```

    <geo><uri><xsl:text>geo:</xsl:text><xsl:value-of select='LAT'/'
      ><xsl:text>,</xsl:text><xsl:value-of select='LON'/'></uri><
        /geo>
  </xsl:for-each>

  <!-- one or more TITLE elements can be included -->

  <xsl:for-each select='/vCard/TITLE'>
    <title><text><xsl:value-of select='.'/'></text></title>
  </xsl:for-each>

  <!-- one or more ROLE elements can be included -->

  <xsl:for-each select='/vCard/ROLE'>
    <role><text><xsl:value-of select='.'/'></text></role>
  </xsl:for-each>

  <!-- one or more LOGO elements can be included -->
  <!-- content is either a pointer to a URL or inline binary,
        which is mapped to a data: URI in vCard4 -->

  <xsl:for-each select='/vCard/LOGO'>
    <xsl:variable name='LOGO.ext' select='count(EXTVAL)'/>
    <xsl:variable name='LOGO.type' select='TYPE'/>
    <xsl:choose>
      <xsl:when test='$LOGO.ext=1'>
        <logo><uri><xsl:value-of select='EXTVAL'/'></uri></logo>
      </xsl:when>
      <xsl:otherwise>
        <logo>
          <uri><xsl:text>data:</xsl:text><xsl:value-of select='
            TYPE'/'><xsl:text>;base64,</xsl:text><xsl:value-of
              select='BINVAL'/'>
          </uri>
        </logo>
      </xsl:otherwise>
    </xsl:choose>
  </xsl:for-each>

  <!-- one or more AGENT elements can be included -->
  <!-- however, inline vcards are not supported in vCard4 -->
  <!-- the relevant vCard4 property is RELATED -->
  <!-- only EXTVAL is supported now via URIs -->
  <!-- NOTE: this element was probably unused in vcard-temp -->

  <xsl:for-each select='/vCard/AGENT'>
    <xsl:variable name='AGENT.ext' select='count(EXTVAL)'/>
    <xsl:if test='$AGENT.ext=1'>
      <agent><uri><xsl:value-of select='EXTVAL'/'></uri></agent>

```

```

    </xsl:if>
  </xsl:for-each>

  <!-- one or more ORG elements can be included -->
  <!-- NOTE: ORGUNIT is no longer used in vcard4 -->

  <xsl:for-each select='/vCard/ORG'>
    <org>
      <xsl:variable name='ORGNAME.count' select='count(ORGNAME)'/>
      <xsl:if test='$ORGNAME.count=1'>
        <text><xsl:value-of select='ORGNAME'/'></text>
      </xsl:if>
    </org>
  </xsl:for-each>

  <!-- one or more CATEGORIES elements can be included -->
  <!-- NOTE: this element was probably unused in vcard-temp -->

  <xsl:for-each select='/vCard/CATEGORIES'>
    <categories><text><xsl:value-of select='.'/'></text></categories>
  </xsl:for-each>

  <!-- one or more NOTE elements can be included -->
  <!-- NOTE: this element was probably unused in vcard-temp -->

  <xsl:for-each select='/vCard/NOTE'>
    <note><text><xsl:value-of select='.'/'></text></note>
  </xsl:for-each>

  <!-- PROPID can be included exactly once -->
  <!-- NOTE: this element was probably unused in vcard-temp -->

  <xsl:if test='$PROPID.count=1'>
    <prodid><text><xsl:value-of select='.'/'></text></prodid>
  </xsl:if>

  <!-- REV can be included exactly once -->
  <!-- NOTE: this element was probably unused in vcard-temp -->

  <xsl:if test='$REV.count=1'>
    <rev><timestamp><xsl:value-of select='.'/'></timestamp></rev>
  </xsl:if>

  <!-- one or more SORT-STRING elements can be included -->
  <!-- this element maps to SORT-AS in vCard4 -->

  <xsl:for-each select='/vCard/SORT-STRING'>
    <sort-as><xsl:value-of select='.'/'></sort-as>
  </xsl:for-each>

```

```

</xsl:for-each>

<!-- one or more SOUND elements can be included -->
<!-- NOTE: for some reason, vcard-temp allowed a <PHONETIC/>
      child element, but that was not documented in the
      original Dawson I-Ds and is not supported in vCard4 -->

<xsl:for-each select='/vCard/SOUND'>
  <xsl:variable name='SOUND.ext' select='count(EXTVAL)'/>
  <xsl:variable name='SOUND.bin' select='count(BINVAL)'/>
  <xsl:choose>
    <xsl:when test='$SOUND.ext=1'>
      <sound><uri><xsl:value-of select='EXTVAL'/'></uri></sound>
    </xsl:when>
    <xsl:when test='$SOUND.ext=1'>
      <sound>
        <uri><xsl:text>data:audio/basic;base64,</xsl:text><
          xsl:value-of select='BINVAL'/'>
        </uri>
      </sound>
    </xsl:when>
    <xsl:otherwise>
    </xsl:otherwise>
  </xsl:choose>
</xsl:for-each>

<!-- UID can be included exactly once -->

<xsl:if test='$UID.count=1'>
  <uid><uri><xsl:value-of select='/vCard/UID'/'></uri></uid>
</xsl:if>

<!-- URL can be included one or more times -->

<xsl:for-each select='/vCard/URL'>
  <url><uri><xsl:value-of select='.'/'></uri></url>
</xsl:for-each>

<!-- NOTE: vcard-temp allowed a CLASS element,
      but it was removed from vCard4 -->

<!-- KEY can be included one or more times -->

<xsl:for-each select='/vCard/KEY'>
  <key><text><xsl:value-of select='CRED'/'></text></key>
</xsl:for-each>

<!-- DESC can be included one or more times -->
<!-- this existed in vcard-temp but not vCard3 -->

```

```

    <!-- mapped to the NOTE element -->

    <xsl:for-each select='/vCard/DESC'>
      <note><text><xsl:value-of select='.'/></text></note>
    </xsl:for-each>

  </vcard>
</xsl:template>

<xsl:template match='N'>
  <n>
    <xsl:variable name='FAMILY.count' select='count(FAMILY)'/>
    <xsl:variable name='GIVEN.count' select='count(GIVEN)'/>
    <xsl:variable name='MIDDLE.count' select='count(MIDDLE)'/>
    <xsl:variable name='PREFIX.count' select='count(PREFIX)'/>
    <xsl:variable name='SUFFIX.count' select='count(SUFFIX)'/>
    <xsl:if test='$FAMILY.count=1'>
      <surname><xsl:value-of select='FAMILY'/'></surname>
    </xsl:if>
    <xsl:if test='$GIVEN.count=1'>
      <given><xsl:value-of select='GIVEN'/'></given>
    </xsl:if>
    <xsl:if test='$MIDDLE.count=1'>
      <additional><xsl:value-of select='MIDDLE'/'></additional>
    </xsl:if>
    <xsl:if test='$PREFIX.count=1'>
      <prefix><xsl:value-of select='PREFIX'/'></prefix>
    </xsl:if>
    <xsl:if test='$SUFFIX.count=1'>
      <suffix><xsl:value-of select='SUFFIX'/'></suffix>
    </xsl:if>
  </n>
</xsl:template>

<xsl:template match='ADR'>
  <adr>
    <xsl:variable name='HOME.count' select='count(HOME)'/>
    <xsl:variable name='WORK.count' select='count(WORK)'/>

    <!-- NOTE: vcard-temp allowed address types of POSTAL, PARCEL,
      DOM, and INTL, but they were removed from vCard4 -->

    <xsl:variable name='PREF.count' select='count(PREF)'/>
    <xsl:variable name='POBOX.count' select='count(POBOX)'/>
    <xsl:variable name='EXTADD.count' select='count(EXTADD)'/>
    <xsl:variable name='STREET.count' select='count(STREET)'/>
    <xsl:variable name='LOCALITY.count' select='count(LOCALITY)'/>
    <xsl:variable name='REGION.count' select='count(REGION)'/>

```

```

<xsl:variable name='PCODE.count' select='count(PCODE)'/>

<!-- NOTE: yes, vcard-temp has CTRY, not COUNTRY -->

<xsl:variable name='CTRY.count' select='count(CTRY)'/>

<!-- first we count the number of vCard TYPE parameters -->

<xsl:variable name='TYPE.count' select='$HOME.count+_$_WORK.
count'/>

<!-- now we output all the parameters -->

<xsl:if test='$TYPE.count_>_0'>
  <parameters>
    <type>
      <xsl:if test='$HOME.count=1'>
        <text>home</text>
      </xsl:if>
      <xsl:if test='$WORK.count=1'>
        <text>work</text>
      </xsl:if>
    </type>
    <xsl:if test='$PREF.count=1'>
      <pref><integer>1</integer></pref>
    </xsl:if>
  </parameters>
</xsl:if>
<xsl:if test='$POBOX.count=1'>
  <pobox><xsl:value-of select='POBOX'/'></pobox>
</xsl:if>
<xsl:if test='$EXTADD.count=1'>
  <ext><xsl:value-of select='EXTADD'/'></ext>
</xsl:if>
<xsl:if test='$STREET.count=1'>
  <street><xsl:value-of select='STREET'/'></street>
</xsl:if>
<xsl:if test='$LOCALITY.count=1'>
  <locality><xsl:value-of select='LOCALITY'/'></locality>
</xsl:if>
<xsl:if test='$REGION.count=1'>
  <region><xsl:value-of select='REGION'/'></region>
</xsl:if>
<xsl:if test='$PCODE.count=1'>
  <code><xsl:value-of select='PCODE'/'></code>
</xsl:if>
<xsl:if test='$CTRY.count=1'>
  <country><xsl:value-of select='CTRY'/'></country>
</xsl:if>

```

```

</adr>
</xsl:template>

<xsl:template match='TEL'>
  <tel>
    <xsl:variable name='HOME.count' select='count(HOME)'/>
    <xsl:variable name='WORK.count' select='count(WORK)'/>
    <xsl:variable name='TEXT.count' select='count(TEXT)'/>
    <xsl:variable name='VOICE.count' select='count(VOICE)'/>
    <xsl:variable name='FAX.count' select='count(FAX)'/>
    <xsl:variable name='CELL.count' select='count(CELL)'/>
    <xsl:variable name='VIDEO.count' select='count(VIDEO)'/>
    <xsl:variable name='PAGER.count' select='count(PAGER)'/>
    <xsl:variable name='TEXTPHONE.count' select='count(TEXTPHONE)'/>

    <!-- NOTE: vcard-temp allowed telephony types of MSG, BBS,
             MODEM, ISDN, and PCS but they were removed from vCard4 -->

    <xsl:variable name='PREF.count' select='count(PREF)'/>
    <xsl:variable name='NUMBER.count' select='count(NUMBER)'/>
    <!-- first we count the number of vCard TYPE parameters -->
    <xsl:variable name='TYPE.count'
      select='$HOME.count
      .....+_$.WORK.count
      .....+_$.TEXT.count
      .....+_$.VOICE.count
      .....+_$.FAX.count
      .....+_$.CELL.count
      .....+_$.VIDEO.count
      .....+_$.PAGER.count
      .....+_$.TEXTPHONE.count' />

    <!-- now we output all the parameters -->

    <xsl:if test='$TYPE.count_&gt;_0'>
      <parameters>
        <type>
          <xsl:if test='$HOME.count=1'>
            <text>home</text>
          </xsl:if>
          <xsl:if test='$WORK.count=1'>
            <text>work</text>
          </xsl:if>
          <xsl:if test='$TEXT.count=1'>
            <text>text</text>
          </xsl:if>
          <xsl:if test='$VOICE.count=1'>
            <text>voice</text>
          </xsl:if>

```

```

        <xsl:if test='$FAX.count=1'>
            <text>fax</text>
        </xsl:if>
        <xsl:if test='$CELL.count=1'>
            <text>cell</text>
        </xsl:if>
        <xsl:if test='$VIDEO.count=1'>
            <text>video</text>
        </xsl:if>
        <xsl:if test='$PAGER.count=1'>
            <text>pager</text>
        </xsl:if>
        <xsl:if test='$TEXTPHONE.count=1'>
            <text>texphone</text>
        </xsl:if>
    </type>
    <xsl:if test='$PREF.count=1'>
        <pref><integer>1</integer></pref>
    </xsl:if>
</parameters>
</xsl:if>
<xsl:if test='$NUMBER.count=1'>
    <uri><xsl:text>tel:</xsl:text><xsl:value-of select='NUMBER' /><
    /uri>
</xsl:if>
</tel>
</xsl:template>

<xsl:template match='EMAIL'>
    <email>
        <xsl:variable name='HOME.count' select='count(HOME)'/>
        <xsl:variable name='WORK.count' select='count(WORK)'/>

        <!-- NOTE: vcard-temp allowed email types of INTERNET
            and X400, but they were never in vCard3 -->

        <xsl:variable name='PREF.count' select='count(PREF)'/>
        <xsl:variable name='USERID.count' select='count(USERID)'/>

        <!-- first we count the number of vCard TYPE parameters -->

        <xsl:variable name='TYPE.count' select='$HOME.count+$_WORK.
            count'/>

        <!-- now we output all the parameters -->

        <xsl:if test='$TYPE.count_&gt;_0'>
            <parameters>
                <type>

```



```

        <xsl:if test='$HOME.count=1'>
            <text>home</text>
        </xsl:if>
        <xsl:if test='$WORK.count=1'>
            <text>work</text>
        </xsl:if>
    </type>
    <xsl:if test='$PREF.count=1'>
        <pref><integer>1</integer></pref>
    </xsl:if>
    </parameters>
</xsl:if>
<xsl:if test='$USERID.count=1'>
    <text><xsl:value-of select='USERID' /></text>
</xsl:if>
</email>
</xsl:template>
</xsl:stylesheet>

```

12.2 Example of vcard-temp Data

```

<vCard>
  <FN>Peter Saint-Andre</FN>
  <N>
    <FAMILY>Saint-Andre</FAMILY>
    <GIVEN>Peter</GIVEN>
    <MIDDLE />
  </N>
  <NICKNAME>stpeter</NICKNAME>
  <NICKNAME>psa</NICKNAME>
  <PHOTO><EXTVAL>http://stpeter.im/images/stpeter_oscon.jpg</EXTVAL></PHOTO>
  <PHOTO><EXTVAL>http://stpeter.im/images/stpeter_hell.jpg</EXTVAL></PHOTO>
  <BDAY>1966-08-06</BDAY>
  <ADR>
    <WORK />
    <PREF />
    <EXTADD>Suite 600</EXTADD>
    <STREET>1899 Wynkoop Street</STREET>
    <LOCALITY>Denver</LOCALITY>
    <REGION>CO</REGION>
    <PCODE>80202</PCODE>
    <CTRY>USA</CTRY>
  </ADR>
  <ADR>
    <HOME />

```


1Hahc6g87xX0ku9TyhbH4dKEA6AZx1prJ2n7KW58W3L5W1iS3H9XVsfG1Ml3NdNvmlD8/
wBRoMHH
NbM5Hw5oAoIjALHPfA5909KL218NS3byXtjE9w+
GdivqBj8MUyk5ikaOPZ61rtreDUba05kiTeV2
HJ7r7P8AiuGSOXDyzBE1z1InAKFR6k9a+XFtHt8qWczjGVUKSAvPHu+VLftckzPu+62
U2E5256Y7
1S+Fkj1DxPDaXEe5YYHlDc9doGAfdnFQLE+
VDdCc2ZXDQDMTgFDEC6H175zgjmcv6PffmvXMcy
6SttFtB8+4dIEIIZ0PPfsKuE107tEMVoy2sfPs28Sxdev3Rmh5Jp52LyzSSnqS7E/
nVkIcezrFlj
+ibSrC3aXWNbF9dAezaad93P+6
Qjp8AKsNMt4L01hgto0ihXhVj6ClDrsSLoMt7qNhuiiDJyPSsc
k23Rfgi4qyphkCqAMcUQsue9TsGoAkDP1osXOT1oW00x2J0eua2rPiki3G0/Hxr0L5F/
nFGwNB2q
2UWq2+MAXCcxv/g/GopkaNijqVdWIIYHqDVSt9uDybt2pRrKrJJDdgcyrh/7h/
wDlawlZLnh7QB96
E46ivSnlDXyAAyFD/
Nx9eLZGQ0XHJVSH3VqSntk3W7oDgEYz6ULbWkkURUux09ySOMksTRY5iPx5
o6KaMxKSygnkjFdQUzhMca3Mau7KXXII28EdvnVv4FtTLq97d0wLR2P1DHUESD/
io01uHCg90g9B
mrPwXrENomp3EynYApYoMkYG0frfaHuqeKansdlHOMT0e0Selaxjml763ayalcBplW22K8bnoCR1
gT3x2xW21v4bosoDIRgKHGGbPTjPpzWjkmhUrYbFNhgPSjLYPN7K45oGNRtDnGCCc+6
grvxhDZsY
rS3LBeN/9VSvbPTi+KK6GwGBucg0T5HljqSPhXMz4/
uFmAa1brzk4qisfFS3UIcMR6g9qL12FS5d
FasLOOMAV5ktMDIwamLjxVFagmWTC+g60HF+
kOw85UzIfftoJphbrsqTKYwynI7V1zMDp2fzKQw
+
VDJqFjqsPmW0w8wclfwTtYV3kKLz1SaeLakZ5acT6jhZiZ0Vhj4HtXqQFLuTjaXGTitJztZSuGjY
EgjHuomQ7kh1HpzVh5h8Gfs+
e5oK6juvtDbCQuAQmj0FGkZgweo3D8DXiUxiTBYZAHYe1KdRw85h
uPImyG3glT0z61WadpVteeCdQu4DKk8ZKFVwd53DHPUDDduDioieSYsryZIJ4JGSapvB2pG21CWz
iLSR3kZR0ZcYI6H48kUvH2zRjLTdOngh+23
gSGOFdzPMvKgEg4Pr299btN8Qw3Es8kenwolxJgvs
BaMKPZOex+HrQXirWJdQu10m0kLwwkCUR0kk/wDFe3zo/
wAP6KqxyW8h05wWIIHFHXFZSjs0beNX0
2Uk2bmyaKH75XaAPSpC48P3qysvnJEf5VPUIq/
TzsYhSckkD4U4uNLtL61Czp7XZhwR8xWku7LeK
emckk0a8VZGmkBYfcG7qaqvB+
izSyMJh703IN0x4bsrUmTy2kI6F2JApXo0ZWfftCx4xxTSbloEI
KPRZ7xjP89veMsSko0mKQR2N9bTKgtzJuI7HH1zXW9XsYrQ4kWZCQ3Rh1FJk8LXayfsLob03mJuo
xl1x1QJwUtTk3pDzwX8REEkTA9G6H1Hvq41GzNV8ASpoLMSCeZQIihwwbIPB7Vvh0j7PEPtDeY3rj
AHw9KUa3c3EVmY7aXy3LfeHXHGefnSOTsbhy+Jmm61JLdHS9e/02
oqTHhdNgJKf6X9D6HpTpoJYk

aF125JIB6qf+4qXk0/8
 AWFnHJMfM8yMnyevFEaVq11psiWwozNLZniK4ckmP0Uk9vf2quLdbPKmq
 k0ig3AxZyOWP1IoG5jZp2IYYwPyo+RCigEdwR7/nXxolJ+5
 TMC0My6cjloldDclDtjZcBh2Kn0Ae
 vFePCysNZkQTpbSG3lAkk6Icfn2oW3t7iBnTIwcYB7ntjPz+
 lPI41jucxxtPPHCHaRkUj0Bk+hx+
 NY0bho1SbDNgh0+3id/MJkA0d45Pffj6U6s7t0j0yWYCMzxud3Ze+
 KWX7Lc2lr5YjMqIY9yLgMg4y
 Pfk0PqazRaXpiSlxuQuAw6ZARoNysWMqd1IbhYH3owK9VPrX1vEwgXJcYHqaTpMG0+
 DJziNRSe9A
 julMn7vbuHxrDjuj0Yz1ZTxa8sjm9v8Azvsia+
 yvUntTSw8b6TtKx7g0wNRL3cU1qIzcqM44z0pQ
 +lTtlrWWJjnJAcA08YJPsDyy9I68fE2jX0ixy3Pkk9Gz3oLT/FC+e9vM6syMVV+
 mR2rnFnpNxHNG
 8rIWzk5YGnht0lkySEkHcd6E1T00sl9o6C2qpcIVGDxSHxBMsPh+5lI/anEafE9/
 oKVafLLFNtkP
 TofWvPiu9zZw2QHL/tSfdyB+dGHykLmdQbQfeU0G2uIQS0fkjJ/m4yR+
 BpmY7a7tY5gQ8cyh1B
 HUHTsfxJIX0FdoCwxvGqD19k148H3u+0e11bLRANCPicED5mrKPLbKDTHN1/
 o7pZJbM8xsCd0R9P
 7ft3+6mhuIFJUTK20MqQB+Nabc+Vew7sja+XI6+8VN+
 JpLS08R3sC20MgRgC2M87RkfI8fKhdHUR
 Eqs826JiFJ3GJicNj8q1K7QasY4lUJuwgDHA+
 Jr5qGoFZFEc7QVwccU80S7tbjUYIjGrSrsqtJgA
 nB0PxFSzcZv6NZP6FzXvFAIyCu1SQaESce3zzTXWJpr2y0uNUy8MGXbcA0QMc/
 KtfiGAx6rHBCQx
 8sbQPuscCvfimHz9G8uEYfsqkheAdowf+
 flVeHC6bMwWg3nVQYDIrFeMq2Q0eK3TbJgsUqBjnFLv
 Clmt1aaizrgewFYDocmi/NZHCsAJAcEGpsiuWi/
 G6jsMHh61juRcxoGV12tG3TPrTP8AVOnMuJNO
 lRiw05FJzW04rxA7m2U7chhjFDy6heWr/swwHcE8Ckv7N0os3X/h+0
 kikksoJo2z7041fzprRHpN5
 YzxedcGVmzuH9NUFpfv0p3qzMemelBajMzXMa59r1rm/S0cUj2zYdWX04+
 NKNbnNzePtIOxAg+PJ
 /wA0RdXQhAVTlvypNLMMzHJ3At9a2wQp2SerK1xRaeLNswi2sCHOJUUn4IRU/
 o119j1uynJOBh
 h6huP8088Uc6Qsz8Ga4Gz3AKT/
 kVIGTE8RHUOCPqKoSJDqqkhsknJIOflS7zqzhkZL1Fe53EuxQ8
 55/Iinb/AL/AHG4/8U0g01Lm2ilJiJZFzkDPAXQCcCuxs1L+
 YoYnbj0eMVQeFjeR7GjtBcY1LKCv
 IOBk5xxkVXw6L4fsmDRWMMsi8B5zvP0PFbri+mCCKJkRcYAXgYrePhv+T0c/
 oU6rpkz6p9ufbCuw
 KsZbLKff9aC3tgq+
 DgFT3B7UyklySrcE5z76AmAwW2nG0earhj4RpGVtnrTjFBD9liQIgXgD/vNK
 tbtbBM0XDDHfZbfPMUgdTlaMd0uYd40fdXlerheOfJdHoY8inCn2A6TrChtrH7uMBj0p3JrFtMVQ
 RqSSecdTUff2qpMWT2eeooSKS4jcMrZI6ZrHgnsP5GtF7cXsKo7sAm3sOKQrc+
 bcTTM37GH2nk9M

```

8AUHBHlecXEh2HqF71v19o7Lw+IIgFEsiqR7hz/
  ihGK5DSk3GwW7Dw3UyOcurHn8vvrVbWzXtzDB
082RUJ9Mmmtvo11rumW1/aNGZBGI5InbaxK8ZHR2r5Z2k1rrVjbSxvE5uEB3jbgZ5q9xa/
  wgu20P
HE4k+xIh/ZoZAMd8bak151jb1I/MVTeNCpWw8v7oMqjj4c/
  WphWwV5xyDSJ6CdYdv9Vnk4c1SW1q
4tYwsgC44GKmCf2z9gGz3qxsJozYQFm5KA/Wl00XyXmV3LbuBjqF0KG86VwSu3gdCc0E1/
  Pavtcs
wHGcC0aJBcJ51s6h+pU165mCudxGXYtn00gFCzXgSJgxCRgd+rGjmkim02T9nIOMilV/
  aOmWOGjJ
/wCmhK60cgAX0x/bJIY1vWeSBtybnU9QBS2aNI57nJ9Mct1ndMDsyfQZPU9qmbT+
  Mh1raDpl+0Dc
o+
  tBeQ6ScJkVkd5JNqYt70MyqAd2Ty3rj4Uwhx0qyRZKn6j3GoMmNReiqMuW2b7RHwCRilviaQyf

Y4V5wx0PU04x5ERZuTj6UhvdUtoL3eEFxMowP6F9ce+
  kxQVhySqNIrtDjks9DSJWG3GWVutM7e4h
ljXzHDqP5ZBnHw7ilFrL5yQ0mfLZAw+
  fNN7e3jVi7DrXs0qoha2aNv0uDUokEMqxSIxIDHIbIHhu
qQvrK5sJRHEVcA4PZvgasb28gXIVFDD+YcZoIzG/
  ga2uYjLG3C46qT3rGeFVa0TKQXDNkw10T0y
F93f51To5ihiQZAWJB0/2ipRgWiaQnLsNicDjA6mqaa1DuG2/wAqjqewAqFpp0zRHKNR/
  eCtel/x
ArKyvVZmEah+9Wvp/gz8Kyspl0cIZ/3bUvi6r/dWVlSZ0x4maF/6wvz/ADN0tB/
  eXf8A8jVlZUcz
aPYXq38EfnUbcfxXyFZWUMQch0LTP4SH+2nX/sn4VlZXqx/VEz7EF19/50
  bpf8SPgPzrKyuA04P3
0vx/+oqw7D4D8qysrzc7jro/9k=
  </BINVAL>
  </LOGO>
  <ORG>
    <ORGNAME>XMPP Standards Foundation</ORGNAME>
    <ORGUNIT />
  </ORG>
  <URL>https://stpeter.im/</URL>
  <URL>http://www.saint-andre.com/</URL>
  <KEY>
  <CRED>
-----BEGIN PGP PUBLIC KEY BLOCK-----
Version: GnuPG/MacGPG2 v2.0.18 (Darwin)

mQINBFETDzsBEAC0F0v1N3ZJzIIxN6cKD475KVS9CHDPeYpegc0IPnL5eY1DCHeh
/IwS1S7RCePtmiybNoV9FsI4PKUknzXQxA6LVEdAR/LUlhgJKjq+gsgp8lqbEILh
g13ecH66HwLS9rarbQkC47T7kL8miIPBFC6E3A4Lq1L+eue06UcLhKgoYkMx0jdi
WrMgKtnVpch5ydLkPm/z0Zo8zRgqlPuTLeCrXXZYnjHXLVFN2xy04Uz0s7P5u5KV
fx5Z7uQisr8pXtyLd6SpTZo6SHgKBv15uz0rqXhsJojiGtOXfWznAjaS5FU00Rq9
CklG5cMOUAT8Tnftv0ktsxaWDL1ELDVQPy1m7mtzo+VREG+0xmU6AjMo/GHblW1U
U7MI9yCiuMLsp/HLrFuiosqLVZ85wuLQ2junPe3tK8h15UcxIXAcpQ1VqIaDQFbe
uLOXJTF8YHpHdpHYt/ZM1117ZBKGaO8yd7uF7wJ9D3gUazwdz9ffjWV7oIk7ATw0

```

```

lF1lzmWdn+M2ygbHOGUGMX5hSaa8eDSieir2QoLdn27Fip7kMBTJ2+GISrfnJTN/
OQvmj0DXXAdxHmu2C4QgmZbkge35n129yzXn9NcqzrGLroV62lL3LgX6cSbiH5i7
GgWY6CAPb1pMogV0K475n9Fv0SDRiG4QS05yqKiA30P5aKrIRp2TNAk4IwARAQAB
tCZQZXRLciBTYWLudC1BbmRyZSA8c3RwZXRLckBzdHBldGVyLmltPokCOQQTAAQIA
IwUCURMPOwIbAwcLCQgHAwIBBhUIAgkKCwQWAgMBAh4BAheAAoJEOoGpJERxa2p
6bgQAKpxu07cMDOLc4+EG8H19NWXIVVyboEvfGuHYZaLkKPrhrMZwJi0wBpyISNR
t9qzX1eLCVaojaoEVX6kD8MGc5zKFfiJZy3j7lBWl+Ybr7FfXYy2BbAXKx49e1n6
ci9LmBrmVfAEaxtDNPITZ9N9oUAb9vS0nrG036EwteEHAVEQvldj07lhz6+Cv7lZ
QgBj9rZ6khfcQ4S3nSCQaKLQ9Iav4fqxI7SfuPKnx6quHX3JNLGnVo3wl+j/foCK
0iTrmtHxCI3kc/bx6g32pRjHEPX0ALMBhmzU2uca+TE0zCEC96mgYXAUCwdnCFWY
beIEbt6pz65iML13kAVAQ0H/GqncnMGN0MbOatnw1Tdz/vkLojIy7QbPcQ0plUFx
v5491xPfIrHh0WdRXp6WUt88fcqhT6MHZpVRtusj2ornKVVn+Y0GLsMMCTcrXJRG
7Ao1YV72t/pJpzfGWSaaxolxDIZ6B+76jrIhUhiWgo/4nf+DN6BIlCZQ6j6xxjx
462cu02kuhIILTk2pzaMOufTBWx0uJhZk/KP2Fay/41pX7pvV0wRC4uIlKsLnJKL
PS7EDA4BUUxENfd/9Lq0GwlII8BbSe98PLMI8sXkcigc3UXMVda9l1l0YhQa+lbP1
NaszmnBhwuiCsgnPGbImsJuRzgeEgckwP/dNeyr6MlFMyfaeuQINBFETDzsBEADB
z0sEHpUmhkrUjH9Tek87dn5P/Yh/L/HptgCGk40TL/C+kYdkd3HyteMEf061PNms
S/Rq8k37Fu3VODYb9SPYKxtgksKSYUtIkPKvao09K9QNWPqyWuNf0F+iajVMUuda
EVFJ7bHF310RDwLY5IvLeCXxtvG+Vv/i+g77d2WdPDp+zLJ8306C4yBKjSJV8xW0
cn2fd7NviIEN6cNHTsZNDZVmlgYPrxnwSq8GTEPGC7HsLIwGcx3hIe9QjnPw9CpA
mQENpDEyWcxgF5uwo2NJECODswKz1Nb0gfawF3ZiBd+GcLujTu94iJuVg25jATWm
9wtGcfZo4UP1lRGXdIb8uWwUFQlLQgd4ROLZZtXNGmHIymJrV2crx53gxup+1j0X
qhlzKg8xbImWhEfS9oHZkRK8VHgmWSIt7TNwNir6N5j3lqwVVBhnu6GzF01sKGNy
SlqNRbd0fqhakCk71b8ot8tYTcYG5Lg10z6HTbgQx2UwLthUjqbb1DQ+GLmrOhi
WklLXRsnlnPMwnEyFePAnsT5tasy2Cn9qjpttNDah7PB8iFUi9mtTF/XDVgpFaB5
G3CDV7Q2NgbAI6g6QhLIAMXzSP635G83mda0TKXHqXHDyLJTTn+WVFU7t4m4uLt+
0DsWU8jXHqWYUTNG9WPUrXhusDUAPHxFCQ/n/lQVBwARAQABiQIifBBgBAgAJBQJR
Ew87AhsMAAoJEOoGpJERxa2pqfgP/ApN+TRu2bBIgaw1dr3AznSSha84DIpXUDh3
udZvQrGbUtz8/ma+e3iZEN/cmmBw2LGL1AuQoJNILTzQ318yTP+E5QU7fJH7FVsoh
UyvrMfyt3IMA9jg0Z9MulolezvIjjMfFeNa0R0gDb/ubOT7JQzi1kwN8Lu3l080H
wqBHXEe0LoislUSnZajrKvITbKwKZ6PHRj1Mw1Wk4oIi6VLHgGgj79zzL3uhML26
63m7imShvz1QcHTwvyR5i8cZbNOEkotZyERiA1p7YHuruS+QvTi3ZPoQbnMUB3a7
py9d11bw1+w3LiAUGZE/z5hBWOFxYtw+w/U/Vx0BwJGYlWU3M2W20uEXe+qxz7wn
akygKjmlid2z4njfKjcnCiv3FmXrpmWgADln1c4jfxDh0NrndrsM8FPdf1TMPtOZ
gFDkKripc9xkZ/25P6xn27oTOHWKcAC0QhxSH+HuVBBRk8AgF+zAbDZe4/L6+kan
SrycIXW+wCzwBq61aWsz2QhhuKjozVkhk4dRG+CfjzAFjnyxwYERn3uXVKQAwTwd
NcTI9RV98IsNrw9Y4lJEAg6CjNPmiD5+EASycqa0uToRSgukr8sOQLWLPyTnez/
aG8Xf7a+fntWzK2HuDYoSdhJJrylWw/lMkl0Bm4wtMeNA0zcQH6AQV/GzQVQkSGq
rLuMVIV/
=llGw
-----END PGP PUBLIC KEY BLOCK-----
</CRED>
</KEY>
<DESC>
    More information about me is located on my
    personal website: https://stpeter.im/
</DESC>
</vCard>

```

12.3 Example of vCard4 XML Data

```
<vcard xmlns="urn:ietf:params:xml:ns:vcard-4.0">
  <fn>
    <text>Peter Saint-Andre</text>
  </fn>
  <n>
    <surname>Saint-Andre</surname>
    <given>Peter</given>
    <additional></additional>
  </n>
  <nickname>
    <text>stpeter</text>
  </nickname>
  <nickname>
    <text>psa</text>
  </nickname>
  <photo>
    <uri>http://stpeter.im/images/stpeter_oscon.jpg</uri>
  </photo>
  <photo>
    <uri>http://stpeter.im/images/stpeter_hell.jpg</uri>
  </photo>
  <bday>
    <date>1966-08-06</date>
  </bday>
  <adr>
    <parameters>
      <type><text>work</text></type>
      <pref><integer>1</integer></pref>
    </parameters>
    <ext>Suite 600</ext>
    <street>1899 Wynkoop Street</street>
    <locality>Denver</locality>
    <region>CO</region>
    <code>80202</code>
    <country>USA</country>
  </adr>
  <adr>
    <parameters><type><text>home</text></type></parameters>
    <ext></ext>
    <street></street>
    <locality>Parker</locality>
    <region>CO</region>
    <code>80138</code>
    <country>USA</country>
  </adr>
  <tel>
    <parameters>
```

```

    <type><text>work</text><text>voice</text></type>
    <pref><integer>1</integer></pref>
  </parameters>
  <uri>tel:+1-303-308-3282</uri>
</tel>
<tel>
  <parameters>
    <type><text>work</text><text>fax</text></type>
  </parameters>
  <uri>tel:+1-303-308-3219</uri>
</tel>
<tel>
  <parameters>
    <type><text>cell</text><text>voice</text><text>text</text></type>
  >
  </parameters>
  <uri>tel:+1-720-256-6756</uri>
</tel>
<tel>
  <parameters>
    <type><text>home</text><text>voice</text></type>
  </parameters>
  <uri>tel:+1-303-555-1212</uri>
</tel>
<email>
  <text>stpeter@jabber.org</text>
</email>
<email>
  <parameters>
    <type><text>work</text></type>
  </parameters>
  <text>psaintan@cisco.com</text>
</email>
<impp>
  <uri>xmpp:stpeter@jabber.org</uri>
</impp>
<tz>
  <text>America/Denver</text>
</tz>
<geo>
  <uri>geo:39.59,-105.01</uri>
</geo>
<title>
  <text>Executive Director</text>
</title>
<role>
  <text>Patron Saint</text>
</role>
<logo>

```


mrPwXrENomp3EynYApYoMkYG0fRfaHuqeKansdlHOMT0e0Selaxjml1763ayalcBplW22K8bnoCR1

gT3x2xW21v4bosoDIRgKHGGbPTjPpzWjkmhUrYbFNhgPSjLYPN7K45oGNRtDnGCCc+6
grvxhDZsY

rS3LBeN/9VSvbPTi+KK6GwGBucg0T5H1jqSPhXMz4/
uFmAa1brzk4qisfFS3UIcMR6g9qL12FS5d

FasL00MAV5ktMDIwamLjxVFagmWTC+g60HF+
k0w85UzIfftoJphbrsqTKYwynI7VlzMJdP2fzKQw

+
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13 Acknowledgements

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