

vObject – Internationalization

Working Draft Standard

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Foreword

This document updates the following specifications:

- I-D.calconnect-vobject-vformat, The vObject Model and vFormat Syntax
- RFC 6350, vCard version 4.0
- RFC 5545, Internet Calendaring and Scheduling Core Object Specification (iCalendar)
- RFC 7953, Calendar Availability Extensions

This work is produced by the CalConnect TC-VCARD and TC-CALENDAR committees.

Introduction

vCard [RFC 6350](#) and iCalendar [RFC 5545](#) are standards compliant to the vObject data model .

These standards are used worldwide and require proper certain localization elements suitable for multi-cultural use.

Previously, the only internationalization method for vCard [RFC 6350](#) and iCalendar [RFC 5545](#) standards was the Language property parameter ([RFC 5545](#)).

This document:

- defines additional internationalization features for the vObject data model, including a separate property parameter that denotes the script used in a property value, and a method to specify pronunciation of a property value
- defines realization methods of vObject internationalization in vFormat

The methods described in this document are intended to be used by vObject-compliant standards, such as vCard 4.0 [RFC 6350](#) and iCalendar [RFC 5545](#).

This is a work product of the CalConnect TC-VCARD [CalConnect TC VCARD](#) and TC-CALENDAR [CalConnect TC CALENDAR](#) committees.

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- The CalConnect TC-VCARD and TC-CALENDAR committees
- The CalConnect Technical Coordination Committee (“TCC”)
- Members and the Board of Directors of CalConnect

vObject – Internationalization

1. Scope

Methods described in this document are intended to be used by vObject-compliant standards, such as vCard 4.0 [RFC 6350](#) and iCalendar [RFC 5545](#).

2. Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

RFC 5545, *Internet Calendaring and Scheduling Core Object Specification (iCalendar)*

RFC 6350, *vCard Format Specification*

I-D.calconnect-vobject-vformat, *The vObject Model and vFormat Syntax*

3. Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.

General

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 BCP 14 [RFC 2119](#) [RFC 8174](#) when, and only when, they appear in all capitals, as shown here.

The key words “**Private Use**”, “**Experimental Use**”, “**Hierarchical Allocation**”, “**First Come First Served**”, “**Expert Review**”, “**Specification Required**”, “**RFC Required**”, “**IETF Review**”, “**Standards Action**” and “**IESG Approval**” in this document are to be interpreted as described in [RFC 8126](#).

Notation in this document is described in ABNF [RFC 5234](#) as used by [RFC 6350](#).

Definitions from [RFC 6350](#) apply to this specification except when explicitly overridden.

All names of properties, property parameters, enumerated property values, and property parameter values are case-insensitive. However, all property values are case-sensitive, unless otherwise stated.

3.2. Definitions

3.2.1.

transliteration

operation which consists of representing the characters (3.1.4.02) of an entirely alphabetical (3.1.5.16) character or alphanumeric character writing system (3.1.6.01) by the characters of the conversion alphabet

[SOURCE: ISO 5127 (all parts)]

3.2.2.

script

particular graphic representation or class of representations of a set of characters used to write one or more languages

[SOURCE: ISO 5127 (all parts)]

3.2.3.

phonetic transcription

representation or modelling of spoken language based on the sound system of the respective language [ISO 24624:2016](#)

4. Property Parameter Usage Clarification: LANGUAGE

This section clarifies the intent of the LANGUAGE property parameter in [RFC 5545](#) and [RFC 6350](#) to be for the identification of the language used in the property value where the parameter is specified.

The [RFC 5646](#) defined language-tag allows specification of multiple attributes (called “subtags”) in addition to just language. Its basic form includes:

- a mandatory language subtag, using a language identifier from ISO 639 (-2, -3) (called a “primary” or “extended” language subtag)
- an optional script subtag, using a script identifier from ISO 15924
- an optional region subtag, using country codes listed in ISO 3166 or a UN numeric code
- one or more, optional, variant and extension subtags defined in the IANA language subtag registry.

In practical usage of vObject standards, including [RFC 5545](#) and [RFC 6350](#), it is determined that the combinatorial enumeration of non-language subtags often cause unnecessary confusion in interpretation and parsing, especially when the registry contain variant and extension subtags that either conflict in semantics or have overly restrictive in their supported prefixes.

This document therefore clarifies the intent of [RFC 5545](#) and [RFC 6350](#), such that the LANGUAGE property parameter **SHOULD** only support the mandatory language subtag.

Other subtags **MAY** be supplied as specified in [RFC 5646](#), but they are purely for informational purposes not used in the vObject specification.

Namespace	
Property parameter name	LANGUAGE
Purpose	To specify the language used in the property value.
Value type	LANGUAGE-TAG RFC 6350
Description	As provided above.

4.1. vFormat Implementation of LANGUAGE

The value of the LANGUAGE property parameter is re-defined as shown below.

Format definition

```
languageparam = "LANGUAGE" "=" language *(subpart)
```

```
language = iso-639-3-code / iso-639-2-code
           ; a 2-alpha or 3-alpha language code
           ; defined in ISO 639
```

```
subpart = "-" *alphanum
         ; all other subparts unsupported
```

Figure 1

Examples


```
N;LANGUAGE=en:Miyazaki;Hayao;;;
N;LANGUAGE=jp:##;#;;;
```

Figure 2

5. Property Parameter: SCRIPT

The SCRIPT property parameter specifies the written script used in the property value which contains the parameter, which is amongst the valid codes in the ISO 15924 registry.

It is separated from the LANGUAGE property parameter defined in [RFC 5545](#) and [RFC 6350](#) for reasons stated in [Clause 4](#).

Namespace	
Property parameter name	SCRIPT
Purpose	To specify the script used in the property value, which is amongst the valid codes in the ISO 15924 registry.
Value type	TEXT, a single value valid in the ISO 15924 script registry.
Description	The property value of which this property parameter applies to must have identical structure to

5.1. vFormat Implementation of SCRIPT

Format definition

```
scriptparam = "SCRIPT" "=" script-code
              ; script-code defined in the value type SCRIPT-CODE
```

Figure 3

Examples

```
N;SCRIPT=Hira;LANGUAGE=jp:####;###;;;
N;SCRIPT=Hani;LANGUAGE=jp:##;#;;;
```

Figure 4

6. Property Parameter: PHONETIC

A number of contact managers have long used “X-properties” to store phonetic information of a vCard’s subject, such as X-PHONETIC-NAME, X-PHONETIC-FIRST-NAME and X-PHONETIC-LAST-NAME.

However, this is an issue for multiple reasons:

- The value of the X-property does not define the phonetic system used for its transcription;
- This X-property usage does not enable interoperability since it does not require specification of the language transcribed, as well as the script of the resulting transcription;
- The scheme of using X-properties does not allow representation of phonetics on other vCard values.

This section defines three property parameters used to store pronunciation information of a property value:

- a) The script used in the pronunciation system;
- b) An identifier of the pronunciation system used;
- c) The source language that was transcribed by the pronunciation system.

The PHONETIC property parameter specifies the phonetic system used in the transcription of the property value, identified by the phonetic system code from the ISO XXXXX phonetic system registry.

This property parameter is often applied together with the LANGUAGE ([Clause 4](#)) and SCRIPT ([Clause 5](#)) property parameters.

Namespace	
Property parameter name	PHONETIC
Purpose	To specify the phonetic system used in the property value, which is amongst the valid codes in the ISO XXXXX registry.
Value type	TEXT, a single value valid in the ISO XXXXX phonetic system registry.
Description	The property value of which this property parameter applies to must take an identical structure to the property value without application of this property parameter.

6.1. vFormat Implementation of PHONETIC

Format definition

```
phoneticparam = "PHONETIC" "=" phonetic
phonetic      = 4ALPHA ; ISO XXXXX 4-digit phonetic system code
```

Figure 5

Examples

```
N;SCRIPT=Hant;LANGUAGE=zho:###;###;
N;SCRIPT=Hans;LANGUAGE=zho:###;###;
N;PHONETIC=jyut;SCRIPT=Latn;LANGUAGE=yue:syun1;zung1saan1;man4,jat6sin1;;
N;PHONETIC=ping;SCRIPT=Latn;LANGUAGE=cmn:sun;zhongshan;rixian;;
```

Figure 6

7. Security Considerations

Security considerations of the vObject formats themselves **MUST** be adhered to, including:

- vCard: [RFC 6350](#)
- iCalendar: [RFC 5545](#), [RFC 4791](#)
- vObject:

vObject formats, especially for calendaring, scheduling and contact exchange, often involve privacy-sensitive information. Internationalization features defined in this document **MAY** pose risk of exposing private information if interchanged through unprotected communication channels.

Mechanisms used for the transmission of such information should implement security measures to protect against possible threats, such as eavesdropping, replay, message insertion, deletion, modification, and man-in-the-middle attacks.

8. IANA Considerations

IANA is requested to register the following property parameters and value types in the corresponding iCalendar and vCard registries.

8.1. iCalendar and vCard Property Parameter Registration: SCRIPT

Namespace	SCRIPT
Parameter name	SCRIPT
Purpose	Given in Clause 5 .
Description	Given in Clause 5 .
Format definition	Given in Clause 5 .
Examples	Given in Clause 5 .

8.2. iCalendar and vCard Property Parameter Registration: PHONETIC

Namespace	PHONETIC
Parameter name	PHONETIC
Purpose	Given in Clause 6 .
Description	Given in Clause 6 .
Format definition	Given in Clause 6 .
Examples	Given in Clause 6 .

8.3. iCalendar and vCard Registration for Value Data Type: SCRIPT-CODE

Value name	SCRIPT-CODE
Purpose	Indicate script used in property value using a valid value from the ISO 15924 registry.
Description	Used by the SCRIPT property parameter.
Format definition	
<pre>script-code = 4ALPHA ; ISO 15924 4-digit script code</pre>	

Figure 7

Examples	Latn, Cyrł, Hani
----------	------------------

8.4. iCalendar and vCard Registration for Value Data Type: PHONETIC-CODE

Value name	PHONETIC-CODE
Purpose	Indicate phonetic system used in the transcription of property value, using a valid value from the ISO XXXXX registry.
Description	Used by the SCRIPT property parameter.
Format definition	

phonetic-code = 4ALPHA
; ISO XXXXX 4-digit script code

Figure 8

Examples

ipa, jyut, ping

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