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**New Properties for iCalendar
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Abstract

This document defines a set of new properties for iCalendar data as well as extending the use of some existing properties to the entire iCalendar object.

Status of this Memo

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1. Introduction

The iCalendar [[RFC5545](#)] data format is used to represent calendar data and is used with iTIP [[RFC5546](#)] to handle scheduling operations between calendar users. iCalendar is in widespread use, and in accordance with provisions in that specification, extension elements have been added by various vendors to the data format in order to support and enhance capabilities. This specification collects a number of these ad-hoc extensions and uses the new IANA registry capability defined in [[RFC5545](#)] to register standard variants with clearly defined definitions and semantics. In addition, some new elements are introduced for features that vendors have recently been requesting.

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](#)].

The notation used in this memo is the ABNF notation of [[RFC5234](#)] as used by iCalendar [[RFC5545](#)]. Any syntax elements shown below that are not explicitly defined in this specification come from iCalendar [[RFC5545](#)].

3. Backwards Compatible Extension Properties

iCalendar defines properties which can have different value types indicated by a "VALUE" parameter. The definition of a property specifies a "default" value type that is assumed to be used when no "VALUE" parameter is present. However, this poses a problem to iCalendar parser/generator software that does not know about the default values for new properties. For example, if a new property "FOO" were defined with a default value type of URI, and a URI value with a comma was used, an iCalendar generator not aware of this fact would likely treat the property value as "TEXT" and apply backslash escaping to the comma in the value, effectively making it an invalid URI value.

To avoid this problem, this specification recommends that all properties not defined in [[RFC5545](#)], always include a "VALUE" parameter, if the type is other than "TEXT". i.e., in the example above, the "FOO" property would have a "VALUE=URI" parameter. This allows iCalendar parser/generator software to track the correct types of unknown properties.

New properties defined in this specification use the term "no default" in the "Value Type" definition to indicate that the "VALUE" parameter has to be included.

4. Modifications to Calendar Components

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

```
calprops /= *(
    ;
    ; The following are OPTIONAL,
    ; but MUST NOT occur more than once.
    ;
    uid / last-mod / url /
    refresh / source / color
    ;
    ; The following are OPTIONAL,
    ; and MAY occur more than once.
    ;
    name / description / categories /
    image
    ;
)

eventprop /= *(
    ;
    ; The following are OPTIONAL,
    ; but MUST NOT occur more than once.
    ;
    color /
    ;
    ; The following are OPTIONAL,
    ; and MAY occur more than once.
    ;
    image
    ;
)

todoprop /= *(
    ;
    ; The following are OPTIONAL,
    ; but MUST NOT occur more than once.
    ;
    color /
    ;
)
```

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```
        ; The following are OPTIONAL,  
        ; and MAY occur more than once.  
        ;  
        image  
        ;  
    )  
  
jourprop /= *(  
    ;  
    ; The following are OPTIONAL,  
    ; but MUST NOT occur more than once.  
    ;  
    color /  
    ;  
    ; The following are OPTIONAL,  
    ; and MAY occur more than once.  
    ;  
    image  
    ;  
    )
```

5. Properties

5.1. NAME Property

Property Name: NAME

Purpose: This property specifies the name of the calendar.

Value Type: TEXT

Property Parameters: IANA, non-standard, alternate text representation, and language property parameters can be specified on this property.

Conformance: This property can be specified multiple times in an iCalendar object. However, each property MUST represent the name of the calendar in a different language.

Description: This property is used to specify a name of the iCalendar object that can be used by calendar user agents when presenting the calendar data to a user. Whilst a calendar only has a single name, multiple language variants can be specified by including this property multiple times with different "LANGUAGE" parameter values on each.

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

```
name          = "NAME" nameparam ":" text CRLF

nameparam     = *(
                ;
                ; The following are OPTIONAL,
                ; but MUST NOT occur more than once.
                ;
                (";" altrepparam) / (";" languageparam) /
                ;
                ; The following is OPTIONAL,
                ; and MAY occur more than once.
                ;
                (";" other-param)
                ;
                )
```

Example: The following is an example of this property:

NAME:Company Vacation Days

5.2. DESCRIPTION Property

This specification modifies the definition of the "DESCRIPTION" property to allow it to be defined on an iCalendar object. The following additions are made to the definition of this property.

Purpose: This property specifies the description of the calendar.

Conformance: This property can be specified multiple times in an iCalendar object. However, each property MUST represent the description of the calendar in a different language.

Description: This property is used to specify a lengthy textual description of the iCalendar object that can be used by calendar user agents when describing the nature of the calendar data to a user. Whilst a calendar only has a single description, multiple language variants can be specified by including this property multiple times with different "LANGUAGE" parameter values on each.

5.3. UID Property

This specification modifies the definition of the "UID" property to allow it to be defined on an iCalendar object. The following additions are made to the definition of this property.

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Purpose: This property specifies the persistent, globally unique identifier for the iCalendar object. This can be used, for example, to identify duplicate calendar streams that a client may have been given access to. It can be used in conjunction with the "LAST-MODIFIED" property also specified on the "VCALENDAR" object, to identify the most recent version of a calendar.

Conformance: This property can be specified once in an iCalendar object.

5.4. LAST-MODIFIED Property

This specification modifies the definition of the "LAST-MODIFIED" property to allow it to be defined on an iCalendar object. The following additions are made to the definition of this property.

Purpose: This property specifies the date and time that the information associated with the calendar was last revised.

Conformance: This property can be specified once in an iCalendar object.

5.5. URL Property

This specification modifies the definition of the "URL" property to allow it to be defined on an iCalendar object. The following additions are made to the definition of this property.

Purpose: This property may be used to convey a location where a more dynamic rendition of the calendar information can be found.

Conformance: This property can be specified once in an iCalendar object.

5.6. CATEGORIES Property

This specification modifies the definition of the "CATEGORIES" property to allow it to be defined on an iCalendar object. The following additions are made to the definition of this property.

Purpose: This property defines the categories for an entire calendar.

Conformance: This property can be specified multiple times in an iCalendar object.

5.7. REFRESH-INTERVAL Property

Property Name: REFRESH-INTERVAL

Purpose: This property specifies a suggested minimum interval for polling for changes of the calendar data from the original source of that data.

Value Type: DURATION - no default

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

Conformance: This property can be specified once in an iCalendar object.

Description: This property specifies a positive duration that gives a suggested minimum polling interval for checking for updates to the calendar data. The value of this property SHOULD be used by calendar user agents to limit the polling interval for calendar data updates to the minimum interval specified.

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

```
refresh      = "REFRESH-INTERVAL" refreshparam
               ":" dur-value CRLF
               ;consisting of a positive duration of time.
```

```
refreshparam = *(
    ;
    ; The following is REQUIRED,
    ; but MUST NOT occur more than once.
    ;
    (";" "VALUE" "=" "DURATION") /
    ;
    ; The following is OPTIONAL,
    ; and MAY occur more than once.
    ;
    (";" other-param)
    ;
    )
```

Example: The following is an example of this property:

```
REFRESH-INTERVAL;VALUE=DURATION:P1W
```


5.8. SOURCE Property

Property Name: SOURCE

Purpose: This property identified a URI where calendar data can be refreshed from.

Value Type: URI

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

Conformance: This property can be specified once in an iCalendar object.

Description: This property identifies a location where a client can retrieve updated data for the calendar. Clients SHOULD honor any specified "REFRESH-INTERVAL" value when periodically retrieving data.

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

source = "SOURCE" sourceparam ":" uri CRLF

sourceparam = *(";" other-param)

Example: The following is an example of this property:

SOURCE:http://example.com/holidays.ics

5.9. COLOR Property

Property Name: COLOR

Purpose: This property specifies a color used for displaying the calendar, event, todo, or journal data.

Value Type: TEXT

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

Conformance: This property can be specified once in an iCalendar object, or "VEVENT", "VTODO", or "VJOURNAL" calendar components.

Description: This property specifies a color that clients MAY use when presenting the relevant data to a user. Typically this would appear as the "background" color of events or tasks. The value is a case-insensitive color name taken from the CSS3 set of names, defined in Section 4.3 of [[W3C.REC-css3-color-20110607](#)].

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

color = "COLOR" colorparam ":" text CRLF
; Value is CSS3 color name

colorparam = *(";" other-param)

Example: The following is an example of this property:

COLOR:turquoise

5.10. IMAGE Property

Property Name: IMAGE

Purpose: This property specifies an image associated with the calendar or a calendar component.

Value Type: URI or BINARY - no default. The value MUST refer to or be data with a media type of "image".

Property Parameters: IANA, non-standard, display, inline encoding, and value data type property parameters can be specified on this property. The format type parameter can be specified on this property and is RECOMMENDED for inline binary encoded content information.

Conformance: This property can be specified multiple times in an iCalendar object, or "VEVENT", "VTODO", or "VJOURNAL" calendar components.

Description: This property specifies an image for an iCalendar object or a calendar component via a uri or directly with inline data that can be used by calendar user agents when presenting the calendar data to a user. Multiple properties MAY be used to specify alternative sets of images with, for example, varying media subtypes, resolutions or sizes. When multiple properties are present, calendar user agents SHOULD display only one of them, picking one that provides the most appropriate image quality, or display none. The "DISPLAY" parameter is used to indicate the intended display mode for the image. The "ALTREP" parameter,

defined in [[RFC5545](#)], can be used to provide a "clickable" image where the URI in the parameter value can be "launched" by a click on the image in the calendar user agent.

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

```
image      = "IMAGE" imageparam ( ":" uri ) /
              (
                ";" "ENCODING" "=" "BASE64"
                ";" "VALUE" "=" "BINARY"
                ":" binary
              ) /
              CRLF

imageparam = *(
              ;
              ; The following is REQUIRED,
              ; but MUST NOT occur more than once.
              ;
              (";" "VALUE" "=" "URI") /
              ;
              ; The following is OPTIONAL for a URI value,
              ; RECOMMENDED for a BINARY value,
              ; and MUST NOT occur more than once.
              ;
              (";" fmttypeparam) /
              ;
              ; The following are OPTIONAL,
              ; and MUST NOT occur more than once.
              ;
              (";" altrepparam) / (";" displayparam) /
              ;
              ; The following is OPTIONAL,
              ; and MAY occur more than once.
              ;
              (";" other-param)
              ;
              )
```

Example: The following is an example of this property:

```
IMAGE;VALUE=URI;DISPLAY=BADGE;FMPTYPE=image/png:h
ttp://example.com/images/party.png
```


6. Property Parameters

6.1. DISPLAY Property Parameter

Parameter Name: DISPLAY

Purpose: To specify different ways in which an image for a calendar or component can be displayed.

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

```
displayparam = "DISPLAY" "=" displayval *("," displayval)
```

```
displayval =  ("BADGE" /      ; image inline with the title of the event
               "GRAPHIC" /   ; a full image replacement for the event
               ; itself
               "FULLSIZE" /  ; an image that is used to enhance the
               ; event
               "THUMBNAIL" / ; a smaller variant of "FULLSIZE" to be
               ; used when space for the image is
               ; constrained
               x-name /      ; Experimental type
               iana-token)   ; Other IANA registered type
               ;
               ; Default is BADGE
```

Description: This property parameter MAY be specified on "IMAGE" properties. In the absence of this parameter, the value "BADGE" MUST be used for the default behavior. The value determines how a client ought to present an image supplied in iCalendar data to the user.

Values for this parameter are registered with IANA as per [Section 8.3](#). New values can be added to this registry following the procedure outlined in [Section 8.2.1 of \[RFC5545\]](#).

Servers and clients MUST handle x-name and iana-token values they don't recognize by not displaying any image at all.

Example:

```
IMAGE;VALUE=URI;DISPLAY=BADGE,THUMBNAIL,;FMTTYPE=image/png:http://example.com/images/weather-cloudy.png
```


6.2. EMAIL Property Parameter

Parameter Name: EMAIL

Purpose: To specify an email address that is used to identify or contact an organizer or attendee.

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

emailparam = "EMAIL" "=" param-value

Description: This property parameter MAY be specified on "ORGANIZER" or "ATTENDEE" properties. This property can be used in situations where the calendar user address value of "ORGANIZER" and "ATTENDEE" properties is not likely to be an identifier that recipients of scheduling messages could use to match the calendar user with, for example, an address book entry. The value of this property is an email address that can easily be matched by recipients. Recipients can also use this value as an alternative means of contacting the calendar user via email. If a recipient's calendar user agent allows the recipient to save contact information based on the "ORGANIZER" or "ATTENDEE" properties, those calendar user agents SHOULD use any "EMAIL" property parameter value for the email address of the contact over any mailto: calendar user address specified as the value of the property. Calendar user agents SHOULD NOT include an "EMAIL" property parameter when its value matches the calendar user address specified as the value of the property.

Example:

```
ATTENDEE;CN=Cyrus Daboo;EMAIL=cyrus@example.com:mailto:opaque-token-1234@example.com
```

7. Security Considerations

Several of the new properties or parameters defined by this specification allow reference to "external" URIs. Care MUST be taken when accessing data at external URIs as malicious content could be present. In addition, access to those URIs could be tracked, leading to loss of privacy.

8. IANA Considerations

8.1. 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
NAME	Current	RFCXXXX, Section 5.1
DESCRIPTION	Current	RFC5545 Section 3.8.1.5 , RFCXXXX, Section 5.2
UID	Current	RFC5545 Section 3.8.4.7 , RFCXXXX, Section 5.3
LAST-MODIFIED	Current	RFC5545 Section 3.8.7.3 , RFCXXXX, Section 5.4
URL	Current	RFC5545 Section 3.8.4.6 , RFCXXXX, Section 5.5
CATEGORIES	Current	RFC5545 Section 3.8.1.2 , RFCXXXX, Section 5.6
REFRESH-INTERVAL	Current	RFCXXXX, Section 5.7
SOURCE	Current	RFCXXXX, Section 5.8
COLOR	Current	RFCXXXX, Section 5.9
IMAGE	Current	RFCXXXX, Section 5.10

8.2. 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
DISPLAY	Current	RFCXXXX, Section 6.1
EMAIL	Current	RFCXXXX, Section 6.2

8.3. Display Types Registry

This document defines the following new iCalendar value registry as per [Section 8.2.6 of \[RFC5545\]](#):

Display Type	Status	Reference
BADGE	Current	RFCXXXX, Section 6.1
GRAPHIC	Current	RFCXXXX, Section 6.1
FULLSIZE	Current	RFCXXXX, Section 6.1
THUMBNAIL	Current	RFCXXXX, Section 6.1

9. Acknowledgments

Thanks to the following for feedback: Bernard Desruisseaux, Mike Douglass, Arnaud Quillaud, and Dave Thewlis. This specification came about via discussions at the Calendaring and Scheduling Consortium.

10. References

10.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC5234] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", STD 68, [RFC 5234](#), January 2008.
- [RFC5545] Desruisseaux, B., "Internet Calendaring and Scheduling Core Object Specification (iCalendar)", [RFC 5545](#), September 2009.
- [W3C.REC-css3-color-20110607]
 Celik, T., Lilley, C., and D. Baron, "CSS Color Module Level 3", World Wide Web Consortium Recommendation REC-css3-color-20110607, June 2011,
<http://www.w3.org/TR/2011/REC-css3-color-20110607>.

10.2. Informative References

- [RFC5546] Daboo, C., "iCalendar Transport-Independent Interoperability Protocol (iTIP)", [RFC 5546](#), December 2009.

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

Changes in -08:

1. Trimmed down the display values to a minimal set.

Changes in -07:

1. Removed ALTURI parameter - now use ALTREP.
2. Removed VALID property.
3. Removed TIMEZONE-ID property.
4. Added FULLSIZE and THUMBNAIL display values.
5. Added EMAIL property parameter.
6. Added LAST-MODIFIED property for use with VCALENDAR.
7. Added CATEGORIES property for use with VCALENDAR.
8. URL use now aligned with 5545.
9. Added SOURCE property.
10. COLOR now uses CSS3 values.

Changes in -06:

1. Removed BROADCAST/CONFERENCE properties and related parameters.

Changes in -05:

1. Added section with recommendation on handling extension properties.
2. Added VALID property.

Changes in -04:

1. TZID changed to new property TIMEZONE-ID.
2. Minor formal syntax changes.

Changes in -03:

1. Dropped CALENDAR- prefix
2. DESCRIPTION, UID and TZID now based on existing [RFC5545](#) properties

3. COLOR now on both the calendar and component level
4. IMAGE now on both the calendar and component level
5. Added FEATURE and REGION parameters to CONFERENCE property
6. Added ALTURI parameter to IMAGE property
7. Added FEED value to FEATURE parameter
8. Added BROADCAST property and clarified that CONFERENCE is for bi-direction channels and BROADCAST is for uni-directional.

Changes in -02:

1. Minor wording changes.
2. Interval is now described as the "minimum interval".
3. Added CONFERENCE property and INFO parameter.

Changes in -01:

1. Fixed DISPLAY parameter handling of x- and iana tokens to state that clients ignore the image if the token is not recognized.
2. Allow language variants for CALENDAR-NAME and CALENDAR-DESCRIPTION.
3. Added registry for DISPLAY values.

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