

Network Working Group	M. Douglass
Internet-Draft	Spherical Cow Group
Updates: 5545,5546 (if approved)	May 4, 2017
Intended status: Standards Track	
Expires: November 5, 2017	

Event Publishing Extensions to iCalendar

draft-ietf-calext-eventpub-extensions-03

Abstract

This specification introduces a number of new iCalendar properties and components which are of particular use for event publishers and in social networking.

This specification also defines a new STRUCTURED-DATA property for iCalendar [[RFC5545](#)] to allow for data that is directly pertinent to an event or task to be included with the calendar data.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <http://datatracker.ietf.org/drafts/current/>.

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."

This Internet-Draft will expire on November 5, 2017.

Copyright Notice

Copyright (c) 2017 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 (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

Table of Contents

- 1. Introduction
 - 1.1. Conventions Used in This Document
 - 2. Components and properties
 - 3. Typed References
 - 3.1. Use Cases
 - 3.1.1. Piano Concert Performance
 - 3.1.2. Itineraries
 - 4. Modifications to Calendar Components
 - 5. New Property Parameters
 - 5.1. Loctype
 - 5.2. Restype
 - 5.3. Order
 - 5.4. Schema
 - 6. New Properties
 - 6.1. Participant Type
 - 6.2. Schedule Address
 - 6.3. Styled-Description
 - 6.4. Structured-Location
 - 6.5. Structured-Resource
 - 6.6. Source
 - 6.7. Structured-Data
 - 7. New Components
 - 7.1. Participant
 - 7.2. Schedulable Participant
 - 8. Participant Types
 - 9. Extended examples
 - 9.1. Example 1
 - 10. Security Considerations
 - 11. Privacy Considerations
 - 12. IANA Considerations
 - 12.1. Property Registrations
 - 12.2. Parameter Registrations
 - 12.3. Component Registrations
 - 12.4. Participant Types Registry
 - 13. Acknowledgements
 - 14. Normative References
- Appendix A. Open issues
Appendix B. Change log
Author's Address

1. Introduction

The currently existing iCalendar standard [[RFC5545](#)] lacks useful methods for referencing additional, external information relating to calendar components. Additionally there is no standard way to provide rich text descriptions or meta-data associated with the event.

Current practice is to embed this information as links in the description or to add x-properties.

This document defines a number of properties and a component referencing such external information that can provide additional information about an iCalendar component. The intent is to allow interchange of such information between applications or systems (e.g., between clients, between client and server, and between servers). Formats such as VCARD are likely to be most useful to the receivers of such events as they may

be used in other applications - such as address books.

The following properties are defined in this specification

Styled-Description:

Supports HTML descriptions. Event publishers typically wish to provide more and better formatted information about the event.

Structured-Location:

There may be a number of locations associated with an event. This provides detailed information about the location.

Structured-Resource:

Events need resources such as rooms, projectors, conferencing capabilities.

Structured-Data:

The existing properties in iCalendar cover key elements of events and tasks such as start time, end time, location, summary, etc. However, different types of events often have other specific "fields" that it is useful to include in the calendar data. For example, an event representing an airline flight could include the airline, flight number, departure and arrival airport codes, check-in and gate-closing times etc. As another example, a sporting event might contain information about the type of sport, the home and away teams, the league the teams are in, information about nearby parking, etc.

In addition this specification defines a new PARTICIPANT component. Many people or groups may participate in an event. This component provides detailed information. Such participants may act as attendees to the event (or derived events) or may just provide a reference - perhaps for mailing lists.

1.1. 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 [\[RFC2119\]](#).

2. Components and properties

Previous extensions to the calendaring standards have been largely restricted to the addition of properties or parameters. This is partly because iCalendar libraries had trouble handling components nested deeper than those defined in [\[RFC5545\]](#)

In a break with this 'tradition' this specification introduces one of these extensions as a component rather than a property. This is a better match for the way XML and JSON handles such structures and allows richer definitions.

It also allows for the addition of extra properties inside the component and resolves some of the problems of trying to add detailed information as a parameter.

3. Typed References

The properties defined here can all reference external meta-data which may be used by applications to provide enhanced value to users. By providing type information as parameters, clients and servers are able to discover interesting references and make use of them, perhaps for indexing or the presentation of additional related information for the user.

The [\[RFC5545\]](#) LOCATION property provides only an unstructured single text value for specifying the location where an event (or task) will occur. This is inadequate for use cases where structured location information (e.g. address, region, country, postal code) is required or preferred, and limits widespread adoption of iCalendar in those settings.

Using STRUCTURED-LOCATION, information about a number of interesting locations can be communicated, for example, parking, restaurants and the venue. Servers and clients can retrieve the objects when storing the event and use them to index by geographic location.

These PARTICIPANT component is designed to handle common use cases in event publication. It is generally important to provide information about the organizers of such events. Sponsors wish to be referenced in a prominent manner. In social calendaring it is often important to identify the active participants in the event, for example a school sports team, and the inactive participants, for example the parents.

When a calendar client receives a calendar component it can search the set of supplied properties looking for those of particular interest. The TYPE and FMTTYPE parameters, if supplied, can be used to help the selection.

3.1. Use Cases

The main motivation for these properties has been event publication but there are opportunities for use elsewhere. The following use cases will describe some possible scenarios.

3.1.1. Piano Concert Performance

In putting together a concert there are many participants: piano tuner, performer, stage hands etc. In addition there are sponsors and various contacts to be provided. There will also be a number of related locations. A number of events can be created, all of which relate to the performance in different ways.

There may be an iTip [RFC5546] meeting request for the piano tuner who will arrive before the performance. Other members of staff may also receive meeting requests.

An event can also be created for publication which will have a PARTICIPANT component for the pianist providing a reference to vcard information about the performer. This event would also hold information about parking, local subway stations and the venue itself. In addition, there will be sponsorship information for sponsors of the event and perhaps paid sponsorship properties essentially advertising local establishments.

3.1.2. Itineraries

These additions also provide opportunities for the travel industry. When booking a flight the PARTICIPANT component can be used to provide references to businesses at the airports and to car hire businesses at the destination.

The embedded location information can guide the traveller at the airport or to their final destination. The contact information can provide detailed information about the booking agent, the airlines and car hire companies and the hotel.

4. Modifications to Calendar Components

```
eventc    = "BEGIN" ":" "VEVENT" CRLF
          eventprop *alarmc *participant
          "END" ":" "VEVENT" CRLF

eventprop =/ *(
;
; The following are OPTIONAL,
; and MAY occur more than once.
;
styleddescription / strucloc / strucres / sdataprop
```

```

;
)

todoc    = "BEGIN" ":" "VTODO" CRLF
        todoprop *alarmc *participantc
        "END" ":" "VTODO" CRLF

todoprop =/ *(

;

; The following are OPTIONAL,
; and MAY occur more than once.

;

styleddescription / strucloc / strucres / sdataprop

;

)

journalc = "BEGIN" ":" "VJOURNAL" CRLF
        jourprop *participantc
        "END" ":" "VJOURNAL" CRLF

jourprop =/ *(

;

; The following are OPTIONAL,
; and MAY occur more than once.

;

styleddescription / sdataprop

;

)

```

The following changes to the syntax defined in [iCalendar](#) [RFC5545] are made here. New elements are defined in subsequent sections.

5. New Property Parameters

This specification makes use of the LABEL property parameter which is defined in [\[RFC7986\]](#)

5.1. Loctype

This parameter is defined by the following notation:

```
loctypeparam = "LOCTYPE" "=" param-value
```

Parameter name:

LOCTYPE

Purpose:

To specify the type of location.

Format Definition:

Description:

This parameter MAY be specified on STRUCTURED-LOCATION and provides a way to differentiate multiple properties. For example, it allows event producers to provide location information for the venue and the parking.

Values for this parameter are taken from the values defined in [RFC4589]. New location types SHOULD be registered in the manner laid down in that specification

5.2. Restype

This parameter is defined by the following notation:

```
restypeparam = "RESTYPE" "=" param-value
```

Parameter name:

RESTYPE

Purpose:

To specify the type of resource.

Format Definition:

Description:

This parameter MAY be specified on STRUCTURED-RESOURCE and provides a way to differentiate multiple properties.

Values for this parameter are taken from the values defined in [todo]. New resource types SHOULD be registered in the manner laid down in that specification

5.3. Order

This parameter is defined by the following notation:

```
orderparam = "ORDER" "=" integer ;Must be greater than or equal to 1
```

Parameter name:

ORDER

Purpose:

To define ordering for the associated property.

Format Definition:

Description:

The ORDER parameter is OPTIONAL and is used to indicate the relative ordering of the corresponding instance of a property. Its value MUST be an integer greater than or equal to 1 that quantifies the order with 1 being the first in the ordering.

When the parameter is absent, the default MUST be to interpret the property instance as being at the lowest level of ordering, that is, the property will appear after any other instances of the same property with any value of ORDER.

Note that the value of this parameter is to be interpreted only in relation to values assigned to other corresponding instances of the same property in the same entity. 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.

5.4. Schema

This parameter is defined by the following notation:

```
schemaparam = "SCHEMA" "=" DQUOTE uri DQUOTE
```

```
STRUCTURED-DATA;FMTTYPE=application/ld+json;
SCHEMA="https://schema.org/FlightReservation";
ENCODING=BASE64;VALUE=BINARY:Zm9vYmFy
```

Parameter Name:

SCHEMA

Purpose:

To specify the schema used for the content of a "STRUCTURED-DATA" property value.

Format Definition:

Description:

This property parameter SHOULD be specified on "STRUCTURED-DATA" properties. When present it provides identifying information about the nature of the content of the corresponding "STRUCTURED-DATA" property value. This can be used to supplement the media type information provided by the "FMTTYPE" parameter on the corresponding property.

Example:

6. New Properties

6.1. Participant Type

This parameter is defined by the following notation:

```
participanttype = "PARTICIPANT-TYPE" "=" iana-token
```

Property name:

PARTICIPANT-TYPE

Purpose:

To specify the type of participant.

Value type:

The value type for this property is TEXT. The allowable values are defined in [Section 8](#).

Property Parameters:

Non-standard parameters can be specified on this property.

Conformance:

This property MUST be specified within a PARTICIPANT component.

Description:

This property defines the type of participation in events or tasks. Participants can be individuals or organizations, for example a soccer team, the spectators, or the musicians.

Format Definition:

6.2. Schedule Address

This parameter is defined by the following notation:

```
scheduleaddress = "SCHEDULE-ADDRESS" "=" cal-address
```

Property name:

SCHEDULE-ADDRESS

Purpose:

To specify the calendar address for a participant.

Value type:

CAL-ADDRESS

Property Parameters:

IANA or non-standard property parameters can be specified on this property.

Conformance:

This property MAY be specified within a PARTICIPANT component.

Description:

This property provides a calendar user address for the participant. If there is an ATTENDEE property with the same value then the participant is schedulable.

Format Definition:

6.3. Styled-Description

This property is defined by the following notation:

```
styleddescription = "STYLED-DESCRIPTION" styleddescparam ":"  
    (   
        (   
            ";" "VALUE" "=" "URI"  
            ":" uri  
        ) /  
        (   
            ";" "VALUE" "=" "TEXT"  
            ":" text  
        )  
    )  
    CRLF  
  
styleddescparam  = *(  
    ;  
    ; The following are OPTIONAL,  
    ; but MUST NOT occur more than once.  
    ;  
    (";" altrepparam) / (";" languageparam) /  
    (";" fmtparam) /  
    ;  
    ; the following is OPTIONAL  
    ; and MAY occur more than once  
    ;  
    (";" other-param)  
)
```

The following is an example of this property. It points to an html description.

```
STYLED-DESCRIPTION;VALUE=URI:http://example.org/desc001.html
```

Property name:

STYLED-DESCRIPTION

Purpose:

This property provides for one or more rich-text descriptions to replace or augment that provided by

the DESCRIPTION property.

Value type:

There is no default value type for this property. The value type can be set to URI or TEXT. Other text-based value types can be used when defined in the future. Clients MUST ignore any properties with value types they do not understand.

Property Parameters:

IANA, non-standard, id, alternate text representation, format type, and language property parameters can be specified on this property.

Conformance:

The property can be specified multiple times in the "VEVENT", "VTODO", "VJOURNAL", or "VALARM" calendar components.

Description:

This property is used in the "VEVENT" and "VTODO" to capture lengthy textual descriptions associated with the activity. This property is used in the "VJOURNAL" calendar component to capture one or more textual journal entries. This property is used in the "VALARM" calendar component to capture the display text for a DISPLAY category of alarm, and to capture the body text for an EMAIL category of alarm.

VALUE=TEXT is used to provide rich-text variants of the plain-text DESCRIPTION property.

VALUE=URI is used to provide a link to rich-text content which is expected to be displayed inline as part of the event.

The intent of this property is limited to providing a styled and/or language specific version of the DESCRIPTION property. The URL property should be used to link to websites or other related information.

Applications MAY attempt to guess the media type of the resource via inspection of its content if and only if the media type of the resource is not given by the "FMTTYPE" parameter. If the media type remains unknown, calendar applications SHOULD treat it as type "text/html".

Multiple STYLED-DESCRIPTION properties may be used to provide different formats or different language variants.

Format Definition:

Example:

6.4. Structured-Location

This property is defined by the following notation:

```
strucloc      = "STRUCTURED-LOCATION" struclocparam
                (
                (
                    ";" "VALUE" "=" "URI"
                    ":" uri
                ) /
                (
                    ";" "VALUE" "=" "TEXT"
                    ":" text
                )
            )
        CRLF

struclocparam  = *(
```

```

; the following are OPTIONAL
; but MUST NOT occur more than once
;
(";" fmttypeparam) /
(";" labelparam) /
(";" languageparam) /
(";" loctypeparam) /
;
; the following is OPTIONAL
; and MAY occur more than once
;
(";" other-param)
)

```

The following is an example of this property. It points to a venue.

```

STRUCTURED-LOCATION;LABEL="The venue":
http://dir.example.com/venues/big-hall.vcf

```

Property name:

STRUCTURED-LOCATION

Purpose:

This property provides a typed reference to external information about the location of an event or optionally a plain text typed value.

Value type:

There is no default value type for this property. The value type can be set to URI or TEXT. Other text-based value types

Property Parameters:

IANA, non-standard, label, loctype or format type parameters can be specified on this property.

Conformance:

This property MAY be specified zero or more times in any iCalendar component.

Description:

When used in a component the value of this property provides information about the event venue or of related services such as parking, dining, stations etc..

When a LABEL parameter is supplied the language of the label must match that of the content and of the LANGUAGE parameter if present.

Format Definition:

Example:

6.5. Structured-Resource

This property is defined by the following notation:

```

strucres    = "STRUCTURED-RESOURCE" strucresparam (":" uri) /
(
  ";" "VALUE" "=" "TEXT"
  ":" text
)
CRLF

```

```
strucresparam = *(  
    ;  
    ; the following are OPTIONAL  
    ; but MUST NOT occur more than once  
    ;  
    (";" fmttypeparam) /  
    (";" labelparam) /  
    (";" languageparam) /  
    (";" restypeparam) /  
    ;  
    ; the following is OPTIONAL  
    ; and MAY occur more than once  
    ;  
    (";" other-param)  
)
```

The following is an example of this property. It refers to a projector.

```
STRUCTURED-RESOURCE;restype="projector":  
http://dir.example.com/projectors/3d.vcf
```

Property name:

STRUCTURED-RESOURCE

Purpose:

This property provides a typed reference to external information about a resource or optionally a plain text typed value.

Value type:

The default value type for this property is URI. The value type can also be set to TEXT to indicate plain text content.

Property Parameters:

IANA, non-standard, label, restype or format type parameters can be specified on this property.

Conformance:

This property MAY be specified zero or more times in any iCalendar component.

Description:

When used in a component the value of this property provides information about resources used for the event.

When a LABEL parameter is supplied the language of the label must match that of the content and of the LANGUAGE parameter if present.

Format Definition:

Example:

6.6. Source

This property is defined by the following notation:

```
source = "SOURCE" sourceparam  
(  
(
```

```

";" "VALUE" "=" "URI"
":;" uri
) /
(
";" "VALUE" "=" "TEXT"
":;" text
)
)
CRLF

sourceparam      = *(

;
; the following are OPTIONAL
; but MUST NOT occur more than once
;
(";" fmtparam) /
;
; the following is OPTIONAL
; and MAY occur more than once
;
(";" other-param)
;
)

```

The following is an example referring to a VCARD.

```
SOURCE;FMTTYPE=text/vcard;
http://dir.example.com/vcard/contacts/contact1.vcf
```

Property name:
SOURCE

Purpose:
This property provides a reference to information about a component such as a participant possibly as a vcard or optionally a plain text typed value.

Value type:
The default value type for this property is URI. The value type can also be set to TEXT to indicate plain text content.

Property Parameters:
Non-standard or format type parameters can be specified on this property.

Conformance:
This property MAY be appear in any iCalendar component.

Description:
This property provides information about the component in which it appears. It may provide a reference to a vcard giving directory information about a resource or participant.

Format Definition:

Example:

6.7. Structured-Data

This property is defined by the following notation:

```

sdataprop = "STRUCTURED-DATA" sdataparam
  (": text) /
  (
    ";" "ENCODING" "=" "BASE64"
    ";" "VALUE" "=" "BINARY"
    ":" binary
  ) /
  (
    ";" "VALUE" "=" "URI"
    ":" uri
  )
CRLF

sdataparam = *(
  ;
  ; The following is OPTIONAL for a URI value,
  ; RECOMMENDED for a TEXT or BINARY value,
  ; and MUST NOT occur more than once.
  ;
  (";" fmttypeparam) /
  (";" schemaparam) /
  ;
  ; The following is OPTIONAL,
  ; and MAY occur more than once.
  ;
  (";" other-param)
  ;
)

```

STRUCTURED-DATA;FMTTYPE=application/ld+json;
SCHEMA="https://schema.org/SportsEvent";
VALUE=TEXT:{\n
 "@context": "http://schema.org"\,\n
 "@type": "SportsEvent"\,\n
 "homeTeam": "Pittsburgh Pirates"\,\n
 "awayTeam": "San Francisco Giants"\n
}\,\n

Property Name:

STRUCTURED-DATA

Purpose:

This property specifies ancillary data associated with the calendar component.

Value Type:

TEXT, BINARY or URI

Property Parameters:

IANA, non-standard, inline encoding, and value data type property parameters can be specified on this property. The format type and schema parameters can be specified on this property and are RECOMMENDED for text or inline binary encoded content information.

Conformance:

This property can be specified multiple times in an iCalendar object. Typically it would be used in "VEVENT", "VTODO", or "VJOURNAL" calendar components.

Description:

This property is used to specify ancillary data in some structured format either directly (inline) as a "TEXT" or "BINARY" value, or as a link via a "URI" value.

Rather than define new iCalendar properties for the variety of event types that might occur, it would be better to leverage existing schemas for such data. For example, schemas available at <https://schema.org> include different event types. By using standard schemas, interoperability can be improved between calendar clients and non-calendaring systems that wish to generate or process the data.

This property allows the direct inclusion of ancillary data whose schema is defined elsewhere. This property also includes parameters to clearly identify the type of the schema being used so that clients can quickly and easily spot what is relevant within the calendar data and present that to users or process it within the calendaring system.

iCalendar does support an "ATTACH" property which can be used to include documents or links to documents within the calendar data. However, that property does not allow data to be included as a "TEXT" value (a feature that "STRUCTURED-DATA" does allow), plus attachments are often treated as "opaque" data to be processed by some other system rather than the calendar client. Thus the existing "ATTACH" property is not sufficient to cover the specific needs of inclusion of schema data. Extending the "ATTACH" property to support a new value type would likely cause interoperability problems. Thus a new property to support inclusion of schema data is warranted.

Format Definition:

Example:

The following is an example of this property:

7. New Components

7.1. Participant

This property is defined by the following notation:

```
participantc = "BEGIN" ":" "PARTICIPANT" CRLF
    partprop *alarmc
    "END" ":" "PARTICIPANT" CRLF

partprop    = *(

;
; The following are REQUIRED,
; but MUST NOT occur more than once.
;

dtstamp / participanttype /
;

; The following are OPTIONAL,
; but MUST NOT occur more than once.
;

created / description / last-mod / priority / seq /
source / status / scheduleaddress / summary / url /
;

; The following are OPTIONAL,
; and MAY occur more than once.
;

attach / categories / comment /
contact / rstatus / related /
resources / x-prop / iana-prop
```

```
;  
)
```

The following is an example of this component. It contains a SOURCE property which points to a VCARD providing information about the event participant.

```
BEGIN:PARTICIPANT  
PARTTYPE:PRINCIPAL_PERFORMER  
SOURCE:http://dir.example.com/vcard/aviolinist.vcf  
END:PARTICIPANT
```

The following is an example for the primary contact.

```
BEGIN: PARTICIPANT  
SOURCE;FMTTYPE=text/vcard;  
http://dir.example.com/vcard/contacts/contact1.vcf  
PARTTYPE:PRIMARY-CONTACT  
DESCRIPTION:A contact:  
END:PARTICIPANT
```

Component name:

PARTICIPANT

Purpose:

This component provides information about a participant in an event or optionally a plain text typed value.

Conformance:

This component MAY be appear in any iCalendar component.

Description:

This component provides information about an participant in an event, task or poll. A participant may be an attendee in a scheduling sense and the ATTENDEE property may be specified in addition. Participants in events can be individuals or organizations, for example a soccer team, the spectators, or the musicians.

The SOURCE property if present may refer to an external definition of the participant - such as a vcard.

The STRUCTURED-ADDRESS property if present will provide a cal-address. If an ATTENDEE property has the same value the participant is considered schedulable. The PARTICIPANT component can be used to contain additional meta-data related to the attendee.

Format Definition:

Note:

When the PRIORITY is supplied it defines the ordering of PARTICIPANT components with the same value for the TYPE parameter.

Example:

Example:

7.2. Schedulable Participant

A PARTICIPANT component may represent someone or something that needs to be scheduled as defined

for ATTENDEE in [RFC5545] and [RFC5546]. The PARTICIPANT component may also represent someone or something that is NOT to receive scheduling messages.

A PARTICIPANT component is defined to be schedulable if

- It contains a SCHEDULE-ADDRESS property
- That property value is the same as the value for an ATTENDEE property.

If both of these conditions apply then the participant defined by the value of the URL property will take part in scheduling operations as defined in [RFC5546].

An appropriate use for the PARTICIPANT component in scheduling would be to store SEQUENCE and DTSTAMP properties associated with replies from each ATTENDEE. A LOCATION property within the PARTICIPANT component might allow better selection of meeting times when participants are in different timezones.

8. Participant Types

This section describes types of participation and provide registered values for the PARTTYPE property.

ACTIVE:

A participant taking an active role - for example a team member.

INACTIVE:

A participant taking an inactive part - for example an audience member.

SPONSOR:

A sponsor of the event. The ORDER parameter may be used with this participant type to define the relative order of multiple sponsors.

CONTACT:

Contact information for the event. The ORDER parameter may be used with this participant type to define the relative order of multiple contacts.

BOOKING-CONTACT:

Contact information for reservations or payment

EMERGENCY-CONTACT:

Contact in case of emergency

PUBLICITY-CONTACT:

Contact for publicity

PLANNER-CONTACT:

Contact for the event planner or organizer

PERFORMER:

A performer - for example the soloist or the accompanist. The ORDER parameter may be used with this participant type to define the relative order of multiple performers. For example, ORDER=1 could define the principal performer or soloist.

SPEAKER:

Speaker at an event

9. Extended examples

The following are some examples of the use of the properties defined in this specification. They include additional properties defined in [RFC7986] which includes IMAGE and LIVEFEED.

9.1. Example 1

The following is an example of a VEVENT describing a concert. It includes location information for the venue

itself as well as references to parking and restaurants.

```
BEGIN:VEVENT
CREATED:20101116T145739Z
DESCRIPTION: Piano Sonata No 3\n
Piano Sonata No 30
DTSTAMP:20101116T145739Z
DTSTART;TZID=America/New_York:20110315T150000Z
DTEND;TZID=America/New_York:20110315T163000Z
LAST-MODIFIED:20101116T145739Z
SUMMARY:Beethoven Piano Sonatas
UID:123456
STRUCTURED-LOCATION;LABEL="The venue":
http://dir.example.com/venues/big-hall.vcf
STRUCTURED-LOCATION;LABEL="The venue":
http://dir.example.com/venues/parking.vcf
BEGIN:PARTICIPANT
PARTTYPE:SPONSOR
SOURCE:http://example.com/sponsor.vcf
END:PARTICIPANT
BEGIN:PARTICIPANT
PARTTYPE:PERFORMER:
SOURCE:http://www.example.com/people/johndoe.vcf
END:PARTICIPANT
END:VEVENT
```

10. Security Considerations

Applications using these properties need to be aware of the risks entailed in using the URIs provided as values. See [RFC3986] for a discussion of the security considerations relating to URIs.

Security considerations relating to the "ATTACH" property, as described in [RFC5545], are applicable to the "STRUCTURED-DATA" property.

11. Privacy Considerations

Properties with a "URI" value type can expose their users to privacy leaks as any network access of the URI data can be tracked. Clients SHOULD NOT automatically download data referenced by the URI without explicit instruction from users. This specification does not introduce any additional privacy concerns beyond those described in [RFC5545].

12. IANA Considerations

12.1. Property Registrations

This document defines the following new iCalendar properties to be added to the registry defined in Section 8.2.3 of [RFC5545]:

Property	Status	Reference
PARTTYPE	Current	RFCXXXX, Section 6.1
SCHEDULE-ADDRESS	Current	RFCXXXX, Section 6.2

Property	Status	Reference
STRUCTURED-DATA	Current	RFCXXXX, Section 6.7
STYLED-DESCRIPTION	Current	RFCXXXX, Section 6.3
STRUCTURED-LOCATION	Current	RFCXXXX, Section 6.4
STRUCTURED-RESOURCE	Current	RFCXXXX, Section 6.5
SOURCE	Current	RFCXXXX, Section 6.6

12.2. Parameter Registrations

This document defines the following new iCalendar property parameters to be added to the registry defined in Section 8.2.4 of [[RFC5545](#)]:

Property Parameter	Status	Reference
LOCTYPE	Current	RFCXXXX, Section 5.1
ORDER	Current	RFCXXXX, Section 5.3
RESTYPE	Current	RFCXXXX, Section 5.2
SCHEMA	Current	RFCXXXX, Section 5.4

12.3. Component Registrations

This document defines the following new iCalendar components to be added to the registry defined in Section 8.3.1 of [[RFC5545](#)]:

Component	Status	Reference
PARTICIPANT	Current	RFCXXXX, Section 7.1

12.4. Participant Types Registry

The following table has been used to initialize the participant types registry.

Participant Type	Status	Reference
ACTIVE	Current	RFCXXXX, Section 8
INACTIVE	Current	RFCXXXX, Section 8
SPONSOR	Current	RFCXXXX, Section 8
CONTACT	Current	RFCXXXX, Section 8
BOOKING-CONTACT	Current	RFCXXXX, Section 8
EMERGENCY-CONTACT	Current	RFCXXXX, Section 8
PUBLICITY-CONTACT	Current	RFCXXXX, Section 8
PLANNER-CONTACT	Current	RFCXXXX, Section 8
PERFORMER	Current	RFCXXXX, Section 8
SPEAKER	Current	RFCXXXX, Section 8

13. Acknowledgements

The author would like to thank Chuck Norris of eventful.com for his work which led to the development of this

RFC.

The author would also like to thank the members of the Calendaring and Scheduling Consortium Event Publication technical committee and the following individuals for contributing their ideas and support:

Cyrus Daboo, John Haug, Dan Mendell, Ken Murchison, Scott Otis,

The authors would also like to thank the Calendaring and Scheduling Consortium for advice with this specification.

14. Normative References

- [RFC2119] Bradner, S., "[Key words for use in RFCs to Indicate Requirement Levels](#)", BCP 14, RFC 2119, DOI 10.17487/RFC2119, March 1997.
- [RFC3986] Berners-Lee, T., Fielding, R. and L. Masinter, "[Uniform Resource Identifier \(URI\): Generic Syntax](#)", STD 66, RFC 3986, DOI 10.17487/RFC3986, January 2005.
- [RFC4589] Schulzrinne, H. and H. Tschofenig, "[Location Types Registry](#)", RFC 4589, DOI 10.17487/RFC4589, July 2006.
- [RFC5545] Desruisseaux, B., "[Internet Calendaring and Scheduling Core Object Specification \(iCalendar\)](#)", RFC 5545, DOI 10.17487/RFC5545, September 2009.
- [RFC5546] Daboo, C., "[iCalendar Transport-Independent Interoperability Protocol \(iTIP\)](#)", RFC 5546, DOI 10.17487/RFC5546, December 2009.
- [RFC7986] Daboo, C., "[New Properties for iCalendar](#)", RFC 7986, DOI 10.17487/RFC7986, October 2016.
- [W3C.REC-xml-20060816] Bray, T., Paoli, J., Sperberg-McQueen, M., Maler, E. and F. Yergeau, "[Extensible Markup Language \(XML\) 1.0 \(Fourth Edition\)](#)", World Wide Web Consortium Recommendation REC-xml-20060816, August 2006.

Appendix A. Open issues

restype values:

Need to determine what if any registry of resource types already exists and use that.

Appendix B. Change log

calext-v02 2017-04-20 MD

- Add SCHEDULE-ADDRESS property
- PARTICIPANT becomes a component rather than a property. Turn many of the former parameters into properties.
- Use existing ATTENDEE property for scheduling.

calext-v01 2017-02-18 MD

- Change ASSOCIATE back to PARTICIPANT
- PARTICIPANT becomes a component rather than a property. Turn many of the former parameters into properties.

calext-v00 2016-08-?? MD

- Name changed - taken up by calext working group

v06 2016-06-26 MD

- Fix up abnf

- change ref to ietf from daboo
- take out label spec - use Cyrus spec

v05 2016-06-14 MD

- Remove GROUP and HASH. they can be dealt with elsewhere if desired
- Change ORDER to integer ≥ 1 .
- Incorporate Structured-Data into this specification.

v04 2014-02-01 MD

- Added updates attribute.
- Minor typos.
- Resubmitted mostly to refresh the draft.

v03 2013-03-06 MD

- Replace PARTICIPANT with ASSOCIATE plus related changes.
- Added section showing modifications to components.
- Replace ID with GROUP and modify HASH.
- Replace TITLE param with LABEL.
- Fixed STYLED-DESCRIPTION in various ways, correct example.

v02 2012-11-02 MD

- Collapse sections with description of properties and the use cases into a section with sub-sections.
- New section to describe relating properties.
- Remove idref and upgrade hash to have the reference
- No default value types on properties..

v01 2012-10-18 MD Many changes.

- SPONSOR and STRUCTURED-CONTACT are now in PARTICIPANT
- Add a STRUCTURED-RESOURCE property
- STYLED-DESCRIPTION to handle rich text
- Much more...

2011-01-07

- Remove MEDIA - it's going in the Cyrus RFC
- Rename EXTENDED-... to STRUCTURED-...
- Add TYPE parameter to SPONSOR

v00 2007-10-19 MD Initial version

Author's Address

Michael Douglass

Spherical Cow Group

226 3rd Street

Troy, NY 12180

USA

EMail: mdouglass@sphericalcowgroup.com

URI: <http://sphericalcowgroup.com>