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Parameter Value Encoding in iCalendar and vCard
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Abstract

This specification defines an extension to iCalendar and vCard data formats to allow parameter values to include certain characters forbidden by the existing specifications.

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1. Introduction

The iCalendar [[RFC5545](#)] specification defines a standard way to describe calendar data. The vCard [[RFC6350](#)] specification defines a standard way to describe contact data. Both of these use a similar textual data format. Each iCalendar and vCard data object can include "properties" which have "parameters" and a "value". The value of a "parameter" is typically a token or URI value, but a "generic" text value is also allowed. However, the syntax rules for both iCalendar and vCard prevent the use of a double-quote character or control characters in such values.

As more and more extensions are being developed for these data formats, there is a need to allow at least double-quotes, line feeds and tabs to be included in parameter values. The \-escaping mechanism used for property text values is not defined for use with parameter values and cannot be easily used in a backwards compatible manner. Thus this specification defines a new character escaping mechanism that is compatible with existing parsers and chosen to minimise any impact on existing data.

2. Conventions Used in This Document

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

3. Parameter Value Encoding Scheme

This specification defines the ^ character (U+005E - Circumflex Accent) as an escape character in parameter values whose value type is defined as "text". The ^-escaping mechanism can be used when the value is either unquoted or quoted (i.e., whether or not the value is surrounded by double-quotes). When used, the combination of ^ plus one other character is interpreted as a single character as per the table below:

+-----+-----+	
Escape Sequence	Character
+-----+-----+	
^' (U+005E, U+0027)	U+0022 (Quotation Mark)
^n (U+005E, U+006E)	U+000A (Line Feed)
^t (U+005E, U+0074)	U+0009 (Character Tabulation)
^^ (U+005E, U+005E)	U+005E (Circumflex Accent)
+-----+-----+	

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When generating iCalendar or vCard parameter values, the characters in the second column above MUST be escaped using the sequence from the first column. When parsing iCalendar or vCard parameter values, the two character sequence from the first column MUST be replaced by the single character from the second column. If a ^ (U+005E) character is followed by any other character than the ones above, parsers SHOULD leave the ^ character in place.

In addition to the escaping procedure outlined above, text parameter values MUST also have line break character sequences canonicalized into a single line feed (U+000A) character when the parameter value is generated. Specifically, any single carriage return character (U+000D) or the two character combination of carriage return followed by line feed (U+000D, U+000A) MUST be mapped to ^n in the generated parameter value. When parsing a parameter value with ^n, clients can replace that with the appropriate line break character sequence for the system they are running on.

3.1. iCalendar Example

An "ATTENDEE" property with a "CN" parameter whose value includes two double-quote characters. The parameter value is not quoted as there are no characters in the value that would trigger quoting as required by iCalendar.

```
ATTENDEE;CN=George Herman ^'Babe^' Ruth:mailto:babe@example.com
```

The unescaped parameter value is

```
George Herman "Babe" Ruth
```

3.2. vCard Examples

A "GEO" property with a "X-ADDRESS" parameter whose value includes several line feed characters. The parameter value is also quoted since it contains a comma which triggers quoting as required by vCard.

```
GEO;X-ADDRESS="Pittsburgh Pirates^n115 Federal  
St^nPittsburgh, PA 15212":geo:40.446816,-80.00566
```

The unescaped parameter value is (where each line terminated by a line break character sequence)

```
Pittsburgh Pirates  
115 Federal St  
Pittsburgh, PA 15212
```

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4. Security Considerations

There are no additional security issues beyond those of iCalendar [RFC5545] and vCard [RFC6350].

5. IANA Considerations

There are none.

6. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC5545] Desruisseaux, B., "Internet Calendaring and Scheduling Core Object Specification (iCalendar)", [RFC 5545](#), September 2009.
- [RFC6350] Perreault, S., "vCard Format Specification", [RFC 6350](#), August 2011.

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