

Network Working Group
Internet-Draft
Obsoletes: [2425](#), [2426](#), [4770](#)
(if approved)
Updates: [2739](#) (if approved)
Intended status: Standards Track
Expires: April 23, 2010

S. Perreault
Viagenie
P. Resnick
QUALCOMM Incorporated
October 20, 2009

vCard Format Specification
draft-ietf-vcarddav-vcardrev-09

Status of This Memo

This Internet-Draft is submitted to IETF in full conformance with the provisions of [BCP 78](#) and [BCP 79](#). This document may contain material from IETF Documents or IETF Contributions published or made publicly available before November 10, 2008. The person(s) controlling the copyright in some of this material may not have granted the IETF Trust the right to allow modifications of such material outside the IETF Standards Process. Without obtaining an adequate license from the person(s) controlling the copyright in such materials, this document may not be modified outside the IETF Standards Process, and derivative works of it may not be created outside the IETF Standards Process, except to format it for publication as an RFC or to translate it into languages other than English.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/1id-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on April 23, 2010.

Copyright Notice

Copyright (c) 2009 IETF Trust and the persons identified as the

document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents in effect on the date of publication of this document (<http://trustee.ietf.org/license-info>). Please review these documents carefully, as they describe your rights and restrictions with respect to this document.

Abstract

This document defines the vCard data format for representing and exchanging a variety of information about individuals and other entities (e.g., formatted and structured name and delivery addresses, email address, multiple telephone numbers, photograph, logo, audio clips, etc.).

Table of Contents

| | | |
|------------------------|--|--------------------|
| 1. | Introduction | 6 |
| 2. | Conventions | 6 |
| 3. | vCard Format Specification | 6 |
| 3.1. | Line Delimiting and Folding | 6 |
| 3.2. | ABNF Format Definition | 7 |
| 3.3. | Property Value Escaping | 9 |
| 4. | Property Value Data Types | 10 |
| 4.1. | TEXT | 11 |
| 4.2. | URI | 12 |
| 4.3. | DATE, TIME, DATE-TIME, DATE-AND-OR-TIME, and TIMESTAMP | 12 |
| 4.3.1. | DATE | 12 |
| 4.3.2. | TIME | 13 |
| 4.3.3. | DATE-TIME | 13 |
| 4.3.4. | DATE-AND-OR-TIME | 14 |
| 4.3.5. | TIMESTAMP | 14 |
| 4.4. | BOOLEAN | 14 |
| 4.5. | INTEGER | 15 |
| 4.6. | FLOAT | 15 |
| 4.7. | BINARY | 15 |
| 4.8. | LANGUAGE-TAG | 15 |
| 5. | Property Parameters | 16 |
| 5.1. | LANGUAGE | 16 |
| 5.2. | ENCODING | 16 |
| 5.3. | VALUE | 17 |
| 5.4. | PREF | 18 |
| 5.5. | PID | 18 |
| 5.6. | TYPE | 19 |
| 6. | vCard Properties | 19 |
| 6.1. | General Properties | 20 |
| 6.1.1. | BEGIN | 20 |

| | | |
|-------------------------|--|--------------------|
| 6.1.2. | END | 20 |
| 6.1.3. | SOURCE | 21 |
| 6.1.4. | NAME | 22 |
| 6.1.5. | KIND | 22 |
| 6.2. | Identification Properties | 23 |
| 6.2.1. | FN | 23 |
| 6.2.2. | N | 24 |
| 6.2.3. | NICKNAME | 25 |
| 6.2.4. | PHOTO | 25 |
| 6.2.5. | BDAY | 26 |
| 6.2.6. | DDAY | 27 |
| 6.2.7. | BIRTH | 27 |
| 6.2.8. | DEATH | 28 |
| 6.2.9. | ANNIVERSARY | 28 |
| 6.2.10. | SEX | 29 |
| 6.3. | Delivery Addressing Properties | 29 |
| 6.3.1. | ADR | 29 |
| 6.3.2. | LABEL | 30 |
| 6.4. | Communications Properties | 31 |
| 6.4.1. | TEL | 31 |
| 6.4.2. | EMAIL | 32 |
| 6.4.3. | IMPP | 32 |
| 6.4.4. | LANG | 33 |
| 6.5. | Geographical Properties | 33 |
| 6.5.1. | TZ | 34 |
| 6.5.2. | GEO | 34 |
| 6.6. | Organizational Properties | 35 |
| 6.6.1. | TITLE | 35 |
| 6.6.2. | ROLE | 35 |
| 6.6.3. | LOGO | 36 |
| 6.6.4. | ORG | 37 |
| 6.6.5. | MEMBER | 38 |
| 6.6.6. | RELATED | 39 |
| 6.7. | Explanatory Properties | 40 |
| 6.7.1. | CATEGORIES | 40 |
| 6.7.2. | NOTE | 41 |
| 6.7.3. | PRODID | 41 |
| 6.7.4. | REV | 42 |
| 6.7.5. | SORT-STRING | 42 |
| 6.7.6. | SOUND | 43 |
| 6.7.7. | UID | 44 |
| 6.7.8. | CLIENTPIDMAP | 44 |
| 6.7.9. | URL | 45 |
| 6.7.10. | VERSION | 46 |
| 6.8. | Security Properties | 46 |
| 6.8.1. | CLASS | 46 |
| 6.8.2. | KEY | 47 |
| 6.9. | Calendar Properties | 48 |

| | | |
|-------------|--|----|
| 6.9.1. | FBURL | 48 |
| 6.9.2. | CALADRURI | 49 |
| 6.9.3. | CALURI | 49 |
| 6.10. | Extended Properties and Parameters | 50 |
| 7. | Synchronization | 50 |
| 7.1. | Mechanisms | 50 |
| 7.1.1. | Matching vCard Instances | 50 |
| 7.1.2. | Matching Property Instances | 50 |
| 7.1.3. | PID Matching | 51 |
| 7.2. | Example | 52 |
| 7.2.1. | Creation | 52 |
| 7.2.2. | Initial Sharing | 52 |
| 7.2.3. | Adding and Sharing a Property | 52 |
| 7.2.4. | Simultaneous Editing | 53 |
| 7.2.5. | Global Context Simplification | 54 |
| 8. | Example: Authors' vCards | 55 |
| 9. | Security Considerations | 56 |
| 10. | IANA Considerations | 56 |
| 10.1. | MIME Type Registration | 56 |
| 10.2. | Registering New vCard Elements | 58 |
| 10.2.1. | Registration Procedure | 58 |
| 10.2.2. | Vendor Namespace | 59 |
| 10.2.3. | Registration Template for Properties | 59 |
| 10.2.4. | Registration Template for Parameters | 60 |
| 10.2.5. | Registration Template for Value Data Types | 60 |
| 10.2.6. | Registration Template for Values | 60 |
| 10.3. | Initial vCard Elements Registries | 61 |
| 10.3.1. | Properties Registry | 61 |
| 10.3.2. | Parameters Registry | 63 |
| 10.3.3. | Value Data Types Registry | 63 |
| 10.3.4. | Values Registries | 63 |
| 11. | Acknowledgements | 65 |
| 12. | References | 65 |
| 12.1. | Normative References | 65 |
| 12.2. | Informative References | 68 |
| Appendix A. | Differences from RFCs 2425 and 2426 | 68 |
| A.1. | New Structure | 68 |
| A.2. | Removed Features | 69 |
| A.3. | New Properties and Parameters | 69 |
| A.4. | Other Changes | 69 |
| Appendix B. | Change Log (to be removed by RFC Editor prior to publication) | 70 |
| B.1. | Changes in -09 | 70 |
| B.2. | Changes in -08 | 70 |
| B.3. | Changes in -07 | 70 |
| B.4. | Changes in -06 | 71 |
| B.5. | Changes in -05 | 72 |
| B.6. | Changes in -04 | 72 |

| | | |
|-----------------------|--------------------------|--------------------|
| B.7. | Changes in -03 | 72 |
| B.8. | Changes in -02 | 73 |
| B.9. | Changes in -01 | 73 |
| B.10. | Changes in -00 | 74 |

1. Introduction

Electronic address books have become ubiquitous. Their increased presence on portable, connected devices as well as the diversity of platforms exchanging contact data call for a standard. This memo defines the vCard format, which allows the capture and exchange of information normally stored within an address book or directory application.

2. Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

3. vCard Format Specification

The text/vcard MIME content type (hereafter known as "vCard", see [Section 10.1](#)) contains contact information, typically pertaining to a single contact or group of contacts. The content consists of one or more lines in the format given below.

3.1. Line Delimiting and Folding

Individual lines within vCard are delimited by the [[RFC5322](#)] line break, which is a CRLF sequence (ASCII decimal 13, followed by ASCII decimal 10). Long logical lines of text can be split into a multiple-physical-line representation using the following folding technique. Content lines SHOULD be folded to a maximum width of 75 octets. Multi-octet characters MUST remain contiguous. The rationale for this folding process can be found in [[RFC5322](#)], [Section 2.1.1](#).

A logical line MAY be continued on the next physical line anywhere between two characters by inserting a CRLF immediately followed by a single white space character (space, ASCII decimal 32, or horizontal tab, ASCII decimal 9). The folded line MUST contain at least one character. Any sequence of CRLF followed immediately by a single white space character is ignored (removed) when processing the content type. For example the line:

DESCRIPTION:This is a long description that exists on a long line.

can be represented as:

DESCRIPTION:This is a long description
that exists on a long line.

It could also be represented as:

```
DESCRIPTION:This is a long descrip
tion that exists o
n a long line.
```

The process of moving from this folded multiple-line representation of a property definition to its single line representation is called unfolding. Unfolding is accomplished by regarding CRLF immediately followed by a white space character (namely HTAB ASCII decimal 9 or SPACE ASCII decimal 32) as equivalent to no characters at all (i.e., the CRLF and single white space character are removed).

Note: It is possible for very simple implementations to generate improperly folded lines in the middle of a UTF-8 multi-octet sequence. For this reason, implementations SHOULD unfold lines in such a way as to properly restore the original sequence.

Note: Unfolding is done differently than in [\[RFC5322\]](#). Unfolding in [\[RFC5322\]](#) only removes the CRLF, not the space following it.

Folding is done after any content encoding of a type value. Unfolding is done before any decoding of a type value in a content line.

[3.2.](#) ABNF Format Definition

The following ABNF uses the notation of [\[RFC5234\]](#), which also defines CRLF, WSP, DQUOTE, VCHAR, ALPHA, and DIGIT.

```
vcard-entity = 1*(vcard)

vcard = "BEGIN" ":" "VCARD" CRLF
      1*contentline
      "END" ":" "VCARD" CRLF
      ;A vCard object MUST include the VERSION and FN properties.

contentline = [group "."] name *(";" param) ":" value CRLF
      ; When parsing a content line, folded lines must first
      ; be unfolded according to the unfolding procedure
      ; described above.
      ; When generating a content line, lines longer than 75
      ; characters SHOULD be folded according to the folding
      ; procedure described above.

group = 1*(ALPHA / DIGIT / "-")
name  = "SOURCE" / "NAME" / "KIND" / "FN" / "N" / "NICKNAME"
      / "PHOTO" / "BDAY" / "DDAY" / "BIRTH" / "DEATH" / "SEX"
```



```
    / "ADR" / "LABEL" / "TEL" / "EMAIL" / "IMPP" / "LANG"
    / "TZ" / "GEO" / "TITLE" / "ROLE" / "LOGO" / "ORG" / "MEMBER"
    / "RELATED" / "CATEGORIES" / "NOTE" / "PROID" / "REV"
    / "SORT-STRING" / "SOUND" / "UID" / "CLIENTPIDMAP" / "URL"
    / "VERSION" / "CLASS" / "KEY" / "FBURL" / "CALADRURI"
    / "CALURI" / iana-token / x-name
; Parsing of the param and value is based on the "name" as
; defined in ABNF sections below.
; Group and name are case-insensitive.

iana-token = 1*(ALPHA / DIGIT / "-")
; identifier registered with IANA

x-name = "x-" 1*(ALPHA / DIGIT / "-")
; Names that begin with "x-" or "X-" are
; reserved for experimental use, not intended for released
; products, or for use in bilateral agreements.

param = language-param / encoding-param / value-param / pref-param
      / pid-param / type-param / geo-param / tz-param / any-param
; Allowed parameters depend on property name.

param-value = *SAFE-CHAR / DQUOTE *QSAFE-CHAR DQUOTE

any-param = (iana-token / x-name) "=" param-value

NON-ASCII = %x80-FF
; Use is restricted by charset parameter
; on outer MIME object (UTF-8 by default)

QSAFE-CHAR = WSP / %x21 / %x23-7E / NON-ASCII
; Any character except CTLs, DQUOTE

SAFE-CHAR = WSP / %x21 / %x23-39 / %x3C-7E / NON-ASCII
; Any character except CTLs, DQUOTE, ";", ":"

VALUE-CHAR = WSP / VCHAR / NON-ASCII
; Any textual character
```

A line that begins with a white space character is a continuation of the previous line, as described above. The white space character and immediately preceding CRLF should be discarded when reconstructing the original line. Note that this line-folding convention differs from that found in [RFC5322](#), in that the sequence <CRLF><WSP> found anywhere in the content indicates a continued line and should be removed.

Property names and parameter names are case insensitive (e.g., the

property name "fn" is the same as "FN" and "Fn"). Parameter values MAY be case sensitive or case insensitive, depending on their definition.

The group construct is used to group related properties together. The group name is a syntactic convention used to indicate that all property names prefaced with the same group name SHOULD be grouped together when displayed by an application. It has no other significance. Implementations that do not understand or support grouping MAY simply strip off any text before a "." to the left of the type name and present the types and values as normal.

Properties defined in a vCard instance may have multiple values depending on the property cardinality. The general rule for encoding multi-valued properties is to simply create a new content line for each value (including the property name). However, it should be noted that some value types support encoding multiple values in a single content line by separating the values with a comma ",". This approach has been taken for several of the content types defined below (date, time, integer, float), for space-saving reasons.

3.3. Property Value Escaping

A property instance may contain one or more values delimited by a COMMA character (ASCII decimal 44). Therefore, a COMMA character in a value MUST be escaped with a BACKSLASH character (ASCII decimal 92), even for properties that don't allow multiple instances (for consistency).

Some properties (e.g. N and ADR) comprise multiple fields delimited by a SEMI-COLON character (ASCII decimal 59). Therefore, a SEMI-COLON in a field of such a "compound" property MUST be escaped with a BACKSLASH character. SEMI-COLON characters in non-compound properties MUST NOT be escaped.

Furthermore, some fields of compound properties may contain a list of values delimited by a COMMA character. Therefore, a COMMA character in one of a field's values MUST be escaped with a BACKSLASH character, even for fields that don't allow multiple values (for consistency). Compound properties allowing multiple instances MUST NOT be encoded in a single content line.

Finally, newline (ASCII decimal 10) and backslash (ASCII decimal 92) characters in values MUST be escaped by prefixing them with a backslash character.

In all other cases, escaping MUST NOT be used.

4. Property Value Data Types

Standard value types are defined below.

```
value = text
      / text-list
      / date-list
      / time-list
      / date-time-list
      / date-and-or-time-list
      / timestamp-list
      / boolean
      / integer-list
      / float-list
      / binary
      / URI ; from Section 3 of \[RFC3986\]
      / iana-valuespec
; Actual value type depends on property name and VALUE parameter.
```

```
text = *VALUE-CHAR
```

```
text-list = *TEXT-LIST-CHAR *("," *TEXT-LIST-CHAR)
```

```
TEXT-LIST-CHAR = "\\\" / "\",\" / \"\n\"
                / <any VALUE-CHAR except , or \ or newline>
; Backslashes, commas, and newlines must be encoded.
```

```
date-list      = date      *("," date)
time-list      = time      *("," time)
date-time-list = date-time *("," date-time)
date-and-or-time-list = date-and-or-time *("," date-and-or-time)
timestamp-list = timestamp *("," timestamp)
integer-list   = integer   *("," integer)
float-list     = float     *("," float)
```

```
boolean = "TRUE" / "FALSE"
integer = [sign] 1*DIGIT
float   = [sign] 1*DIGIT [ "." 1*DIGIT ]
```

```
sign = "+" / "-"
```

```
binary = <A binary string encoded as per the "encoding" parameter>
```

```
year   = 4DIGIT ; 0000-9999
month  = 2DIGIT ; 01-12
day    = 2DIGIT ; 01-28/29/30/31 depending on month and leap year
hour   = 2DIGIT ; 00-23
minute = 2DIGIT ; 00-59
```



```
second = 2DIGIT ; 00-58/59/60 depending on leap second
zone   = "Z" / utc-offset
```

```
date           = year      [month day]
                / year "-" month
                / "--"      month [day]
                / "--"      "-"  day
```

```
date-noreduc   = year      month day
                / "--"      month day
                / "--"      "-"  day
```

```
date-complete = year      month day
```

```
time           = hour [minute [second]] [zone]
                / "-"  minute [second] [zone]
                / "-"  "-"  second [zone]
```

```
time-notrunc   = hour [minute [second]] [zone]
```

```
time-complete  = hour  minute  second  [zone]
```

```
date-time = date-noreduc "T" time-notrunc
```

```
timestamp = date-complete "T" time-complete
```

```
date-and-or-time = date-time / date / "T" time
```

```
utc-offset = sign hour [minute]
```

```
iana-valuespec = <value-spec, see Section 12>
                ; a publicly-defined valuetype format, registered
                ; with IANA, as defined in section 12 of this
                ; document
```

[4.1.](#) TEXT

"text": The "text" value type should be used to identify values that contain human-readable text. The character set in which the text is represented is controlled by the "charset" MIME type parameter. Note that there is no way to override this parameter on a per-property basis. As for the language, it is controlled by the "language" property parameter defined in [Section 5.1](#).

Examples for "text":

```
this is a text value
this is one value,this is another
this is a single value\, with a comma encoded
```

A formatted text line break in a text value type MUST be represented as the character sequence backslash (ASCII decimal 92) followed by a Latin small letter n (ASCII decimal 110) or a Latin capital letter N

(ASCII decimal 78), that is "\n" or "\N".

For example a multiple line DESCRIPTION value of:

```
Mythical Manager
Hyjinx Software Division
BabsCo, Inc.
```

could be represented as:

```
DESCRIPTION:Mythical Manager\nHyjinx Software Division\n
BabsCo\, Inc.\n
```

demonstrating the \n literal formatted line break technique, the CRLF-followed-by-space line folding technique, and the backslash escape technique.

4.2. URI

"uri": The "uri" value type should be used to identify values that are referenced by a URI (including a Content-ID URI), instead of encoded in-line. These value references might be used if the value is too large, or otherwise undesirable to include directly. The format for the URI is as defined in [[RFC3986](#)]. Note that the value of a property of type "uri" is what the URI points to, not the URI itself.

Examples for "uri":

```
http://www.example.com/my/picture.jpg
ldap://ldap.example.com/cn=babs%20jensen
```

4.3. DATE, TIME, DATE-TIME, DATE-AND-OR-TIME, and TIMESTAMP

"date", "time", "date-time", and "timestamp": Each of these value types is based on the definitions in [[ISO.8601.2004](#)] standard. Multiple such values can be specified using the comma-separated notation.

Only the basic format is supported.

4.3.1. DATE

A calendar date as specified in [[ISO.8601.2004](#)] [section 4.1.2](#).

Reduced accuracy, as specified in [[ISO.8601.2004](#)] sections [4.1.2.3](#) a) and b), but not c), is permitted.

Expanded representation, as specified in [[ISO.8601.2004](#)] [section 4.1.4](#), is forbidden.

Truncated representation, as specified in [[ISO.8601.2000](#)] sections 5.2.1.3 d), e), and f), is permitted.

Examples for "date":

```
19850412
1985-04
1985
--0412
---12
```

[4.3.2.](#) TIME

A time of day as specified in [[ISO.8601.2004](#)] [section 4.2](#).

Reduced accuracy, as specified in [[ISO.8601.2004](#)] [section 4.2.2.3](#), is permitted.

Representation with decimal fraction, as specified in [[ISO.8601.2004](#)] [section 4.2.2.4](#), is forbidden.

Midnight is always represented by 00, never 24 (see [[ISO.8601.2004](#)] [section 4.2.3](#)).

Truncated representation, as specified in [[ISO.8601.2000](#)] sections 5.3.1.4 a), b), and c), is permitted.

Examples for "time":

```
102200
1022
10
-2200
--00
102200Z
102200-0800
```

[4.3.3.](#) DATE-TIME

A date and time of day combination as specified in [[ISO.8601.2004](#)] [section 4.3](#).

Truncation of the date part, as specified in [[ISO.8601.2000](#)] [section 5.4.2](#) c), is permitted.

Examples for "date-time":

```
19961022T140000
--1022T1400
---22T14
```

4.3.4. DATE-AND-OR-TIME

Either a DATE-TIME, a DATE, or a TIME value. To allow unambiguous interpretation, a standalone TIME value is always preceded by a "T".

Examples for "date-and-or-time":

```
19961022T140000
--1022T1400
---22T14
19850412
1985-04
1985
--0412
---12
T102200
T1022
T10
T-2200
T--00
T102200Z
T102200-0800
```

4.3.5. TIMESTAMP

A complete date and time of day combination as specified in [\[ISO.8601.2004\]](#) [section 4.3.2](#).

Examples for "timestamp":

```
19961022T140000
19961022T140000Z
19961022T140000-05
19961022T140000-0500
```

4.4. BOOLEAN

"boolean": The "boolean" value type is used to express boolean values. These values are case insensitive.

Examples:

```
TRUE
false
True
```

4.5. INTEGER

"integer": The "integer" value type is used to express signed integers in decimal format. If sign is not specified, the value is assumed positive "+". Multiple "integer" values can be specified using the comma-separated notation.

Examples:

```
1234567890
-1234556790
+1234556790,432109876
```

4.6. FLOAT

"float": The "float" value type is used to express real numbers. If sign is not specified, the value is assumed positive "+". Multiple "float" values can be specified using the comma-separated notation.

Examples:

```
20.30
1000000.0000001
1.333,3.14
```

4.7. BINARY

"binary": The "binary" value type specifies that the type value is inline, encoded binary data. This value type can be specified in the PHOTO, LOGO, SOUND, and KEY types.

If inline encoded binary data is specified, the ENCODING type parameter MUST be used to specify the encoding format. The binary data MUST be encoded using the "B" encoding format. Long lines of encoded binary data SHOULD BE folded to 75 characters using the folding method defined in [Section 3.1](#).

4.8. LANGUAGE-TAG

"language-tag": A single language tag, as defined in [[RFC5646](#)].

5. Property Parameters

A property can have attributes associated with it. These "property parameters" contain meta-information about the property or the property value.

Property parameter values that contain the COLON (US-ASCII decimal 58), SEMICOLON (US-ASCII decimal 59) or COMMA (US-ASCII decimal 44) character separators MUST be specified as quoted-string text values. Property parameter values MUST NOT contain the DQUOTE (US-ASCII decimal 22) character. The DQUOTE (US-ASCII decimal 22) character is used as a delimiter for parameter values that contain restricted characters or URI text. For example:

```
EMAIL;PID=8:jdoe@example.com
```

Property parameter values that are not in quoted strings are case insensitive.

Applications MUST ignore x-param and iana-param values they don't recognize.

5.1. LANGUAGE

The "language" property parameter is used to identify data in multiple languages. There is no concept of "default" language, except as specified by any "Content-Language" MIME header parameter that is present. The value of the "language" property parameter is a language tag as defined in [Section 2 of \[RFC5646\]](#).

ABNF:

```
language-param = "LANGUAGE=" Language-Tag  
                ; Language-Tag is defined in section 2.1 of RFC 5646
```

5.2. ENCODING

The "encoding" property parameter is used to specify an alternate encoding for a value. If the value contains a CRLF, it must be encoded, since CRLF is used to separate lines in the content-type itself. Currently, only the "b" encoding is supported.

The "b" encoding can also be useful for binary values that are mixed with other text information in the body part (e.g., a certificate). Using a per-value "b" encoding in this case leaves the other information in a more readable form. The encoded base 64 value can be split across multiple physical lines by using the line folding technique described above.

The Content-Transfer-Encoding header field is used to specify the encoding used for the body part as a whole. The "encoding" property parameter is used to specify an encoding for a particular value (e.g., a certificate). In this case, the Content-Transfer-Encoding header might specify "8bit", while the one certificate value might specify an encoding of "b" via an "encoding=b" property parameter.

The Content-Transfer-Encoding and the encodings of individual properties given by the "encoding" property parameter are independent of one another. When encoding a text/vcard body part for transmission, individual property encodings are performed first, then the entire body part is encoded according to the Content-Transfer-Encoding. When decoding a text/vcard body part, the Content-Transfer-Encoding is decoded first, and then any individual properties with an "encoding" property parameter are decoded.

ABNF:

```
encoding-param = "ENCODING=" encoding-type

encoding-type = "b"           ; from [RFC2047]
                / iana-token  ; registered as in section 12
```

5.3. VALUE

The "value" parameter is optional, and is used to identify the value type (data type) and format of the value. The use of these predefined formats is encouraged even if the value parameter is not explicitly used. By defining a standard set of value types and their formats, existing parsing and processing code can be leveraged. The predefined data type values MUST NOT be repeated in COMMA separated value lists except within the N, NICKNAME, ADR and CATEGORIES properties.

Including the value type explicitly as part of each property provides an extra hint to keep parsing simple and support more generalized applications. For example a search engine would not have to know the particular value types for all of the items for which it is searching. Because the value type is explicit in the definition, the search engine could look for dates in any item type and provide results that can still be interpreted.

ABNF:

```
value-param = "VALUE=" value-type
```

```
value-type = "text"  
            / "uri"  
            / "date"  
            / "time"  
            / "date-time"  
            / "timestamp"  
            / "boolean"  
            / "integer"  
            / "float"  
            / "binary"  
            / "language-tag"  
            / iana-token ; registered as described in section 12  
            / x-name
```

[5.4.](#) PEF

The "pref" parameter is optional, and is used to indicate that the corresponding instance of a property is preferred by the vCard author. Its value MUST be an integer between 1 and 100 that quantifies the level of preferredness. Lower values correspond to a higher level of preferredness, 1 being most preferred.

When the parameter is absent, the default MUST be to interpret the property instance as being least preferred.

Note that the value of this parameter is to be interpreted only in relation to values assigned to other instances of the same property in the same vCard. A given value, or the absence of a value, MUST NOT be interpreted on its own.

This parameter MAY be applied to any property that allows multiple instances.

ABNF:

```
pref-param = "PREF=" (1*2DIGIT / "100")
```

[5.5.](#) PID

The "pid" parameter is used to identify a specific property among multiple instances. It plays a role analogous to the UID property ([Section 6.7.7](#)) on a per-property instead of per-vCard basis. It MAY appear more than once in a given property. It MUST NOT appear on properties that only may have one instance per vCard. Its value is

either a single small integer, or a pair of small integers separated by a dot. Multiple values may be encoded in a single PID parameter by separating the values with a comma ",". See [Section 7](#) for more details on its usage.

ABNF:

```
pid-param = "PID=" pid-value *("," pid-value)
pid-value = 1*DIGIT [ "." 1*DIGIT ]
```

5.6. TYPE

The "type" parameter has multiple, different uses. In general, it is a way of specifying class characteristics of the associated property. Most of the time, its value is a comma-separated subset of a pre-defined enumeration. In this document, the following properties make use of this parameter: FN, NICKNAME, PHOTO, ADR, LABEL, TEL, EMAIL, IMPP, LANG, TZ, GEO, TITLE, ROLE, LOGO, ORG, RELATED, CATEGORIES, NOTE, SOUND, URL, KEY, FIBURL, CALADRURI, and CALURI. The TYPE parameter MUST NOT be applied on other properties defined in this document.

The "work" and "home" values can be used wherever the TYPE parameter is allowed, but only when the KIND property is absent or its value is "individual". They act like tags. The "work" value implies that the property is related to an individual's work place, while the "home" value implies that the property is related to an individual's personal life. When neither "work" nor "home" is present, it is implied that the property is related to both an individual's work place and personal life in case the KIND property's value is "individual", or to none in other cases.

ABNF:

```
type-param = "TYPE=" type-value *("," type-value)

type-value = "work" / "home" / type-param-tel
           / type-param-related / iana-token / x-name
           ; This is further defined in individual property sections.
```

6. vCard Properties

What follows is an enumeration of the standard vCard properties.

Property cardinalities are indicated using the following notation:

| +-----+-----+-----+-----+ | | | |
|---------------------------|-------|--|--|
| Cardinality | | Meaning | |
| +-----+-----+-----+-----+ | | | |
| | (1,1) | Exactly one instance per vCard MUST be present. | |
| | (0,1) | Exactly one instance per vCard MAY be present. | |
| | (1,n) | One or more instances per vCard MUST be present. | |
| | (0,n) | One or more instances per vCard MAY be present. | |
| +-----+-----+-----+-----+ | | | |

[6.1.](#) General Properties

[6.1.1.](#) BEGIN

Purpose: To denote the beginning of a syntactic entity within a text/vcard content-type.

Value type: text

Cardinality: (1,1)

Special notes: The content entity MUST begin with the BEGIN property with a value of "VCARD".

The BEGIN property is used in conjunction with the END property to delimit an entity containing a related set of properties within an text/vcard content-type. This construct can be used instead of or in addition to wrapping separate sets of information inside additional MIME headers. It is provided for applications that wish to define content that can contain multiple entities within the same text/vcard content-type or to define content that can be identifiable outside of a MIME environment.

ABNF:

```
BEGIN-param = ; no parameter allowed
BEGIN-value = "VCARD"
```

Example:

```
BEGIN:VCARD
```

[6.1.2.](#) END

Purpose: To denote the end of a syntactic entity within a text/vcard content-type.

Value type: text

Cardinality: (1,1)

Special notes: The content entity MUST end with the END type with a value of "VCARD".

The END property is used in conjunction with the BEGIN property to delimit an entity containing a related set of properties within an text/vcard content-type. This construct can be used instead of or in addition to wrapping separate sets of information inside additional MIME headers. It is provided for applications that wish to define content that can contain multiple entities within the same text/vcard content-type or to define content that can be identifiable outside of a MIME environment.

ABNF:

```
END-param = ; no parameter allowed
END-value = "VCARD"
```

Example:

```
END:VCARD
```

6.1.3. SOURCE

Purpose: To identify the source of directory information contained in the content type.

Value type: uri

Cardinality: (0,n)

Special notes: The SOURCE property is used to provide the means by which applications knowledgeable in the given directory service protocol can obtain additional or more up-to-date information from the directory service. It contains a URI as defined in [\[RFC3986\]](#) and/or other information referencing the vCard to which the information pertains. When directory information is available from more than one source, the sending entity can pick what it considers to be the best source, or multiple SOURCE properties can be included.

ABNF:

```
SOURCE-param = "VALUE=uri" / pid-param / pref-param / any-param
SOURCE-value = uri
```


Examples:

```
SOURCE:ldap://ldap.example.com/cn=Babs%20Jensen,%20o=Babsco,%20c=US
```

```
SOURCE:http://directory.example.com/addressbooks/jdoe/  
Jean%20Dupont.vcf
```

6.1.4. NAME

Purpose: To identify the displayable name of the directory entity to which information in the vCard pertains.

Value type: text

Cardinality: (0,1)

Special notes: The NAME property is used to convey the display name of the entity to which the directory information pertains. Its value is the displayable, presentation text associated with the source for the vCard, as specified in the SOURCE property.

ABNF:

```
NAME-param = "VALUE=text" / any-param  
NAME-value = text
```

Example:

```
NAME:Babs Jensen's Contact Information
```

6.1.5. KIND

Purpose: To specify the kind of object the vCard represents.

Value type: A single text value.

Cardinality: (0,1)

Special notes: The value may be one of: "individual" for a single person, "group" for a group of people, "org" for an organization, "location" for a named geographical place, "thing" for an inanimate object (e.g. a device, a server, etc.), an x-name or an iana-token. If this property is absent, "individual" MUST be assumed as default.

ABNF:

```
KIND-param = "VALUE=text" / any-param
KIND-value = "individual" / "group" / "org" / "location"
             / iana-token / x-name
```

Example:

This represents someone named Jane Doe working in the marketing department of the North American division of ABC Inc.

```
BEGIN:VCARD
VERSION:4.0
KIND:individual
FN:Jane Doe
ORG:ABC\, Inc.;North American Division;Marketing
END:VCARD
```

This represents the department itself, commonly known as ABC Marketing.

```
BEGIN:VCARD
VERSION:4.0
KIND:org
FN:ABC Marketing
ORG:ABC\, Inc.;North American Division;Marketing
END:VCARD
```

6.2. Identification Properties

These types are used to capture information associated with the identification and naming of the person or resource associated with the vCard.

6.2.1. FN

Purpose: To specify the formatted text corresponding to the name of the object the vCard represents.

Value type: A single text value.

Cardinality: (1,n)

Special notes: This property is based on the semantics of the X.520 Common Name attribute. The property **MUST** be present in the vCard object.

ABNF:

```
FN-param = "VALUE=text" / type-param / language-param / pid-param
          / pref-param / any-param
FN-value = text
```

Example:

```
FN:Mr. John Q. Public\, Esq.
```

[6.2.2.](#) N

Purpose: To specify the components of the name of the object the vCard represents.

Value type: A single structured text value. Each component can have multiple values.

Cardinality: (0,1)

Special note: The structured property value corresponds, in sequence, to the Surname, Given Names, Honorific Prefixes, and Honorific Suffixes. The text components are separated by the SEMI-COLON character (ASCII decimal 59). Individual text components can include multiple text values (e.g., multiple Additional Names) separated by the COMMA character (ASCII decimal 44). This property is based on the semantics of the X.520 individual name attributes. The property SHOULD be present in the vCard object when the name of the object the vCard represents follows the X.520 model.

ABNF:

```
N-param = "VALUE=text" / language-param / any-param
N-value = list-component 3("; " list-component)

list-component = list-component-value *(", " list-component-value)
list-component-value = "\\\" / "\", " / "\;" / "\n" / WSP / NON-ASCII
                    / %x21-2B / %x2D-3A / %x3C-5B / %x5D-7E
```

Examples:

```
N:Public;John,Q.;Mr.;Esq.
```

```
N:Stevenson;John,Philip,Paul;Dr.;Jr.,M.D.,A.C.P.
```


6.2.3. NICKNAME

Purpose: To specify the text corresponding to the nickname of the object the vCard represents.

Value type: One or more text values separated by a COMMA character (ASCII decimal 44).

Cardinality: (0,n)

Special note: The nickname is the descriptive name given instead of or in addition to the one belonging to a person, place, or thing. It can also be used to specify a familiar form of a proper name specified by the FN or N properties.

ABNF:

```
NICKNAME-param = "VALUE=text" / type-param / language-param
                  / pid-param / pref-param / any-param
NICKNAME-value = text-list
```

Examples:

```
NICKNAME:Robbie
```

```
NICKNAME:Jim,Jimmie
```

```
NICKNAME;TYPE=work:Boss
```

6.2.4. PHOTO

Purpose: To specify an image or photograph information that annotates some aspect of the object the vCard represents.

Encoding: The encoding MUST be reset to "b" using the ENCODING parameter in order to specify inline, encoded binary data. If the value is referenced by a URI value, then the default encoding is used and no explicit ENCODING parameter is needed.

Value type: A single value. The default is binary value. It can also be reset to uri value. The uri value can be used to specify a value outside of this MIME entity.

Cardinality: (0,n)

Special notes: This property SHOULD include the parameter "TYPE" to specify the graphic image format type. The TYPE parameter value MUST be an image media type as specified in [\[RFC4288\]](#). The full media type name, including the "image/" prefix, SHOULD be used. However, implementations SHOULD be able to handle bare subtypes.

ABNF:

```
PHOTO-param = inline-param / refer-param / type-param
PHOTO-value = inline-value / refer-value
; Value and parameter MUST match.
```

```
PHOTO-param =/ pid-param / pref-param / any-param
```

```
inline-param = "VALUE=binary"
               / encoding-param
               / "TYPE=" type-name "/" subtype-name
               ; from \[RFC4288\] section 4.2
```

```
inline-value = binary
```

```
refer-param = "VALUE=uri"
refer-value = uri
```

Example:

```
PHOTO;VALUE=uri:http://www.example.com/pub/photos
/jqpublic.gif
```

```
PHOTO;ENCODING=b;TYPE=image/jpeg:MIICajCCAd0gAwIBAgICBEUwDQYJKo
ZIhvcNAQEEBQAwdzELMAkGA1UEBhMCVVMxLDAqBgNVBAoTI05ldHNjYXB1IENv
bW11bm1jYXRpb25zIENvcnBvcmlF0aW9uMRwwGgYDVQLExNJbmZvcmlhdGlvbi
<...remainder of "B" encoded binary data...>
```

[6.2.5.](#) BDAY

Purpose: To specify the birth date of the object the vCard represents.

Value type: The default is a single date-and-or-time value. It can also be reset to a single text value.

Cardinality: (0,1)

ABNF:


```
BDAY-param = "VALUE=" ("date-and-or-time" / "text")
BDAY-value = date-and-or-time / text
           ; Value and parameter MUST match.
```

```
BDAY-param =/ any-param
```

Examples:

```
BDAY:19960415
BDAY:--0415
BDAY;19531015T231000Z
BDAY;VALUE=text:circa 1800
```

6.2.6. DDAY

Purpose: To specify the date of death of the object the vCard represents.

Value type: The default is a single date-and-or-time value. It can also be reset to a single text value.

Cardinality: (0,1)

ABNF:

```
DDAY-param = "VALUE=" ("date-and-or-time" / "text")
DDAY-value = date-and-or-time / text
           ; Value and parameter MUST match.
```

```
DDAY-param =/ any-param
```

6.2.7. BIRTH

Purpose: To specify the place of birth of the object the vCard represents.

Value type: A single text value.

Cardinality: (0,1)

ABNF:

```
BIRTH-param = "VALUE=text" / language-param / any-param
BIRTH-value = text
```


Example:

BIRTH:Babies'R'Us Hospital

6.2.8. DEATH

Purpose: To specify the place of death of the object the vCard represents.

Value type: A single text value.

Cardinality: (0,1)

ABNF:

```
DEATH-param = "VALUE=text" / language-param / any-param
DEATH-value = text
```

Example:

DEATH:Aboard the Titanic\, near Newfoundland

6.2.9. ANNIVERSARY

Purpose: The date of marriage, or equivalent, of the object the vCard represents.

Value type: The default is a single date-and-or-time value. It can also be reset to a single text value.

Cardinality: (0,1)

ABNF:

```
ANNIVERSARY-param = "VALUE=" ("date-and-or-time" / "text")
ANNIVERSARY-value = date-and-or-time / text
; Value and parameter MUST match.
```

```
ANNIVERSARY-param =/ any-param
```

Examples:

ANNIVERSARY:19960415

6.2.10. SEX

Purpose: To specify the sex of the object the vCard represents, as defined in [[ISO.5218.2004](#)].

Value type: A single integer value.

Cardinality: (0,1)

Special notes: The value 0 stands for "not known", 1 stands for "male", 2 stands for "female", and 9 stands for "not applicable".

ABNF:

```
SEX-param = "VALUE=integer" / any-param
SEX-value = "0" / "1" / "2" / "9"
```

Example:

```
SEX:2
```

6.3. Delivery Addressing Properties

These types are concerned with information related to the delivery addressing or label for the vCard object.

6.3.1. ADR

Purpose: To specify the components of the delivery address for the vCard object.

Value type: A single structured text value, separated by the SEMI-COLON character (ASCII decimal 59).

Cardinality: (0,n)

Special notes: The structured type value consists of a sequence of address components. The component values MUST be specified in their corresponding position. The structured type value corresponds, in sequence, to the post office box; the extended address (e.g. apartment or suite number); the street address; the locality (e.g., city); the region (e.g., state or province); the postal code; the country name. When a component value is missing, the associated component separator MUST still be specified.

The text components are separated by the SEMI-COLON character (ASCII decimal 59). Where it makes semantic sense, individual text components can include multiple text values (e.g., a "street" component with multiple lines) separated by the COMMA character (ASCII decimal 44).

The property can include the "PREF" parameter to indicate the preferred delivery address when more than one address is specified.

The GEO parameter can be used to indicate global positioning information that is specific to this address. Its value is the same as that of the GEO property.

The TZ parameter can be used to indicate time zone information that is specific to this address. Its value is the same as that of the TZ property.

ABNF:

```
ADR-param = "VALUE=text" / language-param / geo-param / tz-param
           / pid-param / pref-param / type-param / any-param
ADR-value = list-component 6(";" list-component)

geo-param = "GEO=" DQUOTE uri DQUOTE
tz-param  = "TZ=" DQUOTE (text / uri) DQUOTE
```

Example: In this example the post office box and the extended address are absent.

```
ADR;GEO="geo:12.3457,78.910":;;123 Main Street;Any Town;CA
;91921-1234;USA
```

[6.3.2.](#) LABEL

Purpose: To specify the formatted text corresponding to a delivery address of the object the vCard represents.

Value type: A single text value.

Cardinality: (0,n)

Special notes: The property value is formatted text that can be used to present a delivery address label for the vCard object. The property can include the "PREF" parameter to indicate the preferred delivery address when more than one address is specified.

ABNF:

```
LABEL-param = "VALUE=text" / language-param / pid-param
              / pref-param / type-param / any-param
LABEL-value = text
```

Example: A multi-line address label.

```
LABEL:Mr.John Q. Public\, Esq.\nMail Drop: TNE QB\n
123 Main Street\nAny Town\, CA 91921-1234\nU.S.A.
```

6.4. Communications Properties

These properties are concerned with information associated with the way communications with the object the vCard represents are carried out.

6.4.1. TEL

Purpose: To specify the telephone number for telephony communication with the object the vCard represents.

Value type: A single URI value. It is expected that the URI scheme will be "tel", as specified in [[RFC3966](#)], but other schemes MAY be used.

Cardinality: (0,n)

Special notes: This property is based on the X.520 Telephone Number attribute.

The property can include the "PREF" parameter to indicate a preferred-use telephone number.

The property can include the parameter "TYPE" to specify intended use for the telephone number. The TYPE parameter values can include: "text" to indicate the telephone number supports text messages, "voice" to indicate a voice telephone number, "fax" to indicate a facsimile telephone number, "cell" to indicate a cellular or mobile telephone number, "video" to indicate a video conferencing telephone number, "pager" to indicate a paging device telephone number. The default type is "voice". These type parameter values can be specified as a parameter list (e.g., "TYPE=text;TYPE=voice") or as a value list (e.g., "TYPE=text,voice"). The default can be overridden to another set of values by specifying one or more alternate values. For example, the default TYPE of "voice" can be reset to a VOICE and FAX telephone number by the value list "TYPE=voice,fax".

ABNF:

```
TEL-param = "VALUE=uri" / type-param / pid-param / pref-param
           / any-param
TEL-value = uri

type-param-tel = "text" / "voice" / "fax" / "cell" / "video"
                / "pager" / iana-token / x-name
; type-param-tel MUST NOT be used with a property other than TEL.
```

Example:

```
TEL;PREF=1;TYPE=voice,msg,home:tel:+1-555-555-5555;ext=5555
TEL;TYPE=home:tel:+33-01-23-45-67
```

6.4.2. EMAIL

Purpose: To specify the electronic mail address for communication with the object the vCard represents.

Value type: A single text value.

Cardinality: (0,n)

Special notes: The property can include the "PREF" parameter to indicate a preferred-use email address when more than one is specified.

ABNF:

```
EMAIL-param = "VALUE=text" / pid-param / pref-param / type-param
              / any-param
EMAIL-value = addr-spec ; from \[RFC5322\] section 3.4.1
```

Type example:

```
EMAIL;TYPE=work:jpublic@xyz.example.com

EMAIL;PREF=1:jane_doe@example.com
```

6.4.3. IMPP

Purpose: To specify the URI for instant messaging and presence protocol communications with the object the vCard represents.

Value type: A single URI.

Cardinality: (0,n)

Special notes: The property may include the "PREF" parameter to indicate that this is a preferred address and has the same semantics as the "PREF" parameter in a TEL property.

This property is adapted from [\[RFC4770\]](#), which is made obsolete by this document.

ABNF:

```
IMPP-param = "VALUE=uri" / pid-param / pref-param / type-param
            / any-param
IMPP-value = uri
```

Example:

```
IMPP;PREF=1:xmpp:alice@example.com
```

6.4.4. LANG

Purpose: To specify the language(s) that may be used for contacting the individual associated with the vCard.

Value type: A single language-tag value.

Cardinality: (0,n)

ABNF:

```
LANG-param = "VALUE=language-tag" / pid-param / pref-param
            / type-param / any-param
LANG-value = Language-Tag
```

Example:

```
LANG;TYPE=work;PREF=1:en
LANG;TYPE=work;PREF=2:fr
LANG;TYPE=home=fr
```

6.5. Geographical Properties

These properties are concerned with information associated with geographical positions or regions associated with the object the vCard represents.

[6.5.1.](#) TZ

Purpose: To specify information related to the time zone of the object the vCard represents.

Value type: The default is a single text value. It can also be reset to a single URI or utc-offset value.

Cardinality: (0,n)

Special notes: It is expected that names from the public-domain Olson database [[TZ-DB](#)] will be used, but this is not a restriction.

Efforts are currently being directed at creating a standard URI scheme for expressing time zone information. Usage of such a scheme would ensure a high level of interoperability between implementations that support it.

Note that utc-offset values SHOULD NOT be used because the UTC offset varies with time - not just because of the usual DST shifts that occur in many regions, but often entire regions will "re-base" their offset entirely. The actual offset may be +/- 1 hour (or perhaps a little more) than the one given.

ABNF:

```
TZ-param = "VALUE=" ("text" / "uri" / "utc-offset")
```

```
TZ-value = text / uri / utc-offset  
; Value and parameter must match
```

```
TZ-param =/ pid-param / pref-param / type-param / any-param
```

Type examples:

```
TZ:-0500; EST; Raleigh/North America  
;This example has a single value, not a structure text value.
```

[6.5.2.](#) GEO

Purpose: To specify information related to the global positioning of the object the vCard represents.

Value type: A single URI.

Cardinality: (0,n)

Special notes: The "geo" URI scheme [[I-D.ietf-geopriv-geo-uri](#)] is particularly well-suited for this property, but other schemes MAY be used.

ABNF:

```
GEO-param = "VALUE=uri" / pid-param / pref-param / type-param
           / any-param
GEO-value = uri
```

Example:

```
GEO:geo:37.386013, -122.082932
```

[6.6.](#) Organizational Properties

These properties are concerned with information associated with characteristics of the organization or organizational units of the object the vCard represents.

[6.6.1.](#) TITLE

Purpose: To specify the position or job of the object the vCard represents.

Value type: A single text value.

Cardinality: (0,n)

Special notes: This property is based on the X.520 Title attribute.

ABNF:

```
TITLE-param = "VALUE=text" / language-param / pid-param
              / pref-param / type-param / any-param
TITLE-value = text
```

Example:

```
TITLE:Research Scientist
```

[6.6.2.](#) ROLE

Purpose: To specify the function or part played in a particular situation by the object the vCard represents.

Value type: A single text value.

Cardinality: (0,n)

Special notes: This property is based on the X.520 Business Category explanatory attribute. This property is included as an organizational type to avoid confusion with the semantics of the TITLE property and incorrect usage of that property when the semantics of this property is intended.

ABNF:

```
ROLE-param = "VALUE=text" / language-param / pid-param / pref-param
              / type-param / any-param
ROLE-value = text
```

Example:

```
ROLE:Project Leader
```

6.6.3. LOGO

Purpose: To specify a graphic image of a logo associated with the object the vCard represents.

Encoding: The encoding MUST be reset to "b" using the ENCODING parameter in order to specify inline, encoded binary data. If the value is referenced by a URI value, then the default encoding of 8bit is used and no explicit ENCODING parameter is needed.

Value type: A single value. The default is binary value. It can also be reset to uri value. The uri value can be used to specify a value outside of this MIME entity.

Cardinality: (0,n)

Special notes: This property SHOULD include the parameter "TYPE" to specify the graphic image format type. The TYPE parameter value MUST be an image media type as specified in [\[RFC4288\]](#). The full media type name, including the "image/" prefix, SHOULD be used. However, implementations SHOULD be able to handle bare subtypes.

ABNF:

```
LOGO-param = inline-param / refer-param
LOGO-value = inline-value / refer-value
; Value and parameter MUST match.
```

```
LOGO-param =/ language-param / pid-param / pref-param / type-param
/ any-param
```

Example:

```
LOGO;VALUE=uri:http://www.example.com/pub/logos/abccorp.jpg
```

```
LOGO;ENCODING=b;TYPE=image/jpeg:MIICajCCAdOgAwIBAgICBEUwDQYJKoZ
AQEEBQAwdzELMAKGA1UEBhMCMVVMxLDAqBgNVBAoTI05ldHNjYXB1IENvbW11bm
ljYXRpb25zIENvcnBvcnF0aw9uMRwwGgYDVQQLExNjbmZvcmlhdGlvbiBTeXN0
<...the remainder of "B" encoded binary data...>
```

6.6.4. ORG

Purpose: To specify the organizational name and units associated with the vCard.

Value type: A single structured text value consisting of components separated the SEMI-COLON character (ASCII decimal 59).

Cardinality: (0,n)

Special notes: The property is based on the X.520 Organization Name and Organization Unit attributes. The property value is a structured type consisting of the organization name, followed by zero or more levels of organizational unit names.

ABNF:

```
ORG-param = "VALUE=text" / language-param / pid-param / pref-param
/ type-param / any-param
ORG-value = component *("; " component)

component = "\\ " / "\;" / "\n" / WSP / NON-ASCII
/ %x21-3A / %x3C-5B / %x5D-7E
```

Example: A property value consisting of an organizational name, organizational unit #1 name and organizational unit #2 name.

```
ORG:ABC\, Inc.;North American Division;Marketing
```


6.6.5. MEMBER

Purpose: To include a member in the group this vCard represents.

Value type: A single URI. It MAY refer to something other than a vCard object. For example, an e-mail distribution list could employ the "mailto" URI scheme for efficiency.

Cardinality: (0,n)

Special notes: This property MUST NOT be present unless the value of the KIND property is "group".

ABNF:

```
MEMBER-param = "VALUE=uri" / pid-param / pref-param / any-param
MEMBER-value = uri
```

Examples:

```
BEGIN:VCARD
VERSION:4.0
KIND:group
FN:The Doe family
MEMBER:urn:uuid:03a0e51f-d1aa-4385-8a53-e29025acd8af
MEMBER:urn:uuid:b8767877-b4a1-4c70-9acc-505d3819e519
END:VCARD
BEGIN:VCARD
VERSION:4.0
FN:John Doe
UID:urn:uuid:03a0e51f-d1aa-4385-8a53-e29025acd8af
END:VCARD
BEGIN:VCARD
VERSION:4.0
FN:Jane Doe
UID:urn:uuid:b8767877-b4a1-4c70-9acc-505d3819e519
END:VCARD
```

```
BEGIN:VCARD
VERSION:4.0
KIND:group
FN:Funky distribution list
MEMBER:mailto:subscriber1@example.com
MEMBER:xmpp:subscriber2@example.com
MEMBER:sip:subscriber3@example.com
MEMBER:tel:+1-418-555-5555
END:VCARD
```


6.6.6. RELATED

Purpose: To specify a relationship between another person and the individual represented by this vCard.

Value type: A single URI. It can also be reset to a single text value. The text value can be used to specify textual information.

Cardinality: (0,n)

Special notes: The TYPE parameter MAY be used to characterize the related individual. The understood types are:

- * "parent" means that the related individual is the parent of the individual this vCard represents.
- * "child" means that the related individual is the child of the individual this vCard represents. Note that the parent/child relationship does not need to be biological.
- * "sibling" means that the two individuals are siblings.
- * "spouse" for a spouse, domestic partner, or similar relation.
- * "family" for any other family relationship.
- * "friend" for a friend.
- * "supervisor" means that the related individual is the direct hierarchical superior (i.e. supervisor or manager) of the individual this vCard represents.
- * "supervisee" means the opposite of "supervisor".
- * "assistant" for an assistant or secretary.
- * "colleague" for any other workplace relationship.
- * "agent" for a person who will act on behalf of the individual or resource associated with the vCard.
- * "emergency" indicates an emergency contact.

Other types may be registered to IANA as described in [Section 10.2](#), and private extensions starting with "X-" may be used.

ABNF:

```
RELATED-param = "VALUE=" ("uri" / "text")
RELATED-value = uri / text
    ; Parameter and value MUST match.

RELATED-param =/ type-param / pid-param / pref-param / type-param
    / any-param

type-param-related = "parent" / "child" / "sibling" / "spouse"
    / "family" / "friend" / "supervisor"
    / "supervisee" / "assistant" / "colleague"
    / "agent" / "emergency" / iana-token / x-name
    ; type-param-related MUST NOT be used with a property other than
    ; RELATED.
```

Examples:

```
RELATED;TYPE=manager:urn:uuid:f81d4fae-7dec-11d0-a765-00a0c91e6bf6
RELATED;TYPE=assistant:http://example.com/directory/jdoe.vcf
RELATED;TYPE=agent;VALUE=text:Please contact my assistant Jane Doe
    for any inquiries.
```

6.7. Explanatory Properties

These properties are concerned with additional explanations, such as that related to informational notes or revisions specific to the vCard.

6.7.1. CATEGORIES

Purpose: To specify application category information about the vCard. Also known as "tags".

Value type: One or more text values separated by a COMMA character (ASCII decimal 44).

Cardinality: (0,n)

ABNF:

```
CATEGORIES-param = "VALUE=text" / pid-param / pref-param
    / type-param / any-param
CATEGORIES-value = text-list
```

Example:

CATEGORIES:TRAVEL AGENT

CATEGORIES:INTERNET,IETF,INDUSTRY,INFORMATION TECHNOLOGY

6.7.2. NOTE

Purpose: To specify supplemental information or a comment that is associated with the vCard.

Value type: A single text value.

Cardinality: (0,n)

Special notes: The property is based on the X.520 Description attribute.

ABNF:

```
NOTE-param = "VALUE=text" / language-param / pid-param / pref-param
             / type-param / any-param
NOTE-value = text
```

Example:

```
NOTE:This fax number is operational 0800 to 1715
     EST\, Mon-Fri.
```

6.7.3. PRODIG

Purpose: To specify the identifier for the product that created the vCard object.

Type value: A single text value.

Cardinality: (0,1)

Special notes: Implementations SHOULD use a method such as that specified for Formal Public Identifiers in [[ISO9070](#)] or for Universal Resource Names in [[RFC3406](#)] to ensure that the text value is unique.

ABNF:

```
PRODIG-param = "VALUE=text" / any-param
PRODIG-value = text
```

Example:

PRODID:-//ONLINE DIRECTORY//NONSGML Version 1//EN

6.7.4. REV

Purpose: To specify revision information about the current vCard.

Value type: A single timestamp value.

Cardinality: (0,1)

Special notes: The value distinguishes the current revision of the information in this vCard for other renditions of the information.

ABNF:

```
REV-param = "VALUE=timestamp" / any-param
REV-value = timestamp
```

Example:

REV:19951031T222710Z

6.7.5. SORT-STRING

Purpose: To specify the family name or given name text to be used for national-language-specific sorting of the FN and N types.

Value type: A single text value.

Cardinality: (0,1)

Special notes: The sort string is used to provide family name or given name text that is to be used in sorting of the formatted name and structured name types in the context of a particular locale or national language. Without this information, sorting algorithms could incorrectly sort this vCard within a sequence of sorted vCards. When this property is present in a vCard, then this family name or given name value is used for sorting the vCard.

ABNF:

```
SORT-STRING-param = "VALUE=text" / any-param
SORT-STRING-value = text
```

Examples: For the case of family name sorting, the following examples define common sort string usage with the FN and N properties.

FN:Rene van der Harten
N:van der Harten;Rene;J.;Sir;R.D.O.N.
SORT-STRING:Harten

FN:Robert Pau Shou Chang
N:Pau;Shou Chang;Robert
SORT-STRING:Pau

FN:Osamu Koura
N:Koura;Osamu
SORT-STRING:Koura

FN:Oscar del Pozo
N:del Pozo Triscon;Oscar
SORT-STRING:Pozo

FN:Chistine d'Aboville
N:d'Aboville;Christine
SORT-STRING:Aboville

6.7.6. SOUND

Purpose: To specify a digital sound content information that annotates some aspect of the vCard. This property is often used to specify the proper pronunciation of the name property value of the vCard.

Encoding: The encoding MUST be reset to "b" using the ENCODING parameter in order to specify inline, encoded binary data. If the value is referenced by a URI value, then the default encoding of 8bit is used and no explicit ENCODING parameter is needed.

Value type: A single value. The default is binary value. It can also be reset to uri value. The uri value can be used to specify a value outside of this MIME entity.

Cardinality: (0,n)

Special notes: This property SHOULD include the parameter "TYPE" to specify the audio format type. The TYPE parameter value MUST be an audio media type as specified in [\[RFC4288\]](#). The full media type name, including the "audio/" prefix, SHOULD be used. However, implementations SHOULD be able to handle bare subtypes.

ABNF:


```
SOUND-param = inline-param / refer-param
SOUND-value = inline-value / refer-value
; Value and parameter MUST match.
```

```
SOUND-param =/ language-param / pid-param / pref-param / type-param
/ any-param
```

Example:

```
SOUND;TYPE=audio/basic;VALUE=uri:CID:JOHNQPUBLIC.part8.
19960229T080000.xyzMail@example.com
```

```
SOUND;TYPE=audio/basic;ENCODING=b:MIICajCCAdOgAwIBAgICBEUwDQYJK
AQEEBQAwdzELMAKGA1UEBhMCMVVMxLDAqBgNVBAoTID05ldHNjYXB1IENvbW11bm
ljYXRpb25zIENvcnBvcmlF0aw9uMRwwGgYDVQQLExNjbmZvcmlhdGlvbiBTeXN0
<...the remainder of "B" encoded binary data...>
```

6.7.7. UID

Purpose: To specify a value that represents a globally unique identifier corresponding to the individual or resource associated with the vCard.

Value type: A single URI value.

Cardinality: (0,1)

Special notes: This property is used to uniquely identify the object that the vCard represents. The "uuid" URN namespace defined in [\[RFC4122\]](#) is particularly well-suited to this task, but other URI schemes MAY be used.

ABNF:

```
UID-param = "VALUE=uri" / any-param
UID-value = uri
```

Example:

```
UID:urn:uuid:f81d4fae-7dec-11d0-a765-00a0c91e6bf6
```

6.7.8. CLIENTPIDMAP

Purpose: To give a global meaning to a local PID source identifier.

Value type: A semicolon-separated pair of values. The first field is a small integer corresponding to the second field of a PID parameter instance. The second field is a URI. The "uuid" URN namespace defined in [\[RFC4122\]](#) is particularly well-suited to this task, but other URI schemes MAY be used.

Cardinality: (0,n)

Special notes: PID source identifiers (the source identifier is the second field in a PID parameter instance) are small integers that only have significance within the scope of a single vCard instance. Each distinct source identifier present in a vCard MUST have an associated CLIENTPIDMAP. See [Section 7](#) for more details on the usage of CLIENTPIDMAP.

PID source identifiers MUST be strictly positive. Zero is not allowed.

As a special exception, the PID parameter MUST NOT be applied to this property.

ABNF:

```
CLIENTPIDMAP-param = any-param
CLIENTPIDMAP-value = 1*DIGIT ";" uri
```

Example:

```
TEL;PID=3.1,4.2:tel:+1-555-555-5555
EMAIL;PID=4.1,5.2:jdoe@example.com
CLIENTPIDMAP:1;urn:uuid:3df403f4-5924-4bb7-b077-3c711d9eb34b
CLIENTPIDMAP:2;urn:uuid:d89c9c7a-2e1b-4832-82de-7e992d95faa5
```

[6.7.9](#). URL

Purpose: To specify a uniform resource locator associated with the object that the vCard refers to.

Cardinality: (0,n)

Value type: A single uri value.

ABNF:

```
URL-param = "VALUE=uri" / pid-param / pref-param / type-param
           / any-param
URL-value = uri
```


Example:

URL:http://example.org/restaurant.french/~chezchic.html

6.7.10. VERSION

Purpose: To specify the version of the vCard specification used to format this vCard.

Value type: A single text value.

Cardinality: (1,1)

Special notes: The property **MUST** be present in the vCard object.
The value **MUST** be "4.0" if the vCard corresponds to this specification.

ABNF:

VERSION-param = "VALUE=text" / any-param
VERSION-value = "4.0"

Example:

VERSION:4.0

6.8. Security Properties

These properties are concerned with the security of communication pathways or access to the vCard.

6.8.1. CLASS

Purpose: To specify the access classification for a vCard object.

Value type: A single text value.

Cardinality: (0,1)

Special notes: An access classification is only one component of the general security model for a directory service. The classification attribute provides a method of capturing the intent of the owner for general access to information described by the vCard object.

Predefined values are:

PUBLIC: This vCard MAY be shared with anyone.

PRIVATE: This vCard MUST NOT be shared. It MAY be exported if explicitly authorized and requested by the creator.

CONFIDENTIAL: This vCard MAY be shared with allowed users or systems. The exact confidentiality level is site-specific and out of scope for the vCard specification.

ABNF:

```
CLASS-param = "VALUE=text" / any-param
CLASS-value = "PUBLIC" / "PRIVATE" / "CONFIDENTIAL" / iana-token
              / x-name
```

Examples:

CLASS:PUBLIC

CLASS:PRIVATE

CLASS:CONFIDENTIAL

6.8.2. KEY

Purpose: To specify a public key or authentication certificate associated with the object that the vCard represents.

Encoding: The encoding MUST be reset to "b" using the ENCODING parameter in order to specify inline, encoded binary data. If the value is a text value, then the default encoding of 8bit is used and no explicit ENCODING parameter is needed.

Value type: A single value. The default is binary. It can also be reset to uri value. The uri value can be used to specify a value outside of this MIME entity. In this case, the key's media type is obtained externally (e.g. with the HTTP Content-Type header) instead of with the TYPE parameter.

Cardinality: (0,n)

Special notes: This property SHOULD include the parameter "TYPE" to specify the public key or authentication certificate format. The TYPE parameter value MUST be a media type as specified in [\[RFC4288\]](#).

ABNF:

```
KEY-param = inline-param / refer-param
KEY-value = inline-value / refer-value
; Value and parameter MUST match.
```

```
KEY-param =/ pid-param / pref-param / type-param / any-param
```

Examples:

```
KEY;VALUE=uri:http://www.example.com/keys/jdoe
```

```
KEY;TYPE=application/pgp-keys;ENCODING=b:mQGIBeEPUsRBACBF0RSIN
mGutdM+KSA17HMzwXHaLbvE0yu8At80I8qGejhzWowKbfem3X0m68Y/vhb+J2g
7q11KHpnEdNb67uZaj9nTQ09Q+UFtH25qD/Afn3+9b0JQaPjAUYZXu3vD/xmN8
<...remainder of "B" encoded binary data...>
```

6.9. Calendar Properties

These properties are further specified in [[RFC2739](#)].

6.9.1. FBURL

Purpose: To specify the URI for a user's busy time in a vCard object.

Value type: A single URI value.

Cardinality: (0,n)

Special notes: Where multiple FBURL properties are specified, the default FBURL property is indicated with the PREF parameter. The FTP or HTTP type of URI points to an iCalendar object associated with a snapshot of the last six weeks of the user's busy time data. If the iCalendar object is represented as a file or document, its file type should be "ifb".

ABNF:

```
FBURL-param = "VALUE=uri" / pid-param / pref-param / type-param
              / any-param
FBURL-value = uri
```

Examples:

```
FBURL;PREF=1:http://www.example.com/busy/janedoe
FBURL:FTP://ftp.example.com/busy/project-a.ifb
```


6.9.2. CALADRURI

Purpose: To specify the location to which an event request should be sent for the user.

Value type: A single URI value.

Cardinality: (0,n)

Special notes: Where multiple CALADRURI properties are specified, the default CALADRURI property is indicated with the PREF parameter.

ABNF:

```
CALADRURI-param = "VALUE=uri" / pid-param / pref-param / type-param  
                  / any-param  
CALADRURI-value = uri
```

Example:

```
CALADRURI;PREF=1:mailto:janedoe@example.com  
CALADRURI:http://example.com/calendar/jdoe
```

6.9.3. CALURI

Purpose: To specify the URI for a user's calendar in a vCard object.

Value type: A single URI value.

Cardinality: (0,n)

Special notes: Where multiple CALURI properties are specified, the default CALURI property is indicated with the PREF parameter. The property should contain a URI pointing to an iCalendar object associated with a snapshot of the user's calendar store. If the iCalendar object is represented as a file or document, its file type should be "ics".

ABNF:

```
CALURI-param = "VALUE=uri" / pid-param / pref-param / type-param  
               / any-param  
CALURI-value = uri
```


Examples:

```
CALURI;PREF=1:http://cal.example.com/calA  
CALURI:ftp://ftp.example.com/calA.ics
```

6.10. Extended Properties and Parameters

The properties and parameters defined by this document can be extended. Non-standard, private properties and parameters with a name starting with "X-" may be defined bilaterally between two cooperating agents without outside registration or standardization.

7. Synchronization

vCard data often needs to be synchronized between devices. In this context, synchronization is defined as the intelligent merging of two representations of the same object. vCard 4.0 includes mechanisms to aid this process.

7.1. Mechanisms

Two mechanisms are available: the UID property is used to match multiple instances of the same vCard, while the PID parameter is used to match multiple instances of the same property.

The term "matching" is used here to mean recognizing that two instances are in fact representations of the same object. For example, a single vCard that is shared with someone results in two vCard instances. After they have evolved separately, they still represent the same object, and therefore may be matched by a synchronization engine.

7.1.1. Matching vCard Instances

vCard instances for which the UID properties ([Section 6.7.7](#)) are equivalent **MUST** be matched. Equivalence is determined as specified in [\[RFC3986\]](#), [Section 6](#).

In all other cases, vCard instances **MAY** be matched at the discretion of the synchronization engine.

7.1.2. Matching Property Instances

Property instances belonging to unmatched vCards **MUST NOT** be matched.

Property instances whose name (e.g. EMAIL, TEL, etc.) is not the same **MUST NOT** be matched.

Property instances whose name is CLIENTPIDMAP are handled separately and MUST NOT be matched. The synchronization MUST ensure that there is consistency of CLIENTPIDMAPs among matched vCard instances.

Property instances belonging to matched vCards, whose name is the same, and whose maximum cardinality is 1 MUST be matched.

Property instances belonging to matched vCards, whose name is the same, and whose PID parameters match MUST be matched. See [Section 7.1.3](#) for details on PID matching.

In all other cases, property instances MAY be matched at the discretion of the synchronization engine.

7.1.3. PID Matching

Two PID values for which the first fields are equivalent represent the same local value.

Two PID values representing the same local value and for which the second fields point to CLIENTPIDMAP properties whose second field URIs are equivalent (as specified in [\[RFC3986\]](#), [Section 6](#)) also represent the same global value.

PID parameters for which at least one pair of their values represent the same global value MUST be matched.

In all other cases, PID parameters MAY be matched at the discretion of the synchronization engine.

For example, PID value "5.1", in the first vCard below, and PID value "6.2", in the second vCard below, represent the same global value.

```
BEGIN:VCARD
VERSION:4.0
EMAIL;PID=4.2,5.1;jdoe@example.com
CLIENTPIDMAP:1;urn:uuid:3eef374e-7179-4196-a914-27358c3e6527
CLIENTPIDMAP:2;urn:uuid:42bcd5a7-1699-4514-87b4-056edf68e9cc
END:VCARD
```

```
BEGIN:VCARD
VERSION:4.0
EMAIL;PID=5.1,6.2;john@example.com
CLIENTPIDMAP:1;urn:uuid:0c75c629-6a8d-4d5e-a07f-1bb35846854d
CLIENTPIDMAP:2;urn:uuid:3eef374e-7179-4196-a914-27358c3e6527
END:VCARD
```


[7.2.](#) Example

[7.2.1.](#) Creation

The following simple vCard is first created on a given device.

```
BEGIN:VCARD
VERSION:4.0
UID:urn:uuid:4fbe8971-0bc3-424c-9c26-36c3e1eff6b1
FN:J. Doe
EMAIL;PID=1.1:jdoe@example.com
CLIENTPIDMAP:1;urn:uuid:53e374d9-337e-4727-8803-a1e9c14e0556
END:VCARD
```

This new vCard is assigned the UID "urn:uuid:4fbe8971-0bc3-424c-9c26-36c3e1eff6b1" by the creating device. The EMAIL property is assigned PID 1, and this PID is given global context by associating it with "urn:uuid:53e374d9-337e-4727-8803-a1e9c14e0556", which represents the creating device. The FN property has no PID because it is forbidden by its maximum cardinality of 1.

[7.2.2.](#) Initial Sharing

This vCard is shared with a second device. Upon inspecting the UID property, the second device understands that this is a new vCard (i.e. unmatched) and thus the synchronization results in a simple copy.

[7.2.3.](#) Adding and Sharing a Property

A new phone number is created on the first device, then the vCard is shared with the second device. This is what the second device receives:

```
BEGIN:VCARD
VERSION:4.0
UID:urn:uuid:4fbe8971-0bc3-424c-9c26-36c3e1eff6b1
FN:J. Doe
EMAIL;PID=1.1:jdoe@example.com
TEL;PID=1.1:tel:+1-555-555-5555
CLIENTPIDMAP:1;urn:uuid:53e374d9-337e-4727-8803-a1e9c14e0556
END:VCARD
```

Upon inspecting the UID property, the second device matches the vCard it received to the vCard that it already has stored. It then starts comparing the properties of the two vCards in same-named pairs.

The FN properties are matched automatically because their maximum cardinality is 1. Since the property value is the same, no update takes place.

The EMAIL properties are matched because the PID parameters have the same global value. Since the property value is the same, no update takes place.

The TEL property in the new vCard is not matched to any in the stored vCard because no property in the stored vCard has the same name. Therefore, this property is copied from the new vCard to the stored vCard.

The CLIENTPIDMAP property is handled separately by the synchronization engine. It ensures that it is consistent with the stored one. If it was not, the results would be up to the synchronization engine, and thus undefined by this document.

[7.2.4.](#) Simultaneous Editing

A new email address and a new phone number are added to the vCard on each of the two devices, and then a new synchronization event happens. Here are the vCards that are communicated to each other:

```
BEGIN:VCARD
VERSION:4.0
UID:urn:uuid:4fbe8971-0bc3-424c-9c26-36c3e1eff6b1
FN:J. Doe
EMAIL;PID=1.1:jdoe@example.com
EMAIL;PID=2.1:boss@example.com
TEL;PID=1.1:tel:+1-555-555-5555
TEL;PID=2.1:tel:+1-666-666-6666
CLIENTPIDMAP:1;urn:uuid:53e374d9-337e-4727-8803-a1e9c14e0556
END:VCARD
```

```
BEGIN:VCARD
VERSION:4.0
UID:urn:uuid:4fbe8971-0bc3-424c-9c26-36c3e1eff6b1
FN:J. Doe
EMAIL;PID=1.1:jdoe@example.com
EMAIL;PID=2.2:ceo@example.com
TEL;PID=1.1:tel:+1-555-555-5555
TEL;PID=2.2:tel:+1-666-666-6666
CLIENTPIDMAP:1;urn:uuid:53e374d9-337e-4727-8803-a1e9c14e0556
CLIENTPIDMAP:2;urn:uuid:1f762d2b-03c4-4a83-9a03-75ff658a6eee
END:VCARD
```

On the first device, the same PID source identifier (1) is reused for

the new EMAIL and TEL properties. On the second device, a new source identifier (2) is generated, and a corresponding CLIENTPIDMAP property is created. It contains the second device's identifier, "urn:uuid:1f762d2b-03c4-4a83-9a03-75ff658a6eee".

The new EMAIL properties are unmatched on both sides since the PID global value is new in both cases. The sync thus results in a copy on both sides.

Although the situation appears to be the same for the TEL properties, in this case the synchronization engine is particularly smart and matches the two new TEL properties even though their PID global values are different. Note that in this case, the rules of [Section 7.1.2](#) state that two properties may be matched at the discretion of the synchronization engine. Therefore, the two properties are merged.

All this results in the following vCard which is stored on both devices:

```
BEGIN:VCARD
VERSION:4.0
UID:urn:uuid:4fbe8971-0bc3-424c-9c26-36c3e1eff6b1
FN:J. Doe
EMAIL;PID=1.1:jdoe@example.com
EMAIL;PID=2.1:boss@example.com
EMAIL;PID=2.2:ceo@example.com
TEL;PID=1.1:tel:+1-555-555-5555
TEL;PID=2.1,2.2:tel:+1-666-666-6666
CLIENTPIDMAP:1;urn:uuid:53e374d9-337e-4727-8803-a1e9c14e0556
CLIENTPIDMAP:2;urn:uuid:1f762d2b-03c4-4a83-9a03-75ff658a6eee
END:VCARD
```

[7.2.5](#). Global Context Simplification

The two devices finish their synchronization procedure by simplifying their global contexts. Since they haven't talked to any other device, the following vCard is for all purposes equivalent to the above. It is also shorter.


```
BEGIN:VCARD
VERSION:4.0
UID:urn:uuid:4fbc8971-0bc3-424c-9c26-36c3e1eff6b1
FN:J. Doe
EMAIL;PID=1.1:jdoe@example.com
EMAIL;PID=2.1:boss@example.com
EMAIL;PID=3.1:ceo@example.com
TEL;PID=1.1:tel:+1-555-555-5555
TEL;PID=2.1:tel:+1-666-666-6666
CLIENTPIDMAP:1;urn:uuid:53e374d9-337e-4727-8803-a1e9c14e0556
END:VCARD
```

The details of global context simplification are unspecified by this document. They are left up to the synchronization engine. This example is merely intended to illustrate the possibility, which investigating would be, in the authors' opinion, worthwhile.

8. Example: Authors' vCards

```
BEGIN:VCARD
VERSION:4.0
FN:Simon Perreault
N:Perreault;Simon;;ing. jr,M.Sc.
BDAY:--0203
ANNIVERSARY:20090808T1430-0500
SEX:1
LANG;PREF=1:fr
LANG;PREF=2:en
ORG;TYPE=work:Viagenie
ADR;TYPE=work;;Suite 625;2600 boul. Laurier;
  Quebec;QC;G1V 4W1;Canada
TEL;TYPE=work,voice;PREF=1:tel:+1-418-656-9254;ext=102
TEL;TYPE=work,cell,voice,video,text:tel:+1-418-262-6501
TEL;TYPE=work,fax:tel:+1-418-656-9257
EMAIL;TYPE=work:simon.perreault@viagenie.ca
GEO;TYPE=work:geo:46.772673,-71.282945
KEY;TYPE=work;VALUE=uri:
  http://www.viagenie.ca/simon.perreault/simon.asc
TZ:-0500
CLASS:PUBLIC
END:VCARD
```



```
BEGIN:VCARD
VERSION:4.0
FN:Pete Resnick
N:Resnick;Pete;;
SEX:1
ORG;TYPE=work:QUALCOMM Incorporated
ADR;TYPE=work;;;5775 Morehouse Drive;San Diego;CA;92121-1714;US
TEL;TYPE=work,voice:tel:+1-858-651-4478
EMAIL;TYPE=work:presnick@qualcomm.com
URL;TYPE=work:http://www.qualcomm.com/~presnick/
END:VCARD
```

9. Security Considerations

- o Internet mail is often used to transport vCards and is subject to many well known security attacks, including monitoring, replay, and forgery. Care should be taken by any directory service in allowing information to leave the scope of the service itself, where any access controls can no longer be guaranteed. Applications should also take care to display directory data in a "safe" environment (e.g., PostScript-valued types).
- o vCards can carry cryptographic keys or certificates, as described in [Section 6.8.2](#).
- o [Section 6.8.1](#) specifies a desired security classification policy for a particular vCard. That policy is not enforced in any way.
- o The vCard objects have no inherent authentication or privacy, but can easily be carried by any security mechanism that transfers MIME objects with authentication or privacy. In cases where the threat of "spoofed" vCard information is a concern, the vCard SHOULD BE transported using one of these secure mechanisms.
- o The information in a vCard may become out of date. In cases where the vitality of data is important to an originator of a vCard, the "URL" type described in [Section 6.7.9](#) SHOULD BE specified. In addition, the "REV" type described in section [Section 6.7.4](#) can be specified to indicate the last time that the vCard data was updated.

10. IANA Considerations

[10.1](#). MIME Type Registration

To: ietf-types@iana.org

Subject: Registration of media type text/vcard

Type name: text

Subtype name: vcard

Required parameters: none

Optional parameters: charset

Encoding considerations: The "charset" MIME parameter is interpreted as defined in [\[RFC2046\]](#), [section 4.1.2](#). If it is omitted, the default encoding is UTF-8 as defined in [\[RFC3629\]](#).

Security considerations: See [Section 9](#).

Interoperability considerations: The text/vcard media type is intended to identify vCard data of any version. There are older specifications of vCard [\[RFC2426\]](#)[\[oldreference_VCARD\]](#) still in common use. While these formats are similar, they are not strictly compatible. In general, it is necessary to inspect the value of the VERSION property (see [Section 6.7.10](#)) for identifying the standard to which a given vCard object conforms.

In addition, the following media types are known to have been used to refer to vCard data. They should be considered deprecated in favor of text/vcard.

- * text/directory
- * text/directory; type=vcard
- * text/x-vcard

Published specification: [draft-ietf-vcarddav-vcardrev-09](#)

Applications that use this media type: They are numerous, diverse, and include mail user agents, instant messaging clients, address book applications, directory servers, customer relationship management software, etc.

Additional information:

Magic number(s):

File extension(s): .vcf

Macintosh file type code(s):

Person & email address to contact for further information: Simon
Perreault <simon.perreault@viagenie.ca>

Intended usage: COMMON

Restrictions on usage: none

Author: Simon Perreault and Pete Resnick

Change controller: IETF

10.2. Registering New vCard Elements

This section defines the process for registering new or modified vCard elements (i.e. properties, parameters, value data types, and values) with IANA.

10.2.1. Registration Procedure

The IETF will create a mailing list, vcards@ietf.org [1], which can be used for public discussion of vCard element proposals prior to registration. Use of the mailing list is strongly encouraged. The IESG will appoint a designated expert who will monitor the vcards@ietf.org [1] mailing list and review registrations.

Registration of new vCard elements MUST be reviewed by the designated expert and published in an RFC. A Standard Tracks RFC is REQUIRED for the registration of new value data types that modify existing properties. A Standard Tracks RFC is also REQUIRED for registration of vCard elements that modify vCard elements previously documented in a Standard Tracks RFC.

The registration procedure begins when a completed registration template, defined in the sections below, is sent to vcards@ietf.org [1] and iana@iana.org [2]. The designated expert is expected to tell IANA and the submitter of the registration within two weeks whether the registration is approved, approved with minor changes, or rejected with cause. When a registration is rejected with cause, it can be re-submitted if the concerns listed in the cause are addressed. Decisions made by the designated expert can be appealed to the IESG Applications Area Director, then to the IESG. They follow the normal appeals procedure for IESG decisions.

10.2.2. Vendor Namespace

The vendor namespace is used for vCard elements associated with commercially available products. "Vendor" or "producer" are construed as equivalent and very broadly in this context.

A registration may be placed in the vendor namespace by anyone who needs to interchange files associated with the particular product. However, the registration formally belongs to the vendor or organization handling the vCard elements in the namespace being registered. Changes to the specification will be made at their request, as discussed in subsequent sections.

vCard elements belonging to the vendor namespace will be distinguished by the "VND-" prefix. This is followed by an IANA-registered Private Enterprise Number (PEN), a dash, and a vCard element designation of the vendor's choosing (e.g., "VND-123456-MUDPIE").

While public exposure and review of vCard elements to be registered in the vendor namespace is not required, using the vcards@ietf.org [1] mailing list for review is strongly encouraged to improve the quality of those specifications. Registrations in the vendor namespace may be submitted directly to the IANA.

10.2.3. Registration Template for Properties

A property is defined by completing the following template.

Namespace: Empty for the global namespace, "VND-NNNN-" for a vendor-specific property (where NNNN is replaced by the vendor's PEN).

Property name: The name of the property.

Purpose: The purpose of the property. Give a short but clear description.

Value type: Any of the valid value types for the property value needs to be specified. The default value type also needs to be specified.

Property parameters: Any of the valid property parameters for the property MUST be specified.

Description: Any special notes about the property, how it is to be used, etc.

Format definition: The ABNF for the property definition needs to be specified.

Example(s): One or more examples of instances of the property needs to be specified.

10.2.4. Registration Template for Parameters

A parameter is defined by completing the following template.

Parameter name: The name of the parameter.

Purpose: The purpose of the parameter. Give a short but clear description.

Description: Any special notes about the parameter, how it is to be used, etc.

Format definition: The ABNF for the parameter definition needs to be specified.

Example(s): One or more examples of instances of the parameter needs to be specified.

10.2.5. Registration Template for Value Data Types

A value data type is defined by completing the following template.

Value name: The name of the value type.

Purpose: The purpose of the value type. Give a short but clear description.

Description: Any special notes about the value type, how it is to be used, etc.

Format definition: The ABNF for the value type definition needs to be specified.

Example(s): One or more examples of instances of the value type needs to be specified.

10.2.6. Registration Template for Values

A value is defined by completing the following template.

Value: The value literal.

Purpose: The purpose of the value. Give a short but clear description.

Conformance: The vCard properties and/or parameters that can take this value needs to be specified.

Example(s): One or more examples of instances of the value needs to be specified.

The following is a fictitious example of a registration of a vCard value:

Value: TOP-SECRET

Purpose: This value is used to specify the access classification of top-secret vCards.

Conformance: This value can be used with the "CLASS" property.

Example(s): The following is an example of this value used with the "CLASS" property:

CLASS:TOP-SECRET

10.3. Initial vCard Elements Registries

The IANA is requested to create and maintain the following registries for vCard elements with pointers to appropriate reference documents.

10.3.1. Properties Registry

The following table is to be used to initialize the properties registry.

| Namespace | Property | Status | Reference |
|-----------|--------------|---------|---|
| | SOURCE | Current | RFCXXXX, Section 6.1.3 |
| | NAME | Current | RFCXXXX, Section 6.1.4 |
| | KIND | Current | RFCXXXX, Section 6.1.5 |
| | FN | Current | RFCXXXX, Section 6.2.1 |
| | N | Current | RFCXXXX, Section 6.2.2 |
| | NICKNAME | Current | RFCXXXX, Section 6.2.3 |
| | PHOTO | Current | RFCXXXX, Section 6.2.4 |
| | BDAY | Current | RFCXXXX, Section 6.2.5 |
| | DDAY | Current | RFCXXXX, Section 6.2.6 |
| | BIRTH | Current | RFCXXXX, Section 6.2.7 |
| | DEATH | Current | RFCXXXX, Section 6.2.8 |
| | ANNIVERSARY | Current | RFCXXXX, Section 6.2.9 |
| | SEX | Current | RFCXXXX, Section 6.2.10 |
| | ADR | Current | RFCXXXX, Section 6.3.1 |
| | LABEL | Current | RFCXXXX, Section 6.3.2 |
| | TEL | Current | RFCXXXX, Section 6.4.1 |
| | EMAIL | Current | RFCXXXX, Section 6.4.2 |
| | IMPP | Current | RFCXXXX, Section 6.4.3 |
| | LANG | Current | RFCXXXX, Section 6.4.4 |
| | TZ | Current | RFCXXXX, Section 6.5.1 |
| | GEO | Current | RFCXXXX, Section 6.5.2 |
| | TITLE | Current | RFCXXXX, Section 6.6.1 |
| | ROLE | Current | RFCXXXX, Section 6.6.2 |
| | LOGO | Current | RFCXXXX, Section 6.6.3 |
| | ORG | Current | RFCXXXX, Section 6.6.4 |
| | MEMBER | Current | RFCXXXX, Section 6.6.5 |
| | RELATED | Current | RFCXXXX, Section 6.6.6 |
| | CATEGORIES | Current | RFCXXXX, Section 6.7.1 |
| | NOTE | Current | RFCXXXX, Section 6.7.2 |
| | PRODID | Current | RFCXXXX, Section 6.7.3 |
| | REV | Current | RFCXXXX, Section 6.7.4 |
| | SORT-STRING | Current | RFCXXXX, Section 6.7.5 |
| | SOUND | Current | RFCXXXX, Section 6.7.6 |
| | UID | Current | RFCXXXX, Section 6.7.7 |
| | CLIENTPIDMAP | Current | RFCXXXX, Section 6.7.8 |
| | URL | Current | RFCXXXX, Section 6.7.9 |
| | VERSION | Current | RFCXXXX, Section 6.7.10 |
| | CLASS | Current | RFCXXXX, Section 6.8.1 |
| | KEY | Current | RFCXXXX, Section 6.8.2 |
| | FBURL | Current | RFCXXXX, Section 6.9.1 |
| | CALADRURI | Current | RFCXXXX, Section 6.9.2 |
| | CALURI | Current | RFCXXXX, Section 6.9.3 |

10.3.2. Parameters Registry

The following table is to be used to initialize the parameters registry.

| Parameter | Status | Reference |
|-----------|---------|--|
| LANGUAGE | Current | RFCXXXX, Section 5.1 |
| ENCODING | Current | RFCXXXX, Section 5.2 |
| VALUE | Current | RFCXXXX, Section 5.3 |
| PREF | Current | RFCXXXX, Section 5.4 |
| PID | Current | RFCXXXX, Section 5.5 |
| TYPE | Current | RFCXXXX, Section 5.6 |
| GEO | Current | RFCXXXX, Section 6.3.1 |
| TZ | Current | RFCXXXX, Section 6.3.1 |

10.3.3. Value Data Types Registry

The following table is to be used to initialize the parameters registry.

| Value Data Type | Status | Reference |
|------------------|---------|--|
| BINARY | Current | RFCXXXX, Section 4.7 |
| BOOLEAN | Current | RFCXXXX, Section 4.4 |
| DATE | Current | RFCXXXX, Section 4.3.1 |
| TIME | Current | RFCXXXX, Section 4.3.2 |
| DATE-TIME | Current | RFCXXXX, Section 4.3.3 |
| DATE-AND-OR-TIME | Current | RFCXXXX, Section 4.3.4 |
| TIMESTAMP | Current | RFCXXXX, Section 4.3.5 |
| FLOAT | Current | RFCXXXX, Section 4.6 |
| INTEGER | Current | RFCXXXX, Section 4.5 |
| TEXT | Current | RFCXXXX, Section 4.1 |
| URI | Current | RFCXXXX, Section 4.2 |
| LANGUAGE-TAG | Current | RFCXXXX, Section 4.8 |

10.3.4. Values Registries

Separate tables will be used for property and parameter values.

The following table is to be used to initialize the property values registry.

| Property | Value | Status | Reference |
|----------|--------------|---------|--|
| BEGIN | VCARD | Current | RFCXXXX, Section 6.1.1 |
| END | VCARD | Current | RFCXXXX, Section 6.1.2 |
| KIND | individual | Current | RFCXXXX, Section 6.1.5 |
| KIND | group | Current | RFCXXXX, Section 6.1.5 |
| KIND | org | Current | RFCXXXX, Section 6.1.5 |
| KIND | location | Current | RFCXXXX, Section 6.1.5 |
| KIND | thing | Current | RFCXXXX, Section 6.1.5 |
| CLASS | PUBLIC | Current | RFCXXXX, Section 6.8.1 |
| CLASS | PRIVATE | Current | RFCXXXX, Section 6.8.1 |
| CLASS | CONFIDENTIAL | Current | RFCXXXX, Section 6.8.1 |

The following table is to be used to initialize the parameter values registry.

| Property | Parameter | Value | Status | Reference |
|----------|-----------|------------|---------|--|
| TEL | TYPE | text | Current | RFCXXXX, Section 6.4.1 |
| TEL | TYPE | voice | Current | RFCXXXX, Section 6.4.1 |
| TEL | TYPE | fax | Current | RFCXXXX, Section 6.4.1 |
| TEL | TYPE | cell | Current | RFCXXXX, Section 6.4.1 |
| TEL | TYPE | video | Current | RFCXXXX, Section 6.4.1 |
| TEL | TYPE | pager | Current | RFCXXXX, Section 6.4.1 |
| RELATED | TYPE | parent | Current | RFCXXXX, Section 6.6.6 |
| RELATED | TYPE | child | Current | RFCXXXX, Section 6.6.6 |
| RELATED | TYPE | sibling | Current | RFCXXXX, Section 6.6.6 |
| RELATED | TYPE | spouse | Current | RFCXXXX, Section 6.6.6 |
| RELATED | TYPE | family | Current | RFCXXXX, Section 6.6.6 |
| RELATED | TYPE | friend | Current | RFCXXXX, Section 6.6.6 |
| RELATED | TYPE | supervisor | Current | RFCXXXX, Section 6.6.6 |

| | | | | | |
|---------------------------------|------|------------|---------|-------------------------------|--|
| RELATED | TYPE | supervisee | Current | RFCXXXX, | |
| | | | | Section 6.6.6 | |
| RELATED | TYPE | assistant | Current | RFCXXXX, | |
| | | | | Section 6.6.6 | |
| RELATED | TYPE | colleague | Current | RFCXXXX, | |
| | | | | Section 6.6.6 | |
| RELATED | TYPE | agent | Current | RFCXXXX, | |
| | | | | Section 6.6.6 | |
| RELATED | TYPE | emergency | Current | RFCXXXX, | |
| | | | | Section 6.6.6 | |
| +-----+-----+-----+-----+-----+ | | | | | |

[11.](#) Acknowledgements

The authors would like to thank Tim Howes, Mark Smith, and Frank Dawson, the original authors of [[RFC2425](#)] and [[RFC2426](#)], as well as the following individuals who have participated in the drafting, review and discussion of this memo:

Aki Niemi, Andy Mabbett, Alexander Mayrhofer, Alexey Melnikov, Anil Srivastava, Barry Leiba, Ben Fortuna, Bernard Desruisseaux, Bernie Hoeneisen, Caleb Richarson, Chris Bryant, Chris Newman, Cyrus Daboo, Dan Brickley, Dan Mosedale, Dany Cauchie, Darryl Champagne, Dave Thewlis, Helge Hess, Jari Urpalainen, Javier Godoy, Jean-Luc Schellens, Joe Hildebrand, Jose Luis Gayosso, Joseph Smarr, Julian Reschke, Kepeng Li, Kurt Zeilenga. Lisa Dusseault, Marc Blanchet, Mark Paterson, Markus Lorenz, Mike Douglass, Peter K. Sheerin, Peter Mogensen, Peter St-Andre, Renato Iannella, Sly Gryphon, Stephane Bortzmeyer, and Tantek Celik.

[12.](#) References

[12.1.](#) Normative References

| | |
|-------------------|--|
| [CCITT.E163.1988] | International Telephone and Telegraph Consultative Committee, "Numbering Plan for the International Telephone Service", CCITT Recommendation E.163, 1988. |
| [CCITT.X121.1988] | International Telephone and Telegraph Consultative Committee, "International Numbering Plan for the Public Data Networks", CCITT Recommendation X.121, 1988. |
| [CCITT.X520.1988] | International International Telephone and Telegraph Consultative Committee, "Information Technology - Open Systems |

Interconnection - The Directory: Selected Attribute Types", CCITT Recommendation X.520, November 1988.

[CCITT.X521.1988] International International Telephone and Telegraph Consultative Committee, "Information Technology - Open Systems Interconnection - The Directory: Selected Object Classes", CCITT Recommendation X.521, November 1988.

[I-D.ietf-geopriv-geo-uri] Mayrhofer, A. and C. Spanring, "A Uniform Resource Identifier for Geographic Locations ('geo' URI)", [draft-ietf-geopriv-geo-uri-02](#) (work in progress), September 2009.

[ISO.5218.2004] International Organization for Standardization, "Information Technology - Codes for the representation of human sexes", ISO Standard 5218, December 2004.

[ISO.8601.2000] International Organization for Standardization, "Data elements and interchange formats - Information interchange - Representation of dates and times", ISO Standard 8601, December 2000.

[ISO.8601.2004] International Organization for Standardization, "Data elements and interchange formats - Information interchange - Representation of dates and times", ISO Standard 8601, December 2004.

[RFC2046] Freed, N. and N. Borenstein, "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types", [RFC 2046](#), November 1996.

[RFC2047] Moore, K., "MIME (Multipurpose Internet Mail Extensions) Part Three: Message Header Extensions for Non-ASCII Text", [RFC 2047](#), November 1996.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.

- [RFC2425] Howes, T., Smith, M., and F. Dawson, "A MIME Content-Type for Directory Information", [RFC 2425](#), September 1998.
- [RFC2426] Dawson, F. and T. Howes, "vCard MIME Directory Profile", [RFC 2426](#), September 1998.
- [RFC2739] Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP", [RFC 2739](#), January 2000.
- [RFC3629] Yergeau, F., "UTF-8, a transformation format of ISO 10646", STD 63, [RFC 3629](#), November 2003.
- [RFC3966] Schulzrinne, H., "The tel URI for Telephone Numbers", [RFC 3966](#), December 2004.
- [RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, [RFC 3986](#), January 2005.
- [RFC4122] Leach, P., Mealling, M., and R. Salz, "A Universally Unique Identifier (UUID) URN Namespace", [RFC 4122](#), July 2005.
- [RFC4288] Freed, N. and J. Klensin, "Media Type Specifications and Registration Procedures", [BCP 13](#), [RFC 4288](#), December 2005.
- [RFC4770] Jennings, C. and J. Reschke, Ed., "vCard Extensions for Instant Messaging (IM)", [RFC 4770](#), January 2007.
- [RFC5234] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, [RFC 5234](#), January 2008.
- [RFC5322] Resnick, P., Ed., "Internet Message Format", [RFC 5322](#), October 2008.
- [RFC5646] Phillips, A. and M. Davis, "Tags for Identifying Languages", [BCP 47](#), [RFC 5646](#), September 2009.

[oldreference_VCARD] Internet Mail Consortium, "vCard - The Electronic Business Card Version 2.1", September September.

12.2. Informative References

[ISO9070] The International Organization for Standardization, "ISO 9070, Information Processing - SGML support facilities - Registration Procedures for Public Text Owner Identifiers", April 1991.

[RFC3406] Daigle, L., van Gulik, D., Iannella, R., and P. Faltstrom, "Uniform Resource Names (URN) Namespace Definition Mechanisms", [BCP 66](#), [RFC 3406](#), October 2002.

[TZ-DB] Olson, A., "Time zone code and data", <<ftp://elsie.nci.nih.gov/pub/>>.

URIs

- [1] <mailto:vcard@ietf.org>
- [2] <mailto:iana@iana.org>

Appendix A. Differences from RFCs 2425 and 2426

This appendix contains a list of changes that have been made in the vCard specification from RFCs 2425 and 2426.

A.1. New Structure

- o [[RFC2425](#)] and [[RFC2426](#)] have been merged. Initially [[RFC2425](#)] was intended to be extensible but only 2426 ever extended it.
- o vCard is now not only a MIME type but a stand-alone format.
- o A proper MIME type registration form has been included.
- o UTF-8 is now the default character set.
- o New vCard elements can be registered from IANA.
- o Changed "manager" to "supervisor".
- o Added "family", "supervisee", and "colleague" RELATED types.

[A.2.](#) Removed Features

- o The group construct (i.e. GROUP.PROPERTY:...) no longer exists.
- o The CONTEXT and CHARSET parameters are no more.
- o The MAILER property is no more.
- o The "intl", "dom", "postal", and "parcel" TYPE parameter values for the ADR and LABEL properties have been removed.
- o Inline vCards (such as the value of the AGENT property) are no longer supported.
- o In the N property, additional names are now subsumed into the given names list.

[A.3.](#) New Properties and Parameters

- o The KIND, SEX, LANG, DDAY, BIRTH, and DEATH properties have been added.
- o [[RFC2739](#)], which defines the FBURL, CALADRURI, CAPURI, and CALURI properties, has been merged in.
- o [[RFC4770](#)], which defines the IMPP property, has been merged in.
- o The "work", "home", and "uri" TYPE parameter values for the EMAIL property have been added.
- o The "pref" value of the TYPE parameter is now a parameter of its own, with a positive integer value indicating the level of preferredness.

[A.4.](#) Other Changes

- o Synchronization is addressed in [Section 7](#).
- o The N property is no longer mandatory.
- o The value of TEL is now a URI.
- o The AGENT property was replaced with a type of RELATED.
- o Date and time values now only support the basic format. Truncation is now supported.

Appendix B. Change Log (to be removed by RFC Editor prior to publication)

B.1. Changes in -09

- o Removed special meaning for groups. Removed the "work" and "home" groups. Removed the group registry. Re-introduced the "work" and "home" TYPE parameter values. Applied the TYPE parameter to properties which supported the "work" and "home" groups.
- o Vendor namespace now uses private enterprise number in prefix.
- o Added "thing" value for KIND property.

B.2. Changes in -08

- o Allow 1985 (year only) in date ABNF.
- o Fixed missing country in ADR example.
- o Added the DATE-AND-OR-TIME value.
- o Made BDAY and DDAY use DATE-AND-OR-TIME.
- o Prefixed "param" and "value" production rules specific to properties with the property name.
- o Replaced the GENDER property with the SEX property.
- o Added the ANNIVERSARY property.
- o Added the "friend" and "spouse" types of RELATED.
- o TZ property now has text / uri value.
- o Refined the definitions of TITLE and ROLE.

B.3. Changes in -07

- o PREF is now bounded. 100 is the maximum value.
- o Added the "emergency" RELATED type.
- o Made GEO a URI.
- o Added GEO and TZ parameters to ADR.

- o Changed wording of "default" use of SOUND property.
- o Completely reworked the date, time, and date-time grammars.
- o Added the timestamp value type.
- o REV now has the timestamp value type.
- o Rewrote ABNF.
- o ORG can now have a single level.

B.4. Changes in -06

- o Corrected omission of resetability to text value for RELATED.
- o Let KEY value type be reset to a URI value.
- o ABNF fixes.
- o Made gender values extensible.
- o Gave the PREF parameter a positive integer value.
- o Removed usage of the undefined "word" ABNF production rule.
- o Defined property cardinalities.
- o Defined properties allowable in WORK and HOME groups.
- o Simplified the LANG property to use the vCard preference mechanism.
- o Created the "language-tag" value type.
- o Added PID to ABNF of SOURCE allowed parameters.
- o Clarified escaping rules.
- o Changed ABNF definition of non-standard X- properties.
- o Removed TYPE parameter from EMAIL properties in examples.
- o Created the CLIENTPIDMAP property.
- o Changed PID value to a pair of small integers.

- o Completely reworked synchronization mechanisms.
- o Created brand new synchronization example.

B.5. Changes in -05

- o Added multi PID value proposal.

B.6. Changes in -04

- o Added "location" value for KIND property.
- o Some fixes to ABNF.
- o Moved "pref" from being a TYPE value to a parameter in its own right.
- o Removed the "work" and "home" TYPE values.
- o Reintroduced the group construct.
- o Assigned meaning to WORK and HOME groups.
- o Restricted the TEL TYPE parameter value set.
- o In N property, removed additional names, and replaced with multiple given names.
- o Removed TYPE parameter from EMAIL and IMPP properties.
- o Replaced AGENT with a type of RELATED.
- o Use example.org domain in URL example.
- o Created initial IANA table of values.
- o Defined meaning of PUBLIC, PRIVATE, CONFIDENTIAL.

B.7. Changes in -03

- o Various changes to the synchronization mechanisms.
- o Allowed truncated format for dated. See issue #236.

B.8. Changes in -02

- o Removed useless text in IMPP description.
- o Added CalDAV-SCHED example to CALADRURI.
- o Removed CAPURI property.
- o Dashes in dates and colons in times are now mandatory.
- o Allow for dates such as 2008 and 2008-05 and times such as 07 and 07:54.
- o Removed inline vCard value.
- o Made AGENT only accept URI references instead of inline vCards.
- o Added the MEMBER property.
- o Renamed the UID parameter to PID.
- o Changed the value type of the PID parameter to "a small integer."
- o Changed the presence of UID and PID when synchronization is to be used from MUST to SHOULD.
- o Added the RELATED ([Section 6.6.6](#)) property.
- o Fixed many ABNF typos (issue #252).
- o Changed formatting of ABNF comments to make them easier to read (issue #226).

B.9. Changes in -01

- o Merged [[RFC2739](#)] in.
- o Converted all foobar.com, abc.com, etc. to example.com.
- o Fixed bugs in ABNF.
- o Made explicit that coordinates in the GEO property are expressed in the WGS 84 reference system.
- o Clarified folding issues with multi-byte characters.
- o Made the value of TEL a URI.

- o Added the UID parameter.
- o Made the UID property's value type a URI.
- o Added [Section 7](#).
- o Created IANA process for registering new parameters, value types, and properties.
- o Created the initial IANA registries.
- o Created vendor namespace based on text from [RFC 4288](#).

[B.10](#). Changes in -00

- o Name change because draft has been accepted as WG item. Otherwise, same as [draft-resnick-vcarddav-vcardrev-01](#).
- o Removed reference to [RFC 2234](#).
- o Fixed errata from http://www.rfc-editor.org/errata_search.php/doc/html/rfc2426.
- o Removed passage referring to [RFC 2425](#) profiles.
- o Renamed [Section 6.4](#) from "Telecommunications Addressing Properties" to "Communications Properties."
- o Added [Appendix A](#) and [Appendix B](#).
- o Added reference to [[RFC4770](#)].
- o Removed the group construct.
- o Made the N property no longer mandatory.
- o Added the KIND property.
- o Clarified meaning of TYPE parameter value for PHOTO, LOGO, KEY, and SOUND.
- o Removed the CONTEXT parameter.
- o Removed the MAILER property.
- o Made reference to [[ISO9070](#)] informative.

- o Removed "intl", "dom", "postal", and "parcel" TYPE parameter values for the ADR and LABEL properties.
- o Clarified meaning of "extended address" ADR field.
- o Mentioned [[RFC3406](#)] as another method of generating PROPID values.
- o Updated obsolete references.
- o Allowed BDAY and DDAY value types to be text values for fuzzy dates.
- o Removed the CHARSET property. Now the encoding is always UTF-8, except when overridden by the Content-Type (which is considered a compatibility feature).

Authors' Addresses

Simon Perreault
Viagenie
2600 boul. Laurier, suite 625
Quebec, QC G1V 4W1
Canada

Phone: +1 418 656 9254
EMail: simon.perreault@viagenie.ca
URI: <http://www.viagenie.ca>

Peter W. Resnick
QUALCOMM Incorporated
5775 Morehouse Drive
San Diego, CA 92121-1714
US

Phone: +1 858 651 4478
EMail: presnick@qualcomm.com
URI: <http://www.qualcomm.com/~presnick/>

