CalConnect TC

Calendaring and scheduling — iTip using PARTICIPANT only

Committee Draft Standard

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Foreword

This specification defines updates to RFC5546 iTip which allow scheduling using the "PARTICIPANT" calendar components specified in RFC9073.

New properties are also defined for use within the "PARTICIPANT" calendar component.

The Calendaring and Scheduling Consortium ("CalConnect") is a global non-profit organization with the aim to facilitate interoperability of collaborative technologies and tools through open standards.

CalConnect works closely with international and regional partners, of which the full list is available on our website (https://www.calconnect.org/about/liaisons-and-relationships).

The procedures used to develop this document and those intended for its further maintenance are described in the CalConnect Directives.

In particular the different approval criteria needed for the different types of CalConnect documents should be noted. This document was drafted in accordance with the editorial rules of the CalConnect Directives.

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This document was prepared by Technical Committee FREEBUSY.

Introduction

This specification details how the "PARTICIPANT" calendar component introduced in IETF RFC 9073 may be used for scheduling in place of IETF RFC 5545 "ATTENDEE" and "ORGANIZER" properties. Additionally, some properties are defined in this specification to be used within the "PARTICIPANT" calendar component.

For "VEVENT", "VTODO", "VFREEBUSY", and "VAVAILABILITY" calendar components; the "ORGANIZER" and "ATTENDEE" properties MUST be supplied as specified in IETF RFC 5546. For new components such as the "VPOLL" calendar component, defined elsewhere, only "PARTICIPANT" calendar components MUST be used. A participant object that takes part in group scheduling MUST have the following characteristics:

- It MUST have a calendar address as defined in <u>IETF RFC 9073</u>, <u>Section 6.4</u>.
- It must have one or more scheduling roles defined in PARTICIPANT-TYPE
- Exactly 1 PARTICIPANT MUST have the OWNER role

Scheduling with "PARTICIPANT" calendar components behaves exactly as with "ATTENDEE" and "ORGANIZER" properties. When iTip specifies the setting of "ATTENDEE" or "ORGANIZER" property parameters then the appropriate properties will be set within the "PARTICIPANT" calendar component.

Calendaring and scheduling — iTip using PARTICIPANT only

1. Scope

This document provides a mechanism in iCalendar for consensus scheduling of events, using the "PARTICIPANT" calendar component.

This document also defines new properties for use within the "PARTICIPANT" calendar component.

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.

IETF RFC 2518, Y. GOLAND, E. WHITEHEAD, A. FAIZI, S. CARTER and D. JENSEN. *HTTP Extensions for Distributed Authoring — WEBDAV.* 1999. RFC Publisher. https://www.rfc-editor.org/info/rfc2518.

IETF RFC 3986, T. BERNERS-LEE, R. FIELDING and L. MASINTER. *Uniform Resource Identifier (URI): Generic Syntax*. 2005. RFC Publisher. https://www.rfc-editor.org/info/rfc3986.

IETF RFC 4791, C. DABOO, B. DESRUISSEAUX and L. DUSSEAULT. *Calendaring Extensions to WebDAV (CalDAV)*. 2007. RFC Publisher. https://www.rfc-editor.org/info/rfc4791.

IETF RFC 5234, P. OVERELL. *Augmented BNF for Syntax Specifications: ABNF*. 2008. RFC Publisher. https://www.rfc-editor.org/info/rfc5234.

IETF RFC 5545, B. DESRUISSEAUX (ed.). *Internet Calendaring and Scheduling Core Object Specification (iCalendar)*. 2009. RFC Publisher. https://www.rfc-editor.org/info/rfc5545.

IETF RFC 5546, C. DABOO (ed.). *iCalendar Transport-Independent Interoperability Protocol (iTIP*). 2009. RFC Publisher. https://www.rfc-editor.org/info/rfc5546.

IETF RFC 6047, A. MELNIKOV (ed.). *iCalendar Message-Based Interoperability Protocol (iMIP)*. 2010. RFC Publisher. https://www.rfc-editor.org/info/rfc6047.

IETF RFC 9073, M. DOUGLASS. *Event Publishing Extensions to iCalendar*. 2021. RFC Publisher. https://www.rfc-editor.org/info/rfc9073.

3. Terms and definitions

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

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 IETF RFC 2119.

The notation used in this memo to (re-)define iCalendar elements is the ABNF notation of IETF RFC 5545. Any syntax elements shown below that are not explicitly defined in this specification come from iCalendar IETF RFC 5545.

Additionally, the following terms are used:

3.1.

participant

Represents an agent that takes part in scheduling or publishing. A participant may be a human, for example an attendee, or a resource, for example a conference room.

3.2.

publishable

A component which takes part in <u>IETF RFC 5546</u> publishing operations.

3.3.

schedulable

A component which takes part in IETF RFC 5546 scheduling operations.

3.4.

owner

The "Owner" of a "Schedulable" component is equivalent to the "Organizer" in <u>IETF RFC 5546</u>. As such, there may be only one "Owner" though future specifications may relax or extend that constraint. The "Owner" is indicated by a role of "OWNER".

4. iCalendar Extensions

4.1. New Property Parameters

4.1.1. Required

Parameter name REQUIRED

Purpose To specify whether the associated property is required in the current

context.

Format This parameter is defined by the following notation:

Definition

```
requiredparam = "REQUIRED" "=" ("TRUE" / "FALSE")
   ; Default is FALSE
```

Figure 1

Description This parameter MAY be specified on "REPLY-URL" property and, if the value is TRUE, indicates the "Owner" requires all replies to be made via the specified service rather than iTip replies.

4.2. New Properties

4.2.1. Reply-URL

Property name REPLY-URL

Purpose This property may be used in scheduling messages to indicate

additional reply methods, for example a web-service.

Value type URI

Property Non-standard, required or iana parameters can be specified on this

Parameters property.

Conformance This property MAY be specified once in any schedulable component.

Description When used in a scheduling message this property indicates an

additional or required service that can be used to reply. Typically, this

would be a web service of some form.

When the "REQUIRED" property parameter is absent then this property provides an alternative to standard iTip based scheduling.

When the "REQUIRED" property parameter is present then this property provides the only mechanism by which participants can reply. This allows the implementation of a web-based service without the ability to accept incoming mail for example.

Format Definition

This property is defined by the following notation:

Figure 2

4.3. Redefined participation type

This specification redefines the "PARTICIPANT-TYPE" property allowing it to take multiple values and extending those values to align with IETF RFC 8984 roles. There are also changes to the description to clarify its use defining the roles that participant takes.

Property name	PARTICIPANT-TYPE
Purpose	This property is equivalent to the <u>IETF RFC 5545</u> "ROLE" property parameter but includes more values to align with <u>IETF RFC 8984</u> .
Value Type	The value type for this property is TEXT. The allowable values are defined below.
Property Parameters	Non-standard or iana parameters can be specified on this property.
Conformance	This property MUST be specified once within a "PARTICIPANT" calendar component.
Description	This property defines the type of participation, that is the roles the participant takes.
	It includes the values defined in <u>IETF RFC 8984</u> .
	Note that the kind of participant, for example individual or group, is defined in the "KIND" property specified here.
	Some of the roles are required for the participant to be a "schedulable" object. These are the roles that are shown below.
Format Definition	This property is defined by the following notation:
participanttype	<pre>= "PARTICIPANT-TYPE" partvalueparam ":" partvalue *("," partvalue) CRLF</pre>
,	OWNER" "ATTENDEE" "OPTIONAL" "INFORMATIONAL"

/ "CHAIR"

```
/ "ACTIVE"
/ "INACTIVE"
/ "SPONSOR"
/ "CONTACT"
/ "BOOKING-CONTACT"
/ "EMERGENCY-CONTACT"
/ "PUBLICITY-CONTACT"
/ "PLANNER-CONTACT"
/ "PERFORMER"
/ "SPEAKER"
/ iana-token) ; Other IANA-registered
; values
partvalueparam = *(";" other-param)
```

Figure 3

The values have the same meaning as defined in <u>IETF RFC 8984</u> and <u>IETF RFC 9073</u>.

Other roles defined here have no direct equivalent in <u>IETF RFC 5545</u>

To map <u>IETF RFC 5545</u> "ROLE" property parameter values to "PARTICIPANT-TYPE" property values use the following.

Table 1

RFC5545 ROLE PARTICIPANT-TYPE

CHAIR CHAIR

REQ-PARTICIPANT ATTENDEE

OPT-PARTICIPANT OPTIONAL

NON-PARTICIPANT INFORMATIONAL

The following table shows those roles that MUST appear in the "PARTICIPANT-TYPE" property for group-scheduling. Additionally, the mapping for "PARTICIPANT-TYPE" property values to IETF RFC 5545 values are shown.

Table 2

PARTICIPANT-TYPE OWNER	RFC5545 ROLE Create ORGANIZER
ATTENDEE	REQ-PARTICIPANT
OPTIONAL	OPT-PARTICIPANT
INFORMATIONAL	NON-PARTICIPANT

CHAIR CHAIR

Subsequent values have no <u>IETF RFC 5545</u> equivalent

CONTACT

VOTER

ACTIVE

INACTIVE

PARTICIPANT-TYPE

RFC5545 ROLE

SPONSOR

BOOKING-CONTACT

EMERGENCY-CONTACT

PUBLICITY-CONTACT

PLANNER-CONTACT

PERFORMER

SPEAKER

```
Examples — PARTICIPANT-TYPE=OWNER,... equivalent to the "ORGANIZER" property
— PARTICIPANT-TYPE=ATTENDEE,... equivalent to the "ATTENDEE" property
```

5. New Participant Properties for iTip

The following properties are defined to be used within the "PARTICIPANT" calendar component during scheduling and take the place of "ATTENDEE" and "ORGANIZER" properties and parameters.

5.1. Kind

```
Property name
                    KIND
   Purpose
                    This is what kind of entity this participant is, if known.
                    Non-standard or iana parameters can be specified on this property.
   Property
   Parameters
                    This property MAY be specified in a "PARTICIPANT" calendar
   Conformance
                    component.
                    When used in a "PARTICIPANT" calendar component this property
   Description
                    indicates the kind of entity, individual, group etc.
                    It takes the values shown below which are a redefinition of the
                    "CUTYPE" property parameter values defined in IETF RFC 5545 and
                    aligned with IETF RFC 8984.
                    This property is defined by the following notation:
   Format
   Definition
kind = "KIND" kindparams ":"
                  "INDIVIDUAL"
                                   ; An individual
                / "GROUP"
                                   ; A group of individuals
                / "RESOURCE"
                                   ; A physical resource
                / "LOCATION"
                                   ; A location resource e.g a room
                / iana-token CRLF
kindparams = *(";" other-param)
```

Figure 4

5.2. Participation-status

Property name PARTICIPATION-STATUS

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Purpose This property is used in the "PARTICIPANT" calendar component to

indicate the participation status — if any.

Property Parameters Non-standard or iana parameters can be specified on this property.

Conformance This property MAY be specified in a "PARTICIPANT" calendar

component.

Description When used in a "PARTICIPANT" calendar component this property

indicates what status, if any, the participant has.

It takes the same values as the "PARTSTAT" property parameter

defined in IETF RFC 5545.

Format This proper Definition

This property is defined by the following notation:

```
participation-status = "PARTICIPATION-STATUS"
                         participation-statusparams ":"
               NEEDS-ACTION / ; No status
                         ; has yet been set by the participant.
               ACCEPTED / ; The invited
                          ; participant will participate.
               DECLINED / ; The invited
               ; participant will not participate. 
 \label{tensor} \mbox{TENTATIVE / ; The invited participant}
                         ; may participate.
               DELEGATED / ; The invited participant
                         ; has delegated their attendance to
                         ; another participant, as specified
                          ; in the PARTICIPATION-DELEGATED-TO property.
               COMPLETED / ; The assigned task is
                          ; completed.
               IN-PROCESS / ; The assigned task is
                         ; being worked on.
```

participation-statusparams = *(";" other-param)

iana-token ("," iana-token) CRLF

PARTICIPATION-DELEGATED-FROM

Figure 5

5.3. Participation delegated from

Purpose This property is used in the "PARTICIPANT" calendar component to indicate who has delegated their participation to this participant.

Property Non-standard or iana parameters can be specified on this property.

Parameters Conformance

Property name

This property MAY be specified in a "PARTICIPANT" calendar component

0 or more times.

Description This property specifies a calendar user that has delegated their

participation in a group-scheduled component to the calendar user

specified by the component.

Format This property is defined by the following notation:

Definition

```
CAL-ADDRESS
              iana-token ("," iana-token) CRLF
participation-delfromparams = *(";" other-param)
```

Figure 6

5.4. Participation delegated to

Property name PARTICIPATION-DELEGATED-TO

0 or more times.

To specify the calendar user to whom the calendar user specified by the **Purpose**

component has delegated participation.

Property **Parameters**

Description

Non-standard or iana parameters can be specified on this property.

Conformance This property MAY be specified in a "PARTICIPANT" calendar component

This property specifies the calendar user that has been delegated

participation in a group-scheduled component by the calendar user

specified by the component.

This property is defined by the following notation: Format

Definition

participation-delto = "PARTICIPATION-DELEGATED-TO" participation-deltoparams ":" CAL-ADDRESS iana-token ("," iana-token) CRLF

participation-deltoparams = *(";" other-param)

Figure 7

5.5. Member of

Property name MEMBER-OF

To specify the group or list membership of the calendar user specified **Purpose**

by the component.

Property Parameters Non-standard or iana parameters can be specified on this property.

Conformance This property MAY be specified in a "PARTICIPANT" calendar

component 0 or more times.

This property identifies the group or list membership for the calendar Description

user specified by the component.

Format Definition This property is defined by the following notation:

```
member-of = "MEMBER-OF" member-ogparams ":"
              CAL-ADDRESS
              iana-token ("," iana-token) CRLF
memberofparams = *(";" other-param)
```

Figure 8

5.6. Lang

Property name LANG

Purpose This is the language tag, as defined in IETF RFC 5646, that best

describes the participant's preferred language, if known.

Property Non-standard or iana parameters can be specified on this property.

Parameters

Conformance This property MAY be specified in any appropriate component.

Format This property is defined by the following notation:

Definition

lang = "LANG" langparams ":" TEXT CRLF

langparams = *(";" other-param)

Figure 9

5.7. Expect reply

Property name EXPECT-REPLY

Purpose If true, the organizer is expecting the participant to notify them of

their participation status.

Property Parameters Non-standard or iana parameters can be specified on this property.

Conformance

This property MAY be specified once in the "PARTICIPANT" calendar

component.

Format Definition This property is defined by the following notation:

Figure 10

5.8. Scheduling-agent

Property name SCHEDULING-AGENT

Purpose This is who is responsible for sending scheduling messages with this

calendar object to the participant.

Property

Parameters Conformance Non-standard or iana parameters can be specified on this property.

This property MAY be specified once in the "PARTICIPANT" calendar

component.

Format Definition This property is defined by the following notation:

```
"CLTENT" /
                "NONE") CRLF
scheduling-agentparams = *(";" other-param)
```

Figure 11

The value MUST be one of the following values from the registry defined in IETF RFC 6638, Section 12.4.1, or a vendor-specific value.

The calendar server will send the scheduling messages. SERVER

The calendar client will send the scheduling messages. CLIENT

NONE No scheduling messages are to be sent to this participant.

5.9. Scheduling-force-send

Property name

SCHEDULING-FORCE-SEND

Purpose A client may set the property on a participant to true to request that the

> server send a scheduling message to the participant when it would not normally do so (e.g., if no significant change is made the object or the scheduleAgent is set to client). The property MUST NOT be stored in the

object on the server or appear in a scheduling message.

Property Parameters Non-standard or iana parameters can be specified on this property.

Conformance This property MAY be specified once in the "PARTICIPANT" calendar

component.

Format Definition This property is defined by the following notation:

scheduling-force-send = "SCHEDULING-FORCE-SEND" scheduling-force-sendparams ":" ("TRUE" / "FALSE") CRLF

scheduling-force-sendparams = *(";" other-param)

Figure 12

Description This property MAY be specified in "PARTICIPANT" calendar components for which the "SCHEDULE-AGENT" property is set to the value "SERVER" or is absent. This property is used to force a server to send a scheduling message to a specific calendar user in situations where the server would not send a scheduling message otherwise (e.g., when no change that warrants the delivery of a new scheduling message was performed on the scheduling object resource). An "Owner" MAY specify this property for a PARTICIPANT with the value "REQUEST" to force a "REQUEST" scheduling message to be sent to the user.

> Participants who are not the "Owner" MAY specify this property in the "Owner" PARTICIPANT with the value "REPLY" to force a "REPLY" scheduling message to be sent to the "Owner".

Servers MUST NOT preserve this property in scheduling object resources, nor include it in any scheduling messages sent as the result of a scheduling operation.

Clients MUST NOT include this property in any scheduling messages that they themselves send.

Servers MUST set the "SCHEDULING-STATUS" property of the participant to 2.5 (i.e., "Success; unknown, non-standard property value ignored."; see IETF RFC 5546, Section 3.6.6) when the "SCHEDULE-FORCE-SEND" property is set to an iana-token value they do not recognize.

5.10. Scheduling-status

Property name Purpose SCHEDULING-STATUS

This is a list of status codes, returned from the processing of the most recent scheduling message sent to this participant. The status codes MUST be valid statcode values as defined in the ABNF in Section 3.8.8.3

of [RFC5545].

Servers MUST only add or change this property when they send a scheduling message to the participant. Clients SHOULD NOT change or remove this property if it was provided by the server. Clients MAY add, change, or remove the property for participants where the client is handling the scheduling. This property MUST NOT be included in

scheduling messages.

Property Parameters Non-standard or iana parameters can be specified on this property.

Conformance This property MAY be specified in any appropriate component.

Format Definition

This property is defined by the following notation:

Definition

scheduling-status = "SCHEDULING-STATUS"

scheduling-statusparams ":" TEXT CRLF

scheduling-statusparams = *(";" other-param)

Figure 13

5.11. Scheduling-dtstamp

Property name SCHEDULING-DTSTAMP

Purpose This is the timestamp for the most recent response from this

participant.

This is the updated property of the last response when using iTIP. It can be compared to the updated property in future responses to detect and

discard older responses delivered out of order.

Property Parameters Non-standard or iana parameters can be specified on this property.

Conformance This property MAY be specified in any appropriate component.

Format

This property is defined by the following notation:

Definition

```
scheduling-dtstamp = "SCHEDULING-DTSTAMP"
```

scheduling-dtstampparams ":" DATE-TIME CRLF

scheduling-dtstampparams = *(";" other-param)

Figure 14

5.12. Invited-by

Property name INVITED-BY

Purpose This is the calendar address of the participant who added this

participant to the entity, if known.

Property Parameters Non-standard or iana parameters can be specified on this property.

Conformance This property MAY be specified in any appropriate component.

Format Definition This property is defined by the following notation:

Figure 15

6. Attendee parameters mapping

Table 3

Parameter iCalendar PARTICIPANT

CN NAME (defined in <u>IETF RFC 7986</u>)

CUTYPE KIND (defined here)

DELEGATED-FROM PARTICIPATION-DELEGATED-FROM Clause 5.3

DELEGATED-TO PARTICIPATION-DELEGATED-TO (defined here)

DIR LINK IETF RFC 9253

LANGUAGE LANG (defined here)

MEMBER MEMBER-OF (defined here)

PARTICIPATION-STATUS (defined here)

ROLE PARTICIPATION-TYPE (updated here)

RSVP EXPECT-REPLY (defined here)

SENT-BY

7. Security Considerations

There should be no new security risks additional to those noted in **IETF RFC 5546**.

8. IANA Considerations

8.1. Parameter Registrations

This document defines the following new iCalendar property parameters to be added to the registry defined in <u>IETF RFC 5545</u>, <u>Section 8.2.4</u>:

Table 4

Property Parameter	Status	Reference
REQUIRED	Current	<u>Clause 4.1.1</u>

8.2. Property Registrations

This document defines the following new iCalendar properties to be added to the registry defined in <u>IETF RFC 5545</u>, <u>Section 8.2.3</u>:

Ta	h	1~	_
ıa	n	ıe	~

Property EXPECT-REPLY	Status Current	Reference Clause 5.7
INVITED-BY	Current	<u>Clause 5.12</u>
KIND	Current	Clause 5.1
LANG	Current	Clause 5.6
MEMBER-OF	Current	Clause 5.5
PARTICIPATION-DELEGATED-FROM	Current	Clause 5.3
PARTICIPATION-DELEGATED-TO	Current	Clause 5.4
PARTICIPATION-STATUS	Current	Clause 5.2
REPLY-URL	Current	<u>Clause 4.2.1</u>
SCHEDULING-AGENT	Current	Clause 5.8
SCHEDULING-DTSTAMP	Current	<u>Clause 5.11</u>
SCHEDULING-FORCE-SEND	Current	Clause 5.9
SCHEDULING-STATUS	Current	<u>Clause 5.10</u>

8.3. Updated Participant Type Registrations

This updates the participant types registry defined in IETF RFC 9073, Section 11.2.1

Ta	h	le	6
ıu		_	v

Participant Type	Status	Reference
OWNER	Current	RFC8984 <u>IETF RFC 8984</u> , <u>Section 4.4.6</u>
ATTENDEE	Current	RFC8984 IETF RFC 8984, Section 4.4.6

Participant Type OPTIONAL	Status Current	Reference RFC8984 <u>IETF RFC 8984, Section 4.4.6</u>
INFORMATIONAL	Current	RFC8984 <u>IETF RFC 8984, Section 4.4.6</u>
CHAIR	Current	RFC8984 <u>IETF RFC 8984</u> , <u>Section 4.4.6</u>

9. Acknowledgements

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