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**New Properties for iCalendar  
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Abstract

This document defines a set of new properties for iCalendar data.

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.

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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 / url / timezid /
    refresh / valid / color /
    ;
    ; The following are OPTIONAL,
    ; and MAY occur more than once.
    ;
    name / description / 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 /
    ;
    ; The following are OPTIONAL,
```

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```
        ; 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 (a short, one-line description) 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.

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

#### **5.4. 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 specifies a URL from where the calendar data was retrieved or where it can be refreshed.

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

Description: This property specifies a URL identifying the source of the calendar data and a location from where updates can be retrieved.

#### **5.5. TIMEZONE-ID Property**

Property Name: TIMEZONE-ID

Purpose: This property specifies the default time zone identifier for the iCalendar object as a whole.

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.

Description: This property specifies a time zone identifier that represents the default timezone for which floating time or all-day events in the iCalendar object can be assumed to be relative to. It can also be used to choose an initial time zone for use when creating new components in the iCalendar object. A "VTIMEZONE" component having a "TZID" property matching the value specified in this property MUST be present in the iCalendar object.



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

```
timezid      = "TIMEZONE-ID" timezidparam
               ":" text CRLF
               ;Same value syntax as "TZID" property.
```

```
timezidparam = *(";" other-param)
```

Example: The following is an example of this property:

```
TIMEZONE-ID:America/New_York
```

## **5.6. 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
```

### **5.7. VALID Property**

Property Name: VALID

Purpose: This property specifies when the calendar data is valid.

Value Type: DATE-TIME or PERIOD

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 time period for which the calendar data can assumed to be valid. If a "PERIOD" value type is used, the validity is assumed to be a time range defined by the start and end of the period. If a "DATE-TIME" value is used, the date indicates when end date when the calendar data is no longer valid. Once the end date has been reached (or at some convenient time prior) clients SHOULD refresh the calendar data to determine whether an update is available, extending the range of validity. The value MUST be specified in UTC.





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

valid = "VALID" validparam ":" validval CRLF

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

validval = date-time / period  
;Value MUST match value type. Value MUST be in UTC.

Example: The following is an example of this property:

```
VALID;VALUE=DATE-TIME:20120609T000000Z  
VALID;VALUE=PERIOD:20120609T000000Z/P365D
```

### **5.8. COLOR Property**

Property Name: COLOR

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

Value Type: TEXT. The value MUST be three COLON-separated INTEGER values.

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 client MAY use when presenting the relevant data to a user. Typically this would appear as the "background" color of events or tasks. The value MUST be an RGB value with integer value components in the range 0..255. If a color is specified on a "VEVENT", "VTODO" or



"VJOURNAL" that SHOULD override any color specified on the enclosing iCalendar object.

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

```
color           = "COLOR" colorparam ":" colorvalue CRLF
colorparam      = *(";" other-param)
colorvalue      = integer ":" integer ":" integer
                  ; Red, green, and blue values in the range
                  ; 0 - 255.
```

Example: The following is an example of this property:

```
COLOR:255:0:255
```

### **5.9. 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. An "ALTURI" parameter is

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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.
              ;
              (";" alturiparam) / (";" 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=BACKGROUND;FMTPRIME=image/png:h
ttp://example.com/images/party.png
```

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## **6. Property Parameters**

### **6.1. ALTURI Property Parameter**

Parameter Name: ALTURI

Purpose: To specify a URI alternative to a property value.

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

```
alturiparam = "ALTURI" "=" DQUOTE uri DQUOTE
```

Description: This property parameter MAY be specified on "IMAGE" properties.

Example:

```
IMAGE;VALUE=URI;FMPTYPE=image/png:ALTURI="http://example.com/clicked-image1":http://example.com/images/party.png
```

### **6.2. 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" "="  
              ("BADGE" /      ; A small "badge" image  
               "BACKGROUND" / ; Use as a background image  
               "OVERLAY" /    ; Use as an overlay image  
               "BANNER" /     ; Use as a "banner" across the top  
               x-name /       ; Experimental type  
               iana-token)    ; Other IANA registered type  
                               ;  
                               ; Default is BADGE
```

Description: This property parameter MAY be specified on "IMAGE" or "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.



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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=BANNER;FMTTYPE=image/png:http://example.com/images/weather-cloudy.png
```

## 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, <a href="#">Section 5.1</a>
DESCRIPTION	Current	<a href="#">RFC5545 Section 3.8.1.5</a> , RFCXXXX, <a href="#">Section 5.2</a>
UID	Current	<a href="#">RFC5545 Section 3.8.4.7</a> , RFCXXXX, <a href="#">Section 5.3</a>
URL	Current	<a href="#">RFC5545 Section 3.8.4.6</a> , RFCXXXX, <a href="#">Section 5.4</a>
TIMEZONE-ID	Current	RFCXXXX, <a href="#">Section 5.5</a>
REFRESH-INTERVAL	Current	RFCXXXX, <a href="#">Section 5.6</a>
VALID	Current	RFCXXXX, <a href="#">Section 5.7</a>
COLOR	Current	RFCXXXX, <a href="#">Section 5.8</a>
IMAGE	Current	RFCXXXX, <a href="#">Section 5.9</a>

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## 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
ALTURI	Current	RFCXXXX, <a href="#">Section 6.1</a>
DISPLAY	Current	RFCXXXX, <a href="#">Section 6.2</a>

## 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, <a href="#">Section 6.2</a>
BACKGROUND	Current	RFCXXXX, <a href="#">Section 6.2</a>
OVERLAY	Current	RFCXXXX, <a href="#">Section 6.2</a>
BANNER	Current	RFCXXXX, <a href="#">Section 6.2</a>

## 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.



## **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 -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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