

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: July 17, 2014

C. Daboo
Apple
M. Douglass
RPI
January 13, 2014

Calendar Availability
draft-daboo-calendar-availability-04

Abstract

This document specifies a new iCalendar calendar component that allows the publication of available and unavailable time periods associated with a calendar user. This component can be used in standard iCalendar free-busy lookups, including iTIP free-busy requests, to generate repeating blocks of available or busy time with exceptions as needed.

This document also defines extensions to CalDAV calendar-access and calendar-auto-schedule which specify how this new calendar component should be used when doing free-busy time evaluation in CalDAV.

Editorial Note (To be removed by RFC Editor before publication)

Discussion of this specification is taking place on the mailing list <http://lists.osafoundation.org/mailman/listinfo/ietf-caldav> [1] .

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 July 17, 2014.

Copyright Notice

Copyright (c) 2014 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	2
2. Conventions Used in This Document	3
3. iCalendar Extensions	4
3.1. Vavailability Component	4
3.2. Busy Time Type	10
4. Combining Vavailability components	10
5. Calculating Free-Busy Time	11
5.1. Examples	12
6. CalDAV Extensions	14
6.1. CalDAV Requirements Overview	14
6.2. New features in CalDAV	15
7. Security Considerations	18
8. IANA Considerations	18
8.1. Component Registrations	18
8.2. Property Registrations	18
9. Acknowledgments	18
10. Normative References	18
Appendix A. Example Calendar #1	19
Appendix B. Change History (To be removed by RFC Editor before publication)	21
Authors' Addresses	21

1. Introduction

Often calendar users have regular periods of time when they are either available to be scheduled or always unavailable. For example, an office worker will often wish to only appear free to their work colleagues during normal 'office hours' (e.g., Monday through Friday, 9 am through 5 pm). Or, a university professor may only be available to students during a set period of time (e.g., Thursday afternoons, 2 pm through 5 pm during term time only). Ideally users should be able

to specify such periods directly via their calendar user agent, and have them automatically considered as part of the normal free-busy lookup for that user. In addition it should be possible to present different periods of available time depending on which user is making the request.

iCalendar [RFC5545] defines a "VFREEBUSY" component that can be used to represent fixed busy time periods, but it does not provide a way to specify a repeating period of available or unavailable time. Since repeating patterns are often the case, "VFREEBUSY" components are not sufficient to solve this problem.

This specification defines a new type of iCalendar calendar component that can be used to publish user availability.

CalDAV [RFC4791] provides a way for calendar users to access and manage calendar data and exchange this data via scheduling operations. As part of this the, CalDAV calendar-access [RFC4791] feature provides a CALDAV:free-busy-query REPORT that returns free-busy information for a calendar collection or hierarchy of calendar collections. Also, the CalDAV calendar-auto-schedule [RFC6638] feature allows free-busy information for a calendar user to be determined. Both of these operations involve examining user calendars for events that 'block time', with the blocked out periods being returned in a "VFREEBUSY" component.

This specification extends the CalDAV calendar-access and CalDAV calendar-auto-schedule features to allow the new iCalendar availability components to be stored and manipulated, and to allow free-busy lookups to use the information from any such components, if present.

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] .

When XML element types in the namespaces "DAV:" and "urn:ietf:params:xml:ns:caldav" are referenced in this document outside of the context of an XML fragment, the string "DAV:" and "CALDAV:" will be prefixed to the element type names respectively.

3. iCalendar Extensions

This specification adds a new "VAVAILABILITY" calendar component to iCalendar. The "VAVAILABILITY" component is itself a container for new "AVAILABLE" sub-components.

The purpose of the "VAVAILABILITY" calendar component is to provide a grouping of available time information over a specific range of time. Within that there are specific time ranges that are marked as available via a set of "AVAILABLE" calendar sub-components. Together these can be used to specify available time that can repeat over set periods of time, and which can vary over time.

3.1. Vavailability Component

Component Name: VAVAILABILITY

Purpose: Provide a grouping of component properties that describe the availability associated with a calendar user.

Format Definition: A "VAVAILABILITY" calendar component is defined by the following notation:

```

availabilityc = "BEGIN" ":" "VAVAILABILITY" CRLF
               availabilityprop *availablec
               "END" ":" "VAVAILABILITY" CRLF

availabilityprop = *(
    ;
    ; the following are REQUIRED,
    ; but MUST NOT occur more than once
    ;
    dtstamp / uid
    ;
    ; the following are OPTIONAL,
    ; but MUST NOT occur more than once
    ;
    busytype / class / created / description /
    dtstart / last-mod / organizer / priority /
    seq / summary / url /
    ;
    ; either 'dtend' or 'duration' MAY appear
    ; once, but 'dtend' and 'duration' MUST
    ; NOT occur in the same 'availabilityprop'.
    ;
    dtend / duration /
    ;
    ; the following are OPTIONAL,
  
```

```

        ; and MAY occur more than once
        ;
        categories / comment / contact /
        x-prop / iana-prop
        ;
    )

availablec = "BEGIN" ":" "AVAILABLE" CRLF
availableprop
"END" ":" "AVAILABLE" CRLF

availableprop = *(
    ;
    ; the following are REQUIRED,
    ; but MUST NOT occur more than once
    ;
    dtstamp / dtstart / uid /
    ;
    ; either 'dtend' or 'duration' MAY appear
    ; once, but 'dtend' and 'duration' MUST NOT
    ; occur in the same 'availableprop'.
    ; 'duration' MUST NOT be present if 'dtstart'
    ; is not present
    ;
    dtend / duration /
    ;
    ; the following are OPTIONAL,
    ; but MUST NOT occur more than once
    ;
    created / description / last-mod /
    recurid / rrule / summary /
    ;
    ; the following are OPTIONAL,
    ; and MAY occur more than once
    ;
    categories / comment / contact / exdate /
    rdate / x-prop / iana-prop
)

```

Description: A "VAVAILABILITY" component indicates a period of time within which availability information is provided. A "VAVAILABILITY" component can specify a start time and an end time or duration. If "DTSTART" is not present, then the start time is unbounded. If "DTEND" or "DURATION" are not present, then the end time is unbounded. Within the specified time period, availability defaults to a free-busy type of "BUSY-UNAVAILABLE", except for any time periods corresponding to "AVAILABLE" sub-components.

"AVAILABLE" sub-components are used to indicate periods of free time within the time range of the enclosing "VAVAILABILITY" component. "AVAILABLE" sub-components MAY include recurrence properties to specify recurring periods of time, which may be overridden using normal recurrence behavior (i.e., use of the "RECURRENCE-ID" property).

If specified, the "DTSTART" and "DTEND" properties in "VAVAILABILITY" components and "AVAILABLE" sub-components MUST be "DATE-TIME" values specified as either date with UTC time or date with local time and a time zone reference.

If any property with a "DATE-TIME" value is present in a "VAVAILABILITY" component or any of its "AVAILABLE" sub-components, and that property includes a "TZID" parameter, then the iCalendar object containing the "VAVAILABILITY" component MUST contain "VTIMEZONE" components corresponding to each unique "TZID" parameter value.

When used to publish available time, the "ORGANIZER" property specifies the calendar user associated with the published available time.

If the "PRIORITY" property is specified in "VAVAILABILITY" components it is used to determine how that component is combined with other "VAVAILABILITY" components. See Section 4

Other calendar properties MAY be specified in "VAVAILABILITY" or "AVAILABLE" components and are considered attributes of the marked block of time. Their usage is application specific. For example, the "LOCATION" property may be used to indicate that a person is available in one location for part of the week and another location for another part.

Example: The following is an example of a "VAVAILABILITY" calendar component used to represent the availability of a user always available Monday through Friday, 9:00 AM to 5:00 PM in the America/Montreal time zone:

```
BEGIN:VAVAILABILITY
ORGANIZER:mailto:bernard@example.com
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Friday from 9:00 to 17:00
DTSTART;TZID=America/Montreal:20111002T090000
DTEND;TZID=America/Montreal:20111002T170000
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH,FR
END:AVAILABLE
END:VAVAILABILITY
```

The following is an example of a "VAVAILABILITY" calendar component used to represent the availability of a user available Monday through Thursday, 9:00 AM to 5:00 PM at the main office, and Friday 9:00 AM to 12:00 PM in the branch office in the America /Montreal time zone between October 2nd and December 2nd 2011:

```
BEGIN:VAVAILABILITY
ORGANIZER:mailto:bernard@example.com
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
DTSTART;TZID=America/Montreal:20111002T000000
DTEND;TZID=America/Montreal:20111202T000000
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Thursday from 9:00 to 17:00
DTSTART;TZID=America/Montreal:20111002T090000
DTEND;TZID=America/Montreal:20111002T170000
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH
LOCATION:Main Office
END:AVAILABLE
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-B@example.com
SUMMARY:Friday from 9:00 to 12:00
DTSTART;TZID=America/Montreal:20111006T090000
DTEND;TZID=America/Montreal:20111006T120000
RRULE:FREQ=WEEKLY
LOCATION:Branch Office
END:AVAILABLE
END:VAVAILABILITY
```

The following is an example of three "VAVAILABILITY" calendar components used to represent the availability of a traveling worker: Monday through Friday, 9:00 AM to 5:00 PM each day. However, for three weeks the calendar user is working in Montreal, then one week in Los Angeles, then back to Montreal. Note that

each overall period is covered by separate "VAVAILABILITY" components. The last of these has no DTEND so continues on "for ever". This example shows one way "blocks" of available time can be represented. See Section 4 for another approach using priority.


```
BEGIN:VAVAILABILITY
ORGANIZER:mailto:bernard@example.com
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
DTSTART;TZID=America/Montreal:20111002T000000
DTEND;TZID=America/Montreal:20111023T030000
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Friday from 9:00 to 17:00
DTSTART;TZID=America/Montreal:20111002T090000
DTEND;TZID=America/Montreal:20111002T170000
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH,FR
LOCATION:Montreal
END:AVAILABLE
END:VAVAILABILITY
BEGIN:VAVAILABILITY
ORGANIZER:mailto:bernard@example.com
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
DTSTART;TZID=America/Los_Angeles:20111023T000000
DTEND;TZID=America/Los_Angeles:20111030T000000
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Friday from 9:00 to 17:00
DTSTART;TZID=America/Los_Angeles:20111023T090000
DTEND;TZID=America/Los_Angeles:20111023T170000
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH,FR
LOCATION:Los Angeles
END:AVAILABLE
END:VAVAILABILITY
BEGIN:VAVAILABILITY
ORGANIZER:mailto:bernard@example.com
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
DTSTART;TZID=America/Montreal:20111030T030000
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Friday from 9:00 to 17:00
DTSTART;TZID=America/Montreal:20111030T090000
DTEND;TZID=America/Montreal:20111030T170000
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH,FR
LOCATION:Montreal
END:AVAILABLE
END:VAVAILABILITY
```

3.2. Busy Time Type

Property Name: BUSYTYPE

Purpose: This property specifies the default busy time type.

Value Type: TEXT

Property Parameters: IANA and non-standard property parameters can be specified on this property.

Conformance: This property can be specified within "VAVAILABILITY" calendar components.

Format Definition: This property is defined by the following notation:

```
busytype          = "BUSYTYPE" busytypeparam ":" busytypevalue CRLF
busytypeparam     = *("; " other-param)
busytypevalue     = "BUSY" / "BUSY-UNAVAILABLE" /
                   "BUSY-TENTATIVE" / iana-token / x-name
                   ; Default is "BUSY-UNAVAILABLE".
```

Description: This property is used to specify the default busy time type. The values correspond to those used by the "FBTYPE" parameter used on a "FREEBUSY" property, with the exception that the "FREE" value is not used in this property. If not specified on a component that allows this property, the default is "BUSY-UNAVAILABLE".

Example: The following is an example of this property:

```
BUSYTYPE:BUSY
```

4. Combining Vavailability components

The Vavailability component allows a calendar user to describe their availability over extended periods of time through the use of recurrence patterns. This availability may be relatively constant from year to year.

However, there is usually some degree of irregularity, as people take vacations or perhaps spend a few weeks at a different office. For that period of time there can be a need to redefine their availability.

Rather than modify their existing vavailability the "PRIORITY" property allows new vavailability components to be provided which override others of lower ordinal priority. Note that iCalendar [RFC5545] defines the "PRIORITY" property such that a value of 0 is undefined, 1 is the highest priority and 9 is the lowest.

When combining vavailability components, an absence of a "PRIORITY" property or a value of 0 implies the lowest level of priority. If two or more vavailability components have the same PRIORITY value, then their AVAILABILITY components which fall within the date range of interest are combined. It is up to the creator of such components to ensure that combining them produces a consistent and expected result.

To calculate the available time, order the intersecting "VAVAILABILITY" components by priority, those with no "PRIORITY" or a priority value of 0 first, then in decreasing order of the "PRIORITY" value.

Step through the resulting list of "VAVAILABILITY" components. For each, the time range covered by the "VAVAILABILITY" component is set to busy and then portions of it defined by the "AVAILABLE" components in the "VAVAILABILITY" component are set to free.

Note that, if any VAVAILABILITY component completely covers the date range of interest, then any lower priority VAVAILABILITY components may be ignored.

5. Calculating Free-Busy Time

This section describes how free-busy time information for a calendar user is calculated in the presence of "VAVAILABILITY" calendar components.

An iCalendar "VFREEBUSY" component is used to convey "rolled-up" free-busy time information for a calendar user. This can be generated as the result of an iTIP free-busy [RFC5546] request or through some other mechanism (e.g., a CALDAV calendar-access CALDAV :free-busy-query REPORT).

When one or more "VAVAILABILITY" components are present and intersect the time-range for the free-busy request, first available time is calculated, as outlined in Section 4. Once that is done, regular "VEVENT" and "VFREEBUSY" components can be "overlaid" in the usual way to block out additional time.

An example procedure for this is as follows:

1. Initially mark the entire period of the free-busy request as free.
2. For each "VAVAILABILITY" component ordered by PRIORITY:
 1. Determine if the "VAVAILABILITY" intersects the time-range of the free-busy request. If not ignore it.
 2. Determine if the "VAVAILABILITY" is completely overridden by a higher priority component. If so ignore it.
 3. For the time period covered by the "VAVAILABILITY" component, mark time in the free-busy request result set as busy, using the busy time type derived from the "BUSYTYPE" property in the "VAVAILABILITY" component.
3. For each remaining "VAVAILABILITY" component in the same order:
 1. For each "AVAILABLE" component in the "VAVAILABILITY" component:
 1. Expand all recurring instances, taking into account overridden instances, ignoring instances or parts of instances that fall outside of the free-busy request time-range or the time period specified by the "VAVAILABILITY" component.
 2. For each instance, mark the corresponding time in the free-busy request result set as free.
4. For each "VEVENT" or "VFREEBUSY" component apply normal free-busy processing within the free-busy request time-range.

5.1. Examples

In the examples below a table is used to represent time slots for the period of a free-busy request. Each time slot is two hours long. The column header represents the hours from midnight local time. Each row below the column headers represents a step in the free-busy result set determination, following the procedure outlined above.

Each cell in the rows below the column header contains a single character that represents the free-busy type for the corresponding time period at the end of the process step represented by the row. The characters in the row are:

Character	Meaning
F	Represents "FREE" time in that slot.
B	Represents "BUSY" time in that slot.
U	Represents "BUSY-UNAVAILABLE" time in that slot.
T	Represents "BUSY-TENTATIVE" time in that slot.

5.1.1. Simple Example

A free-busy request for Monday, 6th November 2011, midnight to midnight in the America/Montreal timezone.

The user's calendar is as shown in Appendix A . This includes one "VAVAILABILITY" component giving available time within the requested time-range of 8:00 AM to 6:00 PM, together with one "VEVENT" component representing a two hour meeting starting at 12:00 PM.

Step	0	2	4	6	8	10	12	14	16	18	20	22
1.	F	F	F	F	F	F	F	F	F	F	F	F
2.	U	U	U	U	U	U	U	U	U	U	U	U
3.	U	U	U	U	F	F	F	F	F	U	U	U
4.	U	U	U	U	F	F	B	F	F	U	U	U

5.1.2. Further Example

The following is another way to represent the availability of the traveling worker shown above. Here we represent their base availability of Monday through Friday, 9:00 AM to 5:00 PM each day with a "VAVILABILITY" with defaulted PRIORITY. For the three weeks the calendar user is working in Montreal we represent it with an overriding "VAVAILABILITY" component with priority 1.

```

BEGIN:VAVAILABILITY
ORGANIZER:mailto:bernard@example.com
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
DTSTART;TZID=America/Montreal:20111002T000000
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Friday from 9:00 to 17:00
DTSTART;TZID=America/Montreal:20111002T090000
DTEND;TZID=America/Montreal:20111002T170000
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH,FR
LOCATION:Montreal
END:AVAILABLE
END:VAVAILABILITY
BEGIN:VAVAILABILITY
ORGANIZER:mailto:bernard@example.com
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
DTSTART;TZID=America/Los_Angeles:20111023T000000
DTEND;TZID=America/Los_Angeles:20111030T000000
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Friday from 9:00 to 17:00
DTSTART;TZID=America/Los_Angeles:20111023T090000
DTEND;TZID=America/Los_Angeles:20111023T170000
PRIORITY:1
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH,FR
LOCATION:Los Angeles
END:AVAILABLE
END:VAVAILABILITY

```

6. CalDAV Extensions

6.1. CalDAV Requirements Overview

This section lists what functionality is required of a CalDAV server which supports this extension. A server:

- o MUST support "VAVAILABILITY" components in a calendar collection resource if the CALDAV calendar-access feature is supported, which includes advertising it in CALDAV:supported-calendar-component-set properties on calendars;
- o MUST support CALDAV:free-busy-query REPORTs that aggregate the information in any "VAVAILABILITY" components in the calendar collections targeted by the request;

- o MUST support "VAVAILABILITY" components stored in a CALDAV :calendar-availability WebDAV property on a CALDAV scheduling inbox collection if the CALDAV calendar-auto-schedule feature is supported;
- o MUST support iTIP [RFC5546] free-busy requests that aggregate the information in any "VAVAILABILITY" components in calendar collections that contribute to free-busy, or in any "VAVAILABILITY" components stored in the CALDAV:calendar-availability in the CALDAV scheduling inbox collection of the calendar user targeted by the iTIP free-busy request, if the CalDAV calendar-auto-schedule feature is available.

6.2. New features in CalDAV

6.2.1. Calendar Availability Support

A server supporting the features described in this document MUST include "calendar-availability" as a field in the DAV response header from an OPTIONS request on any resource that supports any calendar properties, reports, method, or privilege. A value of "calendar-availability" in the DAV response header MUST indicate that the server supports all MUST level requirements specified in this document.

6.2.1.1. Example: Using OPTIONS for the Discovery of Calendar Availability Support

>> Request <<

```
OPTIONS /home/bernard/calendars/ HTTP/1.1
Host: cal.example.com
```

>> Response <<

```
HTTP/1.1 200 OK
Allow: OPTIONS, GET, HEAD, POST, PUT, DELETE, TRACE, COPY, MOVE
Allow: PROPFIND, PROPPATCH, LOCK, UNLOCK, REPORT, ACL
DAV: 1, 2, 3, access-control, calendar-access,
    calendar-availability
Date: Fri, 11 Nov 2005 09:32:12 GMT
Content-Length: 0
```

In this example, the OPTIONS method returns the value "calendar-availability" in the DAV response header to indicate that the collection "/home/bernard/calendars/" supports the new features defined in this specification.

6.2.2. CALDAV:free-busy-query REPORT

A CALDAV:free-busy-query REPORT can be executed on a calendar collection that contains iCalendar "VAVAILABILITY" components. When that is done, the server MUST aggregate the information in any "VAVAILABILITY" components when generating the free-busy response, as described in Section 5 .

6.2.3. CALDAV:calendar-availability Property

Name: calendar-availability

Namespace: urn:ietf:params:xml:ns:caldav

Purpose: Defines a "VAVAILABILITY" component that will be used in calculating free-busy time when an iTIP free-busy request is targeted at the calendar user who owns the Inbox.

Conformance: This property MAY be protected and SHOULD NOT be returned by a PROPFIND DAV:allprop request. Support for this property is REQUIRED. The value of this property MUST be a valid iCalendar object containing "VAVAILABILITY" components and "VTIMEZONE" components (if required) only.

Description: This property allows a user to specify their availability by including "VAVAILABILITY" components in the value of this property. If present, the server MUST use these "VAVAILABILITY" components when determining free-busy information as part of an iTIP free-busy request being handled by the server.

Definition:

```
<!ELEMENT calendar-availability (#PCDATA) >  
; Data value MUST be iCalendar object containing  
; "VAVAILABILITY" or "VTIMEZONE" components.
```

Example:


```

<C:calendar-availability xmlns:D="DAV:"
  xmlns:C="urn:ietf:params:xml:ns:caldav"
>BEGIN:VCALENDAR
CALSCALE:GREGORIAN
PRODID:-//example.com//iCalendar 2.0//EN
VERSION:2.0
BEGIN:VTIMEZONE
LAST-MODIFIED:20040110T032845Z
TZID:America/Montreal
BEGIN:DAYLIGHT
DTSTART:20000404T020000
RRULE:FREQ=YEARLY;BYDAY=1SU;BYMONTH=4
TZNAME:EDT
TZOFFSETFROM:-0500
TZOFFSETTO:-0400
END:DAYLIGHT
BEGIN:STANDARD
DTSTART:20001026T020000
RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=10
TZNAME:EST
TZOFFSETFROM:-0400
TZOFFSETTO:-0500
END:STANDARD
END:VTIMEZONE
BEGIN:VAVAILABILITY
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
DTSTART;TZID=America/Montreal:20111002T000000
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Friday from 9:00 to 18:00
DTSTART;TZID=America/Montreal:20111002T090000
DTEND;TZID=America/Montreal:20111002T180000
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH,FR
END:AVAILABLE
END:VAVAILABILITY
END:VCALENDAR
</C:calendar-availability>

```

6.2.4. iTIP free-busy requests

The [RFC6638] processing of an iTIP free-busy request targeted at the owner of the CALDAV:schedule-inbox will include free-busy information derived from "VAVAILABILITY" components in any calendar collection targeted during the request, as described in Section 5. In addition, any "VAVAILABILITY" components specified in the CALDAV:calendar-availability property on the owner's Inbox, MUST be included in the free-busy calculation.

7. Security Considerations

Free-busy information generated from "VAVAILABILITY" components MUST NOT include information other than busy or free time periods. In particular, user specified property values such as "SUMMARY" and "DESCRIPTION" MUST NOT be copied into the free-busy result data.

Beyond this, this specification does not add any additional security issues that are not already present in [RFC5545] and [RFC5546] .

8. IANA Considerations

8.1. Component Registrations

This documents defines the following new iCalendar components to be added to the registry defined in Section 8.2.2 of [RFC5545] :

Component	Status	Reference
VAVAILABILITY	Current	RFCXXXX, Section 3.1
AVAILABLE	Current	RFCXXXX, Section 3.1

8.2. Property Registrations

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

Property	Status	Reference
BUSYTYPE	Current	RFCXXXX, Section 3.2

9. Acknowledgments

Thanks to the following for providing feedback: Toby Considine and Dave Thewlis. Particular thanks go to Bernard Desruisseaux. This specification came about via discussions at the Calendaring and Scheduling Consortium.

10. Normative References

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

- [RFC4791] Daboo, C., Desruisseaux, B., and L. Dusseault, "Calendaring Extensions to WebDAV (CalDAV)", RFC 4791, March 2007.
- [RFC5545] Desruisseaux, B., "Internet Calendaring and Scheduling Core Object Specification (iCalendar)", RFC 5545, September 2009.
- [RFC5546] Daboo, C., "iCalendar Transport-Independent Interoperability Protocol (iTIP)", RFC 5546, December 2009.
- [RFC6638] Daboo, C. and B. Desruisseaux, "Scheduling Extensions to CalDAV", RFC 6638, June 2012.

Appendix A. Example Calendar #1

iCalendar object

```
BEGIN:VCALENDAR
CALSCALE:GREGORIAN
PRODID:-//example.com//iCalendar 2.0//EN
VERSION:2.0
BEGIN:VTIMEZONE
LAST-MODIFIED:20040110T032845Z
TZID:America/Montreal
BEGIN:DAYLIGHT
DTSTART:20000404T020000
RRULE:FREQ=YEARLY;BYDAY=1SU;BYMONTH=4
TZNAME:EDT
TZOFFSETFROM:-0500
TZOFFSETTO:-0400
END:DAYLIGHT
BEGIN:STANDARD
DTSTART:20001026T020000
RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=10
TZNAME:EST
TZOFFSETFROM:-0400
TZOFFSETTO:-0500
END:STANDARD
END:VTIMEZONE
BEGIN:VEVENT
DTSTAMP:20111113T044111Z
DTSTART;TZID=America/Montreal:20111106T120000
DURATION:PT1H
SUMMARY:Meeting
UID:60A48841ECB90F3F215FE3D2@example.com
END:VEVENT
BEGIN:VAVAILABILITY
UID:20111005T133225Z-00001@example.com
DTSTAMP:20111005T133225Z
DTSTART;TZID=America/Montreal:20111002T000000
BEGIN:AVAILABLE
UID:20111005T133225Z-00001-A@example.com
SUMMARY:Monday to Friday from 9:00 to 18:00
DTSTART;TZID=America/Montreal:20111002T090000
DTEND;TZID=America/Montreal:20111002T180000
RRULE:FREQ=WEEKLY;BYDAY=MO,TU,WE,TH,FR
END:AVAILABLE
END:VAVAILABILITY
END:VCALENDAR
```

Appendix B. Change History (To be removed by RFC Editor before publication)

Changes in -04:

1. Small typos.
2. Add prioritized example.

Changes in -03:

1. Switch authors.
2. CalDAV scheduling is now rfc6638.
3. List priority as a vavailability property and define its use.

Changes in -02:

1. Updated to 5545/5546 references.
2. Fixed some examples.
3. Added some more properties to the components
4. Fixed text that said dtstart was required in VAVAILABILITY

Changes in -01:

1. Allow property on Inbox for caldav-schedule.
2. Clarify that DURATION can only be present in VAVAILABILITY if DTSTART is also present, and DTEND is not.
3. Updated references.
4. Added templates.

Authors' Addresses

Cyrus Daboo
Apple Inc.
1 Infinite Loop
Cupertino, CA 95014
USA

Email: cyrus@daboo.name
URI: <http://www.apple.com/>

Michael Douglass
Rensselaer Polytechnic Institute
110 8th Street
Troy, NY 12180
USA

Email: douglm@rpi.edu
URI: <http://www.rpi.edu/>